

Emerging Oat Science for Registered Dietitians

For more than 140 years, Quaker has been a leading expert in oats and continues to be a pioneer in exploring all the oat has to offer. Our world-class nutrition science team works with leading researchers to study the oat's nutrient value and its impact on global public health priorities and issues. To date, research has uncovered connections between this powerful whole grain and several health benefits.

Cardiovascular Health

Established science shows that oats can contribute towards maintaining a healthy cardiovascular system by helping to lower LDL cholesterol. Additionally, emerging science suggests that oats may help to maintain a healthy cardiovascular system by helping to regulate blood pressure.

Cholesterol

Research shows that the soluble fiber found in oats – called beta-glucan – helps reduce LDL cholesterol levels, which may in turn help reduce the risk for coronary artery disease when part of an overall diet low in saturated fat and cholesterol.⁽¹⁻³⁾ So how does this work?

Research suggests there is more than one mechanism by which oats help support heart health. First, beta-glucan helps lower blood cholesterol by triggering the liver to pull LDL cholesterol from the bloodstream for excretion and binding some of the cholesterol in your digestive tract, preventing it from ever entering the bloodstream. Secondly, recent research also suggests this effect is partly due to the ability of beta-glucan prebiotic fiber to increase beneficial bacteria in the gut, which may influence cholesterol metabolism. Three grams of soluble fiber from oatmeal can provide this prebiotic effect.^(4,5)

Beta Glucan's Impact on Total and LDL on Cholesterol

A recent meta-analysis of 28 randomized controlled trials found that consuming at least three grams of oat beta-glucan daily significantly reduced total and LDL cholesterol by 0.30 mmol/L (11.6 mg/dL) and 0.25 mmol/L (9.7 mg/dL), respectively, compared to the control group.⁽¹⁾

Oats Earn First Food-Specific Health Claim

The U.S. Food and Drug Administration (FDA) approved oatmeal as part of the first food-specific health claim and Quaker played an important role in this process. Quaker presented the FDA with sufficient scientific evidence about the cholesterol-lowering benefits of oats to support the authorization of the claim. Soluble fiber from oatmeal daily in a diet low in saturated fat and cholesterol may reduce the risk of heart disease. Three grams daily are needed for this benefit. One bowl of Old Fashioned Quaker Oatmeal provides two of those grams.



Cardiovascular Health *(cont.)*

Blood Pressure

The role of oats in blood pressure regulation is a growing area of research and is still under investigation. However, some studies have suggested a positive effect of beta-glucan on blood pressure levels.

- A clinical trial in healthy adults with slightly elevated blood pressure suggested that eight grams per day of soluble fiber from oat bran reduced total blood pressure by 2.0 mmHg and diastolic blood pressure by 1.0 mmHg compared to baseline.⁽⁶⁾
- In hypertensive adults, a small pilot study suggested a reduction in blood pressure (7.5 mmHg and 5.5 mmHg decrease in systolic and diastolic, respectively) after consuming 5.5 grams of beta-glucan from oat cereal.⁽⁷⁾
- To further support these findings, a systematic review and meta-analysis of 18 controlled trials suggested an association between diets rich in beta-glucan and lower blood pressure.⁽⁸⁾

While research has suggested beneficial associations between oat beta-glucan and blood pressure, this topic is still evolving and more large-scale, long-term studies are needed.

Digestive Health



It is well established that dietary fiber from whole grains, like oats, supports digestive health.⁽⁹⁾ However, many things impact how well our digestive system works at any age. A recent single-arm clinical study in 33 children (ages 7-12 yrs) demonstrated that oatmeal consumption helped increase fiber intake and reduce some GI symptoms.⁽¹⁰⁾ With aging, whether because of decreased physical activity, lower muscle tone or reduced water intake, the digestive tract might start slowing down, which makes it important to consume enough fiber to help maintain regularity.⁽¹¹⁾ **Overall, experts recommend eating at least 25 to 38 grams of fiber a day from a variety of grains, fruits and vegetables to help support a healthy digestive system. As a good source of fiber, oats are a great place to start.**^(12,13)

Getting enough fiber may be particularly challenging for people who have specific dietary needs like those with celiac disease or other gluten sensitivities, since several whole grains, such as wheat, rye and barley are off limits. Specially-marked Quaker® Gluten Free Oats meet the same nutrition and taste standards as all of our oatmeal products, which are 100% whole grain per serving and a good source of fiber and other essential vitamins and minerals.



Fiber Fact:

Oats are a Good Source of Fiber

 <p>½ cup = 4 grams dietary fiber</p>	 <p>½ cup = 4 grams dietary fiber</p>
 <p>¼ cup = 4 grams dietary fiber</p>	 <p>1 packet = 3 grams dietary fiber</p>

Note: Dietary fiber amounts based on 40 grams of uncooked Quaker Old Fashioned, Quick and Steel Cut Oats and 28 grams of Quaker Original Instant Oatmeal.

Energy

Current scientific evidence supports that oats provide lasting energy. Findings from a recent randomized, cross-over study showed that oats deliver a slowly absorbed supply of energy to the body over a 2-4-hour period.⁽¹⁴⁾ **This may, in part, be due to beta-glucan, the soluble fiber in oatmeal, which may help slow digestion, and the release of glucose into the blood stream, providing a slower supply of energy.**

Additionally, there may be benefits from consuming oats in the form of overnight oats for steady energy. In a randomized crossover study, adults without diabetes consumed overnight oats after fasting overnight and demonstrated glucose and insulin responses 33% lower than those who ate a cooked rice cereal.⁽¹⁵⁾ There are several mechanisms that account for this effect, including the thickness of the rolled, whole oat flake and consuming the oat uncooked helps slow down digestion, as well as the absorption and release of glucose.



Satiety

The scientific evidence is growing on the role that oatmeal may play in promoting satiety. While multiple factors contribute to how much people eat, foods that enhance satiety may help individuals resist environmental cues like sight, smell, and variety of food. Oatmeal has been shown to enhance satiety, possibly due to the viscosity of beta-glucan fiber.^(16,17)

Current studies indicate that oatmeal may help people feel full in the morning, particularly when part of a balanced breakfast.⁽¹⁸⁻²⁰⁾ Findings from a 2015 study showed that, compared to ready-to-eat cereal, oatmeal was associated with significantly greater fullness, less hunger and slower gastric emptying, as well as lower calorie consumption at the next meal.⁽¹⁸⁾ Additionally, two randomized crossover trials found oatmeal significantly increased fullness, reduced hunger, suppressed appetite and decreased energy intake at the subsequent meal compared to a ready-to-eat cereal.^(19, 20)

Previously, two smaller studies conducted in healthy and overweight subjects demonstrated beta-glucan can help reduce short-term appetite by regulating hunger hormones released by the gut.^(21,22) The combined effects of increased satiety and reduced appetite may contribute to reduced overall calories that are consumed throughout the day.⁽²³⁻²⁵⁾

Weight Management

As part of an overall healthy lifestyle, the soluble fiber in oatmeal may help support healthy weight management. Managing a healthy weight is about making sensible choices every day, including regularly exercising and choosing foods like whole grains, fruits and vegetables, and lean proteins. Research has also shown that including three grams of soluble fiber from oatmeal as part of those daily balanced food choices may help.⁽²³⁾



Diet Quality

A recent analysis of data from the National Health and Nutrition Examination Survey (NHANES) 2011–2014 showed that **an oatmeal-containing breakfast was associated with better diet quality and higher intake of key food groups and nutrients, including whole grains and fiber, compared to other breakfasts in children aged 2–18 years old.**⁽²⁶⁾ This is in agreement with a previous analysis of 2001–2010 NHANES data that suggested consumers who eat oatmeal also tend to be healthier in general.⁽²⁷⁾ They tend to have lower body weight compared to non-consumers; are less likely to smoke; and they tend to have higher intakes of protein, fiber, vitamins; and lower intake of saturated fats and cholesterol.⁽²⁷⁾

Not only can oatmeal contribute to better diet quality, research has also shown it is an affordable whole grain option. A recent study analyzed NHANES data to determine what foods and beverages Americans consume that contribute to their whole grain intake. Researchers then ranked these from least expensive to most expensive and found that oatmeal is the most cost-effective source of whole grains.⁽²⁸⁾ This is an important finding since about 98% of Americans do not meet the Dietary Guideline that half of their grain intake should come from whole grain sources and cost has been found to be a barrier to increasing consumption.⁽¹¹⁾ Oats can be an affordable source of fiber in the American diet.



Blood Glucose Management

Another potential benefit on the horizon relates to blood glucose management, as emerging evidence suggests that oats may have an impact. Overall, data indicates that beta-glucan may improve glycemic control in healthy individuals.⁽²⁹⁾

- A study in healthy, older women showed that consumption of oat products resulted in a reduced glycemic response compared to consumption of glucose.⁽³⁰⁾
- A meta-analysis study that combined data from 16 independent clinical and observational studies suggested there may be a beneficial effect of oat intake on glucose control and lipid profiles in patients with type 2 diabetes. Further research is needed to explore this emerging area of study.⁽³¹⁾
- Similarly, a review of existing studies found that oat foods containing at least four grams of beta-glucan may reduce the blood glucose response after a meal in healthy individuals.⁽³²⁾

Additional research is needed to fully understand this outcome and confirm the effect in other populations, but it's another interesting area to watch.⁽³³⁾

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