

# **The Peptide Masterclass**

## **Module 1**

### **Nutrition and Gut Health**

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# Module 1:

## Nutrition and Gut Health

- **How to prepare your body for peptides**
- **How to optimize gut health, fix dysbiosis and banish bloat!**
- **Plus key peptides for gut health**

# Disclaimer

These statements and products are not intended to diagnose, treat, cure or prevent any disease. I expressly disclaim all liability with respect to actions taken or not taken based on any or all of the information or other contents of these materials.

They are for educational and informational purposes only, not intended as medical advice. The information does not create, nor is it intended to replace, a relationship with a qualified healthcare professional.

Always seek the advice of your physician or other qualified health provider with any questions you may have regarding a medical condition or your health prior to starting dietary routines, exercise or supplements.

# Dr. Jen

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Co-author of the book Eat. Sleep. Move. Breathe. A beginners guide to a healthy lifestyle.

Board member for the Invisible Disabilities Association and Vice President of the NWOOA (Northwest Ohio Osteopathic Association).

My personal battle with Hashimoto's thyroid disease inspired me to dedicate my mission to helping others suffering not only from thyroid disease but also from chronic illnesses like Lyme disease, mold toxicity, and other autoimmune conditions.



## What are peptides?

Peptides are a specific type of bioregulator, characterized by being composed of short chains of amino acids linked together by peptide bonds. While peptides are a subset of bioregulators, they are distinct in that they are typically smaller in size compared to proteins and have specific functions in cell signaling, neurotransmission, hormone regulation, and other physiological processes.

## What are some peptides in our body?

**Insulin:** Produced by the pancreas, insulin regulates blood sugar levels by promoting the uptake of glucose into cells for energy or storage.

**Oxytocin:** Often referred to as the "love hormone," oxytocin plays a role in social bonding, childbirth, and lactation. It is released during childbirth and breastfeeding and promotes uterine contractions and milk ejection.

**Growth hormone (GH):** Stimulates growth, cell reproduction, and regeneration in humans and animals. It plays a key role in childhood growth, muscle mass maintenance, and metabolism regulation.

# Peptide prep!

Don't skip this step! It's important.

This week we will discuss GUT HEALTH.

How to prep the gut and the liver for peptides.

We will also discuss some of the best peptides for gut health and healing.

BPC 157, KVP, Larazotide

Do you have bloating, pain and gas after eating? Does your gas or burps smell like sulfur?

Yes- Consider the SIBO protocol

What is SIBO?

SIBO is Small Intestinal Bacteria Overgrowth. When bacteria make it to the small intestine that shouldn't be there and can wreck havoc! Lots of gas and bloating is common with this and Methane and Sulfur producing bacteria are to blame!

Do you have mold exposure? Do you feel better when you leave your home (or work place) for an extended period of time? Do you have a positive mycotoxin test or EMRI test for your home?

Yes- Mold protocol

Do you have brain fog, sugar cravings and/or rashes? Have you had multiple yeast infections? Do you have toe nail fungus? Have you tested positive for Candida or high yeast markers on functional testing?

Yes- Candida protocol

SIBO stands for **Small Intestinal Bacterial Overgrowth**. It is a medical condition characterized by an abnormal increase in the number and/or type of bacteria in the small intestine. Normally, the small intestine has a relatively low population of bacteria compared to the large intestine.

When SIBO occurs, these bacteria from the large intestine migrate or overgrow into the small intestine, where they can cause various digestive symptoms and interfere with the proper absorption of nutrients. This overgrowth can lead to symptoms such as bloating, abdominal pain, diarrhea, and malabsorption of nutrients, which can result in nutritional deficiencies.

Several factors can contribute to **Candida overgrowth**, including a diet high in sugar and refined carbohydrates, prolonged use of antibiotics, weakened immune function, hormonal changes, and stress.

Symptoms of Candida overgrowth in the gut can include:

Digestive problems: Such as bloating, gas, diarrhea, or constipation.

Fatigue: Feeling chronically tired or lethargic.

Recurrent infections: Increased susceptibility to yeast infections, urinary tract infections, or oral thrush.

Skin issues: Including rashes, eczema, or fungal skin infections.

Brain fog: Difficulty concentrating, poor memory, or mental fog.

Mood swings: Anxiety, depression, irritability, or mood swings.

Sugar cravings: An intense desire for sugary foods.

Helicobacter pylori, often abbreviated as **H. pylori**, is a type of bacteria that can infect the stomach lining and upper part of the small intestine.

Infection Transmission: H. pylori is primarily transmitted through person-to-person contact, such as close contact with an infected individual, or through contaminated food and water.

Symptoms: Not everyone with H. pylori infection will experience symptoms, but when they do, symptoms can include stomach pain, bloating, nausea, loss of appetite, and in some cases, peptic ulcers. H. pylori infection is also associated with an increased risk of stomach cancer.

Diagnosis: Diagnosis of H. pylori infection is typically confirmed through various tests, including a breath test, blood test, stool test, or an endoscopy with biopsy.

Treatment: H. pylori infection is usually treated with a combination of antibiotics and acid-reducing medications. The antibiotics help to eliminate the bacteria, while the acid-reducing medications help to alleviate symptoms and promote healing of any ulcers.

Importance of Treatment: Treating H. pylori infection is important because it can lead to various gastrointestinal problems, including peptic ulcers and gastritis. Moreover, long-term infection with H. pylori is a known risk factor for the development of stomach cancer.

# Parasites

## **Strongyloides stercoralis:**

Transmission: Skin penetration by larvae from contaminated soil, similar to hookworms.

## **Enterobius vermicularis (Pinworm):**

Transmission: Ingesting eggs or inhaling airborne eggs, often through contaminated hands, bedding, or clothing.

## **Dientamoeba fragilis:**

Transmission: Ingesting cysts from contaminated water or food.

## **Blastocystis hominis:**

Transmission: Ingesting cysts from contaminated water or food.

## **Cyclospora cayetanensis:**

Transmission: Consuming water or food contaminated with Cyclospora oocysts, often associated with fresh produce.

## **Entamoeba coli:**

Transmission: Similar to Entamoeba histolytica, through ingestion of contaminated food or water.

## **Balantidium coli:**

Transmission: Ingesting cysts from contaminated food or water, or through direct contact with infected animals.

## **Giardia lamblia:**

Transmission: Ingesting contaminated water or food, often from streams, lakes, or improperly treated water sources.

## **Entamoeba histolytica:**

Transmission: Consuming food or water contaminated with fecal matter, typically in areas with poor sanitation.

## **Cryptosporidium:**

Transmission: Ingesting water or food contaminated with Cryptosporidium oocysts, which are resistant to chlorine disinfection.

## **Ascaris lumbricoides (Roundworm):**

Transmission: Ingesting eggs from contaminated soil or food, often due to poor hand hygiene.

## **Hookworms (Ancylostoma duodenale and Necator americanus):**

Transmission: Penetration of the skin by larvae from contaminated soil, often through barefoot walking in infected areas.

## **Trichuris trichiura (Whipworm):**

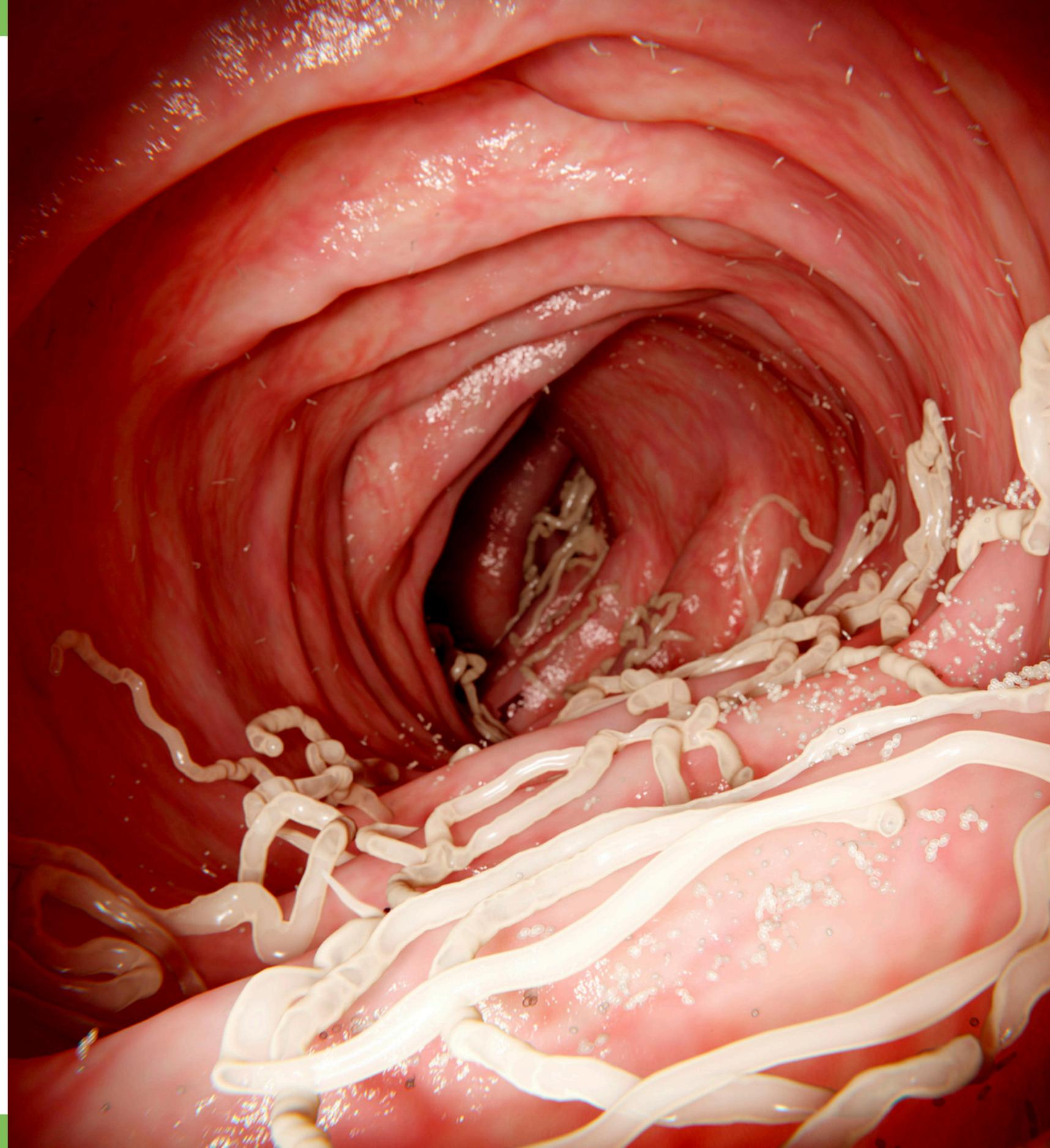
Transmission: Ingesting eggs from contaminated soil or food.

## **Tapeworms (Various types, e.g., Taenia saginata, Taenia solium):**

Transmission: Consuming undercooked or raw contaminated meat, particularly beef or pork.

## Common symptoms of parasite infections:

- Diarrhea
- Abdominal pain or cramps
- Nausea and vomiting
- Fatigue
- Weight loss
- Bloating and gas
- Stomach or intestinal upset
- Fever
- Skin rashes or itching
- Muscle aches
- Joint pain
- Allergies or skin reactions
- Constipation (in some cases)
- Blood in stool or urine (in severe cases)
- Changes in appetite



# Symptoms of Mold illness

Mold colonization in the gut, also known as fungal overgrowth or gut mycobiome imbalance, occurs when fungi, such as Candida species, proliferate in the gastrointestinal tract.



Fatigue  
Headaches  
Sinus congestion or irritation  
Coughing or wheezing  
Sneezing  
Sore throat  
Skin rashes or hives  
Watery or itchy eyes  
Runny or stuffy nose  
Difficulty breathing  
Memory problems or brain fog  
Joint pain  
Muscle pain or cramps  
Mood swings or depression  
Anxiety  
Nausea or digestive issues  
Sensitivity to light and sound  
Hair loss  
Increased thirst and urination  
Sensitivity to odors

# Low Levels of Alpha-Melanocyte-Stimulating Hormone ( $\alpha$ -MSH) in Mold Patients

Alpha-Melanocyte-Stimulating Hormone ( $\alpha$ -MSH) is a peptide hormone produced primarily in the pituitary gland.

**Anti-inflammatory Effects:**  $\alpha$ -MSH has potent anti-inflammatory properties and helps modulate immune responses.

**Melanogenesis:** It stimulates the production of melanin in melanocytes, contributing to skin pigmentation.

**Appetite Regulation:**  $\alpha$ -MSH is involved in controlling appetite and energy homeostasis.

**Cognitive Functions:** It influences mood and cognitive processes.

# Causes of Low $\alpha$ -MSH in Mold Patients

Triggering of CIRS (Chronic Inflammatory Response Syndrome)

Immune System Dysregulation

Hypothalamus Dysfunction

Elevated Levels of Transforming Growth Factor-Beta1 (TGF- $\beta$ 1) which inhibits  
production of  $\alpha$ -MSH

Reduced Melanocortin Receptor Activity

Direct Inhibition by Biotoxins



(more on why this matters latter)

# Remove

Candida

Mold

SIBO

H.pylori

Parasites

Clostridium

# Replace

Digestive enzymes

Prebiotics

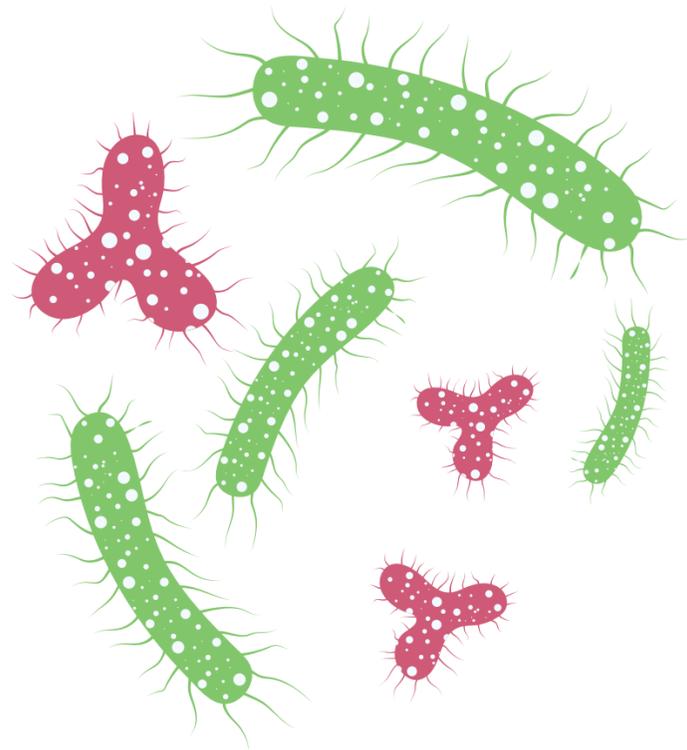
Probiotics

SCFAs

## Prebiotics



## Probiotics



## Postbiotics



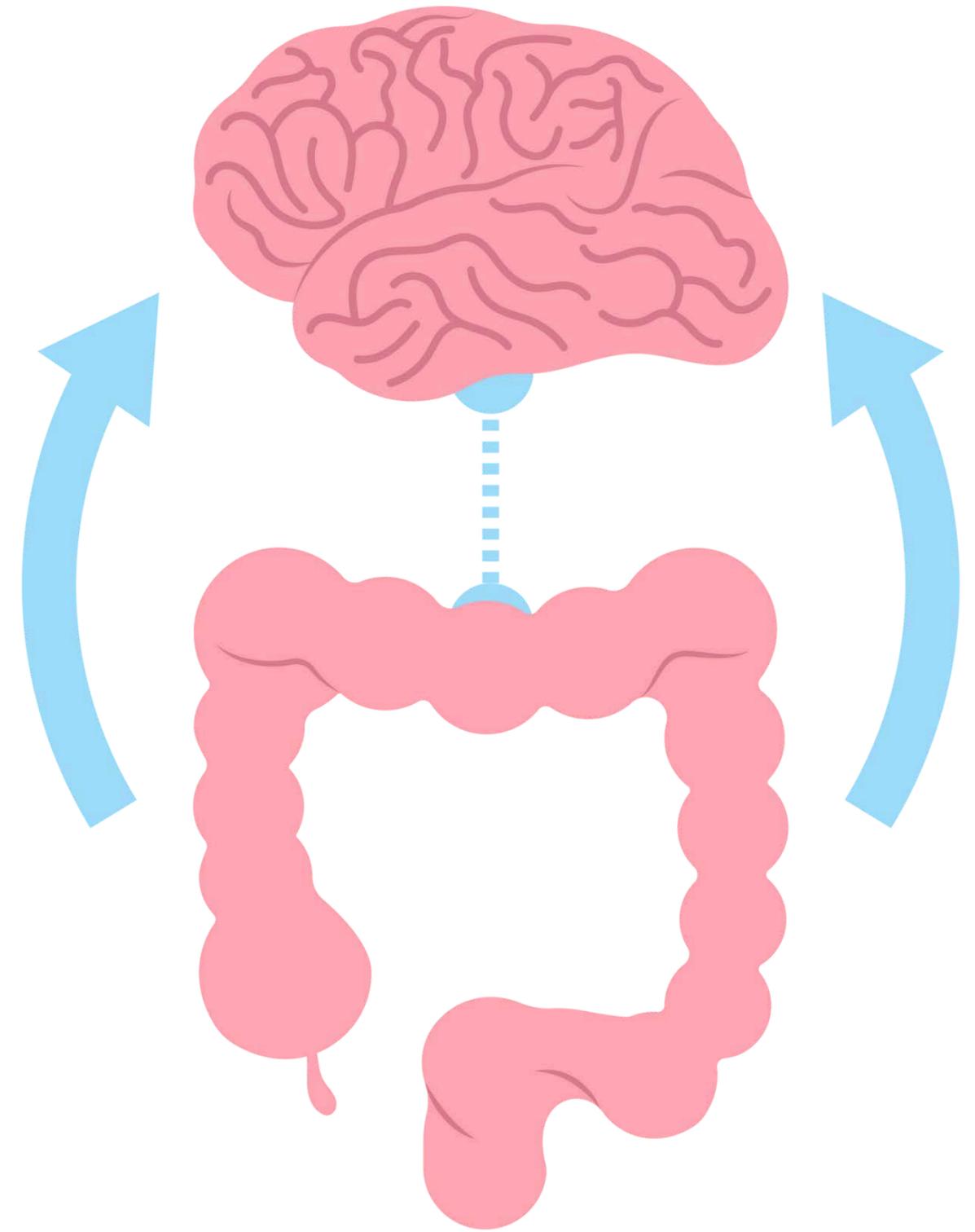
## Prebiotics:

Why: Feed the beneficial bacteria in the gut, improving overall gut health. Non-digestible food ingredients that stimulate the growth of beneficial gut bacteria. Examples include garlic, onions, and asparagus.



## Prebiotics

The gut is often termed the 'second brain' due to its profound influence on overall health, from digestion and immunity to mood regulation. At the heart of a healthy gut is a thriving microbiome, a community of beneficial bacteria that flourish with the right nourishment. Prebiotics, indigestible plant fibers, serve as food for these beneficial bacteria. Foods like garlic, onions, and asparagus, as well as many leafy greens, are abundant in these fibers. By nurturing our gut bacteria with prebiotics, we lay the foundation for optimal digestion, robust immunity, and even mental well-being.



## Prebiotic food examples

- Chicory Root: Chicory root is one of the richest sources of inulin, a type of prebiotic fiber.
- Dandelion Greens: Dandelion greens contain inulin and can be added to salads or cooked as a side dish.
- Jerusalem Artichokes (Sunchoke): These tubers are high in inulin and have a slightly nutty flavor.
- Garlic: Garlic contains inulin as well as other prebiotic compounds.
- Onions: Onions are rich in fructooligosaccharides (FOS), a prebiotic fiber.
- Leeks: Leeks contain inulin and are similar in flavor to onions.
- Asparagus: Asparagus is a good source of inulin and can be used in a variety of dishes.
- Bananas: Unripe (green) bananas are higher in resistant starch, a prebiotic, compared to ripe bananas.
- Apples: Apples are a source of pectin, a type of prebiotic fiber.
- Cocoa: Cocoa powder and dark chocolate contain flavonoids that act as prebiotics.
- Flaxseeds: Flaxseeds provide both soluble and insoluble fiber that can support gut health.
- Legumes: Various legumes like lentils, chickpeas, and beans provide prebiotic fibers.
- Carrots: Carrots contain pectin, contributing to their prebiotic properties.
- Jicama: Jicama is a crunchy root vegetable rich in inulin.
- Cabbage: Cabbage is a source of fiber and prebiotic compounds.

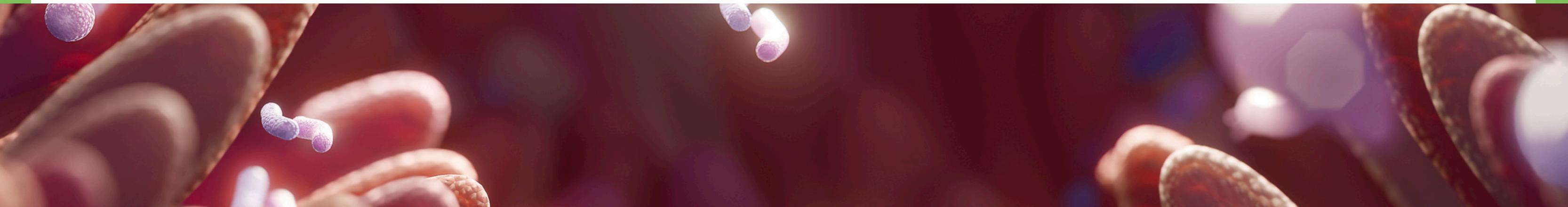
# What are short chain fatty acids? (SCFAs)

SCFAs are produced by the fermentation of dietary fibers and complex carbohydrates by beneficial gut bacteria, such as Bifidobacterium and Firmicutes



## What are the benefits of SCFAs?

- Serve as an important energy source for colonocytes (cells lining the colon).
- Contribute to gut health by promoting the growth and maintenance of beneficial gut bacteria.
- Promote anti-inflammatory responses and help regulate the immune system's activity, which is crucial for maintaining gut health.
- Help regulate appetite, blood sugar levels, and fat metabolism
- SCFAs contribute to the integrity of the gut barrier, helping to prevent "leaky gut" by maintaining the tight junctions between intestinal cells.



Probiotics:  
These are great when they  
come from food like  
sauerkraut, kimchi, kefir,  
yogurt or kombucha. Also,  
supplements can also work!



## Probiotic food examples

- Yogurt: Yogurt is one of the most well-known probiotic foods. Look for yogurt with active live cultures, such as *Lactobacillus acidophilus* and *Bifidobacterium bifidum*.
- Kefir: Kefir is a fermented milk product that is similar to yogurt but has a thinner consistency. It contains a variety of beneficial bacteria strains.
- Sauerkraut: Sauerkraut is fermented cabbage and is a good source of probiotics, including *Lactobacillus* bacteria.
- Kimchi: Kimchi is a traditional Korean dish made from fermented vegetables, mainly cabbage and radishes, with spices. It's rich in beneficial bacteria.
- Miso: Miso is a Japanese seasoning made by fermenting soybeans, barley, or rice with salt and koji (a type of fungus). It's commonly used to make miso soup.
- Tempeh: Tempeh is a fermented soybean product that's high in probiotics and protein. It has a nutty flavor and can be used in various dishes.
- Pickles (Fermented in Brine): Traditional pickles that are fermented in brine, rather than vinegar, can contain probiotics.
- Natto: Natto is a Japanese dish made from fermented soybeans and is known for its strong flavor and sticky texture. It contains the probiotic *Bacillus subtilis*.
- Traditional Buttermilk: Traditional buttermilk is the liquid left behind after churning butter. It's different from cultured buttermilk, which is often found in stores.
- Fermented Cheeses: Some cheeses, like Gouda, cheddar, and Swiss, are fermented and can contain probiotic bacteria.
- Lassi: Lassi is a traditional Indian yogurt-based drink that can be flavored with spices, fruits, or herbs.
- Kombucha: Kombucha is a fermented tea beverage made using a symbiotic culture of bacteria and yeast (SCOBY). It can contain various probiotic strains.
- Fermented Soy Products: Aside from miso and tempeh, other fermented soy products like soy sauce and soybean paste may contain probiotics.
- Fermented Vegetable Mix: Some specialty stores offer a mix of fermented vegetables that can include items like carrots, beets, and more.

# What about glyphosate?

Disruption of the Gut Microbiome: Glyphosate has been shown to have antimicrobial properties. It can potentially disrupt the balance of beneficial and harmful bacteria in the gut, leading to dysbiosis (an imbalance in the gut microbiome). A healthy gut microbiome is essential for digestion, nutrient absorption, and overall well-being.

Glyphosate's Impact on Beneficial Bacteria: Some research suggests that glyphosate may selectively affect certain beneficial bacteria in the gut, such as those that produce butyrate, a short-chain fatty acid important for gut health. This disruption can negatively influence the gut environment.



Soybeans (Roundup Ready)

Corn

Cotton (Bt Cotton)

Canola (Roundup Ready)

Alfalfa (Roundup Ready)

Sugar Beets (Roundup Ready)

Papaya (Papaya Ringspot Virus-Resistant)

Summer Squash and Zucchini (Yellow Crookneck  
and Straightneck)

Potatoes (Innate)

Apples (Arctic Apples)

Salmon (AquAdvantage Salmon)

Tomatoes (Flavr Savr)

Rice (Golden Rice)

Papaya (Rainbow Papaya)

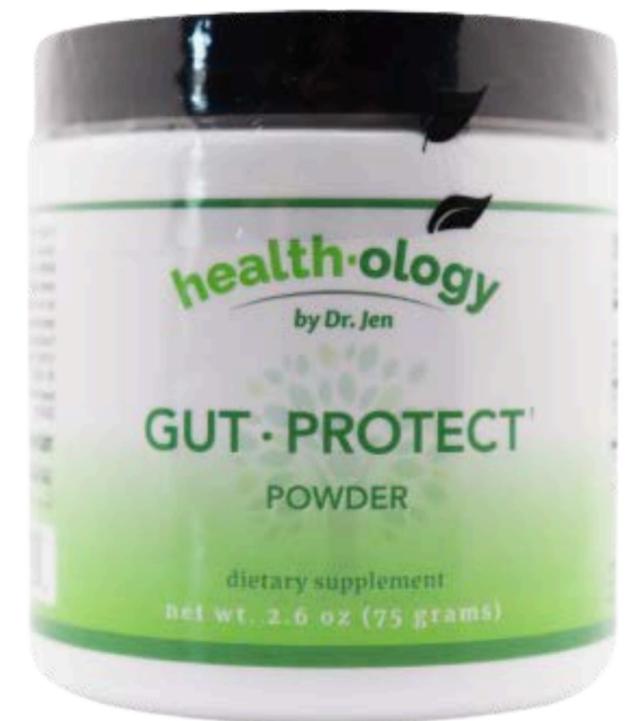
Cotton (Insect-Resistant Varieties)



What to do if you are exposed!

Acute exposure- Binder Pro

Chronic exposure-  
(say if you live in the Midwest)  
Gut Protect



# Let's talk peptides!

Gut health is SO important.

These 3 peptides will be ones that you need to be familiar with!

BPC 157

KPV

Larazotide

# BPC157

Gastrointestinal Disorders: Ulcers, Inflammatory Bowel Disease (IBD), Gastritis, Leaky Gut Syndrome

Musculoskeletal Injuries: Tendon and ligament injuries, Muscle tears, Joint damage, Bone fractures

Neurological Conditions: Traumatic brain injury (TBI), Peripheral neuropathy

# BPC157

Wound Healing: Accelerating the healing of skin wounds,  
Reducing scar tissue formation

Inflammation and Pain: Reducing inflammation,  
Alleviating pain from various injuries and conditions

# BPC157

## Mechanism of Action:

### Angiogenesis (Formation of New Blood Vessels)

BPC-157 promotes angiogenesis by increasing the expression of vascular endothelial growth factor (VEGF). This leads to improved blood supply to damaged tissues, enhancing the delivery of nutrients and oxygen necessary for repair.

### Tendon and Ligament Healing

BPC-157 stimulates the production of collagen and other extracellular matrix components essential for the repair and regeneration of tendons and ligaments. It also enhances the migration and proliferation of fibroblasts, which are crucial for tissue healing.

# BPC157

## Mechanism of Action: Anti-Inflammatory Effects

BPC-157 has anti-inflammatory properties that help reduce swelling and pain in injured tissues. It modulates the inflammatory response by decreasing the levels of pro-inflammatory cytokines and increasing the levels of anti-inflammatory cytokines.

## Gastroprotective Effects

BPC-157 stabilizes the gut lining and promotes the healing of gastrointestinal tissues. It protects against damage caused by non-steroidal anti-inflammatory drugs (NSAIDs) and other irritants. BPC-157 also enhances the repair of the mucosal lining, which is critical in conditions like ulcers and IBD.

# BPC157

## Mechanism of Action: Neuroprotective Effects

BPC-157 exerts neuroprotective effects by promoting the survival and regeneration of neurons. It enhances the expression of nerve growth factors and supports the healing of nerve tissues, which is beneficial in conditions like peripheral neuropathy and traumatic brain injury.

## Modulation of Neurotransmitter Systems

BPC-157 interacts with the dopaminergic and serotonergic systems, which may explain its potential benefits in neurological conditions and its ability to reduce the symptoms of depression and anxiety.

# BPC157

Mechanism of Action:

## Cytoprotective Effects

BPC-157 protects cells from oxidative stress and other forms of cellular damage. It enhances the integrity of cell membranes and supports the overall health of cells under stress.

## Promotes Bone Healing

BPC-157 enhances bone repair by stimulating the activity of osteoblasts, the cells responsible for bone formation. It also supports the healing of bone fractures and other skeletal injuries.

# BPC157

Oral Dosing:

Typical Dosage:

200 mcg to 1,000 mcg (0.2 mg to 1 mg) per day

Administration:

BPC-157 is often taken on an empty stomach for better absorption. It is typically divided into two doses, taken in the morning and evening.

Subcutaneous Dosing:

Typical Dosage:

200 mcg to 500 mcg per injection, once or twice a day

Administration:

Subcutaneous injections are administered into the fatty tissue just beneath the skin.

Common injection sites include the abdomen, thigh, or upper arm.

# KPV (Lysine-Proline-Valine) is a tripeptide

Derived from alpha-melanocyte-stimulating hormone ( $\alpha$ -MSH)

Mechanism of action:

Inhibition of Pro-inflammatory Cytokines:

KPV suppresses the production and activity of pro-inflammatory cytokines such as TNF- $\alpha$ , IL-1 $\beta$ , and IL-6. These cytokines play a crucial role in promoting inflammation and immune responses.

# KPV MOA:

## Reduction of NF- $\kappa$ B Activation:

Nuclear factor-kappa B (NF- $\kappa$ B) is a key transcription factor involved in the regulation of inflammatory responses. KPV inhibits the activation of NF- $\kappa$ B, thereby reducing the expression of inflammatory genes

## Regulation of Immune Cell Activity:

KPV modulates the activity of various immune cells, including macrophages, T cells, and dendritic cells. It promotes a balanced immune response by reducing excessive immune activation while preserving necessary immune functions.

# KPV MOA:

## Direct Antimicrobial Properties:

KPV has been shown to possess direct antimicrobial properties against certain bacteria and fungi. It can inhibit the growth of pathogens, contributing to its potential use in treating infections and promoting wound healing.

## Enhanced Tissue Repair:

KPV promotes tissue repair and wound healing by stimulating cell proliferation and migration, particularly in epithelial cells. This leads to faster recovery of damaged tissues and improved healing outcomes.



# KPV MOA:

## Barrier Function Enhancement:

KPV enhances the integrity of the gastrointestinal (GI) barrier by promoting the production of mucins and other protective factors.

This helps maintain a healthy gut lining and prevents the translocation of harmful substances into the bloodstream.

## Interaction with Melanocortin Receptors:

KPV interacts with melanocortin receptors (MCRs), particularly MC1R and MC3R, which are involved in regulating inflammation and immune responses. Activation of these receptors by KPV leads to anti-inflammatory and immunomodulatory effects.

# KPV

## Dosing:

Typical dosages range from 200 to 500 micrograms per day.

I usually dose 500 mcg daily oral for 2-3 months

# Larazotide

What does it do?

Inhibition of Zonulin Release  
Stabilization of Tight Junctions  
Reduction of Intestinal Permeability  
Diminished Immune Activation

# Larazotide

## Clinical uses

Celiac Disease  
Non-Celiac Gluten Sensitivity  
Irritable Bowel Syndrome (IBS)  
Inflammatory Bowel Disease (IBD):  
Crohn's Disease, Ulcerative Colitis  
Type 1 Diabetes  
Rheumatoid Arthritis  
Multiple Sclerosis  
Systemic Lupus Erythematosus  
Allergies  
Asthma  
Autism Spectrum Disorders  
Schizophrenia  
Metabolic Syndrome  
Obesity  
Eczema  
Psoriasis

# Larazotide

## Dosing

0.5 mg to 2 mg taken three times a day before meals  
500 mcg twice a day my usually dosing

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Thank you!  
Time for Q and A!

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