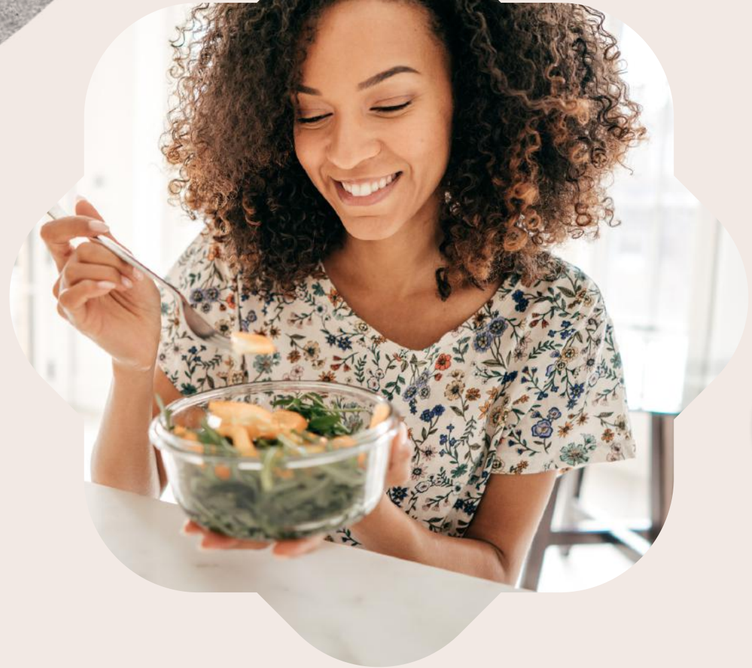
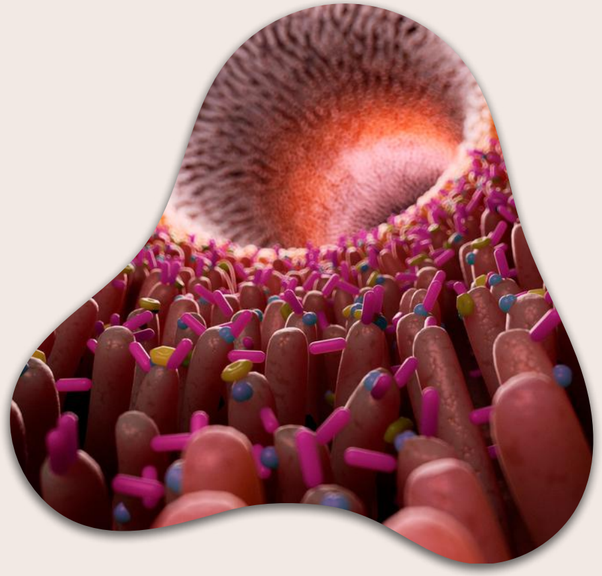




Gut Check:

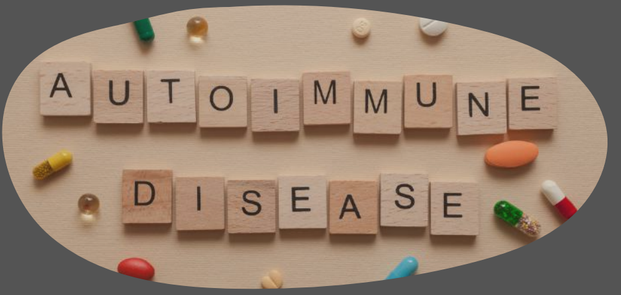
How a Healthy Gut Supports Wellness

Dr. Raquel Garzon
Revitalize Project

The Gut and Health

It is estimated that 90% of disease can be traced in some way to the gut microbiome.

- Type 2 diabetes
- Obesity, metabolic disorders
- Cholesterol, thyroid issues
- Liver and kidney disease
- Autism
- Neuropsychiatric disorders: OCD, anxiety, schizophrenia, depression
- Irritable bowel syndrome
- Asthma
- Nearly all autoimmune diseases, including, Celiac, RA, IBD, type 1 diabetes, lupus
- Skin conditions: eczema, psoriasis



Human with Microbes or Microbes in Human form?

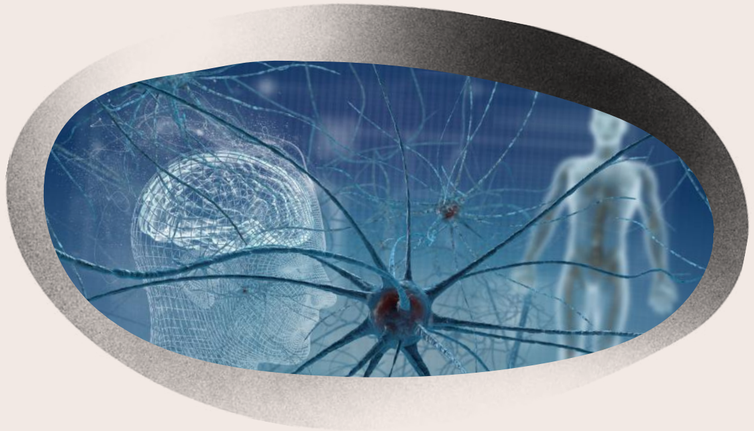
- 10-100 trillion microbial cells living in our bodies, most are gut bacteria
- >10,000 different microbial species living in the human body
- Microbial cells outnumber human cells in our body
- ~3.3 million non-redundant genes in the gut microbiome
- ~22,000 genes in the human genome
- Humans are 99.9% identical to each other in terms of their own genome
- Humans are only 10-20% identical to each other in terms of the microbiome
- Microbes in your gut weigh between 2 and 5 lbs. (Brain weights ~3 lbs.)
- Microbes include bacteria, viruses, and fungi

Role of Gut Microbes

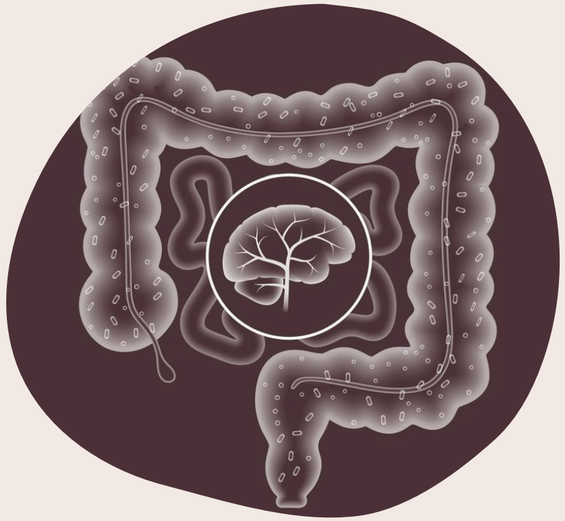
- Development & maintenance of immune system
- Production of protective metabolites for the colon
  - Reduces risk of gastrointestinal and prostate cancer
- Compete with pathogenic microbes
- Maintain integrity of the intestinal barrier
- Anti-inflammatory activity
- Antimicrobial secretions
- Detoxify drugs and other environmental metabolites
- Synthesize essential vitamins, such as biotin, folate, and vitamin K
- Neurotransmitter production/regulation:
  - Serotonin (90% produced in the gut)
  - Cortisol and tryptophan regulation
  - Produce melatonin, dopamine, GABA

What came first: the gut or the brain?

Neurotransmitters and neuroactive chemicals



Development of the enteric and central nervous systems



The Gut-Brain Axis

Revitalize Project, Inc.

Diversity is Key

Changes in diet impact composition and function of gut microbiota rapidly in just 2-4 days

What Decreases Diversity

Highly processed foods
Whole milk/high fat dairy
Sugar-sweetened beverages
Animal protein
Saturated fats

What Increases Diversity

Coffee, tea
Red wine
Fruits
Vegetables
Nuts
More variety

The Hadza people in Tanzania

- One of the richest, most diverse microbiomes in the world
  - 40% higher than in the U.S.
- Almost zero allergies, obesity, cancer, heart disease
- Eat ~600 plant and animal species in a year
  - In the U.S. we eat less than 50 species in a year
- 90% of food from hunting-gathering
- 30% birds/game meat and 70% plants
- No cultivation of plants/crops and no domestication of animals

Fiber

- Food for gut microbes
- Fermentation process
- Postbiotics (butyrate, acetate, propionate)
- Preferred energy source for cells in the large intestine
- Protects integrity of intestinal mucosa
- Regulates intestinal inflammation
- Protects against colon cancer

Insoluble

- Cellulose and hemicelluloses
- Low to moderate fermentability
- Beans/legumes/nuts
- Cereals, peas, brans
- Fruits, vegetables

Soluble

- Beta-glucans, pectins, fructans
- High fermentability
- Oats, barley, rye, wheat
- Legumes, potatoes
- Bananas, artichokes
- Sugar beets, chicory root
- Onion, garlic

Prebiotics.

Non-digestible food ingredient (oligosaccharides, inulin, lactulose)
Stimulates the growth of beneficial microbiota
Suppresses the growth of pathogenic microbes

- Satiety in eating
- Improved calcium absorption/bone health
- Improvements in IBS/diarrhea
- Decreased allergies
- Improved urogenital and skin health
- Reductions in glucose, inflammation, cholesterol

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*A sudden increase in the consumption of prebiotics can lead to gas and bloating, so start slowly and ease into a higher intake depending on the response by your body.

Prebiotic food examples

Apples
Asparagus
Bananas
Beets
Cabbage
Chicory root
Dandelion greens
Garlic
Jerusalem artichoke
Jicama root
Onions
Tomatoes
Seaweed
Yams
Barley
Chia seeds
Flax seeds
Hemp seeds
Oatmeal
Wheat bran
Chickpeas
Kidney beans
Lima beans
Lentils
Navy beans
Soybeans

#Prebiotics
#GutCheck

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Probiotic

A microbial preparation containing live bacteria that supplements normal gastrointestinal flora or that helps to establish a population of beneficial microbes in the body.

Probiotics can help strengthen the immune system, reduce the risk of colds and flu, and help with digestion, among other benefits.

Probiotic food sources:

- Yogurt
- Kefir
- Sauerkraut
- Kimchi
- Tempeh
- Miso
- Kombucha
- Pickles

#Probiotics
#GutCheck

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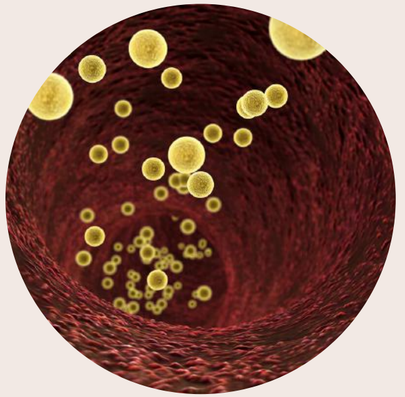
Probiotics and Cholesterol



Bind to cholesterol in the gut and is excreted

Microbes incorporate cholesterol into their own cell membranes

Postbiotics produced interfere with cholesterol synthesis

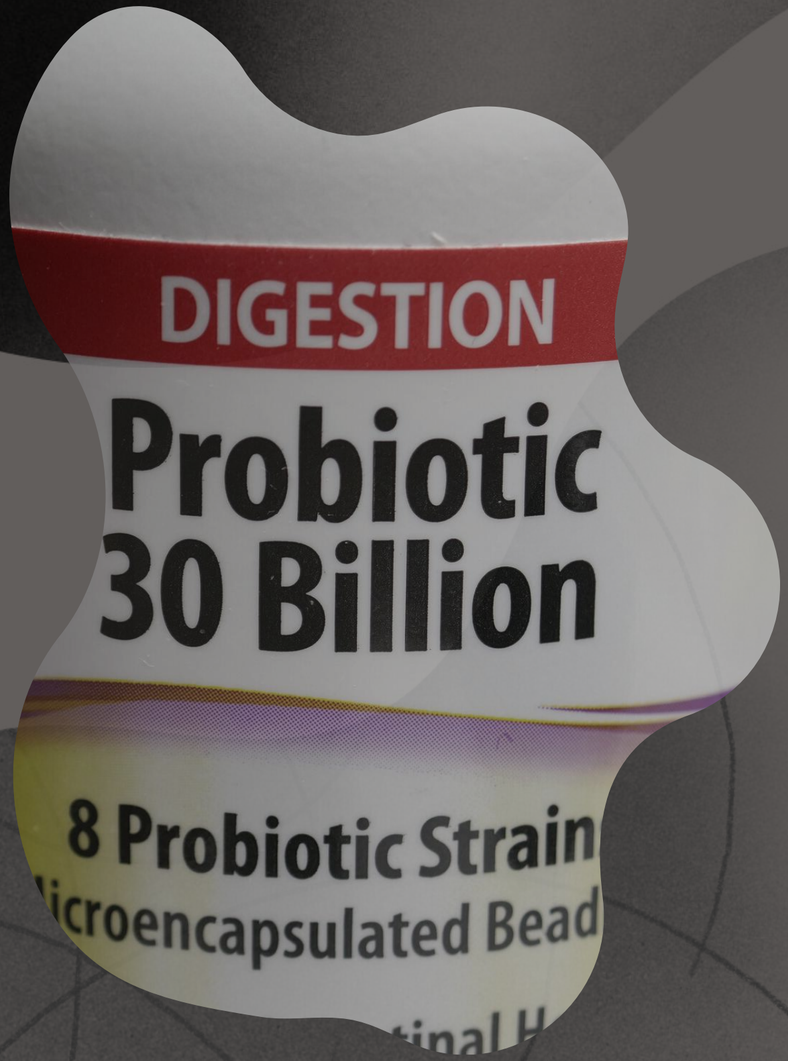
Microbes deconjugate bile acids, leading to excretion, and cholesterol reduction

Increase the solubility of cholesterol and reduce the amount of cholesterol absorbed

Reductions in total cholesterol and LDL

Probiotic Supplements

- Not FDA regulated (no supplements are)
- May not be beneficial for everybody
- Can be harmful in certain cases (SIBO)
- Look for diversity
- At least 8 strains or more is likely more beneficial
- Align type of strain with what you are targeting
- Refrigerated/shelf-stable
- Check how many organisms will be alive by use date
- Do not take with hot foods or beverages
- Avoid taking with acidic beverages



Microbial Strains and Benefits

- Streptococcus thermophilus
  - breaks down casein, which can cause allergies
- Bacillus laterosporus
  - fights harmful organisms, including candida
- Pediococcus acidilactici
  - prevents food from rotting in your gut
- Bifidobacterium breve
  - critical for colon health, especially after antibiotics
- Bifidobacterium infantis
  - fights off pathogens; good for people with constipation
- Bifidobacterium bifidum
  - good for digestion, immune system, skin, allergies
- Bifidobacterium lactis
  - neutralizes gliadin, the wheat protein responsible for gluten sensitivity and leaky gut
- Bifidobacterium longum
  - helpful for anyone taking antibiotics
- Lactobacillus acidophilus
  - supports digestion, particularly lactose digestion, boosts the immune system

Microbial Strains and Benefits

- Lactobacillus brevis
  - soothing to both oral and colon tissue
- Lactobacillus bulgaricus
  - fights invading organisms, neutralizes toxins, and promotes balance
- Lactobacillus casei
  - supports digestion, the immune system, and soothes the bowels
- Lactobacillus gasseri
  - supports digestion, balanced blood sugar, and encourages a normal body weight
- Lactococcus lactis
  - helps digestion, encourages a normal gut environment, helps to defend against leaky gut
- Lactobacillus plantarum
  - supports calcium absorption, hormone production, boosts the immune system
- Lactobacillus paracasei
  - helps with fatigue, protects teeth from cavities
- Lactobacillus rhamnosus
  - helps with UTIs by kick-starting antibodies and boosting the immune system
- Lactobacillus salivarius
  - fights unwanted microbes in the mouth and the small intestine

Killers of Beneficial Microbes

Overuse of antibiotics

Sugar/overly processed foods

Artificial sweeteners

- aspartame, saccharin, sucralose

Food intolerances

- gluten, dairy, soy, corn (common ones)

Emotional and mental stress

Alcohol (except for red wine)

Lack of exercise

Over-sanitation/disinfectants/pesticides

Smoking

Lack of sleep or poor-quality sleep

Animal proteins/high fat foods

Medications

- antacids, laxatives, NSAIDs, oral contraceptives

Gut Microbiome Supporters

Natural dirt/soil
Gardening/farming

Probiotic, high fiber eating

Relaxation
Deep breathing
Calming

Polyphenols

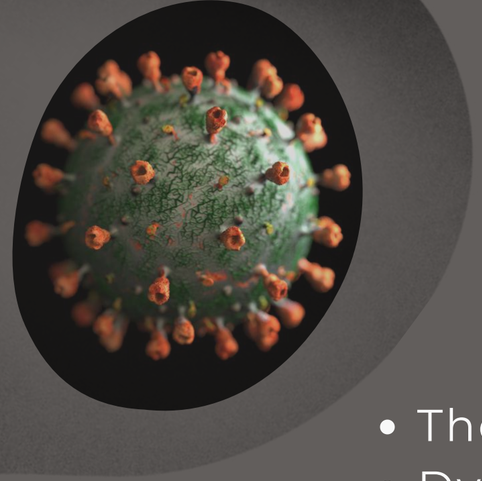
Sleep

Exercise

Yoga
Tai Chi
Qi Gong

Hydration
Water

Pets (cats and dogs)



The Gut Microbiome and COVID

- The gut microbiome influences the severity of COVID infection
- Dysbiosis has been implicated in otherwise healthy people who developed severe infection
- Dysbiosis allows increased survival of the virus
- Gut microbiome is implicated in long COVID
- Pandemic-related factors that increased the risk of dysbiosis:
  - Sanitizing/disinfecting
  - Less exercise
  - Increases in alcohol consumption and smoking
  - Less interaction with natural environmental microbes (dirt/soil)
  - Less food variety, increases in shelf-stable food, less perishable foods
  - Social isolation/loneliness/financial stress
  - Disrupted sleep patterns
  - Increased use of antibiotics
- Protective factors during COVID:
  - More cat and dog adoptions

Thank you...

Train For the Life You Want
Make Moments Matter
Thrive!

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Dr. Raquel Garzon

Revitalize Project