

# Facts, Figures & Tips on Fibers & Gut Microbiota

## DIET, FIBERS & GUT MICROBIOTA: EVOLUTION THROUGH CHILDHOOD



### BABY BIRTH

#### FROM THE MOMENT OF BIRTH...

The development and maturation of the gut microbiota are highly dynamic. They start at birth and are influenced by the environment:



MODE OF DELIVERY



GEOGRAPHY



ANTIBIOTIC USE



& TYPE OF FEEDING (BREAST MILK OR FORMULA)

**HUMAN MILK OLIGOSACCHARIDES (HMOs)** have been shown to feed infants' beneficial gut microbiota, notably the genus *Bifidobacterium* (the most abundant in infants).



**HMOs:** carbohydrates that exist in human milk

Stewart et al., 2018; Yatsunenko et al., 2012  
Backhed et al., 2015; Koenig et al., 2011

### INFANTS

**DIET DIVERSIFICATION** promotes **INCREASING MICORBIAL DIVERSITY** and dominance of species that are able to degrade complex carbohydrates.

*Bifidobacterium*, are able to adapt and shift between carbohydrates derived from human milk to those derived from plant foods.



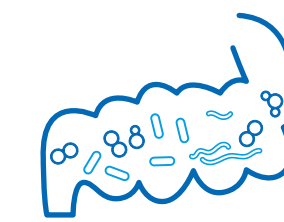
At 1 year the gut microbiota is already well developed!

Backhed et al., 2015; Laursen et al., 2016  
Yatsunenko et al., 2012; Stewart et al., 2018

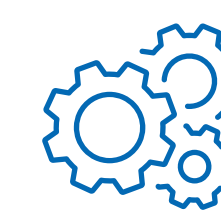
### CHILDREN

#### AND BEYOND

At 3 years old, it has become much more:



**DIVERSE** (INCREASED PRESENCE OF BACTEROIDETES AND FIRMICUTES)



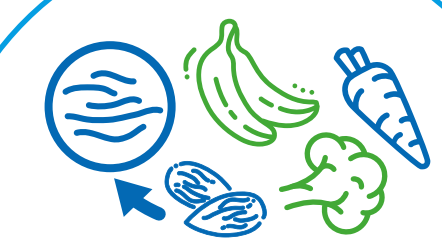
**FUNCTIONALLY COMPLEX**



**STABLE**

And it will still evolve in composition and functions!

Eating habits continue to mold children's gut microbiota and **FIBER-RICH FOODS** especially seem to promote microbial **STABILITY AND DIVERSITY** over time.



**Dietary fibers:** carbohydrates coming from plant foods

Derrien et al., 2019; Yatsunenko et al., 2018



### DIET INTERVENTION AND GUT MICROBIOTA ESTABLISHMENT

Results from dietary interventions suggest that children's gut microbiota may be **MORE MALLEABLE THROUGH ENVIRONMENT.**

There is an interindividual variability in the evolution of gut microbiota during childhood providing **OPPORTUNITIES FOR MICROBIOTA-BASED DIET INTERVENTIONS.**

**A WELL BALANCED AND DIVERSIFIED FIBER-RICH DIET MAY BE A START!**

Derrien et al., 2019