



NUTRIOSE® SOLUBLE FIBER FOR GUT HEALTH

Feel good inside out!

The soluble, non-viscous fermentable fiber NUTRIOSE® is a unique ingredient with multiple digestive health benefits. NUTRIOSE® helps to close the fiber gap in a well-tolerated format, all while feeding your inner you. This fiber has been clinically studied and demonstrated to be a fiber that helps support gut balance with a positive shift in microbiota composition providing health benefits. Digestive balance that feels right!

Digestive wellness is more than regularity. Gut fermentation of fiber benefits gut health... but also beyond the gut! Multiple clinical studies show that NUTRIOSE® soluble fiber helps provide nourishment to help optimize the wellness of the lower digestive tract.

GOOD HEALTH STARTS IN THE DIGESTIVE TRACT

Fiber, unlike any other nutrient, seems to be an important key that unlocks some digestive health benefits and keeps things in balance. While consumers largely believe that dietary fiber is related primarily to regularity, digestive wellness and balance go beyond regularity.

The lower digestive tract or colon is home to many billions of various bacteria, both good and not so good. This mass of bacterial cells is called the microbiota. Beneficial bacteria are believed to provide important health benefits that scientists are rapidly uncovering.

UNDERSTANDING PREBIOTICS

How can fiber, a nutrient that's neither digested nor absorbed in the small intestine like other nutrients, provide benefits after it is passed to the colon?

Fibers' benefits are in fact due to lack of digestion in the small intestine. Like the rest of the body, the lower digestive tract requires nourishment. A process called fermentation, where the microbiota is the main actor, uses the undigested fiber and produces short chain fatty acids like acetate, propionate, and butyrate. These substances not only act as fuel for the cells of the colon but also are the food for the bacteria that lives in the colon and create good conditions for their growth and activities. This attribute is called a prebiotic effect. In more technical words, a prebiotic is a substrate that is selectively utilized by host microorganisms conferring a health benefit¹.

Not every fiber has prebiotic effects; however, NUTRIOSE® soluble fiber has been found in multiple clinical trials to help contribute to a healthier intestinal balance.



A FIBER WITH AN OUTSTANDING DIGESTIVE TOLERANCE

Consumers show different tolerance levels when eating higher fiber foods. Some may find that as certain fibers ferment in the colon they may create more discomfort in terms of bloating, flatulence and diarrhea. NUTRIOSE® displays an outstanding digestive tolerance. Clinical studies in healthy adults have reported no symptoms of discomfort up to 45g/day—well beyond levels of normal fiber consumption. NUTRIOSE® levels between 45g and 60g/day were still well-tolerated with flatulence decreasing after a 7-day adaptation. The laxative dose was never reached even in doses of up to 100g/day^{2,3,4}.

A FIBER THAT HELPS SUPPORT THE GOOD BACTERIA INSIDE YOU

In three human studies, healthy volunteers were fed NUTRIOSE® between 8g and 15g/day. The volunteers's fecal samples showed increases in beneficial colonic bacteria such as Bacteroides and Parabacteroides and decreases in potentially harmful bacteria such as Clostridium perfringens^{5,6}.

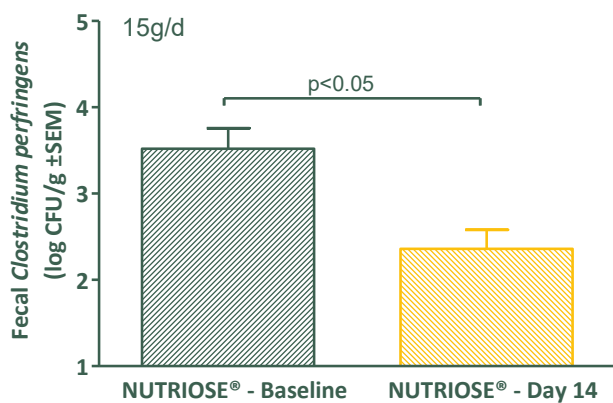


Fig. 1: Fecal *Clostridium perfringens* in healthy volunteers

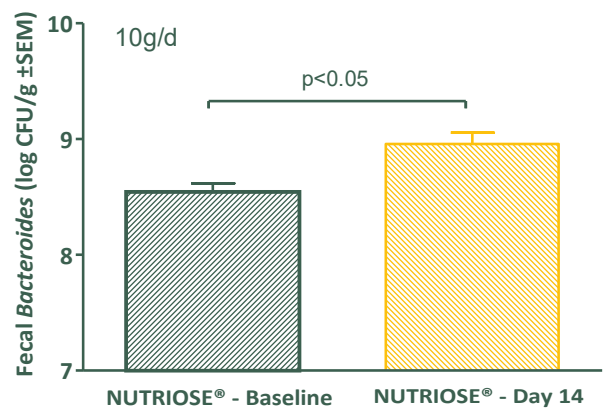


Fig. 2: Fecal *Bacteroides* in healthy volunteers

Additionally, the impact of NUTRIOSE® on overall colonic environment was also described with secondary benefits. Indeed, microbiota modulation was associated with lower colonic pH, higher bacteria's metabolites and higher production of short chain fatty acids^{5,7,8}.

Preclinical data have also suggested that NUTRIOSE® may improve digestive well-being through blunting of inflammation and reinforcement of intestinal immunity^{9,10}.

While more discovery is required to understand all of the mechanisms and mysteries of the microbiota, the research, thus far, is clear that NUTRIOSE® soluble fiber helps feed your inner you by supporting the good bacteria inside you.

A FIBER CERTIFIED AS A LOW FODMAP INGREDIENT

FODMAP stands for “Fermentable, Oligosaccharides, Disaccharides, Monosaccharides And Polyols” that is a group of poorly absorbed carbohydrates reaching the gut compartment for fermentation. A low FODMAP diet can be recommended as a first treatment in people experiencing irritable bowel syndrome (IBS) to avoid excessive digestive symptoms.

The full range of NUTRIOSE® soluble fiber is certified by the Monash University and is found to be suitable for a low FODMAP diet.



A FIBER THAT CAN EASILY HELP FILL THE FIBER GAP

An additional advantage of NUTRIOSE® soluble fiber is a nutrient that most people worldwide do not consume in adequate amounts. NUTRIOSE® soluble fiber has the advantage to fill this gap in nutrition. National dietary survey data revealed average fiber intakes of around 20g/day for men and around 15g/day for women. These intakes are well below the general recommendations included in guidelines developed by countries on the optimal daily intakes of fiber which are around 25g to 35g per day¹¹.

Fiber is starting to be considered a “nutrient of public health concern” in many countries. NUTRIOSE® swapped into commonly consumed foods for other carbohydrate sources or added to a meal has the potential to help improve fiber intakes for a healthy lifestyle.

NUTRIOSE® SOLUBLE FIBER: THE GOOD CHOICE TO FEED GOOD, FEEL GOOD!

Prebiotics may lead to many health benefits beyond the digestive tract through modulation of the gut microbiota and modulation of the gut environment.

Studies show that NUTRIOSE® soluble fiber helps support the growth and effectiveness of beneficial bacteria and keeps the gut in good shape, all for your greater comfort! Its outstanding digestive tolerance make it a good partner to fill the fiber gap and contribute to good gut health.

Scientific References

¹: Gibson *et al.*, 2017, Nat Rev Gastroenterol Hepatol

²: van den Heuvel *et al.*, 2004, Eur J Clin Nutr

³: Vermorel *et al.*, 2004, Eur J Clin Nutr

⁴: Pasman *et al.*, 2006, Eur J Clin Nutr

⁵: Lefranc-Millot *et al.*, 2011, J Int Med Res

⁶: Guérin-Deremaux *et al.*, 2018, Dietary Fibre Conference

⁷: Hobden *et al.*, 2013, Plos One

⁸: Guérin-Deremaux *et al.*, 2010, Nutr Res Pract

⁹: Pouillart *et al.*, 2010, Inflamm Bowel Dis

¹⁰: Lefranc-Millot *et al.*, 2007, 10th European Nutrition Conference

¹¹: Stephen *et al.*, 2017, Nutr Res Rev