

## YOUR GUIDE TO Prebiotics

Prebiotics are defined as “substrates that are selectively utilised by host microorganisms conferring a health benefit”<sup>1</sup>



### SOURCES OF PREBIOTICS

**Most prebiotics are dietary fibres but not all fibres are prebiotic.** Prebiotics can be found naturally in food, such as Jerusalem artichoke, chicory, leeks, bananas, legumes and beans, but are also becoming more widely available in supplement form or as added ingredients in food. The dietary prebiotics most widely studied are non-digestible oligosaccharides such as **fructo-oligosaccharides (FOS)** and **galacto-oligosaccharides (GOS)**, as well as **inulin, lactulose** and **resistant starch**.<sup>2</sup> When looking for prebiotics added to foods or supplements, the specific name of the prebiotic (e.g. FOS) should be looked for rather than the general term ‘prebiotic’.

Human breast milk contains a natural form of prebiotic, called **human milk oligosaccharide**, that supports infant health by encouraging the growth of beneficial microbes, particularly Bifidobacterium.<sup>3</sup>

### IMPACT ON THE GUT MICROBIOTA

Prebiotics are selectively fermented by beneficial bacteria and can increase their growth, specifically promoting the growth of bifidobacteria in the intestinal tract of infants and adults.<sup>4</sup> An increase in beneficial bacteria in response to prebiotic intake can lead to the increased production of **short chain fatty acids (SCFA)** such as acetate, propionate and butyrate, which have shown to play a major role in intestinal and immune health.<sup>5</sup>

It is important to note that changes in the microbiota that are observed due to prebiotic consumption appear to be very individualised.<sup>6</sup>

### A HEALTH BENEFIT

To be considered a prebiotic, there must be scientific evidence from controlled studies demonstrating a health benefit on the host. If the prebiotic is for human use, there must be human studies confirming these health benefits.<sup>1</sup>

### REGULATORY LANDSCAPE

Across the European Union (EU) and within the UK, foods can only carry a nutrition or health claim in accordance with EU\* and UK\*\* Regulations.

All health claims on food products across the EU and within the UK require an assessment of scientific evidence by the European Food Safety Authority (EFSA) or the UK Nutrition and Health Claims Committee (UKNHCC), respectively.

The term ‘prebiotic’ is considered a health claim and thus requires assessment before the term or any associated health benefit can be claimed.

**Currently only one prebiotic, chicory inulin, has an approved health claim; chicory inulin contributes to normal bowel function by increasing stool frequency.**<sup>7</sup> Therefore, any other foods containing prebiotic ingredients cannot be labelled a prebiotic with associated health benefits, although they may be able to label the prebiotic ingredient as dietary fibre.<sup>8</sup>

\*Regulation (EC) No 1924/2006

\*\*Nutrition (Amendment etc.) (EU Exit) Regulations 2020

## IMPACT ON HEALTH

Despite only one EFSA approved health claim, there is extensive research into the health and nutritional potential of consuming or supplementing the diet with prebiotics. The potential health benefits and mechanism behind prebiotic actions include:

<b>Healthy digestion</b>	Prebiotics help soften stool to make its passing easier. <sup>9</sup>
<b>Improve calcium absorption</b>	Prebiotics can reduce intestinal pH, increasing calcium solubility. Interventions have shown that a high intake of GOS increases calcium absorption which may be mediated by the gut microbiota. <sup>10</sup>
<b>Satiety</b>	Prebiotic fermentation produces SCFA, which have been shown to regulate satiety. <sup>11</sup> One possible mechanism is the stimulation of hormone production allowing slowed gastric emptying and insulin release. <sup>12</sup>
<b>Support the body's natural defences</b>	SCFA production causes a reduction in intestinal pH, decreasing pathogen growth and colonisation. <sup>13</sup>
<b>Immune modulation</b>	Although the mechanisms are unclear and the data limited, randomised controlled trials have shown positive effects of infant formula containing prebiotics on atopic dermatitis and some allergies in early life. <sup>14,15</sup>

## DIETARY RECOMMENDATION

There is currently no dietary recommendation for prebiotics in the UK, however the International Scientific Association for Probiotics and Prebiotics (ISAPP) recommends consuming at least 5g of prebiotics a day.<sup>16</sup>



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## REFERENCES

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