



BIOSTIME INSTITUTE
NUTRITION & CARE

SPOTLIGHT ON RESEARCH

Ronchi Francesca, PhD

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THE ROLE OF THE MICROBIOTA

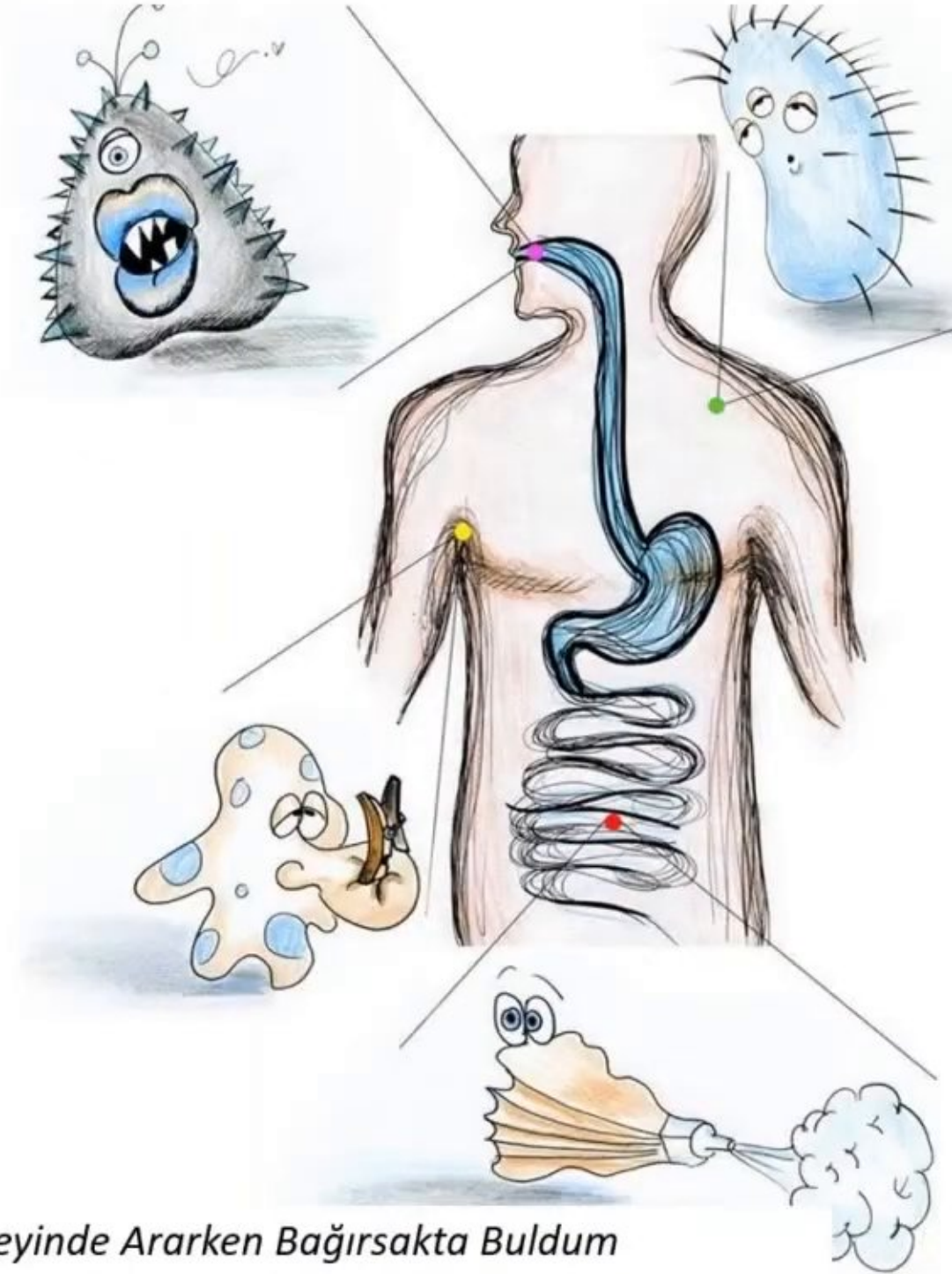
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Microbial colonization occurs at all mucosal surfaces



*Serkan Karaismailoğlu, Beyinde Ararken Bağırsakta Buldum
(While searching in the brain, I found it in the intestine), 2017*

How do we encounter our microbiota?

Prenatal factors:

- Placenta

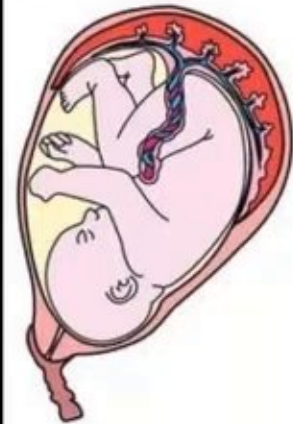
Neonatal factors:

- Mode of delivery
- Gestational age

Postnatal factors:

- Feeding: breast-milk vs. formula
- Geographical location
- Family members
- Host interactions
- Maternal diet
- Weaning

Gestation



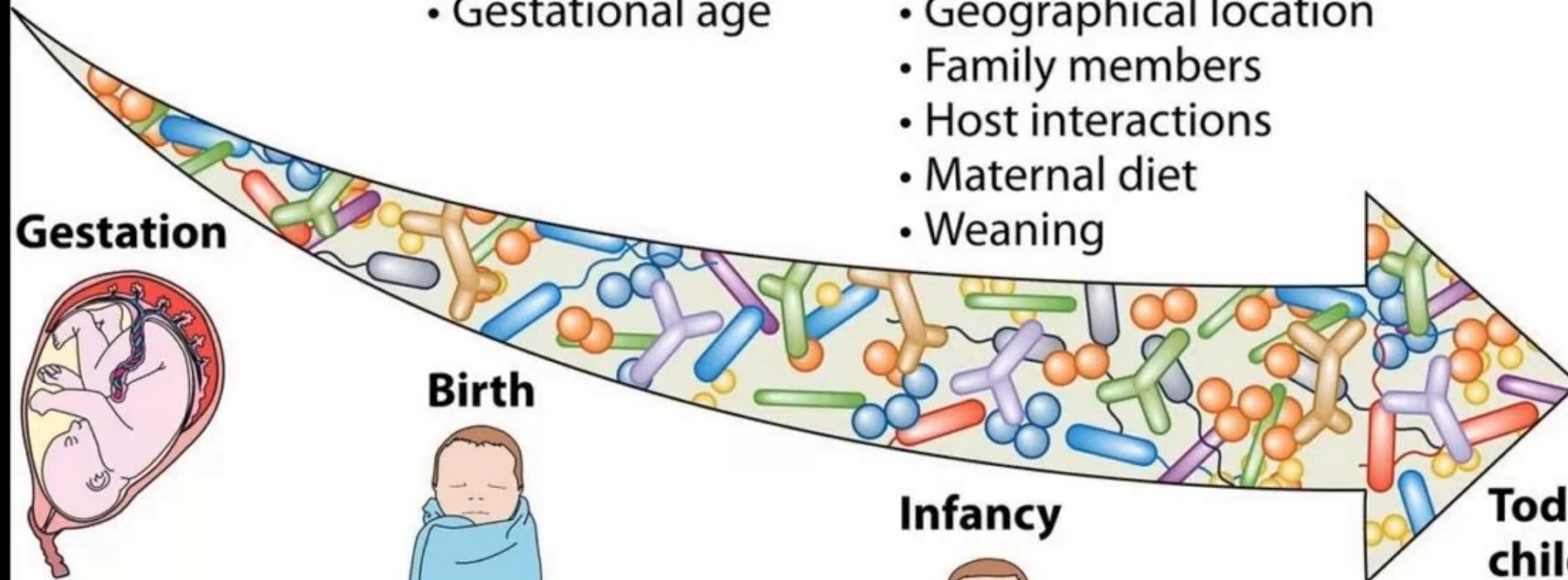
Birth

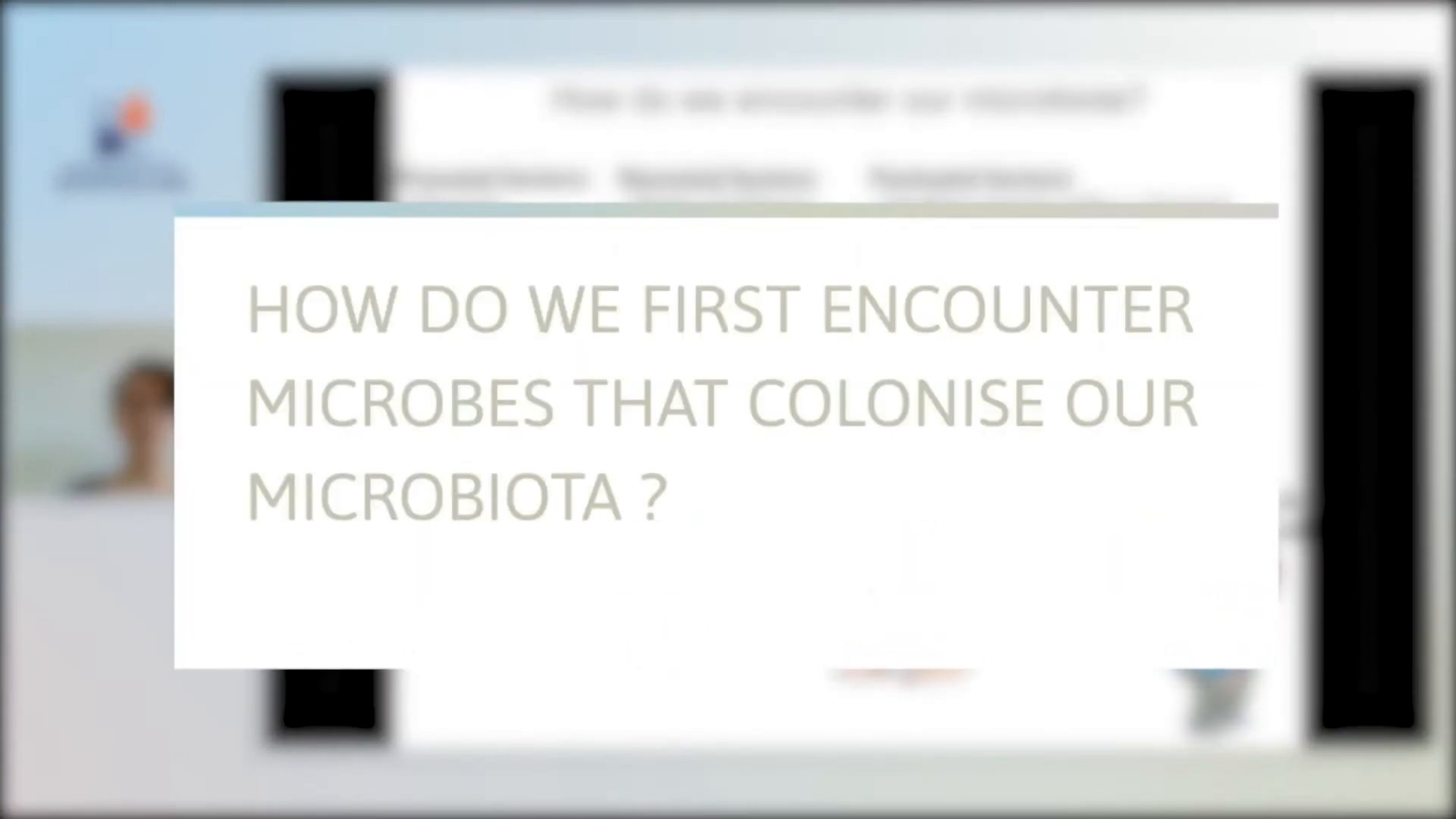


Infancy



Toddler & childhood





HOW DO WE FIRST ENCOUNTER
MICROBES THAT COLONISE OUR
MICROBIOTA ?

How do we encounter our microbiota?

Prenatal factors:

- Placenta

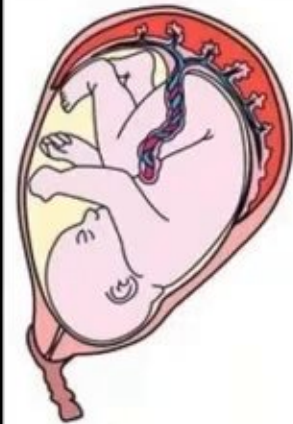
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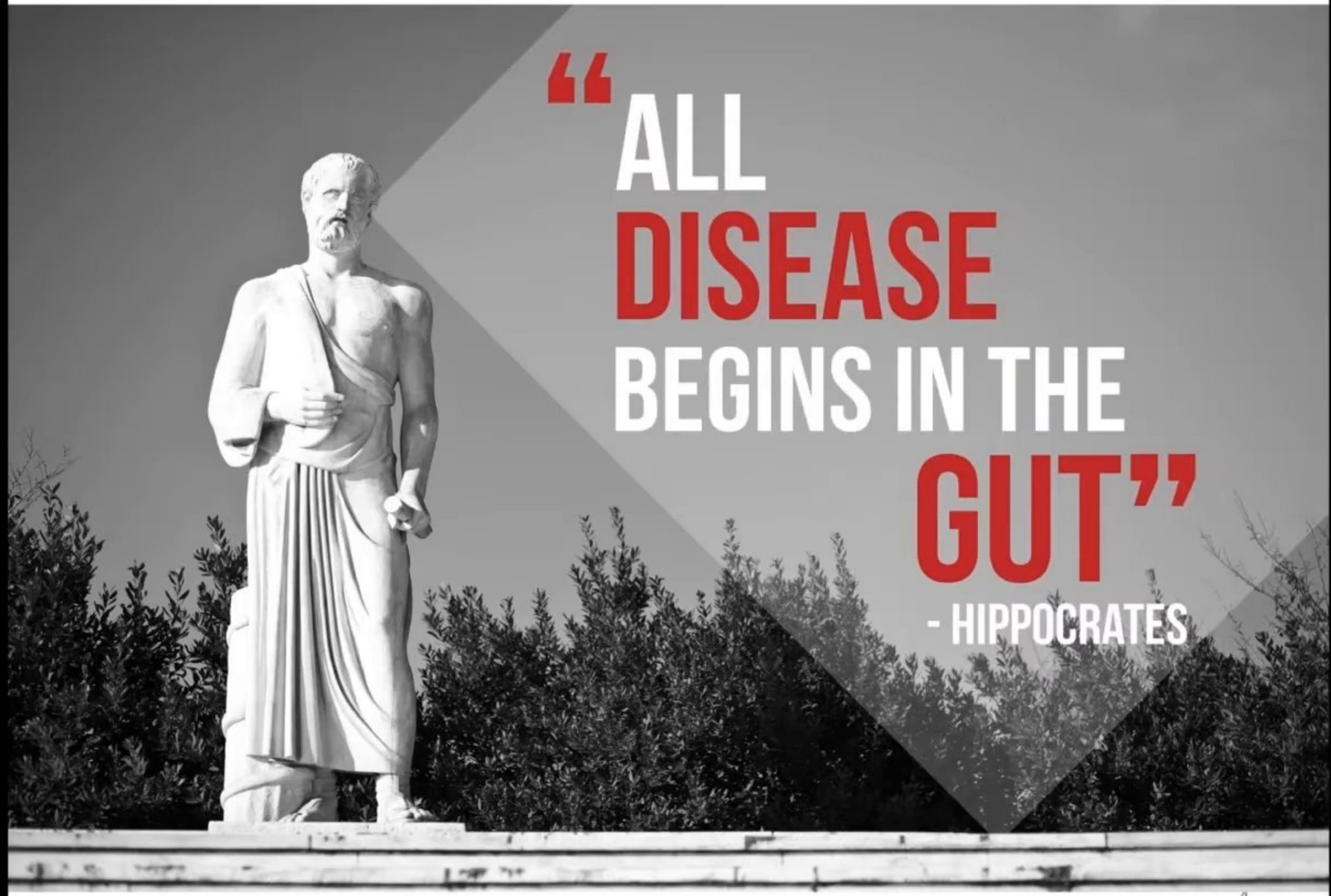


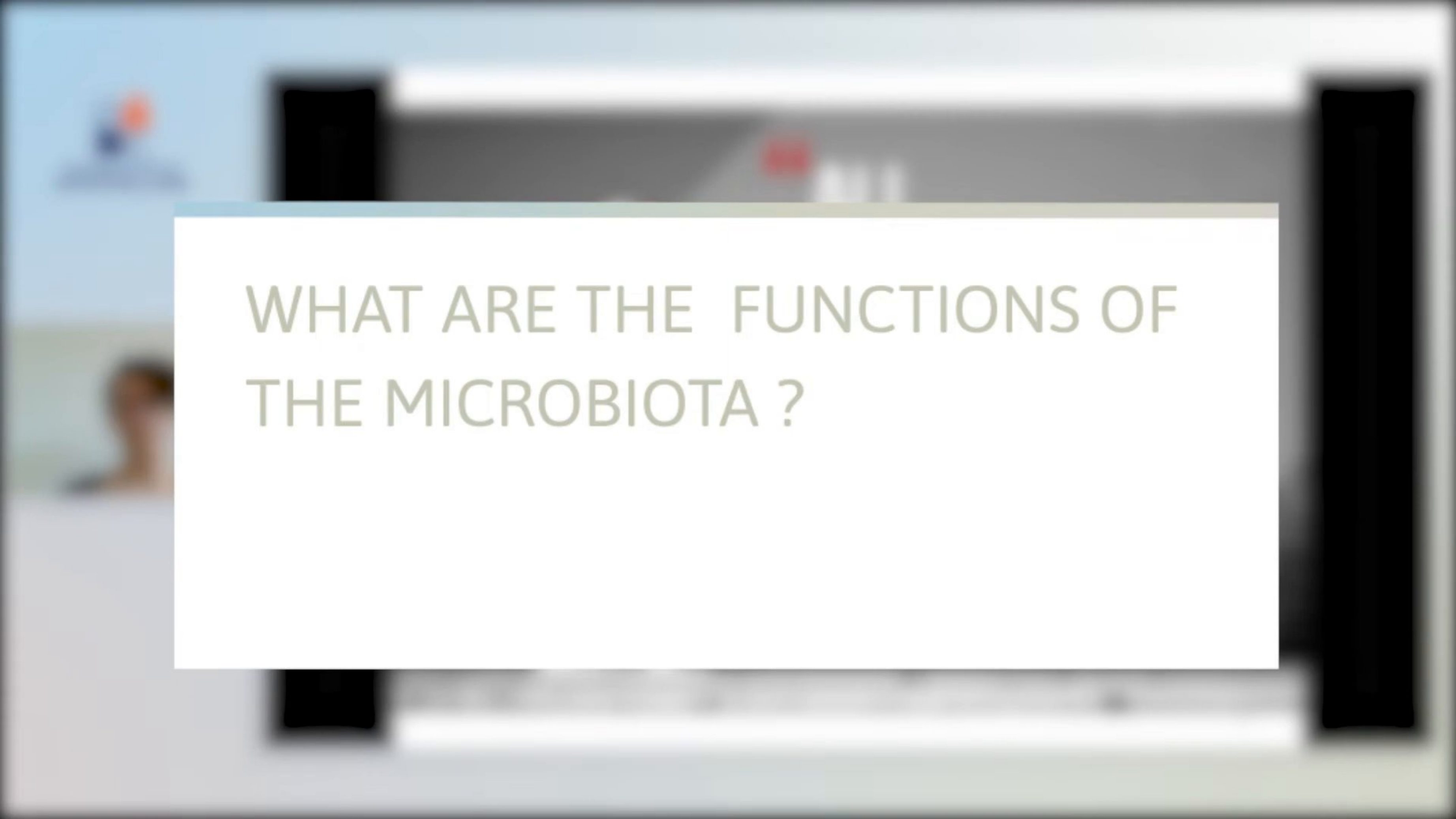
Infancy



Toddler & childhood







WHAT ARE THE FUNCTIONS OF
THE MICROBIOTA ?



MAKE

vitamins, including
B12, K AND FOLATE



TEACH

THE IMMUNE SYSTEM
to tell friends from foes



PRODUCE

IMPORTANT MOLECULES
that travel around the body



DEFEND

against harmful
MICROORGANISMS



INFLUENCE

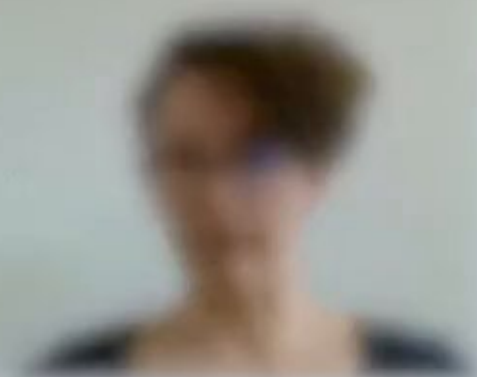
the calories you harvest



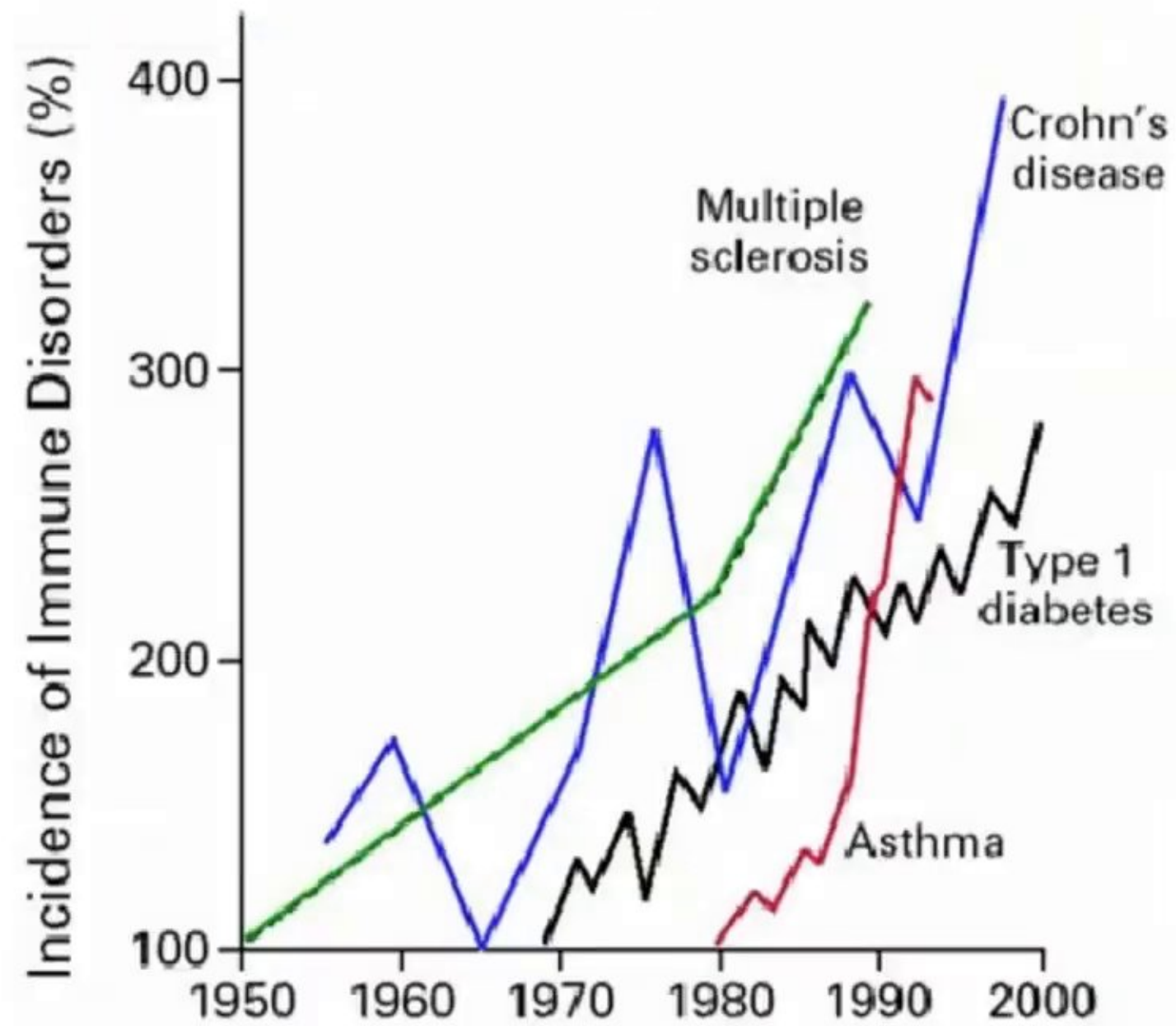
HELP

PRODUCE SEROTONIN,
important for optimal
GUT FUNCTION





What is happening in the last years?



WHAT ENVIRONMENTAL
FACTORS IMPACT OUR
MICROBIOTA ?

Then....



Changes in the environment

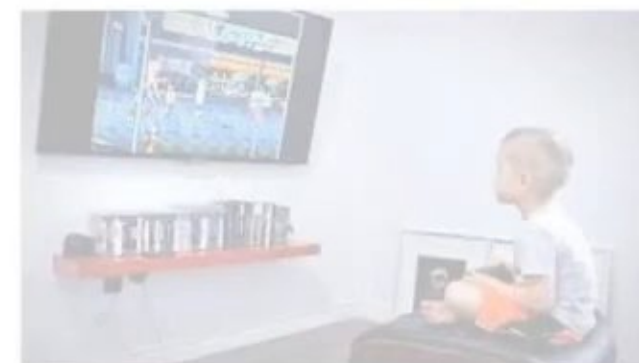
Now....



Then....

Changes in the environment

Now....



Then....

Changes in the environment

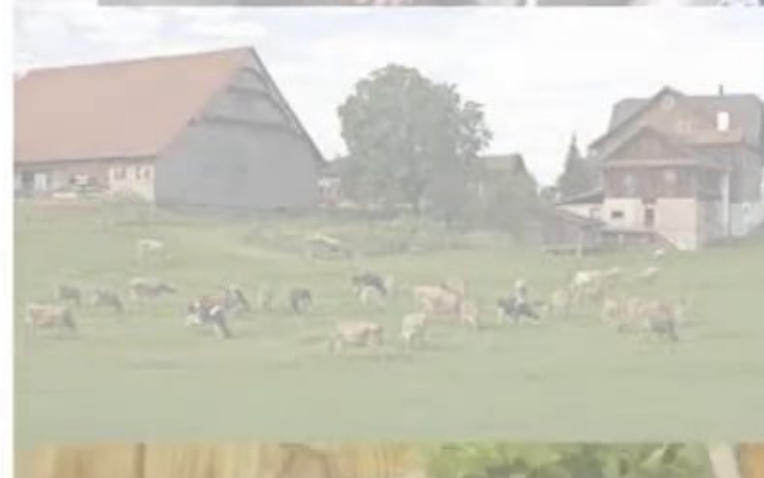
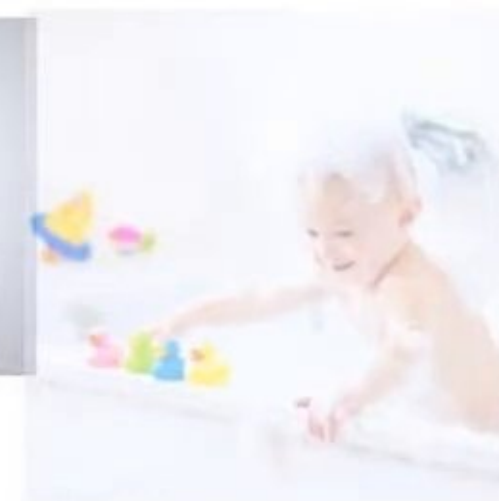
Now....



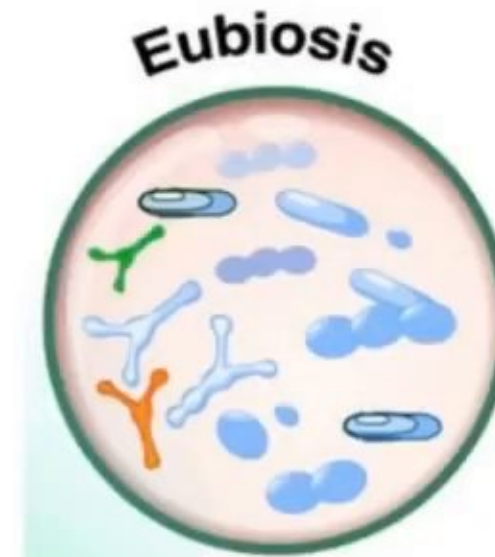
Then....

Changes in the environment

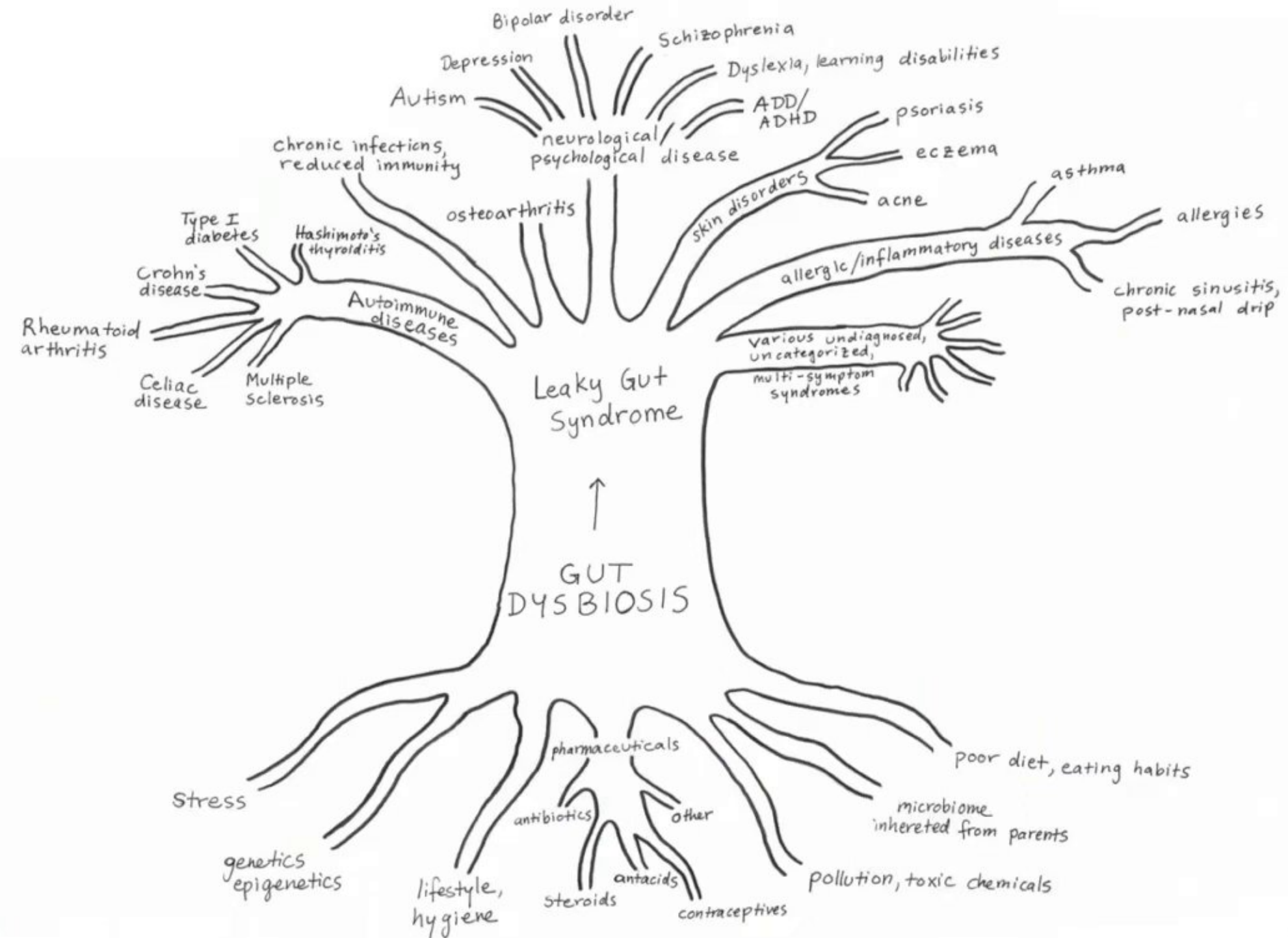
Now....



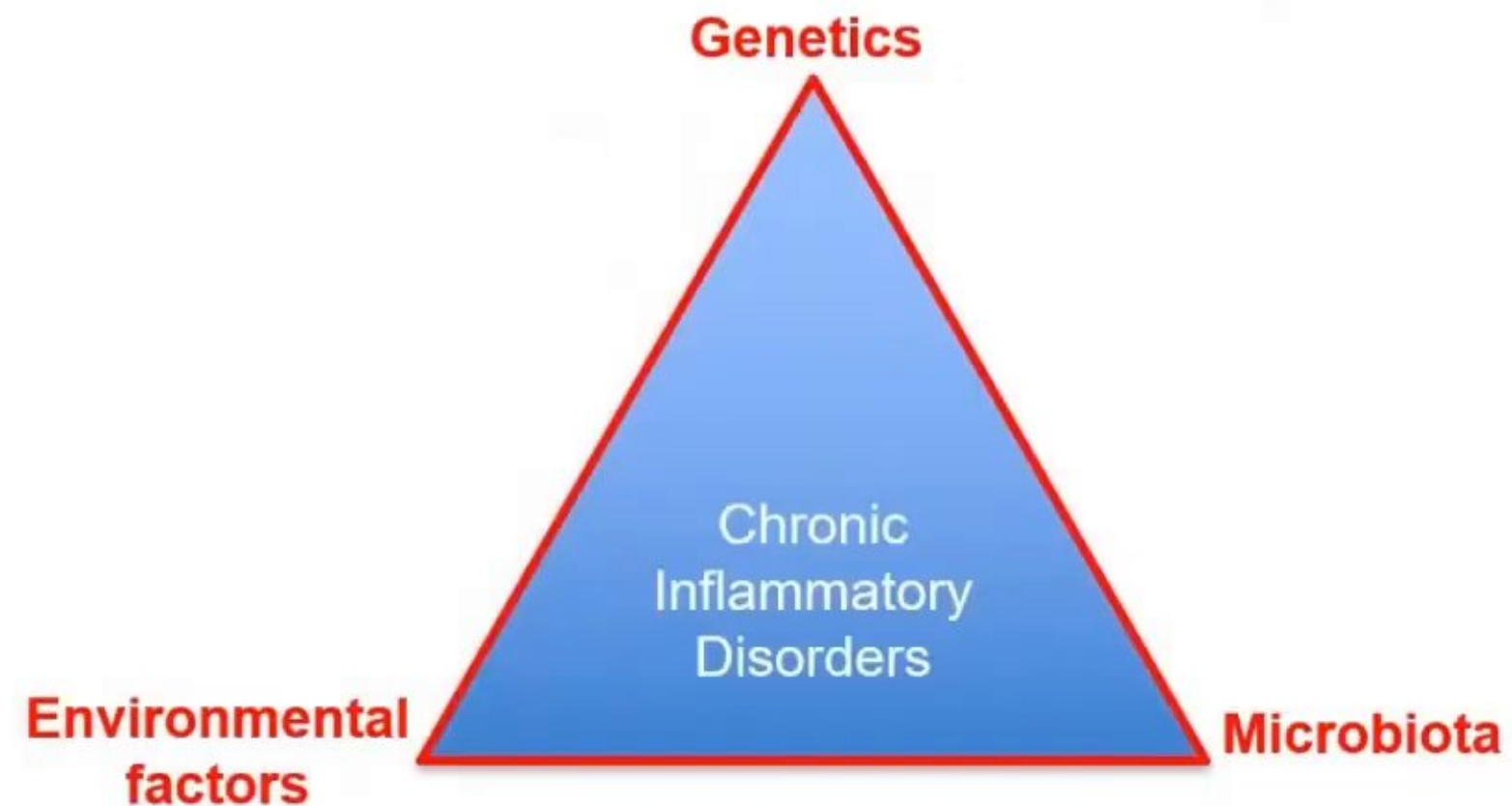
Changes in the BIO-DIVERSITY



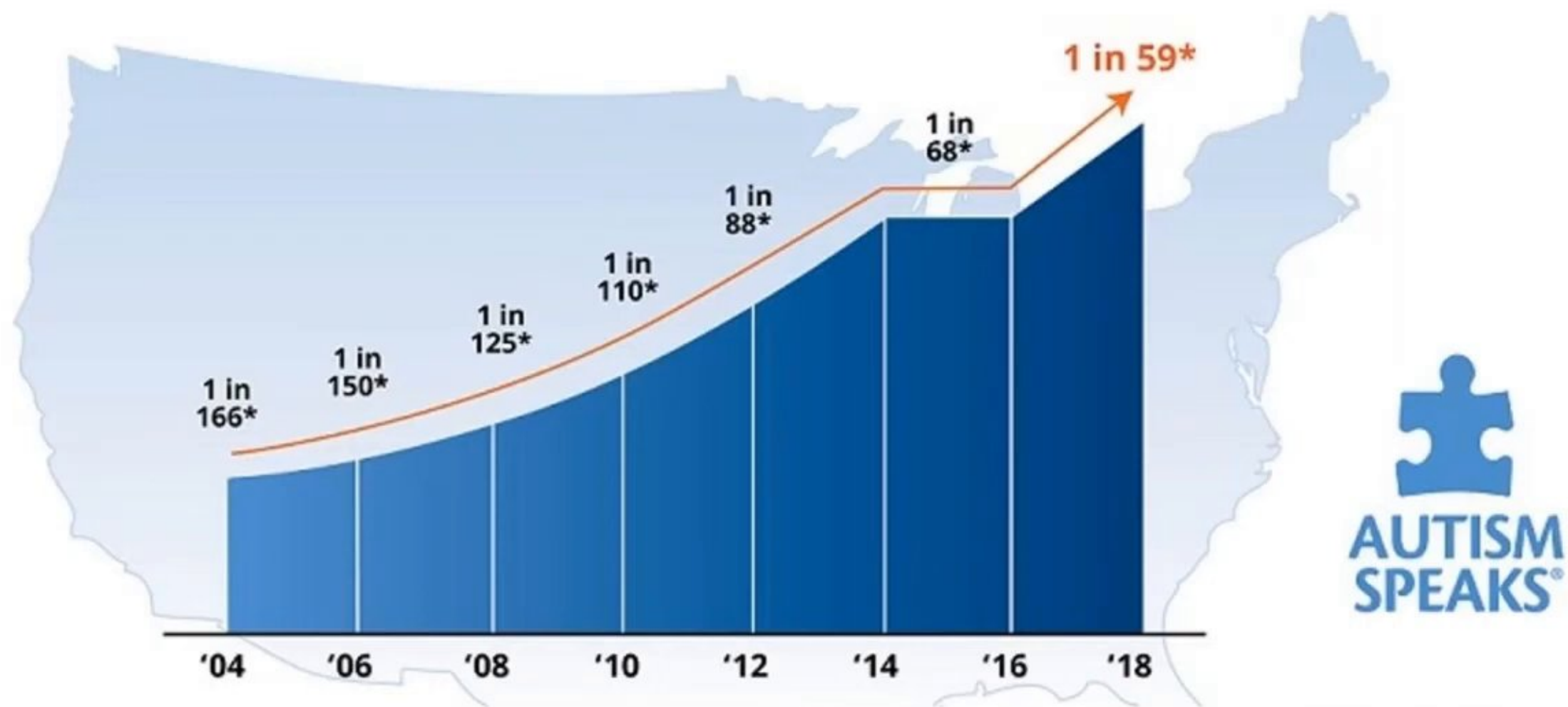
Microbial Dysbiosis



How can the Microbiota mediate Health?



Estimated Autism Prevalence 2018

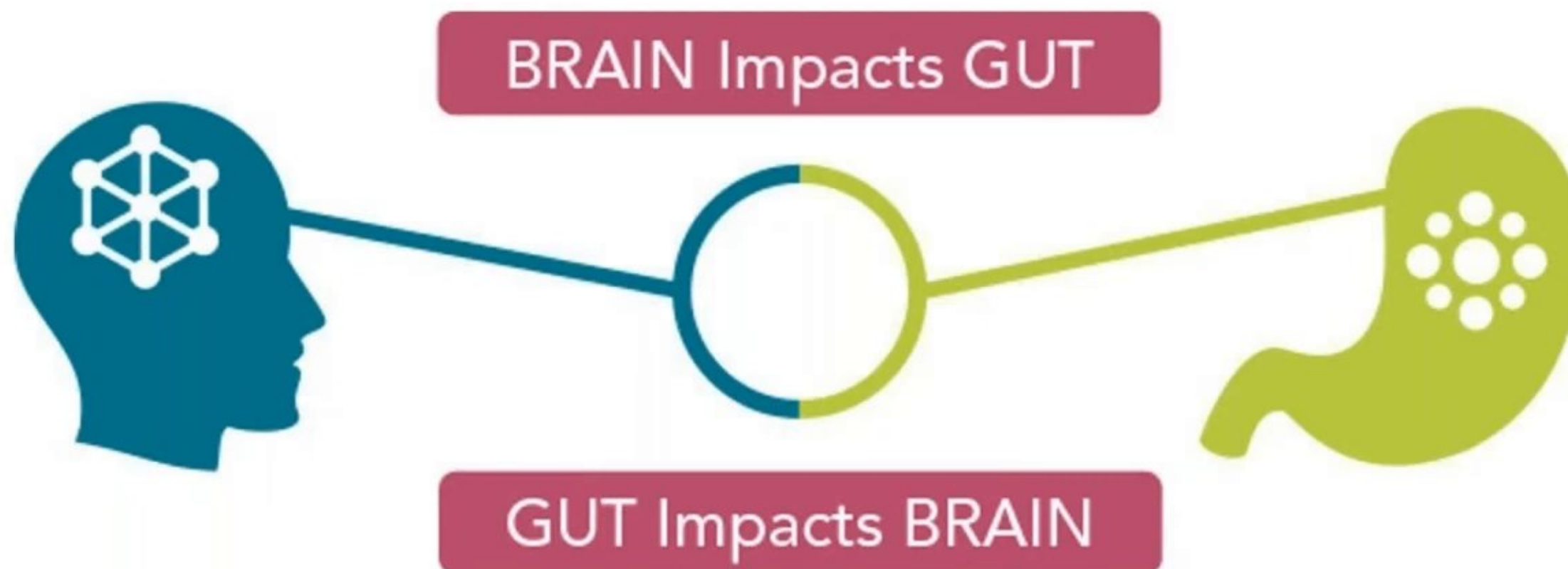


* Centers for Disease Control and Prevention (CDC) prevalence estimates are for 4 years prior to the report date (e.g. 2018 figures are from 2014)

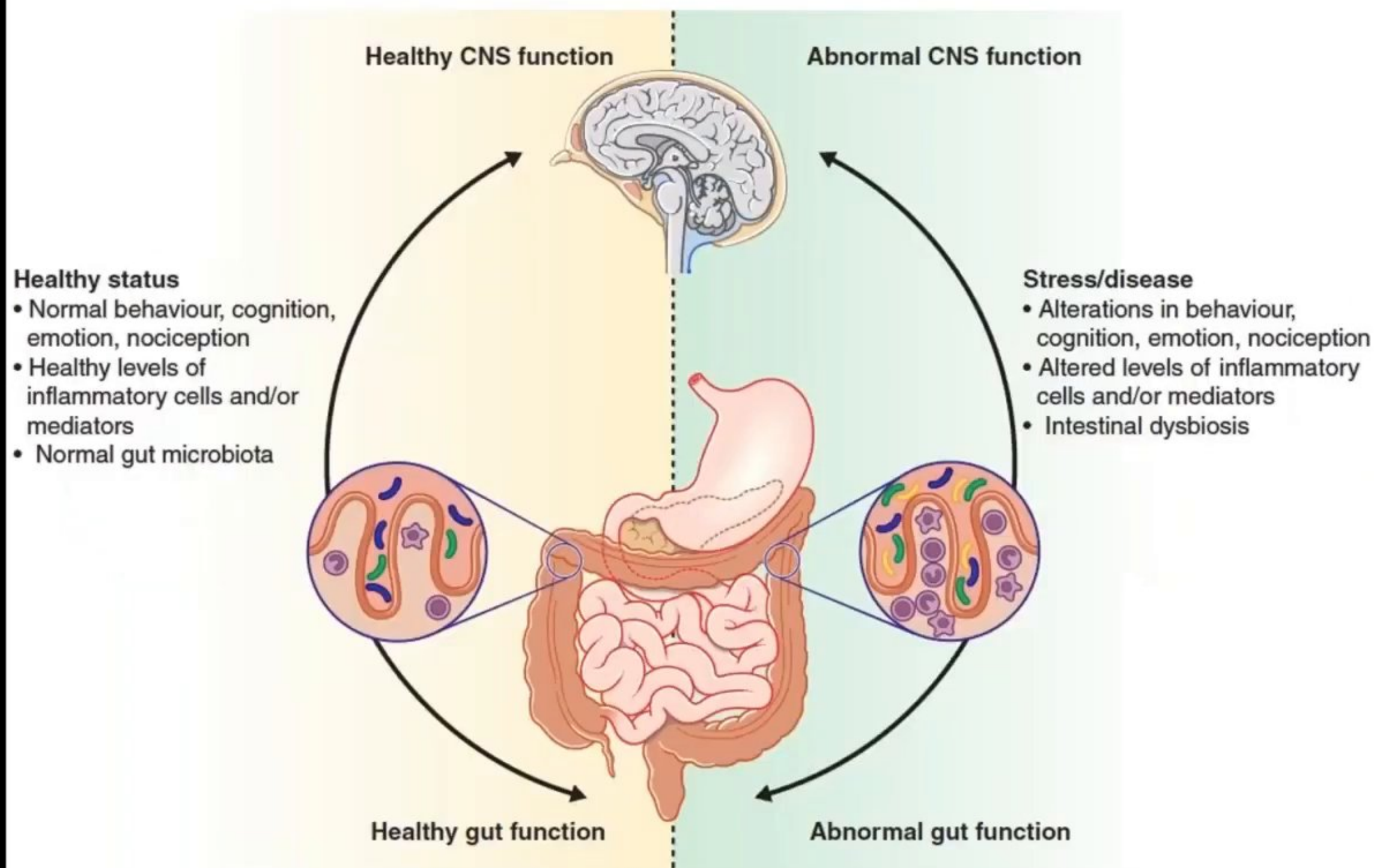


WHAT DOES THE GUT-BRAIN
AXIS CONSIST OF ?

Gut-Brain axis



Gut-Microbiota-Brain axis



Dore' G., et al, Ueg Journal 2013

How can we therapeutically act?

PREBIOTICS

How this "Gut Fertilizer" helps good bacteria (probiotics) thrive.



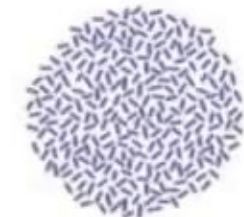
PROBIOTICS



LACTOBACILLUS



LACTOCOCCUS



PROPIONIBACTERIUM



STREPTOCOCCUS
THERMOPHILUS



BIFIDOBACTERIUM



BULGARICUS

POO
AS
MEDICINE





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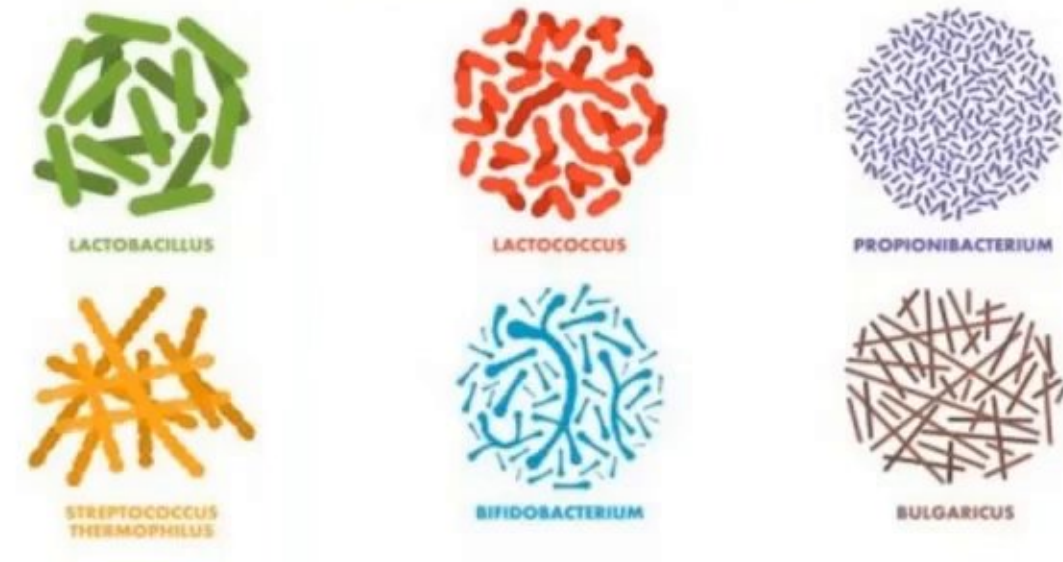
How can we therapeutically act?

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PROBIOTICS



POO
AS
MEDICINE





**BINC promotes research
for maternal and infant health**