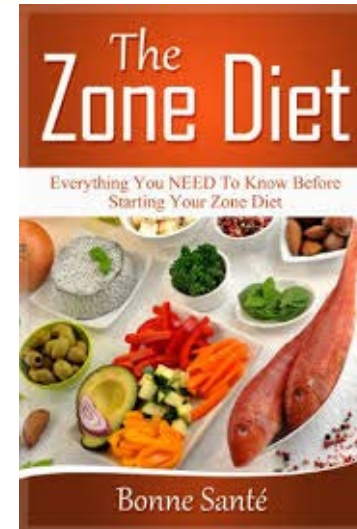


Are Whole Grains The Next 'Protein' For Weight Loss?

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Nutrition Technology & Solutions
General Mills



The Current State of Weight Loss



What Exactly is 'Low-Carb?'



- There is no regulated definition of various low-carb diets, leaving each up for [interpretations](#).
- A particular type of 'low-carb' diet plan, is the ketogenic diet. Common consumer definitely is a very low carbohydrate and high fat eating plan.

Typical ketogenic diet macronutrient ranges (including AMDR and low carb diet references).

Diet Type	% of Total Calories		
	Protein	Carb	Fat
Ketogenic Diet	10-20%	5-15%	60-90%
Low-carb diet	20-30%	20-45%	30-55%
Acceptable macronutrient distribution (AMDR)	10-35%	45-65%	20-35%

‘Low-carb’ and ‘Low-fat’ diets effective for weight loss

On-going debate as to which (if any) eating plans are more effective, and a common comparison is between “low carb” and “low fat” plans. There have been several meta-analyses evaluating these hypotheses.

Meta-Analyses

Meta-Analysis	Comparison	Shows a statistical difference in weight loss?	
		Yes	No
Johnston et al	Various weight loss programs		X
Naude et al.	Low-carb vs. isoenergetic		X
Mansoor et al.	Low-carb vs. low-fat	X	

Key Takeaways:

- Two large meta-analysis found no difference in weight loss between low-carb or low-fat
- One small study found a small statistical difference demonstrating a low-carb diet plan increased weight loss compared to low-fat plans.

Consensus that weight loss is dependent on reducing energy intake!

What About Whole Grains?



Research consistently demonstrates whole grain's association to health benefits across ages and regions



Cardiovascular Health



Digestive health



Weight Regulation

A 2016 meta-analysis confirms well-documented association between WG intake and reduced mortality

Higher whole grain intake lowered risk of total mortality (16-18% reductions), cardiovascular disease mortality (16-18% reductions) and cancer mortality (11-12% reductions)

Whole Grain & Body Weight - what's the scientific evidence?

Can Whole Grain Help in Weight Management?
Frank Thielecke, PhD¹ and Satya S. Jonnalagadda, PhD²

Background: Evidence from epidemiological studies suggests that higher whole grain intake is associated with improvements in body weight measures. Evidence from randomized controlled nutrition studies is controversial.

Objective: To assess the scientific evidence, using a descriptive systematic approach, related to the relationship of whole grain on weight management.

Methods: Medline, Medline Plus, Scopus, Embase, and Science Direct (1980 to July 2013) were searched. 2 reviewers screened independently the resulting literature, using hierarchically derived abstract criteria.

Results: A moderate body of evidence from epidemiological studies associated with lower body weight, BMI, waist circumference, abdominal adiposity, and metabolic risk. The evidence from intervention studies is less consistent, mainly in low-calorie diets. Current evidence is less consistent in demonstrating that whole grain intake can contribute to weight loss independent of hypocaloric diets. The lack of consistency in prospective studies may partly be explained by heterogeneity in study duration, type and amount of whole grain foods included, population, and sample size.

Conclusions: From epidemiological and intervention studies are needed to address the literature observed in the current body of evidence. The heterogeneity in the current literature of whole grain intake and the heterogeneity in a controlled diet. Furthermore, studies need to be conducted on diets that potentially include single grain.

METHODOLOGY

A systematic literature search in Medline and Scopus was conducted. Studies were included in the review if they were epidemiological studies and randomized controlled intervention studies of whole grain versus a non-whole grain control in adults. The period under review was from 1980 to date; the search was completed in July 2013. Two reviewers assessed abstracts independently using hierarchically derived selection criteria:

- Full text in English
- Original research (no comments, no letters), including secondary analyses, reviews, and meta-analyses
- Human studies
- Related to research question (Effects of whole grain on obesity/weight management)
- For epidemiological studies and statistical analysis were appropriate; for intervention studies, in addition to the above, population and type of intervention had to be described

When no abstract was available (date, source, and key words were reviewed. The decisions were recorded and compared. When necessary, the reviewers were contacted for copies of reports. Exclusion criteria were documented. At this stage, articles were included if rejected by one of the reviewers. The original full text of the remaining one reviewer. The original full text of the remaining one reviewer was reviewed with the same criteria if applicable.

Studies Reviewed

Study Type	Number	Show a positive association?	
		Yes	No
Observational Studies	28	27	1
Intervention Studies *including weight-loss studies	16	10	6

*Reduced calorie diets. **Reduced calorie WG diets did not lead to greater weight loss than the reduced calorie control.

Higher whole grain intake is associated with:

- Lower BMIs
- Smaller waist circumference
- Smaller waist-to-hip ratio
- Less weight gain over time

In the context of a reduced calorie diet, WG consumption

- Demonstrates an effect on body weight and/or body composition**
- Improves overall diet quality
- May improve other metabolic risk factors (e.g. blood glucose)

Whole Grain & Body Weight - additional insights



PEOPLE WHO EAT WHOLE GRAIN & FIBER*

Compared with those who ate refined grains without much fiber

- ☼ Took in 92 fewer calories per day
- ☼ Tend to have healthier body weights
- ☼ Reduce the risk of premature death

* Recommended daily level of fiber

The infographic is set against a background of a white bowl filled with various whole grain cereals, including ring-shaped cereals and bran flakes, on a wooden surface. A semi-transparent white box contains the text and icons.

- A study published in 2017 aimed to determine the effects of substituting whole grains for refined grains, on energy-metabolism, independent of body weight change
- Suggests positive effects of whole grains on resting metabolic rate and stool energy excretion that **favorably influence energy balance**

**Weight change was not observed as the study was designed to be weight maintenance*

AJCN, Karl et al.

What's Next?: Meta-Analysis Review Of Whole Grain & Weight



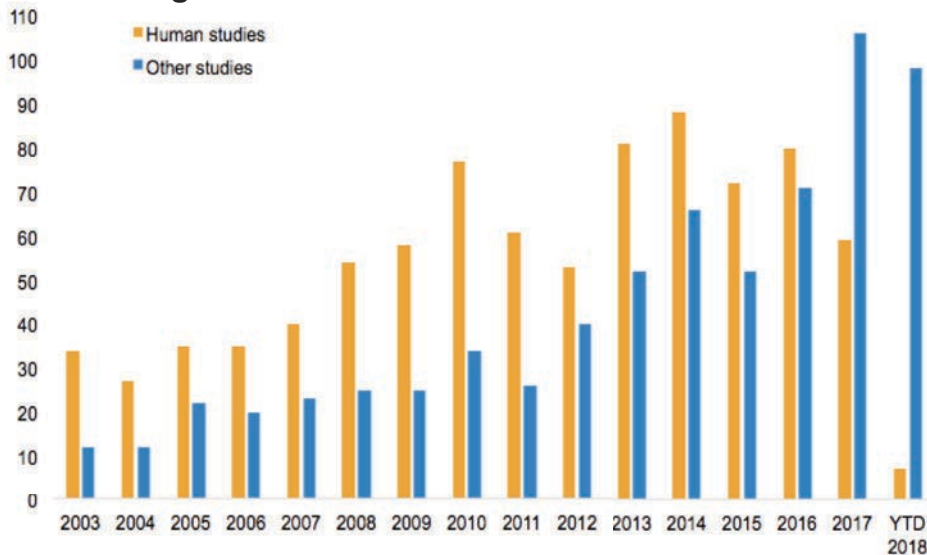
- **Effects of Whole Grain intake on body weight and composition:** *A review of the current state of the literature from observational studies and randomized, controlled trials*
 - Looking at all Observational & Intervention Evidence
 - Strict, transparent approach to inclusion & exclusion criteria
 - *Prelim results show* are consistent with 2014 review paper

Does Volume of Science Influence A Trend?

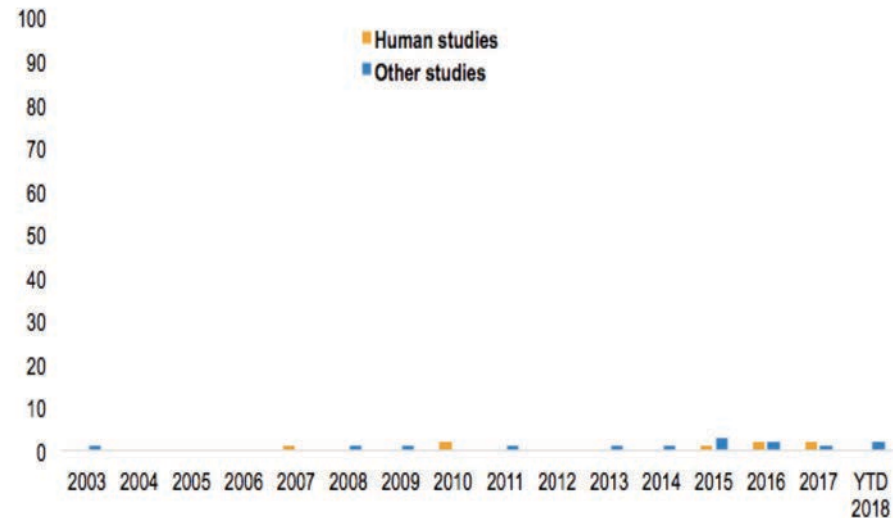
- For **protein** and weight management there are over 600 human studies published
- Studies on **whole grain** and weight management are less than 30.

A continuing stream of published science is fuel for online discussion for journalists, bloggers and consumers.

Number of published studies: protein & weight management



Number of published studies: wholegrain & weight management



Sources: PubMed

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Is Whole Grain the Next Protein for Weight Loss?

Maybe?!

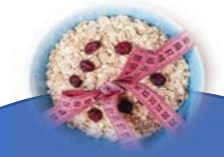
Nutrition Science
& Publications



Celebrities & Influencers



Weight Loss
Trends



Media Pick-Up &
Attention



New Product
Innovation



The New York Times

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