



Nutrition Centre

By TATE & LYLE

PROMITOR[®]
Soluble Fibre
and its potential
role in immune
health

At Tate & Lyle, we continue to build on our 160 years of experience, and through research and innovation, we're learning a lot about the various potential health benefits of PROMITOR[®] Soluble Fibre for consumers and how it can positively impact the future of food.

The potential health benefits of PROMITOR[®] Soluble Fibre include*:

- Supporting calcium absorption and bone calcium retention, potentially contributing to bone health.¹⁻⁴
- Supporting gastrointestinal health.⁵⁻⁷
- A good digestive tolerance.⁶⁻¹⁰
- Maintaining healthy post-meal blood glucose levels (when used to substitute sugar or other digestible carbohydrates).¹¹⁻¹⁴

Some of the most exciting emerging data suggest that PROMITOR[®] Soluble Fibre could have a beneficial effect on the immune system*.^{2,6,15,16}

To understand the link between PROMITOR[®] Soluble Fibre and the immune system, it's good first to have an overview of what the immune system is, why it's important, and the different factors that can affect how it works.

What is the immune system?

The immune system is a complex network of cells, tissues and organs designed to help keep your body healthy.¹⁷ It's the body's main defence against pathogens.¹⁸

What is a pathogen?

Put simply, pathogens are any organisms that can cause harm to our health. Pathogens are made up of different organisms, including some bacteria, viruses, fungi and worms.¹⁹

Why is it so important?

The immune system works nonstop to keep us healthy. Without it, we'd be at constant risk of harm and would have no defence against anything, from small cuts and the common cold to more serious conditions such as cancer.

What affects the function of the immune system?

A lot of things can affect how the immune system works and how effectively it functions to keep us healthy. Some of these factors are completely out of our control, for instance:

- Genetics
- Age
- Illnesses we've already experienced and ongoing chronic illness

However, some factors are in our control, such as:

- How much we exercise
- The choices we make about vaccinations
- Stress levels
- Smoking and alcohol intake
- Diet

Dietary fibre and immune health

In order to function as they should, the cells in the immune system require nutrients that are present in the food we eat. There's a wealth of research out there into the health benefits of eating more dietary fibre,¹⁻⁵ and it's been shown to:

- Help with managing caloric intake for healthy weight management (when used to substitute sugar or other digestible carbohydrates)
- Support cardiovascular health
- Temper spikes in blood sugar levels (after meals)
- Promote a healthy gut

In addition, a diet high in fibre can help to reduce the risk of certain diseases, including diabetes, some cancers and heart disease.²⁰⁻²²

Despite this, the fibre intake of the global general population falls well below the recommended levels.²¹



PROMITOR[®] Soluble Fibre and its potential role in immune health*

Some fibres may also play a potential role in immune health.^{23,24}

Research studies suggest that:

- PROMITOR[®] Soluble Fibre acts as a prebiotic fibre, which can help to maintain the balance of gut microbiota^{5,16,25} and potentially support immune health.
- PROMITOR[®] Soluble Fiber is believed to provide these potential benefits by:
 1. Supporting the production of short-chain fatty acids (SCFAs), which can increase the activity of immune system cells.¹⁰
 2. Increasing specific bacteria that promote the activation of immune cells.⁷
 3. Helping to preserve the gastrointestinal cells and mucus that make up the gut barrier in the colon²⁵ – the body's first line of defence from food-borne pathogens.

Bridging the fibre gap to help support immune health

Consumers already understand the importance of dietary fibre. That's why they're already actively looking across various food and beverage categories for products that can easily help them increase their fibre intake.

Adding PROMITOR[®] Soluble Fibre to the products consumers enjoy is a simple way to bridge the fibre gap without increasing their calorie content (when used to substitute sugar or other digestible carbohydrates)¹² or affecting their taste and texture.



Innovating for the future of nutrition

Since the COVID-19 pandemic, consumers have an increased awareness of immune health, and attitudes have shifted to focus on how it can be improved.²⁶

Helping consumers to increase their fibre intake ensures products are meeting consumer needs – which is vital in today’s marketplace.

As we continue to discover more about the true impact of dietary fibre on health, from prebiotic benefits to potentially supporting the immune system, we understand more about the importance of innovation in nutrition that allows consumers to easily increase their fibre intake without compromising the taste and texture of products they love.

That’s what makes PROMITOR[®] Soluble Fibre the extraordinary ingredient for everyday life, for today and the future.

References

1. Weaver CM, et al. 2010. Novel fibers increase bone calcium content and strength beyond efficiency of large intestine fermentation. *J Agric Food Chem.* 25;58(16):8952-7.
2. Whisner CM, et al. 2014. Soluble maize fibre affects short-term calcium absorption in adolescent boys and girls: a randomised controlled trial using dual stable isotopic tracers. *Br J Nutr.* 112:446-56.
3. Whisner CM, et al. 2016. Soluble corn fiber increases calcium absorption associated with shifts in the gut microbiome: a randomized dose-response trial in free-living pubertal females. *J Nutr.* 146:1298-306.
4. Jakeman SA, et al. 2016. Soluble corn fiber increases bone calcium retention in postmenopausal women in a dose-dependent manner: a randomized crossover trial. *Am J Clin Nutr.* 104:837-43.
5. Arroyo MC, et al. 2023. Age-dependent prebiotic effects of soluble corn fiber in M-SHIME® gut microbial ecosystems. *Plant Foods Hum Nutr.* Mar;78(1):213-220.
6. Vester Boler BM, et al. 2011. Digestive physiological outcomes related to polydextrose and soluble maize fibre consumption by healthy adult men. *Br J Nutr.* 106:1864-71.
7. Timm DA, et al. 2013. Polydextrose and soluble corn fiber increase five-day fecal wet weight in healthy men and women. *J Nutr.* 143(4):473-8.
8. Sanders L, et al. 2008. A novel maize-based dietary fiber is well tolerated in humans. *FASEB J.* 22:lb761.
9. Stewart ML, et al. 2010. Evaluation of the effect of four fibers on laxation, gastrointestinal tolerance and serum markers in healthy humans. *Ann Nutr Metab.* 56(2):91-8.
10. Housez B, et al. 2012. Evaluation of digestive tolerance of a soluble corn fibre. *J Hum Nutr Diet.* 25(5):488-96.
11. Canene-Adams K, et al. 2021. A randomized, double-blind, crossover study to determine the available energy from soluble fiber. *J Am Coll Nutr.* 40(5):412-418.
12. Canene-Adams K, et al. 2022. Estimating the potential public health impact of fibre enrichment: a UK modelling study. *Br J Nutr.* 128(9):1868-1874.
13. Cervantes-Pahm SK, et al. 2009. Digestible energy in resistant starch and dietary fiber sources fed to pigs. *J. Anim. Sci.* 87, E-Suppl. 2.
14. Fastinger ND, et al. 2007. Glycemic response and metabolizable energy content of novel maize-based soluble fibers F4-809, F4-810 and F4-810LS using canine and avian models. *FASEB J.* 21:A744.
15. Costabile A, et al. 2017. Effects of soluble corn fiber alone or in synbiotic combination with *Lactobacillus rhamnosus* GG and the pilus-deficient derivative GG-PB12 on fecal microbiota, metabolism, and markers of immune function: a randomized, double-blind, placebo-controlled, crossover study in healthy elderly (saimes study). *Front Immunol.* 12;8:1443.
16. Costabile A, et al. 2016. Prebiotic potential of a maize-based soluble fibre and Impact of dose on the human gut microbiota. *PLoS One.* 5;11(1):e0144457.
17. Marshall JS, et al. 2018. An introduction to immunology and immunopathology. *Allergy Asthma Clin Immunol.* 12;14(Suppl 2):49.
18. InformedHealth.org [Internet]. Cologne, Germany: Institute for Quality and Efficiency in Health Care (IQWiG). 2006. The innate and adaptive immune systems. [Updated 2020 Jul 30]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK279396/>
19. Alberts B, et al. 2002. *Molecular Biology of the Cell.* 4th edition. New York: Garland Science. Introduction to pathogens. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK26917/>
20. Institute of Medicine, Food and Nutrition Board. 2002/2005. *Dietary Reference Intakes: energy, carbohydrates, fiber, fat, fatty acids, cholesterol, protein and amino acids.* Washington, DC: National Academies Press.
21. Stephen AM, et al. 2017. Dietary fibre in Europe: current state of knowledge on definitions, sources, recommendations, intakes and relationships to health. *Nutr Res Rev.* 30(2):149-190.
22. Dietary Guidelines Advisory Committee. 2015. Report of the dietary guidelines advisory committee on the dietary guidelines for Americans.
23. Schley PD, Field CJ. 2002. The immune-enhancing effects of dietary fibres and prebiotics. *Br J Nutr.* 87 Suppl 2:S221-30.
24. Venter C, et al. 2022. Role of dietary fiber in promoting immune health—an EAACI position paper. *Allergy.* 77(11):3185-3198.
25. Maathuis A, et al. 2009. The effect of the undigested fraction of maize products on the activity and composition of the microbiota determined in a dynamic in vitro model of the human proximal large intestine. *J Am Coll Nutr.* 28(6):657-66.
26. Das D, et al. 2022. Impact of COVID-19 on changing consumer behaviour: lessons from an emerging economy. *Int J Consum Stud.* 46(3):692-715.

Nutrition Centre

By TATE & LYLE

This leaflet is provided for general circulation to the nutrition science and health professional community and professional participants in the food industry, including prospective customers for Tate & Lyle food ingredients. It is not designed for consumer use. The applicability of label claims, health claims and the regulatory and intellectual property status of our ingredients varies by jurisdiction. You should obtain your own advice regarding all legal and regulatory aspects of our ingredients and their usage in your own products to determine suitability for their particular purposes, claims, freedom to operate, labelling or specific applications in any particular jurisdiction. This product information is published for your consideration and independent verification. Tate & Lyle accepts no liability for its accuracy or completeness. Tate & Lyle • 5450 Prairie Stone Parkway, Hoffman Estates, IL 60192 • 1.800.526.5728

To learn more about Tate & Lyle ingredients and innovations as well as health benefits and relevant research, please visit www.tateandlyle.com/nutrition-centre



©2024 Tate & Lyle
SOG0224084