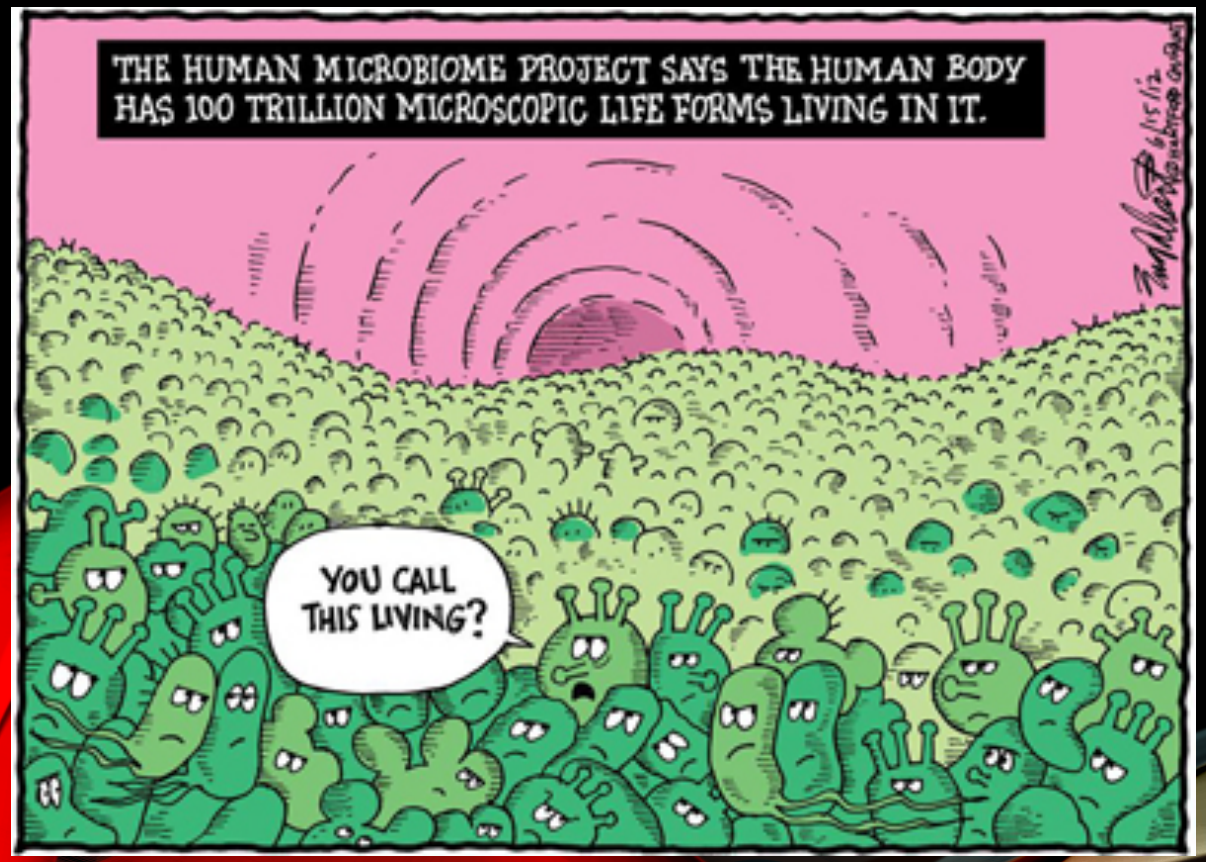
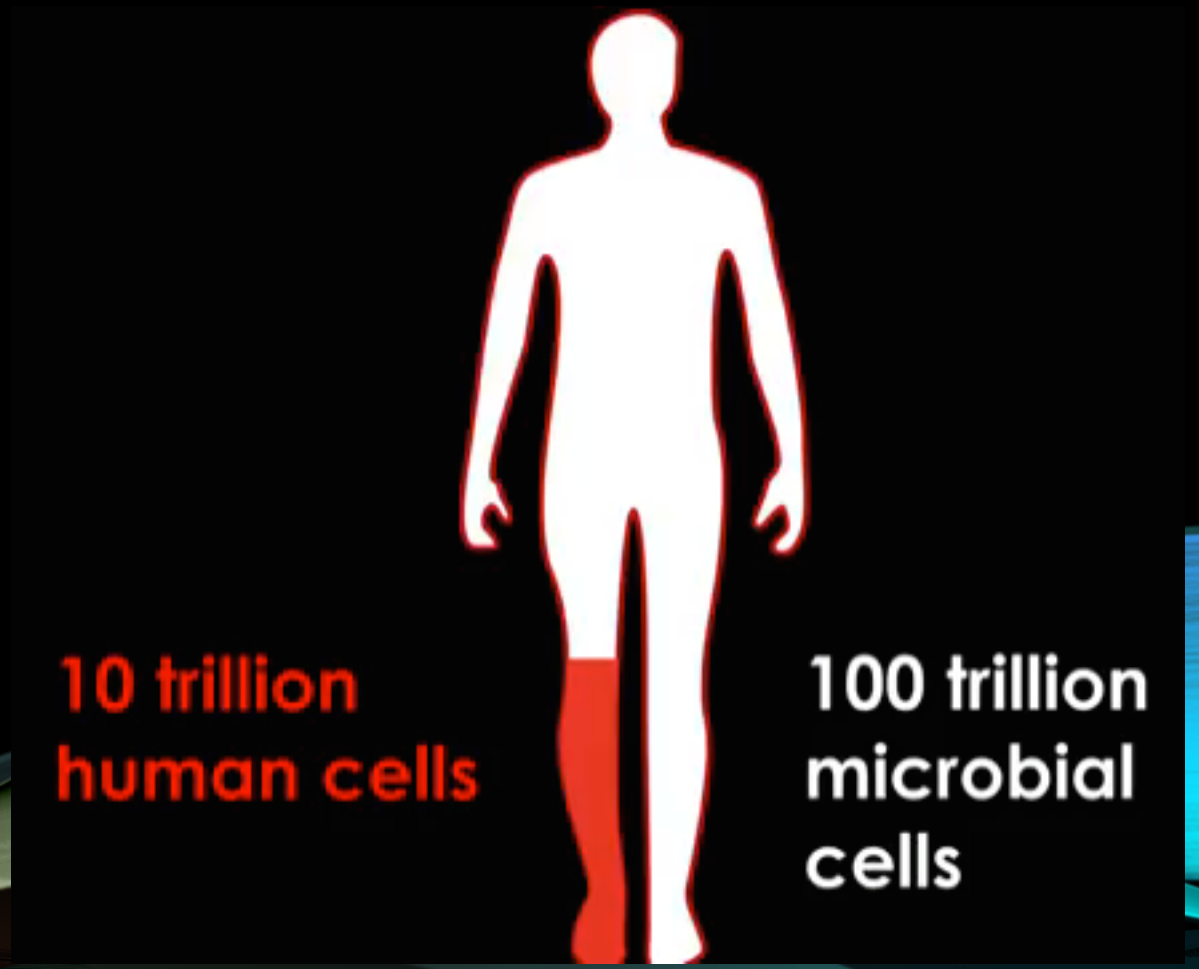
YOUR MICROBIOME

What you need to know.

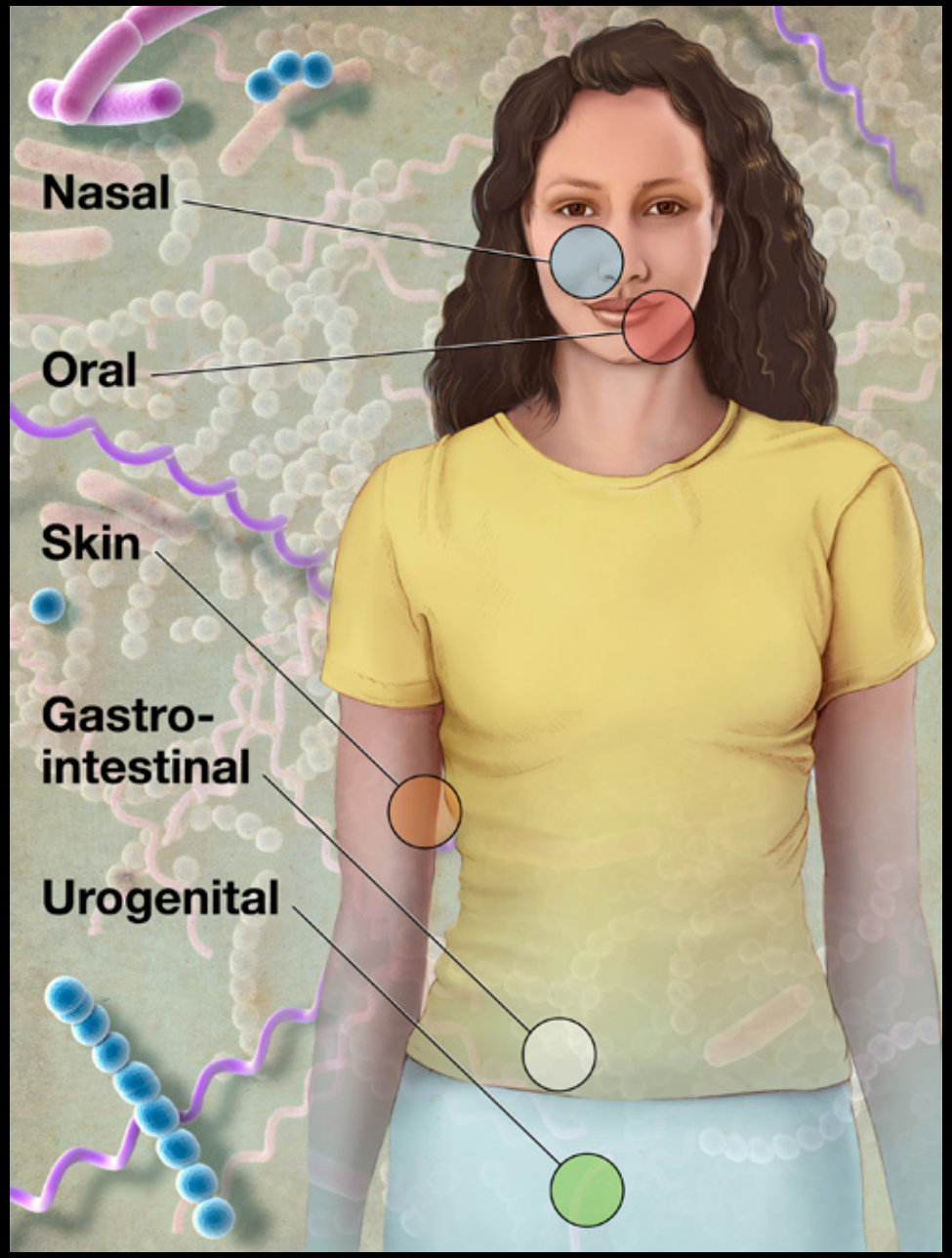
Microbes = 100,000,000,000,000



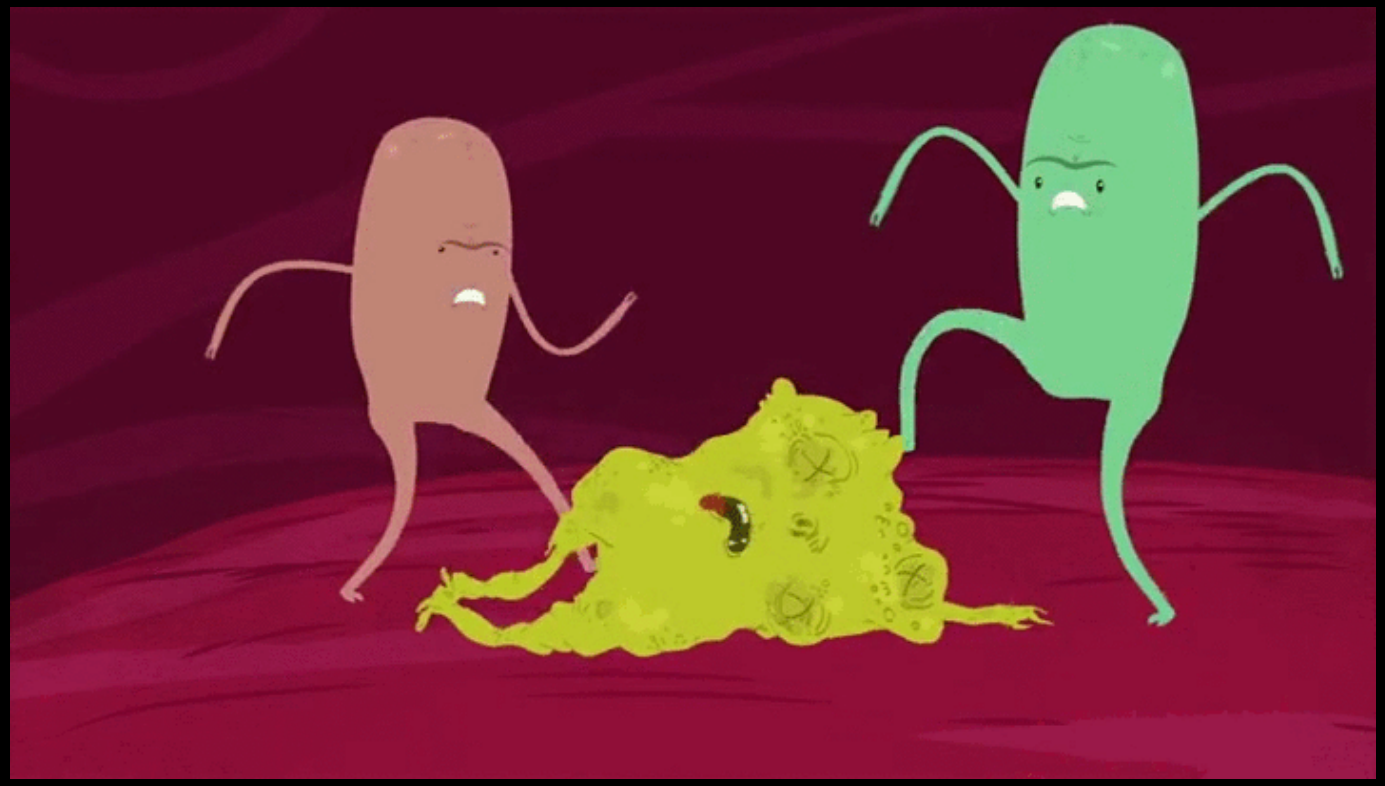


Where are microbes found?

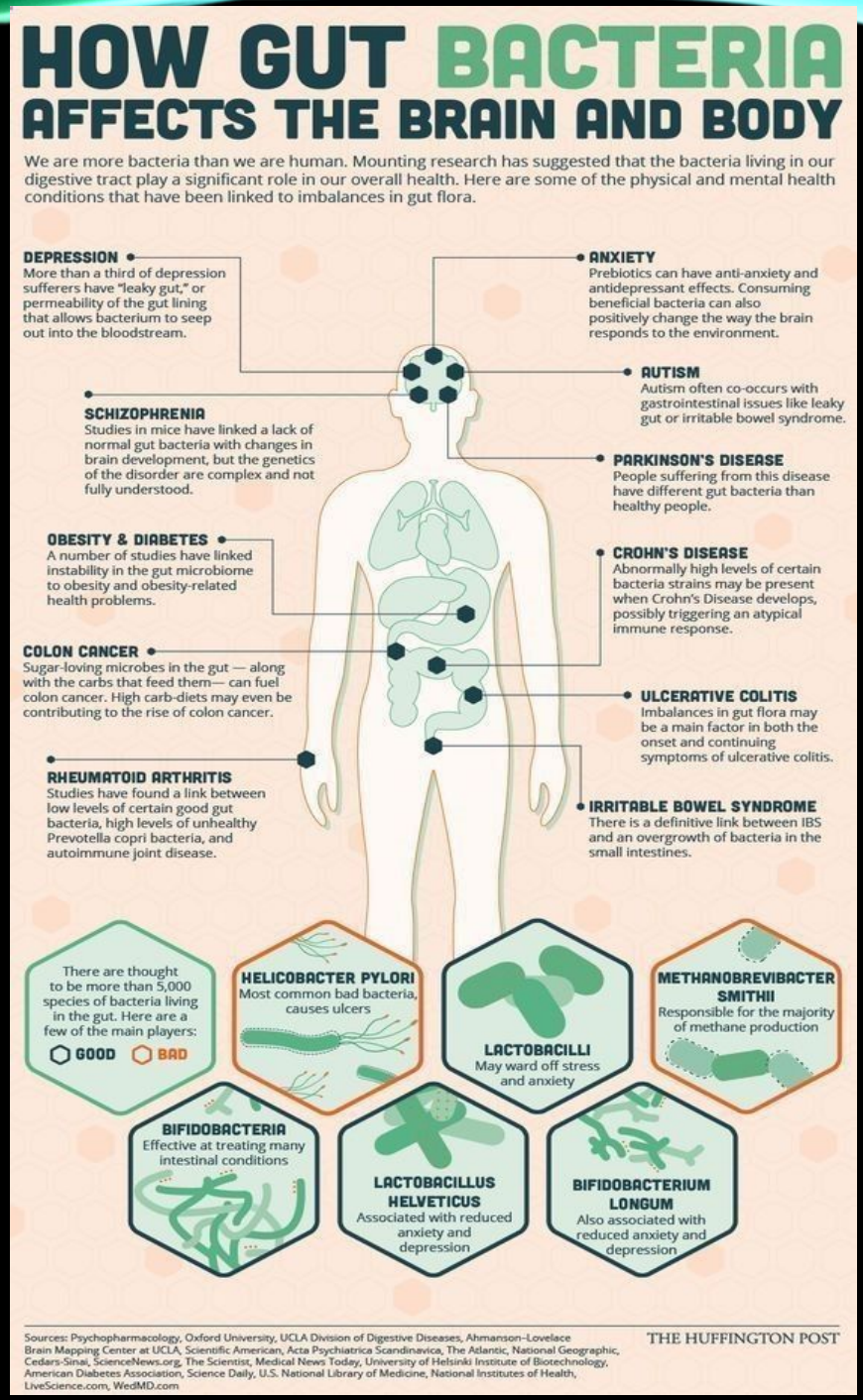
Skin and mucous membranes
Upper respiratory tract
Gastrointestinal tract
Outer opening of urethra
External genitalia
Vagina
External ear canal
External eye (lids, conjunctiva)



Benefits of a Healthy Microbiome



1. Synthesize and excrete vitamins
   Vitamin K and Vitamin B12
2. Prevent colonization by pathogens
3. Stimulate the development of some tissues
   i.e., intestines, certain lymphatic tissues, capillary density
4. Works with immune system
5. Keeps the brain healthy
   Plays a major role in mental health
6. Epigenetic expression of genes



LINKS BETWEEN GUT BACTERIA AND HEALTH

MOOD DISORDERS:
Bacteria in the gut activate neural pathways and central nervous system signaling systems. Gut dysbiosis, especially a lack of beneficial bacterial strains, is linked to depression and anxiety, with more than a third of depression sufferers also having a leaky gut.

SCHIZOPHRENIA:
Mice studies link a lack of normal bacteria with changes in brain development and schizophrenic behavior. Human infants born prematurely are known to lack biodiversity in their guts and be at a higher risk of schizophrenia.

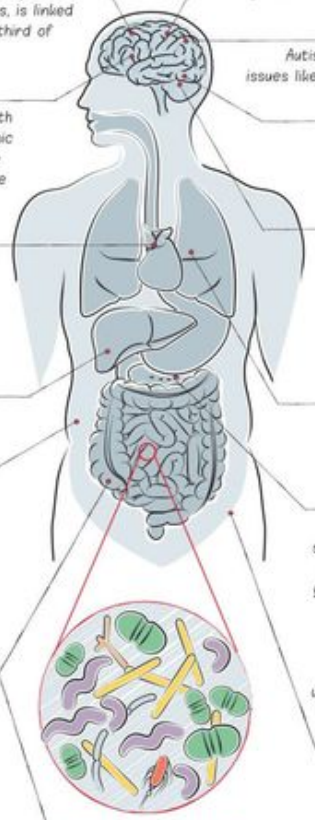
CARDIOVASCULAR DISEASE:
Certain grain-loving bacteria are known to also convert L-carnitine, a protein rich in red meat, into an atherogenic compound called TMAO, raising the risk of cardiovascular disease (see page 64).

LIVER CANCER:
The same changes in microbial composition that are linked to obesity are known to increase the risk of liver cancer.

OBESITY:
Gut microbes can impact metabolism via signaling pathways in the gut, with effects on inflammation, insulin resistance, and deposition of energy in fat stores. A number of studies show specific microbial patterns associated with obesity.

INFLAMMATORY BOWEL DISEASES:
Abnormally high levels of certain undesirable strains of bacteria along with dysregulated immune responses to gut microbes may trigger the development and continuing symptoms of both Crohn's disease and ulcerative colitis.

IRRITABLE BOWEL SYNDROME:
There is a definitive link between IBS and an overgrowth of bacteria in the small intestines (SIBO).



COLORECTAL CANCER:
Lower levels of beneficial bacteria as well as higher levels of certain sugar-loving microbes in the gut are linked to increased risk and growth rates of colorectal cancers.

OBSESSIVE COMPULSIVE DISORDER:
Dysfunction of the gut microbiome, perhaps related to high stress and/or antibiotic use, is linked to OCD.

AUTISM:
Autism often co-occurs with gastrointestinal issues like leaky gut and irritable bowel syndrome.

PARKINSON'S DISEASE:
People suffering from Parkinson's have different microbial composition of the gut than healthy people.

MULTIPLE SCLEROSIS:
Dysbiosis and the resulting loss of balance in gastrointestinal immune responses are linked to the development of MS and may explain why MS symptoms can be mitigated with therapeutic diets.

ASTHMA AND ALLERGIES:
Low diversity of gut bacteria, especially early in life, is linked to increased risk of asthma and allergies.

DIABETES:
Diabetics have lower levels of beneficial strains of bacteria and skewed ratios of different strains, with lower numbers of gut microbes overall. Some compositional changes in gut microbiota appear to scale with glucose levels—that is, the higher a person's glucose levels, the fewer total microbes and the more undesirable species of bacteria are likely to be found in that person's gut.

RHEUMATOID ARTHRITIS:
Studies have found a link between low levels of probiotic bacteria and high levels of undesirable bacterial strains with autoimmune joint diseases like RA.

OTHER CANCERS:
Dysbiosis is linked to increased risk of gastric, esophageal, pancreatic, laryngeal, breast, and gallbladder carcinomas.

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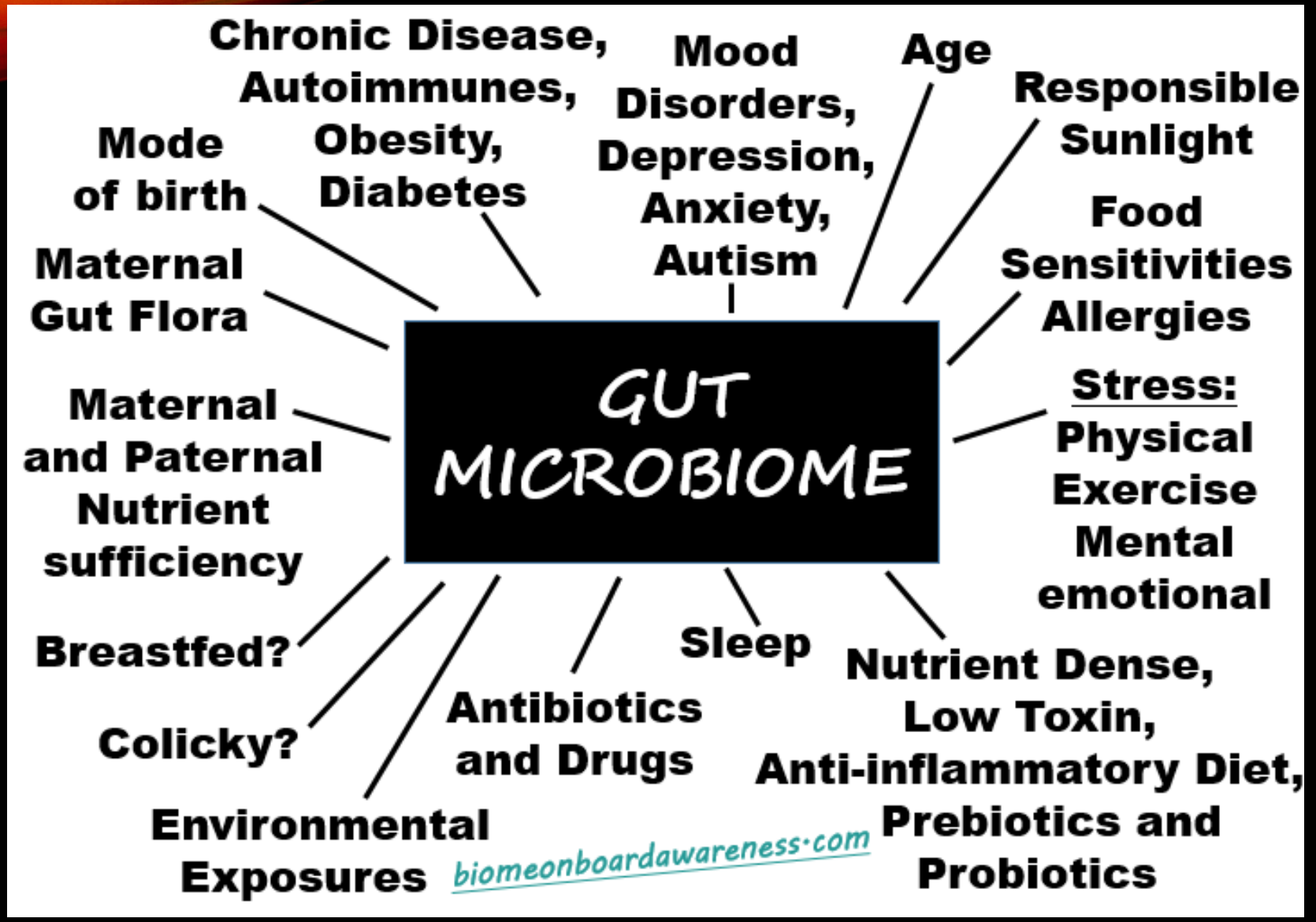
Chronic Disease, Autoimmunes, Obesity, Diabetes
Mood Disorders, Depression, Anxiety, Autism
Age
Responsible Sunlight
Mode of birth
Food Sensitivities Allergies
Maternal Gut Flora
GUT MICROBIOME
Stress:
Physical
Exercise
Mental
emotional
Maternal and Paternal Nutrient sufficiency
Breastfed?
Sleep
Nutrient Dense, Low Toxin, Anti-inflammatory Diet, Prebiotics and Probiotics
Colicky?
Antibiotics and Drugs
Environmental Exposures
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HOW DO WE DESTROY OUR MICROBIOME?

- Lack of exercise
- Glyphosate (pesticides)
- Antibiotics
- Lack of sleep
- Chronic stress
- Diet
  - Alcohol
  - Gluten
  - Legumes
  - NSAIDS
  - Saturated Fat
  - Grains
  - Sugar
  - Processed and Fast Foods
  - Emulsifiers and Thickeners

DYSBIOSIS LEADS TO CRAVINGS!

WHAT DO DO ABOUT IT

Prebiotics

Probiotics (supplements in spore form)

Fiber

Play in the dirt!

Hang out with healthy people

Seafood (Omega-3's please)

Starchy roots and tubers

Leafy Greens

Cruciferous veggies

**Fermented foods (not alcohol)

Organ Meats

Bone Broth