Inflammatory bowel disease (IBD) is a category of gastrointestinal (GI) illnesses that include ulcerative Colitis (UC) and Crohn’s Disease (CD).

Approximately 5 million people worldwide suffer from its symptoms.

The incidence of IBD has been increasing worldwide, particularly in areas with high or rising intakes of animal protein and fat (1). Diets high in animal protein (2) and ultra-processed foods (3) are associated with an increased risk of developing IBD.

The progression of IBD is thought to be mainly environmental. A whole food plant-based diet can alleviate symptoms and help patients achieve remission (4).

Balance
The gastrointestinal (GI) tract represents a finely tuned equilibrium between the gut bacteria (microbiome), and the lining of the intestinal wall.

This delicate balance enables the passage of nutrients through the gut wall while preventing the transmission of detrimental bacteria.

However, when the gut microbiome loses its equilibrium, it can trigger a chain reaction of inflammation, which in turn may contribute to the onset and progression of inflammatory bowel disease (IBD).

The bacterial makeup of the gut microbiome is specific to an individual. The overgrowth of pathogenic bacteria and a concurrent decrease in beneficial bacteria can lead to inflammation and impaired permeability of the intestinal wall lining.

Changes in the gut microbiome
Consumption of high-fat milk and sugary drinks is associated with lower gut microbiome diversity. Coffee, tea and red wine, which all have a high polyphenol content, are associated with increased diversity (5).

Food additives like maltodextrin (MDX) and carrageenan exert harmful impacts on intestinal homeostasis. MDX seems to impair the antibacterial response to E. coli, particularly in patients with CD (6).

Changes in the gut endothelium
The integrity of the endothelial barrier is affected by the gut microbial makeup, resulting in increased permeability in IBD.

Meat-derived dietary protein increases quantities of branched-chain fatty acids, ammonia, nitric oxide, and sulphur-containing compounds that disrupt the mucosal barrier and increase inflammation (7).

When the mucous barrier in the intestinal wall becomes defective, it can allow larger particles of undigested food into the bloodstream, triggering an immune response that promotes inflammation. This is called leaky gut syndrome.

Image: Chrisman, 2023
A Japanese study showed a negative correlation between vegetable protein and the development of IBD (11). A low-FODMAP (fermentable oligosaccharides, disaccharides, monosaccharides, and polyols) diet (LFD) showed relief of IBD symptoms compared to control diets (12). The low-FODMAP diet also showed improvements in specific symptom scores and patients reporting symptom relief but had no significant effect on markers of inflammation (13). Studies in children have shown that exclusive tube feeding can induce remission as effectively as steroids (14). Tube feeding is not effective for UC. Remission in CD can also be achieved with total parenteral nutrition but is not a long-term option, and relapses are common (15).

Evidence From RCTs and corresponding meta-analyses

A review of 19 studies totalling 2,600 IBD patients found higher IBD risk was associated with a Western diet pattern, including high intake of fat, omega-6 fatty acids, and meat. High intake of fruit and fibre was associated with a lower risk for CD and high vegetable intake with a lower risk for UC (8). High protein intake, particularly from animal sources, is associated with an increased risk for IBD (9). High sucrose, animal fats and cholesterol consumption are associated with an increased risk of IBD. Conversely, fruit, vitamin C and magnesium are negatively associated with IBD (10). A case study of 229 IBD patients using a mostly plant-based diet reported 100% remission of CD and 86% for UC after 12 months and 90% remission after 2 years (4).

What to Eat

Maximise the intake of high-quality whole plant foods such as vegetables, whole grains, legumes, fruits, nuts, seeds, herbs, and spices; your health will benefit from every step towards more whole plant foods.

Choose healthy omega-3 fat sources such as walnuts, flax and chia seeds.

Fight chronic inflammation with powerful antioxidants in berries, cruciferous vegetables (like broccoli), dark green leafy vegetables, and beans.

Make sure to cover potentially critical nutrients with a wide variety of plant foods, enriched foods/drinks, or supplements (especially vitamin B12 and vitamin D).

What to Avoid

Avoid refined carbohydrates such as bakery items and snack foods.

Eliminate or limit all processed foods, and sugar-sweetened foods and beverages.

Eliminate red and processed meat products such as burgers, sausages, bacon, ham, salami, dried meat, canned meat, and pastrami (16).

Eliminate or limit other animal products such as poultry, fish, eggs, cheese, and dairy.

Avoid saturated fats, from both animal and plant sources as much as possible.
References