

Food, Fibre & Microbiome



When we eat, we feed both ourselves and our microbes. Current Western diet consists predominantly of refined sugars, processed carbohydrates, saturated fats and salt. This diet is low in dietary fibres as well as having low overall variability.

Poor dietary habits are associated with increased inflammation, increased risk of auto-inflammatory and metabolic disorders and a reduced microbial diversity. A healthy diet is necessary for a healthy microbiome.



Sources of fibre include cereals, whole grains, bran, nuts, legumes, fruits and vegetables

Can everyone benefit from dietary adjustment? Yes, changing your diet to increase dietary fibre and decrease intake of refined, processed foods improves microbiome diversity and improves metabolic and immune system function.

Diet and microbes

- The gut microbiome consists of approximately 100 trillion microbes including bacteria, archaea, fungi, protozoans and viruses.
- Dietary habits influence which microbes survive, colonise, thrive and disappear in the human gut throughout life.



A varied, balanced, diet high in fibre;

- improves microbial diversity
- improves metabolic and immune system function
- helps to maintain homeostasis (balance)
- prevents harmful pathogen invasion at mucosal sites

Fibre- more than microbial diversity

- Fibre is not a single substance, but a group of substances with different biologic effects.
- Solubility, viscosity and fermentation are important properties of various fibres.
- Solubility (dissolution in water) and viscosity (capacity to gel with water) slows digestion and increases fullness.
- These properties help reduce absorption of cholesterol and glucose for example, which reduces risk of metabolic disorders such as obesity, high cholesterol and diabetes.
- Fibre is not digested by humans and so undergoes fermentation by microbes to produce short chain fatty acids (SCFAs) which have many health benefits.

Current recommended intake:

14g of dietary fibre per 1,000kcal consumed, this approximates to:

- 25g/day for females
- 38g/day for males

Short Chain Fatty Acids

- Acetate, Butyrate and Propionate
- Roles in:
 - Energy source for intestinal cells
 - Gut barrier integrity
 - Anti inflammatory effect
 - Immune system regulation
 - Metabolic function