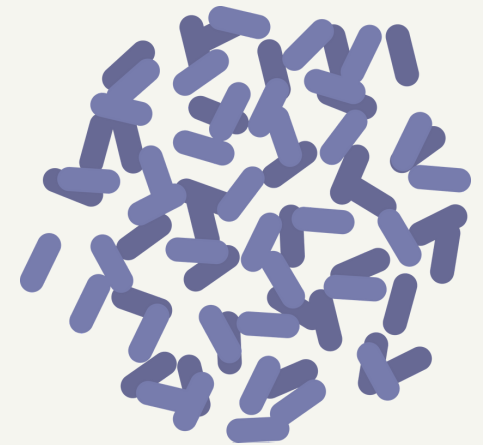
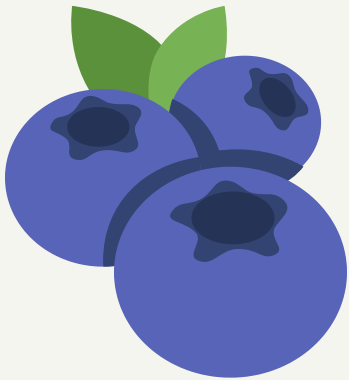
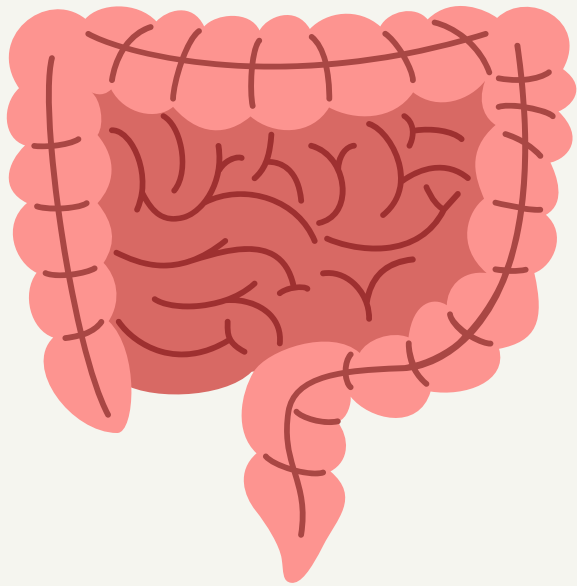


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MICROBIOME

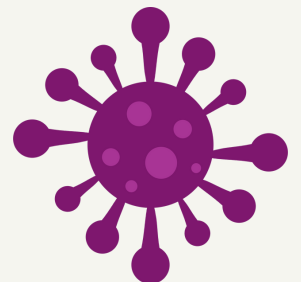
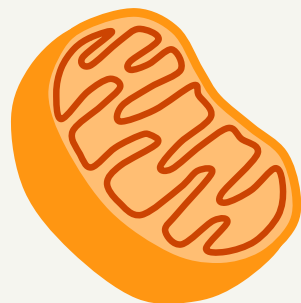
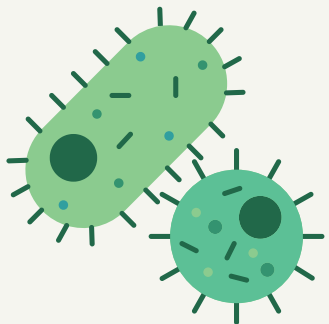


What is the gut microbiome?



Our gut microbiome comprises a community of around **100 trillion** microorganisms in our large intestine - also called **microflora**.

It often contains over **1000 bacterial species**.



Functions of the Microflora

- Digestion
- Nutrient absorption
- Vitamin synthesis (eg. B7 and K2)
- Supports Intestinal Barrier
- Immune System
- Mood Regulation



A healthy microbiome will perform these functions and many more, unlike a **damaged microbiome**, which will have one or more impaired functions.

Intestinal barrier and leaky gut

The mucosal membrane in the gastro-intestinal tract (GIT) is the largest **interface** between our internal body and the external world.



It protects us against ingested toxins, pathogens and undigested food



If damaged, the tight junctions start to open and become **"leaky"**



This allows large molecules to enter circulation before being broken down



When cell membranes of gut bacteria enter the blood, it can lead to **excessive immune responses** - allergies and autoimmunity

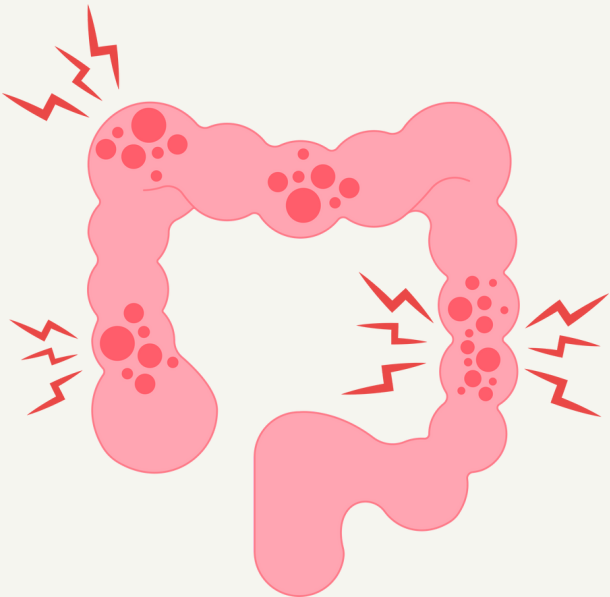
What can damage the intestinal barrier?

- Poor nutrition: hydrogenated and trans fats, refined sugars, processed foods, lack of fibre
- Heavy metals (e.g., mercury, lead, aluminium), pesticides, herbicides and cleaning toxins, etc.
- Drugs: Corticosteroids, NSAIDs, antibiotics.
- Dysbiosis and candida overgrowth
- Radiation and chemotherapy
- Alcohol and smoking
- Excessive stress
- Early weaning (<6 months)



What is Dysbiosis?

Dysbiosis is an **imbalance** in the colonies of the **microflora** - a combination of the **loss** of beneficial bacteria and a **rise** in pathobionts.



Bacterial toxins can cross the intestinal wall if the barrier has been impaired. This can create a **systemic inflammatory** response.

Dysbiosis is associated with various diseases, including **inflammatory bowel disease (IBD)**, **cardiovascular disease**, **diabetes type 2**, **obesity**, **allergies**, **autoimmune conditions**, and **cancer**.

The microbiome and the immune system

- ✓ 70% of the immune system is based in the GIT as 'Gut Associated Lymphoid Tissue' (GALT)
- ✓ GALT houses the white blood cells (WBC), macrophages and lymphocytes
- ✓ WBCs learn how to identify microbes because of the close proximity to the trillions of microbes in the microbiome
- ✗ A damaged microbiome is directly correlated to an impaired immune system

Nutrition and gut health



- Drink plenty of water (>1.5 L / day)
- Increase intake of soluble fibre and eat foods rich in mucilage (e.g., flaxseeds, chia seeds, psyllium husk)
- Add fermented foods to the diet
- Eat quality macronutrients, e.g. whole carbohydrates vs. refined carbohydrates
- Source quality products - animal and plant - organic, regenerative, grass-fed, free-range.



- Remove processed and junk foods
- Avoid/reduce consumption of industrially farmed animals and animal products
- Reduce alcohol, tobacco and recreational drug consumption

Diagnosis and treatment

As a healthcare professional:

- A complete diagnosis requires a holistic assessment, considering the patient's whole body
- **Treat the cause, not the symptom**
- A holistic treatment can include a combination of therapies
- **Different conditions will require different nutritional support**
- Consider supplementation according to each case - probiotics, prebiotics, digestive enzymes, antimicrobials, antifungals, etc.

