



Module 4:

Common GI Problems & Solutions



**Build Your
Resilient Gut**
MICROBIOME & BEYOND



with
Kiran Krishnan

THIS IS NOT MEDICAL ADVISE. THE INFORMATION IS FOR EDUCATION ONLY. PLEASE SPEAK WITH A HEALTHCARE PROFESSIONAL ABOUT ANY DIAGNOSIS OR CHANGES TO YOUR DIET, SUPPLEMENTS OR MEDICATION

Study session:

Stomach Problems & Solutions



**Build Your
Resilient Gut**
MICROBIOME & BEYOND



Hypochlorhydria



Definition: Low/inadequate levels of stomach acid



Signs & Symptoms:

- Bloating/gas, indigestion, heartburn, gas, nutrient deficiencies (e.g., B12, iron), feeling overly full after meals, frequent burping



Consequences:

- Impaired protein breakdown - contributes to malnutrition and increased food sensitivities
- Disrupted signaling pancreas and gallbladder, reducing release of enzymes and bile
- Altered pH environment - allows harmful microbes to thrive, leading to dysbiosis
- Impaired nutrient absorption, such as B12, calcium, and iron
- Overgrowth



Root Causes:

- Stress, poor meal hygiene, aging, H. pylori infection, chronic antacid/PPI use, nutrient deficiencies (zinc, B vitamins, magnesium, sodium, etc...), low protein diets, dehydration



Solutions to support the system (these are not treatments):

- **Lifestyle:** Good meal hygiene (eat slowly, engage senses, relax before eating, limit liquid during meals)
- **Diet:** Avoid highly processed foods, eat adequate protein and nutrient-dense whole foods. Increasing protein is positive, fermented beverages, buckwheat flour and polyphenol rich foods.
- **Supplements:**
 - **HCLGuard+**
 - Digestive Bitters



Definition: When stomach acid or bile flows back into the esophagus, causing irritation and discomfort.



Signs & Symptoms:

- Heartburn, regurgitation, chest pain, difficulty swallowing, sore throat, chronic cough, hoarseness, bad breath.



Consequences:

- Can cause esophagitis, leading to ulcers, strictures, or Barrett's esophagus (a precancerous condition)
- Use of antacids and PPIs to manage reflux reduces stomach acid, leading to nutrient deficiencies over time.
- Throat & Oral Damage -Chronic sore throat, erosion of tooth enamel, and other oral health issues.



Root Causes:

- Low stomach acid, pregnancy, poor diet, obesity, hiatal hernia, chronic stress, overeating, certain foods (e.g., spicy, fatty, acidic foods), delayed gastric emptying (fermentation occurs), dysbiosis, SIBO



Solutions to support the system (these are not treatments):

- **Lifestyle:** Good meal hygiene, elevate the head of the bed, avoid lying down after meals, manage stress, maintain a healthy weight, optimize microbiome (5 Pillars!)

- **Diet:** Avoid trigger foods like spicy, fatty, sugar or acidic foods, limit alcohol/caffeine (can relax LES). Increase fiber for improved motility, rice (low gas and low allergen) and MED diet

- **Supplements:**

- **MegaGuard:** Reduces gastric discomfort, supports gastric motility, reduces symptoms/improves digestion

- **HCLGuard+:** Helps restore proper stomach acid levels (start low and go slow)

- DGL (Deglycyrrhizinated Licorice), Aloe Vera, Slippery Elm, Ging



Definition: Part of the stomach pushes up through the esophageal hiatus, an opening in the diaphragm muscle specifically meant for the esophagus to pass through from the chest cavity to the abdomen



Signs & Symptoms:

- Heartburn, regurgitation, chest pain, trouble swallowing, bloating, symptoms worse after meals/lying down



Consequences:

- GERD: A weakened LES allows stomach acid to flow back into the esophagus
- Esophagitis: Chronic acid exposure can lead to esophageal inflammation, ulcers, or Barrett's esophagus



Root Causes:

- Increased abdominal pressure (obesity, pregnancy, heavy lifting), weakened diaphragm muscles (age, stress), trauma, injury



Solutions to support the system (these are not treatments):

- **Lifestyle:** Eat smaller meals, avoid lying down after eating, maintain a healthy weight
- **Diet:** Avoid trigger foods (spicy, fatty, caffeine, alcohol), fiber rich diet and lowered fat intake can help.
- **Manual Therapy:** Trained professionals can use techniques to reposition the stomach



Definition: Inflammation of the stomach lining (gastritis) or open sores that develop on the stomach lining or upper part of the small intestine (ulcers)



Signs & Symptoms:

- Stomach pain, bloating, nausea, vomiting, loss of appetite, black or tarry stools, burning pain that worsens on an empty stomach or when consuming spicy, acidic, fatty foods



Consequences:

- Erosion of the mucosal barrier and the potential for bleeding or perforation (*stomach or upper small intestine*)
- Reduced acid production, contributing to poor digestion, nutrient malabsorption, and downstream problems
- Increased infection risk - favorable environment for *H. pylori* overgrowth and other pathogenic organisms



Root Causes:

- *H. pylori* overgrowth, chronic NSAID use, excessive alcohol consumption, stress, smoking, poor meal hygiene, highly processed diet



Solutions:

- **Lifestyle:** Avoid NSAIDs and alcohol, reduce/manage stress, quit smoking, avoid overeating, optimize meal hygiene
- **Diet:** Avoid irritating foods such as spicy, acidic, or fried foods - less processed foods
- **Supplements to support the system (these are not treatments):**
 - **MegaGuard:** Supports stomach lining health and helps alleviate ulcers by soothing the gastric mucosa. **PyloGuard** in case *H.pylori* is the culprit here.
 - Zinc Carnosine - Helps repair stomach lining and reduce inflammation
 - DGL, Aloe Vera, Marshmallow Root, Slippery Elm, Fucoidan, vitamin C, green tea and artemisia extract



Definition: An organism in the stomach that can become overgrown and contribute to gastritis or ulcers



Signs & Symptoms:

- Ulcers, gastritis, stomach pain, nausea, bloating, frequent burping, loss of appetite, unexplained weight loss



Consequences:

- Damages the stomach lining, leading to ulcers, bleeding, or perforation in severe cases
- Chronic infection increases the risk of developing gastric cancer
- Neutralizes stomach acid - see symptoms of hypochlorhydria



Root Causes:

- Poor meal hygiene, low stomach acid, low/poor immune function, stress, chronic use of PPIs



Solutions to support the system (these are not treatments):

- **Lifestyle:** Manage stress and practice good meal hygiene, reduce antacids/PPIs, optimize microbiome (5 Pillars!)

- **Diet:** Incorporate broccoli sprouts (sulforaphane) and foods rich in antioxidants (supports repair)

- **Supplements to support the system (these are not treatments):**

- **PyloGuard:** Targets H. pylori to reduce bacterial load and support stomach health

- Matula Tea: Herbal remedy shown to reduce H. pylori infection

- Zinc Carnosine, L-glutamine, DGL, Slippery Elm, Marshmallow Root, Aloe Vera



Definition: Delayed stomach emptying due to weakened stomach muscles



Signs & Symptoms:

- Nausea, vomiting, overly full after eating, bloating, undigested food in vomit or stool, weight loss, abdominal pain



Consequences:

- Poor digestion and nutrient absorption, contributing to malnutrition and vitamin/mineral deficiencies
- Gastric fermentation leads to bacterial overgrowth in stomach and small intestine, can contribute to SIBO
- Poorly digested food particles can trigger immune responses, leading to food sensitivities and inflammatory response



Root Causes:

- Diabetes (nerve damage), hypothyroidism, autoimmune diseases, medications (e.g., opioids), vagus nerve dysfunction



Solutions to support the system (these are not treatments):

- **Lifestyle:** Eat smaller, more frequent meals, remain upright after eating, stimulate the vagus nerve for improved motility, practice optimal meal hygiene, movement after eating.
- **Diet:** Focus on easily digestible foods (low-fiber, low-fat), consider liquid meals, consume ginger to stimulate motility. One can try increasing low viscosity soluble fiber like hydrolyzed guar gum.
- **Supplements to support the system (these are not treatments):**
 - **MegaGuard:** Supports gastric emptying and bile flow, improving digestion and motility
 - **Holozyme:** Enzymes support breakdown of food when the stomach's motility is impaired
 - Prokinetic herbs (e.g., ginger) and magnesium can also support motility

Study session:

Upper GI Problems & Solutions



**Build Your
Resilient Gut**
MICROBIOME & BEYOND



Bile Insufficiency, Gallstones, and Gallbladder Removal



Definition:

- **Low Bile Production/Flow:** Insufficient bile released from the liver or gallbladder
- **Gallstones:** Hardened deposits that form in the gallbladder
- **Gallbladder Removal:** Reduced concentration or recycling of bile acids



Signs & Symptoms:

- **General:** Bloating, floating/greasy stools, poor fat digestion, constipation or loose stools, hormone imbalance
- **Gallstones:** Sharp pain in the upper right abdomen, nausea after fatty meals, back pain
- **Post-Gallbladder Removal:** Loose stools, urgency after meals, reduced fat digestion



Consequences:

- Fat and nutrient malabsorption, deficiencies in fat-soluble vitamins (A, D, E, K)
- Dysbiosis, increased infection/overgrowth risk (such as SIBO)
- Reduced detoxification capacity (of toxins and hormones)
- Risk of gallstones or inflammation with reduced/sluggish bile flow

Bile Insufficiency, Gallstones, and Gallbladder Removal

Root Causes:

- **Common Factors:** Highly processed fatty foods, low fiber consumption, dehydration, liver congestion/disease, toxin overload, low bile acid recycling, nutrient deficiencies (choline, phospholipids, taurine, B vitamins, vitamin C, magnesium, zinc), dysbiosis, sedentary lifestyle, potentially GLP-1 peptide use.
- **Gallstones:** Hormonal imbalances (high estrogen), rapid weight loss, sluggish/low bile flow, poor bile acid recycling

Solutions:

- **Lifestyle:**
 - **General:** Optimal meal hygiene, eat smaller and more frequent meals (temporarily for low bile/gallstones), stay hydrated, avoid drastic weight changes, regular exercise, optimize the microbiome (5 Pillars!)
- **Diet:**
 - **Core Foods:** Bitter greens, lemon water, cruciferous vegetables, egg yolks (in moderation for gallstones), liver, salmon, dark poultry, soybeans, high-fiber foods
 - **Additional for Gallstones:** Smaller amounts of healthy fats (olive oil) to stimulate bile flow without overburdening

Bile Insufficiency, Gallstones, and Gallbladder Removal

✓ Supplements to support the system (these are not treatments):

- **Core Supplements:**
 - **MegaGuard** (for bile flow and motility)
 - **HCLGuard+** (to support stomach acid and bile release signaling)
 - **TUDCA** (supports liver, bile flow, and bile acid recycling)
 - Ox Bile (for fat digestion, especially post-gallbladder removal)
 - Choline/phospholipids (phosphatidylcholine) and taurine (for bile production)
 - Dandelion root, milk thistle, artichoke leaf extract, ginger, digestive bitters (to stimulate bile flow)
- **Additional for Gallstones:** Magnesium to relax bile ducts and prevent bile stasis
- **Microbiome Foundations** - MegaSporeBiotic, MegaPre, Tributyrin-X



Bile Salt Insufficiency & Recycling

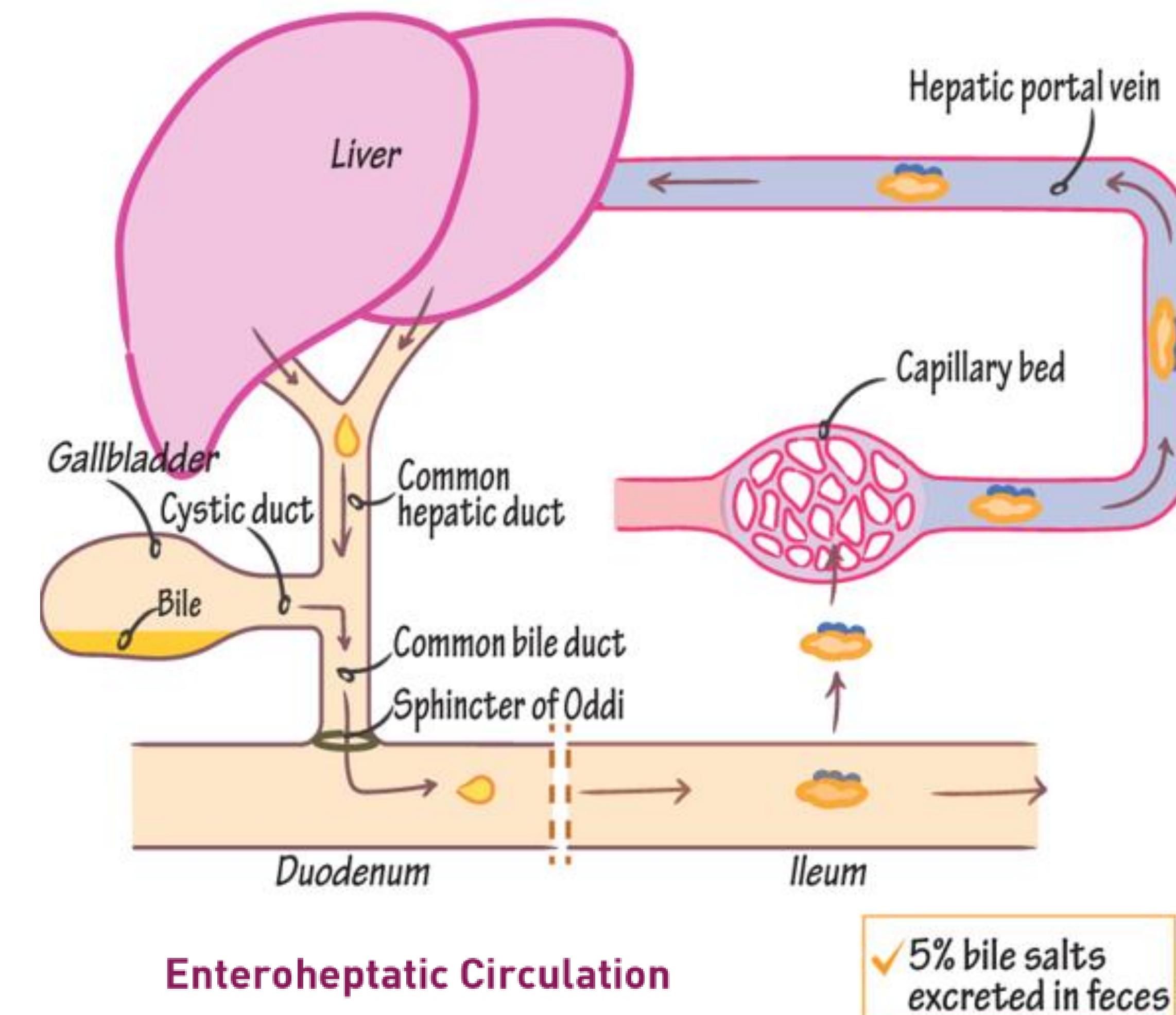
- ✓ **Definition:** Bile salts, also known as bile acids, are digestive compounds produced by the liver and stored in the gallbladder, essential for breaking down fats and maintaining microbial balance in the gut. Bile salt insufficiency occurs when bile salts are either insufficiently produced, inadequately recycled, or deactivated by gut bacteria
- ✓ **Signs & Symptoms:**
 - Floating/greasy stools, bloating/gas, difficulty digesting fats, constipation (low bile salts), diarrhea (bile acid malabsorption), skin issues/rashes, brain fog, hormone imbalance
- ✓ **Consequences:**
 - Fat and nutrient malabsorption, deficiencies in fat-soluble vitamins (A, D, E, K)
 - Dysbiosis, increased infection/overgrowth risk (such as SIBO)
 - Reduced detoxification capacity (of toxins and hormones) + increased toxic burden
- ✓ **Root Causes:**
 - Poor bile acid recycling due to lack of fiber, liver dysfunction, nutrient deficiencies (choline, taurine, glycine, phosphatidylcholine, etc...)
 - Impaired liver function/toxic overload
 - Microbiome imbalance/dysbiosis

Bile Salt Insufficiency & Recycling



Solutions:

- **Lifestyle:** Fiber-rich meals promote bile acid recycling by binding and reabsorbing bile acids in the intestines, optimize your microbiome (5 Pillars!)
- **Diet:** Prebiotic foods (e.g., onions, garlic, asparagus) to nourish beneficial bacteria that help maintain bile salt effectiveness



Bile Salt Insufficiency & Recycling

Supplements to support the system (these are not treatments):

- **MegaGuard** (for bile flow and motility)
- **HCLGuard+** (to support stomach acid and bile release signaling)
- **TUDCA** (supports liver, bile flow, and bile acid recycling)
- Ox Bile (for fat digestion, especially post-gallbladder removal)
- Choline/phospholipids (phosphatidylcholine) and taurine (for bile acid conjugation)
- Dandelion root, milk thistle, artichoke leaf extract, ginger, digestive bitters (to stimulate bile flow)
- Pectin fiber and Lignin fiber – conserves bile acids
- TCA (taurocholic Acid) – supports liver health and reduces hepatic lipid accumulation supporting bile acid recycling
- Calcium (citrate or phosphate) – aids in bile acid recycling – 500mg
- **Microbiome Foundations** - MegaSporeBiotic, MegaPre, Tributyrin-X

The Role of the Microbiome

Beneficial bacteria, particularly *Bacteroides* and *Clostridia* species, deconjugate bile acids in the small intestine, transforming them into forms that can be reabsorbed in the ileum and returned to the liver. This recycling process, known as enterohepatic circulation, maintains adequate bile acid levels for digestion and supports overall liver health by reducing the demand for constant bile production.

Enzyme Insufficiency



Definition:

- **Pancreatic Enzymes:** Produced by the pancreas, including lipase (fats), protease (proteins), and amylase (carbohydrates)
- **Brush Border Enzymes:** Located on the small intestine's lining, such as lactase (lactose) and sucrase (sucrose), responsible for breaking down disaccharides
- **Microbiome-Produced Enzymes:** Certain gut bacteria produce enzymes like beta-glucuronidase and fermentation-based enzymes (e.g., for fiber), aiding digestion and nutrient synthesis



Signs & Symptoms:

- **General:** Bloating, gas, undigested food in stool, oily/floating stools, nutrient deficiencies, fatigue, and weight loss
- **Brush Border:** Lactose intolerance, specific carbohydrate malabsorption



Consequences:

- Malabsorption of Fats, Proteins, and Carbohydrates: leads to nutrient deficiencies and energy deficits
- Gut Dysbiosis: undigested food may ferment, promoting overgrowth of harmful bacteria
- Undigested food particles can trigger excessive immune responses - leading to systemic inflammation

Enzyme Insufficiency



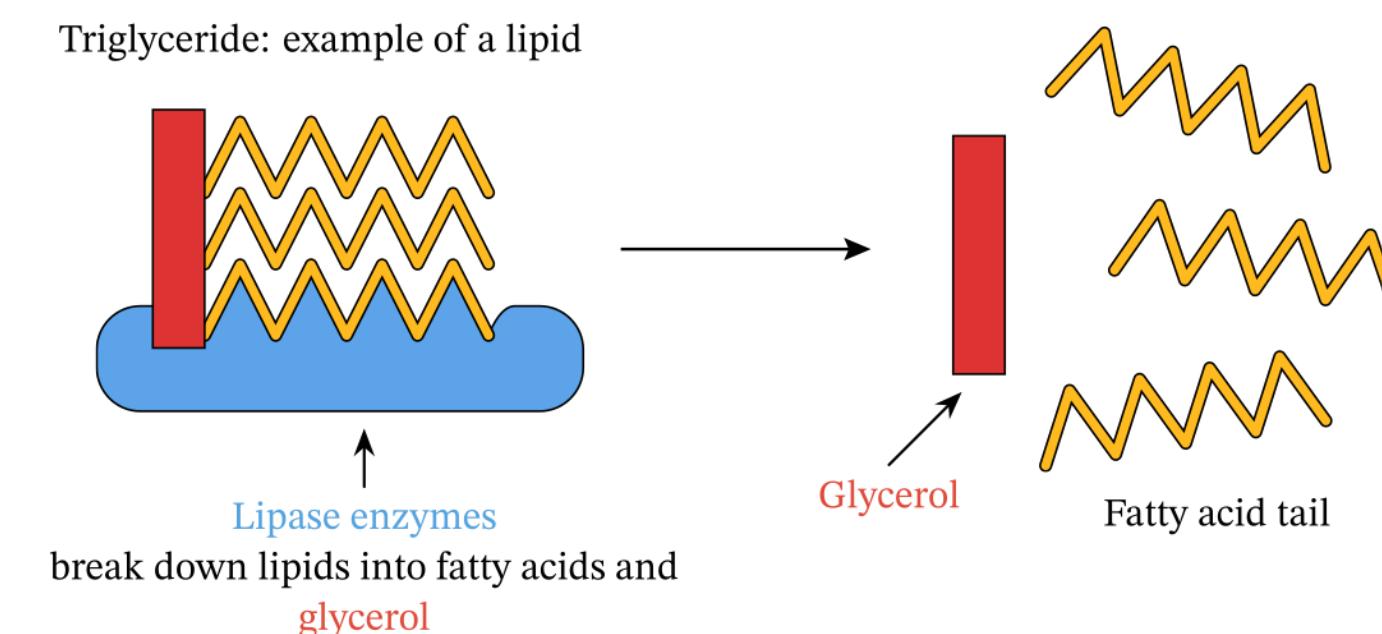
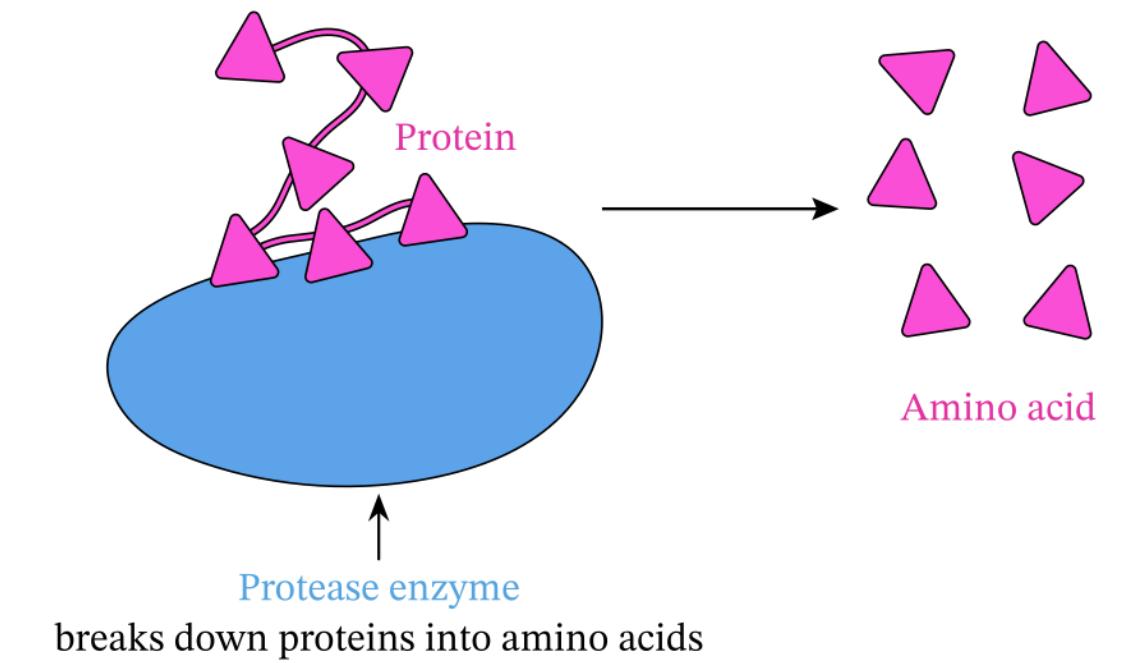
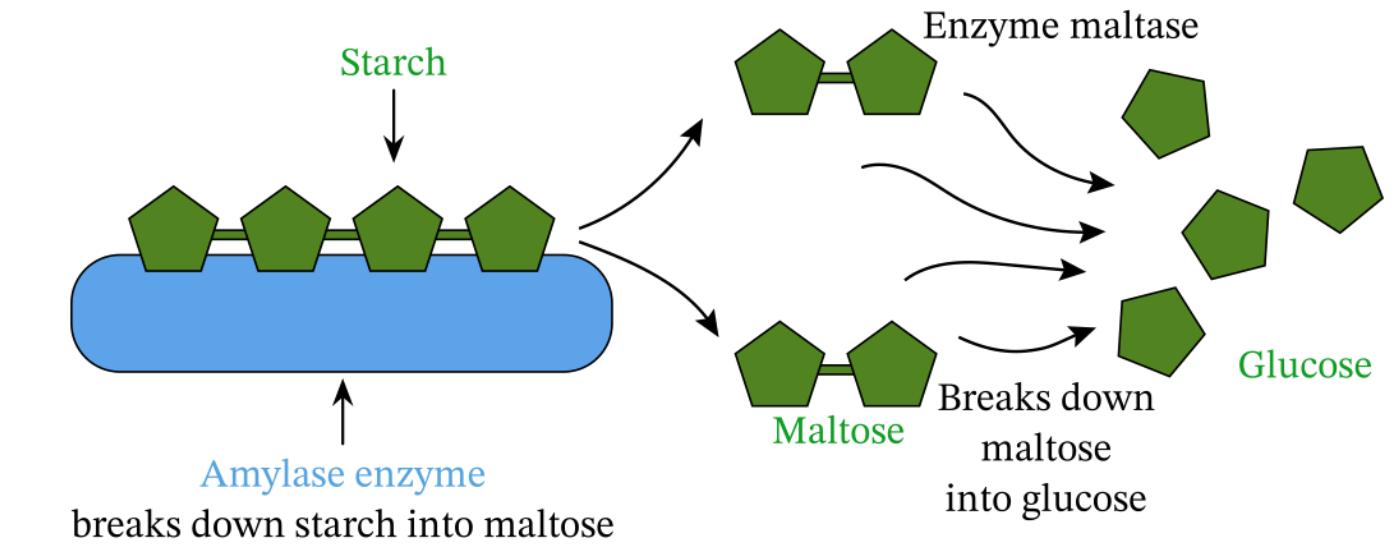
Root Causes:

- General: Chronic inflammation, aging, low stomach acid, poor diet quality, and nutrient deficiencies (especially zinc and B vitamins)
- Pancreatic: Pancreatic disease, overconsumption of processed foods, low bile flow
- Brush Border: Gut inflammation or injury to the small intestine lining, celiac disease, infections
- Microbiome-Produced: Dysbiosis, antibiotic use, and low fiber intake (reducing beneficial bacteria)



Solutions:

- Lifestyle: Optimal meal hygiene, mindful eating to stimulate natural enzyme release, chew food thoroughly, improve vagal nerve tone
- Diet: Reduce exposure to difficult (for the person) foods as tolerance is built, cook foods thoroughly (raw can be more difficult to break down/digest), avoid highly processed foods, eat nutrient-dense real foods as diverse as possible



Enzyme Insufficiency



Supplements:

- **Holozyme**: Broad-spectrum enzyme support for all forms of enzyme deficiency
- Lipase and Ox Bile: Supports fat breakdown, particularly when pancreatic enzymes are low
- **HCLGuard+**: Supports optimal stomach acid levels, which triggers enzyme release
- **Microbiome Foundations** - MegaSporeBiotic, MegaPre, Tributyrin-X
- Ginger and Digestive Bitters: Stimulate natural enzyme release and enhance motility



Study session:

Small Intestinal Bacterial Overgrowth (SIBO)



**Build Your
Resilient Gut**
MICROBIOME & BEYOND



Small Intestinal Bacterial Overgrowth (SIBO)

✓ What is SIBO?

SIBO, or Small Intestinal Bacterial Overgrowth, is a condition in which bacteria overgrow in the small intestine

✓ Signs & Symptoms of SIBO

- **Digestive Symptoms:** Bloating, gas, abdominal pain, diarrhea, constipation (especially in methane-dominant SIBO), and irregular stool consistency, difficulty with certain foods (FODMAPs, fiber, starch, etc...)
- **Nutritional Deficiencies:** Fat-soluble vitamin malabsorption, iron deficiency anemia, B12 deficiency, and unintended weight loss
- **Systemic Symptoms:** Fatigue, cognitive fog, and symptoms associated with nutrient deficiencies (e.g., weakness, irritability, dry skin), NAFLD/liver congestion

✓ Thoughts on Testing/Diagnosis

- **Breath Testing Nuances:** Breath tests measure hydrogen and methane gas, each indicating different bacterial overgrowth types. Methane-dominant SIBO, often associated with constipation, suggests a different microbial profile than hydrogen-dominant SIBO, which tends to present with diarrhea
- **Complexity of Diagnosis:** While breath tests provide clues, they aren't definitive, as some people with symptoms may test negative, and others may test positive without symptoms
- **Stool Testing and Organic Acid Testing:** Sometimes these tests can complement breath tests, identifying overgrowth patterns and broader microbial imbalances that could contribute to SIBO

Small Intestinal Bacterial Overgrowth (SIBO)

Upstream Problems that Invite SIBO (Root Causes)

- **Low Stomach Acid:** Without adequate acid, pathogenic bacteria can survive in the stomach and enter the small intestine
- **Impaired Migrating Motor Complex (MMC):** The MMC clears bacteria from the small intestine between meals; dysfunction allows bacteria to remain and overgrow
- **Bile Insufficiency:** Bile's natural antimicrobial properties help regulate bacterial populations. Low bile flow, often due to gallbladder or liver issues, can create an environment conducive to overgrowth
- **Oral Microbiome Imbalance:** Bacteria from the mouth can migrate down into the digestive system. Poor oral hygiene or imbalanced oral bacteria can contribute to SIBO, as bacteria travel to the small intestine
- **High Refined-Carb Diets and Dysbiosis:** High-carb diets feed bacteria that can overgrow and thrive in the small intestine
- **Compromised Ileocecal Valve (ICV):** Technically *downstream*, dysfunction of the ICV, due to factors like gut inflammation, dysbiosis, low motility, or abdominal pressure, allows bacteria to migrate from the large intestine to the small intestine, contributing to SIBO

Small Intestinal Bacterial Overgrowth (SIBO)

✓ Why Conventional Approaches Often Don't Work

- **Antibiotic-Only Approach:** While antibiotics like rifaximin or metronidazole can reduce bacterial overgrowth, they often fail to address the root causes of SIBO, leading to recurrence
- **Long-Term Reliance on Restrictive Diets:** While low-FODMAP diets reduce symptoms by limiting bacterial fuel, they don't address root causes and restrict essential food for beneficial microbes
- **Failure to Restore Motility and MMC Function:** Many protocols don't prioritize stimulating the MMC, critical for preventing bacterial stasis and overgrowth in the small intestine
- **Overlooking Oral Hygiene:** Ignoring oral microbiome imbalances can result in bacterial migration from the mouth to the gut, perpetuating SIBO symptoms even after treatment

✓ How to Successfully Get Rid of SIBO and Restore Upper GI Balance

- **Dietary Adjustments:**
 - **Temporary Low-FODMAP or Specific Carbohydrate Diet (SCD):** Reduces symptoms by limiting fermentable substrates for bacteria
 - **Reintroduce Fiber Slowly:** After initial relief, add prebiotic-rich foods slowly to avoid feeding unwanted bacteria while promoting beneficial strains

Small Intestinal Bacterial Overgrowth (SIBO)

- Digestive & Bile Support
 - **Temporary Low-FODMAP or Specific Carbohydrate Diet (SCD):** Reduces symptoms by limiting fermentable substrates for bacteria
 - **HCLGuard+** is added if stomach acid support is needed
 - **TUDCA** - Supports bile flow, liver, bile acid recycling, antimicrobial
- Improved Motility/MMC Function
 - **MegaGuard:** provides bile and motility support
 - **Intermittent Fasting (IF):** The MMC is most active during fasting periods; extending the time between meals can encourage this "cleansing wave."
 - **Meal Hygiene:** Eating in a relaxed environment, chewing food thoroughly, and avoiding rushed meals stimulate vagus nerve activity, promoting motility
 - **Ginger:** Known as a prokinetic, ginger can help stimulate MMC activity



Small Intestinal Bacterial Overgrowth (SIBO)

- Short-Term Antimicrobial Use:
 - **Herbal Antimicrobials:**
Effective as a short-term strategy for reducing bacterial load, often with fewer side effects than antibiotics
 - **Support with MegalG2000 and HU58:** These work alongside antimicrobials, binding to bacterial by-products and supporting microbial balance without depleting beneficial bacteria



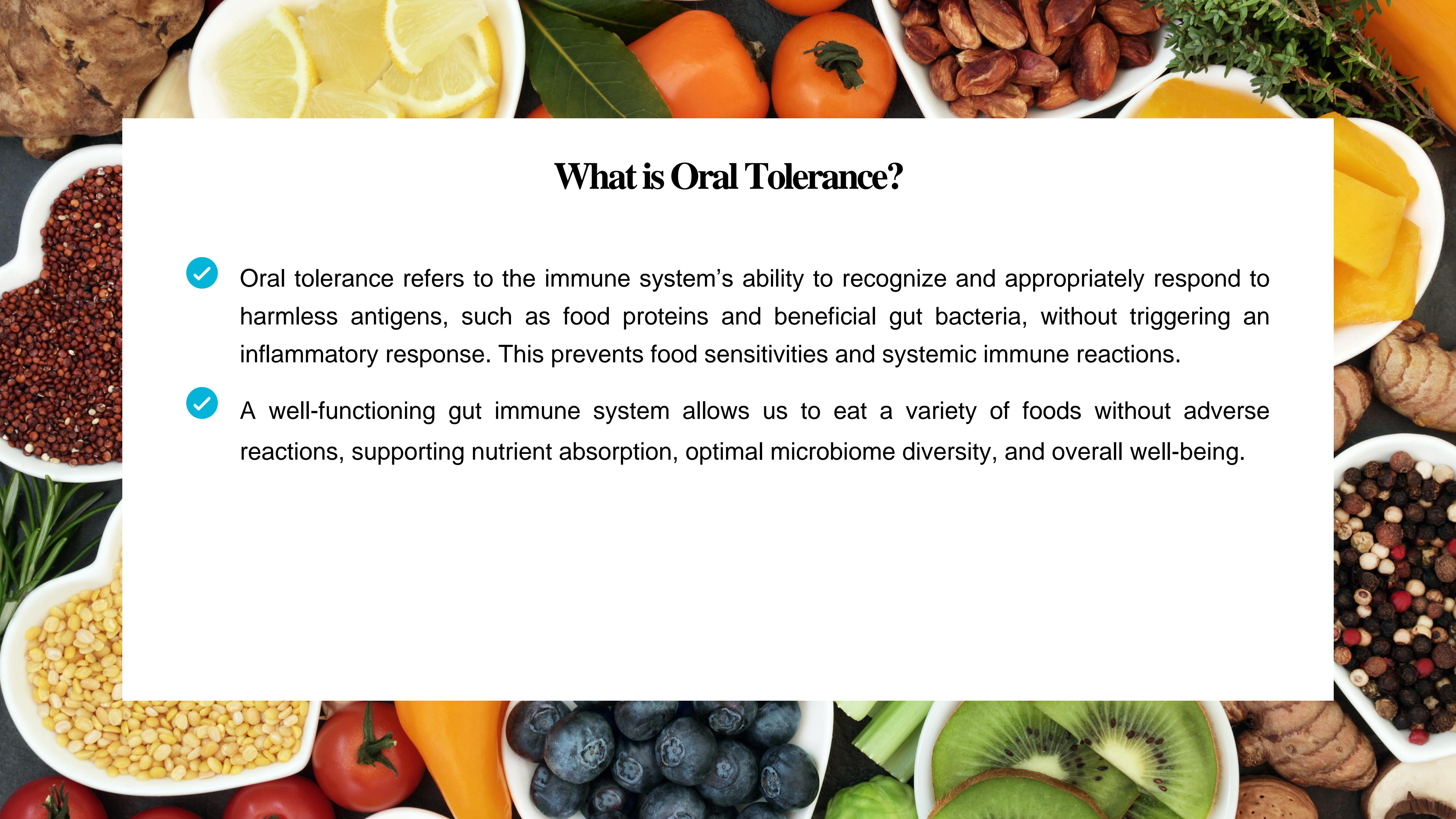
Study session:

How We Lose (*and Restore*) Oral Tolerance

NOT MEDICAL ADVICE: PLEASE CHECK WITH A HEALTHCARE PRACTITIONER ABOUT ANY CONDITIONS YOU MAY BE EXPERIENCING

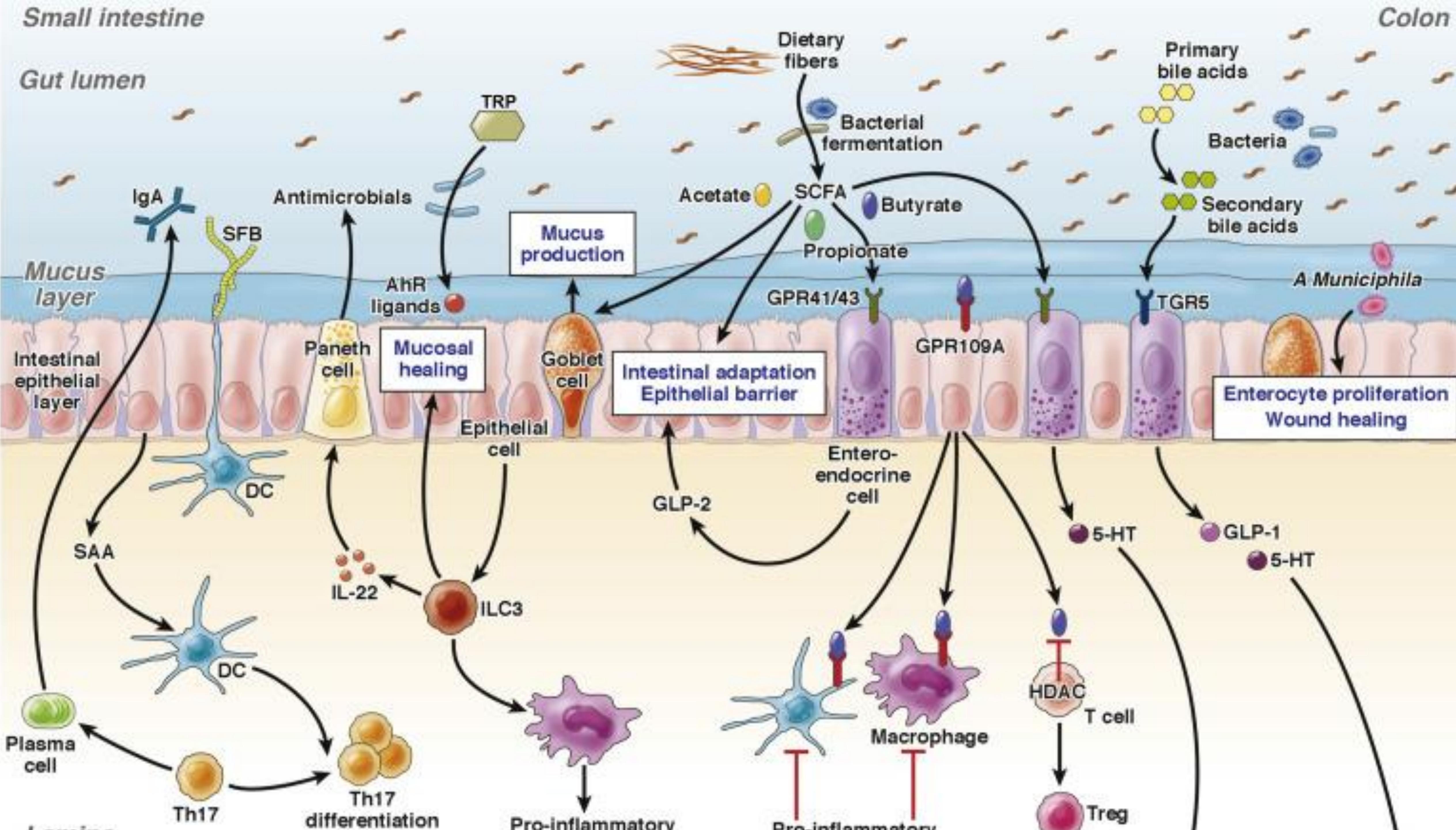


Build Your
Resilient Gut
MICROBIOME & BEYOND



What is Oral Tolerance?

- ✓ Oral tolerance refers to the immune system's ability to recognize and appropriately respond to harmless antigens, such as food proteins and beneficial gut bacteria, without triggering an inflammatory response. This prevents food sensitivities and systemic immune reactions.
- ✓ A well-functioning gut immune system allows us to eat a variety of foods without adverse reactions, supporting nutrient absorption, optimal microbiome diversity, and overall well-being.





Signs and Symptoms of Lost Oral Tolerance

- ✓ **Digestive Symptoms:** Bloating, diarrhea, constipation, and/or abdominal pain
- ✓ **Systemic Reactions:** Brain fog, fatigue, joint pain, skin rashes, anxiety, insomnia, and/or worsening of autoimmune conditions, headaches, congestion, respiratory difficulty, heart palpitations, fatigue, etc...
- ✓ **Possible Triggers:**
 - **Dietary:** Gluten, dairy, soy, processed foods, high-histamine foods, oxalates (e.g., spinach), salicylates (found in certain fruits and vegetables), nightshades (tomatoes, peppers, etc...)
 - **Environmental:** Mold, pollen, air pollution, and chemical exposures
 - **Stress:** Chronic emotional or physical stress can exacerbate immune dysregulation and sensitivities
 - **Supplements:** Digestive or systemic reactions can be triggered by overactive immune responses to supplements

How We Lose Oral Tolerance

Dysbiosis

- Microbiome communicates with the gut-associated lymphoid tissue (GALT) to regulate immune responses
- Beneficial microbes promote T-reg cell activity and sIgA production, aiding in immune tolerance
- Dysbiosis disrupts this balance and leads to inflammatory responses contributing to reactivity

Leaky Gut and Increased Permeability

- Gut lining, composed of tight junctions, acts as a protective barrier. When compromised:
 - Undigested food particles, toxins, and bacterial components enter the bloodstream
 - Immune activation occurs, leading to systemic inflammation
 - Sets the stage for food sensitivities and autoimmune reactions

LPS and Systemic Immune Activation

- LPS, released from gram-negative bacteria (increased w/ dysbiosis), crosses the gut barrier
 - LPS binds to Toll-like receptor 4 (TLR4) on immune cells
 - Triggers a cascade of pro-inflammatory cytokines
 - Reduces the immune system's tolerance to harmless antigens, perpetuating hypersensitivity

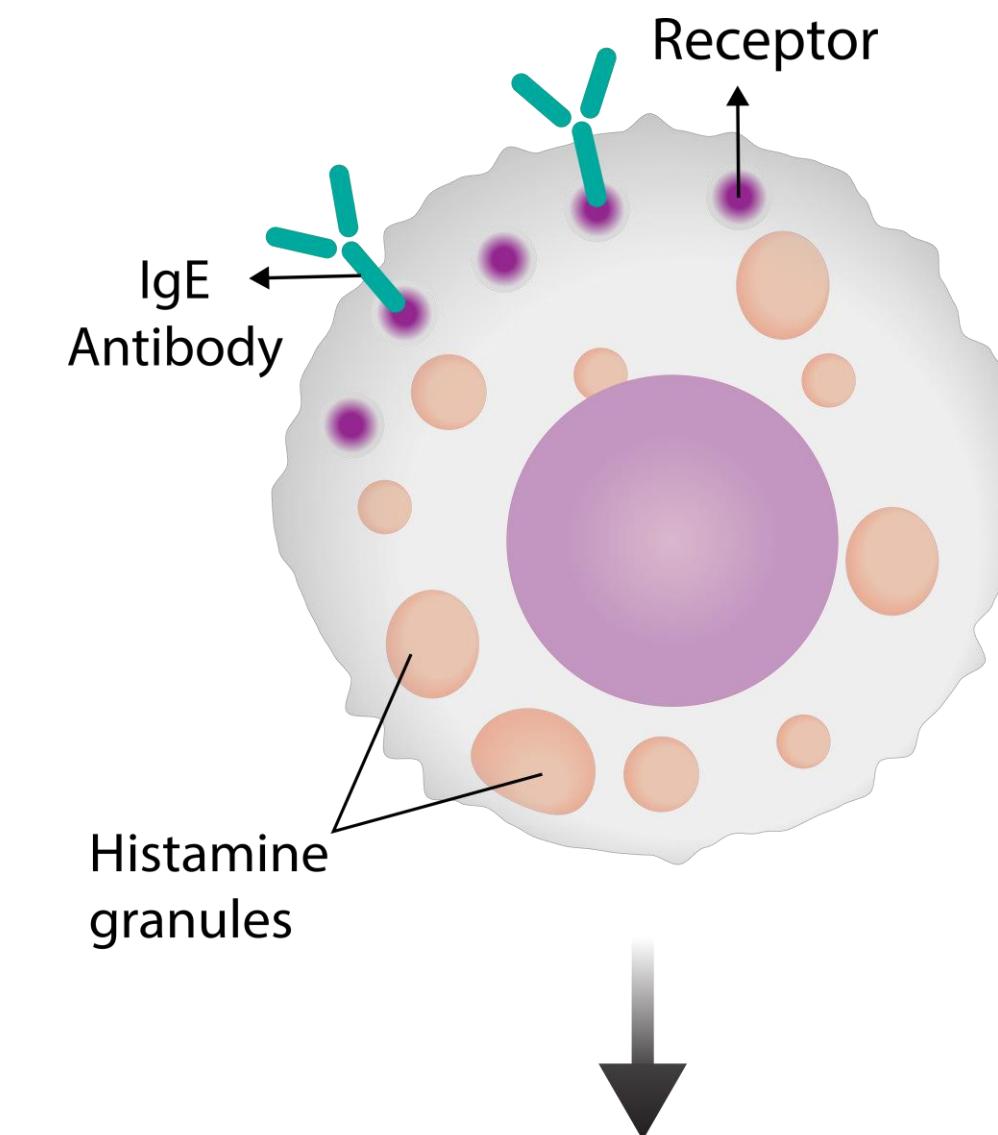
How We Lose Oral Tolerance



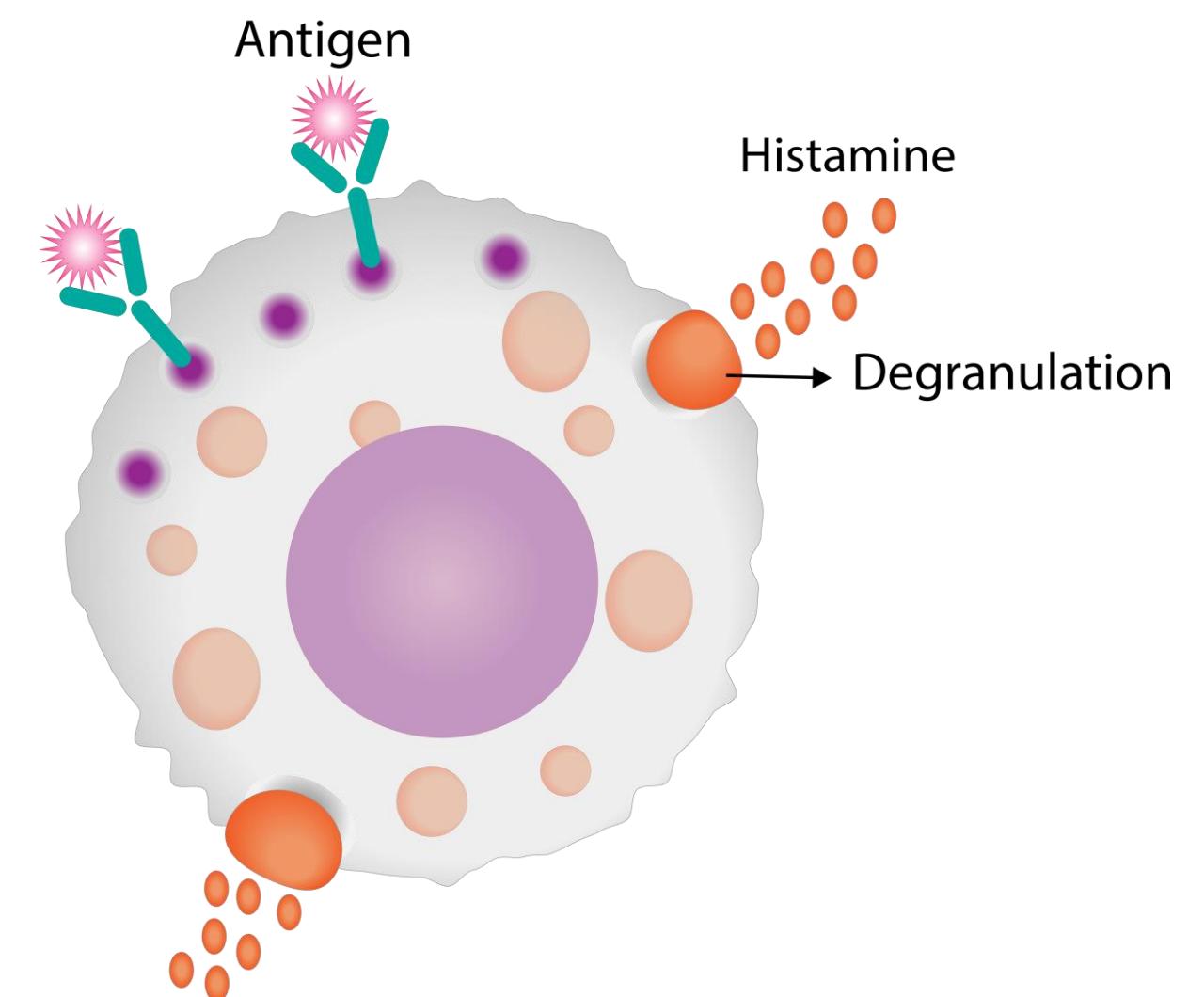
Mast Cell Activation and Histamine Release

- Mast cells in the gut become overactive due to leaky gut, dysbiosis, stress, and toxins (LPS and environmental toxins, food chemicals, etc...)
 - Release histamine and other inflammatory mediators
 - Worsen gut permeability and promote a cycle of inflammation
 - Contribute to symptoms like bloating, flushing, and allergic-type reactions

The mechanisms of allergy



The mechanisms of allergy



How We Lose Oral Tolerance

Poor Food Breakdown

- Insufficient stomach acid and enzyme deficiencies prevent proper food digestion, which leads to:
 - Increased antigen load in the gut
 - Easier triggering of immune responses
 - Exacerbation of chronic reactivity and food sensitivities

Stress, Trauma, and Nervous System Dysregulation

- Heightened sympathetic activity ("fight or flight" response) increases inflammation and immune hyperreactivity
- Vagus nerve dysfunction reduces digestive efficiency and gut-brain signaling
- Contributes to mast cell activation and histamine release, further irritating the gut lining





How We Lose Oral Tolerance



Toxin Exposure:

- Environmental toxins (e.g., PFAS, heavy metals, pesticides, mycotoxins) impair gut function:
 - Disrupt the microbiome and damage the gut barrier
 - Increase the burden on the liver (which can impact bile production) and immune system
 - Lead to chronic inflammation and reduced oral tolerance



Chronic Infections:

- Persistent infections (e.g., Epstein-Barr Virus, Lyme disease, Candida) cause immune chaos:
 - Contribute to ongoing inflammation and immune overactivity
 - Increase mast cell activity, histamine production, reactive symptoms, etc...



✓

Environmental factors contribute to oral tolerance loss:

✓

Microbiome imbalances and gut dysbiosis play a role in oral tolerance loss.

✓

Genetic predispositions and epigenetic factors influence oral tolerance.

✓

Immune system health and function are key determinants of oral tolerance.

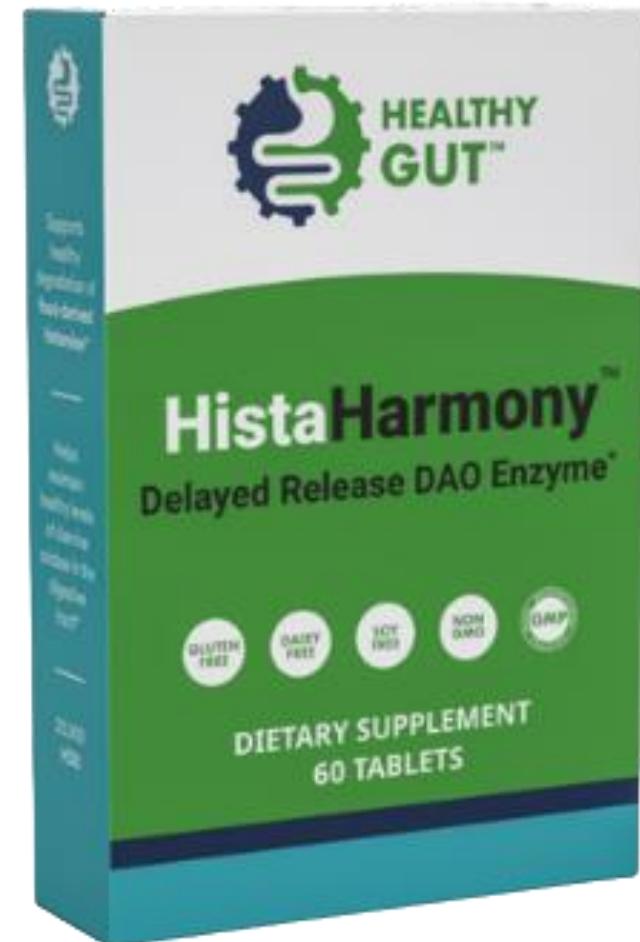


**Build Your
Resilient Gut**
MICROBIOME & BEYOND

How to Calm the Immune Response and Restore Oral Tolerance

✓ Heal Leaky Gut

- Optimize digestive processes, microbiome health/diversity, gut barrier integrity, GI environment
- See Module 3 for specific strategies, recommendations, etc...



✓ Optimize the Microbiome

- **5 Pillars!** - Diet, Lifestyle, Stress, Exposure, Supplements
- See Module 1 for specific strategies, recommendations, etc...

✓ Reducing Histamine Load

• Signs of Histamine Intolerance/Overload:

- GI (bloating, diarrhea, constipation, reflux), neurological (headaches, dizziness, brain fog), skin (hives, rashes, itching, flushing), respiratory (congestion, sneezing, breathing difficulty), cardiovascular (palpitations, blood pressure changes), fatigue, anxiety, irritability, heat intolerance, etc...
- Follow a low-histamine diet initially, then reintroduce foods as tolerance improves. Use DAO enzymes like **HistaHarmony** to help degrade dietary histamine
- Stabilize Mast Cells (see below)

How to Calm the Immune Response and Restore Oral Tolerance

Stabilize Mast Cells

- **Signs of Mast Cell Activation/MCAS:**
 - Very similar to list above (histamine intolerance) - plus exercise intolerance
- **Supplements that can help stabilize mast cells:**
 - Butyrate ([Tributyrin-X](#)), Quercetin, Vitamin C, DAO enzyme ([HistaHarmony](#)), Peptides, Holy Basil, Chinese Skullcap, Ginger, Turmeric, Nettles, Modified Citrus Pectin/[Pectasol](#)
- **Stress Reduction & Mind-Body Practices (see below)**
- **Environmental Adjustments**
 - Minimize EMF exposure
 - Reduce toxic exposures as much as possible (air/water filters, clean products, organic, etc...)
 - Reduce toxic exposures as much as possible (air/water filters, clean products, organic, etc...)
 - SBI's such as [MegalG2000](#) can be used to help reduce the burden on the immune system and reduce reactions in sensitive individuals
 - Temporarily avoid known reactive foods as you build tolerance

How to Calm the Immune Response and Restore Oral Tolerance



Modulating the Immune System:

- T-reg Cell Support with Omega-3 fatty acids, SCFAs (butyrate - Tributyrin-X), spore-based probiotics (MegaSporeBiotic) can promote regulatory T-cell activity, calming inflammation and improving tolerance
- Address Chronic Infections: Identify and treat underlying infections that perpetuate immune dysfunction, such as Candida overgrowth ([MegaMycoBalance](#)) or bacterial imbalances
- Paraprobiotics, such as [HololImmune](#) can down-regulate and balance immune responses to reduce inflammation and reactivity to foods, supplements, and environment



Stress Reduction & Mind-Body Practices

- Vagus Nerve Stimulation (deep breathing, meditation, gargling, humming, new tech/wearables)
- Grounding/Nature
- Trauma Therapies (EMDR, Somatic Experiencing, Biodynamic Breathwork & Trauma Release)
- Nervous System Regulation (breathing, meditation, somatic practices, co-regulation, etc...)
- Yoga, qigong, tai chi, bodywork, TCM (acupuncture)
- Brain Retraining (Primal Trust, Gupta, EMDR)



**Build Your
Resilient Gut**

MICROBIOME & BEYOND

Inflammatory Bowel Disease (*IBD*)

UNDERSTANDING CROHN'S & COLITIS

Crohn's Disease is a chronic inflammatory/autoimmune condition that can affect any part of the gastrointestinal (GI) tract, from the mouth to the anus, but most commonly impacts the end of the small intestine and beginning of the colon.

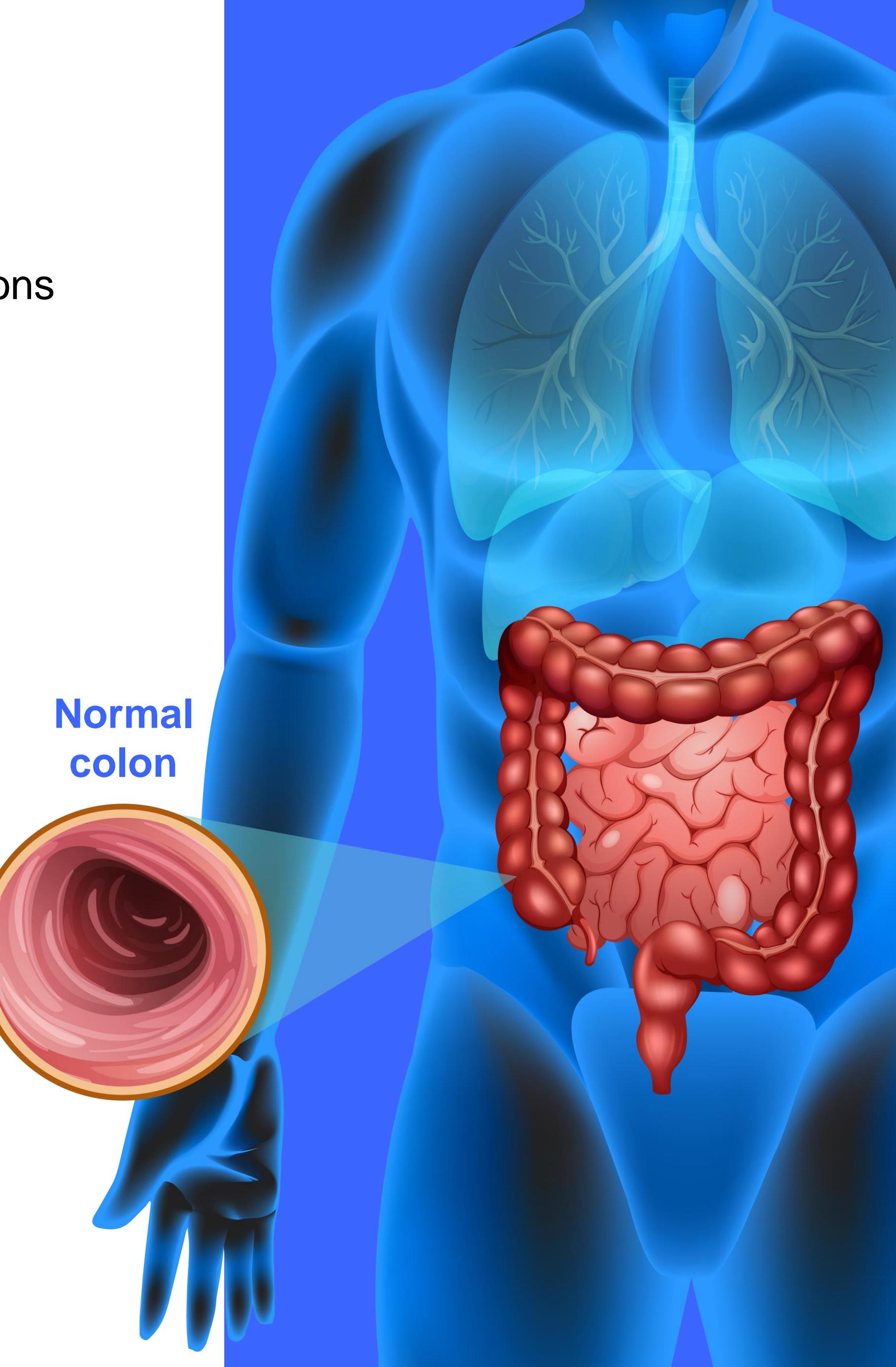
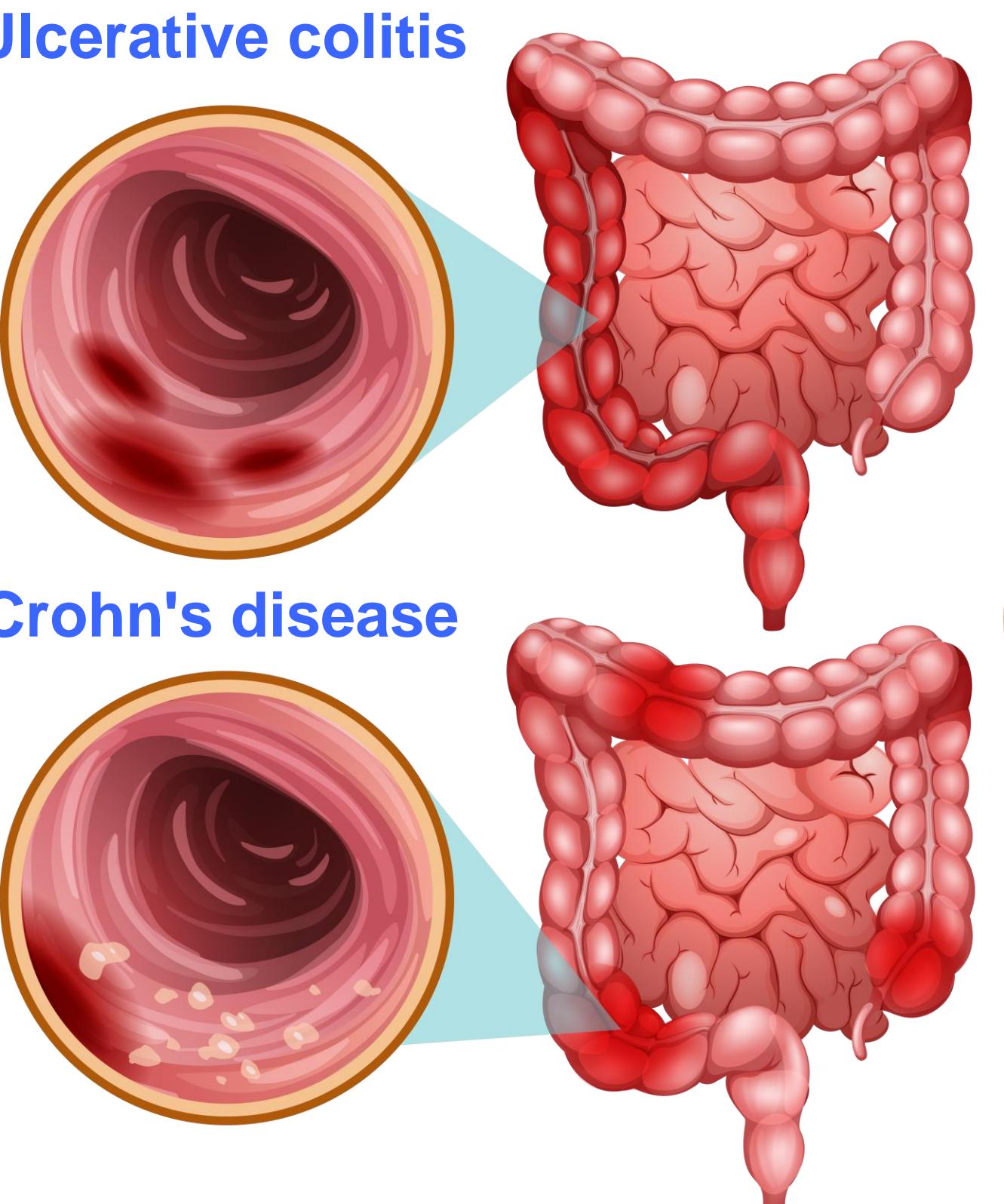
Ulcerative Colitis (UC) is a chronic inflammatory/autoimmune condition limited to the colon (large intestine) and rectum, causing inflammation and ulcers in the innermost lining of the colon.

Inflammatory Bowel Disease (IBD)

Inflammatory Bowel Disease (IBD) is a group of chronic inflammatory conditions that affect the digestive tract, including Crohn's disease and ulcerative colitis.

✓ Signs & Symptoms:

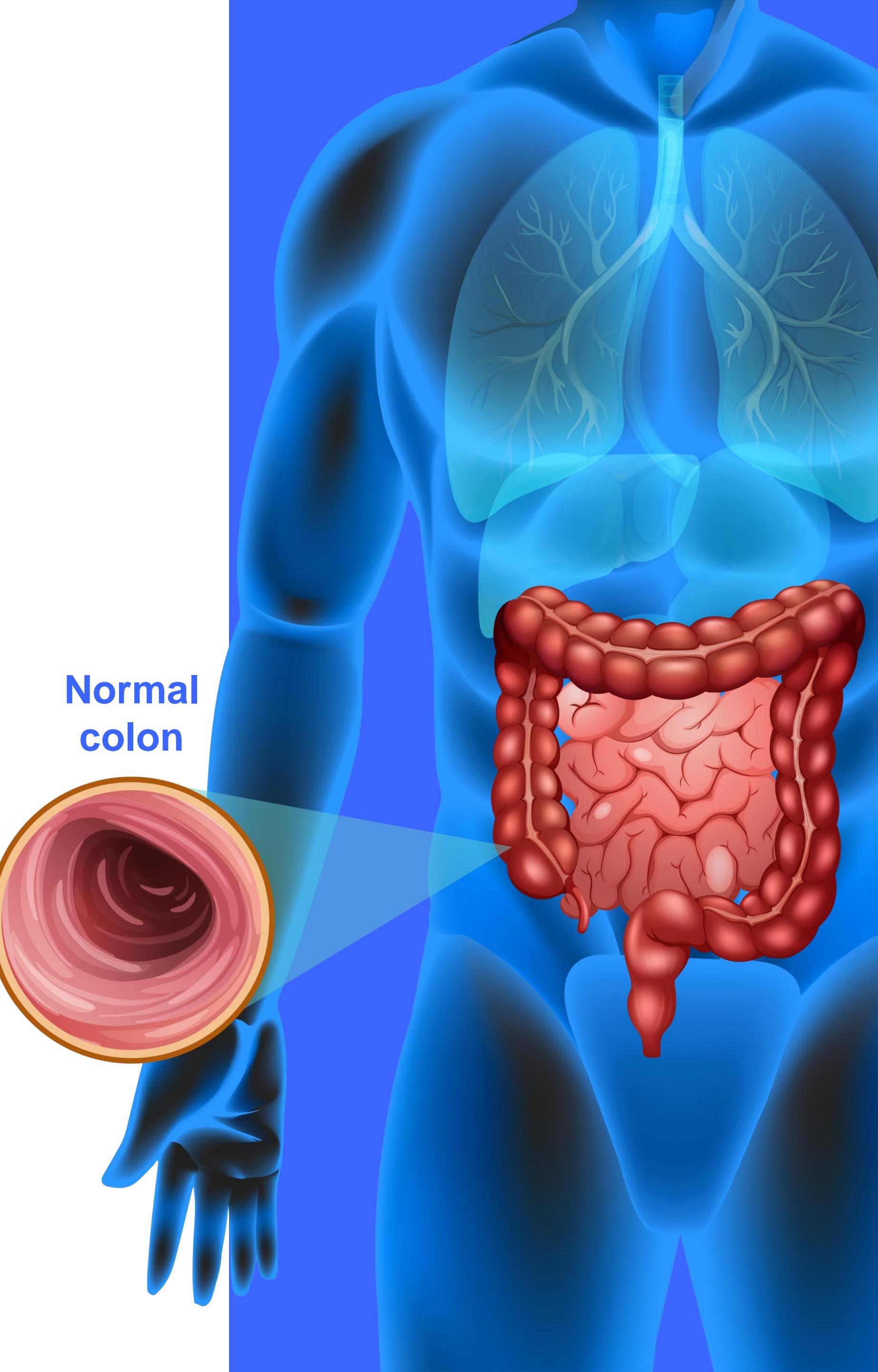
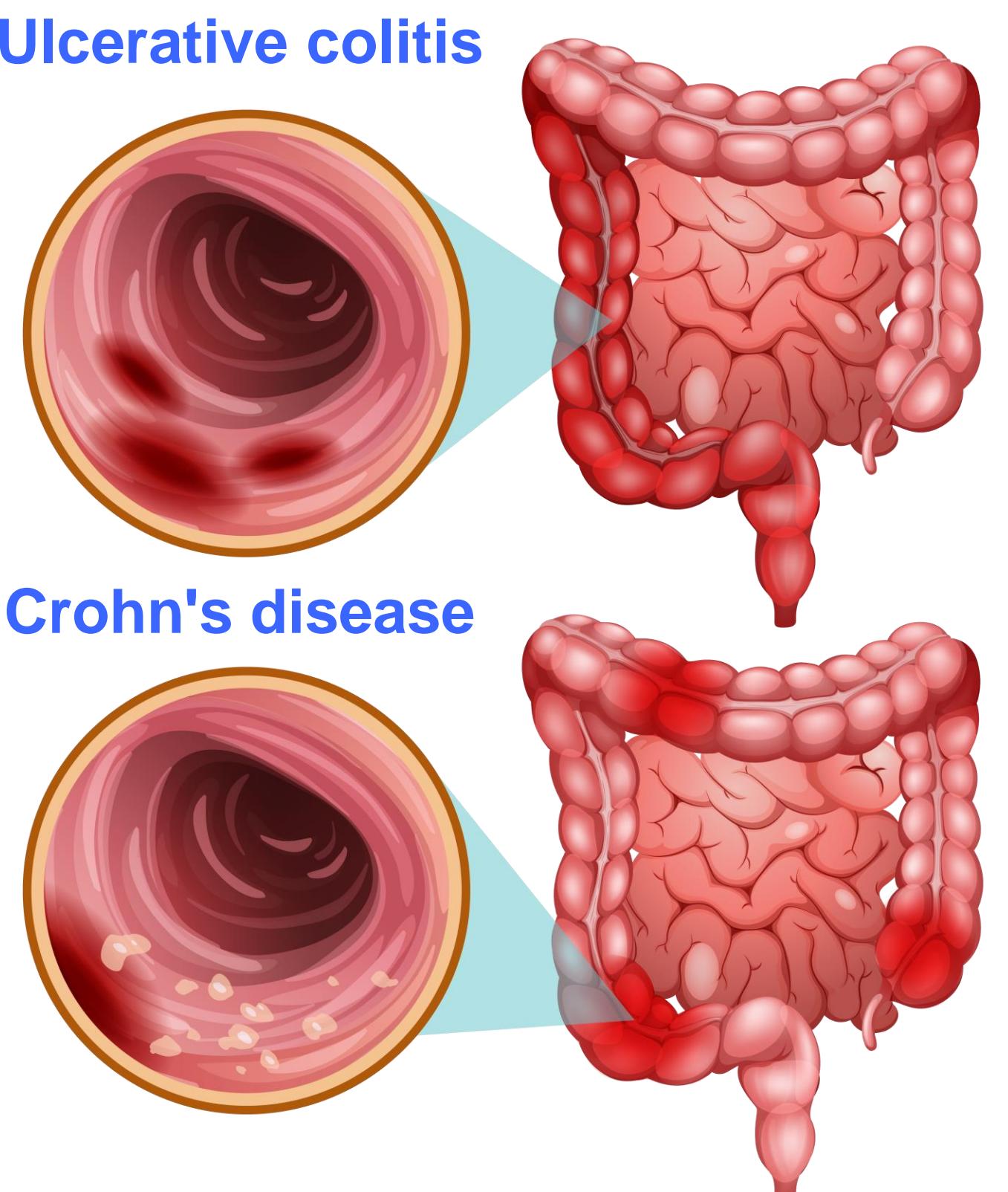
- **Shared Symptoms:** Abdominal pain, diarrhea (sometimes bloody), weight loss, fatigue, fever
- **Crohn's-Specific:** Fistulas, abscesses, and bowel obstructions due to full-thickness inflammation
- **UC-Specific:** Bloody diarrhea, urgency to defecate, rectal bleeding due to superficial ulceration of colon lining



Inflammatory Bowel Disease (IBD)

✓ Mechanisms of Disease:

- **Immune Dysregulation:** The immune system attacks the gut lining, causing chronic inflammation & damage
- **Dysbiosis:** Reduced microbial diversity and overgrowth of pro-inflammatory pathogenic microbes
- **Leaky Gut:** Increased permeability exacerbates immune activation/inflammation
- **Genetic Factors:** There is a genetic predisposition - although this does not guarantee the development of the disease. (Epigenetics - we can control our gene expression!)



Natural Support Approaches to IBD

NOT TREATMENTS FOR IBD

 **Dietary recommendations:**

- **Anti-Inflammatory Diet (IBD-AID):** Restricts certain carbohydrates, incorporates pre- and probiotics, and modifies fat intake to reduce inflammation and improve symptoms, with evidence supporting reduced medication reliance.
- **Mediterranean Diet:** Emphasizes fruits, vegetables, and olive oil for their anti-inflammatory effects. It may help manage gut inflammation.
- **Plant-Based Diets:** Focus on fiber-rich, whole plant foods while reducing animal fats and processed foods to lower inflammation and support a healthy gut microbiome.

 **MegaSporeBiotic** has been demonstrated to reduce inflammatory markers and contribute to symptom improvement in Crohn's patients

- Likely mechanisms: improved gut barrier function, reduced inflammation, increased microbial diversity & beneficial microbes

 **Butyrate** supports gut lining health, helps reduce inflammation/maintain immune balance, and contributes to an optimal low-oxygen GI environment

- Supplementing with **Tributyrin-X** and increasing prebiotic intake (**MegaPre**) will increase butyrate levels - possibly aiding in symptom management of IBD



 **Serum-Derived Bovine Immunoglobulins (SBI)** have been demonstrated to reduce symptoms in IBD patients

- Likely mechanisms: binding to toxins and antigens in the gut, reducing immune activation, promoting gut barrier integrity & function
- Recommended supplement: [MegalG2000](#)



 Paraprobiotics, such as [Hololimmune](#) can down-regulate and balance immune responses to reduce inflammation and reactivity to foods, supplements, and environment

 **Other Supplement Recommendations:** [MegaMucosa](#), Aloe vera, L-glutamine, and Slippery Elm can support mucosal healing and reduce inflammation - Curcumin has been shown to reduce UC symptoms alongside conventional therapy



 **Fecal Microbiota Transplantation (FMT)** has shown promise in clinical trials for reducing UC severity

 **Lifestyle & Stress Management Recommendations** include yoga, meditation, and stress reduction techniques to reduce immune activation and reduce symptom severity (see list in previous slides related to restoring oral tolerance)



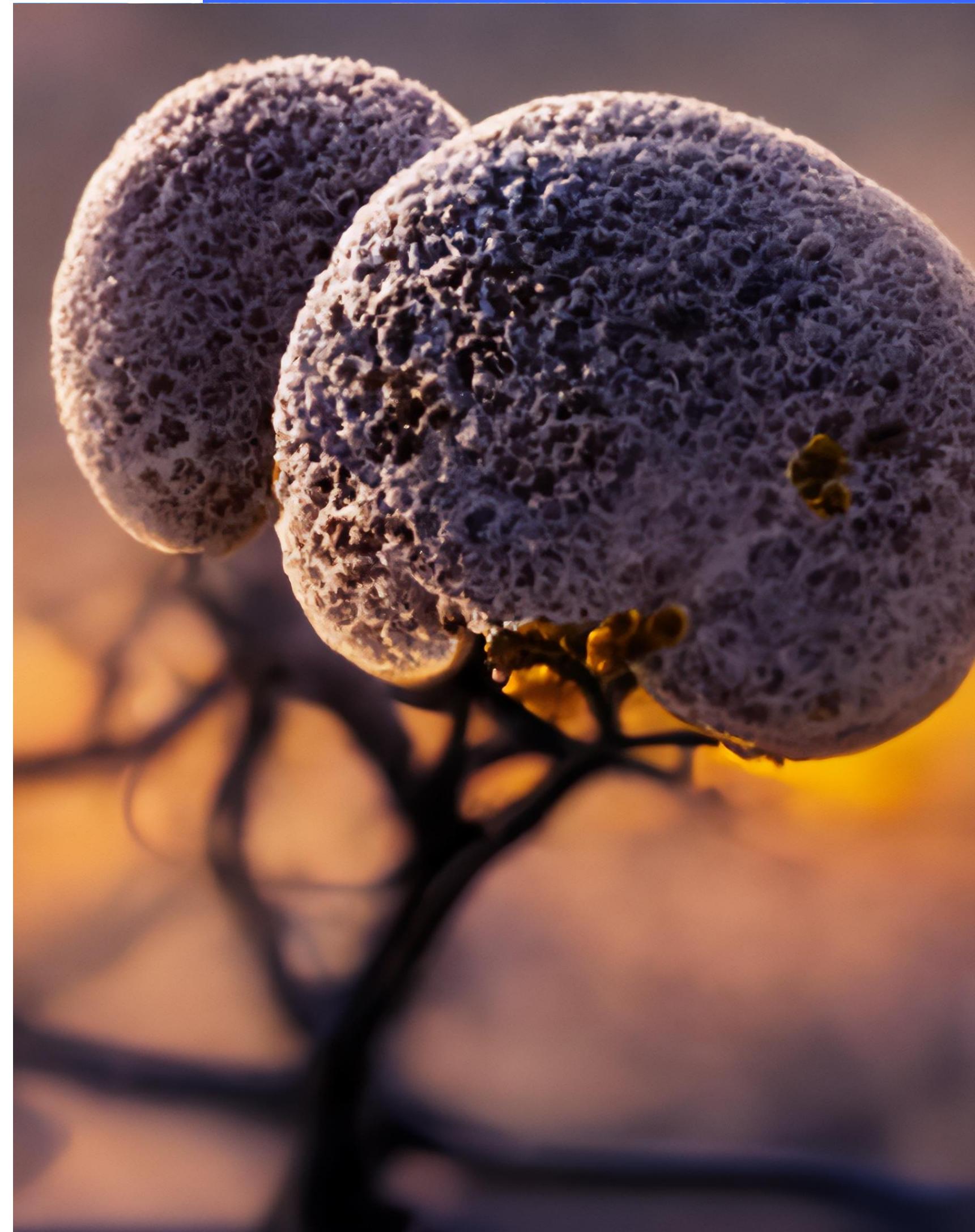
Study session:

Candida/Yeast Overgrowth

ROOT CAUSES &
NATURAL SOLUTIONS



**Build Your
Resilient Gut**
MICROBIOME & BEYOND





- ✓ **Candida overgrowth** refers to the excessive proliferation of yeast, primarily *Candida albicans*, in the gastrointestinal tract. Normally present in the microbiome, overgrowth occurs when the balance of microbes is disrupted.
- ✓ **Signs & Symptoms:** Bloating, sugar cravings, fatigue, brain fog, skin rashes, recurring yeast infections, white coating on the tongue, and general digestive discomfort
- ✓ **Diagnosis:** Yeast overgrowth can be identified through a combination of stool tests, organic acids testing (OAT), and symptoms, but testing accuracy varies

Root Causes of Candida/Yeast Overgrowth

- ✓ **Dysbiosis:** Disruption in the gut microbiome allows opportunistic yeast to flourish
- ✓ **Altered GI Environment:** Changes in pH, oxygen levels, and other environmental factors can invite overgrowth
- ✓ **High Sugar Diet:** Refined sugars and simple carbohydrates feed yeast and promote overgrowth
- ✓ **Antibiotic Use:** Overuse kills beneficial bacteria, reducing competition for yeast
- ✓ **Impaired Immune Function:** Compromised immunity due to chronic stress, illness, or inflammatory conditions
- ✓ **Heavy Metal Toxicity:** *Candida* and other yeasts can bind to and sequester heavy metals like mercury and lead, proliferating in toxic environments as a protective mechanism for the body. This relationship allows yeast to thrive when heavy metals burden detox pathways, while forming biofilms that make eradication challenging and further impair the immune system.

Solutions for Candida/Yeast Overgrowth

Dietary Adjustments:

- Eliminate refined sugars, processed foods, and reduce simple/refined carbs

Lifestyle Modifications:

- **Optimize Microbiome:** 5 Pillars! (See module 1 for specific recommendations)
- **Stress Management:** (See “Stress Reduction & Mind-Body Practices” in previous slides re: restoring oral tolerance)

Supplements:

- **MegaMycobalance:** Contains undecylenic acid and propolis to help control yeast overgrowth.
- **MegaIgG2000** to bind and remove yeast toxins from the gut
- **RestorFlora:** Contains beneficial yeast s. Boulardii, which can help reduce overgrowth and restore balance
- **Microbiome Foundations:** MegaSporeBiotic, Tributyrin-X, MegaPre
- **Support Liver & Bile** (See Mod 4 for specific recommendations)



Trouble-Shooting Specific GI Symptoms

Diarrhea:

- **MegalG2000:** Binds and neutralizes toxins, reducing inflammation and calming the gut lining
- **RestorFlora:** Combines spore-based probiotics and *S. boulardii* to restore healthy microbial balance and reduce diarrhea
- **Butyrate (Tributyrin-X):** Supports gut lining health and reduces inflammation, helping to regulate bowel movements and reduce diarrhea
- **HoloImmune:** Can help regulate GI-immune responses and reduce GI inflammation (a source of diarrhea)

Constipation:

- **Holozyme:** Full-spectrum digestive enzymes to improve digestion and ease stool passage
- **TUDCA:** Supports bile flow, which can help soften stools and promote regular bowel movements
- **Prokinetics & Natural Laxatives:** MegaGuard, Magnesium Citrate, Vitamin C, Ginger
- **Digestive Bitters:** Stimulate bile and enzyme production, helping to relieve constipation naturally
- **MegaPre:** Precision prebiotics to feed beneficial organisms, restore microbiome balance, and improve elimination

Trouble-Shooting Specific GI Symptoms

Bloating/Gas:

- **Holozyme:** Aids in food breakdown/absorption, reducing bloating and gas
- **MegaGuard:** Combines licorice, artichoke extract, and ginger to support bile flow and motility
- **HCL Guard+:** Supports optimal stomach acid levels for better digestion and reduced gas production
- **Digestive Bitters:** Enhance digestive enzyme and bile production, further alleviating gas and bloating

LEAKY SKIN AND CHRONIC DISEASE

THE SKIN MICROBIOME

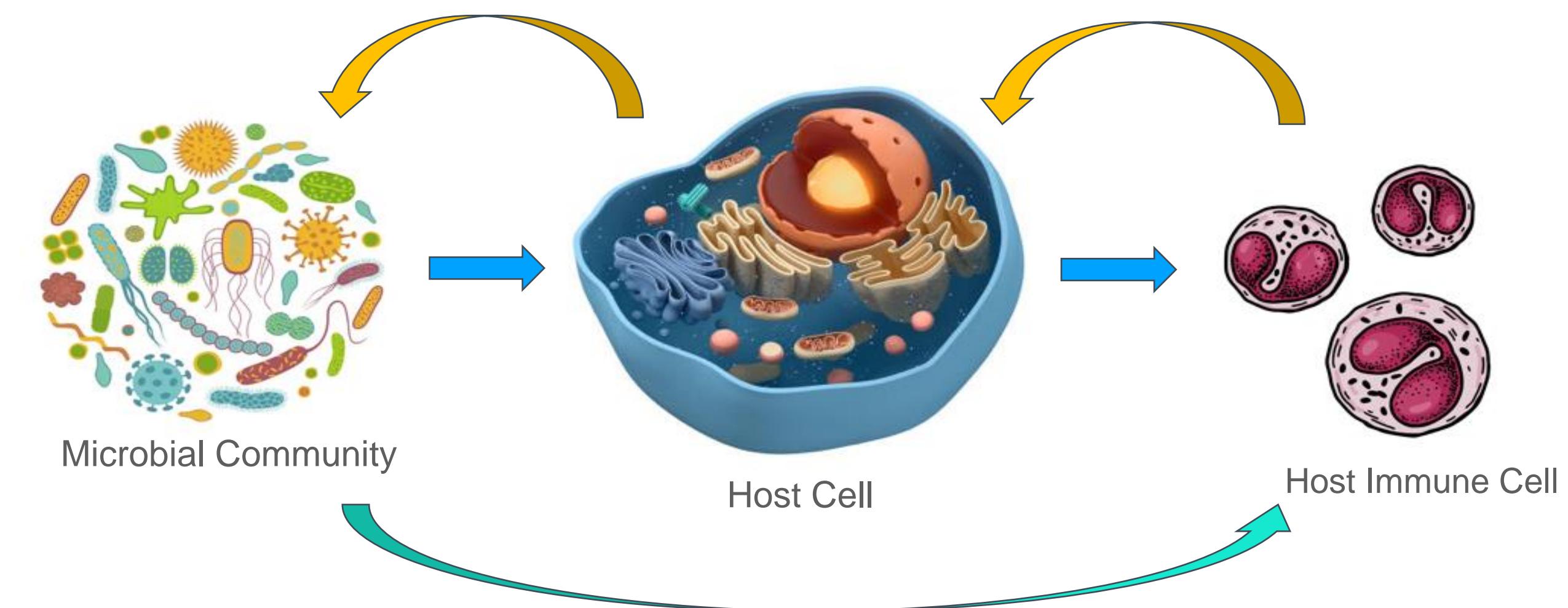
Major Disruptors or Influencers of our Skin Ecology

- AGE
- GENDER
- GENETICS
- ENVIRONMENT (POLLUTANTS, ECOSYSTEM, ETC.)
- CLIMATE
- COSMETICS
- DIET
- HORMONES
- IMMUNE FUNCTION
- LIFESTYLE
- GUT HEALTH

Ecological Disruption of the skin is the primary insult that results in disruption to the appearance and function of skin cells. This is the root cause driver of skin aging and skin disorder

CORE TENANT OF LEAKY SKIN

As the skin microbiome changes, it alters the relationship between the host and the microbes and thereby impacts host Aging and Life Expectancy



- The Immune system of the host modulates the microbial community
- The microbial community and its composition have a great impact on the host's immune system
- Both the immune system and the microbial community impacts the function of the host cell – with skin cells we end up seeing classic aging symptoms as well as inflammatory pathologies
- We end up losing the barrier function of the skin driving systemic inflammation
- Skin Microbiome is arguably the Most Accurate Predictor of Biological Age

A SCIENTIFIC REVELATION


FUTURE
[What is BBC Future?](#) [Earth](#) [Future Planet](#) [Health Gap](#) [Sustainability on a Shoestring](#) [Towards Net Zero](#) [More](#) 

AGEING

The curious ways your skin shapes your health


(Image credit: Getty Images)

 By Zaria Gorvett  23rd August 2023

Weathered or unhealthy skin is emerging as a major risk factor for almost every single age-related disease, from Parkinson's to type 2 diabetes.

I'm canoeing through the Ardèche gorge in southern France – and attracting some peculiar looks. It's early afternoon on a blazing July day, and the sky is a perfect canvas of cobalt blue. Though the river is sheltered on either side by towering cliffs and limestone escarpments up to 300m (980ft) high, the sheer irradiating power of the sun has never been more visible to me. Its rays have turned the surface of the water into a winding path of scintillating light, so bright it blinds you to look at it. And I am taking no chances; I have chosen my outfit with the seriousness of an explorer trekking off into the Sahara.

It turns out skin health can be used to predict a number of seemingly unconnected factors, from your **bone density** to your risk of developing **neurodegenerative diseases** or dying from **cardiovascular disease**. However, as the evidence has begun to add up, the story has taken a surprise twist. Is the skin simply a living tally of the damage we have accumulated, or is it more complicated? Could it, in fact, be keeping healthy people **healthy** – and dragging unhealthy ones down further?

AGED SKIN DRIVES CHRONIC DISEASE RISK

DYSBIOTIC SKIN MICROBIOME

DYSBIOTIC SKIN

Pathogen overgrowth, high toxin production and recruitment of immune cells to the skin



Low protease production, skin does not turnover adequately. Accumulation of damaged skin cells



Loss of ceramide and lipid barrier. Skin loses moisture and becomes leaky. Microbes and toxins migrate through driving inflammatory responses



Yeast and/or fungal overgrowth, reduction in collagen and elastin function and concentration



Skin becomes very susceptible to oxidative damage and accumulates free radicals. UV and other stimulants drive senescence, especially in melanocytes



RESULT

Red, Sensitive and Irritated skin highly susceptible to conditions like eczema and acne



Dull, thin skin



Dry and Irritated skin



Thin skin with wrinkles and fine lines



Discoloration and hyperpigmentation





**Build Your
Resilient Gut**
MICROBIOME & BEYOND

SPORE BASED BIOME BALANCING SERUM

THE NEW ESSENTIAL FOR ALL SKIN TYPES



THESE STATEMENTS HAVE NOT BEEN EVALUATED BY THE FOOD AND DRUG ADMINISTRATION. THIS PRODUCT IS NOT INTENDED TO DIAGNOSE, TREAT, CURE, OR PREVENT ANY DISEASE.