



Fibersol[®]

Powerful Benefits, Backed by Science

FIBER-FORWARD NUTRITION BACKED BY DECADES OF EXTENSIVE RESEARCH

In search of health-forward nutrition to fuel a better-for-you lifestyle, today's consumers want foods that contain dietary fiber. **Fibersol[®] delivers well-tolerated dietary fiber as well as functional benefits**, all backed by high quality clinical studies conducted on actual Fibersol[®] products.

Fibersol[®] is documented to be a well-tolerated dietary fiber that can enable claims in a range of categories:



Digestive Health



Prebiotic



Blood Sugar and
Insulin Levels

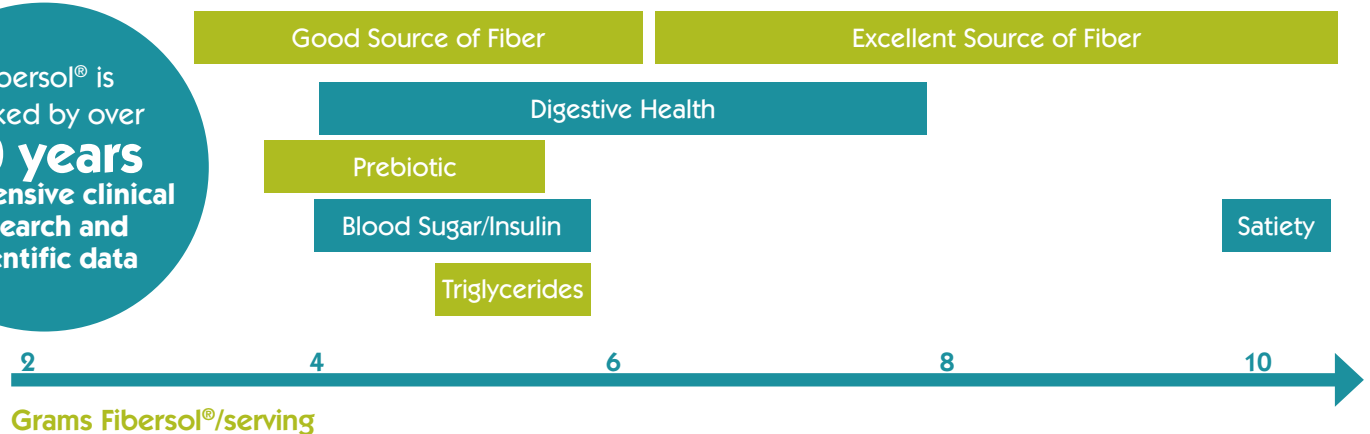


Triglycerides
Levels



Satiety

Fibersol[®] is backed by over **30 years** of extensive clinical research and scientific data



Fibersol® in the Body

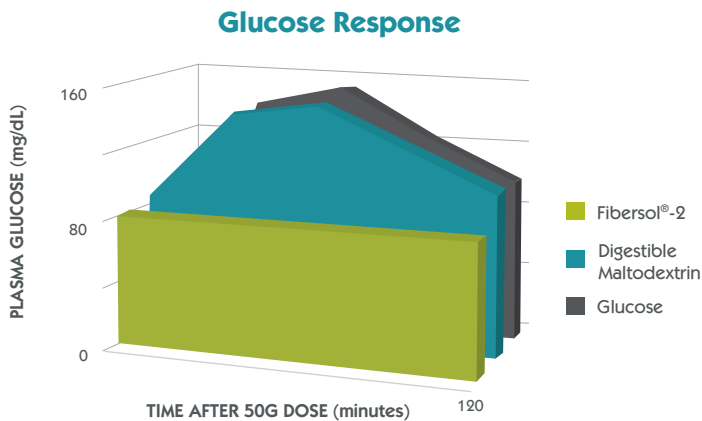
A HIGH-QUALITY, WELL-TOLERATED FIBER

Fibersol® can help deliver the desired benefits of fiber **with no or minimal digestive intolerance or gastric discomfort** of other types of dietary fiber.

Fibersol® has over 4x the tolerance of inulin.

Fiber	Limit	Reference
Fibersol®	68 grams per day	<i>Y. Kishimoto et al., 2013</i>
Inulin	10 to 15 grams per day	<i>A. Bonnema et al., 2010</i>
Oligofructose	5-10 grams per day	<i>A. Bonnema et al., 2010</i>
Polydextrose	15 grams per day	<i>As codified by FDA</i>

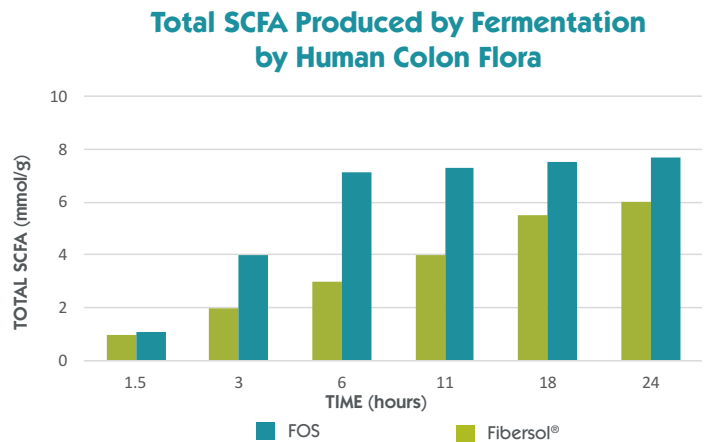
Fibersol® is **low in simple sugars**, making it a great ingredient for products formulated for reduced sugar and lower calories. 10g of Fibersol® adds just 0.02g of sugar (less than 0.1 calories from sugar!).



Virtually **no serum glucose response** speaks to Fibersol®'s status as a low-calorie ingredient

Reference: Okuma, K. (2002). *J Appl. Glycosi.* 49: 479-485 Study on the chemical make up and indicates that the structure of resistant maltodextrin will not be digestible because of the alpha 1-2 and 1-3 linkages present.

Fermentation of Fibersol® in the gut yields SCFAs and enhances mineral absorption which **support health, including an increase of beneficial gut microbes.**



Measurements of SCFA after consumption speak to Fibersol®'s status as a **slow fermenting fiber.**

Reference: Fahey, GC. *J. Nutr.*, 130, 1267-1273 In vitro fermentation experiments on human colon microflora showing an increase in SCFA and a slower reduction in pH compared to other fibers, e.g. FOS, which indicates less digestive discomfort from off-gas.

*SCFA: short chain fatty acids



Digestive Health

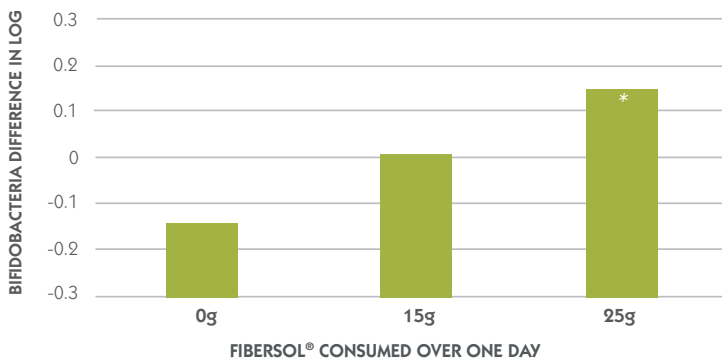
Fibersol® is a **prebiotic fiber** that **addresses consumers' interest in digestive health**. Not all fiber is equal! Only fiber that results in the growth of beneficial bacteria within the gut can be called prebiotic.



Clinical studies show that **3.75g* of Fibersol® per serving** may help **nourish the intestinal flora** and **maintain a healthy intestinal tract environment**.

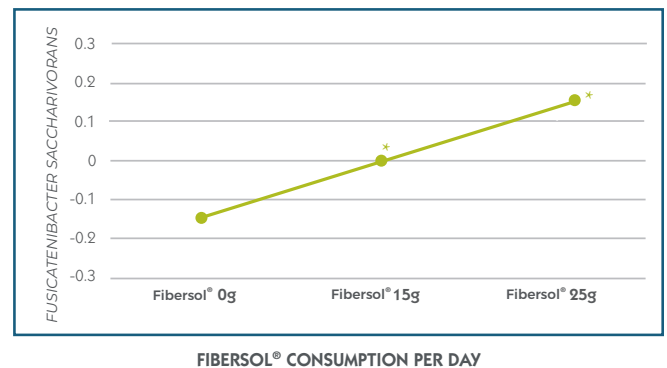
*For a total of 15g per day over 3 weeks.

Bifidobacteria counts increased significantly with increasing intake of Fibersol®



*p=0.0084 vs. 0g

qPCR-detected changes in log₁₀ counts of targeted fecal bacteria.



*p<0.05 vs 0g

Reference: Burns A. (2018). Nutrition Research, 60, 33-42

25g/day Fibersol® double blind study (51 subjects) showed significant increase in fecal bifidobacteria counts.

Reference: Mai et al. 2022

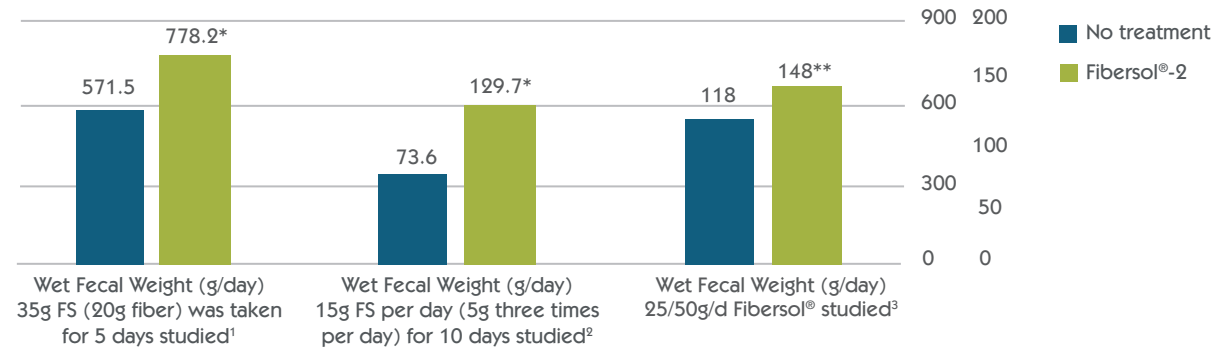


Digestive Health



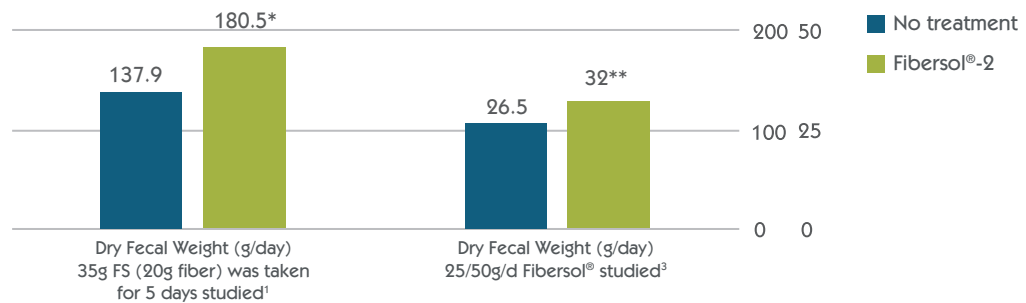
Studies demonstrate **Fibersol®** was shown to increase wet and dry fecal weight. Increases in stool frequency were also reported.

Wet Fecal Weight

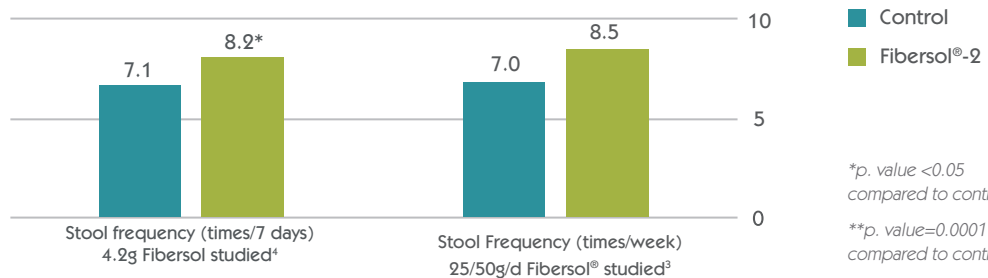


Clinical studies show that **4-8g of Fibersol® with each meal** helps support or maintain **intestinal regularity**.

Dry Fecal Weight



Stool Frequency



References

1. Satouchi, M. et al (1993)
2. Kishimoto, Y. et al (2009)
3. Baer, DJ. et al (2014)
4. Furukawa, T. et al. (2004)

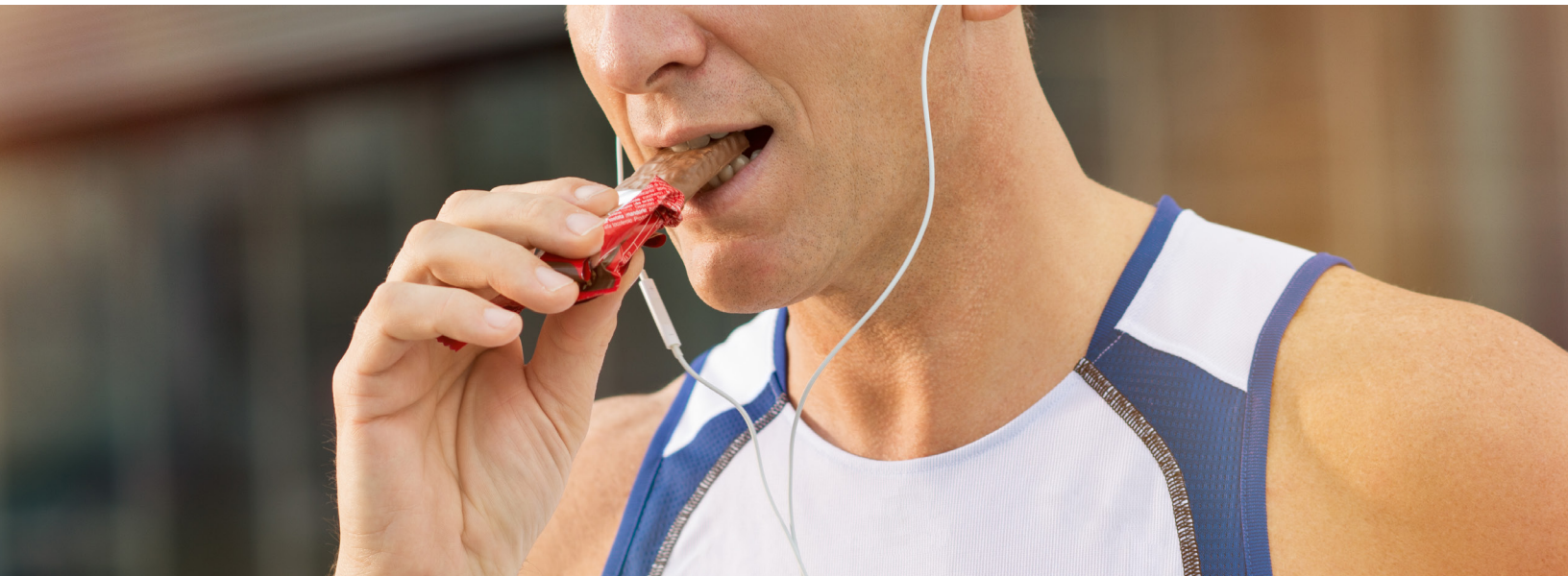
*p. value < 0.05 compared to control

**p. value = 0.0001 compared to control

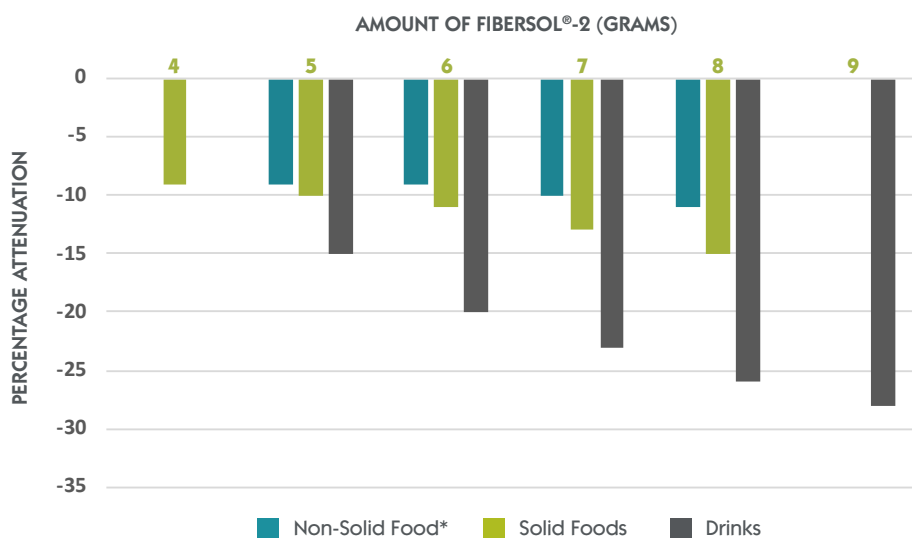


Post-Meal Blood Glucose and Insulin

Fibersol® can **support metabolic health** as studies have shown that Fibersol® reduces blood glucose and insulin response following a meal in healthy adults. Consumers are making the connection between consuming certain foods and experiencing suboptimal feelings afterwards. Luckily, Fibersol® can help deliver the desired **benefits of fiber with no or minimal discomfort**.



Fibersol® attenuates glycemic response across product categories



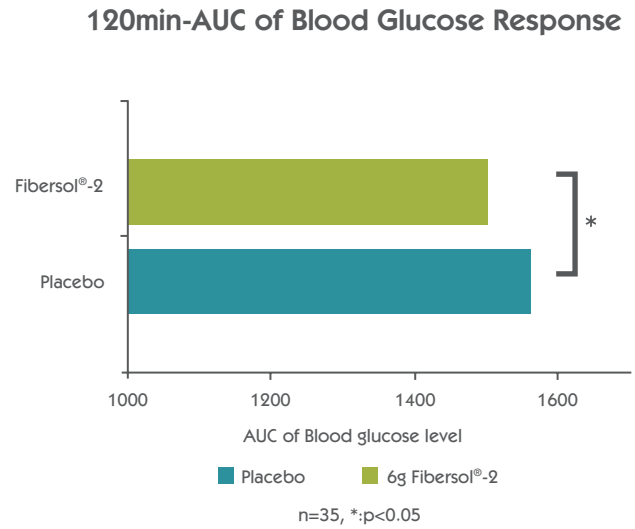
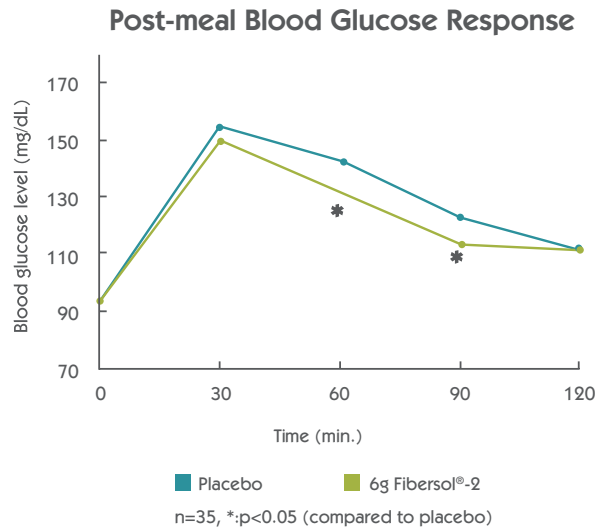
*Non-solid foods include tomato and miso soups, and soft foods like yogurt

Reference: Tokunaga, K. (1999). J. Japan Diab. Soc., 42, 61-65

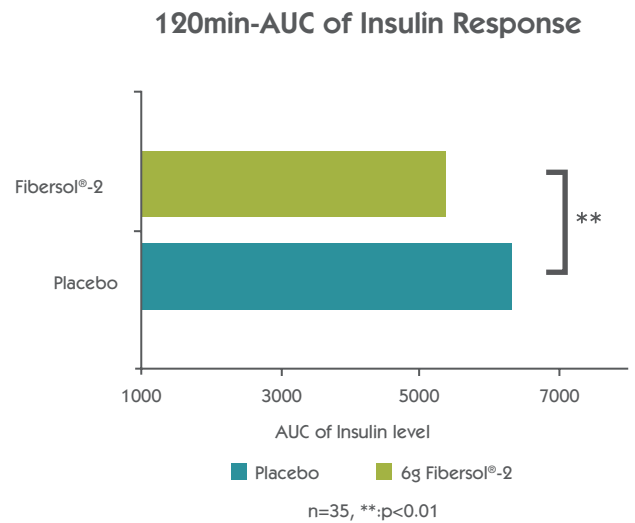
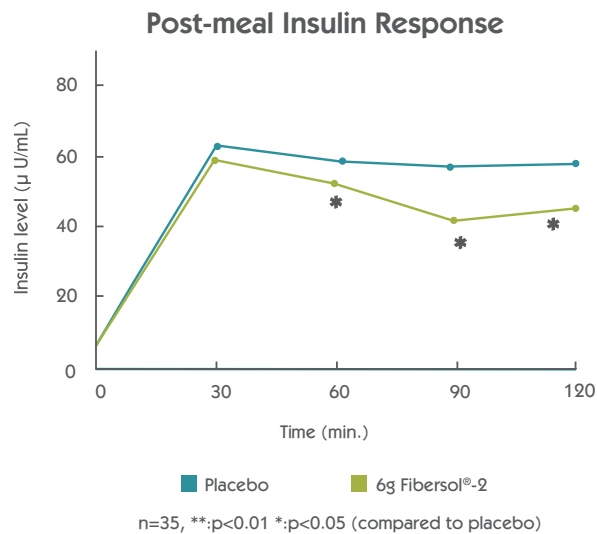


Post-Meal Blood Glucose and Insulin

5-6g of Fibersol® taken with a meal shows a significant improvement in post-meal blood sugar levels and insulin response in healthy adults.



Clinical studies show that 4-6g of Fibersol® helps reduce blood sugar levels and helps minimize blood sugar spikes after a meal that are within the normal range in healthy individuals.



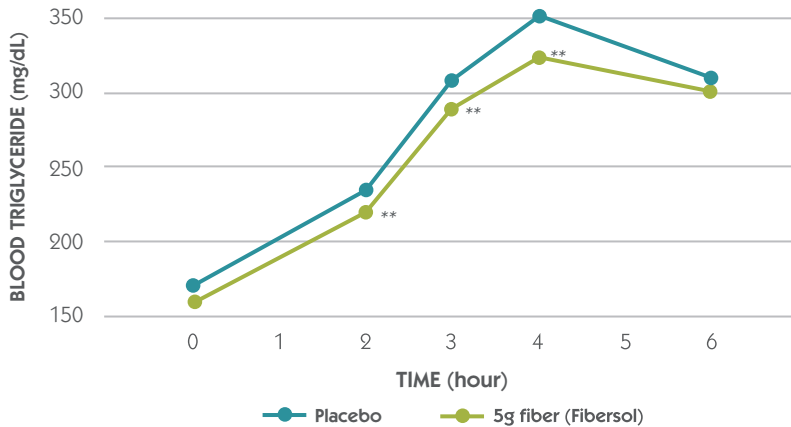
Reference: Yuasa, M. et al (2004) Jpn Innov Food Ingrid Res 7:83-93



Post-Meal Triglycerides

Fibersol® helps **maintain healthy triglyceride levels**, offering consumers **potential wellness benefits**. Today, consumer awareness around cardiovascular and overall health and the impact of high triglyceride levels is growing.

Fibersol®-2 Attenuation of Post-Meal Triglycerides



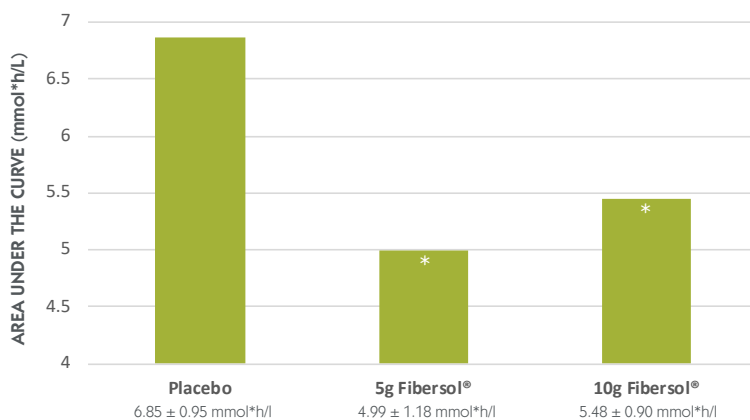
Participants consumed a carbonated beverage with a high-fat meal. The participants whose beverage included 5g of Fibersol® showed significantly lower postprandial serum triglycerides compared to a placebo.

Reference: Tanaka, T. et al. (2011), *Jpn. Pharmacol Ther.*, **339: 813-821** Randomized double-blind crossover study (73 subjects) on carbonated beverage with 5g resistant maltodextrin taken with high fat meal (42g fat) showed significantly lower postprandial serum triglycerides compared to placebo.

*n=73 Only 73 subjects were included after not meeting inclusion criteria
**p<0.01 compared to placebo*

Clinical studies show that **5-6g of Fibersol® per serving** helps **attenuate the rise in blood triglycerides** following the meal and helps **support healthy blood triglyceride levels**.

Post-Meal Serum Triglyceride Levels



Participants consumer a carbonated beverage with or without Fibersol® with a high-fat meal. At 5g and 10g served with a meal, Fibersol® helped retain healthy triglyceride levels.

Reference: Kishimoto, Y. et al. (2007), *Eur. J. Nutr.*, **46:133-138** Single blind study (13 subjects) using high fat meal (50g fat) and placebo, 5g Fibersol® and 10g Fibersol®. Both Fibersol® doses resulted in significantly lower triglyceride levels compared to placebo.

**p<0.05 compared to placebo*

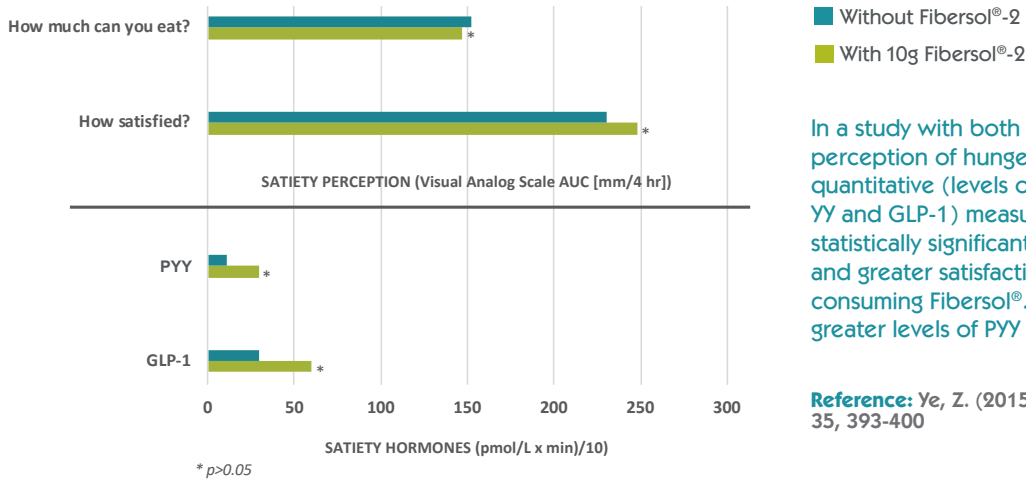


Satiety

Fibersol® may provide products with satiety benefits that may help consumers feel fuller, longer.

Prompted by everything from weight management efforts to holistic health support, consumers are looking for positive nutrition and satisfying eating experiences.

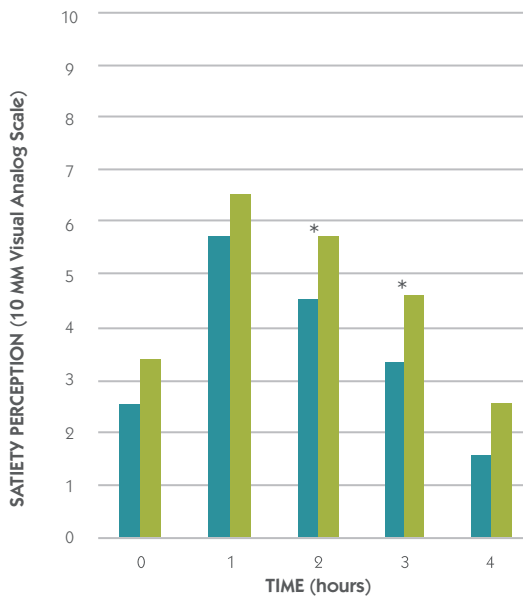
4 Hours After a Meal



In a study with both qualitative (reported perception of hunger and satisfaction) and quantitative (levels of satiety hormone peptide YY and GLP-1) measures, results showed statistically significant lower levels of hunger and greater satisfaction up to 4 hours after consuming Fibersol®. This was accompanied by greater levels of PYY and GLP-1.

Reference: Ye, Z. (2015). Nutritional Research, 35, 393-400

A clinical study shows that **10g of Fibersol® with a meal** may **delay hunger and stimulate appetite-regulating hormones.**



Satiety Perception

11g Fibersol®
Control

Study participants consumed a beverage in the morning and reported their perception of satiety over the following 4 hours. Participants whose beverages included Fibersol® reported higher levels of satiety at 2 and 3 hours.

Reference: Fernandez-Raudales, D. (2018). J. FNS., 9, 751-762

Scale: 10 = extremely satisfied, 0 = not at all satisfied *p<0.05 compared to placebo

CLAIMS YOU CAN TRUST



Digestive Health

At 4-8g of Fibersol® daily for 2 weeks, clinical studies have shown that Fibersol®:

- Helps support or maintain intestinal regularity
- Helps relieve occasional constipation
- May support gut health
- Improves stool consistency (selected studies)



Prebiotic

At 3.75g of Fibersol® per serving, a clinical study has shown that Fibersol®:

- May help nourish the intestinal flora and maintain a healthy intestinal tract environment*

*For a total of 15g per day over 3 weeks (Mai V. (2022) Nutrients. 14(11), 2192)



Satiety

10g of Fibersol® with a meal may:

- Delay hunger and stimulate appetite-regulating hormones



Post-Meal Blood Glucose and Insulin

At 4-6g of Fibersol® with each meal, clinical studies have shown that Fibersol®:

- Helps reduce blood sugar levels after a meal that are within the normal range in healthy individuals
- Helps minimize blood sugar spikes after a meal that are within the normal range in healthy individuals
- Helps reduce blood insulin response after a meal that is within the normal range in healthy individuals
- Helps reduce the rise in blood insulin levels after a meal that is within the normal range for healthy individual



Post-Meal Triglycerides

At 5-6g of Fibersol® with each meal, clinical studies have shown that Fibersol®:

- Helps attenuate the rise in blood triglycerides following the meal that are within the normal range in healthy individuals
- Helps retain healthy triglyceride levels



Fibersol® is supported by the joint venture between Archer Daniels Midland Company, Matsutani Chemical Industry Co., Ltd., and Matsutani America, Inc., a global selling and marketing partnership combining strong technical and scientific expertise with a vast global production and transportation network, for a high-quality food ingredient backed by attentive, reliable service and supply.

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