

Myth Panel

Whole Grain Dialogue- Fact or Myth Intervention vs Epidemiology- Setting the Stage

Dialogue – Intervention and Observational Studies

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Hierarchy of Human Studies for Evaluating Strength of Evidence of Disease Risk

Randomized clinical trials (RCTs)
of disease outcomes

Randomized trials of
surrogate endpoints

Prospective cohort studies
of disease outcomes/
surrogate endpoints

Retrospective studies of disease outcomes

Case reports

Adapted from Harris W S et al. J. Nutr. 2009;139:804S-819S

Overview of Evidence

Whole Grains and Disease Prevention

- Prospective observational studies of clinical endpoints
 - large and consistent body of evidence relating higher whole grain intake to reduced risk of CVD, diabetes, and colon cancer.
- Prospective observational studies of surrogate endpoints (e.g., weight, waist circumference, blood pressure, insulin resistance)
 - limited evidence but consistent with benefits of whole grains.
- RTCs - none
- Intervention trials of surrogate endpoints
 - in large part, do not support the observational findings

Why don't the intervention trials support the observational studies?

- Possible conclusions based on evidence to date
 - Observational study findings are confounded/invalid as they are not supported by intervention trials
 - Intervention studies, as currently designed, are also susceptible to limitations/bias
- Inappropriate model for whole grain interventions
 - Treatment/therapeutic (drug) vs. prevention (observational)
 - Proposition - use of a therapeutic paradigm for nutritional interventions rather than a preventive paradigm based on observational studies is a large reason for the inconsistency between the whole grain interventions and observational findings and the main reason for the inconsistencies among the WG intervention trials.

Limitations of Nutritional Intervention Trials

- Treatment/therapeutic (drug) vs. prevention (observational) paradigm
 - Subjects: drugs – high risk (patients) vs. prevention – low risk (healthy)
 - Intervention period: drugs – short vs. prevention – long
 - Effect size: drugs – large vs. prevention – small for individual
 - Background exposure: drugs – rare vs. prevention – common
- Other issues specific to nutritional interventions
 - Reduced efficacy of nutritional interventions because of the use of drugs, which may have similar actions.
 - Adherence to treatment protocol
 - Heterogeneity of study populations/whole grain “treatments”
 - Appropriate definition of “placebo treatments”

Whole Grains and Health

What are the facts or myths?

- Current evidence from observational studies represent the truth and we need to design more appropriate intervention trials to better support that evidence.
- We need to rely on evidence from intervention studies of surrogate end points as results of observational studies are likely to be invalid.
- All existing evidence is based on studies with limitations and the role of whole grains in disease prevention is unclear.
- RTCs are necessary to determine if whole grains prevent cardiometabolic diseases and some cancers.