GUT HEALTH

E-BOOK

CHPRA

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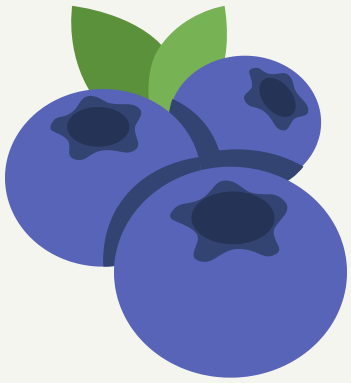
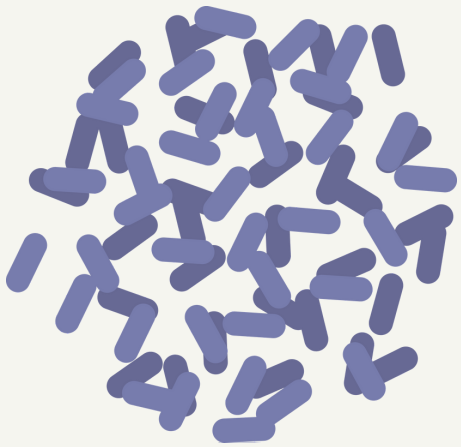
1 MICROBIOME

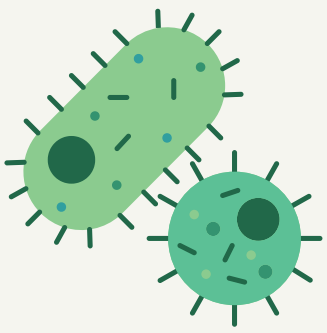


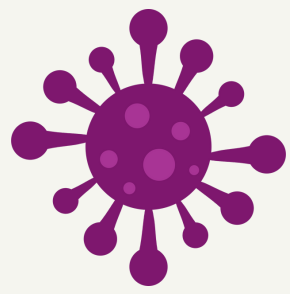


What is the gut microbiome?

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 instestinal 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.

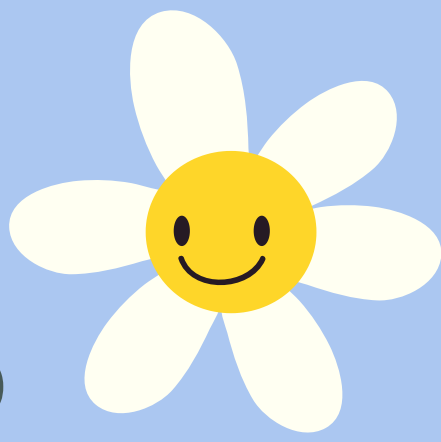
- Remove processed and junk foods
- Avoid/reduce consumption of industrially farmed animals and animal products
- Reduce alcohol, tobacco and recreative drug consumption

Diagnosis and treatment

As a healthcare professional:

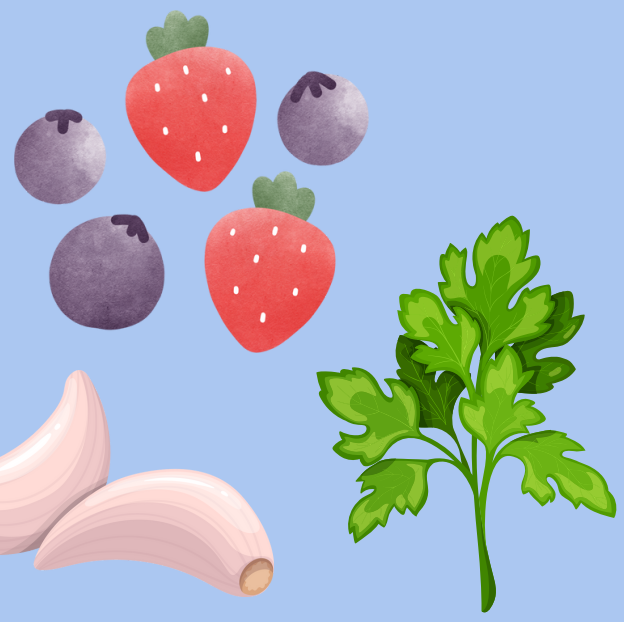
- A complete diagnosis requires a holistic assessment, considering the patient's whole body
- Treat the cause, not the symptom
- A holistic treatment can include a combination of therapies
- Different conditions will require different nutritional support
- Consider supplementation according to each case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

WHAT IS GUT-FRIENDLY?



Foods that:

- feed the bacteria in the gut
- improve microbiome health
- are good for digestion



A life that:

- works for you on a daily basis
- manages stress levels
- is socially active
- has contact with nature

HOW TO SUPPORT GUT HEALING

The 5R Framework

Source: Institute of Integrative Nutrition

GUT HEALTH SERIES

The 5R Framework

1| Remove potentially inflammatory or irritating foods such as gluten, dairy, or sugar.

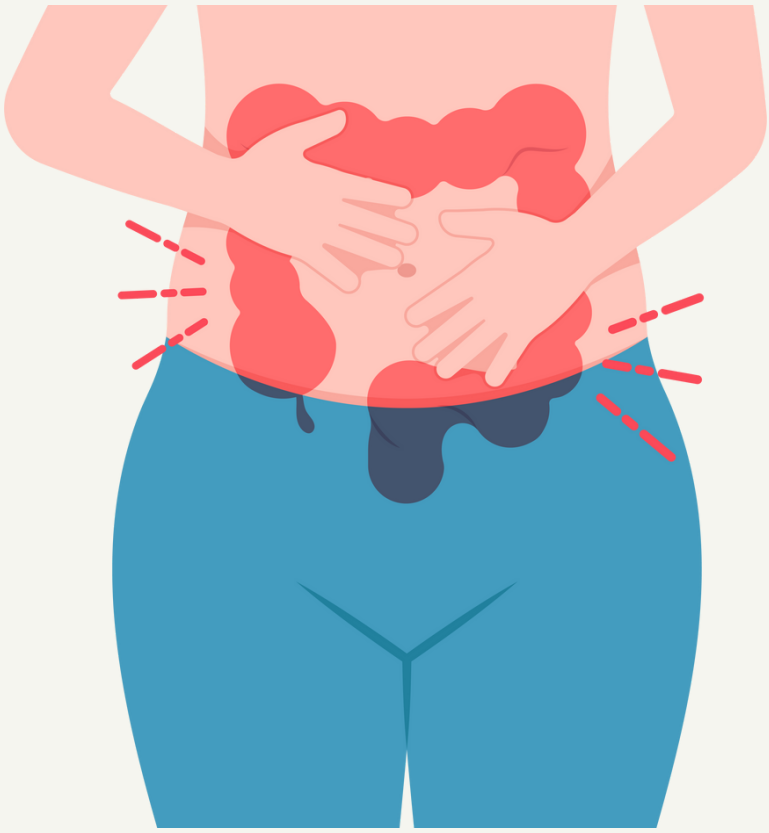
2| Replace, any digestive supports lacking. Choose digestive enzymes or foods rich in prebiotics that feed beneficial bacteria, such as dandelion root, garlic, oats, onions, or jicama.

3| Reinoculate, add quality probiotics and/or probiotic-rich foods (yogurt, certain aged cheeses, fermented vegetables) to help populate the gut with good bacteria and support intestinal barrier function.

4| Repair, by supplements to soothe and repair the gut, like purified aloe, l-glutamine, omega-3 fatty acids, licorice root, collagen, or marshmallow root.

5| Rebalance, consider health holistically and support all areas of multidimensional health. Emphasis on stress reduction.

2 IBD & IBS



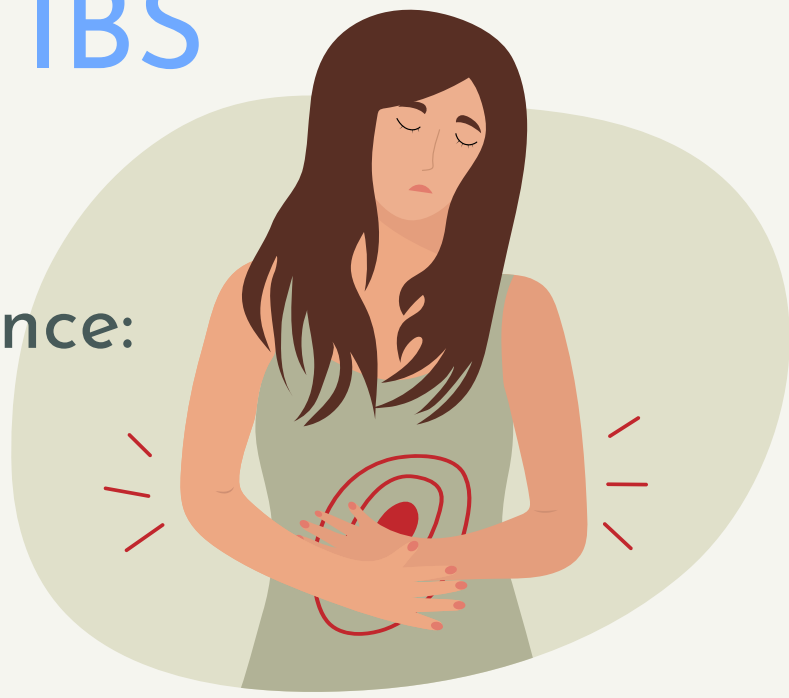
Inflammatory bowel disease (IBD)

A group of autoimmune conditions of the colon and small intestine. Crohn's disease (CD) and ulcerative colitis (UC) are the principal types of IBD.

Irritable bowel syndrome (IBS)

An umbrella diagnosis used to classify an individual with a constellation of chronic symptoms. It is not a 'disease'.

Symptoms of IBD & IBS



In both cases, you can experience:

- Abdominal pain
- Diarrhea
- Fatigue

IBD

- Rectal bleeding - dark stools
- Weight loss or loss of appetite
- Fever
- Other signs of imflammation: skin, joints;

IBS

- Constipation
- Bloating
- Flatulence
- Incomplete emptying of bowels

What type of pain do you feel?

IBD

Crohn's disease - abdominal pain on the lower right side

Ulcerative colitis - abdominal pain on the left side.

Both can cause pain anywhere in the abdomen.

IBS

Abdominal pain or cramps in the lower belly.

What causes the disease/syndrome?

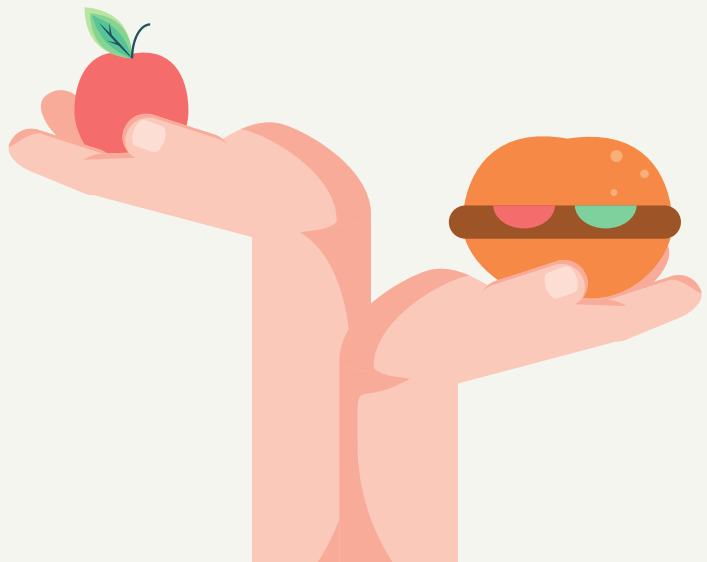
IBD

IBD is caused by a combination of genetics and environmental factors, which have an impact on gut microbiome, triggering overly aggressive immune responses.

Genetics – there are at least 163 genes involved in IBD.

IBS

Causes can vary greatly amongst idividuals. Unhealthy dietary habits, changes in gut microbes, stress, hormonal changes, severe infection, medication use, etc.



Dietary strategies for IBD/IBS

- Remove inflammatory foods/beverages (refined carbohydrates and sugars, industrial animal products, processed foods, coffee, alcohol, damaged oils)
- Increase antiinflammatory foods - berries, turmeric, ginger, greens, pasture meat/dairy
- Include well-cooked foods (slow-cooked at a low temperature): soups, stews and broths that are easy to digest and nourishing
- Consider an elimination diet to identify problematic foods
- Optimise omega-3 to 6 ratio – can also be addressed via supplementation

As a health professional

1. **Consider natural approaches:**
   - Probiotics - Lactobacilli and Bifidobacteria have been shown to strengthen the epithelial barrier function and reduce inflammation
   - Prebiotics - strenghthening microbial community. Bacterial fermentation = SCFAs
   - Vit D - stabilises tight junctions, regulates mucosal inflammation and supports immune function
   - DHA/EPA - profound antiinflammatory effect

2. **Adress nutrient defficiencies:**
   B12, B9, Vit A, E, D, K, Zn, Fe, Ca, K?

Natural approaches to IBD/IBS

EPA/DHA

Green Tea

Lyons Mane

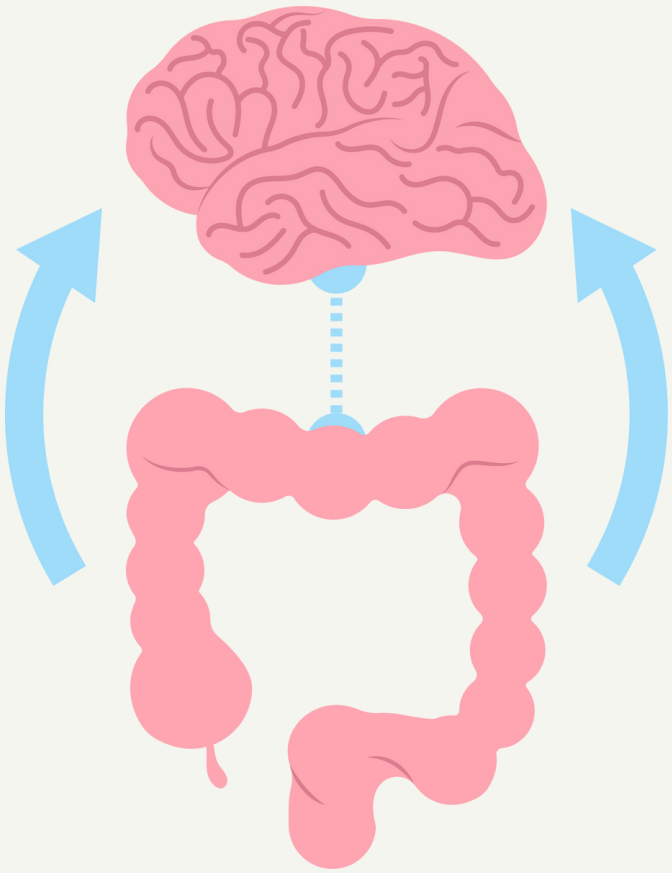
Vitamin D

Turmeric & Ginger

Chamomile

3 GUT - BRAIN CONNECTION

The gut-brain connection

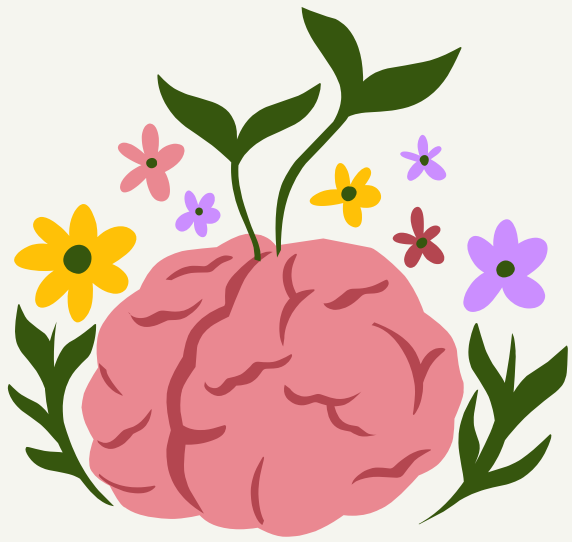


Also known as the **gut-brain axis**, refers to the bidirectional communication system that exists between the **gastrointestinal tract** (GIT) and the **central nervous system** (CNS), which includes the brain and spinal cord.

This intricate and complex communication network involves **neural, hormonal,** and **immunological pathways** and plays a significant role in influencing various aspects of physical and mental health.

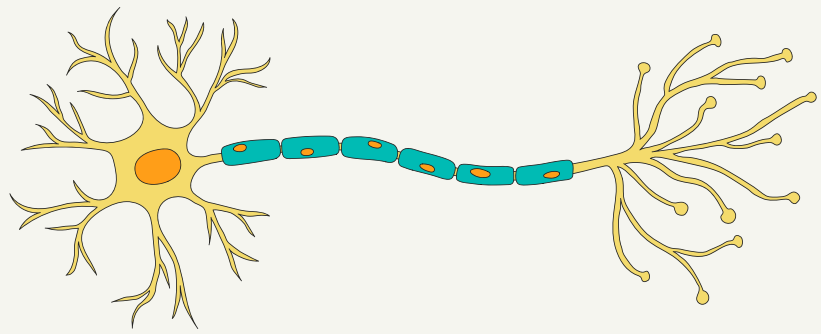
Gut-brain Axis

and human health



- MENTAL HEALTH
- STRESS RESPONSE
- NEUROLOGICAL DISORDERS
- COGNITION AND MEMORY
- INFLAMMATION AND IMMUNE SYSTEM

1. Vagus nerve



One of the most important and longest nerves in the human body. It's a major **pathway** for exchanging information between brain and gut.

Signals travel from **gut - vagus nerve - brainstem**, where they can influence various brain regions, including those involved in regulating emotions, mood, and behaviour.

In the Gut it influences:

- **Digestive contractions**
- **Rate of absorption of nutrients**
- **Hormonal pathways (including stress hormones)**
- **Immune system**
- **Inflammation**

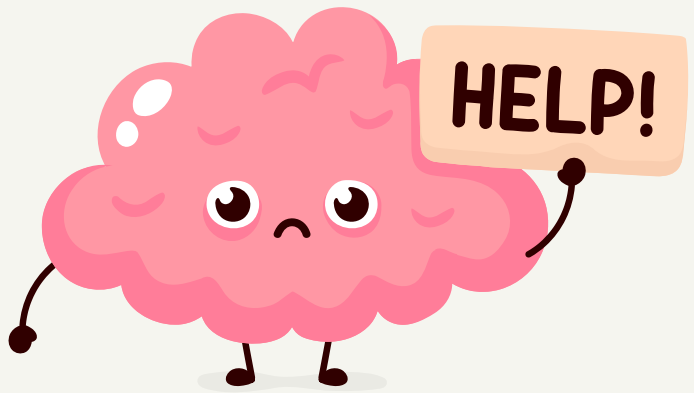
2. Production of Neurotransmitters

The gut produces various **neurotransmitters** and **hormones**, many of which are identical or similar to those found in the brain. Over 30 neurotransmitters are produced in the gut, including:

90-95% of all serotonin and **50%** of all dopamine **are produced in the gut**

Ghrelin and **leptin**, which regulate hunger and satiety, can also influence brain function and behaviour

Bad functioning of the gut impacts mental health and can result in conditions such as **anxiety** or **depression**.

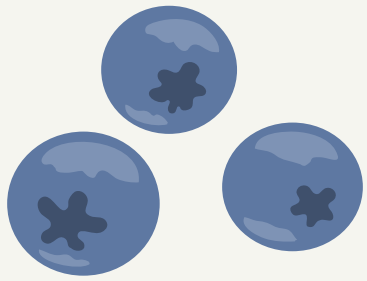


3. Microbiota

The community of microorganisms is collectively known as **microbiota**. Microbes can communicate with the brain through various mechanisms, including the production of certain **neurotransmitters, metabolites** and **short-chain fatty acids (SCFAs)**.

Short-Chain Fatty Acids (SCFAs):

Microbes ferment **dietary fibers** in the gut to produce SCFAs: acetate, propionate, and butyrate. SCFAs can pass through the gut lining and **enter the bloodstream**, where they can reach the brain and influence neural function.



Improving mental health

By taking care of the gut microbiome through a **balanced and healthy lifestyle**, we can enhance the communication between our gut and brain, leading to improved well-being and vitality.

- **Balanced and diverse gut microbiota**
- **Diet rich in fibre and nutrients**
- **Minimizing antibiotics and other medications**
- **Reducing stress levels**
- **Regular physical activity**
- **Adequate sleep**
- **Hydration**
- **Pro and prebiotics**

THE ROLE OF PRO & PREBIOTICS

Probiotics
(live bacteria)

Increases/maintains healthy bacteria community

Improves digestion of food

Improves immune system, mental health, inflammation

Helps with weight and blood pressure management

Prebiotics
(fiber compounds)

Feeds the good bacteria in the gut

Production of short-chain fatty acids SCFAs

Improves inflammation and immune system

Keep the lining of your gut healthy

FOODS HIGH IN PRO & PREBIOTICS

Probiotics

Kefir

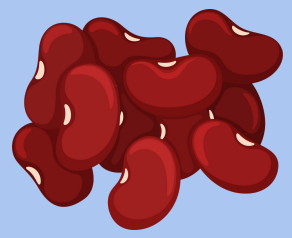
Sauerkraut

Kimchi

Cottage cheese

Prebiotics

Alium



Beans

Cabbage

Dried Fruit

We are on a mission to spread awareness amongst health professionals about the connection between soil-human health.

Join us in our mission!

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