

What causes the predominance of Bifidobacteria in the microflora of breast fed infants ?

The predominance of Bifidobacteria in the intestinal microflora of breast fed infants is generally thought to be caused by certain components present in human milk. Human milk oligosaccharides have been identified as one important component that promotes the growth of Bifidobacteria^{11,12}. These oligosaccharides are present at a concentration of approximately 1g/100 ml and represent the second most important group of carbohydrates in human milk after lactose (7g/100ml)¹³.

Human milk oligosaccharides are not digested by the enzymes of the intestinal tract and thus they reach the colon unchanged where they serve as prebiotics, which means that they provide the substrate (food) necessary for the growth of Bifidobacteria^{14,15} (see page 10). Due to their non-digestibility, human milk oligosaccharides can be considered to be a form of soluble fibre¹⁴ and they may contribute to the softer stools produced by breast fed infants¹⁶.

Soluble fibres reach the large intestine unchanged



Are fermented by Bifidobacteria



Beneficial Bifidobacteria numbers increase^{14,15}

Prebiotic fibres stimulate the growth of beneficial Bifidobacteria

What are the benefits of a Bifidobacteria dominant flora ?

The typical Bifidobacteria-dominated flora of breast fed infants has been linked to beneficial effects such as resistance to enteric infections^{4,17}. Several health-promoting properties of Bifidobacteria may contribute to this protective effect. Bifidobacteria are able to secrete substances which can inhibit the growth of pathogenic bacteria. They also create acidic conditions in the gut by producing acids such as acetic and lactic acid, which lead to an antibacterial environment⁵.

It has also been suggested that Bifidobacterial colonisation plays a role in stimulating a healthy immune system^{4,19}. Recent research has shown that infants showing atopy at the age of 12 months had more clostridia, fewer Bifidobacteria and a significantly reduced ratio of Bifidobacteria to Clostridia in their intestinal flora at three weeks of age¹⁸. Similar results, demonstrating a difference in the intestinal flora of atopic and non-atopic infants during the first year of life were also shown in another study¹⁹. These findings suggest a role for the intestinal flora in the optimal function of the immune system.

How can a Bifidobacteria dominant flora be promoted in formula fed infants ?

Based on many years of research on human milk oligosaccharides (see page 12), Nutricia has developed a new and innovative blend of prebiotic fibres (oligosaccharides) which is now added to Nutrilon in order to promote a Bifidobacteria dominant flora in formula fed infants.