2018 NORTH AMERICAN FEDERATION OF ADAPTED PHYSICAL ACTIVITY SYMPOSIUM
“Individuals, Communities and Beyond: Promoting Full Participation and Well-Being for All”

When: October 1-3, 2018
Where: Oregon State University, Corvallis
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Welcome to the 2018 NAFAPA Symposium

Welcome to the 2018 North American Federation of Adapted Physical Activity Symposium. I am welcoming you on behalf of the Oregon State University College of Public Health and Human Sciences and the Organizing Committee. It is truly exciting to invite adapted physical activity professionals to our town and Oregon State University Campus. It is a great honor to have scholars from around the world!

Our vision at the College of Public Health and Human Sciences is lifelong health and well-being for every person, every family, every community in Oregon and beyond. I am excited about the conference theme, “Individuals, Communities, and Beyond: Promoting Full Participation and Well-being for All” which is closely aligned with this vision. Particularly as an international scholar myself, I admire your objectives to represent and advocate for true participation and well-being for all members of a diverse community.

Our adapted physical activity program and professionals like you, establish evidence-based practices and programs that make lifelong healthy behaviors for persons with disabilities a possibility. I hope this symposium will enlighten you to innovative approaches to adapted physical activity and health and build collaborative relationships to expand opportunities to those with disabilities worldwide.

While attending NAFAPA 2018, remember to visit the historic downtown Corvallis or experience the many outdoor hiking and biking trails. Whether experiencing the town as a first-time visitor or returning alumnus, I hope that you are also able to enjoy all that Corvallis has to offer.

F. Javier Nieto, MD, PhD, MPH, MHS
Dean
College of Public Health and Human Sciences
Oregon State University
Message from the NAFAPA President

On behalf of the NAFAPA Officers, I would like to welcome participants of the 14th biennial North American Federation of Adapted Physical Activity Symposium in Corvallis, Oregon.

The theme of the 2018 symposium is particularly inclusive: Individuals, Communities and Beyond: Promoting Full Participation and Well-Being for All. The NAFAPA symposium is an opportunity for researchers, students, and clinicians to connect, learn, and share ideas that will shape the future of Adapted Physical Activity.

As we continue our efforts to promote the health and well-being of individuals who experience disabilities, the symposium is a valuable opportunity to disseminate findings and to inspire innovative research. Please enjoy your visit to Corvallis and the NAFAPA 2018 symposium.

Heidi Stanish, Ph.D.
NAFAPA President

Welcome from NAFAPA Organizing Chair

On behalf of the organization committee, I am delighted to welcome presenters and delegates from the Adapted Physical Activity research group in Canada, the United States and across the world.

Since the first conference at McGill University, Montreal Canada in 1992, there is no doubt that the conference has been the most significant research conference in adapted physical activity. Researchers and scholars have freely exchanged ideas and made a significant impact on our field. I, personally, have learned so much from the 12 NAFAPA conferences I have attended in the past. We are truly honored to host the conference and contribute to building the legacy of research that makes differences in the lives of individuals with disabilities.

The theme of the 2018 NAFAPA conference is “Individuals, Communities, and Beyond: Promoting Full Participation and Well-being for All.” We have invited outstanding scholars who conduct disability research, but may not have been a part of the North American Adapted Physical Activity family in the past. I am excited to hear their perspectives to carry the conference theme forward and also learn from different perspectives to build our future.

Engaging in scientific endeavors is always exciting, but we also hope you have time to enjoy the beautiful Willamette Valley, which is nestled between the Coast Range and the Cascade Mountains. I hope you have time to visit local wineries and microbreweries. October will be a fantastic time to enjoy the many running trails that Corvallis offers.

Joonkoo Yun
Symposium Chair
### Board of the North American Federation of Adapted Physical Activity

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<thead>
<tr>
<th>Position</th>
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<tr>
<td>President:</td>
<td>Heidi Stanish</td>
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<td>President Elect:</td>
<td>Stamatis Agiovlasitis</td>
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<td>Past President</td>
<td>Susan Kasser</td>
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<td>Secretary</td>
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<td>NAFAPA Representative to IFAPA</td>
<td>So-Yeon Kim</td>
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<td>Michaela Schenkelberg</td>
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<td>Student Representatives</td>
<td>Yumi Kim</td>
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### Organizing Committee

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<tr>
<td>Jennifer Beamer</td>
<td>Oregon State University</td>
<td>Layne Case</td>
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<td>Alicia Dixon-Ibarra</td>
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<td>Sam Logan</td>
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<td>Joonkoo Yun</td>
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<td>Megan MacDonald</td>
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<td>Kathleen McCarty</td>
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### Review Committee for the Patricia Austin Award

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<td>Stamatis Agiovlasitis</td>
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<td>John T. Foley</td>
<td>State University of New York – Cortland</td>
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<td>Meghann Lloyd</td>
<td>University of Toronto Institute of Technology</td>
<td>Sam Logan</td>
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<td>Nancy Spencer-Cavaliere</td>
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### Review Committee for the Greg Reid Graduate Student Poster Award

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<td>Robert Arnhold</td>
<td>Slippery Rock University</td>
<td>Janice Causgrove Dunn</td>
<td>University of Alberta</td>
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<td>John Foley</td>
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<td>Georgia Frey</td>
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<td>Sean Healy</td>
<td>University of Delaware</td>
<td>Marquell Johnson</td>
<td>University of Wisconsin Eau Claire</td>
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<td>Susan Kasser</td>
<td>University of Vermont</td>
<td>Lauren Lieberman</td>
<td>State University of New York – Brockport</td>
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<td>Jeff McCubbin</td>
<td>Colorado State University</td>
<td>Andy Pitchford</td>
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<td>Deborah Shapiro</td>
<td>Georgia State University</td>
<td>Heidi Stanish</td>
<td>University of Massachusetts - Boston</td>
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<td>Andrea Taliaferro</td>
<td>University of West Virginia</td>
<td>Amanda Tepfer</td>
<td>State University of New York – Cortland</td>
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<td>Teri Todd</td>
<td>California State University - Northridge</td>
<td>Dale Ulrich</td>
<td>University of Michigan</td>
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## Scientific Committee

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<tr>
<td>Melissa Bittner</td>
<td>California State University - Long Beach</td>
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<td>Rebecca Bryan</td>
<td>State University of New York – Cortland’</td>
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<td>Andrew Columbus-Douqovito</td>
<td>University of North Texas</td>
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<td>Suzanna Dillon</td>
<td>Texas Women’s University</td>
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<tr>
<td>Alicia Dixon-Ibarra (Chair)</td>
<td>Oregon State University</td>
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<tr>
<td>Simon Driver</td>
<td>Baylor Institute for Rehabilitation</td>
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<td>Phil Esposito</td>
<td>Texas Christian University</td>
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<td>Justin Haegele</td>
<td>Old Dominion University</td>
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<td>Marquell Johnson</td>
<td>University of Wisconsin - Eau Claire</td>
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<td>Catherine MacDonald</td>
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<td>Laurie Malone</td>
<td>Lake Shore Foundation</td>
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<td>Iva Obrusnikova</td>
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<td>Nancy Spencer-Cavaliere</td>
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<td>Kerri Staples</td>
<td>University of Michigan</td>
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<td>Dan Tindall</td>
<td>University of Limerick</td>
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Keynote Speakers

Robert Motl, Ph.D.
Professor and Director of Research,
Department of Physical Therapy,
University of Alabama

Dr. Robert Motl has systematically developed a research agenda that focuses on physical activity and its measurement, predictors, and consequences in persons with neurological diseases, particularly multiple sclerosis (MS).

Prof. Motl has generated a body of research on the validity of common physical activity measures in persons with MS. This has resulted in foundational research on quantifying differences in physical activity, particularly rates of moderate-to-vigorous physical activity, in persons with MS.

These two lines of research have provided the basis for examining the outcomes of physical activity in MS, particularly beneficial adaptations in brain structure, cognition, depression, fatigue, walking disability, and quality of life. Prof. Motl has undertaken research on social-cognitive predictors of physical activity that has informed the design of behavioral interventions for increasing physical activity in MS. This agenda serves as a test-bed for application and expansion into other conditions such as spinal cord injury and Parkinson’s disease.

Myriam Guerra-Balic, M.D., Ph.D.
Professor and Head of Department
Department of Sport Sciences,
Universitat Ramon Llull
Barcelona, Spain

Dr. Myriam Guerra-Balic, is a professor in the Faculty of Psychology, Education and Sport Sciences – Blanquerna, University Ramon Llull (URL). She is a Medical Doctor specialized in Sport Medicine, with a Doctoral Degree that was developed on Exercise Physiology and Down Syndrome. She became a full professor of Exercise Physiology since 2001. She was the International Relations Vice-Dean at the URL for 9 years coordinating national and international exchange programs, cooperation programs and research mobilities for students and professors of her institution, as well as international research programs.

Myriam’s lecture is co-sponsored by Oregon State University’s President’s Commission on the Status of Women.
Dr. Kathleen Bogart is Associate Professor of Psychology and Director of the Disability and Social Interaction Lab at Oregon State University. She is a social/health psychologist specializing in ableism and facial paralysis. She has received grants from the National Institutes of Health, Good Samaritan Hospital (Erkkila Endowment), and the Moebius Syndrome Foundation. She also serves as Consulting Editor for the American Psychological Association journal Rehabilitation Psychology. In 2016, Dr. Bogart was named "Professor of the Term" by the Panhellenic Executive Council of Oregon State University.

Her research focuses on the forgotten “ism,” ableism, or prejudice towards disability. She studies disability from a social psychological perspective, examining others’ attitudes toward disability and the way people with disabilities adapt to their conditions and manage stigma.

Dr. Sam Logan's research agenda focuses on the health and wellbeing of typically developing children and children with disabilities, with recent work emphasizing the role of independent mobility in the development of language, cognition, play interactions, and motor behaviors of children diagnosed with cerebral palsy, spina bifida, Down syndrome, and other significant physical and cognitive diagnoses. His research is interdisciplinary in nature, bridging the fields of Kinesiology, Psychology and Pediatric Rehabilitation.
LaSells Stewart Center and CH2M Hill Alumni Center Floor Map
<table>
<thead>
<tr>
<th>Time</th>
<th>Room (Topic)</th>
<th>Session Type</th>
<th>Presenter(s)</th>
<th>Title</th>
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<tbody>
<tr>
<td>9:00-9:30</td>
<td>Gallery</td>
<td>Verbal presentation</td>
<td>Hannah Yang</td>
<td>The Case Study about Effects of a Daily Rhythmic Aerobic Exercise Routine on Health Related Physical Fitness in Adults with Intellectual Disabilities</td>
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<tr>
<td>9:30-9:45</td>
<td>Ag Leaders Room (Exercise and Fitness Performance)</td>
<td>Verbal presentation</td>
<td>Shannon Ringenbach &amp; Nathaniel Arnold</td>
<td>Assisted Cycle Therapy (ACT) improved Self-Efficacy and Exercise Perception in Older Adults with Down syndrome</td>
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<td>9:45-10:00</td>
<td>9:45-10:00</td>
<td>Verbal presentation</td>
<td>Yonjoong Ryuh</td>
<td>The effects of inclusive soccer class on physical fitness and skill performance in college students with and without Intellectual Disabilities</td>
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<tr>
<td>10:00-10:15</td>
<td>10:00-10:15</td>
<td>Verbal presentation</td>
<td>Iva Obrusnikova, Melissa Learish, &amp; Ashley Steinbrecher</td>
<td>Promoting Exercise Performance in Adults with Intellectual Disabilities through Visual Schedules and Systematic Prompting: Preliminary Findings</td>
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<td>10:15-10:30</td>
<td>10:15-10:30</td>
<td>Verbal presentation</td>
<td>Gwang-Yon Hwang</td>
<td>The Effects of Aquatic Exercise Program on Functional Mobility for Adults with Stroke</td>
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<td>10:30-10:45</td>
<td>10:30-10:45</td>
<td>Building Session</td>
<td>Jeff McCubbin, John M. Dunn, Joonkoo Yun, &amp; Megan MacDonald</td>
<td>Building Capacity for Adapted Physical Activity : Oregon State University’s Story</td>
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<tr>
<td>9:30 - 10:45</td>
<td>Construction and Engineering Hall</td>
<td>Building Session</td>
<td>Jeff McCubbin, John M. Dunn, Joonkoo Yun, &amp; Megan MacDonald</td>
<td>Building Capacity for Adapted Physical Activity : Oregon State University’s Story</td>
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<td>9:30-9:45</td>
<td>Ag Science Room (Sport and Athlete Experiences)</td>
<td>Verbal presentation</td>
<td>Exploring the experiences of athletes with disabilities: Factors that contribute to recruitment and long-term engagement</td>
<td>Nima Dehghansai</td>
</tr>
<tr>
<td>9:45-10:00</td>
<td>Verbal presentation Tessa Roche</td>
<td>Heart rate controlled exercise as part of a return to play protocol following an athlete acute concussion injury: A case report</td>
<td>Tessa Roche</td>
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<tr>
<td>10:00-10:15</td>
<td>Verbal presentation Andy Wei-Ru Yao</td>
<td>Extending the Notion of Sport Committee Model for Athletes with Physical Disability</td>
<td>Andy Wei-Ru Yao</td>
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<tr>
<td>10:15-10:30</td>
<td>Verbal presentation Nancy Spencer-Cavaliere</td>
<td>Field(s) of Dreams: Embracing Multiple Pathways Through Sport</td>
<td>Nancy Spencer-Cavaliere</td>
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<tr>
<td>10:30-10:45</td>
<td>Verbal presentation Deborah Shapiro</td>
<td>Examining the Health Benefits of a Youth Wheelchair Basketball Program</td>
<td>Deborah Shapiro</td>
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<tr>
<td>9:30 - 10:10</td>
<td>Ag Production Room (Biomechanics, Balance and Gait)</td>
<td>Thematic Poster</td>
<td>Kinematic Analysis of Gait Symmetry Among College Students With and Without ASD</td>
<td>Melissa A. Mache &amp; Teri Todd</td>
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<td>Thematic Poster Yongho Lee</td>
<td>A creative dance program improve a mobility in people with cerebral palsy</td>
<td>Yongho Lee</td>
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<td>Thematic Poster Fabio Bertapelli</td>
<td>Balance capacities of age matched Brazilian and American male and female youth with Down syndrome: A comparative study</td>
<td>Fabio Bertapelli</td>
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<td>Thematic Poster Leah Goudy</td>
<td>Effects of Simulated Horseback Riding on Balance and Quality of Life in Older Adults with Parkinson's Disease</td>
<td>Leah Goudy</td>
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<td>Thematic Poster Magda Barros</td>
<td>Association between balance proficiency and physical activity levels in children and adolescents with Down syndrome</td>
<td>Magda Barros</td>
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<tr>
<td>10:20 - 10:55</td>
<td>Thematic Poster Maria Zanandrea</td>
<td>Infusing Disability Examples into Motor Learning Course for PETE Majors</td>
<td>Maria Zanandrea</td>
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<td>Thematic Poster Erin Ashleigh Siebert</td>
<td>Physical Educator’s Awareness and Implementation of Inclusive Extracurricular Athletics for Students with Disabilities</td>
<td>Erin Ashleigh Siebert</td>
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<td>Thematic Poster Hyunkyoung Oh, MiHye Jeong, and So-Yeon Kim,</td>
<td>Determinants of Pre-Service Physical Educators’ Emotional Reaction to Challenging Behaviors</td>
<td>Hyunkyoung Oh, MiHye Jeong, and So-Yeon Kim,</td>
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<td>10:45- 11:00</td>
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<tr>
<td>11:00-11:45</td>
<td><strong>Ag Leaders Room</strong></td>
<td>Building Session</td>
<td>F. Mike Kozub</td>
<td>Physical activity as an evidence-based practice: What outcome variables does the literature support</td>
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<td>11:00-11:45</td>
<td><strong>Construction and Engineering Hall</strong></td>
<td>Mini-Lecture</td>
<td>Dale Ulrich</td>
<td>A Review of the Psychometric Properties of the TGMD-3 from Several Countries: Application for Improving Research in Motor Development &amp; Children with Disabilities</td>
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<tr>
<td>11:00-11:45</td>
<td><strong>Ag Production Room</strong></td>
<td>Building Session</td>
<td>Robert Arnhold &amp; Marena Toth</td>
<td>Growing Together Aquaponics: A Transition Program Promoting Employment and Increased Quality of Life of Students with Intellectual Disabilities.</td>
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<td>11:00-11:15</td>
<td><strong>Ag Science Room</strong></td>
<td>Verbal Presentation</td>
<td>Dominique K. Walker</td>
<td>Do Differences Exist in Sedentary Activity between Children with Autism Spectrum Disorder and Down Syndrome?</td>
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<td>11:00-11:15</td>
<td><strong>(Physical Activity and Exercise Levels)</strong></td>
<td>Verbal Presentation</td>
<td>Sang Ouk Wee</td>
<td>Effect of Acute Aerobic Exercise on Cerebral Blood Flow and Cognitive Function in Individuals with Down Syndrome</td>
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<tr>
<td>11:30-11:45</td>
<td><strong>(Physical Activity and Exercise Levels)</strong></td>
<td>Verbal Presentation</td>
<td>Ali Brian &amp; J. Megan Irwin</td>
<td>Fundamental motor skill and physical activity levels of individuals with visual impairments in the United States, Latvia, and Bangladesh: Preliminary evidence for a proficiency barrier?</td>
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<td>11:30-1:00</td>
<td><strong>Wells Fargo Room</strong></td>
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<td><strong>APAQ Board Meeting</strong></td>
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<td><strong>Lunch Break</strong></td>
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<td>1:00-1:15</td>
<td>Ag Science Room</td>
<td>Verbal</td>
<td>Laurie A. Malone</td>
<td>Comparison of Off-the-Shelf and Adapted Active Video Gaming Mats for Individuals with Mobility Impairments</td>
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<tr>
<td>1:15-1:30</td>
<td>Ag Science Room</td>
<td>Verbal</td>
<td>Iva Obrusnikova</td>
<td>A comparison of the systems of most-to-least and least-to-most prompting on the acquisition of muscle-strengthening exercises by adults with intellectual disabilities</td>
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<tr>
<td>1:30-1:45</td>
<td>Ag Science Room</td>
<td>Verbal</td>
<td>Kyra Noerr</td>
<td>The Influence of a Home-Based Adapted Physical Activity DVD for Individuals with Intellectual Disabilities</td>
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<tr>
<td>1:45-2:00</td>
<td>Ag Science Room</td>
<td>Verbal</td>
<td>Loriane Favoretto</td>
<td>The Effects of Video Models on Tennis Skills in Adults with Disabilities</td>
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<td>2:00-2:15</td>
<td>Ag Science Room</td>
<td>Verbal</td>
<td>Simon D. Holzapfel</td>
<td>Outcomes and Challenges after 1 Year of the Exercise Program for Adults with Down Syndrome</td>
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<tr>
<td>1:00-1:15</td>
<td>Ag Science Room</td>
<td>Student</td>
<td>Laura Andrea Prieto, &amp; Luis Columna</td>
<td>Dance Intervention for children with Down Syndrome and their Parents</td>
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<tr>
<td>1:15-1:30</td>
<td>Ag Science Room</td>
<td>Student</td>
<td>Rebecca Rubuliak</td>
<td>Inclusion in Recess Understood from the Perspectives of Children Experiencing Disability</td>
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<tr>
<td>1:30-1:45</td>
<td>Ag Science Room</td>
<td>Student</td>
<td>Stephanie DiMaurizio, &amp; Maureen Connelly</td>
<td>It Takes A Village: Disability and Family Life, A Phenomenological Exploration of Siblings’ Experience</td>
</tr>
<tr>
<td>1:45-2:00</td>
<td>Ag Science Room</td>
<td>Student</td>
<td>Byungmo Ku, &amp; Megan MacDonald</td>
<td>Parental influences on physical activity behaviors in young children with developmental disabilities</td>
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<tr>
<td>2:00-2:15</td>
<td>Ag Science Room</td>
<td>Student</td>
<td>Lu Qu, &amp; Dale Ulrich</td>
<td>Alleviating Stress and Anxiety Outcomes for Parents of Children with Autism Spectrum Disorders through Family-Centered Early Intervention</td>
</tr>
<tr>
<td>2:15-2:30</td>
<td>Ag Science Room</td>
<td>Student</td>
<td>Seo Hee Lee, Suzanna Rocco Dillon, &amp; Mary Amanda Stewart</td>
<td>Positioning of Korean Immigrant Parents of Children with Autism on Physical Education Programming in the United States</td>
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### Monday, October 1

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Building Session</th>
<th>Presenters</th>
<th>Title</th>
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<tbody>
<tr>
<td>1:00-2:15</td>
<td>Ag Leaders Room</td>
<td>Maureen Connolly</td>
<td>Simple Tools for Complex People</td>
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<td></td>
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<td></td>
<td>Amended Young &amp; Lisa Silliman-French</td>
<td>Effect of Adapted Physical Education and Homework on Gross Motor Development for Young Children with Down Syndrome</td>
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<td>David Adams, PhD &amp; Lisa Silliman-French, PhD</td>
<td>Improving the Overhand Throwing Performance of Children with Autism Spectrum Disorder</td>
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<td>Amanda Tepfer</td>
<td>Movement-Based &quot;Circle Time&quot; Games to Improve At-Risk Preschoolers Motor Skills</td>
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<tr>
<td>1:00-1:40</td>
<td>Ag Production Room (Motor Skill Development)</td>
<td>Thematic Poster</td>
<td>Amanda Young &amp; Lisa Silliman-French</td>
<td>Effect of Adapted Physical Education and Homework on Gross Motor Development for Young Children with Down Syndrome</td>
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<td>David Adams, PhD &amp; Lisa Silliman-French, PhD</td>
<td>Improving the Overhand Throwing Performance of Children with Autism Spectrum Disorder</td>
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<tr>
<td>1:50-2:30</td>
<td>Ag Production Room (PE/APE Experiences)</td>
<td>Thematic Poster</td>
<td>Justin A. Haegele</td>
<td>Females with Visual Impairments in Physical Education: Exploring the Intersection between Disability and Gender Identities</td>
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<td>Sara Johnson, M.S., ATC, Louisa A. Summers, Ph.D.</td>
<td>Locomotor skills development in response to an electronic visual exercise system in children with sensory impairments</td>
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<td>E. Andrew Pitchford</td>
<td>An Examination of Clinical Sensitivity for the TGMD-3 with Children with Disabilities from the National Normative Sample</td>
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<td>Julian Petrachenko</td>
<td>Confident Healthy Active Role Models (CHARM): Examining blend synergies between Teaching Personal &amp; Social Responsibility (TPSR) and Arts-based educational strategies for transition aged youth experiencing mental-health challenges.</td>
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<td>Chantelle Zimmer, &amp; Janice Causgrove Dunn</td>
<td>Experiences of stress in physical education for elementary school children with movement difficulties</td>
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<td>Marcos Barros-Filho</td>
<td>Gender differences in the physical activity levels of youth with Down syndrome during physical education lessons</td>
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<td>So-Yeun Kim, &amp; Lauriece L. Zittel</td>
<td>Physical and social behaviors of preschoolers with and without disabilities during unstructured playtime</td>
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### Monday, October 1

<table>
<thead>
<tr>
<th>Time</th>
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<th>Activity</th>
<th>Presenters</th>
<th>Topics</th>
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<tbody>
<tr>
<td>2:30-2:45</td>
<td></td>
<td>Break</td>
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<tr>
<td>2:45-4:00</td>
<td>Construction and Engineering Hall</td>
<td>Building Session</td>
<td>Jennifer Taylor-Winney, Kerri A. Vanderbom, Jennifer Beamer &amp; Gloria Krahn</td>
<td>Translating APE research to community based youth development programs</td>
</tr>
<tr>
<td>2:45-3:00</td>
<td>Ag Leaders Room</td>
<td>Verbal Presentation</td>
<td>Stamatis Agiovlasitis</td>
<td>Sedentary behavior in people with Down syndrome across the lifespan: A systematic review</td>
</tr>
<tr>
<td>3:00-3:15</td>
<td>(Physical Activity Behavior)</td>
<td>Verbal Presentation</td>
<td>Susan L. Kasser, PhD</td>
<td>Spousal Support and the Self-Determined Physical Activity Behavior in Adults with Multiple Sclerosis</td>
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<tr>
<td>3:15-3:30</td>
<td></td>
<td>Verbal Presentation</td>
<td>Myung Ha Sur</td>
<td>A systematic review of application of Theory of Planned Behavior to physical activity of adults with physical disabilities</td>
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<tr>
<td>3:30-3:45</td>
<td></td>
<td>Verbal Presentation</td>
<td>Andrew M. Colombo-Dougovito, &amp; Jihyun Lee</td>
<td>A systematic review of social skills common to physical activity-based interventions for individuals on the autism spectrum</td>
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<td>3:45-4:00</td>
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<td>Verbal Presentation</td>
<td>MooSong Kim, Jaehun Jung, &amp; Maria Kosma</td>
<td>Children’s Physical Activity Participation by Disability Existence, Gender, and Age</td>
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<tr>
<td>2:45-3:00</td>
<td>Ag Science Room</td>
<td>Student Presentation</td>
<td>Jodi Stinson</td>
<td>The Relationship Between Motor Skill Development and Emotional Development in Young Children with Developmental Disabilities</td>
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<td>3:00-3:15</td>
<td></td>
<td>Student Presentation</td>
<td>Carissa Wengrovius</td>
<td>The Effects of a School Yoga Program on Children’s Core Strength, Postural Control, and Motor Coordination</td>
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<tr>
<td>3:15-3:30</td>
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<td>Student Presentation</td>
<td>Ming-Chih Sung</td>
<td>Effects of Open- and Closed-Skill Exercise Interventions on Motor Skills and Executive Function of Children with Autism Spectrum Disorder</td>
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<tr>
<td>3:30-3:45</td>
<td></td>
<td>Student Presentation</td>
<td>Kathleen McCarty, Antoinette Domingo, &amp; Megan MacDonald</td>
<td>In pursuit of health equity for collegiate athletes with physical disabilities: Audit of program availability and characteristics within the United States</td>
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<tr>
<td>3:45-4:00</td>
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<td>Student Presentation</td>
<td>Larken Marra, &amp; Dale Ulrich</td>
<td>Active Play as a Means to Positively Affect Gait in Children with Cerebral Palsy after Onset of Stable Gait</td>
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<tr>
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</table>
| 2:45-3:30  | Ag Production Room (College Student Experiences with Disability) | Thematic Poster
Alexandra Szarabajko
Obesity and Perceived Exercise Benefits and Barriers Among College Students
Thematic Poster
Dal-Hyun Moon
Guidelines for implementing university/college physical activity courses and programs for students with disabilities
Thematic Poster
Cathy MacDonald, Rebecca Bryan John Foley, & Lauren Lieberman
You think differently after playing this sport’: Experiences of collegiate goalball players
Thematic Poster
Christina Cafferata Jenna Fitzgerald
The effect of an education intervention on undergraduate students’ attitudes toward people with disabilities and self-directed mobility |
| 4:00-4:10  | Break                             | Break                                                                 |
| 4:10-4:40  | Construction and Engineering Hall  | Opening Ceremony                                                      |
| 4:40-5:30  | Construction and Engineering Hall  | Keynote
Sam Logan
Modified Ride-on Cars: A Social Justice Approach to Mobility |
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<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Poster Number</th>
<th>Presenter</th>
<th>Title</th>
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<tbody>
<tr>
<td>5:30-7:00</td>
<td>Gallery</td>
<td>1</td>
<td>Amanda Yessick</td>
<td>Exploring the Experiences of Children with Autism Spectrum Disorder in Self-contained Physical Education: A Modified Scrapbooking Study</td>
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<tr>
<td></td>
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<td>2</td>
<td>Brianne M. Rajala, Isabella T. &amp; Felzer-Kim, Janet L. Hauck</td>
<td>Differences in fundamental movement skills of children with Autism Spectrum Disorder and Down Syndrome</td>
</tr>
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<td>3</td>
<td>Bridgette Schram</td>
<td>Aquatic director disability orientation and their intentions to provide opportunities for children with disabilities</td>
</tr>
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<td>4</td>
<td>Christina Cafferata, &amp; Tyler Fechtel</td>
<td>Movement Matters: Displacement, Dispersion, and Physical Activity of Young Children During an Inclusive Playgroup</td>
</tr>
<tr>
<td></td>
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<td>5</td>
<td>Chun-Wei Chang</td>
<td>Pilot evaluation of the Special Olympics’ Oregon Team Wellness physical activity and nutrition program.</td>
</tr>
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<td>6</td>
<td>Erin Snapp</td>
<td>The Relationship Between Quality of Life, Gross Motor Function, and Physical Activity for Children with Developmental Disabilities</td>
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<td>7</td>
<td>Hayley Morrison</td>
<td>Constructing collaborative learning experiences for teaching inclusive physical education</td>
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<td>8</td>
<td>Jian Xu</td>
<td>Associations of physical performance with physical activity and sedentariness in adults with intellectual disabilities</td>
</tr>
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<td>9</td>
<td>Kirsti Van Dornick</td>
<td>What’s in a Number? The Classification Experiences of Para-swimmers.</td>
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<td>10</td>
<td>Kyla Collins</td>
<td>Postural control and functional mobility in individuals with intellectual and developmental disabilities</td>
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<td>11</td>
<td>Laura St.John</td>
<td>Enjoyment of PE of Children with and without Developmental Coordination Disorder: A Longitudinal Study</td>
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<td>12</td>
<td>Matthew Patey</td>
<td>Students’ Perceptions Toward Inclusive Physical Education: A Systematic Review</td>
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<td>13</td>
<td>Poram Choi</td>
<td>Prediction of Energy Expenditure Using a Pedometer in Adults with and without Down syndrome</td>
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<td>14</td>
<td>Teri Todd, &amp; Bordin Endinjok</td>
<td>Overhand Throwing in Young Adults with Autism</td>
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<td>15</td>
<td>Wesley J. Wilson</td>
<td>The Implementation of Least Restrictive Environment of Physical and Adapted Physical Educators</td>
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<tr>
<td></td>
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<td>16</td>
<td>Yongho Lee</td>
<td>A study on child abuse of children with disabilities in Korean adapted physical education field</td>
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<td></td>
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<td>17</td>
<td>Yumi Kim</td>
<td>Immediate and sustained effects of exercise promotion interventions on physical activity behavior in people with multiple sclerosis: A meta-analysis of randomized controlled trials</td>
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<td>Time</td>
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<td>Session Type</td>
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<tr>
<td>8:00 - 8:15</td>
<td>Ag Leaders Room (Exercise and Motor Performance of Children with Disabilities)</td>
<td>Verbal Presentation</td>
<td>Emily Bremer</td>
<td>A pilot study of the acute effect of exercise on the sustained attention of children with autism spectrum disorder</td>
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<tr>
<td></td>
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<td>Verbal Presentation</td>
<td>TAN S Y Jernice</td>
<td>The Comparison of Young children’s Motor Skills in Singapore and the UK</td>
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<td>Verbal Presentation</td>
<td>Hyokju Maeng</td>
<td>Reliability of TGMD-3 in children with developmental disabilities</td>
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<tr>
<td>8:00-8:45</td>
<td>Ag Science Room</td>
<td>Mini-Lecture</td>
<td>Layne Case, &amp; Samantha Ross</td>
<td>Medical versus Social Perspectives of Disability: Adding Both to our Professional Toolbox</td>
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<tr>
<td>8:00-8:45</td>
<td>Construction and Engineering Hall</td>
<td>Mini-Lecture</td>
<td>Melissa Pangelinan</td>
<td>Neuroplasticity as a framework for the development and measurement of adapted physical activity and sport interventions in children with developmental disabilities</td>
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<tr>
<td>8:00-8:45</td>
<td>Ag Production Room (Policy and Planning Strategies)</td>
<td>Thematic Poster</td>
<td>Jafra D. Thomas, Brad Cardinal</td>
<td>Supporting Full Participation and Well-Being for All: Are Resources Suitable for Adapted Physical Activity Promotion?</td>
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<td>Thematic Poster</td>
<td>Brenda Rossow-Kimball</td>
<td>Creating Space for Young Adults with Complex Physical Disabilities to Express Preferences for Meaningful Physical Activity</td>
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<td>Thematic Poster</td>
<td>Andrea Taliaferro, Robert Posehn</td>
<td>Using a SWOT Analysis to Inform Strategic Planning for Inclusion in Community-based Physical Activity Programs</td>
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<td>Thematic Poster</td>
<td>John T. Foley, Catherine MacDonald, Rebecca Bryan</td>
<td>Policy Analysis of Physical Activity Policies and Recommendations for Individuals with Intellectual Disabilities Residing in Group Homes</td>
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<td>8:45-8:50</td>
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<tr>
<td>8:50-9:45</td>
<td>Construction and Engineering Hall</td>
<td>Keynote</td>
<td>Kathleen Bogart</td>
<td>Subverting Ableism Through the Social Model and Disability Pride</td>
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<td>9:45-10:00</td>
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<td>10:00-10:15</td>
<td>Construction and Engineering Hall</td>
<td>Verbal Presentation</td>
<td>Meghan Bouman</td>
<td>The Perceptions of People with Disabilities towards a Physical Activity Program</td>
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<td>10:15-10:30</td>
<td>Construction and Engineering Hall</td>
<td>Verbal Presentation</td>
<td>Mai Narasaki-Jara</td>
<td>Reconsidering Ability: Kinesiology students’ perception towards people with disabilities</td>
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<td>10:30-10:45</td>
<td>Construction and Engineering Hall</td>
<td>Verbal Presentation</td>
<td>Amanda Ebert</td>
<td>Sand in the shorts: Experiences of moral discomfort in adapted physical activity professional practice</td>
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<td>10:45-11:00</td>
<td>Construction and Engineering Hall</td>
<td>Verbal Presentation</td>
<td>Donna Goodwin</td>
<td>Ethical questions embedded in professional preparation practices in inclusive physical education</td>
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<tr>
<td>11:00-11:15</td>
<td>Construction and Engineering Hall</td>
<td>Verbal Presentation</td>
<td>Melissa Alexander</td>
<td>Preparing Athletic Trainers to Provide Services for People with Disabilities</td>
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<td>10:00-11:15</td>
<td>Ag Leaders Room</td>
<td>Building Session</td>
<td>Donna Bainbridge, &amp; Abby Fines</td>
<td>Envisioning Systems Change to Advance Fitness and Inclusion for All</td>
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<tr>
<td>10:00-10:15</td>
<td>Ag Science Room</td>
<td>Student Presentation</td>
<td>Gianpietro Elias, &amp; Luis Columna</td>
<td>Taekwon-Do Intervention on balance in children with autism</td>
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<tr>
<td>10:15-10:30</td>
<td>Ag Science Room</td>
<td>Student Presentation</td>
<td>Alexandra Stribing, &amp; Ali Brian</td>
<td>Investigating parent-child relation-inferred self-efficacy of motor competence and its relationship with physical activity behaviors for those with visual impairments</td>
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<td>10:30-10:45</td>
<td>Ag Science Room</td>
<td>Student Presentation</td>
<td>Younghoon Lee, &amp; Kyoung June Yi</td>
<td>Understanding ‘responsiveness’ from the perspectives of physical and health education teachers in inclusive learning environments</td>
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<tr>
<td>10:45-11:00</td>
<td>Ag Science Room</td>
<td>Student Presentation</td>
<td>Caitlin Riddoch</td>
<td>&quot;As He Gets Weaker, I Need to Get Stronger&quot;: Exploring Familial Relationships through Reverse Integration within a Segregated Adapted Physical Activity Setting</td>
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<tr>
<td>11:00-11:15</td>
<td>Ag Science Room</td>
<td>Student Presentation</td>
<td>Anthony Bourque</td>
<td>Pop-up Adventure Playgrounds: Exploring a Grassroots Movement Towards Enriching Children’s Play Experiences</td>
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<tr>
<td>11:15 – 11:30</td>
<td>Ag Science Room</td>
<td>Student Presentation</td>
<td>Emma McLaughlin, &amp; Roxanne Seaman</td>
<td>The Implementation of Physical Literacy Testing on Children with Special Needs</td>
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<tr>
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<td>Session Type</td>
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<td>10:00-10:40</td>
<td><strong>Ag Production Room</strong>&lt;br&gt;(Measurement and Assessment)</td>
<td>Thematic Poster</td>
<td>Comparison of uniaxial and triaxial accelerometer outputs among individuals with and without Down syndrome</td>
<td>Willie Leung</td>
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<td>Thematic Poster</td>
<td>Can A Novel Reach Test Differentiate Among Functional Groups?</td>
<td>Jared Rehm</td>
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<td>Thematic Poster</td>
<td>Validity of the Multistage Fitness Test for Wheelchair Users in a Selected Cohort of School-Aged Wheelchair Basketball Players: A Pilot Study</td>
<td>Jared Rhem</td>
</tr>
<tr>
<td></td>
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<td>Thematic Poster</td>
<td>Step-counting accuracy of ActiGraph accelerometers in adolescents with Down syndrome during physical education activities</td>
<td>Wilson Amaral-Junior</td>
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<td>Thematic Poster</td>
<td>Accelerometer-determined step-rate predicts energy expenditure in adults with and without Down syndrome</td>
<td>Fabio Bertapelli</td>
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<tr>
<td>10:45-11:25</td>
<td>Building Session</td>
<td></td>
<td>Revisiting the Narrative of Least Restrictive Environment in Physical Education</td>
<td>Wesley J. Wilson, &amp; Justin Haegele</td>
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<td>11:25 – 11:30</td>
<td><strong>Transition</strong></td>
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<tr>
<td>11:30-1:00</td>
<td><strong>CH2M Hill Alumni Center</strong></td>
<td>Keynote/Lunch</td>
<td>Lifestyle Physical Activity in Neurological Diseases: Building an Agenda from Lessons Learned in MS</td>
<td>Robert Motl</td>
</tr>
<tr>
<td>1:00-1:15</td>
<td><strong>Construction and Engineering Hall</strong>&lt;br&gt;(Community Programming and Staff Attitudes)</td>
<td>Verbal Presentation</td>
<td>The Mental Health of Support Staff working in Assisted Community Living</td>
<td>Alexa Oakley</td>
</tr>
<tr>
<td>1:15-1:30</td>
<td><strong>Construction and Engineering Hall</strong>&lt;br&gt;(Community Programming and Staff Attitudes)</td>
<td>Verbal Presentation</td>
<td>Evaluation of a Train the Trainer Program to Promote Physical Activity</td>
<td>Jessica Hamm</td>
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<tr>
<td>1:30-1:45</td>
<td><strong>Construction and Engineering Hall</strong>&lt;br&gt;(Community Programming and Staff Attitudes)</td>
<td>Verbal Presentation</td>
<td>Exploring Physical Literacy for Individuals Diagnosed with Autism Spectrum Disorder (ASD): Interpretations of Community Adapted Physical Activity Program Leaders</td>
<td>Kyle Pushkarenko</td>
</tr>
<tr>
<td>1:45-2:00</td>
<td><strong>Construction and Engineering Hall</strong>&lt;br&gt;(Community Programming and Staff Attitudes)</td>
<td>Verbal Presentation</td>
<td>Pediatric physical therapists’ attitudes towards self-directed mobility</td>
<td>Winston Kennedy</td>
</tr>
<tr>
<td>2:00-2:15</td>
<td><strong>Construction and Engineering Hall</strong>&lt;br&gt;(Community Programming and Staff Attitudes)</td>
<td>Verbal Presentation</td>
<td>Clinicians’ Perceptions of Caregivers’ Attitudes Towards Disability and Powered Mobility for Children with Disabilities</td>
<td>Michele Ann Catena</td>
</tr>
<tr>
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<td>1:00-2:15</td>
<td>Ag Production Room</td>
<td>Building Session</td>
<td>Scott Douglas, Jeffrey Martin, &amp; Laurie Malone</td>
<td>Improving Parasport Coaching Expertise Through Sport Science Initiatives in Coaching Education</td>
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<tr>
<td>1:00-1:15</td>
<td>Ag Production Room</td>
<td>Verbal Presentation</td>
<td>Kerri A. Vanderbom</td>
<td>All Girls Rule the World: Adapted and Inclusive Girls on the Run, a Pilot Project</td>
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<tr>
<td>1:15-1:30</td>
<td>Ag Production Room</td>
<td>Verbal Presentation</td>
<td>Kathleen McCarty</td>
<td>A qualitative evaluation of the Special Olympics' Oregon Team Wellness physical activity and nutrition program</td>
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<tr>
<td>1:30-1:45</td>
<td>Ag Production Room (Program Evaluation)</td>
<td>Verbal Presentation</td>
<td>Jennifer Taylor-Winney, &amp; Marilyn Lesmeister</td>
<td>A program evaluation of facilitators and barriers to inclusion in 4-H.</td>
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<tr>
<td>1:45-2:00</td>
<td>Ag Production Room</td>
<td>Verbal Presentation</td>
<td>Shannon E. Weissman</td>
<td>An Evaluation of the Inclusion Resource Team Pilot Project for Individuals Who Have an Intellectual Disability</td>
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<tr>
<td>2:00-2:15</td>
<td>Ag Science Room</td>
<td>Verbal Presentation</td>
<td>M. Blair Evans</td>
<td>Parent-Reported Quality of Participation and Self-Reported Support within Organized Adapted Physical Activity Programs</td>
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<tr>
<td>1:00-1:40</td>
<td>Ag Science Room</td>
<td>Mini-Lecture</td>
<td>Daehyoung Lee, &amp; Georgia Frey</td>
<td>Iterative development of a technology-guided intervention to increase physical activity in adults with autism spectrum disorder</td>
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<tr>
<td>1:45-2:25</td>
<td>Ag Science Room</td>
<td>Building Session</td>
<td>Michelle Grenier, &amp; Justin Haegele</td>
<td>Contesting/Unifying Visions of Inclusion</td>
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<tr>
<td>2:15-2:30</td>
<td>Ag Science Room</td>
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## Tuesday, October 2

<table>
<thead>
<tr>
<th>Time</th>
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<th>Presenter/Authors</th>
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<tbody>
<tr>
<td>2:30-2:45</td>
<td>Construction and Engineering Hall</td>
<td>Verbal</td>
<td>Demi Toms</td>
<td>A Week in the Life: A Phenomenological Study Describing Barriers in Daily Life Experienced by Three Transition Age Youth with Autism Spectrum Disorder and their Caregivers</td>
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<tr>
<td>2:45-3:00</td>
<td>Construction and Engineering Hall (Accessibility and Physical Activity Participation)</td>
<td>Verbal</td>
<td>Cathleen Edwards</td>
<td>Examining the role of family leisure and the restorying of family life following spinal cord injury</td>
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<td>3:00-3:15</td>
<td>Construction and Engineering Hall</td>
<td>Verbal</td>
<td>T Nicole Kirk</td>
<td>Identity Beliefs and Importance of Physical Activity among Adults with Visual Impairments</td>
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<tr>
<td>3:15-3:30</td>
<td>Construction and Engineering Hall</td>
<td>Verbal</td>
<td>A. Josephine Blagrave, &amp; Andrew Colombo-Dougovito</td>
<td>Barriers to Physical Activity Participation in the Community for Families with a Child on the Autism Spectrum</td>
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<tr>
<td>3:30-3:45</td>
<td>Construction and Engineering Hall</td>
<td>Verbal</td>
<td>Krystn Orr</td>
<td>Searching for accessibility: A scoping review of adapted sport programs</td>
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<tr>
<td>2:30-3:45</td>
<td>Ag Leaders Room</td>
<td>Building Session</td>
<td>Manny Felix, &amp; Ray Martinez</td>
<td>New Teacher Licensure in Minnesota: Implications of APE Teacher Preparation Models and Provision of APE Services</td>
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<td>2:30-2:45</td>
<td>Ag Science Room</td>
<td>Verbal</td>
<td>Martin E. Block, Ph.D.</td>
<td>Effects of an online course on self-efficacy and knowledge towards teaching physical education to children with autism: A pilot study</td>
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<td>2:45-3:00</td>
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<td>Verbal</td>
<td>Michelle Grenier</td>
<td>Utilizing a Capability Lens in Inclusive Elementary Physical Education</td>
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<td>3:00-3:15</td>
<td>Ag Science Room</td>
<td>Verbal</td>
<td>Cathy McKay</td>
<td>It's all about how you rebound: Exploring physical education teacher education student attitudes and perceptions toward disability through documentary film</td>
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<td>3:15-3:30</td>
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<td>Verbal</td>
<td>Geoffrey Meek</td>
<td>To the gym doors and beyond: Ways that APE teachers prepare children for community physical activity.</td>
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<td>3:30-4:00</td>
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<td>Verbal</td>
<td>Lauren Lieberman, Michelle Grenier, Ali Brian, &amp; Cathy Houston-Wilson</td>
<td>Utilizing the Lieberman/Brian Inclusion Rating Scale for Teaching, Research, and Professional Preparation Programs</td>
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<td>2:30-3:10</td>
<td>Ag Production Room</td>
<td>Mini-Lecture</td>
<td>Jaehun Jung, Willie Leung, &amp; Layne Case</td>
<td>What is meta-analysis and how can it be used in the field of Adapted Physical Activity?</td>
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<td>Mini-Lecture</td>
<td>William Harvey, &amp; Shawn Wilkinson</td>
<td>Describing the challenges of conducting mixed methods research in adapted physical activity</td>
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<td>4:10-4:55</td>
<td>Construction and Engineering Hall</td>
<td>Pat Austin Award Lecture</td>
<td>Layne Case</td>
<td>The Effectiveness of Interventions on Gross Motor Outcomes of Children with Autism Spectrum Disorder: a Meta-Analysis</td>
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<td>4:55-5:00</td>
<td>Construction and Engineering Hall</td>
<td>Announcement of Greg Reid Research Award</td>
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<td>John T. Foley</td>
<td>Predictors of Bone Density in Adult Special Olympic Athletes</td>
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<td>Janet L. Hauck</td>
<td>Implications of Motivation for Individuals with Down syndrome to Successfully Complete a Treadmill Protocol</td>
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<td>Lesley Cottrell</td>
<td>Physical Activity and Child-Parent Perception and Practice Differences Found In A Rural Intervention Research Physical Activity Program</td>
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<td>4</td>
<td>Jessica A. Kahn, Isabella T. Felzer-Kim, &amp; Janet L. Hauck</td>
<td>Differing Responses to Gross Motor Intervention of Two Preschoolers Varying on the Autism Spectrum</td>
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<td>Kristi Lane, &amp; Rachel Sherman</td>
<td>Statewide Model: Overview of Teaching Advocacy Skills to Children with Visual Impairments in Physical Education and After School Sport</td>
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<td>6</td>
<td>Maria Luiza Fiorini</td>
<td>Support modalities offered by adapted physical education specialist for students with disabilities</td>
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<td>7</td>
<td>Kyoung June Yi</td>
<td>Introducing My Own Disability Construction Narratively</td>
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<td>8</td>
<td>Luana Francalino</td>
<td>Association between anthropometric parameters and physical activity levels in adolescents with Down syndrome</td>
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<td>9</td>
<td>Adam Pennell</td>
<td>Preliminary psychometrics of the Test of Perceived Physical Competence for children and adolescents with visual impairments</td>
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<td>Emily Gilbert</td>
<td>Motor Competence for Pediatric Cancer Patients and Survivors: A Systematic Review</td>
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<td>11</td>
<td>Jill Pawlowski</td>
<td>Physical Activity Promotion in Early Childhood Education</td>
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<td>Kim A. Rogers</td>
<td>Examining the Associations Among Physical Activity Shame, Self-Compassion, Shame-Coping Styles, and Physical Activity Behavior</td>
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<td>Samantha McKinnon</td>
<td>Influence of healthy habits on health outcomes: Preliminary analysis of the 2015 Special Olympics' Healthy Athletes World Games data</td>
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<td>Samuel W. Logan, Benjamin Phelps, &amp; Joshua Phelps</td>
<td>Real World Tracking of Modified Ride-On Car Use</td>
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<td>16</td>
<td>Nicole Fiscella</td>
<td>Examining associate between enjoyment and physical exertion university based physical activity program in individuals with Autism</td>
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<td>17</td>
<td>Lily Jagodzinski, Cathy Houston-Wilson, &amp; Lauren Lieberman</td>
<td>The History of Adapted Physical Education at The College at Brockport from 1994-2016</td>
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<td>18</td>
<td>Daniel Tindall</td>
<td>Physical activity levels of Irish children with disabilities during an adapted physical activity program.</td>
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<td>19</td>
<td>Samuel Battalio</td>
<td>The longitudinal associations between physical activity, anxiety, and depression in adults with long-term physical disability</td>
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<td>20</td>
<td>Hannah Hardwick</td>
<td>Executive functioning related to sport performance in young adults with and without intellectual disabilities</td>
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<td>21</td>
<td>TAN S Y Jernice &amp; TEO H L Pamela</td>
<td>The learning outcomes of kayaking using different attentional focus on elder caregivers</td>
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<td>Mara Nery-Hurwit</td>
<td>Physical activity as a predictor of physical function in adults aging with disability</td>
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<td>23</td>
<td>Maria Luiza Fiorini</td>
<td>Actions taken by physical education teachers targeted at students with autism spectrum disorder</td>
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<td>24</td>
<td>Andrea Taliaferro, Robert Posehn, &amp; Tom Moran</td>
<td>A Training Needs Assessment for Community-based Physical Activity Program Staff</td>
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<td>25</td>
<td>Cheers, Viviene &amp; Viviene Temple</td>
<td>Content validity of the modified six-minute walk test among Special Olympics athletes</td>
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<td>26</td>
<td>Cathy McKay, &amp; Andrea Taliaferro</td>
<td>Impact of Paralympic Skill Lab on Student Attitudes Toward Inclusive Recreation</td>
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<td>8:00-9:00</td>
<td>Construction and Engineering Hall</td>
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<td>9:00-9:15</td>
<td>Ag Leaders Room</td>
<td>Verbal Presentation</td>
<td>Sean Healy, &amp; Genevieve Marchand</td>
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<td>9:15-9:30</td>
<td>Ag Leaders Room (Physical Activity and Parents)</td>
<td>Verbal Presentation</td>
<td>Amelia Chloe Simpson</td>
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<td>9:30-9:45</td>
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<td>Verbal Presentation</td>
<td>Luis Columna, Laura Prieto, &amp; Gianpietro Elias</td>
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<td>9:45-10:00</td>
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<td>Verbal Presentation</td>
<td>Byungmo Ku</td>
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<td>10:00-10:15</td>
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<td>Emily Munn</td>
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<td>Seungyeon Park</td>
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<td>9:15-9:30</td>
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<td>Verbal Presentation</td>
<td>Sally Taunton</td>
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<td>9:30-9:45</td>
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<td>Verbal Presentation</td>
<td>Meghann Lloyd</td>
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<td>9:45-10:00</td>
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<td>Verbal Presentation</td>
<td>Isabella T. Felzer-Kim</td>
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<td>10:00-10:15</td>
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<td>Verbal Presentation</td>
<td>Claire Bridges</td>
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<tr>
<td>9:00-9:40</td>
<td>Ag Science Room</td>
<td>Building Session</td>
<td>Jason C. Bishop, &amp; Andrew M. Columbo-Dougovito</td>
<td>Measurement of Physical Activity of Young Adults on The Autism Spectrum</td>
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<tr>
<td>9:45-10:25</td>
<td>Ag Science Room</td>
<td>Building Session</td>
<td>Kathleen McCarty, Samantha Ross, &amp; Bridgette Schram</td>
<td>Defining inclusive practices and engaging 'untapped' community-based physical activity programs</td>
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<tr>
<td>9:00-9:15</td>
<td>Ag Production Room</td>
<td>Student Presentation</td>
<td>Jessica Salvagna, &amp; Maureen Connelly</td>
<td>The Effectiveness of Assessment Tools for persons experiencing [dis]ability</td>
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<tr>
<td>9:15-9:30</td>
<td></td>
<td>Student Presentation</td>
<td>Choi, Poram</td>
<td>The Effect of Balance and High-Speed Power Training on Fall Risk Factors in Adults with Intellectual Disability</td>
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<tr>
<td>9:30-9:45</td>
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<td>Student Presentation</td>
<td>Kearney Dover, Viviene Temple, &amp; Lynneth Stuart-Hill</td>
<td>The effect of the six-minute walk test environment on stress and heart rate variability among Special Olympics athletes</td>
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<td>9:45-10:00</td>
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<td>Student Presentation</td>
<td>Enrico Quilico, Angela Colantonio, Bonnie Swaine, Shane Sweet, Lindsay Duncan, &amp; Shawn Wilkinson</td>
<td>Co-creating, implementing, and evaluating a community-based peer-run physical activity program to enhance exercise and sport participation for adults with moderate to severe traumatic brain injury</td>
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<tr>
<td>10:00-10:15</td>
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<td>Student Presentation</td>
<td>Daehyoung Lee, &amp; Georgia Frey</td>
<td>Physical Activity, Sedentary Behavior, and Mobile Technology Use in Adults with Disabilities: A Survey Study</td>
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<tr>
<td>10:15-10:30</td>
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<td><strong>Break</strong></td>
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<td>10:30-11:10</td>
<td>Ag Leaders Room</td>
<td>Building Session</td>
<td>Rebecca Bassett-Gunter, Jennifer Leo, &amp; Kelly Arbour-Nicitopoulos</td>
<td>Research and Community Engagement to Promote and Support Physical Activity among Children and Youth with Disabilities</td>
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### Wednesday, October 3

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<tbody>
<tr>
<td>10:30-11:30</td>
<td>Ag Leaders Room (Children and Motor Learning/Motor behavior)</td>
<td>Verbal Presentation</td>
<td>Motor skill competence and trajectories of development among preschool aged children with and without Down syndrome</td>
<td>Kerri L. Staples</td>
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<td></td>
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<td>Verbal Presentation</td>
<td>Relationship Between BMI and Balance Capacities in Youth (8-21 yrs) with Intellectual Disability</td>
<td>E. Michael Loovis</td>
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<td></td>
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<td>Verbal Presentation</td>
<td>Can children with visual impairments benefit from imagery?</td>
<td>Pamela Haibach-Beach</td>
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<td>Verbal Presentation</td>
<td>The effectiveness of a mastery motivational climate on overhand throwing for children with a disability in an inclusive physical education setting: A multiple baseline study</td>
<td>Benjamin Miedema</td>
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<tr>
<td>10:30-11:20</td>
<td>Ag Production Room (Service Learning and Practicum Experiences)</td>
<td>Thematic Poster</td>
<td>A Meta Analysis of the Effect of Adapted Physical Activity Service Learning Programs on College Student Attitudes toward Disability</td>
<td>Layne Case, Willie Leung, Jaehun Jung, Bridgette Schram, &amp; Joonkoo Yun</td>
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<tr>
<td></td>
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<td>Thematic Poster</td>
<td>Service-learning: Changes in Attitudes Toward Individuals with Disabilities</td>
<td>Jihyun Lee, Seung Ho Chang, &amp; Justin Haegele</td>
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<td>Thematic Poster</td>
<td>Occupational Socialization Theory: Japanese Graduate Students’ Practicum Experiences Instructing Students with Disabilities in Adapted Physical Education</td>
<td>Takahiro Sato, Yukinori Sawae &amp; Mayumi Saito</td>
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<td>Thematic Poster</td>
<td>&quot;I didn't sign up for this&quot; and other dilemmas of program planning and implementation: an analysis of student experiences with planning in two APA programs serving under-served and complex teens and young adults.</td>
<td>Maureen Connolly, Elyse Lappano, Alexa Oakley, Julian Petrachenko, &amp; Jessica Salvagna</td>
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<tr>
<td>11:30-12:30</td>
<td>Break/Lunch</td>
<td></td>
<td>Fitness and Physical Activity levels of adults and seniors with Intellectual Disability</td>
<td>Myriam Guerra-Balic</td>
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<tr>
<td>12:30-1:30</td>
<td>Austin Auditorium</td>
<td>Keynote</td>
<td>Fitness and Physical Activity levels of adults and seniors with Intellectual Disability</td>
<td>Myriam Guerra-Balic</td>
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<td><strong>Concurrent Building session</strong></td>
<td><strong>Concurrent Verbal Session</strong></td>
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<td>Building Capacity for Adapted Physical Activity: Oregon State University’s Story</td>
<td>Exercise and Fitness Performance</td>
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<tr>
<td>10:45 - 11:00</td>
<td>Break</td>
<td>10:45 - 11:00</td>
<td><strong>Concurrent Mini-Lecture</strong> A Review of the Psychometric Properties of the TGMD-3 from Several Countries: Application for Improving Research in Motor Development &amp; Children with Disabilities</td>
<td><strong>Concurrent Building session</strong> Physical activity as an evidence-based practice: What outcome variables does the literature support</td>
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<td>Lunch Break (Bag lunches available)</td>
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### Monday, October 1 – cont.

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<td>Technology and Program Methodology</td>
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<td>Laura Andrea Prieto,</td>
<td>Motor Skill Development</td>
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<td>Rebecca Rubuliak,</td>
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<td>Translating APE research to community based youth development programs</td>
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**Tuesday October 2**

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<td>Neuroplasticity as a framework for the development and measurement of adapted physical activity and sport interventions in children with developmental disabilities</td>
<td>Exercise and Motor Performance of Children with Disabilities</td>
<td>Medical versus Social Perspectives of Disability: Adding Both to our Professional Toolbox</td>
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<td>Envisioning Systems Change to Advance Fitness and Inclusion for All</td>
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<td>New Teacher Licensure in Minnesota: Implications of APE Teacher Preparation Models and Provision of APE Services</td>
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### Wednesday, October 3

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<td>Motor Skill Intervention</td>
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<td>Measurement of Physical Activity of Young Adults on The Autism Spectrum</td>
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<td>Concurrent Verbal Session</td>
<td>Research and Community Engagement to Promote and Support Physical Activity among Children and Youth with Disabilities</td>
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Monday, October 1, 9:30: Building Session

Building Capacity for Adapted Physical Activity: Oregon State University’s Story

Jeff McCubbin, Colorado State University; John M. Dunn, Western Michigan University; Joonkoo Yun, and Megan MacDonald, Oregon State University

Primary Issues
Reflecting past is one of the important steps to building future. This presentation will chronicle the historical factors that influenced the evolution of the graduate program in Adapted Physical Activity (formerly Movement Studies in Disability) as an example of how to develop an impactful program and drive it forward to make differences in the life of individuals with disabilities. These factors include federal legislation and state endorsements; federal and professional development funding; research directions; and international influences on curriculum, research, and service. In addition, the culture of OSU’s program will be shared as a unique and vibrant way to build a program and its capacity over time.

Session Significance
Adapted physical activity (APA) is a relatively young field of study and attempt to create unique body of knowledge to clearly defined APA as a discipline (McCubbin, 2014; Reid, 1993; Reid & Stanish, 2003) that not only advancing field but also make differences on lives of many individuals with disabilities. Although many early scholars made significant impacts, it is time to reflect and focus on the future of the field. This session will provide a unique opportunity to learn from the founder and leaders of this program that was rooted over 35 years ago and has grown into one of the premier graduate programs of APA in North America. Reflections from the past will create an opportunity to discuss the future priorities for the profession including the future direction of some impactful research. Perhaps most significant, will be an opportunity for an audience that will include dozens of former Oregon Stater’s to reflect back, dream for the future, and channel new energies and efforts to continue to build on the past to create a legacy for the future.
Monday, October 1, 9:30: Verbal presentation (Exercise and Fitness Performance)

The case study about effects of a daily rhythmic aerobic exercise routine on health related physical fitness in adults with intellectual disabilities

Hyun-Jin Kwon (Georgia State University), Hannah Yang (Baekseok University)

Introduction: The purpose of this case study was to examine the effects of a daily rhythmic aerobic exercise routine on health-related physical fitness in adults with intellectual disabilities (ID).

Methods: Three adults with ID (Participant A=24 yrs, Participant B= 25 yrs, and Participant C=32 yrs) were recruited from an adult day care. A rhythmic aerobic exercise routine, “Korea National Gymnastics,” was selected as the independent variable, since it consists of ten movements that are easy to follow with music and promote whole-body fitness. The exercise routine was provided to the participants twice per day, 5 min per session, and five days per week for 8 weeks. The Physical Activity Promotion System for Students with Disabilities (PAPS-D; REF) was used to measure five physical fitness variables: cardiopulmonary function (20 m PACER), muscle function (grip strength, curl-up), flexibility (sit and reach test), agility (50m run), and body composition (body fat percentage).

Results/findings: All three participants showed improvements in all physical fitness components, except Participant A’s body fat percentage increased from 28.6 to 29.5, and Participant B’s sit and reach test and 50m-run showing no changes.

Implications/conclusion: Based on the results, the study identified positive effects of the daily rhythmic aerobic exercise routine on health-related physical fitness in the adults with ID. The rhythmic aerobic exercise routine appeared to be feasible for daily application and appropriate for participants with ID. Recommendations for future studies include maintaining the same measurement settings to get reliable results. In addition, including a dietary regime in the intervention can maximize positive changes in body composition.

Assisted Cycle Therapy (ACT) improved self-Efficacy and exercise perception in older adults with Down syndrome

Shannon D. R. Ringenbach (Arizona State University), Nathaniel E. Arnold (Arizona State University), Kori Tucker (Arizona State University), Simon D. Holzapfel (Arizona State University)

Introduction: Some of the most common limitations to exercise in persons with Down syndrome (DS) include lack of energy, low exercise motivation, and a preference for sedentary activities. With Assisted Cycle Therapy (ACT), the pedals are moved by a mechanical motor at a faster rate than can be accomplished by voluntary cycling. The significance of this study is that in adolescents with DS we have found that ACT alleviates many of these limitations for physical activity for people with DS because most of the work is being done for them. Furthermore, lack of physical activity is an important concern in older adults with DS because reductions in physical activity have been related to the increase in
Alzheimer’s disease. Thus, the research question was if ACT would improve self-efficacy and exercise perception in older adults with DS, more than voluntary cycling (VC) or no cycling (NC).

Methods: Twenty-six older adults (36 – 52 years) were divided into three groups
1) ACT (N=13)
2) Voluntary cycling (VC) (N=11)
3) No cycling (NC) (N=2)

In each cycling intervention the participant completed 30 minutes of cycling for 3x/week for eight weeks. The Physical Activity Self Efficacy survey (i.e., PASE) and Exercise Perception survey were administered before and after the interventions (pre- and post-test). Paired sample t-tests were conducted separately within each group pre and post intervention.

Results: The results showed that both exercise groups (i.e., ACT, VC) improved in their self-efficacy after the interventions. In addition, exercise perception improved following ACT but not VC or NC.

Conclusion: Our results are discussed with respect to their future implications for high movement rate of exercise in the older DS population. One interpretation of our results is that increased afferent input due to the increased rate of movement during ACT may have resulted in the upregulation of neurotrophic factors known to improve behavior and mood. Future research should focus on other psychological factors such as peer interaction as they relate to ACT and physical activity in older persons with DS.

The effects of inclusive soccer class on physical fitness and skill performance in college students with and without Intellectual Disabilities

Yonjoong Ryuh (Mississippi State University), Chih-Chia Chen (Mississippi State University), Qun Fang (Mississippi State University), Soyoun Lim (Mississippi State University), Younghan Lee (Mississippi State University), Milyang Kim (Soonchunhyang University)

Background: In addition to intellectual deficits and adapted behavior, it has been suggested that people with intellectual disabilities (ID) also have cognitive dysfunction and motor problems. To date, physical activity is commonly proposed to foster healthy development and decrease the risk of chronic problems in young adulthood, particularly for people with ID. Hence, the purpose of this study was to investigate the relationship between executive functioning and sport performance in young adults with and without ID.

Method: Twelve young adults (3 females, 9 males) aged between 19 and 21 years diagnosed with mild to moderate ID and twelve peers without disability (12 females) were assessed. Qualitative sport skills, i.e., soccer dribbling, passing and shooting tasks, were evaluated with Special Olympics Football Skills Assessment. Executive functioning, in terms of selective attention and working memory, were gauged with Eriksen Flanker test and Corisi Block Tapping test. A nonparametric correlation was conducted due to the small sample size.

Results: In terms of Eriksen Flanker test, negative relationships were found between soccer skills and reaction time. Participants with low scores in soccer dribbling, passing, and shooting capabilities had
significantly long information processing speed in congruent and incongruent conditions respectively. For Corsi Block Tapping test, no significant relationships were found.

Discussion: The present findings demonstrated that the attention component of higher-order cognitive functioning might be crucial for soccer skill performance in young adults with and without ID. Specifically, the deficits in executive functioning and soccer skills were interrelated, especially to selective attention domain, which might contribute positively to soccer participation for both young adults with and without ID. In the other words, the impairment in qualitative sport skills might lead to the impairment in higher-order executive functioning. Therefore, this study may provide useful knowledge for physical education teachers and could be utilized in the development of motor interventions.

**Promoting exercise performance in adults with intellectual disabilities through visual schedules and systematic prompting: Preliminary findings**

Iva Obrusnikova (University of Delaware), Haley Novak (University of Delaware), Melissa Learish (University of Delaware), Ashley Steinbrecher (University of Delaware), Albert Cavalier (University of Delaware)

Introduction: Adults with intellectual disabilities (ID) participate in significantly lower levels of muscle-strengthening activities and have significantly lower musculoskeletal fitness compared to general population (Barnes et al., 2013). Carefully structured progressive resistance training (PRT) has the potential to improve muscle strength in adults with ID (Shields et al., 2008). Programs fail to provide detailed information on the instructional strategies used to guarantee PRT-exercise mastery. Building on findings from three single-subject studies conducted by the authors, the PURPOSE of the current study was to develop and test the effectiveness of a community-based PRT familiarization intervention (called PRT-POWER) that utilizes Visual Activity Schedules (VAS) and Systematic Prompting to promote correct and independent performance of PRT exercises among adults with ID.

Research questions: (a) Will the PRT-POWER familiarization be effective in promoting the acquisition of correctly and independently performed exercise steps in adults with ID? and (b) Will the PRT-POWER familiarization be effective in improving physical function in adults with ID?

Methods: Using a randomized two-group experimental design, 11 participants with mild-to-moderate ID (21-49 years; 4 women; BMI = 26.1-49.9) were recruited from community organizations and randomly assigned into either condition: (a) the PRT-POWER familiarization or (b) the PRT familiarization (no VAS and systematic prompting). The intervention consisted of six 70-min sessions (2x/week) in a local YMCA. All coaches were trained. Baseline and treatment fidelity data were collected. Five PRT exercises were task analyzed and a coding observational rubric were validated in previous studies. Inter-observer reliability was established on all pretest and posttest sessions (IOA > 90%). Physical function was assessed using the Stair Climb Test and the Timed Up and Go Test (TUG). Physical function was assessed using the Stair Climb Test and the Timed Up and Go Test (TUG).

Results: The Kruskal-Wallis test revealed the PRT-POWER group had significantly greater gains in their performance after the intervention compared to the PRT group (chest press: z = 7.67**; leg press: z = 5.76*; seated row: z = 7.60**; military press: z = 8.07*). Only the TUG test showed significantly better times for the PRT-POWER group (z = 4.81*).
Implication/Conclusion: The study supported the effectiveness of the PRT-POWER familiarization in promoting exercise mastery and performance in adults with ID. The data and the protocols will be used to design a PRT-POWER program.

The effects of aquatic exercise program on functional mobility for adults with stroke

Gwang-Yon Hwang (Fort Lewis College), Ronald Davis, Vic Ben-Ezra, David Nichols, Simon Driver

Introduction: According to the American Heart Association (2018), more than 7.2 million Americans over the age of 20 had a stroke, and the annual direct and indirect cost of stroke is 40.1 billion dollars. The effects of the stroke can have a serious impact on functional performance on the human body. Aquatic exercise programs have been reported to provide a more successful, accessible, and accommodating environment for adults with stroke to maintain and improve their functional mobility when compared to land exercise programs (Jung & Lee, 2010; Noh, Lim, Shin, & Paik, 2008). The purpose of this study was to determine what effect an aquatic exercise program had on functional mobility for adults with stroke.

Methods: A crossover design (experimental vs. control phase) was used for this study. Fourteen adults with stroke participated in this study (Mean age = 68.1 ± 8.8). Functional mobility was assessed at the start and the end of each phase using the 10-m walk test and the 3-m timed up & go test (TUG). The participants in the experimental phase engaged in an aquatic exercise program 3 days/wk for 60 min each. All aquatic exercise sessions were individually administered with few exceptions. Exercise intensity was set at 50-70% of maximal heart rate reserve for the main exercise. In order to examine the hypotheses of this study, two-way analysis of variance with repeated measures was applied for parametric variables, and the Wilcoxon matched-pair test was applied for non-parametric variables.

Results: Results indicated the participants demonstrated a significantly faster normal gait speed (NGS) and TUG following the exercise phase whereas they demonstrated a significantly slower NGS following the control phase.

Conclusion/Implications: Within the limits of this study, it appears that participation in the aquatic exercise program would be beneficial for the participants to maintain and improve their functional mobility. Therefore, it is suggested that aquatic exercise programs should be developed and provided for people with stroke in order to enhance their functional mobility in a more secure, independent, and motivated environment.
Monday, October 1, 9:30: Verbal presentation (Sport and Athlete Experiences)

Exploring the experiences of athletes with disabilities: Factors that contribute to recruitment and long-term engagement

Nima Dehghansai (York University), Joe Baker (York University), Ross Pinder (Australian Paralympic Committee)

Introduction: Undeniably, sport participation for individuals with disabilities has great benefits (e.g., Martin-Ginis, Ma, Latimer-Cheung, & Rimmer, 2016), however, there are gaps in research regarding the factors that influence athletes’ decision to participate and maintain involvement in sport (Dehghansai, Lemez, Wattie, & Baker, 2017).

Methods: To address this gap, we examined the sporting histories of 154 male and female Australian and Canadian athletes who completed a modified version of the Developmental History of Athletes’ Questionnaire.

Results: Data analyses revealed that 47 athletes (30.5%) moved houses due to impairment-related (e.g., accessibility) and/or sporting-related reasons (e.g., opportunities). The most common impairments reported were spinal cord injury (n=46), amputee/limb deficiency (n=33) and cerebral palsy/acquired brain injury (n=25). Most of the athletes were introduced to Parasport either through family and friends (n=37), rehabilitation centers and physiotherapists (n=30) or schools and teachers (n=15). Athletes started participation in sport mainly because of enjoyment, the competitive environment and to enhance overall health and fitness; however, athletes also faced challenges early on, most commonly, the high expenses and demands associated with sport, dealing with disability-related complications and dependence on others (e.g., transportation). Nevertheless, athletes continued involvement because of the competitive environment, sense of accomplishment and continuous support from their social circle (e.g., family, friends). Throughout their career, athletes sampled between 2-3 sports, most commonly wheelchair basketball (n=19), swimming (n=14) and athletics (n=11), usually at the recreational level, in club/inter-club settings, competing only with other athletes with disabilities. Interestingly, the majority of athletes with acquired impairments (n=70) reported involvement prior to injury, mostly in sports similar to their current one.

Implication/Conclusion: Understanding current athletes’ sporting histories can contribute to development of future programs that aim to increase participation and maintain involvement while maximizing quality of development for athletes with disabilities.

Heart rate controlled exercise as part of a return to play protocol following an athlete’s acute concussion injury: A case report

Tessa K. Roche, William Montelpare, Indika Pradeepa Mahawattage, Robyn Connors, University of Prince Edward Island
Introduction: Traditionally, physical and cognitive rest until asymptomatic has been the accepted protocol following a concussion. However, increasing evidence suggests that early physical activity may improve recovery, reduce the risk of Post-Concussion Syndrome (PCS), and enhance outcomes in the short term by reducing secondary symptoms.

Methods: A 23 year old male athlete presented to our concussion program with symptoms of concussion after a blow to the head. He participated in an initial testing session 72 hours post-concussion and demonstrated normal to high neurocognitive scores and deficits in balance and ocular measures related to vestibular function. He also exhibited an elevated resting heart rate, and abnormalities in heart rate variability measures consistent with concussion injuries. As part of the program he completed 6 sessions of heart rate-controlled sub-symptomatic exercise using the Karvonen formula. Following exercise training the participant was retested and displayed improved scores, increased exercise tolerance, normalization of heart rate, and decreased self reported symptoms scores. Post-concussion symptoms and deficits are sometimes difficult to detect using traditional neurocognitive measures, and this type of testing is not ecologically relevant for athletes who have higher demands than their non-active counterparts.

Implication/Conclusion: This case study shows the importance and benefits of recording measures of heart rate and implementing early heart rate controlled exercise following a concussion.

Extending the notion of sport committee model for athletes with physical disability

Andy Wei-Ru Yao (San Francisco State University), Deborah Shapiro (Georgia State University)

Introduction: The Sport Commitment model (SCM) is a well-known theoretical framework to illustrate how the psychological state of commitment to sport has been influenced and studied in able-bodied persons. Considering the characteristics and lived experiences of people with disabilities, additional antecedents of sport commitment were added in the structure of the SCM. The primary purpose of this study was to examine the SCM in terms of the magnitude of contribution of antecedents (enjoyment, personal investment, involvement opportunities, social constraints, involvement alternatives), and also to investigate added antecedents (self-efficacy, negative consequence of sport participation, social support, and accessibility of sport facilities and settings), on sport commitment to athletes with disabilities.

Methods: A total of 157 adult athletes (Mean age= 34.87, SD = 11.78) with physical disabilities from team and individual sports across the United States, Europe, and Asia completed an online survey of 60 items across the nine antecedents hypothesized to influence sport commitment in athlete with disabilities.

Results: Results indicated only involvement opportunities (path coefficient = .58), followed by personal investment (path coefficient = .36), were the strongest predictors of sport commitment (R<sup>2</sup>=.65). In contrast, enjoyment, social constraints, involvement alternatives, self-efficacy, negative consequence of sport participation, social support, and accessibility of sport facilities and settings had no significant prediction on sport commitment.
Implication/Conclusion: The original SCM was a viable theoretical model that could potential apply to athletes with physical disabilities to understand variables influencing their sport commitment. Disability sports programs should mainly focus on the desired benefits of athletes with physical disabilities for sport participation. As long as the sports programs provide unique values and benefits from continuing sport participation, athletes with disabilities would be more likely to stay in the programs. For the future research, researchers should consider to reconceptualize the SCM variables for athletes with disabilities or to test alternative models to understanding sport commitment examined that include in their initial development specific features reflective of the needs of this population.

Field(s) of dreams: Embracing multiple pathways through sport

Nancy Spencer-Cavaliere (University of Alberta), Lisa Tink (University of Alberta), Kirsti Van Dornick (University of Alberta)

Introduction: The purpose of this project was to explore segregated sport for people with impairments and to address the question of whether or not segregated sport perpetuates inequity (Fay & Wolff, 2009). Specific objectives included: (1) Identifying the drawback and benefits of participation in segregated athlete training programs taking place in different settings; (2) To understand how the nature of these programs and the settings in which they take place inform participants’ conceptualizations of disability and inclusion; and (3) To contribute knowledge to more inclusive sport policies and practices.

Method: A case study supported by interpretive description was comprised of sixteen participants in two training programs for athletes with various impairments. One program took place within a segregated activity environment, the other, within an integrated environment where athletes from outside of parasport also trained. Data collection consisted of participant observation, field notes and reflexive journaling. Semi-structured interviews were also conducted with the participants followed by reflective note taking. Analysis was guided by an attempt to answer the questions, “What is happening here?” and “What am I learning about this?” (Thorne, Kirkham, & MacDonald-Emes, 1997, p. 174).

Results: The findings were captured in three themes: Legitimate Access, (Re)Discovering the Athlete, and Diversity Valued. Across both settings athletes articulated experiencing a strong sense of inclusion and personal value. Based on these findings, it appears that different sport streams, both integrated and segregated, can meet the individual needs of athletes and be experienced in positive ways that support athlete development and valuing of differences.

Implication/Conclusions: These findings challenge the notion that segregated programs and environments necessarily perpetuate inequity. At the same time, the contextual nature of these programs and history associated with forced segregation and marginalization of people with impairments must remain at the forefront of future recommendations for possible pathways through sport.
Examining the health benefits of a youth wheelchair basketball program

Deborah Shapiro (Georgia State University), JP Barfield (Radford University)

Introduction: The need to implement evidence-based health and wellness programs is an emerging issue in disability and health. Wheelchair sport is recommended by multiple health organizations as a possible health-promotion intervention for children and youth with physical impairments. Unfortunately, health promotion research in wheelchair sport has been examined almost exclusively among elite adult wheelchair athletes. Minimal evidence exists as to the physiological potential for sport to yield health benefits in children and youth with physical impairments. The purpose of this study was to document the intensity of youth wheelchair sport to see if it enables the recommended 60 minutes of moderate-to-vigorous-intensity exercise needed for good health.

Methods: A total of 26 youth with physical disabilities ranging in age from 9-18 years participated in the present study. Participants wore a heart rate monitor for the duration of each of three wheelchair basketball practices and completed the wheelchair pictorial ratings of perceived exertion scale.

Results: Heart rate averaged approximately 60% of maximum, a demand considered light-intensity exercise. Intensity varied by condition with scrimmage activity being the highest and tactical drills yielding the lowest. Subjective measures of intensity (RPE) were mostly consistent with objective measures (% HR<sub>Max</sub>). Players perceived most activities as light-intensity and scrimmage resulted in the highest perceived effort. Participants who used a wheelchair for activities of daily living averaged moderate-intensity exercise across dynamic and scrimmage conditions compared with ambulatory participants.

Implication/Conclusion: These findings support the ability of youth wheelchair basketball players to sustain light-intensity, but not necessarily moderate-intensity exercise, during a 60-90-minute wheelchair basketball practice. Wheelchair sport is a viable health promotion initiative as light-intensity exercise is associated with improved function and independence in this population, especially among manual wheelchair users. Future research should examine base level of fitness needed for participation in more competitive scrimmage and/or games and intensity measurement during actual gameplay.
Monday, October 1, 9:30: Thematic Poster Presentation (Biomechanics, Balance and Gait)

Kinematic analysis of gait symmetry among college students with and without ASD

Melissa A. Mache (California State University, Chico), Teri Todd (California State University, Northridge), Danielle Jarvis (California State University, Northridge), Dalal Almutib, (California State University, Northridge)

Introduction: Children with autism spectrum disorder (ASD) commonly exhibit deficits in balance and motor skills, such as walking. How these deficits persist or change as these individuals age into adulthood remains unclear. The purpose of this study was to examine gait kinematics among college students with and without ASD.

Methods: Twenty college students (10 with ASD) completed five walking trials at their normal pace down a 7.6 m long walkway. Trajectories of retroreflective markers attached to the participant were recorded at 250 Hz using a 12 camera 3-D motion capture system. Marker trajectories were filtered at 12 Hz and subsequently used to identify joint center locations and segment orientations. Dependent variables included bi-lateral differences in peak hip and ankle joint angles during the stance and swing phase. Independent t-tests were used to compare differences between groups. Alpha was set at 0.05. Statistical analyses were conducted in SPSS.

Results: During swing phase bi-lateral differences in peak hip flexion (p = 0.320) and dorsiflexion (p = 0.717) did not differ between groups. Bi-lateral differences in peak joint angles during stance phase also did not differ between groups (hip flexion, p = 0.285; hip extension, p = 0.780; dorsiflexion, p = 0.586; and plantar flexion, p = 0.241).

Implications/Conclusion: Individuals with ASD did not exhibit greater gait asymmetry compared to individuals without ASD. Possible explanations for the present findings include: (1) Deficits in motor skills among children with ASD are ameliorated with further development of the motor control system, or (2) the present sample is not representative of the population of individuals with ASD given the volume of walking they complete being on a college campus. Future research is needed to confirm the present findings and better understand the development of a motor skills across the lifespan among individuals with ASD.

A creative dance program improve a mobility in people with cerebral palsy

Hee Joung Joung (Seoul National University), Moon Seok Park (Seoul National University Bundang Hospital), Soo Kyung Kim (Seoul National University), Jae Bum Park (Seoul National University), Joo Eun Ahn (Seoul National University), Eun Joo Yang (Seoul National University Bundang Hospital), Yongho Lee (Seoul National University)

Introduction: The purpose of this study was to evaluate the effect of a creative dance program on mobility of people with cerebral palsy. Ten people with cerebral palsy (mean age=17.9 years, SD=3.75) classified at Gross Motor Function Classification System level (I =3, II=7) were participated in a creative dance program.
Methods: Participants were recruited from the Seoul National University Bundang Hospital in Korea by using convenience sampling. Creative Dance (CD) classes were performed two sessions per week for 12 weeks. The aims of CD are to develop their own movement by increasing body and space awareness, to explore various directions and pathways, and to create sequences with different movement. Gross motor function was assessed by the Gross Motor Function Measure D(standing) and E(walking, running & jumping) dimension. Gait kinematic parameters were evaluated using Kestrel digital system (Motion analysis co) in a laboratory. A study design was a single –cohort before and after comparison a study. The Wilcoxon singed rank-sum were used to examine collected data with significance set at \( p < 0.05 \).

Results: The results were as follows; 1) The GMFM D & E dimension scores significantly increase. 2) Temporal gait measurements showed decrease in timing of first double support (%) and increase in timing of single support (%), step length, stride length, cadence, walking speed. 4) Kinematic changes in a gait cycle showed decrease in hip and ankle sagittal plane ranges of motion. 5) Hip joint angles were significantly decreased at Opposite foot strike and Toe off. The maximum hip joint angle was significantly decreased during second double limb support stance. The maximum hip joint angle was significantly decreased. 7) The hip_ knee and hip_ ankle joint angle diagrams were closed to the normal gait diagram. A creative dance program was the effective intervention to enhance the mobility of people with cerebral palsy.

Balance capacities of age matched Brazilian and American male and female youth with Down syndrome: A comparative study

Fabio Bertapelli (University of Campinas, Brazil), Ken Pitetti (Wichita State University), Ruth Miller (Wichita State University), Stamatis Agiovlasitis (Mississippi State University), Emília Gama, Institute for Education and Research in Health and Social Inclusion, Brazil, Marcos Barros-Filho, University of Campinas, Adventist University of São Paulo, Brazil, Wilson Amaral-Júnior, University of Campinas, Adventist University of São Paulo, Brazil, Caio Constâncio, University of Campinas, Adventist University of São Paulo, Brazil, Marcos Barros, University of Campinas, Adventist University of São Paulo, Brazil, José Santos-Filho, University of Campinas, Brazil, Gil Guerra-Júnior, University of Campinas, Brazil

Introduction: Research using the Bruininks-Oseretsky Test of Motor Proficiency (BOT-2) has established that youth (8-21 yrs) with mild/moderate intellectual disability (ID), but without Down syndrome (DS), demonstrate motor proficiency (MP) below age-related competence for typically developing (TD) youth (Pitetti et al., 2017, 2018). However, MP for youth with DS was not reported. The purpose of the study was to gain insight into the MP of youth with DS in diverse cultural settings: Brazil (B) and the United States (US).

Methods: Eighteen B and US youth with DS were matched in age (13.6±3.4 yrs), gender (8 males, 10 females), and body mass index (BMI, kg/m^2). B = 25.3±3.6; US = 24.5±5.5). Seven items for balance (BAL) from the BOT-2 were used to evaluate MP: BAL-1 and BAL-4, standing with feet apart on a line, eyes open and closed; BAL-2, walking forward on a line; BAL-3 and BAL-6, standing on one leg on a line, eyes open and closed; BAL-5, walking on a line heel-to-toe; and BAL-7, standing on one leg on a balance beam, eyes open. For comparative purposes, all raw scores (steps, time) were converted to percent of test score ceiling (% of expected score).
Results: No significant differences were seen between countries (p ≥ 0.05): BAL-1 (B = 88.1±30%, US = 72.3±31 %), BAL-2 (B = 76.7±plusmn;34%, US = 85.8&plusmn;16 %); BAL-3 (B = 42.6&plusmn;36%, US = 61.08&plusmn;40%); BAL-4 (B = 70.6&plusmn;35%, US = 69.3&plusmn;29%); BAL-5 (B = 45.3&plusmn;41.1%, US = 58.8&plusmn;40%); BAL-6 (B = 21.4&plusmn;26%; US = 28.3&plusmn;22 %); and BAL-7 (B = 21.4&plusmn;19.1%, US = 31.3&plusmn;19%).

Conclusion: These preliminary results suggest that youth with DS have a general below age-related dynamic and static balance for TD youth, regardless of cultural diversity settings. Expanded number of DS participants is needed to corroborate these findings.

Acknowledgements: Fabio Bertapelli has scholarship by the Sao Paulo Research Foundation (FAPESP 2017/13071-4).

Effects of simulated horseback riding on balance and quality of life in older adults with Parkinson’s disease

Leah Goudy (Texas Woman’s University), B. Rhett Rigby (Texas Woman's University), Lisa Silliman-French (Texas Woman's University)

Introduction: Parkinson’s disease (PD) is characterized as a chronic, progressive movement disorder. Motor symptoms may include posture and balance dysfunction. Non-motor symptoms may include changes in cognition, sleep patterns, and mood. Any combination of these symptoms can impact quality of life (QoL). Horseback riding may be an effective modality to slow the progression of symptoms in those with PD. The use of a simulator can be a cost-effective option to horseback riding in a therapeutic setting. The purpose of this investigation was to determine changes in balance and QoL following 6 weeks of simulated horseback riding (SHBR) in older adults diagnosed with PD.

Methods: Purposive sampling was used to recruit 10 older adults with PD, 40 to 80 years of age, from across northern Texas. Participants completed a 6-week SHBR intervention that consisted of two, 60-min riding sessions per week. Aspects of postural sway, static and dynamic balance, and QoL were measured 6 weeks before, 1-week before, and immediately after the intervention.

Results: Pre-Intervention dynamic balance scores were significantly lower than Baseline scores (25.86 ± 4.36 vs. 28.25 ± 3.81; p = .001). Total balance scores at Pre-Intervention were also lower than Baseline (45.86 ± 6.42 vs. 48.36 ± 5.97; viii p = .050), and were increased at Post-Intervention when compared to Pre-Intervention (50.00 ± 4.38 vs. 45.88 ± 6.42; p = .002). No significant differences across time points were reported for measurements of postural sway, including reaction time and directional control. Only the cognitive impairment dimension of QoL exhibited statistical significance, as Post-Intervention scores were lower than Baseline (21.5 ± 14.4 vs. 37.5 ± 20.5; p = .007).

Implication/Conclusion: Six weeks of simulated horseback riding may significantly improve overall balance and cognitive impairment in older adults with PD.
Association between balance proficiency and physical activity levels in children and adolescents with Down syndrome

Magda Barros, University of Campinas, Adventist University of São Paulo, Brazil, Gil Guerra-Junior, University of Campinas, Brazil, Wilson Amaral-Junior, University of Campinas, Adventist University of São Paulo, Brazil, Marcos Barros-Filho, University of Campinas, Adventist University of São Paulo, Brazil, Luana Francalino, University of Campinas, Adventist University of São Paulo, Brazil, Ezequiel Gonçalves, University of Campinas, State University of the North of Paraná, Brazil, Caio Constâncio, University of Campinas, Adventist University of São Paulo, Brazil, José Santos-Filho, University of Campinas, Brazil, Emília Gama, University of Campinas, Institute for Education and Research in Health and Social Inclusion, Brazil, Stamatis Agiovlasitis, Mississippi State University, USA, Ken Pitetti, Wichita State University, USA, Fabio Bertapelli, University of Campinas, Brazil

Introduction: Some evidence indicates that motor proficiency (MP) is positively associated with physical activity (PA) levels in youth with and without disabilities. However, the evidence on the relationship between MP and PA levels is not entirely established in youth with Down syndrome (DS). This study evaluated the association between PA levels during physical education (PE) classes and MP in Brazilian youth with DS.

Methods: Nineteen youth with DS (11 boys; 8 girls; age 14±2.6 y) attending a special school, Brazil participated in this study. PA levels during eight PE lessons was measured with hip-worn ActiGraph wGT3X-BT accelerometer. MP was measured with the Bruininks-Oseretsky Test (BOT-2). Seven items for balance from the BOT-2 were used to evaluate MP: standing with feet apart on a line, eyes open and closed; walking forward on a line; standing on one leg on a line, eyes open and closed; walking on a line heel-to-toe; and standing on one leg on a balance beam, eyes open. Raw scores (steps, time) were converted to percent of test score ceiling (% of expected score). Accelerometer-determined variables included counts/minute (CPM), light, moderate, and vigorous PA, MVPA, and sedentary time (%ST).

Results: Mean±SD balance %ceiling, CPM, and %ST were 52.3±21.9%, 646±287 counts, and 54±15.5%, respectively. Balance was significantly associated with CPM (r = 0.60, p <.01) and %ST (r = -0.49, p <.05). Balance was not significantly correlated with time spent in light, moderate, and vigorous PA, and MVPA (r = 0.37 to 0.48, p >.05).

Implication/Conclusion: Balance proficiency was significantly associated with total PA and sedentary time during PE classes. The results suggest that improving balance may favorably impact the PA profiles of youth with DS during PE.

Acknowledgements: Fabio Bertapelli has scholarship by the Sao Paulo Research Foundation (FAPESP 2017/13071-4).
**Monday, October 1, 10:20: Thematic Poster Presentation (Physical Education and Teacher Education)**

Infusing disability examples into motor learning course for PETE majors

Maria Zanandrea (Brigham Young University)

Introduction: The training of Physical Education Teacher Education (PETE) majors to work with students with disabilities in inclusive settings results from collaboration efforts between PETE faculty, adapted physical educators, and the pedagogy profession. This training should be in the form of in-service, practical resources implemented into each course of the PETE program, and continuing specialized academic support by the APA professional.

Methods: The purpose of this session is to provide motor learning faculty ready-to-use disability examples and how to infuse them into each topic of the course to enrich the PETE majors learning opportunities about students with disabilities throughout the teaching preparation program. Examples shared in this session were developed by the author and have been implemented for the last two years in motor learning courses at two universities.

Implications: Many PETE programs require one course in Adapted Physical Activity (APA) which is very important, but alone does not provide enough exposure to prepare PETE majors to feel competent in including students with disabilities into general physical education programs; especially when the content of the APA course is not practiced or reinforced elsewhere in the program (Rizzo and Davis, 1991). As a result, the PETE curriculum may fail to prepare physical educators to include students with disabilities into their program. This might explain why physical educators have felt unprepared to provide appropriate programming for (Zanandrea, & Rizzo, 1998), and often express negative attitude toward teaching students with disabilities (Block, 2016; DePauw & GocKarp, 1990; Hodge, S.; and all 2012; Zanandrea & Rizzo, 1998). To successfully infuse disability issues throughout the PETE programs, the PETE faculty must support integration (Goekler, 1991) value education for all (Roper, 1991), and provide varied and rich educational strategies to PETE majors (Dunn, 2014; Sherrill, 1988, 2004; Tripp, A., and all, 2007).

**Physical Educator’s Awareness and Implementation of Inclusive Extracurricular Athletics for Students with Disabilities**

Erin Ashleigh Siebert (San Jose State University), Joonkoo Yun (Oregon State University)

Introduction: Despite a recent federal mandate that clarified the responsibility of federally funded schools provide an equal opportunity for students with disabilities in extracurricular athletics, programs might not provide services that offer meaningful participation and teachers might be unaware of the laws that mandate their existence. The purpose of this study was to examine physical educators awareness and implementation of inclusive extracurricular athletics for students with disabilities.

Methods: A national sample of 269 physical educators completed an online survey assessing their awareness of the policy, inclusion behavior, perceived behavioral control, intention, implementation intention, task efficacy and barrier efficacy towards inclusion of students with disabilities in
extracurricular athletics. Differences in awareness by teacher and school characteristics were examined using Chi-square tests. Separate hierarchical regressions were used to examine factors affecting implementation of inclusive extracurricular athletics. The first model included perceived control and intention, the second model added intention, implementation intention, barrier efficacy and task efficacy, and the third model added teaching focus, coaching and awareness.

Results: 63.7% of the sample were aware of the policy. Teachers with undergraduate adapted physical education coursework were more likely to be aware of the policy ($\chi^2 (1, n = 269) p = .01$) than those that had none. All models were significant. The full model, $R = .62$, $F(8, 261) = 20.65$, $p < .001$, predicted 38.89% of the variance with intention $\beta = -.15$, $p < .05$, implementation intention $\beta = .39$, $p < .001$, task efficacy $\beta = .31$, $p < .001$ and coaching $\beta = .15$, $p < .01$ as significant predictors of implementation.

Conclusions: Current channels of dissemination sufficiently reached the sample but more can be done to implement meaningful inclusion in extracurricular activities. Utilizing physical education teacher education curricula and service learning programs might help to promote sport participation and develop inclusion techniques.

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Determinants of Pre-Service Physical Educators’ Emotional Reaction to Challenging Behaviors

Hyunkyoung Oh, (California State University, San Bernardino), Mihye Jeong, (East Stroudsburg University), So-Yeun Kim (Northern Illinois University)

Introduction: The purpose of current study was to examine determinants of pre-service physical educators’ emotional reaction toward challenging behaviors of students with disabilities. Participants were, 207 pre-service physical educators (98 males; 109 females; $M = 22.78$ years, $SD = 4.49$), asked to fill out the Emotional Reaction to Challenging Behavior scale (Jones & Hastings, 2003).

Methods: Prior to regression analyses, the exploratory factor analysis (EFA) was conducted to explore feasible factor structure and loading of the scale using SPSS 24.0. Following data reduction, the subscales identified as “Fear/Anxiety” and “Depression/Anger” were regressed on key predictor variables (Behavior management class, APE related classes, Volunteer experiences, and Confidence) using multiple regression procedure. The EFA using principal component analysis method resulted in a four-factor (Depression/Anger, Cheerful/Excited, Fear/Anxiety, and Helpless) scale explaining 57% of the variability.

Results: The results of the regression of all four predictors produced $R^2 = .203$, $F (4, 198) = 12.64$, $p < .01$ for "Fear/Anxiety" emotional reaction. Another regression results indicated that the overall model significantly predicts “Depression/Anger” emotional reaction, $R^2 = .168$, $F (4, 198) = 9.97$, $p < .01$. It was found that only Confidence ($\beta = -.451$, $p < .01$) statically predict for “Fear/Anxiety” emotional reaction.
and Volunteer Experiences ($\beta = .151, p < .05$) and Confidence ($\beta = -.301, p < .01$) statically predicted for “Depression/Anger” emotional reaction.

Implication/Conclusion: Finding of the current study indicated that determinants of pre-service physical educators’ emotional reactions to challenging behaviors are volunteer experiences and confidence level.
Monday, October 1, 11:00: Building Session

Physical activity as an evidence-based practice: What outcome variables does the literature support
Francis M. Kozub, The College at Brockport (SUNY)

Primary Issues

The purpose of this forum is to create dialogue between adapted physical activity researchers on the use of physical activity to promote independence, improved health related fitness and functional skills, and to improve overall wellness in persons with disabilities. Further, from an educational standpoint, special educators have examined the use of physical activity as an intervention for challenging behavior. The issue in need of discussion is how to best use physical activity to improve outcomes for persons with disabilities in a way that promotes long term benefits (figure 1).

Figure 1. A model for examining physical activity interventions in the published research.

Session Significance

Special educators identify evidence-based practices from research findings and in some cases expert opinion from qualified individuals. This forum will review findings from research and rely on dialogue between adapted physical activity researchers to determine which outcomes are linked to physical activity prescription. It is without question that physical activity is beneficial for persons with disabilities; however, the nature of physical activity programming as well as the type of variables that are impacted by movement-based programing need exploration. Attendees will be provided information from over 40 published research studies and then asked to examine results in relation to use of physical activity to impact key outcomes for persons with disabilities.
Monday, October 1, 11:00: Mini-Lecture

A Review of the Psychometric Properties of the TGMD-3 from Several Countries: Application for Improving Research in Motor Development & Children with Disabilities

Dale Ulrich, University of Michigan

Presentation Purpose

The primary purpose is to review several important psychometric properties of tests and measurements and use the TGMD-3 as an example. A discussion of selected properties will occur and why these properties can improve your research, especially statistical power.

Session Significance

Researchers in adapted physical activity are always searching for appropriate tests or measurements to use in a research study given a specific question and population of interest. One consistent constraint we all experience in our research that may reduce our ability to publish our research is a lack of statistical significance. We develop an intervention and implement it with good fidelity. We have an appropriate control group to compare to our experimental group but when we analyze our results we obtain a p-value of .10 or greater and conclude the intervention was not successful. Assuming the intervention was appropriate, a likely explanation for a lack of significance frequently is that we were unable to get a large enough sample to achieve a reasonable level of statistical power. This presentation will discuss measurement properties, such as a lack of measurement precision that also reduce your statistical power. I will discuss things that I have learned and used with the TGMD 2 and TGMD-3 to reduce measurement error in research with a hope that these can be generalized to other tests and measurements.

Reference


**Monday, October 1, 11:00: Building Session**

Growing Together Aquaponics: A Transition Program Promoting Employment and Increased Quality of Life of Students with Intellectual Disabilities.

Robert Arnhold and Marena Toth, Slippery Rock University of PA

**Primary Issues**
The Workforce Innovation and Opportunity Act (2014) has placed significant financial and policy incentives toward serving high school students with disabilities in pre-employment transition services. Pre-employment transition services, work-based learning experiences, and postsecondary education opportunities has been found to be effecting in promoting overall employment rates as well as overall well-being. The Growing Together Aquaponic Program addresses several key factors for improving quality of life. These include Independence, Social Participation, and Well-Being (Schalock, 2012). Using a mentoring model, high school students with intellectual disabilities participate in one of three sequential transition programs offered through this urban farming program.

**Session Significance**
The Growing Together Aquaponic Program is a partnership between Slippery Rock University and the North Country Brewing Company in Slippery Rock Borough. Aquaponics, at the simplest level is the combination of aquaculture (raising fish) and hydroponics (the soil-less growing of plants). Within the past decade, this innovative approach to “green” agriculture has shown much promise as an ecologically sound means for large-scale food production. “By introducing students to aquaponics not only will they engage in learning the traditional subjects like never before, they are becoming literate in a skill-set that is the way of the future” (Fresh Farm Aquaponics, http://freshfarmct.org/about). Classroom adaptable aquaponics labs are increasingly appearing in secondary and postsecondary schools across the nation. The labs have the ability to transform the average classroom experience and provide hands-on learning experiences that are essential in learning difficult STEM concepts.

High school and college students with intellectual disabilities (Rock Life Postsecondary Education Program) along with their university and high school mentors manage the entire aquaponic program. Management includes fish care and maintenance, scheduling and planning vegetable and herb seeds, monitoring chemical balance of the system, harvesting crops when ready, packaging and delivery to the North Country Brewing Company restaurants and Pubs for use in their menus. Students are learning about urban farm techniques, science, technology, and math, and business management skills at a basic level.

Also included is a bicycle education program so that students can benefit from a physically active, social, and environmentally friendly transportation mode in a small community like Slippery Rock. The outcome to the program is that students with disabilities better understand where healthy foods come from, are changing their dietary habits by recognizing healthy foods in grocery stores, and are able to participate as leaders during mini-lessons to junior high school students and adult community residents.
Monday, October 1, 11:00: Verbal presentation (Physical Activity and Exercise Levels)

Do differences exist in sedentary activity between children with Autism Spectrum Disorder and Down syndrome?

Dominique K. Walker (Michigan State University), Isabella T. Felzer-Kim (Michigan State University), Janet L. Hauck (Michigan State University)

Introduction: Many prior studies on sedentary activity in youth have revealed that behaviors during childhood influence future adult behaviors. There are several health risks associated with sedentary lifestyles starting at a young age, including diabetes and cardiovascular disease. However, little is known regarding sedentary activity in children with disabilities. Therefore, the purpose of this study is to investigate sedentary activity in children with Autism Spectrum Disorder (ASD; n = 9) and Down syndrome (DS; n = 7) under 10 years old.

Methods: We examined sedentary activity of two samples of children with these diagnoses through the use of Actigraph wGT3X-BT accelerometers and subsequent sedentary analysis in ActiLife software. Statistical analysis included comparisons (MANCOVA) between the groups in several sedentary variables, including time in sedentary bouts, average maximum vector magnitude while in a sedentary bout, and average vector magnitude counts per minute while in a sedentary bout.

Results: The data revealed a significant difference between children with DS and ASD in the average maximum vector magnitude counts during sedentary bouts (F = 5.56, p = 0.04). The data did not show significant differences between children with DS and ASD in time in sedentary bouts (F = 1.15, p = 0.30) or average vector magnitude counts per minute during sedentary bouts (F = 0.23, p = 0.64).

Implication/Conclusion: These results were surprising because despite spending equivalent time durations in sedentary bouts, children with DS reached a higher maximum vector magnitude within these bouts than children with ASD. Therefore, understanding the nature of sedentary activity for children with ASD and DS could prove useful in intervention design and informing physical activity guidelines.

Effect of acute aerobic exercise on cerebral blood flow and cognitive function in individuals with Down syndrome

Sang Ouk Wee (California State University San Bernardino), Thessa Hilgenkemp (University of Illinois at Chicago), Tracy Baynard (University of Illinois at Chicago), Bo Fernhall (University of Illinois at Chicago)

Introduction: It is unknown if the cerebral blood flow (CBF) characteristics are related to cognitive function in individuals with DS at rest and post-exercise. Our study results add important scientific information about the effects of exercise on the cognitive function and CBF in Down syndrome research.

Methods: A total of 40 apparently healthy, young volunteers (20 DS) participated in this study. Cognitive function (AQT, Pearson Educ LTD, UK) and CBF characteristics (Transcranial Doppler, Multigon Industry
Inc., USA) were measured before, immediately after, and 30 minutes following a 20 minute moderate intensity treadmill walking. 2 X 3 analysis of variance (ANOVA) and correlation analysis were performed to investigate the effect of exercise and the relationship between the study variables, respectively.

Results: Cognitive function was significantly lower ($p<0.05$) in individuals with DS and the cerebral artery pulsatility index (PI) was significantly higher in individuals with DS compared to controls ($p<0.05$). However, mean middle cerebral artery blood flow velocity (mMCAv) was not different between DS group and control ($p>0.05$). Exercise did not alter the cognitive function ($p>0.05$) or mMCAv ($p>0.05$) in individuals with DS. Cognitive function was not related to mMCAv ($r=-0.085, p=0.61$), but was inversely related to aerobic capacity ($r=-0.411, p=0.01$) in the overall cohort. However, these correlations were no longer significant when the analysis was conducted within the DS group and control group separately.

Implications/conclusions: Our data show that cognitive function was not related to CBF velocity and moderate intensity exercise did not alter CBF velocity and cognitive function in individuals with DS. However, individuals with DS are more exposed to pulsatile blood flow, which may be detrimental to the cerebral vasculature. Further investigations in CBF during exercise is warranted.

Fundamental motor skill and physical activity levels of individuals with visual impairments in the United States, Latvia, and Bangladesh: Preliminary evidence for a proficiency barrier?

Ali Brian (University of South Carolina), J. Megan Irwin (University of South Carolina), Sally Taunton (University of South Carolina), Adam Pennell (University of South Carolina), David F. Stodden (University of South Carolina), Nancy Getchell (University of Delaware), Rehnuma Karim (Heroes for All/SUNY-Brockport), Aija Klavina (Latvian Academy of Sports Education), Lauren J. Lieberman (SUNY-Brockport)

Introduction: In 1980, Seefeldt introduced a concept of a hypothesized proficiency barrier between fundamental motor skill (FMS) competence and participating in sports/games. Recently, Brian and colleagues reconceptualized the proficiency barrier model to focus upon the “stability-mobility” trade-off, the role of FMS with physical activity, and to offer implications for self-actualization. Very limited empirical evidence exists to support the existence of a proficiency barrier. Recent works (e.g., DeMeester et al., 2017; Stodden et al., 2013) reveal support for the proficiency barrier but no studies include those with disabilities. Thus, the purpose of this descriptive-analytic study is to explore the potential of a proficiency barrier between FMS and physical activity for those with visual impairments/blindness (VI).

Methods: Individuals with VI ($N=77$, US = 30, Latvia = 17, Bangladesh = 30; ages 9-18 years, Mage = 14.09, SD = 2.21; Girls = 35.06%, Boys = 64.93%) from Bangladesh, Latvia, and the United States completed the Test of Gross Motor Development-3 (Webster & Ulrich, 2017) following all modifications previously recommended for those with VI (Brian et al., 2018). Additionally, all participants completed a demographic questionnaire and the Physical Activity Questionnaire for Children/Adolescents (PAQ-C/A; Kowalski et al., 2002).
Results: Results reveal no significant difference for ball skills, locomotor skills, or physical activity based upon location (p > .05). Regardless of location and after controlling for sex and degree of VI, participants revealed relatively low levels for both motor competence of physical activity and no significant differences (TGMD-3 and PAQ scores) based upon age (p > .05).

Implication/Conclusion: Implications include the potential for an extant proficiency barrier for those with VI. Future research should examine differences between those with and without VI for further empirical evidence to support the existence of a proficiency barrier.
Comparison of off-the-shelf and adapted active video gaming mats for individuals with mobility impairments

Laurie A. Malone, Sangeetha Padalabalananarayanam, Sean Bowman, Tapan Mehta, & Mohanraj Thirumalai, (University of Alabama at Birmingham/Lakeshore Foundation Research Collaborative)

Introduction: Active video games (AVGs) provide a means for increasing physical activity. However many gaming controllers are inaccessible for individuals with mobility impairments. The purpose of this study was to compare energy expenditure and enjoyment in persons with mobility impairment during AVG play using an off-the-shelf (OTS) and adapted gaming mat.

Methods: Design of the adapted mat included a reconfigurable button layout, variable actuation force, and consistent response over entire button area. Metabolic data were collected during a 20-minute baseline and four 10-minute bouts of game play; two bouts of Active Life Explorer (ALE) and Outdoor Challenge (ALOC) games on the OTS and adapted gaming mats. The PACES enjoyment scale was completed during rest. Data were analyzed by play style (sitting, standing). If participants were unable to stand, the game mat was placed on a tabletop.

Results: Sample included 70 participants, 38 men, mean age 44±13 years. For participants who played seated (n=44), METs were significantly (p<.05) greater on OTS mat than adapted mat for both games (ALE: 2.13, 2.02; ALOC: 2.29, 2.02). For participants who played standing (n=26), METs for OTS mat were significantly lower than adapted mat during ALE (3.18, 3.44), with no significant difference in METs between mats during ALOC (4.48, 4.21). PACES scores indicated that all players enjoyed the adapted mat with median scores of 4 on a 5-point scale.

Implication/Conclusion: The adapted gaming mat provided an opportunity for persons with varying levels of mobility impairment to successfully engage in AVG. Overall participants achieved light to moderate intensity exercise during AVG play. Seated players expended less energy with the adapted mat perhaps due to reduced force required to trigger the buttons. Next steps should include an AVG intervention using the adapted mat to examine health and fitness outcomes. Supported by NIDLRR grants 90RE5009-01-00, 90REGE0002-01-00.

A comparison of the systems of most-to-least and least-to-most prompting on the acquisition of muscle-strengthening exercises by adults with intellectual disabilities

Iva Obrusnikova (University of Delaware), Haley Novak (University of Delaware), Albert Cavalier (University of Delaware)

Introduction: Muscle strength is critical to maintain healthy levels of physical activity and achieve functional movements among adults with intellectual disabilities (ID) (Cowley et al., 2011). Carefully structured progressive resistance training (PRT) has the potential to improve muscle strength in adults
with ID (Shields et al., 2008). However, current PRT programs fail to provide detailed information on the instructional strategies used to guarantee PRT-exercise mastery. Since adults with ID have difficulty learning/performing new tasks, empirical evidence that validates instructional methods facilitating task mastery is needed. Prompting hierarchies provide a systematic and effective method of assisting individuals to learn and independently perform new skills. The two commonly used prompt reduction techniques are the system of least-to-most prompting (LMP) and the system of most-to-least prompting (MLP). The purpose of the research study was to compare the effectiveness of the two prompt reduction techniques on the performance of PRT exercises among adults with ID.

Research questions: (a) Are the systems of LMP and the MLP effective in teaching PRT exercises to adults with ID?; (b) Is either system more effective and efficient than the other?; and (c) Does either system result in the maintenance and generalization of the acquired skills?

Methods: Using an alternating treatments single-subject research design, three participants with ID (27-39 years; 1 woman) were recruited from a community organization. After establishing baseline performance, participants used visual activity schedules and systematic prompting with video prompts to promote performance. All coaches were trained. Baseline and treatment fidelity data were collected. The dependent measure was the percent of exercise steps (2 upper-body and 2 lower-body) completed without prompting and the level of prompting (i.e., verbal, video, gestural, physical). Descriptive statistics was computed for each participant, task, and treatment condition. Support for the existence of a functional relationship between gains was evaluated through visual analysis of the graphed data and changes in trends.

Results: All participants improved their performance after the introduction of the prompting. The LMP exercises showed slightly larger gains (M = 25.52%) compared to the MLP exercises (M = 23.84%). In both treatment conditions, the performance was maintained two weeks after the last treatment session and generalized to a different community-based setting.

Implication/Conclusion: This study provided preliminary data on the effectiveness of the two prompt reduction strategies on the acquisition of muscle-strengthening exercises in adults with ID.

The influence of a home-based adapted physical activity DVD for individuals with intellectual disabilities

Kyra Noerr (Franklin College)

Introduction: Regular physical activity decreases the risk of co-morbidities associated with a sedentary lifestyle for individuals with intellectual disabilities (ID). Individuals with ID are more sedentary than their non-disabled peers and have additional barriers that may prevent physical activity including access, proper instruction, and support. At-home physical activity programming provides a feasible alternative for exercise promotion and long-term adherence. Determining the most influential components related to adherence may provide opportunities to increase the behavior change towards regular physical activity for individuals with an ID. The combined constructs of the Social Cognitive Theory, specifically observational learning, and Family Systems Framework were used to support the research. The aim of
the study was to determine the extent to which an at-home DVD program affects physical activity adherence and the extent to which support influenced adherence.

Methods: Thirty-one subjects were randomized into a DVD or music group exercise intervention. The study used a two-way repeated measures MANOVA. Additionally, exploratory analyses were conducted to further understand the effects of the intervention.

Results: The two-way repeated measures MANOVA demonstrated the intervention DVD group was statistically significant compared to the music group with a large effect size in physical activity minutes (p = .014, ηp² = .236) and rate of perceived exertion (p = .002, ηp² = .342) compared to the music group. Support did not have a statistically significant influence on physical activity minutes or rate of perceived exertion.

Implication/Conclusion: The findings demonstrate the use of an adapted DVD increases physical activity minutes and rate of perceived exertion without high levels of caregiver support. Further research should investigate the physical and health benefits of an at-home adapted DVD physical activity intervention.

The effects of video models on tennis skills in adults with disabilities

Loriane Favoretto (Auburn University), Melissa M. Pangelinan (Auburn University)

Introduction: Video modeling enhances the consistency of demonstration across multiple observations and may help to increase motor skill acquisition in individuals with disabilities. The purpose of this study was to quantify changes in tennis skill resulting from an adapted program for adults with disabilities with and without the use of video modeling.

Methods: Two groups of adults with disabilities (n = 27) participated in an 8-week adapted tennis program (1-hour, 2x a week). In addition, participants in the video group had access to video models for each tennis skill provided via the IKKOS app. The degree of engagement of the participants in the video group was noted for each viewing session. To measure the quantity of practice during the sessions, the participants’ racquets were equipped with sensors that measured the number of forehands, backhands, and volleys performed. To measure the quality of the performance, pre- and post-test tennis skill assessments (process scores) were conducted for the forehand and backhand.

Results/Findings: The number of forehands across the weeks of adapted tennis training did not differ for both groups (p>0.05). However, significant improvements were observed for the forehand process score (p <0.001 for all). The number of backhands and volleys both increased for the video group across weeks (p<0.05 for both); this was not the case for the no-video group (p>0.05 for both). Both groups exhibited significant improvements in the backhand process score (p <0.001 for all). There were no group differences in the process scores despite differences in the number of movements performed.

Implications/Conclusion: Despite our predictions, the video models did not affect the acquisition of tennis skills. Moreover, despite some differences in the quantity of practice for the different skills during the training, the overall quality of the performance did not differ between the two groups.
Outcomes and challenges after 1 year of the exercise program for adults with Down syndrome

Simon D. Holzapfel (Arizona State University), Ann Shikles (Arizona State University), Shannon D. Ringenbach (Arizona State University), Nathaniel Arnold (Arizona State University)

Introduction: The mission of the Exercise Program for Adults with Down Syndrome (ExDS) is to provide an appropriate and wholesome physical activity opportunity to adults with Down syndrome, to provide students with a real-world, applied, and translational experience outside of the classroom in order to shape them into next generation of more inclusive fitness and health professionals. Data from the first year of the program are presented.

Methods: Participants completed two to three 1.5 hour exercise sessions per week for 10 weeks per semester. The exercise sessions consist of aerobic exercise, resistance training, balance training, and stretching. Undergraduate students worked as the student trainers for the participants with Down Syndrome. Implicit bias of the students was assessed with a computerized implicit association task. Data were collected in the beginning and at the end of each semester.

Results: Upper body strength increased by 13.3 ± 19.3%. Lower body strength increased by 29 ± 42.1%. Maximal aerobic workrate increased by 32.7 ± 8.8%. Berg Balance Scale scores did not change (+1.9 ± 6.9%). The implicit bias of the student trainers, but not the control group, showed a decrease from pre- to post-testing (t(1,19) = 2.21, p = 0.040).

Implications/Conclusion: These preliminary results are promising, but strong limitations include large variability and heterogeneity among participants with DS. Additionally, motivation and effort can vary widely between pre- and post-testing.
Dance intervention for children with Down syndrome and their parents

Laura Andrea Prieto (Syracuse University), Luis Columna (Syracuse University)

Background/Purpose
Dance is an enjoyable type of physical activity that can improve balance and psychosocial outcomes for children with Down Syndrome (DS). Physical activity participation decreases as people with DS pass through childhood and enter adolescence. Dance is an alternative to increase physical activity among these children. Furthermore, the positive role of family members is a facilitator of physical activity for children with DS. However, dance interventions for children with DS usually do not engage parents. As such, the purpose of this proposed intervention is to implement dance classes for children with DS and their families.

Research Questions
Our study aims to answer the following research questions:
1. What are parents’ perceptions and expectations of a family-focused dance program?
2. Does engaging parents of children with DS in a dance program result in differences in balance, perceptions, and physical activity?
3. Do children with DS improve balance and physical activity levels after a dance program?

Intervention/Methodology
We will recruit 10 families of children with DS between the ages of 9 to 15. Each family will participate in a weekly dance class for five weeks. 5 children will attend the class with their parents and the other 5 without their parents. All families will receive a booklet of choreography and dance activities to be incorporated at home. At the end of the dance program, there will be a dance showcase for family members. Semi-structured interviews will evaluate parents’ perceptions toward dance as a type of physical activity and barriers and facilitators to engage in physical activity. Balance will be assessed using the Nintendo Wii Balance Board, which has recently been validated as a tool to assess standing balance. Physical activity levels will be assessed using accelerometers. All measurements will be taken pre and post intervention.

Inclusion in Recess Understood from the Perspectives of Children Experiencing Disability

Rebecca Rubuliak (University of Alberta)

Background/Significance
Recess provides opportunities for outdoor free play and can contribute critically to children’s daily physical activity. Recent decades have seen a significant decrease in children’s outdoor play. This is problematic given that it facilitates engagement with peers, reduces feelings of isolation and is essential
for healthy child development (Tremblay et al., 2015). Recess is a valuable and significant experience in children’s lives, however children experiencing disability often withdraw or are excluded from recess.

Purpose/Research Questions

The purpose of this study is to perform an in-depth exploration of how children experiencing disability experience inclusion in recess. For the purpose of this research, inclusion is defined as a subjective experience of a sense of belonging, acceptance and value (Spencer-Cavaliere & Watkinson, 2010) and a respectful response to diversity within a space of encounter (Meininger, 2013). Specific research objectives are to:

- Explore children’s experiences of inclusion and exclusion in recess
- Explore these experiences through a relational ethics framework
- Provide an opportunity for children to share their thoughts, feelings and perspectives

Methodology

Interpretative phenomenological analysis (Smith, Flowers & Larkin, 2009) will be used to explore inclusion in recess for children experiencing disability attending integrated primary schools. This work will be guided by a relational ethics (Bergum & Dossetor, 2005) framework and used as a lens to interpret the findings, highlighting the importance of social relations within physical spaces for maintaining exclusionary/inclusionary practices. Data collection strategies will consist of one-on-one semi-structured interviews in the form of in-situ guided tours of the children’s recess environments, drawings, field notes, and reflexive journaling.

This research may contribute knowledge to developing strategies to facilitate inclusion in recess and free play that resonate with children experiencing disability, contributing to a critical knowledge gap and taking the responsibility off the child to be included in activities within their daily lives.

It Takes a Village: Disability and Family Life, A Phenomenological Exploration of Siblings’ Experience

Stephanie DiMaurizio (Brock University), Maureen Connolly (Brock University)

Introduction: My study aims to explore complex family dynamics experienced by neurotypical individuals living with a sibling experiencing disability. It will include how their unique family unit is comprised and how it has adjusted to meet the needs of all members over time. Relationships between sibling-and-sibling, sibling-and-parents, and sibling-and-extended family will be examined. My goal is to prompt siblings to reflect upon memorable or impactful experiences within their idiosyncratic contexts. The study aims to discover what insights occur for siblings that allow them to engage meaningfully with their family members.

Methods: Five phenomenological interviews will be conducted to gather lived experience descriptions. Research suggests that quality of life and personal growth are especially impacted by relationships between siblings, as it is the longest lasting family tie (Wolfe et al., 2014). Siblings of neuro-diverse
family members have reported fewer social, intimate and nurturing relationships than their peers with typically developing siblings (Caroli & Sagone, 2013), and less positive attitudes towards their disabled sibling than typically developing siblings (Tomeny et al., 2017). Disability literature has been dominated by themes suggesting that disability creates burden and inconvenience for families, negatively impacting those within its unit. The degree of disruption in life course and quality of life for siblings with a disabled brother or sister seems to be dependent on the limitations faced by the disabled individual (Wolfe et al., 2014), whereas an increase in positive relationships and attitudes with disabled siblings seems to increase life satisfaction (Tomeny et al., 2017). Through reviewing the research literature, it appears that there is an under-representation of unconventional family/cultural dynamics. Further exploration is needed to discover these unconventional dynamics as well as to understand the resultant generative problem-solving approaches.

Parental influences on physical activity behaviors in young children with developmental disabilities

Byungmo Ku (Oregon State University), Megan MacDonald (Oregon State University)

Introduction: Children with developmental disabilities (DDs) often experience motor skill deficits, reduced access and lack of social support to participate in physical activity (PA), resulting in decreased health benefits from PA.

Parents play an important role, directly and indirectly, in their child’s PA behaviors. However, little is known about how parents influence PA behaviors of young children (3 – 7 years old) with DDs. Loprinzi’s conceptual model (2010) may be helpful explaining this association. Thus, the purpose of this study is to examine how parents influence PA behaviors in young children with DDs using the Loprinzi’s model (2010). The results of this current study would be a building block to develop early intervention strategies for PA behaviors of young children with DDs

Research questions:
1. Do parental orientations (characteristics) directly or indirectly influence PA behaviors of children with DD?
2. Does parental support act as a significant mediator in the association between parental orientations and PA behaviors of children with DD?

Methods: The expected number of participants is 153, which was determined by Power analysis. An online survey will be used and includes eight sections: (1) demographic information, (2) parental PA, (3) parental enjoyment of PA, (4) parental importance of child’s PA, (5) perceptions of their children’s physical competence, (6) parental support, (7) parental awareness of an accessible PA environment (mediator), (8) child’s PA (dependent variable). Path analysis will be performed to test whether a multivariate set of variables fits within the conceptual model.

Alleviating stress and anxiety outcomes for parents of children with Autism Spectrum Disorders through family-centered early intervention

Lu Qu (University of Michigan), Dale Ulrich (University of Michigan)
BACKGROUND: Recently, the CDC announced the overall prevalence of ASD has increased to 1 in 59 US children. Although parents of children with ASD experience high levels of anxiety and stress that may be associated with severity of ASD symptoms, most early intervention focuses primarily on the needs of the child with ASD. Family-centered early intervention aims to provide services to the entire family by training parents to deliver parent-mediated intervention in home settings. This training empowers parents to make informed decisions that are in the best interests of their family. Despite motor deficits being present from an early age and early motor development having a strong association with early social and communicative development, the motor domain is usually neglected in screening and early intervention. The aims of the study are to explore the influence of family-centered early motor intervention on parents and children with ASD in terms of the parental stress and anxiety, parenting style, and developmental outcomes and ASD severity of the children. This study will provide parents with a repertoire of motor strategies to promote a positive home environment for children with ASD, therefore having a long-term effect on the children’s outcome.

PROPOSED METHODS: Families of children with ASD (<3yrs) will be recruited for participation. The family-centered early motor intervention combines a 12-session parent training and 12 home visits over 3 months. The Autism Diagnostic Observation Schedule-2 (ADOS-2) will be used to confirm ASD diagnosis and provide a measure of symptom severity. Parent’s stress level will be measured before and after the program using the Parenting Stress Index 4th edition (PSI-4-SF), the Depression Anxiety and Stress Scale (DASS-21). Parenting style will be measured using the Parenting Styles and Dimensions Questionnaire (PSDQ). Motor outcomes of children with ASD will be measured using the Peabody Developmental Motor Scales-3 (PDMS-3).

Positioning of Korean immigrant parents of children with Autism on Physical Education programming in the United States

Seo Hee Lee (Texas Woman's University), Suzanna Rocco Dillon (Texas Woman's University), Mary Amanda Stewart (Texas Woman's University)

With the U.S. special educational system, the number of students with disabilities from immigrant families continues to increase (U.S. Census Bureau, 2011). Like other parents in the United States, immigrant parents want appropriate and quality educational services for their children with disabilities, including physical education services (Cho, Singer, & Brenner, 200). Therefore, the purpose of the study is to analyze the positioning of Korean immigrant parents of children with ASD as it relates to physical education programming in the United States. Grounded in positioning theory, the current study will examine the different positions of Korean immigrant parents’ established with teachers delivering physical education services for their children with ASD (i.e., where they locate themselves and others (adapted and general physical education teachers) within the educational landscape). Research questions for this study are following; (a) How do Korean immigrant parents of children with ASD position themselves and others in the U.S. special education programs?, (b) How do Korean immigrant parents of children with ASD position themselves and others in Korea special education programs?, (c) How do Korean immigrant parents of children with ASD position their children to engage in adapted and general physical education classes?, and (d) How do Korean immigrant parents perceive barriers for their children with ASD to being involved in adapted and general physical education programs? Methods
of data collection will be detailed including (a) interviews with parents, (b) written documents, and (c) the researchers’ journal. In the fourth section, the researcher will discuss research design (i.e., a qualitative research design). Data analysis and trustworthiness will be addressed in the fourth and last section.
Monday, October 1, 1:00: Building Session

Simple Tools for Complex People

Maureen Connolly (Brock University), Elyse Lappano (Brock University), Demi Toms (Brock University), Stephanie Di Maurizio, (Brock University)

Primary Issues
Ongoing research has documented deficits in motor skill abilities in persons on the ASD spectrum as well as the benefits of participation in regular physical activity programs. While transition aged youth and adults on the ASD spectrum are under-represented in the research, even more underrepresented are persons characterized as ‘low functioning’, violent and aggressive, self-injurious and ‘non-verbal’. We will describe several ‘simple tools’ we use in our movement programs and explore broader applications and refinements to entice others to embrace participants with complex profiles.

Session Significance
In this session we describe how we created activity stations using an ‘insiders’ embodiment’ orientation to pedagogy that incorporated embedded, reciprocal resonances across movement and other embodied expressive modes. These activity stations had to be responsive to and meaningful for the neuro-diverse bodies of the teens and adults involved in our adaptive physical activity programs. The source of our inspiration for all our activity stations is the carnal bedrock of their neuro-diverse bodies, and the activity stations that we describe and analyze in this session, The BOSU STAR, and the BENCH CROSSOVER, and the SOMATIC SQUARE were no exception. It is our contention that it is humanely and pedagogically necessary to reimagine Autism from a non-medical model perspective, that is, from the embodied ground of the children, youth, teens and adults with whom we work. Further, attunement to bodily expressive modes can be taught, practiced and improved and this attunement, far from being esoteric or abstract, is deeply practical and embodied and allows for authentic pedagogic engagement between teachers and complex learners. Our simple tools also include using the very notion of embedding itself, as well as basic motor learning principles of task breakdown, random, serial and sequential practice, chaining, logical progressions, and transferable movement patterns deployed across stations for distributed practice. We will also describe how we use phenomenological propositions regarding sensation -perception thresholds, connects and disconnects, and free imaginative variations to inform the planning, de-escalation and re-direction strategies we use with our complex participants. We believe this session has significance for anyone who is interested in developing programing for adults, transition aged youth or other age groups of participants who have high support needs and who are typically under-served because of lack of appropriate training for interested practitioners, uninteresting or irrelevant activities, or normalizing programing agendas.
Effect of Adapted Physical Education and homework on gross motor development for young children with Down syndrome

Amanda Young (Texas Woman’s University), Lisa Silliman-French (Texas Woman’s University), David Nichols (Texas Woman’s University), Kathleen Kyzar (Texas Christian University)

Introduction: The purpose of this investigation was to examine the impact of early childhood APE and parent/caregivers implemented homework on the gross motor skill development of young children with Down Syndrome (DS).

Methods: Three groups were compared: (a) APE only, (b) APE plus picture card homework, and (c) APE plus instructional online video homework. The groups were compared to determine which intervention is the most effective in enhancing gross motor development for 19 young children with DS between the ages of 3 and 6 years old. Investigators chose to examine four specific object control skills during the interventions, and included: (a) throwing, (b) catching, (c) kicking, and (d) two-handed striking. The 12-week interventions consisted of high frequency APE services, as well as, parent implemented gross motor homework activities. The Test of Gross Motor Development (TGMD-2) was used for pretest, posttest and retention scores following a 12-week intervention.

Results: Based on the analysis of data, all groups made significant progress on object control skills, there was no significance between groups. According to family survey responses, qualitative data supported the use of homework for young children with DS.

Implication/Conclusion: Families enjoyed the presentation of homework materials and play time with family. Families also took note of developmental progress and gross motor activities for their children with DS.

Improving the overhand throwing performance of children with Autism Spectrum Disorder

David Adams (Humboldt State University), Lisa Silliman-French (Texas Woman's University)

Introduction: The purpose of this investigation was to compare the influence of three instructional conditions: (a) Direct Instruction only, (b) Direct Instruction plus Video Prompting, and (c) Direct Instruction plus Verbal Prompting on the performance of the overhand throw in children with autism spectrum disorder (ASD). Researchers have reported that children with ASD have consistently demonstrated delays in gross motor skill performance when compared to their typically developing peers (Berkeley, Zittel, Pitney, & Nichols, 2001). Therefore, there is a need to develop interventions specifically aimed at improving the gross motor skill performance of children with ASD.

Methods: A total of six students with ASD, aged 8 to 13 years attending a private school in Texas, were recruited for this investigation.
Results: Results from this investigation expand on previous reports which have demonstrated video prompting to be an effective instructional condition to influence the performances of children with ASD.

**Movement-based "Circle Time" games to improve at-risk preschoolers motor skills**

Amanda Tepfer (SUNY Cortland)

Fundamental motor skills (FMS) are the building blocks for mastering more complex and task-specific activities (Clark, 2005). However, studies suggest environmental and biological factors, such as low socioeconomic status and disability, negatively affect the development of FMS (cite 12, 13, 14, 15). **Purpose:** The purpose of this study was to examine the efficacy of a movement-based based intervention for at-risk preschoolers. Utilizing a random controlled design, analyses examined if children who participated in an 8-week movement-based intervention demonstrated greater gains in motor development compared to children in a control group. **Methods:** Young children between the ages of 2-5 years old (M age = 49.96, SD = 7.22) were recruited for this study (n=50, at-risk n=23, typical developing n=27). Developmental assessments were administered and included diagnostic, cognitive, and motor skill assessments. Preschool classrooms randomized into the intervention group participated in an 8-week intervention, twice a week. Developmental assessments were administered 12-weeks post-intervention for both groups. **Results:** Repeated measures ANOVA, revealed significant differences in motor skills between intervention and control. Children who participated in the intervention had significantly better locomotor (p<.10) and object control (p<0.05) skills. **Conclusions:** This study supports the effectiveness of movement-based activities during circle time. This intervention has implications to future early childhood initiatives for children at-risk.

**Locomotor skill development in response to an electronic visual exercise system in children with sensory impairments**

Sara Johnson (Eastern Kentucky University), Louisa A. Summers (Berea College)

Introduction: Children with sensory impairments associated with a physical or intellectual disability often have delay in fundamental motor skill development. Exercise Buddy (Exercise Buddy, LLC), is an electronic visual exercise system that was designed specifically for children with intellectual disabilities or sensory processing impairment (McDonald & Wegis, 2016). While little literature has explored the use of Exercise Buddy and its effect on motor skill development, this visual electronic application could potentially help to bridge the gap between technology interventions and motor skill development in children with disabilities (McDonald & Wegis, 2016). Exercise Buddy (EB) allows for a completely individualized approach to fitness-related skill instruction, including motor skill development. This application provides peer-modeled visual demonstration, through brief video clips of specific exercises (i.e. lunges, running, bicep curls, jumping, etc.). Video models on EB are accompanied by verbal cues, to further potentially increase effectiveness of instruction. The purpose of this study was to add to the body of literature observing the effectiveness of Exercise Buddy in participants with sensory impairments.

**Methods:** Eight children between the ages of seven and fourteen were recruited from a community based adapted physical activity program. Participants used the electronic visual exercise system one
hour during the program each week for six weeks. Paired sample t-tests were used to evaluate locomotor skill improvement in response to the Exercise Buddy intervention.

Results: No statistically significant findings were present when comparing the TGMD-2 scores from before to after the introduction of EB to the sessions. Overall, after the intervention, post-testing revealed four subjects decreased in locomotor skills, and four subjects remained the same, as compared to pre-test evaluations.

Implications/Conclusion: The development of motor skills, especially in children with diagnosed disabilities, can take much longer, as compared to the development of motor skills in typically developed children (Walkley et al, 1996). This intervention took place one day a week, for 20 minutes, six weeks during one semester. The researchers of this study believe that if the duration of the activity sessions were lengthened and the timeframe of intervention were extended, results may have been more different.

An examination of clinical sensitivity for the TGMD-3 with children with disabilities from the national normative sample

E. Andrew Pitchford (Iowa State University), E. Kipling Webster (Louisiana State University), Dale A. Ulrich (University of Michigan)

Introduction: Clinical sensitivity pertains to the construct-identification validity of a test, in that expected group differences can be observed. The Test of Gross Motor Development (TGMD) is a measure of gross motor performance, often used during eligibility determination for Adapted Physical Education services. Thus, it is critical that the test can identify differences in performance among children with disabilities. The present study examined the clinical sensitivity of the TGMD 3rd edition.

Methods: All data were from the TGMD-3 national normative sample. A total of 73 children (ages 3 to 10 years) with a developmental disability completed the TGMD-3 assessment, including 25 with an intellectual disability (ID), 32 with autism spectrum disorder (ASD), and 16 with attention deficit hyperactivity disorder (ADHD). Typically developing participants matched on sex, age, and race/ethnicity served as controls (n = 73), to examine if the TGMD-3 can discriminate between samples with and without disabilities.

Results: Mann-Whitney (U) group comparisons identified significantly lower ball skills (p<0.05) among children with ID, ASD, and ADHD compared to matched controls. Locomotor skills were also significantly lower (p<0.05) among children with ID and ASD. Area under the receiver operating curves (AUROC) also identified acceptable discrimination for the ball skills subtest in ID, ASD, and ADHD groups (0.82, 0.81, 0.76) and for the locomotor subtest in ID and ASD (0.84, 0.71), respectively. Differences for individual TGMD-3 skills varied across groups.

Implications/Conclusion: These findings indicate that the TGMD-3 is effective in discriminating gross motor performance among children with developmental disabilities associated with motor delays and deficits. The assessment is sensitive for identifying differences in both subtests among children with ID and ASD, but less sensitive for locomotor skills in ADHD. In conjunction with ongoing validation of the TGMD-3, these findings justify the use of the TGMD-3 and continued practice in Adapted Physical Education settings.
Monday, October 1, 1:50: Thematic Poster Presentation (PE/APE Experiences)

Females with visual impairments in Physical Education: Exploring the intersection between disability and gender identities

Justin A. Haegele (Old Dominion University), Amanda Yessick (Old Dominion University), Xihe Zhu (Old Dominion University)

Introduction: Individuals with visual impairments tend to report challenging experiences in integrated physical education, which can include instances of discrimination by their instructors who perpetuate ideals of inability and isolating social experiences among peers. The current literature in this area has focused primarily on the influence that having a visual impairment has on experiences, and has ignored addressing interrelationships with other forms of difference (e.g., gender). The purpose of this study was to use an explicitly intersectional approach to examine the embodied experiences of individuals identifying a female and as having a visual impairment in school-based PE.

Methods: An interpretative phenomenological analysis (IPA) research approach was used and nine adult women (ages 21-30) with visual impairments acted as participants for this study. The primary sources of data were semi-structured audiotaped telephone interviews and reflected field notes. Data were analyzed thematically using a three-step analytical process inspired by IPA.

Results/Findings: Based on the data analysis, three interrelated themes were constructed from the participant transcripts: “girls don’t like gym anyway”: limited participation from the female perspective; “she can’t do what other kids can do”: teachers’ expectations and unable-bodies; and “it was really awkward”: feelings about negative peer interactions. The first theme described the participants’ experiences with limited participation and the influence of gender and visual impairment on these limitations. The second theme described how the participants’ unable- or flawed bodies influenced their teachers’ expectations of their abilities in PE. The final theme demonstrated participants’ embodied perspectives toward bullying and other negative peer interactions.

Implications/Conclusions: Utilizing an IPA approach, the researchers constructed three themes that exposed central experiences and reflections which were informed by the participants identified gender and disability. Through the lens of intersectionality, these themes contribute to our understanding of how multiple identities (femaleness, visual impairment) contributed to disadvantages in PE contexts.
Confident Healthy Active Role Models (CHARM): Examining blend synergies between Teaching Personal & Social Responsibility (TPSR) and Arts-based educational strategies for transition aged youth experiencing mental-health challenges.

Julian Petrachenko (Brock University)

This research presentation examines the Confident Healthy Active Role Model (CHARM) program, an adaptive physical activity and life-skills intervention program for teens and youth who are under-served in the traditional classroom setting and designated “at-risk”. Based in a service learning pedagogy, the CHARM program attracts both graduate and undergraduate students in mentor, facilitator, curriculum developer and instructor roles. On a weekly basis, the group of students plan, design, and implement highly modified body and art expressive movement programming informed Arts-based educational strategies and Hellison’s Teaching Personal and Social Responsibility through Physical Activity Model (TPSR). The youth who attend the program manage a variety of developmental and mental health challenges that contribute to a range of social and behavioural issues, intense anxiety, and significantly compromised movement repertoires.

Our investigation was conducted using a qualitative, hermeneutic, constructivist lens and a case study approach. Multiple levels of analysis across several data sets yielded findings suggesting synergies between the life skills framework TPSR and arts-based education and how these synergies are used effectively when teaching a blend of TPSR and arts-based approaches in the context of an APA program.

Understanding the framework blend synergies reveals how they can work to support APA practitioners to create authentic, meaningful, dignified programming where students thrive because they already have the tools and knowledge to experience success. Moreover, this gives practitioners the opportunity to meet youth in the grey area where they make most sense of their worlds, where their interests and learning styles reside, helping them identify their own learning and social challenges, while providing the opportunity for practice before transferring that knowledge to the post-graduation world. In CHARM, this has manifest as APA programming that is reflective of participants’ realities, and social and cultural interests, while being responsive to their diverse and ever-changing needs.

Experiences of stress in physical education for elementary school children with movement difficulties

Chantelle Zimmer (University of Alberta), Janice Causgrove Dunn (University of Alberta)

Introduction: Children with movement difficulties (MD) experience significant and persistent problems that impact their learning and performance in physical education. Physical education experiences may therefore be perceived as stressful because they challenge or threaten children’s innate psychological needs for relatedness, competence, and autonomy. Skinner and Wellborn (1994) define coping as regulation of behaviour, emotion, and motivational orientation during psychological stress. Researchers believe children with MD demonstrate impulsive behaviour, emotional outbursts, and orientation away from stressful situations. The purpose of this interpretative qualitative study is to explore how children with MD experience and cope with stress in physical education and understand the perceived effectiveness of their responses.
Methods: Approximately 8-12 children with MD in Grades 4 to 6 will be recruited from elementary schools, with five children currently participating. Children with MD were asked to make pictures to show what physical education is like for them, which they discussed during the first semi-structured interview. A second interview was conducted with participants to learn more about their experiences. The audio-recorded interviews were transcribed verbatim and analyzed. Skinner and Wellborn’s (1994) theory of stress informed the interpretation of the findings.

Findings: Children with MD experience both challenges and threats to their psychological needs in physical education, in which adaptive and maladaptive responses are employed to cope. These findings contrast the literature that suggests children primarily use inflexible coping that would be associated with isolation, helplessness, escape, and opposition. Participating children also largely perceived their coping responses to be effective in alleviating experiences of stress.

Implications: Teachers play an integral role in shaping children’s experiences because they are responsible for planning and delivering quality lessons, cultivating a positive social climate, and monitoring learning and achievement. Teachers who create supportive conditions can foster greater engagement among children with MD and positively contribute to their holistic development.

Gender differences in the physical activity levels of youth with Down syndrome during physical education lessons

Marcos Barros-Filho, University of Campinas, Adventist University of São Paulo, Brazil, Gil Guerra-Júnior, University of Campinas, Brazil, Luana Francalino, University of Campinas, Adventist University of São Paulo, Brazil, Wilson Amaral-Júnior, University of Campinas, Adventist University of São Paulo, Brazil, Caio Constâncio, University of Campinas, Adventist University of São Paulo, Brazil, Ezequiel Gonçalves, University of Campinas, State University of the North of Paraná, Brazil, Magda Barros, University of Campinas, Adventist University of São Paulo, Brazil, José Santos-Filho, University of Campinas, Brazil, Stamatis Agiovlasitis, Mississippi State University, USA, Fabio Bertapelli, University of Campinas, Brazil

Introduction: Youth with intellectual disabilities (ID) have lower school-time physical activity (PA) levels than youth without ID. However, there is little information on the influence of gender on PA levels in youth with Down syndrome (DS) during physical education (PE) classes in special schools. This study examined whether gender predicts PA levels during PE classes in youth with DS.

Methods: Twenty-four youth with DS (13 boys and 11 girls, age 14.6±2.3 y) attending a special school, Brazil participated in this study. PA levels during eight PE lessons, lasting 30-48 min, was measured with hip-worn ActiGraph wGT3X-BT accelerometer. Accelerometer-determined variables included counts/minute (CPM), sedentary time (%ST), and moderate-to-vigorous PA (%MVPA). We conducted hierarchical linear regressions for each of these variables and possible predictors were age, ID level, and gender.

Results: Males had higher CPM (911 vs. 505), and %MVPA (14 vs. 7), and less time in sedentary activity (47 vs. 61) than girls, even after controlling for age and ID levels (p <.05). Hierarchical regression showed that age and ID level did not contribute significantly to the initial model (p >.05) and accounted for only

73
7.6%, 9.6%, and 8.5% of the variation in %ST, MVPA, and CPM, respectively. Introducing gender yielded significant changes in $R^2$ ($p < .05$) with models explaining 20.8%, 19.5%, and 22.6% of the variation in %ST, MVPA, and CPM, respectively.

Conclusion: Gender contributes to PA and sedentariness levels of youth with ID during PA education lessons in Brazil even after adjustment for age and ID level. Physical educators should cautiously attempt to address this disparity.

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Physical and social behaviors of preschoolers with and without disabilities during unstructured playtime

Seokheon Kang (Oregon State University), So-Yeun Kim (Northern Illinois University), Lauriece L. Zittel (Northern Illinois University), Marilyn Looney (Northern Illinois University)

Introduction: Physical activity plays an important role in the development of fundamental movement skills and social interaction skills in preschoolers. Purposes of the study were to 1) examine preschoolers’ physical activity levels, physical activity choices, and the type of social interactions during designated large gross motor time and 2) examine gender differences and group differences among preschoolers with and without disabilities, and those at risk.

Methods: Sixty preschoolers (30 male and 30 female; 20 preschoolers each group), aged from 36 to 72 months, participated in this study. The Physical Activity Level Screening, systematic observation tool, was used to examine physical activity levels, physical activity choices, and social interactions of preschoolers during 25 min of large gross motor time. A two-way analysis of variance (ANOVA) was used to examine differences between physical activity levels and social interactions for group by gender.

Results: There were significant main effects for groups, $F (2,54) = 4.192$, $p = .02$. Preschoolers at risk were significantly more active than preschoolers without a disability ($p = .02$). There was no significant main effect for gender. Regarding physical activity choices, the average percentages of ‘Portable’, ‘Fixed-equipment’, ‘Sedentary’, and ‘Locomotion’ for three groups were 6.3%, 44.9%, 27.7%, and 21.1%, respectively. Results from the two-way ANOVA indicated a significant main effect for group, $F (2,54) = 8.994$, $p < .001$. Preschoolers at risk were more interactive with peers than those with/without disabilities. There was no significant difference in social interactions between preschoolers with and without disabilities.

Implication/Conclusion: Results of this study indicated that preschoolers across three groups engaged in light physical activity levels, and had limited social interactions with peers during designated large gross motor time. More structured large gross motor time in preschool settings should be considered to promote physical activity and social interactions in preschoolers with all abilities.
Monday, October 1, 2:45: Building Session

Translating APE research to community-based youth development programs.

Jennifer Taylor-Winney: Western Oregon University, Kerri A. Vanderbom, National Center on Health, Physical Activity and Disability, Gloria Krahn, Oregon State University, Marilyn Lesmeister, Oregon State University Extension, Leanne Giordono, Oregon State University, Meghann Fenn, Oregon State University

Primary Issues
This building session will focus on developing ideas, strategies, and next steps for translating current findings from APE research to community youth development programs in order to successfully facilitate inclusion of youth with disabilities.

Session Significance
For over 40 years research has been conducted to explore effective inclusion and instruction for youth with disabilities (YWD) in adapted physical education (APE) and general physical education settings. As a result universities, schools, and individual teachers have been able to receive training and put into practice strategies and programs to promote and facilitate successful inclusion in schools. Community based research has also focused on accessibility and inclusion of individuals with disabilities. However, youth development programs (YDP) have not been a priority in the past. Recently, 4H, one of the largest youth development program in the U.S has developed an initiative to address the inclusion of youth with disabilities in their programs. Utilizing past research from APE and pulling ideas and suggestions from experts in the field of adapted physical activity (APA) may help to translate key findings to community youth development programs to ensure successful inclusion of youth with disabilities.
Monday, October 1, 2:45: Verbal presentation (Physical Activity Behavior)

Sedentary behavior in people with Down syndrome across the lifespan: A systematic review

Stamatis Agiovlasitis (Mississippi State University), Poram Choi (Mississippi State University), Anthony T. Allred (Mississippi State University), Jian Xu (Mississippi State University), Robert W. Motl (University of Alabama at Birmingham)

Introduction: Individuals with Down syndrome (DS) experience health disparities which may be associated with high levels of sedentary behavior (SB). We therefore conducted a systematic review of the literature on SB measurement, levels, patterns, correlates, consequences, and interventions in people with DS across the lifespan.

Methods: Using DS- and SB-related keywords, two researchers independently searched Embase; Pubmed; Web of Science; Scopus; Cinahl; PsycINFO; SportDiscus; and Cochrane Library. Studies were included if they were: quantitative; published in English in peer-reviewed journals since 1990. Studies were excluded if they: defined SB as not meeting physical activity recommendations; combined sedentary and light activity times; included individuals with DS in larger samples of individuals with intellectual disability without reporting data or analyses for DS.

Results: The search yielded 4,069 articles, and 15 met the inclusion criteria. Twelve studies measured SB with accelerometers using various cut-points, 4 used questionnaires, and 1 direct observation. Across studies, SB time was 555 min·day⁻¹ (range 311 – 902 min·day⁻¹). SB comparisons between people with DS and people with intellectual disability were inconsistent. No study compared SB between people with DS and people without disabilities. Most notable correlates of SB among youth with DS were: age; not being the first or second child in the family; older maternal age; lower TV viewing time; higher parental perception of physical activity benefits; and lower community walkability. Consequences of SB in individuals with DS have not been studied. A 5-week intervention for teaching youth with DS how to ride a bicycle resulted in reduction of accelerometer-determined SB.

Implication/Conclusion: The study of SB in people with DS is in early stages. It is difficult to conclude on levels, patterns, correlates, consequences, and interventions for SB in people with DS across the lifespan. There is a need to systematically examine these issues.

Spousal support and the self-determined physical activity behavior in adults with multiple sclerosis

Kurtis Stoeckel, (University of Vermont), Susan L. Kasser (University of Vermont)

Introduction: It is well documented that even modest amounts of physical activity can protect against comorbidity and improve physical function in people with multiple sclerosis (MS). Despite evidence of benefit, the majority of people with MS differ in levels of physical activity compared to individuals without the disease. It is, therefore, important to better understand the motivational underpinnings that facilitate physical activity in this group. The purpose of the study was to examine spousal behaviors
that support the autonomy, perceived competence, and social relatedness underlying self-determined motivation for physical activity in those with MS.

Methods: A web-based survey was sent to individuals with MS from the northeast region of the United States. The survey measures included the Patient-Determined Disease Status (PDDS), Self-Efficacy to Exercise scale (SEE), Spousal Support for Physical Activity scales (SSPA), and International Physical Activity Questionnaire (IPAQ). Scale reliabilities and Spearman rho correlations were determined. A simple linear regression was then calculated to predict total METs based on significantly correlated SSPA subscales.

Results: The 112 participants were, on average, 56 years old, married for 27 years, and diagnosed with MS for 17 years. Scale reliabilities were .92, .93, .91, .90, .90, and .80 for self-efficacy, relatedness, expectation, co-planning, autonomy, and negative control respectively. When controlled for age and disability status, spousal support strategies of relatedness, expectation, co-planning, and autonomy significantly predicted total METs ($F(6,105) = 3.27, p<.01$) and contributed 10% to overall physical activity levels of those with MS.

Implication/Conclusion: The potential health benefits of physical activity in those with MS suggest a need for supportive contexts that offer a platform for self-determined activity participation. Holistic interventions that focus on spousal behaviors which support the need for relatedness, competency, and autonomy underlying self-determined motivation to exercise may hold promise.

A systematic review of application of Theory of Planned Behavior to physical activity of adults with physical disabilities

Myung Ha Sur (Georgia State University), Deborah Shapiro (Georgia State University)

Introduction: The importance of physical activity (PA) across the lifespan and risks of physical inactivity have long been emphasized for its impact on physical health and quality of life. The purpose of this review was to identify how and to what degree the Theory of Planned Behavior (TPB) has been applied to understanding physical activity intentions and behavior among adults with physical disabilities. Research questions guiding this review were (a) which physical disability populations and which types of physical activity have been studied using the TPB? (b) How has the TPB been implemented in research involving people with physical disabilities? And (c) how well did components of TPB predict intention to engage in physical activity and actual behavior?

Methods: PRISMA framework was used to guide the flow of the review process. A total of 12 studies were selected to the review. Descriptively, persons with spinal cord injury (SCI) were most frequently studied. Research primarily used quantitative self-reporting questionnaires to examine leisure time physical activity behavior. In general, attitude, perceived behavioral control (PBC), and intention seem significant predictors for physical activity intention, but inconsistent results were found from subjective norm. PBC also had inconsistent results when the relationship with actual behavior was measured.
Results/Implication: Findings in the review support the positive relationship between attitude and intention to actual behavior, but further study is needed to examine contributions of subjective norm and PBC to intention and actual behavior. Additional variables to PBC and subjective norm may provide a more thorough understanding of the uniqueness of living with a physical disability on intentions and actual physical activity behaviors which may precipitate the use of alternative theories to that of TPB in this population.

**A systematic review of social skills common to physical activity-based interventions for individuals on the autism spectrum**

Andrew M. Colombo-Dougovito (University of North Texas), Jihyun Lee (San Jose State University)

Introduction: Emerging evidence has shown that exercise and physical activity have a great potential benefit for individuals on the autism spectrum (Dillon et al., 2017; Lang et al., 2010). Further PA has been shown to have many benefits to improve a variety of behaviors including social-communicative behaviors (Bremer, Crozier, & Lloyd, 2016). Yet, there has been little consensus of the type or amount of PA necessary to improve social skill development in children and adolescents on the autism spectrum. Thus, the purpose for this review was to synthesize the findings of PA-based interventions that focus on social skills outcomes to identify key components and provide guidance for future research.

Methods: This review, therefore, systematically examined the published literature since 1990 to 2017 regarding these topic areas. The comprehensive search resulted in eighteen articles that met inclusion criteria.

Results: Overall, this review revealed a great deal of variability in terms of types of PA, social skills, instruments, and intensity. Included studies showed PA-based interventions that ranged from team sports to individual pursuits to general play. Additionally, studies revealed no agreement regarding the types of social skills that exist in PA settings or improve as a result of PA engagement.

Discussion: Although the included studies show the benefits of PA-based interventions to assist in the improvement of social skills, there is a significant lack of consensus about the appropriate social skills to focus outcomes. Without an appropriate construct, evaluating the efficacy and effectiveness of PA-based intervention will be difficult. This review provides a foundation for future research that can identify the appropriate components to be included in PA-based interventions and what social skills need to be the focus of the treatments.

**Children's physical activity participation by disability existence, gender, and age**

MooSong Kim (Northeastern State University), Jaehun Jung (Oregon State University), Maria Kosma (Louisiana State University)

Introduction: Participating in a variety of physical activities (e.g., sports and recreational activities) has unique benefits among children with and without disabilities, including improved motor skills, fitness levels, and social relationships. Therefore, the study purpose was to examine if disability existence,
gender, and age predicted differential physical activity participation patterns among children with and without disabilities.

Method: Based on the 2013-2014 and 2015-2016 National Health and Nutrition Examination Survey, types of physical activity over the past week and demographic information was retrieved among 4,348 children between the ages of 7 and 17 years old. There were 487 youth with disabilities and 3,861 youth without disabilities. Children with disabilities were defined as children who received special education or early intervention services.

Results: The top three exercise types identified by both children with and without disabilities were fitness activities (43.1%), team sports (34.6%), and recreational activities (27.9%). Based on logistic regression analyses, children’s participation in team sports was predicted by disability existence (OR = 0.69, 95% CI = 0.56-0.86, \( p < .01 \)), age (OR = 0.85, 95% CI = 0.83-0.87, \( p < .001 \)), and gender (OR = 3.245, 95% CI = 2.83-3.72, \( p < .001 \)). Age predicted both participation in fitness activities (OR = 0.73, 95% CI = 0.72-0.75, \( p < .001 \)) and recreational activities (OR = 0.65, 95% CI = 0.63-0.67, \( p < .001 \)); gender also predicted participation in recreation activities (OR = 0.68, 95% CI = 0.59-0.80, \( p < .001 \)). Children with disabilities were less likely to engage in team sports than children without disabilities during PE (OR = 0.58, 95% CI = 0.39-0.89, \( p < .05 \)), whereas disability existence did not predict participation in team sports outside PE. Youth with disabilities were more likely to participate in fitness activities than youth without disabilities (OR = 3.34, 95% CI = 1.22-9.2, \( p < .05 \)) outside of school PE.

Implication/Conclusions: According to our study findings, children with disabilities might have similar opportunities for types of physical activity compared to children without disabilities. Furthermore, the study found that age and gender were important factors to predict types of physical activity participation among children with and without disabilities (e.g., males are more likely to engage in team sports compared to females). However, children with disabilities might have different opportunities of physical activities in accordance with contexts (e.g., physical education or outside school activities). Specifically, children with disabilities were less likely to participate in team sports than youth without disabilities during PE. Future studies need to examine underlying reasons for differential exercise patterns based on children’s unique physical activity settings and societal/cultural experiences.


**Monday, October 1, 2:45: Student “work-in-preparation” proposal presentation**

The Relationship between motor skill development and emotional development in young children with developmental disabilities

Jodi Stinson (Oregon State University)

Developmental disabilities (DD) are a set of disabilities characterized by deficits in one or more domains including self-care, learning and behaviour. Children with DD’s have been observed to have delays in motor skills compared to their age matched peers without disabilities. Better motor skill development has been positively linked to a child’s social, cognitive and physical development. In addition, children with motor skill delays are shown to experience more internalizing behaviours (e.g. anxiety, depression) and these early motor difficulties may be an important indicator for future delays in emotional development. Other studies have found positive relationships between better motor skills and positive behaviours in children with intellectual disability, autism spectrum disorder (ASD), and attention deficit hyperactivity disorder (ADHD). A study examining the relationship between motor and behaviour skills in disadvantaged preschool aged children found that deficits in fine motor control were associated with greater hyperactivity and that gross motor skills were linked with greater anxiety, apprehension and depression. Previous studies have focused on the relationship between motor skills and emotional development in children of various disabilities between the ages of 6 and 21 years and in typically developing children. However, how this relationship persists in preschool aged children with DD’s and how it projects longitudinally is relatively unknown. Therefore, the purpose of this study is to cross-sectionally and longitudinally examine the relationship between motor skill development and emotional development in preschool aged children with DDs. It is hypothesized that children who have more proficient motor skills will have delays in emotional development and that this trend will continue with age between three and five years. Methods: Data for this project will come from the Oregon Parenting Project (n= ~150), the methodology is still under consideration.

The effects of a school yoga program on children's core strength, postural control, and motor coordination

Carissa Wengrovius (University of Michigan)

Background: Children today are experiencing life stressors that directly impact their ability to learn and participate in school. Yoga is a mind-body practice that is used by a growing number of youth to improve overall health and well-being. Schools are an ideal setting to teach healthy lifestyle skills and behaviors. Previous research suggests yoga can benefit students’ mental and social/emotional health. A few preliminary studies have also demonstrated that a school-based yoga program can improve children's motor abilities.

Significance and Purpose: Most research on school-based yoga interventions have had methodological limitations, resulting in mixed conclusions regarding the efficacy of yoga. More importantly, researchers have yet to thoroughly explore the effects of yoga in school-aged children with developmental delays and documented disabilities. This study will address previous methodological limitations and explore
new pedagogic approaches. The purpose of this study is to determine the effects of a yoga program integrated into the classroom’s story/circle time on children’s core strength, motor coordination, and postural control.

Specific Research Question: What are the effects of a school-based yoga intervention on children’s core strength, postural control, and motor coordination?

Aim 1: Assess the difference between an intervention and control kindergarten classroom.
Aim 2: Assess the difference between pre- and post-intervention in a special education classroom.

Methodology: Children will participate in a daily, 25-30 minute yoga intervention for 8 weeks. Circle time will be led by a physical therapist who is also certified in kids yoga instruction. The intervention will include reading a book while integrating the four primary components of yoga: static and dynamic physical postures, regulated breathing activities, meditation/mindfulness practice, and deep relaxation. Outcome measures will be administered pre-, post-, and 8-week post intervention and will include the Bruininks-Oseretsky Test of Motor Proficiency and the Pediatric Clinical Test of Sensory Interaction for Balance.

Effects of open- and closed-skill exercise interventions on motor skills and executive function of children with Autism Spectrum Disorder

Ming-Chih Sung (Oregon State University)

Introduction: Children with autism spectrum disorder (ASD) experience difficulties in social interaction and communication and exhibit restricted patterns of behaviors. In addition, children with ASD typically experience delayed motor skill development and executive dysfunctions have been reported. Empirical research has indicated that exercise interventions may serve as an effective treatment to improve motor skills and executive function in children with ASD. However, most studies have focused on closed-skill exercises (such as riding a stationary bike). How open-skilled exercises may impact motor skill development and executive function is relatively unknown. Participating in open-skilled activities may have a different effect because it requires constant behavioral adaptation in an unpredictable environment. Therefore, the purpose of the study is to evaluate the effects of an open skilled exercise intervention (e.g., badminton) on motor skill development and executive function in children with ASD.

Specific research question: How does an open-skilled exercise intervention impact the motor skill development and executive function of children with ASD?

Methodology: 21 children with ASD, aged 6-12 years, will be recruited for this study. The participants will be randomly assigned to one of three groups: An open-skilled intervention (n = 7), a closed-skill intervention (n = 7), or control (n = 7). Outcome measures will include the Test of Gross Motor Development-2 (TGMD-2), the CANTAB Spatial Working Memory (SWM), and the Stockings of Cambridge (SOC) will be conducted before and after 12-week exercise intervention. A between group ANOVA will be conducted for the outcome variables of motor skills and executive function. The significance level will be set at p < 0.05.
In pursuit of health equity for collegiate athletes with physical disabilities: Audit of program availability and characteristics within the United States

Kathleen McCarty (Oregon State University), Antoinette Domingo (San Diego State University), Megan MacDonald (Oregon State University)

Introduction: Section 504 of the Rehabilitation Act and the Individuals with Disabilities in Education Act (IDEA) specify that no individual should be excluded from participation in activities of employment or education based on their ability. A Dear Colleague Letter released by the Office of Civil Rights clarified these mandates as it relates to extracurricular and athletic activities at the elementary and secondary education levels. However, there is no such policy for colleges and universities within the US, leaving little to no opportunities available to collegiate students, lessening the impact of the mandate and program availability overall. People with disabilities are a known health disparity group and college students with disabilities are not being afforded the same access to sporting opportunities despite research indicating that those who participate in college sport programming have a higher rate of graduation, employment, and improved overall health. The aim of this proposal is to evaluate current access to sport programming at a collegiate level within the United States for students with physical disabilities and to identify potential clusters of features that could be associated with program barriers and successes.

Methods: Data collection will include a survey distributed to program leaders of known collegiate sports programs. Questions will address areas pertaining to program structure and logistics, personnel, funding sources, competition level, sports offered, and facilities access. It is hypothesized that some facilitators and barriers will be identified through top programs (e.g., University of Alabama, University of Illinois). Survey generation and data collection will be initiated during Summer 2018.

Active play as a means to positively affect gait in children with Cerebral Palsy after onset of stable gait

Larken Marra (University of Michigan), Dale Ulrich, (University of Michigan)

Introduction: The musculoskeletal impairments associated with cerebral palsy (CP) often reduce walking speed, shorten stride length, and increase the amount of time spent in double-support. Children with CP also tend to have poor balance and higher incidences of falls, as compared to their same aged, peers without CP. Research in this area has supported the use of strength training as a way to increase mobility and positively affect gait parameters. However, most of the work done is either before the age of two to influence the acquisition of independent walking or in adolescence when gait patterns have already been established. With that said, there appears to be gap in terms of promoting a positive trajectory of development during childhood. Therefore, the aim of this study is to incorporate structured, community based programming that focuses on whole-body active play to increase coordinated function and overall gait in young children with CP.

Methods: Children approximately 4-7 years of age, with hemiplegia or diplegia who have established stable gait (defined as the ability to take 10 alternating steps without assistance or falling) will be recruited for this study. The program will meet for 12-weeks, once a week for an hour. Sections D
(standing) and E (walking, running) of the GMFM will be used to assess motor abilities both pre and post intervention and at week 6 to better understand trajectory of development. Changes in stride speed, length, and time in double support will be analyzed pre and post intervention using Motion Capture and Visual 3D programming in order to determine if gait parameters can be positively altered within the time frame established.
**Monday, October 1, 2:45: Thematic Poster Presentation (College Student Experiences with Disability)**

**Obesity and perceived exercise benefits and barriers among college students**

Alexandra Szarabajko (Eastern Kentucky University), James Larkin (Eastern Kentucky University), Heather Adams-Blair (Eastern Kentucky University), Jonathan S. Gore (Eastern Kentucky University)

Introduction: For traditional college age students, the transition to college is associated with increased autonomy. Greater autonomy comes with greater responsibility in domains such as body weight and physical activity. The purpose of this study was to determine whether college students’ perceived exercise benefits and barriers differed on the basis of their overweight, obese, and normal weight status. Participants: College students (n = 595) from Eastern Kentucky University took part in this study.

Methods: Secondary data from 2014 was used before the elimination of the physical education graduation course requirement. College students completed a perceived exercise benefits/barriers questionnaire and had their body weight status assessed (i.e., BMI, body fat percentage, and waist circumference).

Results: Significant differences in perceived exercise benefits and barriers were mostly found between those students classified as normal weight and obese. Overall, normal weight students perceived greater exercise benefits and fewer barriers than overweight and obese students.

Implication/Conclusion: Seeing this differential distribution among non-disability population groups, future research is warranted to determine whether exercise benefits and barriers of college students with disabilities are experienced similarly. If observed, the resulting information may aid campus officials in eliminating potential obstacles, such as lack of place, unawareness of exercise choices, and discrimination for students with disabilities, all in a quest to help make exercise more accessible on campus for everybody.

**Guidelines for implementing university/college physical activity courses and programs for students with disabilities**

Dal-Hyun Moon (San Francisco State University)

Introduction: Approximately 11% of U.S. undergraduate students have a disability (2011-2012 National Center for Education Statistics). Despite recognition of the numerous benefits of physical activity (PA), university/college (UC) students with disabilities are less physically active than those without disabilities (Yoh, Mohr, & Gordon, 2008), and participation remains the same or gets lower after graduation (Sparling & Snow, 2002). Physical inactivity is the fourth leading risk factor for global mortality (WHO, 2010). Since the number of UC students with disabilities in higher education has grown in the past decade, success in promoting PA for this population is critically important. Environment is known as one of determinants of PA participation (Ferdinand, 2012). Although the number of PA
courses/programs for UC students with disabilities has expanded, there are no clear guidelines for designing and implementing such courses/programs. The purpose of this poster is to suggest guidelines to help practitioners design and implement courses/programs for UC students with disabilities in their school.

Methods: The poster overviews the need for and benefits on-campus programming for students with disabilities, for students enrolled Adapted Physical Education/Activity courses, and for faculty supervising such programs.

Implication/Conclusion: Based on implementing a program on my campus, and a review of existing literature, practical steps for designing & implementing courses/programs are suggested, including a survey of existing on-campus courses/programs, identifying unique institution circumstances, coordinating with the on campus Disability Resource Center and other academic departments, space resources, program scheduling, and recruitment of both undergraduate student staff and participants. Lastly, overcoming possible challenges will be discussed.

You think differently after playing this sport*: Experiences of collegiate goalball players

Cathy MacDonald (State University of New York at Cortland), Rebecca Bryan (State University of New York at Cortland), John Foley (State University of New York at Cortland), Lauren Lieberman (State University of New York at Cortland)

Introduction: Goalball is a Paralympic sport for individuals with visual impairment or blindness. Collegiate goalball is unique in that it is the only goalball league in which sighted players are allowed to participate. Individuals without a disability are integrated into a sport for individuals with a disability, rendering collegiate goalball an example of reverse integration. The purpose of this study was to understand players’ lived experiences in a collegiate goalball program, particularly in regard to reverse integration.

Methods: Interpretative phenomenological analysis (Smith & Osborn, 1995) was used to uncover the meaning of the lived experiences of two males and four females with and without visual impairment. Data were collected using semi-structured one-on-one interviews and field notes. Interviews were transcribed verbatim and analyzed using interpretive thematic analysis (Braun & Clark, 2006).

Results: Three main themes were found: (a) the disability advantage, (b) the building of team cohesion, and (c) the disappearing disability. Participation in collegiate goalball allowed students to see disability as an asset, build self and group confidence to develop a cohesive team, and question assumptions regarding teammates’ abilities and limitations.

Implications/conclusion: This study contributes to the lack of research in reverse integration and the findings highlight the potential value of providing opportunities for people with and without a disability to participate in sports together.
The effect of an education intervention on undergraduate students’ attitudes toward people with disabilities and self-directed mobility

Samuel W. Logan (Oregon State University), Samantha M. Ross (Oregon State University), Kathleen R. Bogart (Oregon State University), Christina M. Hospodar (Oregon State University), Michele A. Catena (Oregon State University), Christina Cafferata (Oregon State University), Jenna Fitzgerald (Oregon State University), Erica Woekel (Oregon State University)

Introduction: Common pedagogical strategies used to reduce ableism include education and contact with people with disabilities. Contact is more effective than education alone, but may not always be possible as part of an education intervention. Thus, it is important to test additional pedagogical strategies within education interventions to reduce ableism. The purpose of this study was to determine the effect of a 10-week, Honors College colloquia on undergraduate students’ attitudes toward people with disabilities and self-directed mobility.

Methods: Participants included 78 undergraduate students enrolled in the Honors College at a public university. The intervention group (n=40) completed an Honors colloquia titled “Toy-Based Technology for Children with Disabilities”. Students gained technical skills to modify ride-on cars for children with disabilities and discussed scientific research related to modified ride-on cars. The control group (n=38) completed Honors colloquia courses unrelated to disability. Participants completed the Attitudes Toward Persons with Disability Scale (ATPD; 30-items; 6-point Likert scale) and the Attitudes Toward Self-Directed Mobility scale (9-items; 5-point Likert scale) during Weeks 1 and 10.

Results: 2 (pretest/posttest) x 2 (control/intervention) mixed ANOVAs indicated positive intervention effects on the ATPD (F(1,76)=6.5, p=0.013) and mobility attitudes (F(1,76=39.7, p<0.001).

Conclusion: Education interventions may be a viable pedagogical strategy for reducing ableism. Positive changes in attitudes may be related to aspects of the intervention, including: the 1,000 minutes of instruction over 10-weeks, and/or a maximum class size of 12 students that facilitated small group discussions. No direct contact with people with disabilities was provided. However, it is possible that reading and discussing research articles, watching videos and a documentary, and modifying ride-on cars for children with disabilities all provided meaningful, yet indirect, contact that facilitated attitude change. Future research should compare the effect of education alone versus education + contact on attitudes as pedagogical strategies to reduce ableism.
Monday, October 1, 4:40: Keynote

Modified Ride-on Cars: A Social Justice Approach to Mobility

Sam Logan, Oregon State University

Go Baby Go is an international movement that embraces the social justice perspective that 'mobility is a fundamental human right.' Go Baby Go involves collaboration amongst families, clinicians, and researchers to modify off-the-shelf, battery-operated, ride-on toy cars for young children with disabilities to use for mobility, exploration, and play. This session will highlight recent research advances related to modified ride-on cars, including: (1) the effect of modified ride-on car interventions on young children's behavior and development; (2) individuals' attitudes toward disability and mobility, and (3) interventions to change attitudes toward disability and mobility. This session will conclude with a discussion of opportunities for future research.
Monday, October 1, 5:30: Greg Reid Graduate Student Poster Session

Exploring the experiences of children with Autism Spectrum Disorder in self-contained physical education: A modified scrapbooking study

Amanda Yessick (Old Dominion University), Justin Haegele (Old Dominion University)

The purpose of this study was to explore the meaning that students with autism spectrum disorder (ASD) ascribed to their experiences in self-contained physical education (PE) classes. Four participants with a primary diagnosis of ASD who attended a self-contained PE class in a separate public day school were purposively selected for this study. Data were collected through semi-structured interviews, observational field notes, and reflective notes. Methodological triangulation, researcher reflexivity, and peer debriefing were utilized to support trustworthiness. After interview transcription, thematic development was conducted using a three-step analytic process informed by the purpose and research approach adopted in this study. Overall, the participants’ experiences in PE were positive and meaningful, and three interrelated themes emerged from the data. The first theme, “They care about my feelings”: Teachers’ attitudes in PE, highlighted participants’ descriptions of why their physical educators played a critical role in shaping their experiences. The second theme, “My friends make it more meaningful”: Importance of positive peer interactions, revealed the significance the participants ascribed to participating in PE with their peers. Finally, the third theme “Oh, but the noise”: Structural and sensory considerations, describe accommodations within PE the participants attributed to a more enjoyable and successful PE experience. Additionally, sensory sensitivities described hyper- and hypo-sensitive sensory stimulations the participants experienced in PE. The themes highlight several contributing factors influencing participants’ positive PE experiences which should be considered by PE teachers to enhance the quality of education for students with ASD.

Differences in fundamental movement skills of children with Autism Spectrum Disorder and Down syndrome

Brianne M. Rajala (Michigan State University), Isabella T. Felzer-Kim (Michigan State University), Janet L. Hauck (Michigan State University)

Introduction: Fundamental movement skills (FMS) facilitate the ability of children to engage in physical activity opportunities. Those with developmental disabilities such as Autism Spectrum Disorder (ASD) and Down Syndrome (DS), show significant delays in FMS which may impede their ability to participate. The purpose of this study is to compare FMS in samples of children with ASD and DS.

Methods: We assessed FMS in a sample of children ages 3-17 with ASD (n = 6) or DS (n = 6) within the Lansing area using the Test of Gross Motor Development III (TGMD III). We video recorded participants' assessments to perform standardized scoring according to TGMD III guidelines. After 90% inter-rater reliability was established, we scored TGMD III assessments to obtain locomotor and object control scores. A MANCOVA was used to analyze the data, with age and gender being controlled. Dependent variables included locomotor raw score, ball control raw score, and total TGMD III scores. The independent variable was diagnosis: either ASD or DS. Version 24 of SPSS and an alpha level of .05 was used to indicate statistical significance.
Results: When controlling for age and gender there were no statistically significant differences between TGMD III scores presented from the children with DS verses the children with ASD.

Implication/Conclusion: This is particularly interesting due to the inherent physical and psychosocial differences between these groups. It was expected that children with DS would have poorer performance than those with ASD due to hypotonia and ligamentous laxity. This highlights the pervasive nature of motor delay in children with ASD. This data lends insight into the programming needs to address FMS delay in children with ASD and DS.

Aquatic director disability orientation and their intentions to provide opportunities for children with disabilities

Bridgette Schram (Oregon State University), Joonkoo Yun (Oregon State University)

Introduction: Children with disabilities have lower participation in organized sport programs than their typically developing peers. However, aquatic programs have shown to provide an opportunity for children with disabilities to engage in physical activity, providing positive benefits. An organization’s aquatic director (AD) may play an important role in children with disabilities’ participation in their programs. Disability orientation uses various models, including the medical and social models, to describe an individual’s view of disability. Some literature implicitly suggests that this view may influence how a person thinks and ultimately how one acts. However, a lack of empirical evidence exists linking an individual’s disability orientation and a person’s actions. Research has clearly identified intentions as the key variable connecting a person’s views and thoughts to their actions. Therefore, the purpose of this study was to examine the association between an AD’s disability orientation and their intentions to provide opportunities for children with disabilities in their aquatic programs.

Method: An online survey was completed by 185 aquatic directors from 27 states, representing all regions of the United States. AD’s disability orientation was measured in both medical and social models. The AD’s intentions to provide opportunities for children with disabilities was also measured.

Results: A multiple regression revealed a significant relationship between the AD disability orientation and their intentions to provide opportunities for children with disabilities. Although no relationship between the medical model (b = -0.87, p=.51) and the aquatic director’s disability orientation was found, a relationship was found with the social model (b = 0.50, p < 0.01).

Implication/Conclusion: This finding suggests that ADs that view disability with a higher alignment to the social model had greater intentions to provide opportunities to children with disabilities in their programs. This reveals a new and important link between disability orientation and intentions.

Movement matters: Displacement, dispersion, and physical activity of young children during an inclusive playgroup

Christina M. Hospodar (Oregon State University), Apoorva Ayyagari (Oregon State University), Samantha M. Ross (Oregon State University), Michele Catena (Oregon State University), Samantha Ligman (Oregon State University)
State University), Jenna Fitzgerald (Oregon State University), Sarah Schaffer (Oregon State University),
Tyler Fechtel (Oregon State University), Christina Cafferata (Oregon State University), Haley Yohn
(Oregon State University), Erika Cook (Oregon State University), Angela Bowlby (Oregon State
University), Samuel W. Logan (Oregon State University)

Introduction: Different dimensions of movement are often measured across childhood. Physical activity
is commonly measured in preschoolers. Spatial exploration, such as displacement and dispersion, is
more common during infancy and toddlerhood. It is unknown how physical activity and spatial
exploration relate among young children. The purpose of this study was to describe and compare
displacement, dispersion, and physical activity of young children with and without disabilities (1-5 years
old) over the course of a 9-week inclusive playgroup.

Method: Six children without disabilities (M=2.7 years, SD=1.3) and three children with disabilities
(M=2.2 years, SD=0.6) participated in a 9-week inclusive playgroup. Spatial exploration was captured
with an aerial GoPro camera; videos were coded with a custom MatLab program to calculate
displacement (distance traveled in feet) and dispersion (average distance from the point of central
tendency in feet), per session per child. Physical activity was measured with a GT3X accelerometer; total
activity counts per session per child were analyzed.

Results: Displacement: Children with disabilities (M=671.8 feet; SD=145.9), children without disabilities
(M=909.5 feet; SD=474.4). Dispersion: Children with disabilities (M=11.2 feet; SD=1.1), children without
disabilities (M=9.6 feet, SD=2.1). Activity counts: Children with disabilities (M=75,747; SD=26,868),
children without disabilities (M=103,921; SD=31,892). Children with disabilities tended to display lower
displacement and activity count averages than children without disabilities, but not lower dispersion
values. No differences were statistically significant between groups. Coefficient of variation for each
measure suggests that measures were fairly stable within children over the course of the playgroup, but
relatively variable between children.

Implication/Conclusions: Future research should utilize a larger sample size, including children with
more diverse disabilities, to increase understanding of different dimensions of movement of young
children with and without disabilities. This may lead to improved intervention strategies designed to
provide equitable movement experiences for all children.

Pilot evaluation of the Special Olympics’ Oregon Team Wellness physical activity and nutrition
program.

Chun-Wei Chang (Oregon State University), Serena Fink (Oregon State University), Alicia Dixon-Ibarra
(Oregon State University)

Introduction: There are health benefits to physical activity (PA) and proper nutrition, however many
adults with intellectual disabilities(ID) do not meet the recommended guidelines. Health promotion
programs are critical for this population. This pilot study aimed to assess the Oregon Team Wellness
(OTW) program across two implementation periods. The 8-week (8 sessions total at 90 minutes)
program consists of PA exercises with instruction, nutrition education, goal setting, and program
incentives.
Methods: This study used a pretest-posttest design with fidelity measures for evaluation. Coaches attended a training workshop prior to implementation. Health, fitness, and nutrition were assessed pre and post program. Coaches were observed (one session at random) in instructional planning, instructional presentation, and athlete management. Attendance was assessed and fidelity of program was measured via survey.

Results: Seven coaches (ageM 24; 67% females) and 17 adults with ID (ageM 46; 58% females) participated in this study over two implementation periods. Sixty-seven percent of athletes missed two or more sessions. There were no significant changes observed; however, athletes had improvements in sit to stand (preM 20.6 postM 29.9), plank holds in sec (preM 52.0 postM 54.2); push-ups (preM 13.8 postM 22.1); and water intake (preM 3.60 postM 4.80). Based on direct observation, coaches were enthusiastic and prepared for instruction, used music, and described activities thoroughly with modifications. Healthy snacks, goal setting, athlete encouragement, and incentives were provided. This was consistent with the fidelity survey where coaches always reviewed the coaches’ manual prior to sessions. Aspects of the program not used/used sporadically were food models, cooking with athletes, the ‘Healthy tip of the Week’, and encouraging family and caregivers to participate.

Implication/Conclusion: Attendance, non-engagement of caregivers, and low sample size may have contributed to insignificant findings. The results from the study will be used to refine OTW coaches’ training, program design, and program evaluation.

The Relationship between quality of life, gross motor function, and physical activity for children with developmental disabilities

Erin E. Snapp (Wayne State University), Leah R. Ketcheson (Wayne State University), Jeffrey J. Martin (Wayne State University), Erin E. Centeio (Wayne State University), Hayley B. McKown (Wayne State University)

Introduction: Children with developmental disabilities (DD) experience many barriers to physical activity (PA) including lack of gross motor function (GMF). Higher levels of moderate to vigorous (MV) PA have been associated with improved health outcomes and improved quality of life (QoL).

Methods: As this is pre-data from an intervention study, the goal of the current study is to describe our sample and assess relationships among MVPA, GMF, and QOL for children with DD. We hypothesized significant relationships among MVPA, GMF and QoL. Children with stronger GMF should report more MVPA and enhanced QoL compared to children with weaker GMF and less MVPA. GMF was based on the Test of Gross Motor Development (TGMD-3) which produces a total GMF score and locomotor (LM) and object control (OC) scores. QoL was determined with the Pediatric Quality of Life Inventory (PedsQL) with scores for physical function (PF) and psychosocial functioning (PSF). Finally, MVPA was based on one week of accelerometer data.

Results: Our sample consisted of 21 children with a DD diagnosis between 4-13 years old. Descriptive statistics demonstrated average QoL scores, (PF: n=21, M=53.90,SD=15.12; PSF: n=20, M=50.17, SD=9.49). Daily average MVPA minutes (n=10, M=50.74, SD=23.29) obtained was slightly below the CDC
“recommended” standard amount. TGMD-3 scores were relatively low as the total score is out of 100 (LM: n=19, M=19.47, SD=12.45; OC: n=19, M=21.11, SD=13.50; Total: n=19, M=40.58, SD=24.07). Given the exploratory and under-powered nature of our study (i.e., small N) we examined correlations among our variables. Controlling for age, partial correlations were significant (p < .05) for PF with LM (r=-.61, p=.08), OC (r=-.70, p=.04), and TGMD-3 total (r=-.72, p=.03).

Implication/Conclusion: Moderate effect sizes (i.e., variance accounted for), suggest there is promise in continuing this line of research to better understand how MVPA, GMF and QoL are related.

**Constructing collaborative learning experiences for teaching inclusive physical education**

Hayley Morrison (University of Alberta), Doug Gleddie (University of Alberta)

Introduction: School district professional development (PD) initiatives in Canada rarely focus on inclusion of students with disabilities in physical education, even though pre-service training is limited for teachers in physical education (DeCorby, Halas, Dixon, Wintrup & Janzen, 2005) and on inclusion (McCrimmon, 2015). Additionally, PD is not often established for teachers and educational assistants to attend together. Furthermore, discussion about inclusive physical education (IPE) and PD experiences from teachers and educational assistants working in the same classroom is absent in the literature. Therefore, this multiple-case study explored teachers’ and educational assistants’ experiences with, and desired supports for, IPE-PD.

Methods: Data collection occurred at three different schools, with one teacher and one educational assistant as participants from each school (six participants; two male & four female). The study used a hermeneutic methodology to learn about the stories, contexts, and language of participants (Patterson & Williams, 2002) and uniquely brought teachers and educational assistants together to discuss experiences in focus groups. Additionally, data collection included interviews, observations and researcher field notes. The analysis comprised of back and forth recursive interpretations via the hermeneutic circle to identify themes (Packer & Addison, 1989).

Results: Study results indicate four areas of consideration from practitioners’ experiences to develop and implement IPE-PD: (a) utilizing effective qualities and components for in-service PD (b) ensuring diverse topic areas (c) warranting access to continuous learning opportunities and (d) establishing practitioner collaboration and community building.

Implications/Conclusion: The author concludes by connecting the findings with literature on effective PD, personal consulting experiences, and Dewey’s theory of experience to construct a framework for in-service collaborative IPE-PD experiences for teachers and educational assistants. Future research should apply and evaluate the IPE-PD framework to determine: (a) effectiveness; (b) impact on IPE instruction, student participation, and practitioner collaboration, and; (c) structural modifications for realistic application in diverse settings.
Associations of physical performance with physical activity and sedentariness in adults with intellectual disabilities

Jian Xu (Mississippi State University), Poram Choi (Mississippi State University), Robert W. Motl (University of Alabama at Birmingham), Stamatis Agiovlasitis (Mississippi State University)

Introduction: Physical activity (PA), sedentariness, and physical performance are contributors to health and quality of life. People with intellectual disabilities (ID) have lower PA, higher sedentariness, and lower physical performance than adults without ID. It is possible that PA and sedentariness vary as a function of physical performance in adults with ID. The purpose of this study was to examine if objectively measured PA and sedentariness levels are associated with physical performance in adults with ID.

Methods: Twenty adults with ID (7 men and 13 women; age 43±12 years) participated in this study. We measured physical performance with the Short Physical Performance Battery (SPPB) consisting of balance, gait speed, and chair-stand tests. PA and sedentary time were measured using an accelerometer (wGT3X-BT; Actigraph) worn on the dominant hip for 7 days, excluding sleep, showering, bathing, and aquatics. The processed accelerometer data yielded time engaged in light, moderate, vigorous, and moderate-to-vigorous PA, and sedentary behavior. We used Spearman’s correlation to examine the relationship between SPPB score and PA/sedentariness levels.

Results: Mean ± SD for the variables examined were: SPPB: 8.45±2.8; sedentary time: 598±110 min·day⁻¹; light PA: 126±33 min·day⁻¹; moderate PA: 33±17 min·day⁻¹; vigorous PA: 4±3 min·day⁻¹; and moderate-to-vigorous PA: 37±20 min·day⁻¹. SPPB had significant and moderate positive associations with moderate PA (rs = .47, p< .05) and moderate-to-vigorous PA (rs= .48, p< .05). SPPB score was not significantly associated with sedentary time, light PA, and vigorous PA(rs= -.38, -.08, and .27, respectively; p≥ .05).

Implication/Conclusions: Moderate and moderate-to-vigorous PA are associated with physical performance in adults with ID. Health practitioners should consider the relationship between PA and physical performance when developing PA programs for adults with ID.

What’s in a Number? : The classification experiences of paraswimmers.

Kirsti Van Dornick (University of Alberta), Nancy Spencer-Cavaliere (University of Alberta)

Introduction: The purpose of this project was to examine the classification experiences of paraswimmers. The primary objectives were to explore the role of dignity in athletes’ classification experiences and to inform current understandings of the parasport classification system and processes.

Method: This research study was guided by an interpretive description (ID) approach, with the intent to shift the current understanding of paraswimming classification through new insights (Thorne, 2016). Purposeful theoretical sampling was used to recruit nine paraswimmers who ranged in swimming
experience and classification. The primary source of data collection was semi-structured interviews. Data were also collected through document analysis and reflective journaling. The interviews were first analyzed inductively in order to discover patterns and themes in the data and then deductively analyzed through Nordenfelt’s (2004) dignity framework (Patton, 2002).

Findings: The findings were captured in two themes drawn from participant descriptions: It Seems to be a Random System, and The Power of Classification. Based on the findings, it appears there are several inconsistencies in the classification process that led paraswimmers to question its fairness and validity. At the same time, paraswimmers recognized the importance of classification and the significant impact, both positive and negative, that it had on their ability to be competitive and pursue high performance sport.

Implication/Conclusions: These findings suggest that paraswimmers and their supports (e.g., coaches) require more information about the classification process to better understand the outcomes and to more effectively advocate for their needs. In addition, a thorough evaluation of the classification process is recommended to improve consistency and reduce subjectivity.

Postural control and functional mobility in individuals with intellectual and developmental disabilities

Kyla Collins (Texas Christian University), Amanda Young (Texas Christian University), Phil Esposito (Texas Christian University)

Introduction: Studies suggest an increased fall risk and decreased functional mobility within individuals with intellectual disabilities (ID). Individuals with Down syndrome (DS) display phenotypical characteristics, such as hypotonia, which may further increase balance and mobility impairments. The purpose of this study was to compare the postural control of individuals with ID, DS, and typical development (TD) as well as examine the relationship between postural control and functional mobility amongst these populations.

Methods: Seventy-six participants (33 ID, 10 DS, 33 TD) ages 12-52 years (M=25.0 ± 8.3) participated. Participants completed a balance assessment using a portable force plate containing internal center of pressure (COP) tracking software. COP data was sampled at 25Hz. Outcome variables included mean distance (cm), mean velocity (cm), medio-lateral range (cm), and anterior-posterior range (cm). Participants also completed a timed-up-and-go test to assess functional mobility.

Results: Pearson correlations showed a low significant relationship between functional mobility and postural sway in individuals with TD (r = -0.36, p<0.05). There was no relationship between functional mobility and postural sway in participants with DS or ID. A one-way ANOVA found participants with ID differed from their TD peers on mean velocity (p=0.01), mean distance (p=0.00), medio-lateral range (p=0.004), and anterior-posterior range (p=0.000). Participants with DS were more similar to their ID peers on all measures except mean velocity (p=0.012). Participants with DS differed from their TD peers in mean distance (p=0.044), mean velocity (p=0.001), medio-lateral range (p=0.016), and anterior-posterior range (p=0.005).
Implication/Conclusion: These results add to the current literature regarding balance deficits found in those with ID and DS. A novel result is the non-significant differences found when comparing ID and DS. These results suggest the phenotypic traits associated with DS may not contribute to increased balance and mobility impairments in this population.

Enjoyment of PE of children with and without developmental coordination disorder: A longitudinal study

Laura St. John (University of Toronto), John Cairney (University of Toronto)

Introduction: Developmental Coordination Disorder (DCD) is a neurodevelopmental disorder which causes significant impairments in motor functioning, and may result in diminished social skills and academic performance. Due to having underdeveloped motor skills, children with DCD are less likely to enjoy physical education (PE). No research has looked at the long-term impact that DCD can have on enjoyment of PE and what factors may mediate this relationship. Therefore, the current study attempts to address this gap in the literature by examining the trajectory of enjoyment of PE in children with DCD.

Methods: Data were collected longitudinally over 7 time frames from children in southern Ontario beginning in grade 4. Enjoyment was measured using the enjoyment of PE scale. A mixed effect model was used to assess the impact of DCD on enjoyment over time. Further, five additional mixed effects models were used to assess if BMI, VO2max and/or perceived adequacy in PE acted as mediating factors in this relationship.

Results: Across all time points, children with DCD had lower enjoyment, lower perceived adequacy, lower VO_{2max} scores, and higher BMIs compared to their peers. Enjoyment of PE and DCD were negatively correlated (r = -.96, p = 0.001). Further, VO_{2max} (r = .04, p = .001) was a mediating factor while perceived adequacy accounted for the largest proportion of the effect on DCD on enjoyment (r = .19, p = 0.001).

Conclusion: The current research attempts to further investigate the long-term impact DCD can have on a child’s enjoyment of PE. With the growing concern of childhood obesity, it is important that interventions are created which address children’s enjoyment of PE and their self-confidence when in a physical activity setting. By improving the attitudes that children with DCD have toward PE, it may help to improve their relationship with PA in general.

Students’ Perceptions Toward Inclusive Physical Education: A Systematic Review

Matthew Patey (University of South Carolina), Chelsee Shortt (University of South Carolina), Ali Brian (University of South Carolina)

Introduction: Every human has the right to live freely with equity and dignity. Inclusive environments, where everyone is granted equitable access and opportunities, is a human right. Inclusion is present in the architecture of public buildings, the social norms of a community, and more. School settings can be
influential in creating an inclusive culture. The three pillars of inclusion are parents, school staff and
student. For the purpose of this systematic review, the literature surrounding student perception of
inclusion in physical education contexts will be illuminated. This review aims to answer the following
research question: How do school-aged students perceive inclusion within physical education contexts?

Methods: PRISMA guidelines were followed. Author consensus on the databases, key terms, and
inclusion criteria was met.

Results: After comprehensive search, twenty-five articles met the inclusion criteria for this review.
Analysis of the text revealed five themes. The themes emerged were: instrument validation; inclusion
through a diversity context; student perception and attitudes through inclusion interventions;
perceptions on including students with disabilities; and students with disabilities perception of inclusive
environments.

Implications/Conclusion: Perceptions of students regarding inclusion in physical education has not been
fully explored and is needed on a grander scale. Understanding students’ perceptions can improve
inclusive practices in physical education. A PE program may be “fully inclusive” physically (i.e., the built
school environment) and fundamentally (i.e., pedagogic design), but not in reality. A physical education
program that is determined to establish and sustain inclusivity embraces equity and diversity. Evidence
presented in this review, reveal gaps in the literature related to variations of inclusion and the
humanistic impact of interventions. Future research on inclusion should look beyond disability.
Additionally, inclusion in relation to social behaviors and school culture should be explored.

**Prediction of energy expenditure using a pedometer in adults with and without Down syndrome**

Poram Choi (Mississippi State University), Anthony T. Allred (Mississippi State University), Yonjoong
Ryuh (Mississippi State University), Stamatis Agiovlasitis (Mississippi State University)

Introduction: The ability of the New-Lifestyles NL-2000i triaxial electronic pedometer in predicting the
rate of oxygen uptake (VO2), determining physical activity intensity, in adults with Down syndrome (DS)
has not been examined. This study examined (1) if VO2 and step-rate determine by the NL-2000i
pedometer at different walking speeds differs between adults with and without DS; and (2) if step-rate
and presence of DS predict VO2.

Methods: Participants were 14 adults with DS (9 men; age 30.9±15.4 years) and 17 adults without DS (9
men; age 24.3±5.6 years). Participants completed three over-ground walking trials: (a) at their preferred
speed; (b) at 1.8 mph; and (c) at 3.1 mph. We determined step-rate (steps·min⁻¹) using the NL-2000i
pedometer and VO2 (ml·kg⁻¹·min⁻¹) with a portable spirometer (K4b2, Cosmed). We used multi-level
regression to predict VO2 from step-rate and group (1=DS; 0=non-DS). We used mixed-model ANOVA
and follow-up t-tests to evaluate differences between groups in VO2, step-rate, and absolute percent
error across walking speeds.

Results: The VO2 and step-rate responses to walking speed differed between adults with and without
DS as indicated by significant group-by-speed interactions (p <.001). Step-rate was higher in adults with
DS than without DS at 1.8 and 3.1 mph (p ≤.011), but no different at the preferred speed. VO2 was not
different between groups. Step-rate, group, and their interaction significantly predicted VO2 (VO2 = 0.551 + 0.133×step-rate - 11.975×group + 0.990×step-rate×group; p <.001; R2 =.60). Absolute percent error across speeds did not differ between adults with and without DS (12.3% and 1

Implication/Conclusion: Adults with DS have different step-rate and VO2 responses to walking speed from adults without DS. Step-rate as determined by the NL-2000i pedometer and presence of DS predict VO2. This knowledge may allow health professionals to monitor ambulatory activity intensities in adults with DS.

**Overhand throwing in young adults with autism**

Keely Ahrold (California State University, Northridge), Bordin Endinjok (California State University, Northridge), Teri Todd (California State University, Northridge)

Introduction: Proficient overhand throwing is an important skill necessary to participate in many organized sports and recreational activities. Individuals with developmental disabilities such as Autism Spectrum Disorder (ASD) may struggle with the skill of forceful overhand throwing. Lack of skill may prevent participation in recreational activities such as baseball thereby limiting social and fitness opportunities. Purpose: The purpose of this study is to compare developmental levels of forceful overhand throwing between young adults with ASD and without ASD. There are many studies that focus on gross motor skill deficits in children with ASD however few studies have focused specifically on overarm throwing in young adults with ASD.

Methods: Twenty college students, ten with and ten without ASD were recruited to take part in this study. Both groups performed an overarm throw with their dominant throwing arm into a net 15 feet away for five trials. All five trials were recorded with 2 cameras. The overhand throws were assessed using Roberton’s Developmental Sequence for Throwing which is broken down into 5 elements with scores ranging from 1-5 depending on the maturity of the throw. All elements were totaled to create a composite score.

Results: An independent samples t-test on the total composite score of stage categories of overhand throwing found a significant difference between means of the two groups (t(18)=2.408,p<0.05). The mean for young adults without ASD was significantly higher (M=11.3, SD=1.77) than the mean for young adults with ASD (M=9.20, SD=2.11).

Implication/Conclusion: Individuals with ASD performed the overhand throw at a less mature level than their typically developing peers. This information may be important in designing physical education interventions for school age children.

**The implementation of least restrictive environment of physical and adapted physical educators**

Wesley J. Wilson (University of Louisiana at Lafayette), Luke E. Kelly (University of Virginia)
Introduction: The implementation of the Least Restrictive Environment (LRE) mandate has been challenging since its conception, with little recent research of its use in physical education (PE). This study’s purpose was to examine PE and adapted physical education (APE) teachers’ implementation of LRE.

Methods: A mixed methods design examined the knowledge and implementation of LRE of 30 PE and 48 APE teachers. Participants completed a validated and reliable survey. Five PE and seven APE teachers were purposively selected for interviews. A MANOVA was used to detect group differences, and constant comparison and analytical induction were used to analyze qualitative data.

Results: There was a significant difference in LRE knowledge and implementation between PE and APE teachers $F (43, 34) = 2.74, p < .005$; Wilk’s $Λ = 0.224$, partial $η^2 = .78$. A univariate test revealed differences in involvement with placement decisions ($F (1, 76) = 42.40, p < .0005$; partial $η^2 = .36$), with PE and APE teachers rating their current involvement at 25.47 (SD = 37.16) and 78.81 (SD = 33.93; 100 being complete involvement), respectively. Another test indicated differences in the ability to overcome barriers to appropriately place SWD ($F (1, 76) = 7.62, p < .01$; partial $η^2 = .09$), with PE and APE teachers reporting ratings of 3.63 (SD = .96) and 4.21 (SD = .85; with 5 being completely able to overcome), respectively. Qualitative analysis revealed emergent themes of incomplete knowledge of LRE, limited collaboration among stakeholders, and lack of adequate resources.

Implication/Conclusion: These results create a clearer picture of LRE implementation in schools. The data show that, while APE teachers were generally more equipped to implement LRE than their counterparts, there are still challenges that need to be addressed through teacher training and professional development. More large-scale investigations are needed to gain insights on appropriateness of student placements.

A study on child abuse of children with disabilities in Korean adapted physical education field

Garam Jo (Seoul National University), Yongho Lee (Seoul National University)

The purpose of this study was to develop the theory of child abuse of children with disabilities in Adapted Physical Education (APE) field. For this purpose, the researcher investigated the characteristics and causes of abuse phenomenon of children with disabilities and analyzed the attitudes of APE instructor coping with abuse phenomenon. Accordingly, specific research questions were set as follows: First, What is the characteristics of the child abuse phenomenon that occurs in APE field? Second, what are the factors that affect the child abuse phenomenon in APE field? Third, what is the process of child abuse of children with disabilities in APE field?

Grounded theory study based on a constructivist approach was conducted. The study period lasted 5 months from June 2017 to October 2017. Data were collected from in-depth interviews. Participants were 20 instructors and they were selected based on theoretical sampling. The collected data were analyzed in the order of open coding, axial coding, and selective coding (Strauss & Corbin, 1998). In this process, data analysis was performed inductively according to the description, analysis, and interpretation (Wolcott, 1994). Member check, peer debriefing was conducted to enhance the trustworthiness of this study. the research activities were reviewed and approved by the Institutional
Review Board of the SNU to ensure the ethical values and principles underlying the research. The main findings are as follows:

First, the causal conditions that directly caused abuse of children with disabilities in APE field proved to be the distorted perception towards the disabled children by the instructor as well as guardians along with the individual vulnerability of the children with developmental disabilities. These causal conditions were found to be in an organic connection in a vicious cycle from a socio-psychological point of view.

Second, the contextual conditions that are the background of the abuse of children with disabilities in APE field included: the burden of the instructor due to the unjust demands of the guardian of the child, the growth background of the instructor, and the repressive atmosphere of APE field, respectively. According to this background, causal conditions were actualized by abusing children with disabilities in APE field.

Third, the types of child abuse of children with disabilities can be divided into ‘active abuse’ based on the distorted viewpoint of the instructor of the child with developmental disability, ‘passive abuse’ by the unjust demands of the guardian, and ‘passive abuse’ due to the structural problems in APE field.

Fourth, the abuse phenomenon of children with disabilities in APE field, which can be distinguished by different characteristics, affects the instructor’s inner conflict and self-reflection. They are affected according to the positive and negative involvement of the peer instructor and the guardian along with the degree of structural alienation. This can be differentiated into four types of characteristics from the instructor, which are ‘respectful’, ‘sacrificial’, ‘evasive’, and ‘justifying’.

Fifth, according to the ‘respectful’ type of characteristic, the APE instructor discontinues the abuse and respects the child with developmental disability when positive influence of the guardian or fellow instructor were present, and the alienation of the field was not serious. The instructor’s internal conflict and self-reflection was active as well.

Sixth, with the ‘sacrificial’ type of characteristic, the APE instructor overcomes the structural constraints at the cost of his personal time and expenses to discontinue abuse and respect the child with developmental disability; when positive influence of the fellow instructors is present, instructor’s inner conflict and self-reflection are active, though the alienation of the field may be serious.

Seventh, with the ‘evasive’ type of characteristic, the APE instructor continues to abuse the child with developmental disability while acquiescing to the fellow instructor’s abusive behaviors and avoiding their own responsibilities. Such characteristic is evident when the influence of fellow instructors and guardians is negative, even if the alienation level of the APE field may be low, the level of internal conflict and self-reflection of the instructor does not reach the active level and remains at intermediate stage.

Eighth, with the ‘justifying’ type of characteristic, the APE instructor justifies his behavior to maintain abuse of the child with developmental disability when the influence of fellow instructors and guardians are negative, the alienation of the field is serious, and instructor’s inner conflict and self-reflection are passive.
Immediate and sustained effects of exercise promotion interventions on physical activity behavior in people with multiple sclerosis: A meta-analysis of randomized controlled trials

Yumi Kim (University of Alabama at Birmingham), Byron Lai (University of Alabama at Birmingham), Tapan Mehta (University of Alabama at Birmingham), Robert Motl (University of Alabama at Birmingham), James Rimmer (University of Alabama at Birmingham)

Introduction: People with MS are largely inactive and require interventions that lead to long-term changes in physical activity (PA) behavior. However, the long-term effects of exercise interventions are inconsistent and require further confirmatory analyses. Therefore, this meta-analysis aimed to (1) determine the immediate effects of exercise promotion interventions on PA behavior among people with multiple sclerosis (MS) and (2) examine the sustained effects of the interventions from pre to follow-up.

Methods: Systematic searches were conducted in four databases, PubMed, CINAHL, PsycINFO, and Google Scholar. Methodological quality of the studies was determined using the Physiotherapy Evidence Database (PEDro) scale. Eligibility criteria included: 1) adults with MS, 2) randomized controlled trials of exercise promotion interventions that could potentially be delivered in a community setting (i.e., non-therapy based), and 3) inclusion of objective and subjective PA outcomes. A random effects model was used to compute ES from pre to post and pre to follow-up (i.e., sustained effects).

Results/findings: Searches yielded 2,421 articles. Of these, 18 studies were included in the analyses. The average methodological quality was good to excellent (PEDro score of 7/10). The mean ES was 0.59 (n=9 studies; SE=0.09; 95% CI 0.44 to 0.78; p < 0.001) for PA outcomes measured from pre to follow-up (average follow-up duration of 4.1 ± 1.8 months; range 3-8 months). For pre to post, the overall mean ES for all studies was 0.61 (SE=0.07; 95% CI 0.34 to 0.83; p < 0.001).

Implications/Conclusions: Exercise promotion interventions effectively increased PA behavior among people with MS, but, most importantly, demonstrated effects that were sustained after the cessation of the formal intervention component. Although these findings are encouraging, further research should examine PA behavior over longer follow-up periods for true assessments of sustainability, as well as the mechanisms that led to the observed changes.
Tuesday, October 2, 8:00: Verbal presentation (Exercise and Motor Performance of Children with Disabilities)

A pilot study of the acute effect of exercise on the sustained attention of children with autism spectrum disorder

Emily Bremer (McMaster University), Jeffrey D. Graham (McMaster University), John Cairney (University of Toronto)

Introduction: Children with autism spectrum disorder (ASD) experience deficits in their executive functions (EFs) which are positively related to several adaptive behavioural, cognitive, social, and mental health outcomes. Research supports the view that acute physical activity enhances EFs in children; however, this line of inquiry has yet to be fully explored in children with ASD - a population who experiences delays in EFs and traditionally exhibit low levels of participation in physical activity.

Methods: Participants 7-12 years of age with a diagnosis of ASD were recruited. A within-subject crossover design was employed. Participants completed three 20-minute experimental conditions, in a random order, on separate days: circuit-based workout, treadmill walking, and sedentary movie watching. Immediately pre- and post- each experimental condition participants completed a target deletion task of sustained attention (Leiter-3), in addition to measures of motivation (Intrinsic Motivation Inventory – Effort and Importance Subscale), task self-efficacy, and affect (Feeling Scale).

Results: Data collection is ongoing with 9 participants enrolled in the study to-date. Preliminary findings of change scores suggest greater improvements in attention following the circuit-based exercise (Mean=7.3±13.0) in comparison to the other two conditions (treadmill mean=5.1±13.0 and sedentary mean=5.4±7.0). Participants also reported higher levels of motivation and greater self-efficacy toward completing the attention task following both exercise conditions in comparison to the sedentary condition. Furthermore, participants reported the highest level of affect, or positive feeling state, during both exercise conditions (circuit and treadmill) in comparison to the sedentary condition.

Implication/Conclusion: These preliminary findings suggest that a circuit-based workout is not only feasible for children with ASD but also leads to various positive psychological states (i.e., affect, motivation, and self-efficacy) and, ultimately, greater improvements in EFs than more traditional aerobic exercise. An increased sample size with ongoing data collection will adequately power us to run statistical analyses and compute effect sizes.

The learning outcomes of kayaking using different attentional focus on elder caregivers

TAN S Y Jernice & TEO H L Pamela (School of Sports, Health &amp; Leisure, Republic Polytechnic, Singapore)

Introduction: Kayaking is a water sport which requires a canoe-like boat (kayak) and a double bladed paddle. Attentional focus can be either referred as external focus (environmental surroundings and
objects) or internal focus (body parts performing the actions and body movements). External focus often attained optimal learning outcomes for both novices and experts in different sports. However, using different attentional focus has not been documented for pool kayaking. This study aimed to investigate the effect of different attentional focus on new pool-kayakers. It was hypothesized that external focus would produce better learning outcomes.

Methods: Thirty-five elder caregivers (26 females, 9 males; M age = 31.2 ± 7.96 years) without kayaking experience volunteered for this study. Different instructional strategies were conducted in a blinded condition. The external group (n = 10; 7 females, 3 males) and internal group (n = 14; 11 females, 3 males) used external and internal attentional focus respectively. The control group (n = 11; 8 females, 3 males) had mixed instructions. Every group had a three-hour session of kayaking in the same pool (dimension: 50m x 25m) with five instructors present in all three different sessions. Two types of kayak boats – Jackson and Dag were used. The assessed tasks were forward stroke, backward stroke, sweep and brake. Results were analysed using one-way ANOVA with Tukey HSD test and Kruskal-Wallis test at p < .05.

Results: Non-significant differences were observed for all tasks (p > .05) except for sweeping. The external group performed significantly better for sweeping task than both internal and control groups (p < .05). The external group also had the highest evaluation ratings for effectiveness of instructors and clarity of instructions.

Implication/Conclusion: The hypothesis is partially supported. The use of external attentional focus for sweeping task seems suitable for elder caregivers who were novice kayakers and thus would be appropriate to promote participation and well-being despite their busy caregiving duty. However, it is recommended to increase the learning sessions and include a retention test to measure sustained learning outcomes in order to better evaluate the effectiveness of learning outcomes achieved from using external attentional focus as instructional strategy.

Reliability of TGMD-3 in children with developmental disabilities

Hyokju Maeng (Georgia State University), Hannah Yang (Baekseok University), Deborah R. Shapiro (Georgia State University)

Introduction: Reliable measurements of fundamental motor skills for children with developmental disabilities (DD) is critical to ensure the data collected are being used to accurately assess a child’s eligibility for APE services, and evaluate progress towards IEP goals. The purpose of this study was to examine the reliability of the TGMD-3 while applying the instrument to children with developmental disabilities (DD) to provide sufficient evidence for utilization in motor development and physical activity services.

Method: Ten children with DD aged 4 to 10 years were video recorded performing each of the 13 tasks on the TGMD-3. A total of five proficient raters, who had evaluated at least 30 students using the TGMD-2 and teaching in an after school APA program for a minimum of two years, scored and rescored the same video data one week after the first evaluation. Data were analyzed using descriptive statistics and
intraclass correlation coefficients (ICC) to get both intra- and inter-rater reliability.

Result: Intra-rater reliability for the total gross motor score was excellent overall (ICC=0.99), both locomotor subtest and the ball skills subtest were 0.99. The slide had the highest intra-rater reliability (ICC=0.99), whereas the run was the lowest (ICC=0.91). Also, the highest reliability for ball skills was the overhand throw (ICC=0.98) and the lowest was kick (ICC=0.95). Regarding inter-rater reliability, the total gross motor score showed an excellent ICC (0.97). The locomotor subtest was slightly higher (ICC=0.97) than the ball skill subtest (ICC=0.95). The highest and lowest inter-rater reliability were the slide (ICC=0.98) and the gallop (ICC=0.91) among the locomotor subtest. The overhand throw was the highest (ICC=0.96) and the kick was the lowest (ICC=0.75) on the ball skills subtest.

Conclusion: There were tasks which had lower intra- or inter-rater reliability to other tasks on the TGMD-3, though most of them were above 0.80 except the kick. The TGMD-3 to measure FMS of children with DD by well-trained raters who had sufficient experience showed excellent intra- and inter-rater reliability. The high level of skill among the raters brings into question what level of training and prior experience is necessary to ensure reliable evaluation of FMS of children with DD. This study suggests to figure out what factors of raters influence ICC to use the TGMD-3.
Tuesday, October 2, 8:00: Mini-Lecture

Medical versus Social Perspectives of Disability: Adding Both to our Professional Toolbox

Layne Case, & Samantha Ross, Oregon State University

Presentation Purpose
The purpose of this mini-lecture is to bring awareness to the Social Model of Disability as a complimentary framework to the Medical Model for defining disability within Adapted Physical Activity. The first objective is to provide background information to both models, their practical relevance, and potential impacts on teaching, programming and research. The second objective is to facilitate discussion and self-reflection on how audience members might define and approach disability. Participants will gain an understanding of both models and how these models can be used together to create a more comprehensive and meaningful view of disability within APA.

Session Significance
How we frame disability matters. Our framework for defining disability and where we attribute the cause of disability impacts research design, teaching and program development. This in turn may affect the language we use, our attitudes, and the way we train future professionals to approach disability. For example, a medical model perspective might see a child with autism spectrum disorder as needing services to “fix” the gap in motor and physical activity skills. A social model perspective, however, might frame this same child as needing a social environment that is supportive of his current abilities and encourages participation. Each perspective may lead to drastically different approaches, outcomes, and implications to investigating the performance of children with ASD in adapted physical education. Instead, there are benefits to both of these models, and we argue that viewing disability may not come from one approach. Being aware of these models and approaching disability from an integrated perspective may enable professionals to capture a more meaningful understanding of disability and align research accordingly.

This is a prominent conversation topic today. Although many existing organizations are looking to support individuals with disabilities, there are contradicting accounts of what support looks like. For example, while some organizations provide support by searching for cures and medical practices, other organizations seek to empower individuals with disabilities and encourage pride in being a member of that group. We refrain from stating that one model is better than the other. Instead, being aware of these differences and able of contributing to these conversations will make us more conscious researchers. After this mini-lecture, we hope that audience members will gain awareness of the different models of disability with an understanding of how, when used in combination, these models may compliment our existing toolbox of how to better include individuals with disabilities.
Tuesday, October 2, 8:00: Mini-Lecture

Neuroplasticity as a framework for the development and measurement of adapted physical activity and sport interventions in children with developmental disabilities

Melissa Pangelinan (Auburn University)

Presentation Purpose
Over the last 25 years, neuroscience and neuroimaging research has enabled measurement of the mechanisms underlying behavioral changes in learning and development. Common principles underlying neuroplasticity, or the capacity of the brain to reorganize in response to environmental enrichment, serve as a framework for neurorehabilitation in different populations (e.g., stroke, cerebral palsy, aging). These principles should also be considered in adapted physical activity and sport research. The purpose of this presentation is to evaluate common principles of neuroplasticity and how to optimize adapted physical activity and sport interventions to enhance behavioral and neurological changes in individuals with developmental disabilities.

Session Significance
Neurorehabilitation is a broad term that encapsulates different therapeutic interventions that aim to improve activities of daily living in patients with neurological disorders (including developmental disabilities). These interventions result in corresponding changes in the structure and function of the nervous system (i.e., neuroplasticity). Common principles of motor learning such as the timing, mode, dose, context, salience, and motivation of the learner affect the efficacy of the intervention and the degree of neuroplasticity.

Participation in adapted physical activity and sport can be conceptualized as a form of neurorehabilitation that can stimulate neuroplasticity in a similar manner as traditional therapies (e.g., physical or occupational therapy). Therefore, consideration of the common factors that influence neuroplasticity is useful to optimize adapted physical activity and sport interventions, make predictions about the specific behavioral outcomes, and gain insights to potential neural mechanisms underlying behavioral changes.
Supporting full participation and well-being for all: Are resources suitable for Adapted Physical Activity promotion?

Jafra D. Thomas (Oregon State University), Bradley J. Cardinal (Oregon State University)

Introduction: Individuals with disabilities routinely experience sociostructural barriers to full participation in everyday life activities (Williams, Ma, & Martin Ginis, 2017). These barriers represent persistent deterrents to fully realizing the well-established health and wellness benefits physical activity offers. To sensitize individuals, organizations, and communities to the sociostructural barriers individuals with disabilities face, Mace et al. (1997) advanced principles for universal design (e.g., equitable use, flexibility in use, simple and intuitive use). Each principle provides guidance on how spaces, products, and services can be developed or adapted to promote usability by all individuals. Evidence-based guidelines based on adapted physical activity (APA) research has helped extend these principles in the physical domain, helping to create more opportunities for full participation within exercise, sport, and other recreational physical activities. The aim of this presentation is to stimulate reflexive praxis within adapted physical activity promotion through a focus on lay educational resources.

Methods: Print and Internet-based resources are a popular supplement to physical activity promotion, as well as highly valued and independently sought out by lay individuals. Unfortunately, the usability of resource content is often taken for granted by resource developers. Consequently, unsatisfactory readability and other suitability issues often limit the usability of health-related educational resources (Taylor-Clarke et al., 2012). Research reports suggest that APA promotional materials may experience similar suitability issues as reported more broadly, but suitability research in this area is limited (Thomas, Flay, & Cardinal, 2018). Furthermore, it appears research has yet to explore suitability issues to resources from a broader universal design framework.

Implication/Conclusion: This represents a fruitful line of future research. During the presentation, we will invite audience members to brainstorm research ideas and provide our own suggestions to address suitability knowledge gaps within APA promotion. Such inquiry will support greater dissemination of resources supportive of full participation within the physical domain.

Creating Space for Young Adults with Complex Physical Disabilities to Express Preferences for Meaningful Physical Activity

Brenda Rossow-Kimball (University of Regina), Bonnie Cummings-Vickaryous (University of Regina)

Introduction: A generation ago, few children with severe complex physical disabilities (CPD) survived to adulthood. Technological and medical advances have increased the life span of those born with complex disabilities, yet people experiencing CPD often lack opportunities to experience the same life prospects as others. Moreover, physical activity and recreation are often overlooked as important, potentially
meaningful life experiences. Current physical activity programs are designed to meet the collective needs of a group and are unable to provide personally meaningful and individualized activities based on a person’s strengths and needs.

Methods: Semi-structured interviews guided meaningful conversations with young adults with complex physical disabilities to share their perspectives about: (1) how recreation service providers can create space for young adults with CPD to express their strengths and needs regarding physical activity, and (2) the ethical, moral, and practical considerations that are essential when engaging with young adults with CPD in a physical activity context. Because some of the young adults with CPD did not use verbalizations as their preferred mode of communication, a variety of expressions (e.g., vocalization, eye and facial movements) were considered as communication during the research conversations. To recognize and understand the diverse methods of communication, each young adult identified a trusted friend, support person, or family member to be present during their conversation with the researcher.

Implication/Conclusion: Meaningful relationships between young adults with CPD and their support persons are essential to any physical activity environment. A key component of this is the ability for others to understand the diverse yet expressive communication presented by young adults with CPD. Unfortunately, several factors can constrain communication resulting in others to perceive a lack of competence in young adults with CPD. Recommendations for service providers will be presented as will research considerations when listening to the experiences of young adults with CPD.

Using a SWOT analysis to inform strategic planning for inclusion in community-based physical activity programs

Andrea Taliaferro (West Virginia University), Robert Posehn (West Virginia University), Emi Tsuda (West Virginia University)

Introduction: Community recreation programs play a critical role in providing physical activity (PA) opportunities for individuals with disabilities (IWD). However, previous studies have identified a number of factors that impede engagement in these PA opportunities, such as lack of program awareness (Hawkins & Look, 2006), program accessibility (Mullingan et al., 2012; Rimmer et al., 2004), instructor preparation (Moran & Block, 2010; Block, Taliaferro & Moran, 2013), and financial and transportation support (Krueger, DiRocco, & Felix, 2000). The purpose of this study was to assess the internal and external factors associated with the inclusion of children with disabilities in one organization’s community-based PA programs, and to provide future implications to expand PA opportunities for IWD.

Methods: Semi-structured interviews were conducted with parents/caregivers (n=8) who had children with disabilities enrolled in specific inclusive community-based PA programs, and with staff/instructors/mentors (n=14) within the programs. Data were inductively analyzed and interpreted within a SWOT (strengths, weaknesses, opportunities and threats) matrix.

Results: Identified strengths were that the programs were inclusive and structured to produce learning outcomes, and sufficient support was provided to participants. Weaknesses were a lack of disability-
related training and knowledge of primary skill instructors, instructor consistency/volunteer turnover, reliance on school/university scheduling, and program advertisement. Identified opportunities to enhance the PA programs included increasing inclusive and age-appropriate PA programs in the community, formalized training of staff, external funding opportunities, individualized support, and communication strategies. Threats to inclusive PA opportunities were a lack of inclusive community culture, lack of programs, distance and cost.

Implication/Conclusion: Use of a SWOT analysis within the strategic planning process is helpful in identifying the internal and external considerations necessary to improve inclusive community-based PA programming for IWD. Continued research should focus on developing effective strategies to expand upon the identified strengths and opportunities in order to expand effective inclusive programming.

Policy analysis of physical activity policies and recommendations for individuals with intellectual disabilities residing in group homes

Amy Chaffee (State University of New York at Cortland), Catherine MacDonald (State University of New York at Cortland), Rebecca Bryan (State University of New York at Cortland), John T. Foley (State University of New York at Cortland)

Introduction: The least active individuals in society have the greatest risk for negative health outcomes according to the Physical Activity Guidelines Advisory Committee Report (2008). Individuals with an intellectual disability generally have greater risk for poor health outcomes due to inactivity (Temple and Walkley, 2003) and obesity (Emerson, 2005). Individuals with an intellectual disability residing in group homes tend to be inactive (Bodde, Seo, Frey, Van Puymbroeck, & Lohrmann, 2013) and staff of group homes often do not monitor physical activity (Rimmer, Braddock, & Marks, 1995). The purpose of the study was to determine which states, if any, have policies or recommendations regarding physical activity or recreation for individuals with intellectual disability residing in group homes.

Methods: A 3-step process was used to collect information regarding policies or recommendations for physical activity and recreation in group homes. State offices of developmental disability services for all 50 states were contacted via e-mail and a follow up phone call.

Results: Of the 30 responses from state representatives, none indicated clear policies or recommendations, but some shared individual service plans outlining requirements for physical activity or recreation.

Implication/Conclusion: The findings demonstrate the need for policies and recommendations for physical activity and recreation for individuals with an intellectual disability residing in group homes.
Subverting Ableism through the Social Model and Disability Pride

Kathleen Bogart, Department of Psychology, Oregon State University

People with disabilities experience significant ableism in their everyday interactions, yet my recent research in the field of psychology suggests that disability pride and belief in the social model of disability may protect the well-being of people with disabilities and reduce ableism. My research among a variety of populations with disabilities, including mobility disabilities and multiple sclerosis demonstrates that disability pride is associated with positive outcomes including self-esteem, self-advocacy, and lower depression and anxiety. Interestingly, experiencing ableism may lead disabled people to embrace disability pride, which in turn protects self-esteem against ableism. Further, people with disabilities hold less ableist attitudes and stronger social model beliefs than people without disabilities. Our work finds that social model beliefs predict less ableist attitudes among people with and without disabilities. Thus, ableism could be intervened upon through two complementary approaches: fostering disability pride among disabled people, and encouraging social model beliefs in the general public.
Tuesday, October 2, 10:00: Verbal presentation (Professional Preparation and Perceptions toward Disability)

The Perceptions of People with Disabilities towards a Physical Activity Program

Meghan Bouman (California State University Northridge), Daniel Azurdia (California State University Northridge), Eunbi Lee (California State University Northridge)

Introduction: People with disabilities (PWD) must overcome many barriers to achieve a physically active lifestyle. Healthcare professional’s poor attitudes towards PWD has been perceived as a barrier to physical activity. Student service learning is one successful strategy to help improve future healthcare professional’s attitudes towards PWD. This study qualitatively explored PWD perceptions of a physical activity-based student service learning program. The purpose of this study was to investigate PWD experiences with physical activity and working with students.

Methods: Six participants were purposefully sampled from a four-year university’s physical activity-based student service learning program. The service learning program pairs undergraduate kinesiology students with clients with various disabilities. The students are responsible for implementing individualized therapeutic exercise programs. Data was collected through individual semi-structured interviews. A thematic analysis approach was used to transcribe, analyze and interpret the data. The data was grouped into four themes: disability description, experiences with physical activity, environment and student relationships.

Results: Overall the results reflected a positive experience engaging with students, an accessible facility and improvements in the knowledge of physical activity. The results lead to the recommendation that more universities should implement the service learning model to create accessible fitness facilities for PWD.

Implication/Conclusion: In conclusion, the narrative of shared experiences that was created by the participants has proven that the service learning model helps to break down the barriers to physical activity that PWD experience. This knowledge can help to contribute to future educational facilities by demonstrating the benefits that PWD receive from an accessible and uplifting environment while working with students.

Reconsidering ability: Kinesiology students’ perception towards people with disabilities

Mai Narasaki-Jara (California State University, Northridge), Belinda Stillwell (California State University, Northridge), Tracy Buenavista (California State University, Northridge)

Introduction: All the Kinesiology (KIN) students’ ableism expression is not individual problem. Students may have come in to the KIN education with ableist perception because of society at large. The purpose of this qualitative study was to explore KIN students’ attitudes toward people with disability (PWD) and what students’ experience might reveal about ableism in KIN education.
Method: A qualitative design utilizing semi structured interview with phenomenological approach was employed. Twenty KIN students were interviewed regarding their perceptions and attitudes towards PWD and their experiences in KIN education in relation to the topic of disability. Interview data was analyzed using thematic analysis.

Results: Thematic analysis yielded three themes: (1) Prejudice towards PWD, (2) Discrimination towards PWD, and (3) Structural ableism. Participants expressed many positive beliefs, yet closer analysis revealed some deficit language use, microagression, discrimination, and existence of ableism within the KIN curriculum.

Implication/Conclusions: This study makes a significant contribution to knowledge by highlighting that KIN students’ attitudes towards PWD had ableist idea possibly due to the curriculum ableism. It also highlights the need for raising awareness and the importance of cultural competency. The researcher calls for reform of KIN education to develop anti-ableist KIN curriculum.

**Sand in the shorts: Experiences of moral discomfort in adapted physical activity professional practice**

Amanda Ebert (University of Alberta), Donna L. Goodwin (University of Alberta)

Introduction: In many disciplines, professionals are encouraged to be reflexive professionals. Adapted physical activity (APA) is no exception, yet little research has been done to explore the lived experiences of frontline professionals. Within a professional knowledge landscape, the information that defines our discipline and scope of practice is drive by theory or ideological views (the sacred story). What we learn through applied professional experiences (our secret story) may collide with professional information, leaving professionals with moral discomfort as they are unsure how to solve problems and react to social relational dilemmas. The purpose of this project was to explore how APA professionals experience and resolve moral discomfort within professional practice.

Methods: Using the research approach of interpretative phenomenological analysis, one-on-one semi-structured interviews were conducted with seven APA professionals. The framework of relational ethics was utilized to facilitate understanding of their lived experiences as they navigated the day-to-day ethical minefields of professional practice.


Implications/Conclusion: Findings from this study may transfer to those engaged in ethical reflexion of their own practice. Creating judgement free pedagogical environments will support future professionals in identifying and navigating their own moral discomfort when it arises. Recommendations for future studies include exploring a community of practice and undergraduate pedagogy in APA are needed.
Ethical questions embedded in professional preparation practices in inclusive physical education

Donna Goodwin (University of Alberta), Amanda Ebert (University of Alberta)

Introduction: The knowledge landscape of textbooks, teacher education, and prescribed professional practices in inclusive education is awash with contradictions and ethical tensions. The professional landscape is comprised professional knowledge that includes codes of conduct learned through theory and formal educational (sacred stories). Practical knowledge of what is good or right, or bad and wrong, is learned through practice (phronesis) in a space that integrates personal virtues with relational knowing (secret stories). If one is aware of, or anticipates dissension between the sacred story and the secret story, one can live and tell a cover story. Ethical discomfort arises when the sacred stories we are told, secret stories we live, and cover story we tell are different. The aim of the study was to explore ethical issues in inclusive physical education as a way to bring fruitful discussions to bear on the ethical educational comportment by asking the research question, “Is there a point when instructional practices become ethical concerns in inclusive physical education contexts?

Method: A five stage modified scoping review was used to examine the extent, range, and nature of ethical research on instructional practices: (a) confirm scope of review, (b) search relevant studies using inclusion and exclusion criteria, (c) search databases, generate PRISMA flow chart, (d) data extraction and charting, and (e) summarize and report results.

Results: Five instructional practices (themes) were analyzed using the lens of relational ethics; experiential learning, disability simulations, individualized programming, peer tutors, and instructional prompting. The analysis revealed ethical questions pertaining to ableistic cycles of professional expertism, thwarted autonomy, systematic silencing of embodied knowledge, deficit-based understanding of diversity, and hierarchical power dynamics.

Implications: Reflexivity, as a form of social justice, may bring wakefulness to ethical questions entrenched in taken-for-granted professional practices, to the ultimate betterment of inclusive physical education practice.

Preparing Athletic Trainers to Provide Services for People with Disabilities

Melissa Alexander (Montclair State University), Fredrick Gardin (Montclair State University)

Introduction: The American with Disabilities Act and the Individuals with Disabilities Education Act require that people with disabilities be afforded equal opportunities to participate in school athletic programs, club sports, and intramural sports (https://www.ada.gov/, https://sites.ed.gov/idea/). Athletic trainers (AT) are an integral part of schools’ athletic and intermural programs as they help ensure the safety of the student participants. The purpose of this study was to determine what athletic training certification programs are doing to prepare ATs to provide services and treatment to people with disabilities and to gain a stronger understanding of the program coordinators’ beliefs regarding the treatment of people with disabilities.
Methods: AT program coordinators (N=59) from colleges throughout the United State completed a 42 question survey. Results were calculated using frequency counts and percentages. Eighty three percent of respondents reported that they currently do not offer coursework on how to care for people with disabilities. Of the 17% of schools that do have a course addressing the care of people with disabilities, 92% have it as a program requirement. Only 10% of programs have a fieldwork experience geared towards providing care for people with disabilities.

Results: While coursework is not currently offered in their programs, 60% of respondents said that they believe AT standards should require candidates to receive training on treating people with disabilities. Program coordinators’ beliefs regarding how content should be covered, who program coordinators believe ATs will be providing services to, and what education the current program coordinators have in providing services to people with disabilities will be discussed further.

Implication/Conclusion: Standards required of AT candidates may need to be re-evaluated to consider including the care of people with disabilities. Program coordinators may also need further education regarding the prevalence of people with disabilities in athletics and the unique care needs of these individuals.
Tuesday, October 2, 10:00: Building Session

Envisioning Systems Change to Advance Fitness and Inclusion for All

Kyle Washburn, Donna Bainbridge, Monica Forquer, Abby Fines, Mary Pittaway, International, Vicki Tilley, Alice Lenihan, Special Olympics International

Primary Issues
One component of inclusive health is equitable access and availability of high quality, adapted fitness and wellness activities for everyone.
Truly inclusive organizations embrace systems and policy changes that simultaneously maximize achievement of both inclusion and quality fitness programming. These inclusive organizations leverage their impact and influence to create similar structures externally. Many organizations still struggle with understanding and implementing the reality of inclusive health.
Primary issues addressed include methods to increase the awareness and value of quality, inclusive adapted fitness for everyone and promising practices to cultivate internal and external change to realize inclusive and quality fitness and health.

Session Significance
Appropriately adapted fitness activities, core to the work of those focused on the needs of persons with disabilities, develop and maintain physical skills to maximize participation in sports, fitness, and life activities. However, too often those activities are not inclusive. This lack of inclusion minimizes the positive impacts of bringing people of all abilities together, and further separates daily and community fitness and physical activity opportunities.

Inclusive practices within an organization create equity, foster awareness of everyone’s abilities, and develop an atmosphere of mutual respect. These internal practices support and foster external change that creates more opportunities for all persons, and widespread societal inclusion.

Special Olympics International (SOI) is a sports organization that is successfully promoting quality and inclusion in its health and fitness programming, policies and practices without losing its sport focus. SOI began promoting inclusion in the 1990’s by developing Healthy Athletes, a program of free health screenings, health education, and referrals for healthcare follow-up, designed to address disparities in healthcare availability and access for those with intellectual disabilities (ID).

SOI has taken an active role in developing and promoting inclusive fitness opportunities and resources internally, and challenging every organizational level to integrate inclusive fitness. A Fitness Team was created to foster development of evidence-based fitness/wellness programs, and promote a fitness culture within the organization. The Fitness Team works with other departments, Healthy Athletes disciplines of FUNfitness and Health Promotion, a Global Fitness Task Force and an Inclusive Health Team to engage in its work.

SOI also works with external organizations to encourage inclusive programming, and policy and systems change to provide opportunities for persons with ID. SOI challenges other organizations to move toward inclusion, and can support their efforts by sharing our experiences, providing examples of our programming, and linking our athletes to programming in their communities.
Tuesday, October 2, 10:00: Student “work-in-preparation” proposal presentation

Taekwon-Do intervention on balance in children with autism

Gianpietro Elias (Syracuse University), Luis Columna (Syracuse University)

Introduction: Autism (ASD) is one of the most frequently diagnosed developmental disabilities in the US. In addition to social and communication deficits of children with ASD, previous research has demonstrated motor skills delays. Despite motor skill delays present among children with ASD, interventions addressing these issues are scarce. According to a recent systematic review, the authors voiced the need for physical activity interventions that addresses the social and physical needs of children with ASD. Recently, the use of structured movements, such as martial arts to increase PA participation and to improve balance, motor skills, and socialization is gaining momentum. However, family involvement in child’s PA is difficult if parents do not know how to address the different exercise practiced by their children. Therefore, the purpose of this study is twofold: 1) investigate the effects of Taekwon-Do (TKD) on balance on children with ASD and 2) to explore parental perception towards a Taekwon-Do intervention for their children and their families.

Methods: We plan to implement a 12-week Taekwon-Do intervention for children with ASD. These classes will be delivered bi-weekly and last 35 minutes. A certified TKD international instructor with experience teaching physical education and working with children with ASD will teach the classes. Each class will include warm-up, fundamental movements (e.g., punching and kicking statically and moving), a game to practice the skills, and cool-down period. Twenty families of children with and without ASD, ages 6 to 14, will be recruited for participation in this study. These families will be divided into two groups. One group will receive the Taekwon-Do class, whereas the second group will receive a physical activity booklet with Taekwon-Do activities for each family to practice at home. Each group will have five children with ASD and five children without ASD.

Investigating parent-child relation-inferred self-efficacy of motor competence and its relationship with physical activity behaviors for those with visual impairments

Alexandra Stribing (University of South Carolina), Ali Brian (University of South Carolina)

Introduction: Parent influences and beliefs as well as children with visual impairments’ self-perceptions of their motor ability are purported to influence physical activity behaviors (Stuart, Lieberman, & Hand, 2006). Little is known how parent and self-perceptions link and how they relate with children’s meta-perceptions (what children think their parents think about their motor competence) of their parents. We hypothesize meta-perceptions could be the most influential factor supporting children with visual impairments physical activity choices, thus, the purpose of this study is
to examine the role of parent, child, and children’s meta-perceptions on physical activity behaviors for children with visual impairments.

Methods: Participants ages 4-19 years (N = 100; Mage = 12.01 years, SD = 2.5 months) are from educational sports camps (Camp Abilities) for children with visual impairments across the United States. Relation-inferred self-efficacy (RISE) surveys will be delivered to the children and parents as well as the Physical Activity Questionnaire for children/adolescents (PAQ-C/A) to the children. Potential analyses for this study include descriptive statistics as well as a multivariate hierarchical linear regression. The hierarchical regression will predict physical activity behaviors from two levels. Level one includes age, sex, and degree of visual impairment. Level two includes self-perception, parental perception of their child, and children’s meta-perceptions regarding their parents.

Understanding “responsiveness” from the perspectives of physical and health education teachers in inclusive learning environments

Younghoon Lee (University of Manitoba), Kyoung June Yi (University of Manitoba)

Introduction: The responsiveness of a physical and health education (PHE) teacher in inclusive learning environments can be described as the quality of being physically and cognitively present during class, continually communicating with students to accommodate their educational needs, and constantly assessing potential issues that may arise during the class. Responsiveness also refers to becoming a keen observer and facilitator of how learners construct knowledge and then using that information to build on learners’ strengths. In this study, I aim to further explore how PHE teachers understand the meanings of responsiveness in the context of inclusive PHE and how they intend to become responsive in their day-to-day pedagogic practices.

Specific research questions are: (1) What are the meanings of responsiveness in the context of PHE? (2) What do PHE teachers do to establish and improve the responsiveness to their diverse students?

Methods: I will employ an exploratory qualitative research design to investigate PHE teachers’ perspectives working with students with diverse educational needs. I will use one-on-one semi-structured interviews, classroom observations, field notes, and teachers’ self-reflective writings as data sources. I will recruit 12 PHE teachers, using a maximum variation sampling strategy. This will enable me to capture perspectives of teachers from various PHE contexts and to identify shared patterns and processes of responsive pedagogy in inclusive PHE environments.

The findings of this study would be useful for other educational practitioners in the field of PHE and adapted physical activity to better understand the meanings and characteristics of responsiveness, as well as to become responsive educators who accommodate diverse educational needs of students.
As He Gets Weaker, I Need to Get Stronger*: Exploring Familial Relationships through Reverse Integration within a Segregated Adapted Physical Activity Setting

Caitlin Riddoch (University of Alberta)

A wife drops her husband off for an adapted exercise class, then continues on to a different site for her own workout. A parent waits with her children as her disabled son participates in specialized physical activity; his siblings watch with longing eyes. These are examples of family dynamics which could occur while one member attends a segregated adapted physical activity (APA) setting. Segregated settings provide specialized physical activity opportunities for disabled individuals; however, these settings may ‘other’ disabled individuals and maintain unequal power dynamics between disabled and non-disabled individuals (Hodge & Runswick-Cole, 2013).

Reverse integration, a term traditionally used to describe disabled and non-disabled athletes competing with and against each other in disability sport, shows that involvement of non-disabled athletes in disability sport positively contributes to the disabled athlete’s athletic identity in wheelchair basketball (Spencer-Cavaliere & Peers, 2011). Reverse integration has not yet been examined in contexts outside of disability sport; however, similar findings may be transferable to a disabled family member participating in physical activity alongside their non-disabled sibling/spouse.

A community-based participatory research approach will be used to co-create and then examine, a reverse integration program (Minkler, 2005). A socioecological framework (i.e., Bronfenbrenner, 2005) will be used to guide inquiry and analysis. This program will be implemented within an established segregated APA setting, and informed by key stakeholders including disabled individuals, their family members, and staff. Research questions may include:

- How do power dynamics change in a reverse integration setting?
- How is family time and leisure time considered in families with disabled family members?
- How is inclusion conceptualized in such a program?

This study may contribute to further understanding of family dynamics while members participate together. Furthermore, there is potential to expand the concept of reverse integration beyond disability sport and change power dynamics within segregated APA settings.

Pop-up adventure playgrounds: Exploring a grassroots movement towards enriching children’s play experiences

Anthony Bourque (University of Alberta)

Active outdoor play, supports the healthy development of children (Tremblay, 2015), yet, it is declining in Canada (Brussoni et al., 2012). A lack of active outdoor play may lead to adverse outcomes for children including, a decline in mental, physical and social health (Tremblay, 2015). This decline is tied in the literature to such things as adult perceptions, lack of quality play spaces, and government policy. Furthermore, children who experience disability may be more likely to lack opportunities to experience
active play outdoor due to conceptualizations of play as therapeutic, inaccessible spaces, and lack of inclusion due to diverse abilities. One response to this decline in play is the creation of pop-up adventure playgrounds (PAPs). PAPs are “free, public celebrations of child-directed play, stocked with loose parts and staffed by playworkers...they gently introduce themes of risk and freedom by welcoming people of all ages and abilities to play together” (Pop-Up Adventure Playgrounds, 2018). However, little is known about the role a PAP plays in addressing the decline of children’s play. Therefore, the purpose of this qualitative case study is to explore the following:

1. To explore if and in what way a PAPs offers opportunities for children to participate in active outdoor play.
2. To understand parental perceptions of a PAP regarding risk, safety, and parenting practices.
3. To examine the ways in which PAPs might inform and challenge current play policy.

An adaptation of Kytta’s (2004) affordance theory will provide the theoretical grounding for this study. Interpretive Description (Thorne, Kirkham, & O’Flynn-Magee, 2004) will serve as the methodology for this case study. Data collection will consist of photo elicitation with the child participants and semi-structured interviews conducted with parents and children (Creswell & Creswell, 2018). Outcomes include informing future outdoor active play provision and offering practical knowledge for professionals.

The implementation of physical literacy testing on children with special needs

Emma McLaughlin (Acadia University), Roxanne Seaman (Acadia University)

Over the past few decades there has been a significant increase in the number of ASD diagnoses. Individuals with Autism, Down Syndrome and Global Developmental Delay face many social, behavioral, physical and cognitive barriers that make it difficult for them to not only go about their daily lives, but also to be involved in school and physical activity settings (MacDonald, Esposito & Ulrich, 2011). This directly leads to decreased levels of physical literacy and increased rates of obesity which causes plethora of other health and medical complications (Todd & Reid, 2006).

The purpose of the current study is to determine the validity of the Canadian Assessment of Physical Literacy (CAPL) when testing children with Autism Spectrum Disorder (ASD), Down Syndrome (DS), and Global Developmental Delay (GDD). Participants will be recruited from the Saturday morning SMILE (Sensory Motor Instructional Leadership Experience) program at Acadia University aims to provided an inclusive physical activity setting. These participants will be children ages 5-12, who have been diagnosed with ASD, DS, or GDD. Results will be used to make adjustments to the current physical literacy protocol, and to ensure SMILE programming is appropriate for individuals to meet their development physical activity and literacy needs.

The CAPL protocol measures many aspects of an individual’s physical fitness including anthropometric measurements of height and height, musculoskeletal measurements of grip strength and flexibility, cardiovascular and respiratory fitness by having individuals complete the PACER/beep test. Fundamental movement skills and gross movements skills are tested by having individuals complete the physical literacy obstacle course (Whitehead, 2010), all methods will be used for the current study.
It is hypothesized that the current CAPL Guidelines will be appropriate for children with special needs to comprehend instructions and complete the tasks to the best of their ability, regardless of their physical literacy level.
**Tuesday, October 2, 10:00: Thematic Poster Presentation**
*(Measurement and Assessment)*

**Comparison of uniaxial and triaxial accelerometer outputs among individuals with and without Down syndrome**

Willie Leung (Oregon State University), Jookoon Yun (Oregon State University), John Schuna Jr. (Oregon State University)

Introduction: Unique characteristics of individuals with Down syndrome (DS) could affect the estimation of physical activity levels when measured with accelerometers. During ambulatory activities, individuals with DS walked with an increased movement along the mediolateral sway. Compare to uniaxial approach, triaxial approach can better predicted physical activity levels of individuals with DS due to the approach takes into account of the increased movements. Therefore, the purpose of this study was to examine the accuracy of the two types of accelerometer outputs in predicting energy expenditure for individuals with and without DS during walking with the hypothesis of triaxial approaches having better accuracy.

Methods: Total 37 participants including 18 participants with DS participate in testing protocols. Participants wore GT3X+ accelerometer, portable metabolic system, and heart rate monitor while engage in 3 walking trails at the speed of self-selected speed, 2 mph, and 4 mph for 6 minute each in a figure “8” shape. Validity coefficient between accelerometer outputs and energy expenditure were compared within group using Meng’s z test.

Results: The validity coefficients between energy expenditure and both types of accelerometer outputs for individuals without Down syndrome were 0.75. For individuals with Down syndrome, the validity coefficient between uniaxial approach, triaxial approach and energy expenditure was 0.53 and 0.64, respectively. Meng’s z test suggested that there are no differences between the magnitude of correlations with energy expenditure and the two types of accelerometer outputs for individuals without Down syndrome (z = -1.71, p > 0.43) but the differences can be found in individuals Down syndrome (z = 0.14, p < 0.05).

Conclusion: When using accelerometer to measure physical activity levels for individuals Down syndrome, using triaxial approach can better predict their physical activity levels, while using either accelerometer approaches will yield similar physical activity results for individuals without Down syndrome.

**Can a novel reach test differentiate among functional groups?**

Jared Rehm (Huntingdon College), Adam Jagodinsky (Illinois State University), Christopher Wilburn (Auburn University), Lorraine Smallwood (Auburn University), Taylor Wright (Auburn University), Jerrod Windham (Auburn University), Wendi Weimar (Auburn University)

Introduction: Adapted sports are sports that enable people with disabilities (PWD) to participate in sport through modification of traditional sport or new sports designed for PWD. Classification systems are utilized within adapted sports to ensure equitable competition. The focus of this project is the
classification system utilized in wheelchair basketball. The primary factors of wheelchair basketball classification are the “volume of action” and trunk stability. Currently, the volume of action is not measured objectively. Previously reported research has shown that a reach test using a laser distance measurer is able to separate people with (PWD) and without mobility impairment (PWOD). The aim of this project was to find out if the test could further stratify based upon functional ability.

Method: The volume of action was measured as a percentage of height for 20 individuals: 10 PWD, 10 PWOD. The PWD were further divided into those who use a manual wheelchair (MWC) as their primary means of mobility, and those who ambulate (AMB) as their primary means of mobility. The measurement was accomplished through a reaching task requiring each participant to reach in 5 directions at 3 heights with each hand. Distance reached was found by means of a laser distance measure pointed at a target 1.5 m away. The difference between the final position and initial position was normalized to trunk height to give a reach score for each condition. A one-way ANOVA was utilized to test for differences. Results: Differences according to group were found but not statistically significant (PWOD=1671±226, AMB=1595±390, MWC=1117±627, F (2,19)=3.42 p=.056).

Implication/Conclusions: Though the results did not reach statistical significance, the findings demonstrate a potential for the test to be useful in classification. Larger samples are needed to confirm or deny this potential as actually useful.

Validity of the multistage fitness test for wheelchair users in a selected cohort of school-aged wheelchair basketball players: A pilot study

Michele Olson (Huntingdon College-Ability Sport Network), Jared Rhem (Huntingdon College-Ability Sport Network), Lisa Olenik Dorman (Huntingdon College-Director Ability Sport Network), Michael Bamman (Huntingdon College-Sport Sciences)

Relative to elite competitive wheelchair basketball, there are few physiological studies on public-school-attending youth who are engaged in wheelchair basketball (WCB). Thus, the current study aimed to address the following three research questions: 1. What is the VO2max of a small cohort of youth WCB participants? 2. Can VO2 measurement using a metabolic cart and arm ergometer (criterion method) effectively assess VO2max in this population? 3. Does a wheelchair specific field test for estimating VO2max yield comparative results to a directly measured (criterion) VO2max?

This pilot study is significant in that accurate data regarding the cardiorespiratory fitness status (VO2max) of this population is needed. Further, if metabolic cart (criterion) determination of VO2max in youth WCB players can be reasonably measured with a field test (e.g. the Multistage Fitness Test for Wheelchair Users), the intensity of training, conditioning, and WCB practice and game drills can be accurately gauged for optimum performance outcomes.

The pilot sample (n=5) was drawn from among a previous research cohort of the Ability Sport Network (ASN grant) WCB players in Montgomery, Alabama. Informed consent and assent was provided by each parent/guardian and/or participant, respectively. The mean age was 13.8 yr and mean weight was 49.2 kg. All participants attend public school in the Montgomery area and are a part of the ASN grant for WCB.
Testing consisted of random assignment to VO2 max metabolic cart testing (Parvomedics System) seated in a wheelchair using arm ergometry and the Multistage Fitness Test for Wheelchair Users (MSFT). Tests were initiated after familiarization and a warm-up. Tests were completed when the participants reached volitional fatigue. The VO2 max was recorded for the metabolic cart tests and the laps completed during the MSFT were converted to a predicted VO2 max (Vanderthommen, et al 2002).

Both directly measured and predicted VO2 max values were analyzed via excel to determine: 1. The correlation between the actual and predicted VO2 max and, 2. The difference between the actual and predicted VO2 max. Last, the relative intensity of WCB practice and game simulations was calculated based on previous data determined with this cohort.

The mean VO2 max was 21.9 and 23.5 ml/kg/min for the criterion (metabolic cart) values versus the predicted (MSFT) values. The results of the t-test showed that there was no significant difference between the criterion and predicted values (p. = 0.22). Mean diff = just 1.6 ml/kg/min. A significant positive correlation of r = 0.76 was also found between the criterion and predicted VO2 max. Last, the intensity of WCB for this cohort, based on the present and previous ASN research reveals that a typical practice with game simulations produces an intensity of 76% of VO2 max.

This study shows that young WCB participants can be effectively tested for a valid VO2 max using arm ergometry. This is important because WCB's wheelchairs do not fit properly on typical laboratory treadmills. Further, the use of the upper extremities in WCB indicates that testing should be done with the musculoskeletal segments most involved in the sport. Secondly, the values derived from the Wheelchair MSFT were not significantly different from the directly measured metabolic cart VO2 max. This finding supports the validity and utility of the Wheelchair MSFT in providing close estimates of the actual VO2 max (which is cost-effective and time-saving). Further, knowing the actual exercise capacities (VO2 max) of WCB players shows whether participation is too intense or not intense enough to for safety as well as fitness enhancement. For this pilot cohort, the intensity was within the recommended training zone for cardiorespiratory fitness adding to the value of WCB for school-aged children in helping to promote not only their motor skills but all-important cardiorespiratory fitness, as well.

Step-counting accuracy of ActiGraph accelerometers in adolescents with Down syndrome during physical education activities

Wilson Amaral-Junior, University of Campinas, Adventist University of São Paulo, Brazil, Gil Guerra-Junior, University of Campinas, Brazil, Marcos Barros-Filho, University of Campinas, Adventist University of São Paulo, Brazil, Luana Francalino, University of Campinas, Adventist University of São Paulo, Brazil, Caio Constâncio, University of Campinas, Adventist University of São Paulo, Brazil, Magda Barros, University of Campinas, Adventist University of São Paulo, Brazil, José Santos-Filho, University of Campinas, Brazil, Stamatis Agiovlasitis, Mississippi State University, USA, Fabio Bertapelli, University of Campinas, Brazil

Introduction: Research has examined the accuracy of devices in measuring steps in adults with Down syndrome (DS). However, the evidence on the step-counting accuracy of accelerometers in youth with DS is limited. This study examined the accuracy of ActiGraph accelerometers during physical education (PE) in youth with DS and whether device error is associated with anthropometry, intellectual disability (ID) level, activity time, age, or sex.
Methods: Ten youth with DS (5 girls, 5 boys; 15.7±1.8 years) were video-taped during PE in a special school in Brazil. Participants wore an ActiGraph wGT3X-BT accelerometer at their hip during indoor PE activities: skills practice, basketball, and soccer. Steps were processed applying both the default (DF) and low-frequency extension (LFE) filters. Visually counted steps were the criterion. Accuracy was evaluated with absolute percent error and Bland-Altman plots.

Results: Mean±SD weight, height, BMI, waist circumference (WC), and leg length were 68.0±18.2 kg, 150.5±10.3 cm, 30.4±9.1 kg/m², 86.0±13.8 cm, 79.7±6.3 cm, respectively. Mean activity time for each participant in PE class was 3.3±1.3 min. The error was considerable but was lower with LFE than DF (52.4±7.3% and 25.6±9.3%, respectively; p <0.001). Bland-Altman plots indicated underestimation of steps by both filters. Steps monitored with both filters differed from the criterion (criterion: 287±94.2; LFE: 220±90; DF: 133±53.6; p ≤0.001); LFE counted more steps than DF (p <0.001). Age, weight, WC, and BMI were associated with DF error (r = 0.73, 0.67, 0.68, and 0.82, respectively; p <0.05). Only leg length was significantly associated with LFE error (r = 0.75; p =0.013); the remaining variables did not (r = -0.05 – 0.59; p >0.05).

Implication/Conclusion: ActiGraph accelerometers have considerable error in measuring steps during physical education in adolescents with DS. Application of LFE decreased the step-counting error. Error is associated with different factors between the DF and LFE filters.

Acknowledgements: Fabio Bertapelli has scholarship by the Sao Paulo Research Foundation (FAPESP 2017/13071-4)

Accelerometer-determined step-rate predicts energy expenditure in adults with and without Down syndrome

Fabio Bertapelli (University of Campinas), Anthony Allred (Mississippi State University), Poram Choi (Mississippi State University), Gil Guerra-Junior (University of Campinas), Stamatis Agiovlasitis (Mississippi State University)

Introduction: Monitoring physical activity from step counts provided by an accelerometer, requires establishing the relationship between step-rate and energy expenditure across many tasks. This has not been done in adults with Down syndrome (DS). We examined whether step-rate predicts energy expenditure expressed as the rate of oxygen uptake (VO2) in adults with and without DS. We also examined the accuracy of an equation for predicting VO2.

Methods: Fourteen adults with DS (9 men; age 30.9±15.4 years) and 17 adults without DS (9 men; age 24.3±5.6 years) participated in our study. Participants performed 12 tasks, each lasting 6 min: sitting; playing an app; drawing; folding clothes; sweeping; fitness circuit; standing; walking at the preferred speed, at 1.8 mph, and at 3.1 mph; moving a box; dribbling and passing a basketball. We measured VO2 with a portable spirometer and step-rate with a triaxial accelerometer (wGT3X-BT; Actigraph) on the non-dominant hip, using the low-frequency extension filter. We ran multi-level regression for predicting VO2 from group (1=DS; 0=non-DS) and linear, quadratic, and cubic terms for step-rate. We estimated VO2 with the resultant equation. We then calculated the equation’s absolute percent error which we compared between groups with a t-test.
Results: All independent variables were significant predictors of VO2 (p < .001). The regression equation was VO2 = 5.11214 + 0.52419×step-rate – 0.00773×step-rate2 + 0.00004×step-rate3 – 2.21664×group; R2 = 0.67). Absolute percent error across tasks did not differ between adults with and without DS (26±27% and 26±23%, respectively; p = 0.848).

Implication/Conclusion: DS and linear, quadratic, and cubic terms for step-rate as determined by the Actigraph accelerometer predict energy expenditure in adults with and without DS. Prediction error does not differ between groups but is considerable. Advances in monitoring physical activity from step counts in adults with and without DS are needed.

Acknowledgements: Fabio Bertapelli has scholarship by the Sao Paulo Research Foundation (FAPESP 2017/13071-4).
Tuesday, October 2, 10:45: Building Session

Revisiting the Narrative of Least Restrictive Environment in Physical Education

Wesley J. Wilson, University of Louisiana at Lafayette, Justin A. Haegele, Old Dominion University, & Luke E. Kelly, University of Virginia

Primary Issues
The goal of this building session is to revisit the issues surrounding the concept and implementation of the Least Restrictive Environment (LRE) in physical education. First, the presenters will review a brief historical perspective on the early confusion and controversy of the LRE mandate, such as issues with “false” mainstreaming. Relevant research on LRE implementation will then be discussed with an emphasis on where scholarly activity has fallen short in addressing the placement continuum needs of students with disabilities.

Session Significance
School-level implementation of the Least Restrictive Environment (LRE), a federal mandate of the Individuals with Disabilities Education Improvement Act of 2004, has been historically misinterpreted and criticized by educators and scholars. Deriving from what was known as the Education for All Handicapped Children Act of 1975 (PL 94-142), the LRE provision stated that students with disabilities were to be educated with their typically developing peers to the greatest extent possible. In doing so, a continuum of alternative placements was established, in which students with disabilities may be educated should a regular setting not satisfy their educational needs.

While the enactment of PL 94-142 represented a major shift in public education, one that guaranteed free and appropriate education for students with disabilities, the implementation of LRE was often misinterpreted leading to many instances of “false” mainstreaming—forced integration without considering the individual needs of the students. In 1988-89, Jansma and Decker (1990) conducted Project LRE/PE, which became—and remains—the only large-scale research that explored the use of LRE implementation in US public schools. While this seminal work seemed to provide a sense of direction for adapted physical education professionals to move, it is generally accepted among scholars that students with disabilities are often still inappropriately placed (Block, 2016; Columna, Davis, Lieberman, & Lytle, 2010; Lieberman, Cavanaugh, Haegele, Aiello, & Wilson, 2017). But, regrettably, such data on the appropriateness of LRE continuum placements is not available.

Adapted physical education scholars should find this reality troubling, especially as the focus of research has followed the paradigm shift towards the philosophy of inclusion. Very little empirical research has since examined the use of LRE over the last 25 years, so the current nature of its implementation remains unclear. As such, scholars should revisit the issue of LRE implementation.
Tuesday, October 2, 11:30: Keynote

Lifestyle Physical Activity in Neurological Diseases: Building an Agenda from Lessons Learned in MS

Robert Motl
Professor and Director of Research,
Department of Physical Therapy,
University of Alabama

The talk with focus on research examining behavioral interventions for lifestyle physical activity in MS. This will include background on why we need a new approach. The foundation of this new approach. The research supporting this new approach, and the lessons learned for application in other conditions that result in disability.
Tuesday, October 2, 1:00: Verbal presentation (Community Programming and Staff Attitudes)

The mental health of support staff working in assisted community living

Alexa Oakley (Brock University), Maureen Connolly (Brock University)

Introduction: During the past five years of engaging in movement programs with participants experiencing disability, I noticed patterns of turnover among the support workers accompanying the participants. Any lack of consistency in these individuals’ lives often causes anxiety and stress, pushing me to ask why support staff are turning over so frequently, and how we might address it. The purpose of my qualitative research is to assess the training that group home staff receive before entering the field, as well as the counselling and support services available to staff during their careers. Through analysis, I will also discern whether mental health considerations, such as stress and depression, are factors in first year turnover rates within group home staffing.

Methods: First year turnover indicates poor employee satisfaction. By identifying factors contributing to disengagement, we can propose appropriate training of group home employees, since many of the staff in group homes report that their training has been insufficient in preparing them for their job responsibilities (Hewitt & Lakin, 2001) which have changed dramatically in the last few decades.

Results: Preliminary findings suggest that group homes require the staff to work intensely and intimately with their clients, which can result in strong emotional bonds that ultimately lead to stress (Pines & Maslach, 1978).

Implication/conclusion: Through this research I hope to describe the situational features that have the potential to contribute to turnover, and provide suggestions that encourage healthy work environments for these staff members we so desperately need in this field.

Evaluation of a train the trainer program to promote physical activity

Jessica Hamm (Eastern Oregon University), Morgan Ross (Georgia Gwinnett College), Eric Medina (Georgia Gwinnett College), Enid McCoy (Georgia Gwinnett College), Karla Caillouet (Georgia Gwinnett College)

Introduction: Individuals with disabilities (IWD) have been reported to engage in inadequate amounts of physical activity, which in turn can negatively impact their health. One way to address this issue is to target the day habilitation programs that many IWD work and live at. However, staff participation is often a barrier. Therefore, the purpose of this current study was to evaluate the effectiveness of a train the trainer program on the amount of physical activity direct care staff implement.

Methods: Participants included 26 staff who signed up to participate in the program. The program consisted of staff receiving three text-messages each day that specified physical activities they could implement. Additionally, staff were given a binder, highlighting the importance of physical activity and descriptions of how to perform each activity. Participants were asked to complete a pre-and post-questionnaire about their physical activity participation at work before and after engaging in the two-
week program. Additionally, staff were asked about their perceptions on the usefulness of program.

Results/Findings: Findings revealed that although 26 staff members signed up to participate in the program, only 10 participated at least 70% of the time. Participation was defined as responding to text-messages to indicate if they had participated in the activity. Two one-way ANOVAs were run to evaluate differences between the number of days and amount of time staff implemented physical activity during the day. However, there were no significant differences between the pre and post data (p >0.05.). Qualitative data indicated that staff who completed the program found the daily and specific physical activity suggestions helpful.

Implications/Conclusion: Although there were no significant changes in physical activity implementation, staff feedback highlights the potential effectiveness of this type of program. Future researchers should consider how to encourage higher participation rates among staff.

Exploring physical literacy for individuals diagnosed with Autism Spectrum Disorder (ASD): Interpretations of community adapted physical activity program leaders

Kyle Pushkarenko (University of Alberta), Janice Causgrove Dunn (University of Alberta)

Introduction: Physical literacy (PL) is considered a multi-dimensional concept, derived from opportunities to capitalize on one’s embodied capability. It is also thought to be applicable to all regardless of ability level. However, PL has yet to be formally examined with respect to children experiencing disability. As such, it is important to investigate the perspectives of those that may facilitate the development of PL for these children. Adapted physical activity specialists are thought to possess the knowledge required to create a context appropriate to the specific needs of these children experiencing disability, creating increased opportunities for meaningful participation. The purpose of this investigation was to explore how community-based adapted physical activity program leaders understand PL for children with autism spectrum disorder (ASD), thus enhancing the potential for PL development.

Methods: Using interpretive phenomenological analysis, six adapted physical activity program leaders were interviewed, and their experiences interpreted using an ecological systems theory framework. Findings revealed two themes: (a) Reflections of a Dominant Paradigm, signifying that PL as conceptualized within the dominant paradigms of sport and physical education serves as the foundation of understanding, and (b) ... But We Have to Adapt It, illustrating that approaches to PL development for children with ASD require adaptation according to best practices emphasized within the field of adapted physical activity.

Implication/Conclusion: These findings imply that, despite efforts to accommodate individual needs, current understandings of PL development for children experiencing disability are based upon the ableistic assumptions of the dominant paradigms of sport and physical education. Although beneficial for some, a standardized outlook and approach to PL for children diagnosed with ASD holds the potential of minimizing meaningful connections to purposeful physical pursuits, hindering motivation to engage in future physical activities. Further critical evaluation of PL for all individuals experiencing disability is necessary to facilitate each individual’s unique PL journey.
Pediatric physical therapists’ attitudes towards self-directed mobility

Winston Kennedy (Oregon State University), Kathleen R. Bogart (Oregon State University), Michele Catena (Oregon State University), Heather A. Feldner (Oregon State University), Samantha M. Ross (Oregon State University), Christina Hospodar (Oregon State University), Samuel W. Logan (Oregon State University)

Introduction: Self-directed mobility is defined as mobility that is controlled by an individual, and may include walking or assisted ambulation through the use of mobility technology such as prosthetics, walking aids, manual wheelchairs, or motorized wheelchairs. Pediatric physical therapists serve a critical role in advocating for children with disabilities to gain access to self-directed mobility, through targeted interventions or provision of assistive technology. However, pediatric physical therapists’ attitudes toward self-directed mobility are currently unknown. The purpose of this study is to describe pediatric physical therapists’ attitudes toward self-directed mobility.

Methods: 188 pediatric physical therapists from professional development workshops participated in this study. Workshops were held in California, Colorado, Florida, Louisiana, Maryland, Texas, Virginia, and Washington and focused on recent advances in early powered mobility research. Participants completed the attitudes toward self-directed mobility scale prior to the start of the workshop. The Attitudes Towards Self Directed Mobility Scale includes 9-items. Participants were asked to indicate their level of agreement or disagreement with each item (5-point Likert scale). A higher score indicates more positive attitudes.

Results: For the 9-item scale, the mean score was 4.5 (SD=.46), indicating positive attitudes towards self-directed mobility in this sample. Participant scores on selected individual scale items include: (Item 1) Self-directed mobility is a fundamental human right (M=4.4; SD=.88); (Item 4) I believe I am an advocate for children to gain access to self-directed mobility; (M=4.7; SD=.61); (Item 9) Children should have the opportunity to use multiple modes of mobility based on environment or situation (M=4.8; SD=.52).

Implication/Conclusions: Pediatric physical therapists demonstrated positive attitudes towards self-directed mobility. Future studies should aim to explore how demographic factors, contact with people with disabilities, attitudes toward people with disabilities, and alignment with disability models (medical and social) predicts attitudes toward self-directed mobility of pediatric physical therapy therapists.

Clinicians’ Perceptions of Caregivers’ Attitudes Towards Disability and Powered Mobility for Children with Disabilities

Michele Ann Catena (Oregon State University), Christina Cafferata (Oregon State University), Kathleen Bogart (Oregon State University), Samuel W. Logan (Oregon State University)

Introduction: Children with disabilities rely on their caregivers and clinicians to receive the care and interventions that they need. Caregivers’ attitudes toward disability may shape the access to powered mobility devices (PMDs) for children with disabilities. Clinicians are uniquely situated as they interact with multiple families on a daily basis. Clinicians have insight to caregiver attitudes and have opportunities to shape conversations regarding disability and access to PMDs for children with disabilities. The purpose of
this study was to explore these conversations between families and clinicians, strategies that clinicians use to discuss PMDs and disability with caregivers, as well as common reactions of caregivers towards PMDs and disability.

Method: 525 participants were recruited at continuing education presentations across the United States, and included physical therapists, occupational therapists, and students. Participants answered open-ended questions regarding their experiences working with caregivers when providing or discussing PMDs for children with disabilities. Quantitative content analysis methods were used to analyze the responses for themes and commonalities.

Results: 54% of participants report that they discuss the option of PMDs with caregivers, 15% rarely do, 14% do not. 66% of participants report that caregivers never or rarely initiate this conversation. Participants experience that caregivers have negative attitudes (36%, 24%), positive attitudes (32%, 12%), or both (5%, 18%) towards PMDs and disability, respectively. Strategies that participants use to frame the discussion of disability include focusing on the strengths of the child (57%), and using evidence and their clinical expertise (11%).

Implication/Conclusion: Caregivers have varied reactions to disability and the provision of PMDs for their children, with negative attitudes being more prevalent than positive, and that these conversations are mostly driven by the clinician. Future studies are warranted to explore how attitudes can be changed to empower caregivers to be strong advocates for their children with disabilities.
Tuesday, October 2, 1:00: Building Session

Improving Parasport Coaching Expertise Through Sport Science Initiatives in Coaching Education

Scott Douglas, Ph.D., CAPE, University of Northern Colorado, Jeffrey Martin, Ph.D., Wayne State University, & Laurie Malone, Ph.D., FACSM, UAB/Lakeshore Research Collaborative

Primary Issues
To discuss major differences and similarities between coaching parasport and able-bodied athletes and how coaching in parasport can potentially be improved by implementing new (sport science related) curriculum into coaching education programs. Topics include:
- Coaching knowledge, expertise, and application for unique performance capabilities.
- Development of mental toughness to overcome physical, social, and emotional struggles of living with an impairment.
- Sport psychology and biomechanics training for coaches.
- Development of technical knowledge (i.e., classification systems, adapted equipment use and repair).
- Performance Assessment in parasport (technical and tactical).
- Other (i.e., mentorship, diet/nutrition, pedagogy, chronic pain management).

Session Significance
As the Paralympic Games continues to grow in legitimacy and popularity, so does the need for qualified coaches. The considerations of coaching an athlete with a disability may place demands on the skills, knowledge and practices of coaches beyond that which is expected in mainstream sporting contexts (Burkett, 2013). No matter if a coach is coaching able-bodied athletes or athletes with disabilities, coaching core competence is built through coaching education. Governing structures like NGBs play a major role in enhancing coaches’ learning opportunities at all levels of disability sport (McMaster et al., 2012). Content in formal coaching education is deemed “rudimentary” and often focused on able-bodied sport settings (McMaster et al., 2012). The parasport context currently has fewer technical, adapted, and coaching education resources available, fewer paid jobs, comparatively sparse budgets, fewer coaching peers, and a smaller pool of athletes (Burkett, 2013; Cregan et al., 2007; DePauw & Gavron, 2005; McMaster et al., 2012). According to Taylor et al. (2014), coach educators should recognize the relevance of formal education as well as the need to develop other learning situations given the myriad of disabilities and equipment needs of athletes. Vinson and colleagues (2015) called for more research to better understand the various ways through which people with disabilities engage with, and are excluded by the structure of coach education. The nature of coaching shows that unless new, critical perspectives are offered for understanding coaches’ beliefs and values, coaching practice in the field of disability will remain unchanged (Townsend et al., 2015). Burkett (2013) stated that “academics” should strive to align themselves with coaches to assist in developing more informed and competent parasport coaches. This Building Session will address these issues and offer recommendations for the improvement of coaching expertise in parasport through sport science initiatives in coaching education.
**Tuesday, October 2, 1:00: Verbal presentation** (Program Evaluation)

**All girls rule the world: Adapted and inclusive girls on the run, a pilot project**

Kerri A. Vanderbom (The National Center on Health Physical Activity and Disability), Kelly Bonner (The National Center on Health Physical Activity and Disability), Alex X. Martinez (The National Center on Health Physical Activity and Disability)

Introduction: While afterschool programs in the United States (US) help to provide opportunities for youth to participate in and meet the recommended amounts of physical activity, youth with disabilities (YWD) are often left out. Consequently, physical activity rates are approximately 4.5 times lower for YWD compared to their peers without disabilities. The National Center on Health, Physical activity and Disability (NCHPAD) partnered with Girls on the Run (GOTR) to pilot test an adapted, inclusive GOTR curriculum. GOTR is an evidence-based, positive youth development program for girls in 3rd-8th grade. The 10-week program uses a fun, experience-based, curriculum to teach life skills through dynamic, interactive lessons and running games. It is used to inspire and to motivate girls, encouraging lifelong health and fitness, and to build confidence through accomplishment. The purpose of this presentation is to describe the partnership between NCHPAD and GOTR at a national level, NCHPAD’s adaptation process, and how changes were made at the local level.

Method: With an MOU, NCHPAD and GOTR started a collaboration. Using the GRAID framework (i.e., built environment, services, instruction, equipment & technology, and policy) NCHPAD adapted the GOTR curriculum using a grey and white literature, the GRAIDs, and feedback by an expert advisory group, and GOTR content experts.

Results: The program was adapted to include girls with disabilities and was pilot tested in 14 communities across the US. The pilot project ended in May 2018. Success stories and other qualitative data will be reported.

Implications/Conclusion: YWD need to be included in afterschool programs, not only because it is the law, but because it is a civil right. By adapting programs, training staff, and evaluating efforts, positive health and quality of life outcomes are possible for YWD. GOTR plans on scaling up and spreading their inclusion efforts beyond the 14 pilot sites to make a bigger impact.

Acknowledgment: NCHPAD is funded by the Centers for Disease Control and Prevention under Cooperative Agreement number CDC-RFA-DD16-1602 National Centers on Health Promotion for People with Disabilities.

**A qualitative evaluation of the Special Olympics’ Oregon Team Wellness physical activity and nutrition program**

Kathleen McCarty (Oregon State University), Chun Wei Chang (Oregon State University), Anna Povstenko (Oregon State University), Alicia Dixon-Ibarra (Oregon State University)
Introduction: Individuals with intellectual disabilities are a known health disparities group. The Oregon Team Wellness (OTW) program was developed to provide healthy lifestyle information to specifically target this population. Certified Wellness Coaches instruct weekly health sessions, consistent with Special Olympics sport practices. OTW provides hands on training on fitness, nutrition, and food management during the repeatable 8-week program (8 sessions total at 90 minutes each). The aim of this qualitative program evaluation was to receive coach and participant perspectives for program refinement.

Methods: Study participants included coaches and athletes who completed the OTW program. A focus group was conducted with athletes (n=6, mean age=45, 66.7% female) and one-on-one interviews with coaches (n=4, mean age=25, 50% female). Triangulation was completed with three coders who independently reviewed transcriptions. Consensus of themes were established across coders.

Results: Higher-ordered themes for coaches included: (1) OTW Support, (2) Communication, (3) Program Implementation (4), Program Perceptions (5), Program Feedback and (6) Program Outcomes. Coaches received an abbreviated OTW training; but, felt prepared based on previous experience. Coaches used encouragement, teaching, and motivation to implement the program. Program fidelity was limited in physical activity but maintained for nutrition. Program perceptions were positive and continued participation was anticipated. All coaches agreed that better marketing efforts for recruitment is needed. Higher order themes for athletes included: (1) Book Use, (2) Program Enjoyment, (3) Coaches, (4) OTW Support, and (5) Program Feedback. Athletes used the book during the program but had limited at-home use. All participants expressed enjoyment with the program and coaches and anticipated repeated enrollment.

Implication/Conclusion: Results indicated that athletes and coaches enjoyed OTW and identified valuable recommendations for improvement. Their feedback and suggestions will help to refine and expand the OTW program.

Theory informed program evaluation of facilitators and barriers to inclusion in 4-H

Jennifer Taylor-Winney (Western Oregon University), Gloria Krahn (Oregon State University), Marilyn Lesmeister (Oregon State University Extension), Leanne Giordono (Oregon State University), Meghann Fenn (Oregon State University)

Introduction: Quality out-of-school programs can significantly improve youth development outcomes. Youth with disabilities and special health care needs, who represent 19% of all youth, are less likely than their typically developing peers to participate in out-of-school activities. This qualitative study explored factors that influence the inclusion of youth with disabilities in one state’s 4-H program.

Methods: This study included a purposeful selection of a sample of 24 study respondents from among county, state and national 4-H staff in one western state. A semi-structured theory-informed (Theory of Planned Behavior) interview protocol was designed to elicit respondents’ perceptions and experiences related to inclusion of youth with disability in 4-H programming. Individual in person or telephone interviews were conducted with respondents. The study used a thematic analysis approach (Braun &
Clarke, 2006) involving a multi-step, iterative process with multiple indicators of trustworthiness. This approach included prolonged engagement with the data, peer debriefing and use of a coding framework, detailed notes and hierarchies, vetting across the six team members, and detailed records about the coding and analysis process.

Results: Facilitators included personal attitudes (positive attitudes) and subjective norms (alignment with 4-H mission). Perceived barriers related to behavioral control (lack of knowledge, limited resources) which lead to reactive problem-solving rather than proactive, organizational planning.

Implications/Conclusion: By identifying these factors, youth development professionals can target areas of focus to improve inclusion of youth with disabilities in 4-H and potentially other youth development programs.

An evaluation of the inclusion resource team pilot project for individuals who have an intellectual disability

Shannon E. Weissman (University of Toronto), Laura R. St. John (University of Toronto), Katherine A. Tamminen (University of Toronto), Diana Simpson (City of Mississauga Recreation Services Division), Jennifer Cowie Bonne), Lisa Kitchener (Community Living Mississauga), John Cairney (University of Toronto), Kelly Arbour-Nicitopoulos (University of Toronto)

Introduction: Individuals who have intellectual disabilities (ID) face several barriers to participating in community recreation, including a lack of suitable programs and social support. These barriers may lead to fewer opportunities for adults who have ID to experience the physical, psychological, and social benefits of community recreation. To address this concern, the City of Mississauga and Community Living Mississauga (Ontario, Canada) developed the Inclusion Resource Team Pilot Project (IRTPP). This program involves a one-on-one service delivery model where adults who have ID are given the opportunity to engage in any recreation program offered by the city with the support of an inclusion facilitator. The goal of the IRTPP is to increase community recreation among adults who have ID through the provision of municipal staff support and accessible, inclusive programming. This study explored: (i) the experiences of participants and/or their caregivers, (ii) barriers to program participation, and (iii) suggestions for program improvement.

Methods: Nine semi-structured interviews were conducted with IRTPP participants and/or their caregivers. Interviews were transcribed verbatim. Thematic content analysis was conducted to evaluate program experiences, barriers, and areas for improvement.

Findings: Level of independence influenced participants’s; experiences such that those who required the most support reported more challenges with program participation. Participants who reported program enjoyment, however, also reported that it fostered a sense of competence and wellbeing. In terms of perceptions of staff, staff preparation and consistency were believed to have important implications for participant satisfaction. Specifically, participants felt they benefited most when they were consistently paired with the same inclusion facilitator who had previous experience in the chosen activity.

Implications/Conclusions: Findings from this study will be used to refine the IRTPP to increase the
quality of community recreation experiences among adults who have ID. These findings can be used to inform program delivery models for other municipalities.

Parent-reported quality of participation and self-reported support within organized adapted physical activity programs

M. Blair Evans (Pennsylvania State University), Courtney Jasiulevicius (Pennsylvania State University), Celina Shirazipour (Dalhousie University), Jonna Belanger (Pennsylvania State University)

Introduction: Athletes and exercisers with disabilities value and pursue physical activity settings where they have quality experiences (i.e., belongingness, autonomy, mastery, challenge, engagement, and meaning; Evans et al., 2018). Given parents’ role in supporting physical activity for youth with disabilities, we examined parents’ perceptions of quality across different organized physical activity programs, and tested the role of those perceptions in parent support for physical activity.

Methods: The current online correlational survey study included 205 parents of a child with a disability (i.e., physical, sensory, intellectual, psychosocial) involved in an organized out-of-school time physical activity program.

Results: Results provided initial factorial validity for a parent-completed quality participation survey. When examining associations with program characteristics, parents perceived the highest quality of experiences when their child participated in programs including youth without disabilities, but when programs also involved youth who were similar in age and disability characteristics as their child. Parents also reported higher quality participation when they perceived fewer barriers to their child’s physical activity. Quality participation perceptions and perceived barriers also predicted parent support behaviors and support intentions, alongside other theoretically-relevant social cognitions (i.e., attitudes, subjective norms, perceived behavioral control).

Conclusion/Implications: This research expands what we know about optimal peer environments within youth adapted physical activity programs. For example, it provides additional evidence related to the potential benefits and downfalls for quality of participation when programs feature increased diversity. This research also reveals the potential role of disability-related social cognitions (i.e., quality participation and perceived barriers) when understanding parent support for physical activity. When working to ‘activate’ parent support behavior, it may be important to target their evaluations of the programs that their child is most likely to access.
Iterative development of a technology-guided intervention to increase physical activity in adults with autism spectrum disorder

Daehyoung Lee (Indiana University), Georgia Frey (Indiana University)

Presentation Purpose
Research shows that adults with autism spectrum disorder (ASD) are less physically active than those without ASD. Interactive technologies may be an effective intervention to target this health disparity. A gamified mobile app, Puzzle Walk was developed to elevate physical activity (PA) engagement in the target population following an iterative user-centered design process, including a literature review, identification of target behaviors, needs analysis, health behavior theory evaluation, and prototype design. The purpose of this presentation is to provide the iterative development process of Puzzle Walk that incorporates PA into gamified treasure hunting activities and behavior change techniques (BCTs).

Session Significance
The proposed presentation will address the critical need for adjunct PA interventions in adults with ASD using a gamified, BCTs incorporated mobile app. This novel approach to managing health in people with ASD is aligned with the 2017 Autism Speaks research priorities. In these priorities health and well-being, lifespan issues, associated conditions, and adult transition were rated as the most important content areas for future research by people with ASD, families, and researchers.

A few studies on PA in adults with ASD indicate that this population segment does not meet health-related PA guidelines and this likely contributes to the high incidence of hypoactive-related diseases observed in this population, such as obesity and hyperlipidemia. Smartphone mobile apps are a popular tool for managing health in the general population and are also a promising tool for helping adults with ASD increase PA. A majority of adults with ASD use their mobile technology devices more than 4 hours per day, indicating that these devices could serve as an effective health intervention delivery tool. In addition, people with ASD are generally visual learners and tend to prefer interaction with the predictable and persistent interfaces of mobile technologies to traditional face-to-face interaction.

Although there has been a large increase in the number of PA promoting mobile apps over the past several years, the efficacy of this technology in inducing sustained PA in individuals with special needs is poorly understood. Designing PA mobile apps with gamified elements and based on BCTs may be an effective approach to facilitating PA adherence and reducing abandonment. Gamified mobile apps have a potential for enhancing retention of target behaviors by providing users with feelings of excitement and desire. Accordingly, a gamified, BCTs based mobile app, Puzzle Walk presents an interesting approach for stimulating PA participation in adults with ASD.
Iterative development of a technology-guided intervention to increase physical activity in adults with autism spectrum disorder

Michelle Grenier (University of New Hampshire), and Justin Haegele (Old Dominion University)

Primary Issues

Given the lack of consensus on how inclusion should be defined, we offer this building session as a platform for discussion and debate. We will begin with an overview of how inclusion emerged in response to IDEA and the concept of the LRE. Our discussion will suggest it is important to address issues within the sociopolitical climate and its effects on educational placement, equity, and opportunities for meaningful engagement. The tension underlying inclusion is a result of the emphasis placed on equity and valuing community practices versus the need to provide effective instruction that results in positive outcomes.

Session Significance

The ideological debate over the appropriateness of integrated/inclusive educational placements, is the result of the disparate school practices towards educating students with disabilities. Some school districts continue to segregate while others include students regardless of the disability. Opposing positions have been described as either “inclusionist” or “traditionalist” (Brantinger, 1997). Inclusionists are those that promote a unified vision of special and general education, recognizing the system that operates within the school and larger societal climate. Traditionalist advocate for specialized education within separate settings because of the directed support needs that address students’ specific disability and impairment. While these represent polarizing positions, we believe most scholars would situate themselves somewhere along the continuum.

It is against this backdrop that we debate the two positions. The first is that research within the field has helped make education for students with disabilities more equitable as a result of continued efforts on the part of the inclusionists. But it is even more difficult to identify research addressing the distribution of resources and how these underpin inequalities and injustices in the schools. The lack of empirical data and accompanying theoretical analyses on the distribution of resources between areas/regions and school communities of different types lacks clarity. The second position we debate is the pattern of teachers’ beliefs and practices when including students with disabilities particularly those with more severe academic and behavioral challenges. Many assume the position that students’ needs are often too complex to manage in general education classroom. Reinvigorated attention to the political economy of education and the politics of opportunity will, in our view, enable the PE/APE research community to properly analyze the auspices of current practices to see who has access to, and who benefits from an inclusionary or separate system of education and the overall implications on students learning outcomes.
Tuesday, October 2, 2:30: Verbal presentation (Accessibility and Physical Activity Participation)

A Week in the Life: A phenomenological study describing barriers in daily life experienced by three transition age youth with Autism Spectrum Disorder and their caregivers

Demi Toms (Brock University), Maureen Connolly (Brock University)

Introduction: Various barriers for participating in physical activity for people with Autism Spectrum Disorder (ASD) have been identified; specifically, the insufficient availability of programs and knowledgeable personnel to run them (Taub & Greer, 2000; WHO, 2015). Ironically, there are a magnitude of proven benefits specific to ASD that accrue from being physically active, including a decrease in stereotypic behaviours (handflapping, object spinning) and sleep deprivation (Taud & Greer, 2002; Todd & Reid, 2006; Gaskin, Anderson & Morris, 2009; Connolly, 2008). Previous research has focused on investigating barriers for individuals experiencing disability in relation to environment, economic and political components (McDermott & Turk, 2011). However, minimal research involves the perspective of the individuals experiencing ASD who do not use verbal communication and require greater supports. The purpose of this phenomenological study was twofold. Firstly, to unearth barriers experienced by three transition aged youth with Autism who require 1:1 support or greater and their caregivers in a ‘typical week’. Secondly, to examine whether Priestley’s (1997) 6 principles of emancipatory research could be applied to this research process.

Methods: In the process of engaging with the three youth participants and their caregivers in this study, I completed multiple observations of the youth participants in community programs and activities, then conducted semi-structured interviews with their caregivers, and non-traditional, alternative communication interviews with the youth participants.

Results: Preliminary analysis reveals that implementing Priestley’s 6 principles of emancipatory research could not be applied to this research process because of controversies with the ethics board. As well, participation in community programs resulted in disengaged programming.

Implication/Conclusion: The findings of this study imply a greater need for rapport based and embedded research with individuals experiencing complex ASD. Similarly, Research Ethics Boards need a greater understanding of this population to enable researchers to pursue authentic emancipatory research with complex and typically, under-represented participants.

Examining the role of family leisure and the restorying of family life following spinal cord injury

Cathleen Edwards (University of Alberta), Donna Goodwin (University of Alberta)

Introduction: Families utilize leisure to relax, have fun and develop an understanding of their unique rules and roles. Through participation in leisure, families develop the skills to support their adaptation in response to unexpected events such as a Spinal Cord Injury (SCI) which disrupt numerous aspects of family life, including leisure. Numerous researchers have examined the restorying of family life following an unexpected event. In these studies, researchers privilege the voices of individuals
experiencing SCI or of their caregivers. Few researchers have focused on the family as a unit and how experiences of shared leisure shape the process of restorying. The purpose of this retrospective study was to understand how experiences of family leisure influenced the restorying of family life following a SCI.

Methods: An Interpretative Phenomenological Analysis (IPA) approach was used. Family systems theory (FST) and Schlossberg’s transition theory informed the interview guides and interpretation of the findings. Focus group interviews with the entire family captured shared experience of leisure from in-patient rehabilitation up to the initial years following return home. One-on-One interviews and artefacts were used to develop further insight.

Results: Each family acknowledged the role of leisure in supporting the opportunity to re-connect through shared moments. Participants revealed leisure as a strategy to understand new roles and to support them as they navigated the ups and downs throughout the process of restorying.

Conclusions: Participants acknowledged leisure as a “turning point” in their experiences of restorying. Families recognized both core and balance leisure activities as practices enabling them to flourish. The use of focus groups and one-on-one interviews served to yield insight on the diverse perspectives associated with family leisure.

Identity beliefs and the importance of physical activity among adults with visual impairments

T Nicole Kirk (Old Dominion University)

Introduction: Research indicates that adults with visual impairments are typically less likely to engage in physical activity or sport than their sighted peers. While many factors contribute to this lack of activity, little research has investigated this phenomenon using motivational theories as conceptual frameworks. Expectancy-value theory posits that individuals are more likely to engage in behaviors that they find valuable and expect to be successful when performing. The model further recognizes identity beliefs (i.e. whether an individual believes that they are a type of person who should engage in a behavior) impact the value one ascribes to the behavior. The purpose of this study was to explore the identity beliefs, perceived importance of physical activity, and physical activity engagement among individuals with visual impairments.

Methods: This investigation utilized a qualitative descriptive approach and was situated within the framework of expectancy-value theory. Eight adults (aged 21-34; five women and three men) acted as participants. Semi-structured, digitally recorded interviews and associated field notes were thematically analyzed using a five-step process.

Results: Three interrelated themes emerged from the data. First, the importance of physical activity and sport, explained the value that physical activity held for participants. In the second, theme perceived support and confidence in physical activity, participants discussed potential sources of support for their physical activity participation. The third theme, barriers to participation, participants described factors
that constrained their physical activity engagement.

Conclusion: Interpreted through the lens of expectancy-value theory, the themes reflect the complex relationship between participants’ feelings of identity and ability, their perceived value of physical activity and sport, and the drawbacks to participation. Further examination using the expectancy-value model is necessary to better understand and support the physical activity needs of this population.

**Barriers to physical activity participation in the community for families with a child on the Autism Spectrum**

Blagrave, A. (Chico State University), Colombo-Dougovito, A. M. (University of Northern Texas)

Introduction: Evidence has demonstrated a higher frequency of physical inactivity for autistic individuals (Pan & Frey, 2006; Trost et al., 2002; Stanish et al., 2017) that continues to increase as children age into adolescence (MacDonald et al., 2011; Memari et al., 2012). This trend of inactivity is troublesome considering the negative consequences of physical inactivity and the potential benefit of physical activity (PA) for comorbid health conditions and general mental health (Bremer, Crozier, &amp; Lloyd, 2016). Further, research suggests that children are far more likely to engage in PA when parents are physically active (Yao &amp; Rhodes, 2015); yet, families with a child on the autism spectrum are often presented with a range of challenges and stressors regarding all aspects of daily life that limit their PA participation. Though research has examined a variety of these stressors, limited research has explored the barriers faced by these families when accessing PA in community settings.

Methods: A homogenous purposeful sample was recruited. Through semi-structured interviews, data were collected from families (n=13) to understand their experiences in attempting to access physical activity opportunities. Data were coded thematically according to procedures defined by Miles, Huberman, and Saldana (2013).

Results: Families identified four distinct barriers to accessing PA in their community: (1) safety; (2) acceptance in the community; (3) the child with ASD’s behavior affecting the family activity; and (4) limited opportunity for activity.

Implications: Themes from the data suggest that participating in PA in the community with a child on the autism spectrum is often quite challenging for families. These findings add to the PA barriers of previous research (Colombo-Dougovito, 2017; Obrusnikova & Miccinello, 2011) and are parallel to barriers described by families of children with other disabilities (Shields & Synnott, 2016). In addressing the presented barriers, researchers and practitioners may create an environment that allows easier access for families.

**Searching for accessibility: A scoping review of adapted sport programs**

Krystn Orr (University of Toronto), Dragana Javorina (University of Toronto), Kelly P. Arbour-Nicitopoulos (University of Toronto and Bloorview Research Institute)
Introduction: Locating sport programs that meet one’s needs and goals can be challenging, especially for emerging adults (ages 18-25) with disabilities. Quality participation (QP) is one lens that can be used to approach this gap as it stresses the importance of subjective goal achievement through sport participation that is enjoyable and satisfies individual needs. The QP framework consists of six elements of quality experiences (i.e., autonomy, belongingness, challenge, engagement, mastery, and meaning) and three foundational environmental precursors (i.e., program characteristics, social and physical environments). QP among disability sport programs for emerging adults is not well understood. Therefore, the aim of this research is to conduct a systematic search of the peer-reviewed literature on sport programs for emerging adults with disabilities.

Methods & Methodology: A keyword search of six databases yielded 16 714 articles, where seven articles met the inclusion criteria following a screen by title, abstract, and full text. Results were assessed using the QP framework’s environmental precursors and elements of quality experiences. Authors of the included studies were also emailed an online survey to provide further details relating to the QP framework. Data were extracted, summarized, and collated.

Results: Sport programs varied from dance to wheelchair sports. Environmental precursors identified within these programs included social and physical accommodations (e.g., one-on-one coaching and adapted equipment). Two of the elements necessary for providing QP experiences were evaluated in five of the seven programs. These elements were program engagement (e.g., enjoyment) and mastery (e.g., sport skills).

Implications/Conclusion: Findings from this study provide direction for future research in adapted sport for emerging adults with disabilities by highlighting gaps to address for enhancing QP experiences in sport programming. Moreover, findings highlight the range of ways adapted sport programs may fulfill the foundational QP precursors that underlie QP experiences.
Primary Issues
Newly adopted tiered licensure (2018) in Minnesota now allow individuals with a baccalaureate degree in any major to teach in any K-12 subject area. The intent of these changes is to afford flexibility to school districts in hiring and retaining teachers in subject areas where it is difficult to find qualified teachers due to teacher shortages, such as in developmental/adapted physical education (DAPE). From these new licensure requirements, many teachers with little or no experience in adapted physical education may be providing DAPE services in the public schools. Implications regarding new teacher preparation program models will be discussed.

Session Significance
The need for qualified DAPE personnel is high yet teachers with no experience in adapted physical education may be providing those services. Whether it is better to have no DAPE services versus "some/any" services is up to debate. From the new state policies, the question of whether or not a special education major/teacher with no experience in DAPE can (learn to) provide DAPE services emerges. Because of these new licensure policies, alternate DAPE teacher training programs should consider how to provide adequate professional development opportunities for practicing teachers to obtain adequate knowledge, skills and dispositions. Considering in-service models of teacher preparation, the new licensure policies has the potential to attract new teachers (e.g. special education majors) to different teaching disciplines (e.g. DAPE) other than received from their formal training. Institutes of higher education could consider accommodating potentially a vast number of teacher candidates from different educational backgrounds to encourage and attain licensure in multiple areas e.g. adapted physical education and special education.
Tuesday, October 2, 2:30: Verbal presentation (Physical Education Teacher Education)

Effects of an online course on self-efficacy and knowledge towards teaching physical education to children with autism: A pilot study

Martin E. Block, and Chad Nichols, University of Virginia

Introduction: Online education has become popular in the past several years (Bakia, Means, & Murphy, 2014), and many universities are now offering online courses in addition to traditional face-to-face courses. Preliminary research suggests online training in the form of short modules can result in improvements in knowledge and self-efficacy in pre-service (Kwon & Block, in press) and in-service (Healy, Block & Kelly, in press) physical education (PE) teachers. However, there has been no research to date on the effects of a 3-credit online course. Therefore, the purpose of this pilot study is to determine the effectiveness of a 3-credit summer online course on PE for children with autism on knowledge and self-efficacy.

Methods: A 3-credit online course was implemented during the summer of 2017. Twenty PE teachers from across the U.S. completed the course with 15 completing pre and posttests. Assessments included a 30 item multiple choice knowledge test (e.g., autism facts, ABA, visual supports, video modeling) and a validated self-efficacy measure specific to PE for children with autism (Taliaferro, 2010). Statistics were simple t-tests comparing pre- and post tests in each measure.

Results: Significant improvement was found on the knowledge of autism from pre to posttest (mean pretest = 19.13; mean posttest = 26.8. Mean difference 7.67; t(14) = -8.914, p< .001). Similarly, results showed significant improvement in self-efficacy on teaching PE to children with autism from pre to posttest (mean pretest = 68.03; mean posttest = 88.27. Mean difference = 20.24; t(14) = -5.001, p<.001).

Implications/conclusion: Results suggest a 3-credit online course can improve knowledge and self-efficacy towards teaching PE to children with autism. Participants represented a diverse group of PE teachers (different ages, teaching assignments, experience with children with autism). Future research should explore whether online training resulted in actual changes in teaching behavior with these physical educators.

“Best Fit;” Utilizing a Capability Lens in Inclusive Elementary Physical Education

Michelle Grenier (University of New Hampshire), Ali Brian (University of South Carolina)

Introduction: Concepts including mainstreaming, integration, and inclusive education emerged from struggles against the construction of disability as a deficit condition and attempts to support the rights of individuals with disabilities. While most professionals agree on the need to support individual rights, controversy surrounds the effectiveness of practice and student learning outcomes within inclusion placements. The purpose of this case-study research was to analyze inclusive education from a Capability Approach to inform teachers’ priorities and practices towards students with diverse needs. A secondary question examined the pedagogical practices that encourage students with disabilities’ engagement with peers and participation in the curriculum within inclusion placements.
Methods: Purposeful sampling was used to identify and select groups of individuals that informed the experience. Focus group interviews were conducted on 28 students in the 2nd and 4th grades, semi-structured interviews conducted on eight educators and therapists, and field notes/documents on 16 general physical education classes. Credibility was established through on-going and consistent presence in the classroom, triangulation, and peer debrief. All methods required one year for completion.

Results: The findings resulted in three themes: a) “Teachers’ Value for Participatory Engagement” described the significance of committed educators to the process of inclusion and the impact of a collective agenda towards ensuring that students were supported within their respective classrooms, b) “Mobilizing Efforts for Peer Engagement” articulated the value of appropriated practices between teachers and students and between students and students and c) “Collective Agency that Benefits all Classroom Members” highlighted the communicative processes and shared language of the students encouraged.

Implications/Conclusion: Implications include the need to examine teachers’ orientations towards inclusive education when identifying appropriate classroom settings. Further implications include the promotion of coordinated efforts between special and general educators to collectively advance students with disabilities engagement with peers to access to the curriculum.

It’s all about how you rebound: Exploring physical education teacher education student attitudes and perceptions toward disability through documentary film

Cathy McKay (James Madison University), Joshua R. Pate (James Madison University)

Introduction: Using film in the college classroom employs a blend of visual and audible learning opportunities that bring abstract concepts to life. Educators have used film to examined students’ multicultural awareness, and as an appealing means of teaching about disability. The purpose of this study was to explore physical education teacher education graduate student attitudes and perceptions toward disability sport after viewing a documentary film on wheelchair basketball.

Methods: Convenience sampling was used to recruit focus group participants from a graduate course. The sample was twelve students at a large university in the Mid-Atlantic region of the United States. The average participant age was 23.8 years with a range of 22-31 years. There were six males and six females. The constant comparative method was used between the two researchers to analyze the focus group transcript. The researcher guided the focus group toward student reactions to the film, attitudes toward disability sport after viewing, and impactful film moments.

Results: The thematic analysis revealed four interrelated themes: (a) “as long as your mind works, anything is possible”: response to barriers, (b) “there’s still so much to learn”: the role of the teacher, (c) “so much more than what we see”: the power of personal stories, and (d) “I can get through my problems or tough situations”: comparisons to self. In short, participants came to understand how the film helped to dispel their previously held stereotypes through the portrayal of real people, their families, and a quest for a national wheelchair basketball championship win.
Implication/Conclusion: It is important to examine students’ attitudes toward disability sport, and to analyze the impact a disability sport documentary can have on future education professionals. The findings from this study will inform teacher education programs on ways to address social inclusion, and sociocultural attitudes and perceptions about disability, through disability sport education through film.

To the gym doors and beyond: Ways that APE teachers prepare children for community physical activity.

Geoffrey Meek, Bowling Green State University

Introduction. As part of a larger project entitled: From census to consensus: physical activity participation along the I-75 this study examined the responses of three Adapted Physical Education (APE) teachers who were interviewed about how their APE curriculum and teaching interfaces with community physical activity opportunities.

Methods. Participants: One APE teacher taught in a school for children with Developmental Disabilities and the other two worked for a County Educational Service Center. Data Collection: Semi-structured interviews were conducted based on four overarching topics: teacher’s values and beliefs; a PE curriculum/community opportunity audit; preparation for a lifetime of healthful physical activity; and reactions to a Physical Activity Participation model. Data analysis: interview responses were collated and reported as specific issues or overarching dimensions and themes.

Results/findings. The values and beliefs of the teachers were child-centered and aligned to the pursuit of a lifetime of healthful physical activity. The PE Audit identified a few units with community involvement opportunities. The lifetime approach to healthful physical activity was established in school, however an overarching dimension was accessibility of community opportunities and included themes related to: differences in skill level; differences in what was considered inclusive in the community; access restrictions based on extended transportation time commitments; and distances from home. From the Physical Activity Participation model the Community Resource Guide was considered necessary, as there were less options available in each family’s home community.

Implications. The APE teachers identified that there needs to be greater awareness and interface between the PE curriculum and community opportunities. Access to community provision exists, but does not guarantee opportunity as the community is not fully inclusive. The Physical Activity Participation model was considered a viable approach to increase PE-community links, but was considered more reliant on teacher-parent interactions as child-based interactions were restricted.

Utilizing the Lieberman/Brian Inclusion Rating Scale for Teaching, Research, and Professional Preparation Programs.

Lauren Lieberman (The SUNY of Brockport), Michelle Grenier (University of New Hampshire), Ali Brian (University of South Carolina), Cathy Houston-Wilson (The SUNY of Brockport)

Currently there is a large body of research that identifies teachers’ lack of preparation for educating students with disabilities. As a result, students experience a lack of belonging and participation in the activities. Given that, the purpose of this session is to discuss the utility of the Lieberman/Brian Inclusion
Rating Scale for Physical Education (LIRSP). The presenters would like to solicit input from participants on a number of the scales’ features including a) the feasibility of the tool for improving teacher practices, b) the relevance of the tool across a number of settings, and c) potential for collaborative research.
Tuesday, October 2, 2:30: Mini-Lecture

What is meta-analysis and how can it be used in the field of Adapted Physical Activity?

Jaehun Jung (Oregon State University), Willie Leung (Oregon State University), Layne Case (Oregon State University), Bridgette Schrame (Georgia State University), Joonkoo Yun (Oregon State University)

Presentation Purpose
The purpose of this mini-lecture is to introduce the basic concepts and techniques of meta-analysis. This lecture includes three specific objectives. First, the audience will be able to understand what meta-analysis is, and what research questions can be answered by meta-analysis. The second objective is to address potential challenges and how to deal with those challenges by using specific examples. Lastly, the audience will be able to identify a specific research question that can be answered by meta-analysis throughout discussion and brainstorm ideas within Adapted Physical Activity (APA) research.

Session Significance
The progress of science depends on the development of a consensus of current scientific truth (Suter & Cormier, 2013). Approximately 2.5 million new research papers are published each year (Jinha, 2010). Therefore, it is difficult to develop a consensus by following up on all published research papers in a given field. Narrative reviews provide, at a minimum, a quick way to gain familiarity with a given topic. In APA, narrative reviews have been used to gather main conclusions to a specific research question and its associated findings (e.g., Cervantes & Porretta, 2010; Wilhelmsen & Sørensen, 2017). Despite the positive contributions, one major limitation of narrative review may be that authors can implicitly assign different or subjective levels of importance to each study based on the author’s perspective. Researchers may face difficulties with summarizing the evidence in a transparent or objective manner. Unlike narrative review, meta-analysis objectively assigns weight to each study based on mathematical criteria, enabling reviewers to gather conclusion on the existing research. In addition, meta-analysis can overcome common challenges in research involving individuals with disabilities such as small sample sizes. Meta-analysis allows for combining multiple individual studies with small samples to estimate true effects.

Meta-analysis is not a new research method and many scholars may consider meta-analysis as the best evidence for practice. However, this research methodology is not a popular method within APA researches. Only four meta-analysis papers have been published in Adapted Physical Activity Quarterly during the last four decades. Despite the potential impact on APA practice, technical difficulty may be a hindering factor for the wide use of meta-analysis. This session will introduce meta-analysis and discuss how to solve some of the common challenges associated with meta-analysis. We believe that providing more conclusive evidence will make a positive impact on lives of people with disabilities.

Reference
**Tuesday, October 2, 3:15: Mini-Lecture**

Describing the challenges of conducting mixed methods research in adapted physical activity

William Harvey (McGill University), Mathieu Michaud (McGill University), Shawn Wilkinson (Concordia University)

**Presentation Purpose**
The purpose of this presentation is to introduce potential strengths and weaknesses of mixed methods research in adapted physical activity (APA) research designs. We will describe epistemological and ontological assumptions related to quantitative and qualitative research while also addressing the bridge between the two research methods. Mixed methods research studies in APA will be used as examples to highlight the challenges involved in this theoretical bridging. We suggest that mixed methods research has tremendous potential for APA researchers to answer their most interesting of research questions. Future directions for mixed methods research in APA will also be presented.

**Session Significance**
The session is important for a variety of reasons. It is important to disability research because it will: (a) challenge participants to contemplate the reasons to perform mixed methods research in APA (e.g., why, when, where, how, etc.), (b) introduce the challenges of varying terminology and worldviews while also trying to negotiate a shared understanding of differing methodological stands, (c) provide a brief primer on types of mixed methods research designs, (d) highlight the pragmatic nature of mixed methods research that may also resonate with APA researchers who hold an applied research perspective, and (e) suggest that mixed methods research may assist APA researchers to thrive within inter- or multidisciplinary research paradigms. This session is also important to research training because there has been an historic lack of teaching about mixed methods research. We will suggest that this perceived lack of teaching opportunities has led to fewer mixed methods research studies being conducted in the APA context. Finally, the session will be important to APA practice due to the pragmatic nature of mixed methods research. A discussion about how to find mixed methods research studies in APA will ensue. We expect that this session will enable researchers to improve the quality of research designs and related outcomes in APA.

**Reference**
There are multiple different approaches to gross motor interventions among children with ASD within recent literature, such as fundamental movement skill, physical activity, and technology-based interventions. It is currently unclear, however, if existing interventions are improving gross motor outcomes (e.g. fundamental motor skills, gross motor abilities) of children with ASD, or which intervention types and characteristics are most effective. The purpose of this study therefore was to analyze the effects of interventions on gross motor outcomes among children with ASD using meta-analysis. The necessary inclusion criteria were: (1) intervention study, (2) subjects were under 18 years old and had a diagnosis of ASD, and (3) the dependent variable(s) were gross motor outcomes. Studies were excluded if pre and post data were not available. A total of 16 studies were included in quantitative analysis. Pre and post-test means and standard deviations were extracted in order to calculate effect sizes. Potential moderator variables were chosen based on common ASD intervention practices. Results suggest that interventions have a significant and large effect on gross motor outcomes among children with ASD [(δ=0.99, SE=0.19, p<0.001, k=20, 95% CI (0.62, 1.36)]. Results also showed that interventions that were 16 hours or longer had a significantly larger effect than interventions that were less than 16 hours (δ=1.50, SE=0.42, Q=4.65, df(Q)=1, p=0.031). The mean age of the study sample, intervention type, and use of evidence-based practices were not found to be significant moderators of the effect of interventions. As expected, interventions are an effective method of improving gross motor outcomes among children with ASD. Future interventions should be at least 16 hours long in order to maximize effects on gross motor performance. Despite the importance of early intervention for children with ASD, all ages should be targeted, as there were no differences in effect across age groups.
**Tuesday, October 2, 5:00: Poster Presentation**

**Predictors of bone density in adult special Olympic athletes**

John T. Foley (State University of New York), Isabella Ward (State University of New York), Meghann Lloyd (University of Ontario Institute of Technology), Viviene A. Temple (University of Victoria)

Introduction: Individuals with intellectual disability (ID) often have lower levels of physical activity and have greater health risks compared to the general population. These health risk include low bone density and increased risk of fractures associated with decreased bone density. The purpose of this study is to examine the association age, sex, physical activity and Body Mass Index (BMI) have with bone density in individuals with ID.

Methods: Data was extracted from Healthy Athlete records for 363 adults, age 20-50 years old, who participated in the Special Olympics World Games. Multiple regression analysis was used to test if the sex, age (measured in months), physical activity participation and BMI significantly predicted bone density.

Results: The findings of the regression indicated that of the four predictors in the model ($R^2 = .036$, $F (3,363) = 4.49$, $p < .001$, only age ($B = -.02$, $t = -2.63$, $p < .01$, and physical activity participation ($B = .06$, $t = 2.23$, $p < .01$, were significant.

Implication/Conclusion: Ongoing physical activity can play an important role in bone health for individuals with ID. These findings suggest that Special Olympics efforts to increase physical activity are positive step in health promotion.

**Implications of motivation for individuals with Down syndrome to successfully complete a treadmill protocol**

Kathryn L. Gwizdala (Michigan State University), Matthew B. Pontifex (Michigan State University), Janet L. Hauck (Michigan State University)

Introduction: Sedentary behavior is common among individuals with Down syndrome (one of the most prevalent genetic disorders in the U.S.). These individuals encounter many different barriers for exercise with motivation being prominent on the list. Subsequently, tactics to manipulate motivation are utilized as a tool to run research exercise protocols with this population. However, that is not ideal for studying exercise’s effects on variables such as cognition. This investigation aimed to evaluate the feasibility of conducting a treadmill protocol without manipulating motivation.

Methods: Six individuals with Down syndrome (age range of 13-25) came into the lab for two separate sessions. Participants completed 20 minutes on a treadmill engaging in moderate intensity exercise or an active control (slowest possible speed and 0% grade) condition in a randomized, counterbalanced order. Heart rate (HR) was collected throughout the session with relative perceived exertion (RPE) and a feeling scale (FS) measured every two minutes during each condition. The WASI-II two-part subtest was given at the beginning of the first session.
Results: Five of the participants reached their target HR range with only two of these five maintaining that HR level for the full 20 minutes and an additional participant having the active control HR reach the target HR range. RPE did not follow exercise intensity and instead fluctuated with FS.

Implication/Conclusions: It appears that the absence of manipulating motivation had an influence on successful completion of the treadmill protocol, but IQ and fitness cannot be ruled out as contributing factors. Future recommendations to enable continuation of this type of research include running one cognitive task, future rewards without manipulation during exercise, different ways to increase exercise workload and time of the research testing.

Physical activity and child-parent perception and practice differences found in a rural intervention research physical activity program

Hannah Ludwick (West Virginia University Prevention Research Center), Zac Ramsey (West Virginia University Prevention Research Center), Sue Workman (West Virginia University), Lesley Cottrell (West Virginia University)

Introduction. Medical conditions can limit the amount/type of physical activity (PA) a child obtains and contribute to differences among children’s PA reports. Conditions are rarely assessed/ incorporated into intervention/research strategies. This is unfortunate given the increased modified risks among children with disabilities and the missed opportunity to understand health disparities.

Method. Children (10-12 years) enrolled in a rural school setting were eligible to participate in a randomized control trial to improve PA in the school and home. Baseline surveys from children and parents assessed the family PA behaviors of children with/without medical limitations.

Results/Findings. Three hundred fifty child-parent dyads were enrolled from 2015-2017; 12.6% of children had at least one reported medical limitation. Children with medical conditions (CMC) were less involved in school sponsored sports than peers who did not have medical conditions (18% vs 62% of children; p<.001). A considerable proportion of CMC’s were involved in non-school sponsored sports (62.5% vs 86.9% respectively, p<.01). When asked for preferences in activities during the past week between sedentary/more activity, the two groups were comparable to one another. One-quarter of each group endorsed being active very often during free time (20.5% CMC vs 24.8% peers); a considerable proportion of both groups (4.5% among CMC vs 10.1% peers) endorsed being sedentary for all/most of free time. Additional information will be provided.

Implications/Conclusions. Children with medical conditions had less PA than peers, but were engaging in non-school structured play. Children’s perceptions of their use of free time were similar; the majority of both groups reported being active “sometimes” to “quite often”. Parent involvement was similar across groups highlighting two messages: 1) families are incorporating activity within schedules; and 2) children receive similar parental support for activity. Opportunities exist to increase support and awareness among others to incorporate more activity into their schedules when possible.
Differing responses to gross motor intervention of two preschoolers varying on the Autism Spectrum

Jessica A. Kahn (Michigan State University), Isabella T. Felzer-Kim (Michigan State University), Janet L. Hauck (Michigan State University)

Introduction: Children with Autism Spectrum Disorder (ASD) experience delays in gross motor skills. These delays contribute to and interrelate with play, social, communication and cognitive skills. In addition, ASD encompasses a spectrum of severity which demands an individualized instructional approach. However, such variability can be challenging when designing interventions. In order to better understand how children with ASD respond to a standardized motor intervention, the following study examines two children with ASD that vary on the spectrum. We examine their differing responses to the same intervention targeting both locomotor and object control skills.

Methods: Participants in this study received 15-minutes of motor instruction, 4- days a week using an 1:1 Applied Behavior Analysis (ABA) approach. During instruction, a behavioral technician (BT) provided a video to show the execution of the skill, a cue card combined with verbal direction, and then a prompt. The participant was provided full prompting to begin, and then faded prompting as the trials progressed. Only positive behavior was reinforced. Number of trials to independence and level of prompting were recorded throughout the intervention.

Results: The data provides a comparison of participant 1 (higher functioning) and participant 2 (lower functioning) on the basis of two skills: slide and t-ball strike. At baseline, participants were equal for slide and participant 1 performed better on t-ball strike. Participant 1 achieved independence of both skills in fewer trials and reached a higher phase level for both skills, compared to participant 2.

Implication/Conclusion: This study highlights the learning progress of two cases of preschoolers with ASD using standardized ABA FMS instruction. Both participants receive the same gross motor program, but respond to various aspects of the program very differently. These results hold relevance for the future design of intervention programs for children on different ends of the ASD spectrum.

Statewide model: Overview of teaching advocacy skills to children with visual impairments in Physical Education and after school sport

Kristi Lane (SUNY Brockport), Rachel Sherman (SUNY Brockport)

Introduction: This poster will display the findings from our statewide implementation research that focused on the New York State Model for training on how to increase active participation in physical education and after school sport for youth with visual impairments, blindness, and deaf-blindness. We implemented this training at four Camp Abilities in New York State and conducted statewide trainings for professionals all within one year.

Methods: Our methods included implementing a self-advocacy training, and modification checklist for all athletes who attend Camp Abilities in the summer of 2017. Our methods also included training professionals who work with this population through statewide trainings, and creating videos on how to better include youth with visual impairments in physical education and afterschool sport.
Results/Findings: Our findings included that this statewide model increased youth active participation in physical education and after school sports for this population.

Implications/Conclusion: Based on our findings in New York State we would like school professionals and coaches to take this model and implement it in their own state, sport or curriculum programming, or apply it to other disability groups outside of visual impairments to expand participation in physical activity among all youth with disabilities. Our findings suggest that this model is an effective way to get youth involved in physical education, after school sport, and other physical activity opportunities in their communities as well as give youth the skills they need to advocate for themselves well beyond physical education and afterschool sports.

Support modalities offered by Adapted Physical Education specialists for students with disabilities

Maria Luiza Fiorini (Faculdade de Ensino Superior do Interior Paulista – FAIP, Marília, São Paulo, Brazil)

Introduction: The scientific literature has highlighted the multiple roles of Adapted Physical Education (APE) specialists to ensure the inclusion of students with disabilities (SWD), but few studies have provided details describing the kind of interaction between these subjects in Physical Education (PE) classes. This study aimed to identify different modalities of support provided by APE specialists directly for SWD in inclusive settings, describing the forms of interaction before, during or after PE classes. Based on a qualitative approach, this research was characterized as collaborative research.

Methods: Data were collected through systematic observations during a period of eight weeks, followed by semi-structured interviews with the participants: one APE specialist, a general PE teacher and three SWDs enrolled in an elementary school. The content analysis identified six different categories: 1. Pre-teaching: pre-class meetings between the APE specialist and the SWD, the former anticipates information regarding content and skills that will be required during PE classes; 2. Blended: APE specialist helps all the students, including the SWD, monitoring and sharing attention among the group; 3. Individual assistance: especially in skill-based activities, the APE specialist adopts one-on-one instruction to ensure the SWD reaches successful outcomes; 4. Peer interaction: to encourage social interactions between SWD and peers, the APE specialist may pair up or involve some other students in an activity; 5. Observer: when the SWD is successfully engaged with the activity or assistance is not necessary, the APE specialist steps aside, just observing; 6. Feedback: the APE specialist reinforces learning, answers questions and encourages the SWD after class. In addition to indirect services, such as collaborative consulting provided to general PE teachers, APE specialists may offer various modalities of support to the SWD, directly assisting them in many ways, according to the student’s level of engagement, demands of the task and other variations during the class.
Introducing my own disability construction narratively

Kyoung June Yi (University of Manitoba), Donna Goodwin (University of Alberta)

Introduction: I will present the ways in which I came to understand the meanings of disability and ability. By attending critically to my own lived experiences through narrative inquiry, I sought to understand how my own disability constructions were constituted, shaped, expressed, and enacted within and against grand narratives.

Methods: In this narrative inquiry, I have engaged in a metaphorical research puzzling, a way of experiencing the wholeness and continuity of one’s experience. Like a person putting together pieces of a puzzle, I searched and re-searched for pieces of my experience puzzle and to continue puzzling until the puzzle becomes as a whole. I realized that my disability construction was a complex and interwoven process of attending to my lived experiences. My understandings of disability were constantly changing as it unfolded through time; thus, it was a temporal and continuous experience. My personal and social contexts in particular times and places also significantly contributed to constituting and shaping my own disability construction.

Implication/Conclusion: As a result, I came to understand that there is no single way of defining disability. My narratives may offer readers a set of tools for reflecting on their own understandings of disability and ability, as well as the process of their disability construction.

Association between anthropometric parameters and physical activity levels in adolescents with Down syndrome

Luana Francalino (University of Campinas, Adventist University of São Paulo, Brazil), Gil Guerra-Júnior (University of Campinas, Brazil), Marcos Barros-Filho (University of Campinas, Adventist University of São Paulo, Brazil), Wilson Amaral-Júnior (University of Campinas, Adventist University of São Paulo, Brazil), Ezequiel Gonçalves (State University of the North of Paraná, Brazil), Caio Constâncio (University of Campinas, Adventist University of São Paulo, Brazil), Magda Barros (University of Campinas, Adventist University of São Paulo, Brazil), José Santos-Filho (University of Campinas, Brazil), Stamatis Agiovlasitis (Mississippi State University), Fabio Bertapelli (University of Campinas, Brazil)

Introduction: Adolescents with Down syndrome (DS) have higher prevalence of overweight and obesity than adolescents without DS. Some evidence indicates that fatness is associated with lower physical activity (PA) levels in adolescents with DS. However, it is not known if anthropometric indicators of fatness are associated with PA levels during physical education (PE) classes in adolescents with DS. This study evaluated the association between PA levels during PE and anthropometric indicators of fatness in adolescents with DS attending a special school in Brazil.

Methods: The sample consisted of 13 Brazilian adolescents with DS (9 boys and 4 girls) with a mean age of 15.8 ± 1.59 y, recruited from one special school. Weight, height, and waist circumference were measured and body mass index (BMI) and waist-to-height ratio (WHtR) were calculated. BMI values were transformed into z-scores according to Brazilian DS data. Sedentary, light, moderate, vigorous, and moderate-to-vigorous (MVPA) time were monitored across 8 PE lessons, each lasting 30 to 48 min, with
a hip-worn ActiGraph wGT3X-BT accelerometer. Spearman’s correlation coefficients were used to examine the associations of PA levels with anthropometric variables.

Results: Mean±SD weight, height, BMI, waist circumference, and WHtR were 64.6±16.6 kg, 150.6±8.6 cm, 28.7±8.1 kg/m², 83.2±12.8 cm, 0.6±0.1, respectively. BMI ranged from -0.6 to 3.3 z-scores (0.5±1.4). Sedentary, light, moderate, vigorous, and MVPA time averaged 51.3% (21.2 min), 36.8% (15.1 min), 7.2% (5.1 min), 4.6% (1.8 min), and 11.9% (4.7 min), respectively. Correlations between anthropometric indicators of fatness and sedentary, light, moderate, vigorous, and MVPA time ranged between -0.31 and 0.34, and were non-significant (p >.05).

Implication/Conclusion: Anthropometric indicators of fatness do not seem to impact PA levels during PE classes in Brazilian adolescents with DS. Future research should consider other determinants of PA levels during PE in youth with DS.

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Preliminary psychometrics of the Test of Perceived Physical Competence for children and adolescents with visual impairments

Adam Pennell (University of South Carolina), Ali Brian (University of South Carolina), Sally Taunton (University of South Carolina), Chandler Casner (University of South Carolina), Megan Irwin (University of South Carolina), Lauren Lieberman (SUNY Brockport)

Introduction: Perceived motor competence (PMC) is a psychological construct that may have significant influence over the physical activity participation levels of youths. However, little is known about the PMC of children and adolescents with visual impairments (VIs) and VI-specific PMC assessment limitations exist. Therefore, the development of an ecologically-relevant PMC assessment for youths with VIs aged 9-19 was warranted. The purposes of this study were to examine: (a) the face and concurrent of the Test of Perceived Physical Competence in older children and adolescence with VIs (N = 64; TPPC-VI), (b) the internal consistency for the TPPC-VI, and (c) the factorability of the TPPC-VI.

Methods: To examine face validity, a Delphi technique utilizing a panel of five experts was implemented. For concurrent validity, rank correlations between scores for the TPPC-VI and the Athletic Competence subscales of the Self-Perception Profile for Children/Adolescents were investigated using Goodman-Kruskal’s gamma. Evidence of internal consistency was calculated using McDonald’s omega. Factorability of the TPPC-VI was investigated using multiple nonlinear (i.e., categorical) principal components analyses.

Results/Findings: The TPPC-VI established face validity. Composite TPPC-VI and Athletic Competence subscale scores had a significant low-moderate association (γ = 0.31, 95% CI = 0.04-0.59, p < 0.05). The internal consistency of the TPPC-VI was modest (ω = 0.63, 95% CI = 0.50-0.76, p < 0.001). Theoretical sensibility in tandem with categorical principal components analyses highlighted that all items loaded as a singular dimension.
Implications/Conclusion: The TPPC-VI was shown to have moderate, but acceptable, psychometric properties in youths with VIs aged 9-19. Therefore, researchers can utilize the TPPC-VI with relative confidence. Future research studies should explore the role of PMC in physical activity participation in youths with VIs and its associations, mediations, and/or moderations of similar/pertinent variables. However, further improvements are needed to optimally assess PMC in youths with VIs.

**Motor competence for pediatric cancer patients and survivors: A systematic review**

Emily Gilbert (University of South Carolina), Ali Brian (University of South Carolina), Adam Pennell (University of South Carolina)

Introduction: The purpose of this systematic review of literature was to describe the motor competence of pediatric cancer patients and survivors in comparison to peers without a cancer diagnosis and to identify potential correlates of motor competence for this population.

Method: A full electronic search was completed on the following databases: MEDLINE, platform EBSCOhost, Web of Science, and Physical Education Index the last search was completed March 25, 2018. The search limits were set to 2005 to present, language as English, scholarly peer-reviewed journals, and full-text. There was a total of 30 studies identified published in peer-reviewed journals included in this systematic review of literature. The study inclusion criteria used to screen articles were as follows: human participants; pediatric cancer diagnosis; participants between the ages 1 to 18 years old at the time of cancer diagnosis; measure gross motor competence; intervention studies included baseline motor data. No letters to the editor, reviews or abstracts were included.

Results: The motor skill competence of pediatric cancer survivors has a tendency to be lower than peers without a cancer diagnosis. The following correlates of motor skill competence were indicated: level of physical activity, body mass index and weight, possibly grip strength and age. No matter the amount of time post cessation of treatment there was no relationship indicated with motor competence and time.

Implications/conclusion: Further examination is necessary to generalize the results by using larger sample sizes, valid, and reliable measures. Future research should examine the effects of an intervention targeted to the development of fundamental motor skills, perceived motor competence, and the levels of physical activity in pediatric cancer survivors.

**Physical activity promotion in early childhood education**

Jill Pawlowski (Humboldt State University)

Introduction: Regular physical activity participation during the early childhood years of youth with disabilities decreases risk of disease, improves body composition, social skills and emotional intelligence, and self-esteem, decreases anxiety, depression, and sleep problems, and provides opportunities to develop motor skills, which is a facilitating factor for physical activity participation in later childhood and adulthood. Physical environments, like early childhood education centers, have been highlighted as
feasible are to improve physical activity skills and levels of engagement for health outcomes. Therefore, the purpose of this study was to examine the attitudes, beliefs, and behaviors of early childhood special educators as well as barriers and facilitators for promoting physical activity for their students.

Methods: A nation-wide survey of 192 early childhood special educators completed a survey on their beliefs and intentions for promoting physical activity for their students as well as barriers and facilitators to promotion efforts.

Results: While almost all teachers reported favorable attitudes (100%), subjective norms (89%), self-efficacy (95%), and intention (92%) for promoting physical activity, factor analysis revealed that none of these factors predicted promotion behaviors with only 5% of educators reporting having promoted physical activity for their students. The most reported barriers to promotion included lack of accessible equipment and difficulty facilitating activity for diverse groups. Most commonly noted facilitators included having more space and more accessible equipment for physical activity.

Implications/Conclusions: Results of this study show that educators' positive perceptions are not translating to promotion behaviors. Additionally, as seen in previous studies, early childhood educators attribute promotion behaviors to an external locus of control. Future research should examine strategies to transition physical activity promotion to an internal locus of control for early childhood educators in an effort to improve physical activity promotion in early childhood and establish skills necessary for regular engagement in youth with disabilities.

Examining the associations among physical activity shame, self-compassion, shame-coping styles, and physical activity behavior

Kim A. Rogers (Western Oregon University), Vicki Ebbeck (Oregon State University), John Geldhof (Oregon State University), Chenkai Wu (Duke Kunshan University)

Introduction: Not all experiences in physical activity are positive. Losing, getting injured, making a mistake, and not measuring up can all elicit a variety of highly negative emotions, including shame. To make matters worse, individuals often cope with shame in maladaptive ways, which can lead to isolation, depression, aggression, or even violence. The experience of shame can also have long-term negative effects on physical activity motivation, participation, and adherence. A more complete understanding of how shame impacts physical activity behavior requires consideration for how individuals cope with shame, either adaptively or maladaptively.

Methods: A Qualtrics panel of 519 U.S. adults participated in the current study. Correlation analysis and indirect effects modeling were utilized to investigate the associations among physical activity shame, physical activity, self-compassion, and four maladaptive shame-coping styles—Attack Self, Withdrawal, Attack Other, Avoidance.

Results: Consistent with predictions, shame was negatively linked to self-compassion and physical activity, and positively linked with maladaptive shame-coping styles. Conversely, self-compassion was positively linked to physical activity and negatively linked with maladaptive shame-coping styles.
Additionally, significant indirect effects of physical activity shame on physical activity were found via self-compassion.

Implications/Conclusions: Our findings underscore the importance of adaptive shame coping in the physical domain, and the viability of self-compassion as a potential buffer against shame and a healthy alternative to maladaptive shame coping. Understanding the factors that influence physical activity motivation and behavior is essential to effectively promote physical activity participation and adherence, increase overall health and fitness, and reduce the negative health-related outcomes associated with physical inactivity. As such, these findings may be useful for practitioners in a variety of exercise, sport and rehabilitation settings. Future research is warranted to determine whether the current observations generalize to other population subgroups, such as competitive athletes, older individuals, group exercisers, and individuals with disabilities.

Acknowledgement of research support: This research was funded by the Association for Applied Sport Psychology and SHAPE, America Society of Health and Physical Educators.

**A Meta-Analysis on a comparison of object-control skills of children with and without developmental disabilities by physical activity interventions.**

Byum-suk Han (Seoul National University), Yong-ho Lee (Seoul National University)

Introduction: The objective of study was to synthesize the effects of object-control skills of children with and without developmental disabilities by physical activity interventions and to provide comprehensive information of analysis.

Method: first, advanced study be conducted from 2003 to 2016. Second, providing means and standard deviations through pre-post test by TGMD-2. The data from 31 studies with 858 children (444 with disabilities, 414 without disabilities) were analyzed by CMA3. The following databases were reviewed including gender, age, type of disabilities, duration of physical activity interventions, two-hand strike, stationary bounce, catch, kick, overhand throw, underhand roll. For sensitivity analysis, publication bias and outlier were reviewed.

Results: Results indicated that the overall effect size was 1.204, which is very high and 39% more effective than non-intervention group (controlled group). For children with developmental disabilities, Down syndrome, 7~9 aged, 100~120 minutes per session, 5 sessions per week, 15~19 weeks, two-hand strike were the highest effect size in each groups. For children without disability, 4~6 aged, under 40 minutes per session, 3~4 sessions per week, 10~14 weeks, kick were the highest effect size in each groups.

Implication/Conclusion: In conclusion, physical activity intervention indicated 39% more effective than non-intervention group and this study provided available information for generalization with the results of 858 children with and without developmental disabilities.
Influence of healthy habits on health outcomes: Preliminary analysis of the 2015 Special Olympics' Healthy Athletes World Games data

Samantha McKinnon (Oregon State University), Alicia Dixon-Ibarra (Oregon State University)

Introduction: The lack of large data collected on those with intellectual disability (ID) limits population health research in this population. The Special Olympics’ Healthy Athletes program screens athletes on multiple health behaviors and outcomes and is the world’s largest database on health for people with ID. The purpose of this preliminary study was to examine the influence of healthy habits on health outcomes using the Healthy Athletes database.

Methods: This study utilized the Special Olympics’ 2015 World Games data within the Health Promotion and FUNfitness disciplines. Profiles were created by the number of reported healthy habits (i.e., physical activity participation, moderate to vigorous intensity exercise, fruit and vegetable intake, calcium intake, fast food intake, sweetened beverage intake, vitamin D supplementation, and tobacco use). Habits were deemed as “healthy” or “unhealthy” based on CDC, ACSM, WHO, USDHHS, AHA, and USDA guidelines. Summary statistics were performed on each profile for comparison. Athletes with completed data across 9 healthy habits and 5 outcomes (i.e., body mass index, pre and post exercise heart rate, and bone mineral density (BMD)) were included in analysis (n=122).

Results: Athletes with 7+ healthy habits showed the lowest body mass index (mean BMI = 22.76) and average pre/post-exercise heart rate (7 habits = 67.44 / 106.4 bpm, respectively) in comparison to athletes with fewer health habits (1 habit mean BMI = 32.38; 2 habits BMI mean = 24.10) and pre/post exercise heart rate (1 habit = 93.86 / 140.6 bpm, respectively). BMD did not show a trend based on profiles. Athletes with 2-5 healthy habits appear to have better health outcomes, but little differences between these profiles were observed.

Conclusions: Programs targeting multiple health behaviors may have the most impact on improving health. Future analyses will include the creation of health profiles using advanced statistics to retain a larger sample size, the influence of individual predictors on health outcomes, and the inclusion of additional health behaviors and outcomes.

Real world tracking of modified ride-on car use

Christina M. Hospodar (Oregon State University), Benjamin Phelps (Oregon State University), Joshua Phelps (Oregon State University), Kathleen R. Bogart (Oregon State University), Jenna Fitzgerald (Oregon State University), Sarah Schaffer (Oregon State University), Michele Catena (Oregon State University), Bethany Sloane (Oregon State University), Bill Smart (Oregon State University), Samuel W. Logan (Oregon State University)

Introduction: Modified ride-on cars are a low-cost option for children with disabilities to engage in self-directed mobility. Previous studies have relied on caregiver self-report to measure modified ride-on car usage. It is unknown exactly how much modified ride-on cars are used during interventions. We developed an innovative, low-cost computer interface to objectively track modified ride-on car usage.
The purpose of this study was to (1) determine the level of agreement between objective tracking and caregivers’ self-report of modified ride-on car usage, and (2) describe real-world modified ride-on car usage of young children with disabilities.

Method: 14 children with disabilities (M=19.9 months, SD=6.9) and their families participated in this study. Three months of modified ride-on car usage was tracked in two ways: (1) caregiver-reported activity log, and (2) a Feather Interface Tracking (FIT) system, which automatically recorded usage.

Results: Results indicated no significant difference of the average driving session time as reported by caregiver-reported activity log (M=17.8 minutes, SD=9.9) and FIT system (M=16.2 minutes, SD=10.8); (t(7) = -.394, p=.705). Results indicated no significant difference of the total driving time as reported by caregiver-reported activity log (M=195.1 minutes, SD=234.8) and FIT system (M=195.1 minutes, SD=234.8); (t(7) = -.196, p=.850). Total driving sessions ranged from 0 to 26 (M=8.9, SD=6.7). Adherence (# of days modified ride-on car used divided by 90 possible days) ranged from 0-28% (M=8.1%, SD=7.0%).

Implication/Conclusions: Results suggest that modified ride-on car usage may be limited without consistent contact from researchers and clinicians. Despite low usage, data from the FIT system and caregiver-reported activity logs were related, which supports the validity and continued use of both measures. There are advantages and disadvantages to the FIT system and caregiver-reported activity logs. Researchers should consider which method is more appropriate based on the purpose of the study.

Examining associate between enjoyment and physical exertion university based physical activity program in individuals with Autism

Nicole Fiscella (James Madison University), Thomas Moran (James Madison University), Janet Wigglesworth (James Madison University)

Introduction: The purpose of this study was to examine the relationship between perceived exertion, actual exertion and enjoyment of exercise in individuals with Autism Spectrum Disorder (ASD).

Methods: A total of 16 participants (12 males and 4 females) between the ages of 5 and 38 who were diagnosed with ASD participated in the study. The intervention lasted 10 weeks and consisted of participation in one of James Madison University’s Overcoming Barriers hour long physical activity programs. Heart rate, perceived exertion, and enjoyment of exercise were measured following three exercises during the program. Simple linear regression was used. There were three individual correlations analyzed; (1) Actual exertion (HR) to perceived exertion (easy/hard); (2) actual exertion (HR) to enjoyment (like/dislike); and (3) perceived 15 exertion (easy/hard) to enjoyment (like/dislike).

Results: There was no relationship between the three main variables however, a significant relationship, was found between exercise exertion and perceived exertion r = -0.151 (p = 0.66) and between enjoyment of exercise compared to perceived exertion r = 0.23 (p < 0.05).
Implication/Conclusion: Consistent with the literature, participants are more likely to participate in exercises they enjoy, in addition we found hunger was related to both perceived exertion as well as with enjoyment of exercise. Further research still needs to be done between hunger and perceived exertion and enjoyment of exercise.

The history of Adapted Physical Education at the College at Brockport from 1994-2016

Lily Jagodzinski (Disabled Sports USA), Cathy Houston-Wilson (The College at Brockport), Doug Collier (The College at Brockport), Lauren Lieberman (The College at Brockport)

Introduction: The College at Brockport – State University of New York has had a rich tradition in adapted physical education since 1968 when it offered the first master’s degree in the country. Since that time, the program has secured government and private funding for professional preparation, research in assessment, as well as grants for Camp Abilities. This program has also seen its graduates become excellent teachers, professors, and administrators in the field. A previous investigation focused on the years from 1968-1993; This study summarizes the accomplishments of adapted physical education faculty members at The College at Brockport from 1994-2016 in the areas of research, grant writing, service, and teaching. Importantly, the study analyzes the impact of these accomplishments on the field of adapted physical education. Data were collected through individual, semi-structured interviews with seven focus professors at The College at Brockport and triangulated through primary and secondary sources and extended resumes. Additional interviews with two alumni and one professional in the field of adapted physical education took place to garner a general idea of the adapted physical education program’s reputation and to gauge the impact the professors made on pre-service teachers. The interviews were transcribed verbatim and returned to the participants for member checks with modifications made as necessary. The primary researcher, along with a critical friend, used a phenomenological approach to establish themes in the data. The following themes emerged from the findings: autonomy, collegiality, collaboration, community impact, productivity, and athletic programs.

Results/Implication: Findings are reported both a qualitative and a quantitative manner. Implications for this research are that the faculty at The College at Brockport have a rich history in Adapted Physical Education with many years of collegiality, productivity and successful graduates. Future research should be conducted to showcase and highlight similar programs such as Oregon State University, and SUNY Cortland.

Physical activity levels of Irish children with disabilities during an adapted physical activity program

Daniel Tindall (University of Limerick), Deborah Tannehill (University of Limerick), Brigitte Moody (University of Limerick)

Introduction: The benefits of physical activity (PA) are widespread for all children, including those with disabilities. Nonetheless, despite these benefits, children with disabilities in Ireland continue to be restricted in their participation, have lower levels of fitness, and have higher levels of obesity when compared to their peers without disabilities (Hannon 2005). As such, the purpose of this study is to add to the current literature, from an Irish perspective, by identifying the PA levels of children with
disabilities and comparing these results against recommended PA levels for children without disabilities within the same age range.

Methods: Participants consisted of twelve children (3 females and 9 males aged 11-15; M = 13.08) with various disabilities, as they participated in an 8-week (1-hour/wk) APA programme. Data were collected using a variation of the System for Observing Fitness Instruction Time (SOFIT) (McKenzie, 2012); captured via a digital video camera. SOFIT is an objective tool designed to measure student activity and selected environmental factors that are associated with opportunities for students to be physically active and become physically fit. For this study only lesson context categories were included and physical activity codes were modified for participants with disabilities (lying down/sitting, standing, walking/standing with movement, and vigorous).

Results/Findings: Data were examined quantitatively using descriptive statistical analysis. Initial findings suggest participants of this study engaged in relevant and sustained levels of moderate-to-vigorous physical activity across the 8-week programme. However, further examination of PA data from these participants have yet to be fully realised or compared to the recommended PA levels of typically developing peers at similar stages of development.

Conclusions: Given these preliminary results, this research appears to support the continued implementation and evolution of this type of programme in its efforts to provide children with disabilities in Ireland opportunities to partake in physical activity at a moderate-to-vigorous level.

The longitudinal associations between physical activity, anxiety, and depression in adults with long-term physical disability

Samuel Battalio (University of Washington), Mara Nery-Hurwit (University of Washington), Mark Jensen (University of Washington)

Introduction: Prevalence of clinically significant anxiety and depression is high among individuals with chronic physical disabilities. Research on individuals without chronic physical disabilities has suggested that physical activity may prevent and potentially treat anxiety and depression. Research examining the long-term role of physical activity on psychological health in individuals with chronic physical disabilities is necessary.

Methods: The sample consisted of 1,594 individuals participating in an ongoing USA longitudinal mail survey study tracking adults aging with one of four chronic physical conditions (Multiple Sclerosis, Spinal Cord Injury, Muscular Dystrophy, Postpolio Syndrome). 1,594 participants completed the initial survey. 1,380 individuals went on to complete the second survey (approx. one year later), and 1,218 went on to complete third survey (approx. three years after the first survey). The Patient Reported Outcome Measurement System (PROMIS) was used to assess depression and anxiety. The Godin Leisure-Time Exercise Questionnaire was used to assess physical activity.

Results/Findings: The sample was primarily white (N = 1454; 91%) and female (N = 1,016; 64%). The mean age was 59.25±12.96 years. Mixed growth curve models revealed that increases in physical
activity were associated with decreases in depression (Coefficient = -.04, z = -7.70, P < .001; \( \chi^2 [1] = 228.356, P < .001 \)) and anxiety (Coefficient = -.02, z = -4.03, P < .001; \( \chi^2 [1] = 215.494, P < .001 \)) over time. Analyses also showed a curvilinear association between depression and physical activity, such that the strength of the association between depression and physical activity leveled off after moderate levels of physical activity were reached.

Implications/Conclusions: Results suggest that increases in physical activity may reduce depression and anxiety over time in individuals with physical disabilities. Clinical trials are necessary to determine whether interventions that target physical activity are effective for depression and anxiety in this population.

Executive functioning related to sport performance in young adults with and without intellectual disabilities

Hannah Hardwick (Mississippi State University), Chih-Chia Chen (Mississippi State University), Yonjoong Ryuh (Mississippi State University), Soyoun Lim (Mississippi State University), Younghan Lee (Mississippi State University), Milyang Kim (Soonchunhyang University)

Introduction: In addition to intellectual deficits and adapted behavior, it has been suggested that people with intellectual disabilities (ID) also have cognitive dysfunction and motor problems. To date, physical activity is commonly proposed to foster healthy development and decrease the risk of chronic problems in young adulthood, particularly for people with ID. Hence, the purpose of this study was to investigate the relationship between executive functioning and sport performance in young adults with and without ID.

Method: Twelve young adults (3 females, 9 males) aged between 19 and 21 years diagnosed with mild to moderate ID and twelve peers without disability (12 females) were assessed. Qualitative sport skills, i.e., soccer dribbling, passing and shooting tasks, were evaluated with Special Olympics Football Skills Assessment. Executive functioning, in terms of selective attention and working memory, were gauged with Eriksen Flanker test and Corisi Block Tapping test. A nonparametric correlation was conducted due to the small sample size.

Results: In terms of Eriksen Flanker test, negative relationships were found between soccer skills and reaction time. Participants with low scores in soccer dribbling, passing, and shooting capabilities had significantly long information processing speed in congruent and incongruent conditions respectively. For Corsi Block Tapping test, no significant relationships were found.

Implication/Conclusion: The present findings demonstrated that the attention component of higher-order cognitive functioning might be crucial for soccer skill performance in young adults with and without ID. Specifically, the deficits in executive functioning and soccer skills were interrelated, especially to selective attention domain, which might contribute positively to soccer participation for both young adults with and without ID. In the other words, the impairment in qualitative sport skills might lead to the impairment in higher-order executive functioning. Therefore, this study may provide
useful knowledge for physical education teachers and could be utilized in the development of motor interventions.

The learning outcomes of kayaking using different attentional focus on elder caregivers

TAN S Y Jernice (School of Sports, Health & Leisure, Republic Polytechnic, Singapore), TEO H L Pamela (School of Sports, Health & Leisure, Republic Polytechnic, Singapore)

Introduction: Kayaking is a water sport which requires a canoe-like boat (kayak) and a double bladed paddle. Attentional focus can be either referred as external focus (environmental surroundings and objects) or internal focus (body parts performing the actions and body movements). External focus often attained optimal learning outcomes for both novices and experts in different sports. However, using different attentional focus has not been documented for pool kayaking. This study aimed to investigate the effect of different attentional focus on new pool-kayakers. It was hypothesized that external focus would produce better learning outcomes.

Methods: Thirty-five elder caregivers (26 females, 9 males; M age = 31.2 ± 7.96 years) without kayaking experience volunteered for this study. Different instructional strategies were conducted in a blinded condition. The external group (n = 10; 7 females, 3 males) and internal group (n = 14; 11 females, 3 males) used external and internal attentional focus respectively. The control group (n = 11; 8 females, 3 males) had mixed instructions. Every group had a three-hour session of kayaking in the same pool (dimension: 50m x 25m) with five instructors present in all three different sessions. Two types of kayak boats – Jackson and Dag were used. The assessed tasks were forward stroke, backward stroke, sweep and brake. Results were analysed using one-way ANOVA with Tukey HSD test and Kruskal-Wallis test at p < .05.

Results: Non-significant differences were observed for all tasks (p > .05) except for sweeping. The external group performed significantly better for sweeping task than both internal and control groups (p < .05). The external group also had the highest evaluation ratings for effectiveness of instructors and clarity of instructions.

Implication/Conclusion: The hypothesis is partially supported. The use of external attentional focus for sweeping task seems suitable for elder caregivers who were novice kayakers and thus would be appropriate to promote participation and well-being despite their busy caregiving duty. However, it is recommended to increase the learning sessions and include a retention test to measure sustained learning outcomes in order to better evaluate the effectiveness of learning outcomes achieved from using external attentional focus as instructional strategy.

Physical activity as a predictor of physical function in adults aging with disability

Mara Nery-Hurwit (University of Washington), Dagmar Amtmann (University of Washington), Rana Salem (University of Washington), Sam Battalio (University of Washington)
Introduction: Individuals with physical disability are at a greater risk of acquiring comorbid conditions and experiencing declines in physical function as they age. It is critical to identify strategies to improve health behaviors promoting better physical function in these populations. The purpose of this study is to examine the relationship between physical function, physical activity, and health and demographic variables among individuals aging with disability.

Methods: Eligible participants (N=918) age 18 years or older with self-reported multiple sclerosis (MS), spinal cord injury (SCI), post-polio syndrome (PPS), or muscular dystrophy (MD) completed two surveys three years apart. Self-report measures included: Patient-Reported Outcomes Measurement Information System (PROMIS) Physical Function Short-Form for Mobility Users, International Physical Activity Questionnaire, Pain Intensity NRS, Falls Efficacy Scale, and the PROMIS Pain Interference, Fatigue, and Depression short forms. Data were analyzed using descriptive statistics, and a multiple linear regression model was used to examine the longitudinal association between physical function at time 1 and the outcomes at time 2.

Results: Sixty-five percent of participants were female, with a mean age of 59 years (SD=12), and the majority (92%) identified as white. Of the diagnostic groups, 34% had MS, 26% has SCI, 24% had PPS, and 16% had MD. The regression model explained 55% of the variance in physical function. Fall self-efficacy (β=-.57, p<.0001) and self-reported physical activity (β=.12, p< .0001) at time 1 were the most significantly related to physical function at time 2. Duration of condition (β=-.10, p<.001) at time 1 was negatively associated with physical function at time 2. Pain interference at time 1, age, and gender were not significantly associated with physical function in this sample.

Implication/Conclusion: The results suggest that interventions aimed at increasing engagement in physical activity and improving fall self-efficacy may improve physical function over time for individuals aging with disability.

Action Taken by Physical Education teachers targeted at students with Autism Spectrum Disorder

Maria Luiza Fiorini (Faculdade de Ensino Superior do Interior Paulista – FAIP, Marilia, São Paulo, Brazil), Eduardo José Manzini (Universidade Estadual Paulista – Unesp, Marilia, São Paulo, Brazil)

Introduction: In Brazil, inclusive education is concerned with access, participation and learning of students with disabilities, global developmental disorders, and talent/giftedness in general schools. Regarding inclusive education of students with Autism Spectrum Disorder (ASD) in general Physical Education, there is a large body of information concerning Physical Education teachers’ (PETs) difficulties, as well as what teachers could do when there is a student with ASD in class. However, little is known about the strategies that PETs adopt concerning these students. Teaching strategies are actions taken by teachers, with underlying intention, targeted at students. Thus, the objective was to analyze PETs’ strategies to encourage students with ASD to participate in general classes.

Methods: Three Elementary School PETs (1st to 5th grade) and the respective class, which had a student with ASD, participated in the study. Four physical education lessons were filmed in each class, making a total of 12 recorded lessons. Filming was analyzed based on microgenetic analysis. The PETs used four types of strategies: 1) Actions that precede teaching, e.g., positioning the student before the activity; 2)
Explanation and support during activities, e.g., orientations to all students followed by individualized explanations to the student with ASD; 3) what arises from Student Actions, e.g., contextualizing the rules of the activity; and, 4) Student Emotional Behavior, e.g., dealing with frustration about losing.

Implication/Conclusion: It can be concluded that the strategies used by the PETs changed through interaction with students. In certain situations, one strategy was sufficient, but in others, two or more strategies were necessary. The strategies that precede the teaching always preceded Explanation and Support during activities. Moreover, Student Emotional Behavior strategies presented sequential actions: to identify why the student presented that behavior; motivate the student to participate; respect the student’s will in not wanting to participate for a period of class; motivate again.

A training needs assessment for community-based physical activity program staff

Andrea Taliaferro (West Virginia University), Robert Posehn (West Virginia University), Tom Moran (James Madison University), Amanda Campbell (Bridgewater College), Danette Gibbs (Longwood University), Jill Lassiter (Bridgewater College), Juhong Christie Liu (James Madison University)

Introduction: Researchers have consistently reported that instructors, staff, administrators, and leaders within physical activity programs lack knowledge and training on how to maximize participation, motivation, and safety of individuals with disabilities (Temple & Walkley, 2007). The purpose of this study was to determine expert consensus regarding the areas/topics in which staff and instructors in community-based physical activity programs need additional training in order to successfully work with individuals with disabilities.

Method: Researchers used a three-round Delphi procedure involving the repeated circulation of an online questionnaire to a panel of identified content experts and stakeholders (n=70) in the field of community-based recreation for individuals with disabilities, with 29 participants completing all 3 rounds. During Round 1, panel members were asked to brainstorm ideas in response to an open-ended prompt. The panelists then rated these recommendations using a 7-point Likert scale of importance in the following two rounds.

Results: The panel generated a total of 130 recommendations in Round 1, which then comprised the Rounds 2 and 3 survey. After the completion of Round 3, six items were eliminated from the analysis for failing to reach a mean rating of 5 (moderately important). Of the remaining items, 27 were determined to be very important (mean ≥ 6), and 97 were determined to be moderately important (mean ≥ 5). Researchers completed a post hoc qualitative thematic analysis on the remaining items and identified the following themes: Assessment, Behavior Management, Collaboration, Communication, Disability Awareness, Disability Information, Health and Wellness, Modifications/accommodations, Planning, Program Administration, Safety Considerations and Risk Management, Support, and Teaching/instruction.

Conclusions: Results of this study will be used to assist in the development of a comprehensive list of training needs for instructors/staff when working with individuals with disabilities, and will be used to guide development of online training modules.
Acknowledgment of Research Support: Support for this research was provided by the Virginia Board for People with Disabilities

Content validity of the modified six-minute walk test among Special Olympics athletes

Lynneth Stuart-Hill (University of Victoria), Paige Ryan (University of Victoria), Laura St. John (University of Victoria), Pauli Rintala (University of Jyväsäkylä), Viviene A. Temple (University of Victoria)

Introduction: The efficacy of submaximal predictive fitness tests are based on two assumptions 1) that a steady-state heart rate is achieved and is consistent for each exercise work rate, and 2) that a linear relationship exists between oxygen uptake and heart rate (HR) within the range of 110-150 beats per minute. This study examined the content validity of the modified six-minute walk test (m6MWT), addressing the following questions: 1) do participants attain a steady state plateau in HR within the range of 110-150 beat per minute (bpm)? 2) At what percentage of their predicted HR maximum were participants during each minute of the test?

Methods: Participants were 36 (male=56%) Special Olympics athletes aged 34.4 years (SD=12.7). Following familiarization, participants completed the m6MWT while wearing a Polar Team 2 heart rate monitor. The m6MWT involved walking as quickly as possible for six minutes along a straight 30-metre path, and around a cone at each end of the path. A pacer walked 1 – 3 metres ahead of the participant providing standard phrases of encouragement e.g. “your doing well” every 15-seconds. A research assistant timed and recorded laps and total distance walked.

Results: At rest, the average HR of all participants was 78bpm. By the end of the first minute, average heart rate was 120bpm. Two factorial repeated measures ANOVAs sex as a factor and absolute HR (analysis 1) and percent predicted HRmax (analysis 2) as the outcomes, showed that steady state was achieved by minute three.

Implications/conclusion: The content validity of the m6MWT was supported as two assumptions were met: that steady state HR was achieved and the workload was intense enough that steady state HR fell within the range of 110-150bpm. The next step in this work will be to establish normative parameters for this test among Special Olympics athletes.

Impact of Paralympic skill lab on student attitudes toward inclusive recreation

Cathy McKay (James Madison University), Andrea Taliaferro (West Virginia University)

Introduction: The purpose of this study was to determine if taking part in a Paralympic skill lab (PSL) would have a positive impact on the attitudes of college students toward the inclusion of individuals with disabilities in lifetime fitness and sport activities. The PSL framework utilizes the published Paralympic School Day curriculum, with differentiation for college learners. By shifting the paradigm through which college students know and understand lifetime sport and fitness for individuals of all abilities, value is placed on advancing inclusive societal norms.
Methods: The sample comprised of 99 college students. The students were divided into two groups using randomized block design (experimental n = 40, control n = 59), with the experimental group receiving the PSL treatment. All students responded two times to the Collegian Attitudes Toward Inclusive Campus Recreation Scale (CAICR), derived from Block’s (1995) Children’s Attitude Toward Inclusive Physical Education – Revised Scale (CAIPE-R), and Siperstein’s (2006) Adjective Checklist (ACL). After analysis to determine estimates of reliability of the CAICR scale, descriptive and correlation analysis were conducted. Data were then analyzed using two separate 2-factor fixed-effect split-plot ANOVA.

Results: Results on CAICR scores revealed no significant group by time interaction F(1, 94)=3.206 p=.074. There was no difference in CAICR scores over time, F(1, 94)=.234, p=.129, and no significant group difference, F(1, 94) = .017, p=.895. While not significant, overall mean scores for the control group remained fairly consistent over time (Mpre=32.61, SD=3.88; Mpost=32.51, SD=4.82) while mean scores increased for the treatment group increased over time (Mpre=32.05, SD=3.46; Mpost=33.28, SD=4.22). Results on ACL scores revealed no significant group by time interaction, F(1, 94)=2.208, p=.141. There was no significant difference in Adjective scores over time F(1, 94)=2.364, p=.128), nor group difference F(1, 94)=.320, p=.077.

Implication/Conclusion: The results of this study provided data indicating the effectiveness of a PSL experience on changing cognitive attitudes towards inclusive lifetime sport and fitness. While not significant, gain scores were evident, and a variety of significant correlations were found, including correlations between PSL and higher post-ACL scores, and between family and friend contact and higher pre-test scores across measures. Future research should extend the use of the collegiate PSL, replicating the research with a focus on the qualitative realm, and investigating whether contact with specific Paralympic sports and athletes impact attitude change.
Wednesday, October 3, 9:00: Verbal presentation (Physical Activity and Parents)

The perspective of parents mediating a physical activity intervention for their children with autism spectrum disorder

Sean Healy (University of Delaware), Genevieve Marchand (Humboldt State University)

Introduction: We aimed to examine how parents of children with autism spectrum disorder (ASD) perceive mediating a physical activity (PA) intervention delivered via a private Facebook group.

Significance of the study: Research on PA interventions for youth with ASD demonstrates an array of exercise modalities to be beneficial. One challenge remaining is how to translate these findings to effectively implement these interventions on a larger scale, and achieve sustained effects on behavior. Web-based, parent-mediated interventions have shown to be beneficial for children with ASD in a variety of domains, yet parental involvement in PA interventions, for children with ASD, remains limited. To inform future research on parent-mediated PA interventions, the current study explores the perspective of parents who participated in Project CHASE (Children with Autism Supported to Exercise). Project CHASE is a web-based, parent mediated intervention that aims to increase PA of children with ASD.

Methods: Thirteen families participated in Project CHASE. To elicit the perspective of the parents, inductive thematic analysis, using Braun and Clarke’s (2006) ‘recipe’ for thematic analysis, was completed of semi-structured interviews and interactions within the Facebook group.

Results: Three themes emerged: (1) ‘Remembering to Act’ encompassed the participants’ perspectives of Project CHASE as being an intervention that reminded them of the importance of PA, and served as a prompt for them to take action; (2) ‘A sharing community’ included the sub-themes of ‘sharing success and struggles’ and ‘sharing ideas’; and, (3) ‘Taking control: possibilities and problems’ encapsulates the dichotomy between participants who spoke of embracing and rising to the challenge of taking control, with the parents who spoke of the need for more support, direction, and guidance.

Implication/Conclusion: The current study suggests parent-mediated, web-based interventions may have the potential for improving the effectiveness of PA interventions for children with ASD.

Parental perceptions of a family dog-assisted physical activity program for their children with developmental disabilities

Amelia Chloe Simpson (Oregon State University), Megan MacDonald (Oregon State University)

Introduction: Parents provide an in-depth and unique perspective on their children with developmental disabilities (DDs) experiences and involvement in physical activity. Furthermore, family pets promote physical activity and quality of life in children with DD. An imitation based physical activity program for children with DD and their family dog’s took place in the Summer of 2017 and in the Winter of 2018, and focused teaching children with DD ages 8 to 17 years old to become the primary trainer of their family dog. Components of this program were strongly focused on joint (child-dog) physical activity. The
purpose of this study was to understand the impact of the imitation based physical activity program on children with DD.

Methods: A qualitative study was conducted by interviewing parents of 4 child participants. Parent interviews were conducted using phenomenological approach, including open-ended questions based on their child’s experience in the imitation based physical activity program. Transcripts were analyzed using interpretative phenomenological analysis to identify reoccurring themes and patterns among participant responses (Smith, 2009).

Results: Themes revealed that positive experiences and skill acquisition in the program led to increased physical activity and quality of life through increased confidence, ownership, independence, social interaction and child-dog bond. Five superordinate themes emerged including: comfort in an animal companion, interactions with dogs opens the door to interacting with the world, ownership and skill acquisition transferability, physical activity, and positive program experiences.

Implication/Conclusion: Interviews with parent proxies revealed that the four child participant’s positive intervention experiences aided in their development of dog ownership and the skills necessary to interact with their dog companion which led to further social interactions. The benefit of building a child-dog relationship was seen in child participant’s desire to care for their dog leading to their increased physical activity, responsibility, and ultimately ownership. The positive results lead to a promising future for physical activity interventions involvement of family dogs.

Physical activity intervention for parents of children with Autism Spectrum Disorders

Luis Columna (Syracuse University), Laura Prieto (Syracuse University), Gianpietro Elias (Syracuse University), Denzil Streete (Yale University), Beth Myers (Syracuse University), Christine Ashby (Syracuse University)

Introduction: Children with ASD have limited participation in recreational and physical activities (PA) compared to their peers without disabilities. This is due in part to the lack of recreational opportunities and lack of parental awareness of the benefits of PA. Moreover, parents may lack skills to engage, model, or teach their children in PA. The purpose of the study was to describe the experiences of families of children with ASD regarding PA after participating in a physical activity (PA) intervention program. The following research question guided the study: How do parents of children with ASD make sense of their participation in a series of PA workshops designed to promote PA participation?

Methods: The research method was descriptive qualitative study. Participants were parents of children with ASD (n = 17) who took part in one-on-one semi-structured phone interviews. The interview data of the parents were analyzed inductively by preparing the data (transcribing), reducing the data, as well as arranging into themes and by theorizing.

Results: Prior to the intervention, parents lacked the skills to teach PA to their children, but this intervention provided an opportunity to maximize PA opportunities for their children. Two main components, according to the parents, were the acquisition of free PA equipment and the acquired
knowledge of task analyzing motor skills. Parents voiced the need for additional ideas of activities they can do as a family.

Implications/Conclusions: Participating parents expanded their children’s opportunities to PA. In part because of the acquired knowledge, as well as the free PA equipment they were able to take home. Despite these benefits, there is a need for hands-on educational experiences for parents and interdisciplinary training for PA professionals to learn how to interact with families of children with ASD. This study addresses that exact need by implementing an innovative intervention that empowers parents to overcome challenges to being physically active with their children with ASD.

**Parental behaviors of parents of children with autism spectrum disorder in play settings**

Byungmo Ku (Oregon State University), Jodi Dawn Stinson (Oregon State University), Megan MacDonald (Oregon State University)

Introduction: Empirical research studies examining the parental behaviors of parents of children with ASD compared to parents of children without disabilities provide inconsistent findings. Thus, the purpose of this study was to examine parental behavior differences between parents of children with ASD and parents of children without disabilities by conducting a meta-analysis.

Methods: A systematic database and manual search was implemented to identify observational studies, which met predetermined inclusion criteria, PRISMA guidelines were followed. Parental behaviors were categorized into the parental dimensions of parental warmth/support, parental behavioral control, parental negativity, and neutral parental behavior. A priori moderators were selected to include in a moderation analysis. A moderation analysis was conducted on the dimensions of parental warmth/support and parental behavioral control, based on their respective heterogeneity.

Results: Parents of children with ASD showed more controlling (Hedge’s $g = 0.53$, $p = 0.009$) and negative behaviors (Cohen’s $d = 0.31$, $p = 0.04$) compared to parents of TD children. Moderation analyses indicated that in the parental supportive/warmth dimension, the type of parental interaction was a significant moderator suggesting that parents of children with ASD tended to use less supportive/warm verbal comments/utterances compared to parents of TD children (mean ES = -0.52; $p = 0.05$; $N = 4$). In the parental control dimension, child development had a significant moderation effect indicating that parents of children with ASD displayed more controlling behaviors compared to parents of TD children when the child with ASD had a lower developmental score than the child without a disability (mean ES = 1.33; $p = 0.00$; $N = 2$).

Implication/Conclusion: As parent-centered interventions focused on the motor skill development and physical activity of children with ASD develop, the results of the current study may be helpful in respect to developing interventions strategies for parents. Parents of children with ASD may need specific education about how to encourage their children, not to control their children in motor skill- and physical activity-based environments.
Efficacy of Adaptive Swim Lessons With and Without Parental Involvement

Emily Munn (Auburn University), Lisa Rupy (ICanShine), Melissa Pangelinan (Auburn University)

Introduction: Drowning is a leading cause of accidental death in individuals with developmental disabilities. Swim lessons are needed during early development with continued maintenance of skills to ensure swim safety. Few studies have evaluated the efficacy of available adapted swim programs. Additionally, evidence-based practices in other learning domains have shown that parent involvement is critical for successful acquisition. The purpose of this study was to examine the efficacy of an adapted swim program with and without parental involvement.

Methods: Data were acquired from 3 adapted swim programs based on the iCanShine swim training. A total of 76 individuals ages 3-20 years with developmental disabilities participated (ASD=31; CP=4; Down Syndrome=20; Other Developmental Delay=17, Typically Developing=4). The first program (n=37) consisted of lessons for 1 hour/day for 5 consecutive days, with volunteers providing one-on-one support. The second program (n=17) consisted of lessons for 45 minutes/day for 10 days (M-F) with parent and volunteers providing one-on-one support. The third program (n=22) was a replication of the second.

Results: For the 1st year program, only 2 students that were non-swimmers (out of 28) were swim safe after 1 week of adapted lessons with volunteer support. For the 2nd year program, 9 students that were non-swimmers (out of the 12) were swim safe after 2 weeks of adapted lessons with parents and volunteer support. For the 3rd year program, 8 non-swimmers (out of 16) were considered swim safe after 2 weeks of adapted lessons with parents and volunteer support.

Implications/Conclusions: These data suggest that the combination of parent involvement and increased amount of swim lessons is necessary for greater acquisition of swim skills and swim safety. Future studies should extend the dose of swim lessons and greater training of parents. Research implementing in-pool surveillance and additional process-oriented assessments would help better quantify changes in swim skills.
**Wednesday, October 3, 9:00: Verbal presentation (Motor Skill Intervention)**

**The influence of a developmental kicking intervention for young children with autism**

Seungyeon Park (Norfolk State University), Jacqueline Goodway (Ohio State University), Ward Phillip (Ohio State University), Daekyun Oh (Ohio State University), Kyuil Cho (Ohio State University)

Method: This single subject, multiple baseline across participants study involved five 1st to 2nd grade children with ASD. To measure student kicking performance, there were three dependent measures including (a) percentage of correct trials in critical elements (the primary dependent measured as daily basis) and (b) two outcome dependent measures (TGMD-2 kicking subtest and stage level of kicking developmental sequence).

Analysis/Results: These data were plotted and analyzed according to single subject procedures with visual analysis including level, trend and variability. Both the inter-observer agreement and the fidelity checklist showed more than 90% agreement. The results showed that there was an immediate change once the intervention was introduced across all the study participants.

The study demonstrated an improved level of kicking performance during the intervention and that performance was stable or increasing over time.

Conclusion: Developmentally Aligned Kicking instruction is a valuable pedagogical approach to improve the kicking performance of young children with autism.

Implications: Fundamental motor skills (FMS) are critical skills to master in early childhood in order to engage in sports, games and lifetime activities, but many children with autism are delayed in FMS. The current research demonstrates an innovative pedagogical approach to improve kicking skills in young children with autism. Such an approach has the potential to assist these children in developing FMS proficiency and thus be able to apply these skills in sports and games with their peers.

**The effects of an integrative, universally-designed movement skill intervention on young children with and without disabilities**

Sally Taunton (University of South Carolina), Ali Brian (University of South Carolina), Adam Pennell (University of South Carolina), Lauren Lieberman (SUNY Brockport), Larissa True (SUNY Cortland), Collin Webster (University of South Carolina), David Stodden (University of South Carolina)

Introduction: Movement skills (e.g., gross motor, fine motor and health-related fitness skills) are a foundational component of child development. Many children both with and without disabilities demonstrate significant delays in movement skills, but the delays are often exacerbated in children with disabilities. Delays in movement skills can be overcome in as little as six-weeks with interventions for both children with and without disabilities. However, little evidence exists to understand the effects of integrative interventions targeting multiple components of movement skills (e.g., gross motor, fine motor and health-related fitness skills) in children with and without disabilities. The purpose of this
study is to examine the effects of a universally-designed integrative intervention on movement skills of children with and without disabilities in general and inclusion early childhood classrooms.

Methods: Participants ages 3-6 years (N=111; disability = 24; no disability = 87; Mage = 5.15 years, SD = 9.83 months) were from an early childhood center in the southern United States. We randomly assigned children to intervention (n = 53) or control (n = 59) conditions across both general (n = 55) and inclusion (n = 56) classes. We conducted an independent samples t-test at the pretest and posttest to determine group differences across all measures. We conducted a two group x two time repeated measures ANOVA for TGMD-2 locomotor and BOT-2 Brief Form scores in addition to a two group x two time ANCOVA for TGMD-2 object control skills to examine the effectiveness of the movement skill intervention.

Results/Implications: Findings suggests young children both with and without disabilities can benefit from an inclusive universally designed integrative intervention targeting multiple facets of movement skills demonstrating almost no difference [TGMD-2 (p > .001); BOT-2 (p = .051)] between children with and without disabilities or between general and inclusion classes at the posttest.

Fundamental motor skill intervention for 3-5 year old children with Autism Spectrum Disorder: Preliminary results

Meghann Lloyd (University of Ontario Institute of Technology), Aaron Ibbotson (University of Ontario Institute of Technology), Tayler Runge (University of Ontario Institute of Technology)

Introduction: Many children with Autism Spectrum Disorder (ASD) experience significant delays in motor development, including the acquisition of fundamental motor skills (e.g. throwing, catching, kicking, etc). These delays can interfere with the children with ASD’s ability to actively engage with peers at school and the community. Research has indicated that motor skills can be improved in children with ASD through targeted intervention.

Methods: 16 children with ASD (11 male, 5 female), average age 3.8 years, were recruited for a 12 week, 2 hours/week wait-list controlled fundamental motor skill intervention. Participants were randomly assigned to the intervention (n=7) or control group (n=9). The control group received the intervention after the intervention group. The Test of Gross Motor Development-2 (TGMD-2) was used to measure motor skills before and after the intervention.

Results: All children demonstrated delays in their motor skills at the pre-test. For Group 1: Locomotor Raw Scores (mean= 14.29 + 11.35) and Object Control Raw Scores (mean= 9.00 + 13.64) at the pre-test; and Group 2 - Locomotor Raw Scores (mean= 7.11 + 4.73) and Object Control Raw Scores (mean= 6.44 + 6.17) at the pre-test. There were no differences between the groups at the pre-test for object control or locomotor raw scores. After the 12 week intervention both groups showed improvements with the intervention group showing greater improvements; there was a significant effect for time but the group by time interaction was not significant.

Conclusions: The participants in the intervention group did improve their scores on the TGMD-2; in many cases the participants in the control group improved their scores as well. Sometimes scores on
standardized tests are not reflective of true abilities due to behavioural considerations on the testing day. Overall, the results are encouraging and provide a preliminary glimpse of the data in year 1 of a 3 year study.

Research Support: Social Sciences and Humanities Research Council of Canada (SSHRC)

Outcomes of an applied behavior analytic early fundamental movement skill intervention for preschoolers with Autism Spectrum Disorder

Isabella T. Felzer-Kim (Michigan State University), Sara Dodson (Michigan State University), Erica Weber (Michigan State University), Janet L. Hauck (Michigan State University)

Introduction: In addition to social and communication deficits, children with Autism Spectrum Disorder (ASD) exhibit fundamental movement skill (FMS) delays. Early Intervention through Applied Behavior Analysis (ABA) is an under-investigated and promising arena in which to encourage FMS training early in childhood. The purpose of this study is to measure the efficacy of an ABA FMS early intervention on FMS, and the initial feasibility of implementing such a program in the ABA environment.

Methods: 14 children with ASD aged 3-5, attending an early and intensive ABA program were randomized to instruction (8) and control (6) groups. Instructional techniques included video modeling and manual prompting with graduated guidance. These were employed daily in both 15-minute individual discrete trial training and 10-minute group sessions, implemented by ABA technicians over 20 weeks with guidance from research staff. All instructional sessions were video-recorded. Baseline, mid-intervention, post-intervention, and 4 week follow-up administrations of the Test of Gross Motor Development – III (video-recorded and scored by blinded and 90% reliable evaluators) serve as the primary measure of progress. A repeated-measures ANOVA measures differences between groups. Surveys completed by ABA technicians address the feasibility of FMS training in the ABA environment.

Results: Preliminary results, including baseline and mid – intervention TGMD – III data after 10 weeks of instruction are presented visually by group. Results of repeated-measures ANOVA from baseline to mid-intervention are presented and discussed. Initial feasibility data are also presented and discussed.

Conclusion: Preliminary data from an ABA FMS early intervention provides insight concerning the efficacy and feasibility of FMS training in the ABA clinical environment. Future studies might investigate different instructional strategies or doses.

Improving fitness, executive functions and competence of children with developmental disabilities through an adaptive gymnastics program

Claire Bridges (Auburn University), Robyn Feiss (Auburn University), Mary E. Rudisill (Auburn University), Sheri Thornburg-Brock (Auburn University), Matthew Miller (Auburn University), Melissa Pangelinan (Auburn University)
Introduction: This study examined the impact of a 10-week (2 x week) adaptive gymnastics program with an additional 13-weeks (1 x week) for children with developmental disabilities with respect to fitness, executive function, and competence.

Methods: Five children aged 7-11 years diagnosed with a developmental disability participated in the study. Assessments were completed before (Pre-test) and after (Post-test1) the 10-week adaptive gymnastics programs as well as after (Post-test2) the additional 13-weeks.

Results: After the 10-week intervention, paired T-test and ANCOVAs were used to determine changes in post-test scores. There were significant changes in scores for the isometric push-up (t (4) = -2.98, p = 0.041, d = 0.54), modified curl-up (t (4) = -2.62, p = 0.059, d = 1.86) and trunk lift (t (4) = -3.18, p = 0.033, d = 1.32). No significant changes for competence, inhibitory control, grip strength, extended arm hang, and sit-and-reach (p > 0.05 for all). However, scores for cognitive flexibility approached conventional levels of statistical significance (t (4) = -3.02, p = 0.057, d = 1.72). In addition, for the follow-up data an Analysis of Variance was used to determine changes in scores over time and paired T-tests for the different time points. No significant changes in scores over time for competence, inhibitory control, isometric push-up, modified curl-up, grip strength, extended arm hang, or sit-and-reach (p >0.05 for all). There was a significant change in scores over time from pre-test-post-test2 for cognitive flexibility (t (4) = -4.56, p = 0.010) and post-test1-post-test2 for trunk lift (t (4), = 3.28, p = 0.030).

Implication/Conclusion: The 10-week adaptive gymnastics intervention improved core, upper body endurance, and trunk flexibility. These functions are consistently identified as areas for improvement in children with developmental disabilities. With the additional 13-week program, trunk flexibility improved as well as cognitive flexibility.
**Wednesday, October 3, 9:00: Building Session**

**Measurement of Physical Activity of Young Adults on The Autism Spectrum**

Jason C. Bishop (Auburn University), Andrew M Columbus-Douqovito (University of North Texas)

**Primary Issues**
Reflecting past is one of the important steps to building future. This presentation will chronicle the historical factors that influenced the evolution of the graduate program in Adapted Physical Activity (formerly Movement Studies in Disability) as an example of how to develop an impactful program and drive it forward to make differences in the life of individuals with disabilities. These factors include federal legislation and state endorsements; federal and professional development funding; research directions; and international influences on curriculum, research, and service. In addition, the culture of OSU’s program will be shared as a unique and vibrant way to build a program and its capacity over time.

**Session Significance**
Adapted physical activity (APA) is a relatively young field of study and attempt to create unique body of knowledge to clearly defined APA as a discipline (McCubbin, 2014; Reid, 1993; Reid & Stanish, 2003) that not only advancing field but also make differences on lives of many individuals with disabilities. Although many early scholars made significant impacts, it is time to reflect and focus on the future of the field. This session will provide a unique opportunity to learn from the founder and leaders of this program that was rooted over 35 years ago and has grown into one of the premier graduate programs of APA in North America. Reflections from the past will create an opportunity to discuss the future priorities for the profession including the future direction of some impactful research. Perhaps most significant, will be an opportunity for an audience that will include dozens of former Oregon Stater’s to reflect back, dream for the future, and channel new energies and efforts to continue to build on the past to create a legacy for the future.
**Wednesday, October 3, 9:00: Student “work-in-preparation” proposal presentation**

**The Effectiveness of Assessment Tools for persons experiencing disability**

Jessica Salvagna (Brock University), Maureen Connolly (Brock University)

Assessment tools are used to advocate for diagnosis and create a baseline to treat clients. It is vital to identify individual components that not only perceive the client’s abilities, but also, provide strong baseline information and valid evaluation for beneficial intervention plans. The outcomes of these assessments are “only as good as the systems put in place to measure and document them” (Stumbo, Wolfe, & Pegg, 2009). I intend to explore the effectiveness of assessment tools for persons experiencing [dis]abilities. Research Question: How do assessment tools specifically analyze the Autism Spectrum Disorder (ASD) population’s developmental domains? To what extent do assessment tools improve the developmental functionality of those with ASD? How effective are assessment tools for ‘low functioning individuals’ experiencing disabilities? Methods: Grounded theory methods will guide data collection and analysis. Main themes will articulate a diverse set of points regarding assessment instrument outcomes for persons with [dis]abilities. Findings: Research literature suggests a variety of assumptions (Stumbo, 2002) and negative biases present in many existing assessment instruments (Edwards, et al., 2002), as well as the suggestions that assessment tools should include other assessment techniques such as general observation of behavior, third party information and other documents (Olsson, n.d). Discussion: These issues are not solely owned by the Therapeutic Recreation field because other healthcare professions are experiencing similar issues; yet, minimal steps have been taken to improve assessment tools. By exploring the effectiveness of assessment tools for persons experiencing [dis]abilities, I hope to better understand the areas of improvement in assessments for low to moderate functioning adolescents and transition-aged youth and how the field can refine and modify these tools to improve program interventions. I also note that more research should explore language adaptations and appropriate cultural sensitivity within these tools to prevent barriers to a participant’s health outcomes.

**The Effect of Balance and High-Speed Power Training on Fall Risk Factors in Adults with Intellectual Disability**

Choi, Poram, Mississippi State University

Background: The prevalence of falls in adults with intellectual disability (ID) is higher than the general population. In addition, falls are a major cause of fractures in adults with ID. However, there are no intervention studies for reducing risk of falls in this population. Preliminary data from an ongoing study indicate that leg strength and moderate physical activity (MPA) are related to incidence of falls in adults with ID. Previous studies showed that high-speed power training (HSPT) increases muscle strength and physical activities. Combined balance and resistance exercise has further been recommended as an effective intervention for preventing falls.

Purpose: This study will examine if a 12-week combined balance and HSPT can reduce fall risk factors in adults with ID.
Hypothesis: We hypothesize that balance and HSPT will increase functional performance, moderate PA, and fall efficacy in adults with ID.

Method: Fifty group-home dwelling adults with ID aged ≥30 years will participate in this study. Participants will be assigned to either intervention (n=25) or control group (n=25). Testing will be conducted at baseline, half-way though the intervention, and post-intervention. The test protocol will include fall efficacy questionnaire, short physical performance battery (i.e. balance, leg strength, and gait speed), and Timed-Up and Go test. Also, participants will wear an accelerometer for 7 days to measure their PA level. The intervention group will participate in a 12-week intervention 3 times/week with each session lasting 1 hour. Each session will consist of 10 min warming up, 45 min balance and HSPT exercise, and 5 min cool-down. The volume of exercises will be progressively increased every 3 weeks. Between-group differences in fall risk variables will be examined using a 2×3 (group×time) ANCOVA using baseline values as covariates and follow-up between- and within-group tests with Bonferroni-adjusted alpha as warranted. Effect sizes will also be evaluated.

The effect of the six-minute walk test environment on stress and heart rate variability among Special Olympics athletes

Kearney Dover (University of Victoria), Viviene Temple (University of Victoria), Lynneth Stuart-Hill (University of Victoria)

Introduction: Beat-to-beat variation in heart rate (i.e. Heart Rate Variability, HRV) is a sign of a well-conditioned heart. In 2016, Special Olympics (SO) Canada funded a project to develop ‘representative’ HRV profiles of SO athletes before, during, and after a walking test.

Significance and purpose: Unexpectedly, the 2016 findings showed that the sympathetic nervous system was dominating the parasympathetic nervous system, even when the athletes were resting. This is of concern because HRV should rebound after exercise to avoid persistently elevated levels of the stress hormone cortisol. However, before we conclude that these HRV profiles are generally unhealthy, it is important to determine if athletes are stressed during fitness testing and whether the ‘busyness’ of the testing environment influences HRV.

Research question

Does the testing environment (busy vs. quiet) elicit different HRV and cortisol responses pre-, -during and post-exercise?

Method: I will recruit ten adult SO athletes, excluding athletes taking medications affecting heart rate. Equivital EQ02 monitors will be used to measure heart rate and athletes will complete the Six-Minute Walk Test (6MWT). Salivary cortisol levels will provide a biologic marker of stress. Athletes will complete the testing in a ‘Busy’ environment and in a ‘Quiet’ environment one-week apart, the order
will be randomized. Wearing a heart rate monitor, athletes will lay quietly for 10-minutes (HRV data at rest) and then saliva will be collected. Athletes will then complete the 6MWT with a pacer walking slightly ahead of them. Afterward, I will measure heart rate for 30-minutes and collect salivary cortisol every 10 minutes.

Co-creating, implementing, and evaluating a community-based peer-run physical activity program to enhance exercise and sport participation for adults with moderate to severe traumatic brain injury

Enrico Quilico (University of Toronto), Angela Colantonio (University of Toronto), Bonnie Swaine (University of Montreal), Shane Sweet (University of Montreal), Lindsay Duncan (McGill University), Shawn Wilkinson (Concordia University)

Introduction: Leisure time physical activity (LTPA) and sport are suggested as a non-stigmatizing approaches to address long-term problems following moderate and severe traumatic brain injury (TBI) and can positively influence community integration, mood, and quality of life. Promoting LTPA and sport participation for people with TBI is, however, challenging due to long-term sequelae associated with their injuries. Consequently, PA and sport programs must be appropriately designed. This project aims to pursue the co-creation of a community-based PA and sport program for persons with TBI and stems from a 9-month pilot program (January 2017) in collaboration with multiple community partners. Four individuals with TBI who completed the pilot program were engaged as peer mentors to share their perspectives and motivate new members. To maximize the efficacy of the program, formal protocols and toolkits must be co-created by researchers and program participants to ensure the content is tailored to the program users’ needs.

Research questions/Objectives: 1) co-create a set of clearly-defined protocols for the new program incorporating mentors, 2) co-construct the program’s logic model while identifying strategies to ensure program sustainability with the community fitness center, 3) explore the impact of the program on mentors, participants, and administration to make adjustments as needed for a feasibility study planned for beginning February 2020 (funded by SSHRC and Sports Canada).

Methods: In line with the participatory action research approach, this study involves the equitable collaboration of organizational representatives (n=2), a team of multidisciplinary researchers (n=5) and community members (mentors, n=4) in every aspect of the research process. Qualitative focus group methods will be used to collect relevant data with program participants, mentors, and administrators. These multiple perspectives will be used to consolidate knowledge and inform changes to the program for its implementation and eventual replication.

The present project includes a small heterogeneous convenience sample of 3 women, 5 men, and 4 male volunteers living with severe TBI in Eastern Canada who were purposely recruited based on their suitability for the program. Although the specific co-creation of this community-based PA and sport program is a unique strength, this may limit the program’s transferability to other settings, or other individuals who live with a disability.
Wednesday, October 3, 9:45: Building Session

Defining inclusive practices and engaging ‘untapped’ community-based physical activity programs.

Kathleen McCarty (Oregon State University), Samantha Ross (Oregon State University), Bridgette Schram (Georgia State University), Jennifer Beamer (Oregon State University)

Primary Issues
It is imperative that community-based physical activity programs adopt inclusive practices to address disparities in health among adults with disabilities. Previous literature identifies strategies for existing inclusive programs but lacks in providing evidence on the initiation of such practices. This building session will introduce a community-based physical activity program and its program framework for engaging new community partners. Leveraging the experience and expertise of attendees, this session aims to identify measurable characteristics of inclusive programs. Outcomes from this session will inform the development of practical evaluation tools and strategies for initiating adoption of inclusive practices.

Session Significance
Half of all adults with disabilities report not meeting the recommended guideline of 150 minutes of physical activity (PA) per week. Inactivity is associated with increased risk for poor health outcomes, with adults with disabilities having a 3-fold greater likelihood of heart disease, stroke, diabetes, or cancer. With an estimated 1 in 5 adults 18-65 years old having a disability in the United States, this group is considered the largest minority group experiencing health disparities. Created in-line with Healthy People 2020’s call for organizations to address this issue, IMPACT for Life (IFL) is an advocacy and service program partnering with the community to promote adults with disabilities’ engagement in self-empowered, lifelong, and inclusive PA. Initially created as a one-on-one individual model, IFL recently shifted to serve more as a mentor and facilitator of inclusive community-based PA programming. The success of this model depends on community fitness centers’ buy-in and capacity to provide for their clientele with disabilities. Previous literature explores fitness facilities, their level of inclusion, and strategies for improvement as part of a national conversation on the state of inclusion in PA settings. This literature focuses, primarily, on facilities that have already made a commitment to inclusion, yet fails to engage those facilities unaware of this cause. The purpose of this building session is to address this gap in the literature. Leveraging the experiences of attendees and the Precaution Adoption Process Model, this session aims to identify (1) the measurable characteristics of inclusive community PA programs, and (2) levels of inclusive practices within this framework, with a specific focus on targeting those in the earliest stages of awareness and adoption. Outcomes from this session will inform strategies for initiating a conversation regarding community-driven adoption of inclusive practices through education, community partnership, and resource sharing.
Research and Community Engagement to Promote and Support Physical Activity among Children and Youth with Disabilities

Rebecca Gunter (York University), Rebecca Bassett-Gunter (York University), Jennifer Leo, (Abilities Centre), Kelly Arbour-Nicitopoulos (University of Toronto)

Primary Issues
Reflecting past is one of the important steps to building future. This presentation will chronicle the Learning from and with families of children and youth with disabilities (CYD) is critical for creating inclusive communities. This presentation will showcase our efforts with family engagement into the research process to better understand: a) CYD physical activity (PA) needs and behaviours, b) how to promote quality PA experiences for CYD, and c) strategies for empowering families into research decisions. Our research aims to provide recommendations for enhancing the delivery of PA knowledge and practice into the community. Session participants will be asked to share their stories and problem solve around strategies for enhancing family engagement in the research process.

Session Significance
Physical activity (PA) provides an important opportunity for quality participation and community engagement among children and youth with disabilities (CYD). In order to facilitate quality participation, it is important that evidence-informed strategies are used to promote and deliver inclusive PA programs and policies. Evidence-based strategies that are developed from community-engaged research provide key stakeholders with critical and meaningful roles throughout the research process. Our Family-Focused research team has developed several strategies to lead a community-engaged research program to inform a comprehensive understanding of the PA needs and behaviours of families of CYD as well as strategies to promote and motivate PA. This session will provide the opportunity to share our experiences with session attendees who are interested in learning more on this community-engaged research process.

The session will begin with our team sharing information about our research findings regarding PA promotion and behaviours among families of CYD. We will address topics related to: (a) concerns around diversifying PA opportunities for CYD within their communities, (b) the development and dissemination of PA information, tools and promotional messages targeting families of CYD; and (c) experiences recruiting and coordinating a Family Advisory Committee as a means of ensuring meaningful involvement from families so that our work both starts (i.e., generating ideas) and ends (i.e., disseminating knowledge to inform inclusive PA promotion, practice and policy) with the needs of families of CYD. The remainder of the session will involve guided discussion as an opportunity for sharing insights that attendees can use to enhance their own research practices through the engagement of families in the research process.
**Wednesday, October 3, 10:30: Verbal presentation (Children and Motor Learning/ Motor behavior)**

**Motor skill competence and trajectories of development among pre-school aged children with and without Down syndrome**

Kerri L. Staples (University of Michigan), Kyla Collins (Texas Christian University), Amanda Young (Texas Christian University), Phil Esposito (Texas Christian University)

Introduction: Young children with Down syndrome demonstrate delays in the attainment of motor milestones, which further constrains their development of fundamental motor skills. For children with Down syndrome, the preschool years are a critical period of development that we know very little about. The purpose of this research is to examine changes in motor skill competence associated with participation in APE among 13 children (7 boys, 6 girls) with Down syndrome and 2 boys with typical development, ages of 4 to 6 years. These children attend a reverse integrated pre-school, where they receive daily APE and the recommended 150 minutes of instruction per week.

Methods/Results: Motor skill competence was assessed with the TGMD-3 at baseline and following 10 and 20 weeks of APE instruction. Hierarchical linear regression was used to establish two developmental trajectories for each participant, one for locomotor skills and the other for ball skills. Each trajectory was defined by its own parameters – intercept (starting point) and gradient (rate of change), where gradients > 0 reflect meaningful improvement. For locomotor skills, the mean intercept and gradient for children with Down syndrome (8.86±6.00 and 2.65±1.49) were significantly lower than for children with typical development (22.17±.94 and 6.00±.71). Although children with Down syndrome had significantly lower scores on ball skills, the wide range of scores did not result in a significantly different intercept or gradient (9.59±4.29 and 3.00±2.05) compared to children with typical development (20.75±3.18 and 3.75±.35).

Implication/Conclusion: Although pre-school aged children with Down syndrome demonstrate significantly lower motor skill competence and make slower progress compared to same aged children with typical development, they do make significant improvements when provided with daily APE. The results of this study will contribute to the development of improved teaching practices so that all children with Down syndrome have the opportunity to improve their motor skill competence.

**Relationship between BMI and balance capacities in youth (8-21 yrs) with intellectual disability**

E. Michael Loovis (Cleveland State University), Ruth Ann Miller (Wichita State University), Ken Pitetti (Wichita State University)

Introduction: Previous studies of typically developing children have reported significant negative relationships between gross motor competence and body mass index (BMI). The purpose of this study was to determine if this relationship exists among children with mild to moderate intellectual disability (ID).
Methods: Body mass Index (BMI, kg/m²) was determined and participants were classified as normal weight (NW), overweight (OW), and obese (OB) using international cut-off points for BMI from Cole et al. (2000). Participants included 222 males and 108 females, ages 8-21 years, with ID without Down syndrome. The Bruininks-Oseretsky Test of Motor Proficiency (BOT-2) was used to measure 7 items for balance (BAL) and included: BAL-1 and BAL-4, standing with feet apart on a line, eyes open and closed, respectively; BAL-2, walking forward on a line; BAL-3 and BAL-6, standing on one leg on a line, eyes open and closed, respectively; BAL-5, walking on a line heel-to-toe; and BAL-7, standing on a one leg on a balance beam, eyes open.

Results: An analysis of variance (ANOVA) with post hoc Scheffé was performed to determine if motor performance differences existed between BMI classifications for each of the 7 BAL test items. Mean distribution of BMI classification for each ANOVA evaluation was 41%, 28%, and 31% for NW, OW, and OB, respectively. Male and female participants were evaluated separately. For the males: OB classification demonstrated significantly (p<0.02) lower scores than NW for BAL-3 and -7 and for both HW and OW for BAL-6. Near significant (p<0.08) lower scores for OB classification were also seen for BAL-4 and -5. For females, neither significant nor near significant differences were observed between BMI classifications.

Implication/Conclusion: The results suggest that negative relationships between motor competence for balance and BMI classifications may be sex related and should not be generalized for the population of youth with ID.

Can children with visual impairments benefit from imagery?

Pamela Haibach-Beach (SUNY College at Brockport), Melanie Perreault (SUNY College at Brockport), Lauren Lieberman (SUNY College at Brockport)

Introduction: There is much research supporting the benefits of imagery for learning motor skills and preparing for sport. The purpose of this research study was to examine imagery ability in individuals with visual impairments (VI) as there is currently very limited research in this area and no known research in a population of children with VI using imagery for basic movements. This study examined several perspectives of imagery ability including internal imagery, visualizing the movements as if through their own eyes, external visual imagery, visualizing the performance of the entire movement as if watching as an outside observer, and kinesthetic imagery, visualizing the feeling of the movements as if performing them.

Methods: Participants were recruited from two education based sports camps for children and adolescents with visual impairments. The sample consisted of 61 children (35 boys and 26 girls, aged 9-19 years old (M= 12.61 years, SD = 2.12 years). All levels of VI were represented 11% B1 (totally blind), 9% B2 (20/600 and up), 22% B3 (20/200-20/599), and 15% B4 (better than 20/199). The control group consisted of 21 children (14 boys and 7 girls) aged 9-16 years (M = 12.00, SD = 2.01) years. Imagery ability was measured with the Movement Imagery Questionnaire for Children (MIQ-C) consisting of 12 items assessing internal visual, external visual, and kinesthetic imagery on a 7 point Likert scale. Imagery ability scores were calculated by averaging the ratings for each imagery type. For the VI group, a one-way ANOVA was conducted to determine differences in imagery ability and a 2 x 3 ANOVA was conducted to
determine differences in imagery ability between the groups.

Results/Implication: Results revealed no differences between the modalities for the VI group, or based upon gender, age, or level of VI. In addition the control group did not significantly differ from the VI group. These findings indicate that multiple modalities of imagery may be beneficial to children with VI when learning motor skills, preparing for sport, or learning independence skills.

The effectiveness of a mastery motivational climate on overhand throwing for children with a disability in an inclusive physical education setting: A multiple baseline study

Benjamin Miedema (University of South Carolina), Alice M. Buchanan (Auburn University), Vanessa Hinton (Auburn University), Peter A. Hastie (Auburn University), Mary E. Rudisill (Auburn University)

Introduction: Mastery motivational climate (MMC) has been deemed an effective teaching style and evidence-based practice to improve motor skills for both children with and without disabilities in inclusive physical education settings. However, most studies have only examined the effects of MMC using a group comparison design. Additionally, few studies have examined the short and long-term effects of intervention using a single-case design (i.e., multiple baseline or ABAB) specifically of young children with disabilities in inclusive movement-based settings. The purpose of this study was to examine the effects of a four-week MMC intervention on overarm throwing for children with disabilities in an inclusive physical education setting.

Methods: We employed a multiple baseline design (pre/post/retention) with three dyads in total. Each dyad consisted of two children with a disability and four peers without disabilities (N = 18; n = 6 per group). We assessed all participants on the overhand throw using the Test of Gross Motor Development, Third Edition. We implemented a multiple probe across each participant in all dyads to measure the effects of the intervention on children’s over arm throwing.

Results No significant trend was found for any of the dyads in baseline (p = .221-.711). Results revealed a significant change (p = .001-.003) and strong effect (Tau-U = 1) in all three dyads with no overlapping data points. All three dyads accomplished skill mastery (e.g. score 7 out of 8). Two dyads’ maintained skill mastery while one dyad demonstrated regression at retention.

Implications/conclusion: Findings from this study suggest MMC may be an effective instructional strategy for children with disabilities to acquire and retain basic motor skills. Future studies should examine the effects of an MMC intervention on the acquisition and retention of other motor skills (e.g. locomotor and object control) using multiple-baseline design.
Wednesday, October 3, 10:30: Thematic Poster Presentation (Service Learning and Practicum Experiences)

A meta-analysis of the effect of Adapted Physical Activity service learning programs on college student attitudes toward disability

Layne Case (Oregon State University), Willie Chun Lueng (Oregon State University), Jaehun Jung (Oregon State University), Bridgette Schram (Oregon State University), Joonkoo Yun (Oregon State University)

Introduction: Negative attitudes toward disabilities are a common concern in promoting participation and inclusion practices. Increasing contact with people with disabilities has been strongly advocated for improving attitudes toward disabilities, with service-learning opportunities being a common recommendation. Previous studies have reported that adapted physical activity related service-learning experiences may have positive impacts on student outcomes, such as attitudes toward disability. However, other studies have found different results. The purpose of this study was therefore to synthesize the current evidence of the effect of service learning experiences on college students’ attitude using meta-analysis.

Methods: A systematic search of literature was conducted to identify studies examining the effects of service learning on college students’ attitudes. Ten studies, including 1002 participants, were identified. The mean effect sizes were calculated using Hedges’ g. Heterogeneity among effect sizes was assessed with Q and I² statistics.

Results: The overall effect size for the 10 studies was g = .41 (SE=.10, 95% CI=.22-.60; p<.05) using random effects model, indicates that service-learning experiences have a positive but small impact on participant attitudes toward disability. The results also indicated that there is heterogeneity across effect sizes (Q=26.09, I²=65.51; p<.05). This suggests that not all service-learning programs are created equal.

Implication/Conclusion: Although participating in Service Learning Programs may have a positive effect on college students’ attitudes, it is important to identify potential components that differentiate between effective and poor quality programs in future studies. A lack of rigorous research design and vague reports of specific intervention practices made it difficult to assess the important components that may contribute to the differing effects of service-learning programs.

Service-learning: Changes in attitudes toward individuals with disabilities

Jihyun Lee (San Jose State University), Seung Ho Chang (San Jose State University), Justin Haegele (Old Dominion University)

Introduction: The purpose of this study was to identify the effects of hands-on service-learning experiences with children with disabilities on the attitudes and confidence of kinesiology undergraduate students.
Methods: Participants were enrolled in two adapted physical activity courses (Course A= control; Course B = experimental). Both the control and experimental classes attended lectures focusing on physical activity and exercise for individuals with disabilities. For laboratory experiences, the control class engaged in a peer-based movement assessment, whereas the experimental class engaged in a community-based program targeting motor and social skills of children with autism for 8 weeks. A survey packet was completed before and after the course, and included a demographic questionnaire; a self-efficacy question (i.e., how confident are you in your knowledge and skills to work with individuals with disabilities?); and the Multidimensional Attitudes Scale toward Persons with Disabilities (MAS) questionnaire (Findler, Vilchinsky, & Werner, 2007).

Results: Independent-samples t-tests were used to identify any significant differences between two groups at the posttest using gained scores from pretest to posttest in the three attitude categories in MAS as well as self-efficacy scores. Data analyses from usable data (48 [70.6%] in the control group [F=26; M=22; Mean Age=23.6]; 28 [87.5%] in the experimental group [F=14; M=14; Mean Age=23.4]) indicate a significant difference between two groups for the gained scores in Affective (t(74)=-3.17, p=0.002) and Behavior (t(74)=-2.55, p=0.013). The results showed that more positive attitudes in two of the three MAS categories in the experimental group compared to the control group at the posttest. In addition, the experimental group (M=-1.82, SD=1.65) showed more gained scores in the self-efficacy question (t(74)=-2.60, p =0.11) compared to the control group (M=0.62, SD=2.06).

Implication/Conclusion: The implication of the study includes positive effects of hands-on experience on the attitudes of kinesiology students in adapted physical activity courses.

Occupational Socialization Theory: Japanese Graduate Students’ Practicum Experiences Instructing Students with Disabilities in Adapted Physical Education

Takahiro Sato (Kent State University), Yukinori Sawae (University of Tsukuba), Mayumi Saito (University of Tsukuba)

Introduction: Practicum experiences are important to provide to a supported entry to the adapted physical education profession. Recently, there has been serious concern regarding the shortages of APE graduates who are prepared to teach students with disabilities and low retention rates of those working with this population (Healy et al., 2014). In Japan, due to the unique historical and geographical conditions (alternative influence of Eastern and Western culture), Japanese graduate education focused practicum experiences to accumulate the best achievements of other countries, to adapt them to their own conditions, and to apply them in their own “Japan-like” form, that is in combination with their own cultural traditions (Kuchai, 2013). The purpose of the current study was to describe and explain Japanese graduate students’ practicum experiences instructing students with disabilities during APE graduate education. This study was interpreted through the lens of occupational socialization theory (Lawson, 1986). Occupational socialization is a theoretical framework which guides researchers in understanding why teachers think about and teach the way they do (Stran & Curtner-Smith, 2009).

Method: The research design was descriptive-qualitative using an exploratory case study design (Yin, 2003). Ten Participants were graduate (master’s level) students enrolled in Japanese APE graduate
program at one public university located in bordering the Pacific Ocean and Northeast Tokyo of Japan. The researcher asked participants questions as well as solicited their opinions about people, place, and events related to their practicum experiences using a face-to-face focused interview (Yin, 2003).

Results: In the logic of occupational socialization theory (Lawson, 1986), four themes emerged from data analysis: (a) collaborative lesson development in practicum experiences, (b) equity and equality of caring behaviors, (c) lack of teaching experiences of students with severe and profound disabilities.

Implication/Conclusion: The practicum experiences should create graduate students’ learning experiences that not only enhance future APE teachers’ pedagogical content knowledge, but that also increase their awareness of culturally relevant pedagogy and social justice issues.

“I DIDN’T SIGN UP FOR THIS” AND OTHER DILEMMAS OF PROGRAM PLANNING AND IMPLEMENTATION: An analysis of student experiences with planning in two APA programs serving under-served and complex teens and young adults.

Maureen Connolly (Brock University), Elyse Lappano (Brock University), Alexa Oakley (Brock University), Julian Petrachenko (Brock University), Jessica Salvagna (Brock University)

Primary Issues
We are intrigued and frustrated by the apparent resistance to and anxiety about planning exhibited by students who willingly attend APA programs to improve their instructional and accommodation skills. We will analyze two programs from our university: Saturday SNAP, a developmentally appropriate station-based pedagogy activity program using an embedded curriculum and individualized programming for complex profile participants and CHARM (Confident Healthy Active Role Models) an APA program using similar strategies as Saturday SNAP but also employing the TPSR (Teaching Personal and Social Responsibility) model in combination with Arts based programming for teens experiencing mental illness and mental health issues.

Session Significance
Service-based learning courses give students interested in APA a chance to apply the theory they are learning in their degree programs in practical contexts before they graduate. Our students work with actual participants, both designing and implementing physical activity programs with adults, teens, youth and children with complex profiles. Our goal is that they learn not only the appropriate professional and ethical behaviour necessary for their future careers but, more importantly, how to think creatively and respond to changing circumstances. Our theoretical premises for this paper reside in the work of Paulo Freire (1987) and Lev Vygotsky (1962), as well as the work of Noel Entwistle and Paul Ramsden (1983). Freire claimed that learners alienated from their own forms of expression also experience alienation from the larger culture and from their sense of themselves as cultural agents. This alienation is painfully evident when students attempt to use their previously assessed knowledge in an applied context and experience a profound disconnect between material they assumed they had grasped and the practical knowledge that the situation demands. In effect, they are without a form of expression even though they have the assessment grade that supposedly attests to some level of expertise. Their grasp of the subject matter is, in Freire’s terms, naïve - literal to the extent that it is practically useless. They cannot move beyond a single formulation of the problem before them nor
create possible solutions or responses to it. This gap in the ability to plan and implement has significance for program safety, relevance and developmental appropriateness. Analyzing and discussing our cases allows us to present and reflect on issues that we suspect are not ours alone. We are eager to engage with colleagues who may also be experiencing student angst and anxiety related to activity planning and implementation.
**Wednesday, October 3, 12:30: Keynote**

**Fitness and Physical Activity levels of adults and seniors with Intellectual Disability**

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Universitat Ramon Llull  
Barcelona, Spain  

Adults and seniors with intellectual disability (ID) have decreased cardiovascular fitness and lower rates of physical activity (PA). This is associated with a sedentary lifestyle, decreased muscle strength, aerobic capacity, as well as motor and balance problems. There is evidence that PA positively affects health-related physical fitness parameters, which can condition ageing in this population, as their life expectation is getting longer. That is why the promotion of PA and exercise, as well as reduced sedentary behavior, is important in adults and seniors with ID.