Probiotics for Chronic Constipation

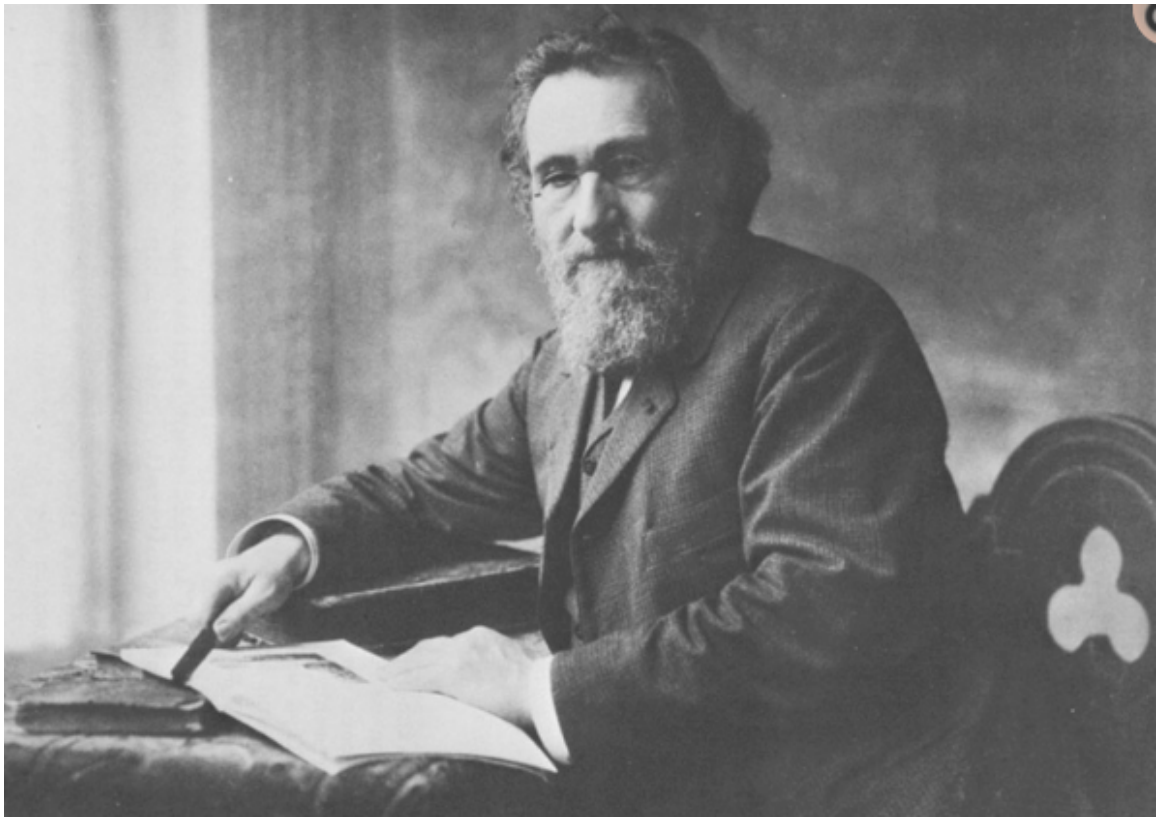
There are approximately **$3.8 \cdot 10^{13}$** single-celled microorganisms for every single "reference man" weighing 140 pounds, and their **total mass is about 200 grams** (ncbi.nlm.nih.gov).

Intestinal microbiota aids in the breakdown of food products into absorbable nutrients, stimulates the host immune system, suppress inflammation [source], prevents the expansion of pathogenic bacteria and produces a substantial variety of biologically major compounds such as short-chain fatty acids that nourish the gut.

Gut Bacteria

The concept behind probiotics was introduced in the early 19th century when Nobel laureate Elie Metchnikoff (1845–1916), known as the father of probiotics <fn>Front

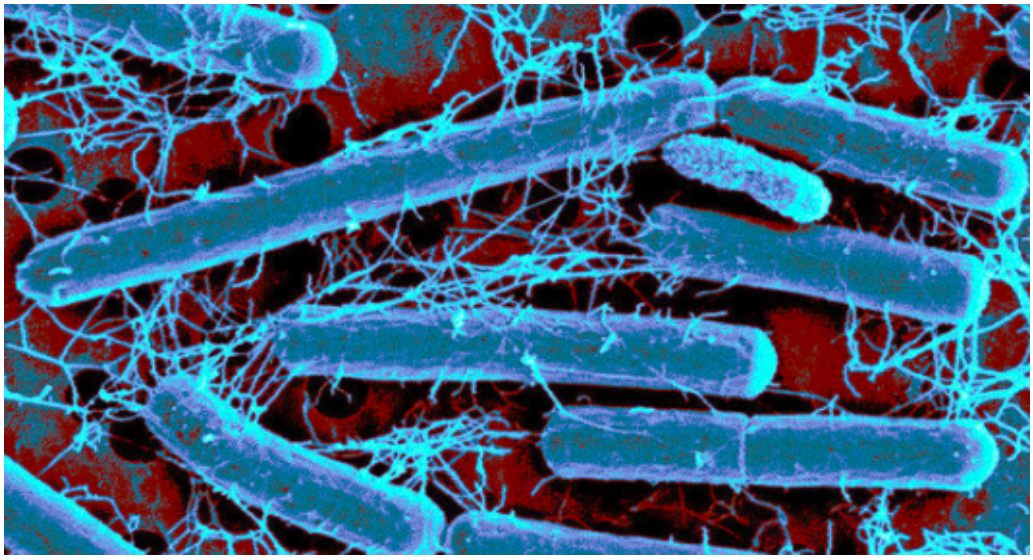
Public Health. 2013; 1: 52. Published online 2013 Nov 13. Prepublished online 2013 May 30. doi: 10.3389/fpubh.2013.00052 </fn>.



Elie Metchnikoff (1845–1916)

Probiotics are given or attenuated microorganisms defined as, when administered in adequate amounts, being able to confer health benefits on their host when they are given in.

Lactobacillus acidophilus, for example, lives in our digestive, urinary and genital systems and can be found in some fermented foods like yogurt. It may help reduce cholesterol, prevent Diarrhea, prevent Vaginal Infections, promote Weight Loss and improve symptoms of irritable bowel.



Lactobacillus acidophilus

Studies suggest that taking probiotic supplements may shift the balance of gut bacteria in a way that increases your body’s defenses against allergies, infections, and cancer.

Probiotics and constipation

Chronic constipation is a symptom-based gastrointestinal disorder most common among the elderly, it is characterized by bowel movements that occur more frequently than normal. Constipation is most likely multifactorial. According to Harvard Medical School, it is more frequent than diarrhea and affects approximatively **14% of adults** each year.

Researchers have shown an increased interest in the potential therapeutic applications of Probiotics to prevent or treat a variety of health problems including **constipation** and **diarrhea**. They also found a favorable effect in stool consistency and relief in abdominal discomfort making them increasingly used as alternative treatment options.

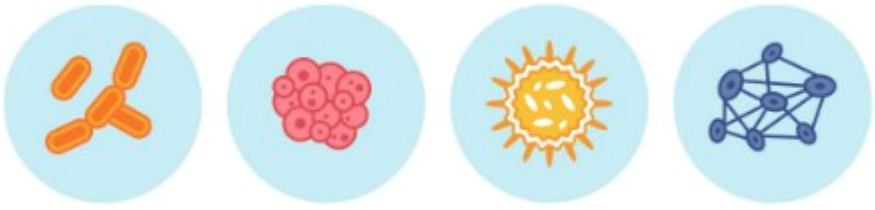
Although Probiotics have still been widely used nowadays for the treatment of constipation, the industry still has serious concerns about the long-term safety of probiotics which remain still partly unclear.

Mechanism of action

Several mechanisms have been proposed by which probiotics may benefit chronic constipation. Probiotics may modify the altered intestinal microbiota, and may eventually influence gut sensory-motor functions (Kawabata et al.). A healthy gut can benefit the regularity of your digestion as well as cognitive function like mood. One in vitro study (Bar et al.) suggested that Escherichia coli Nissle 1917 Supernatants (clear liquid overlying material deposited by settling, precipitation, or centrifugation) (**Mutaflor®**) could effectively enhance **colonic contractility** by direct stimulation of smooth muscle cells.

A recent study reported that **methane** and **carbon dioxide,** which are principal end products of bacterial fermentation could increase stool bulk and promote colonic transit (Lopez).

Which probiotic strains are best for constipation?



Proven probiotics available for constipation and bloating in adults are:

- **Lactobacillus casei Shirota (or L. Casei)**, which has effects on constipation and stool hardness, but not necessarily on flatulence and bloating
- **Lactobacillus plantarum LP01 (or L. Plantarum)**, which would facilitate stool evacuation

- **Bifidobacterium breve BR03 (or B. Patent)**, which would also improve the consistency of stool, helping to expel it
- **Bifidobacterium lactis DN-173 010 (or B. Lactis)**
- **Bifidobacterium lactis B94**
- **Bifidobacterium lactis HN019**
- **Bifidobacterium longum W11 (or B. Longum)**
- **Escherichia coli Nissle 1917 (or E. Coli)**, which allowed treated patients to go from 2 to 6 trips to the toilet per week

Proven probiotics available for constipation and bloating in children are:

- **Lactobacillus reuteri (or L. Reuteri)**, which has been shown to have an effect on chronic constipation in infants
- **Lactobacillus Casei rhamnosus Lcr35 or L, Casei)**, which relieves constipation while reducing abdominal pain