

# THE GUT MICROBIOTA: Our Microbial Partners

Microbes live on and within us, mostly in a mutually beneficial relationship. It has been estimated that 90- 95% of these microbes are found in our gut, especially the colon. Our stomachs and small intestines are more sparsely colonized. While scientists do not know what constitutes the ideal gut microbiota, they agree these microbes - and their activities - are important for our health.

## What do they do?

### In our gut:

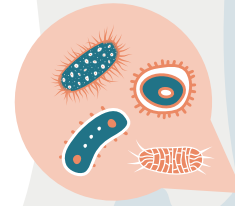
- Harvest energy from foods
- Improve gut motility and function
- Reinforce gut barrier
- Protect against pathogens
- Produce metabolites that are important for health
- Synthesize vitamins and hormones

### Outside the gut:

- Bolster immune system
- Influence brain, liver, kidney, skin and vaginal tract function
- Affect circulating blood lipids
- Produce and modulate hormones

## How can we keep them happy?

- Take antibiotics and other microbiome-influencing drugs only when needed
- Consume probiotics and prebiotics
- Eat a diverse range of foods, especially fiber and live microbes (fermented foods)
- Maintain healthy weight
- Exercise
- Different life stages may require different approaches



Increasing levels of native gut bacteria

## What happens if they are disturbed?

If disturbed, opportunistic pathogens and negative activities of gut microbes can increase. An abnormal microbiota is associated with the following conditions, although it is not clear if abnormal microbiota causes or is a consequence of these conditions. An active area of research asks if microbiota can be improved leading to improved health.

- Antibiotic-associated diarrhea
- *C. difficile* infection
- Diabetes
- Metabolic syndrome and obesity
- Allergies
- Inflammatory bowel disease
- Irritable bowel syndrome
- Auto-immune diseases
- Colon cancer
- Depression and anxiety