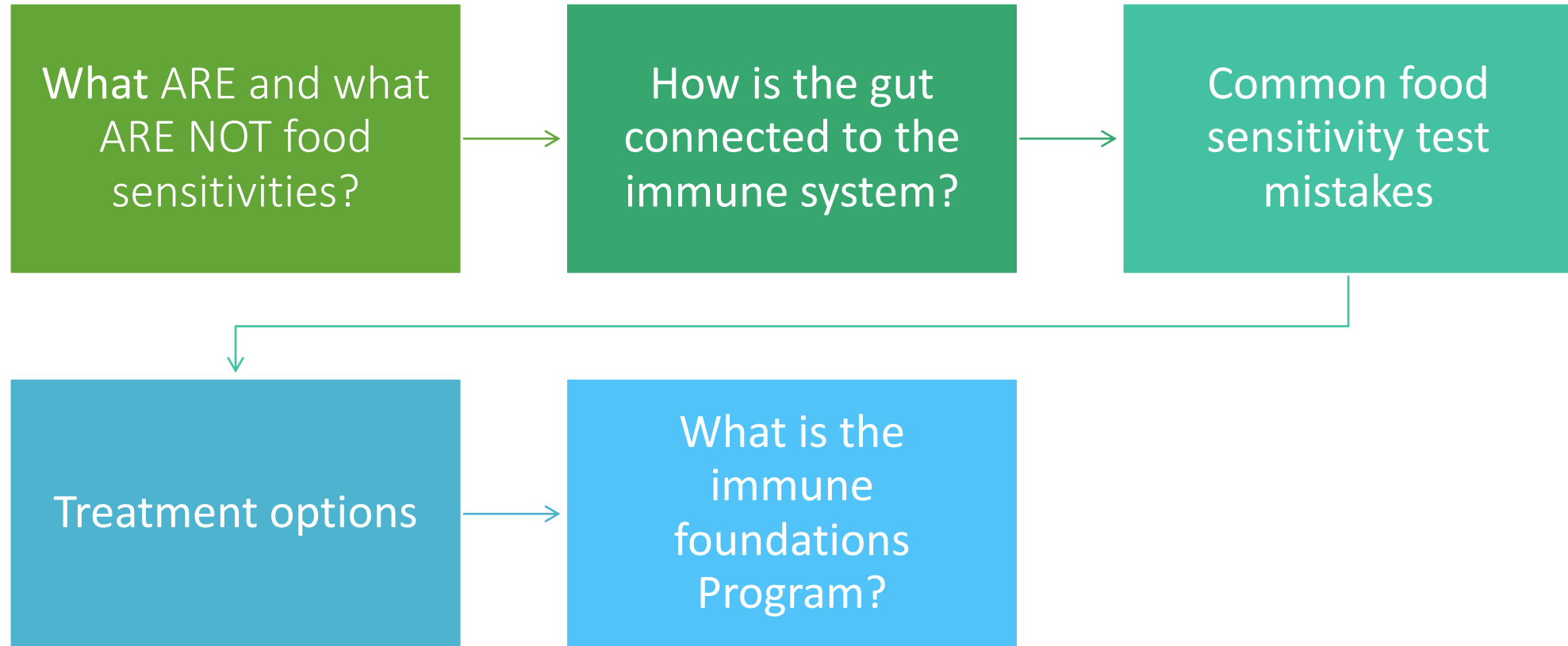




Food Sensitivities: Role in Immune Function

DR. JILLIAN MOEHLE

Webinar Roadmap



Did you know...

- **70% OF YOUR IMMUNE CELLS LIVE IN YOUR GUT**

Gut Health and Immune Response

There is a **bidirectional relationship** between the gut and the innate immune system.

Inflammation in the gut, due to immune activation, leads to alteration in the microbiome. Similarly, supporting a healthy and **diverse microbiome can positively influence the immune system**, aiding in prevention and recovery from infection or illness.

Immune factors (cytokines), epithelial integrity, and microbiota all play a role in maintaining intestinal homeostasis.

Alterations in gut microbiota due to lifestyle factors may lead to inflammation and **intestinal permeability (leaky gut)**.

Intestinal permeability allows for **transfer of antigens, toxins and microbes** from the gut into the body. This can increase **systemic inflammation, induce autoimmunity, and a host of unfavorable symptoms**.

Food Sensitivities vs. Food Allergies vs. Food Intolerance

FOOD SENSITIVITY

- Immunologic (IgA or IgG hypersensitivity) delayed reaction to food
- Reactions delayed up to three days
- A sign of leaky gut

FOOD ALLERGY

- Becoming more common
- 4-8% of the US population have a true food allergy
- Immediate, sometimes life-threatening reactions
- Type I hypersensitivity IgE mediated reaction
- A sign of childhood immune development

FOOD INTOLERANCE

- Non-immune mediated reaction
- Example: lactose or histamine intolerance

Common Symptoms of Food Allergy

Skin

Rashes

Flushing

Hives

Angioedema

GI

Nausea/vomiting

Diarrhea

Oral pruritis

Cramping

Respiratory

Sneezing

Coughing

Sinus congestion

Wheezing

Dysphagia

Shortness of breath

Cardiovascular

Tachycardia

Bradycardia

Cardiac arrest

Neuro

Anxiety

Sense of doom

Dizziness

Loss of consciousness

Common Symptoms of Food Sensitivity

Systemic

Fever

Fatigue

Sweating/chills

Weakness

GI

Abdominal pain

Diarrhea or constipation

Reflux

Cramping

Respiratory

Bronchitis

Asthma

Cough

Wheezing

Skin

Itching

Rashes

Hives

Redness

Swelling

Scaling

Neuro

Migraines/headaches

Brain fog

Fatigue

Memory issues

MSK

Pain

Stiffness

Swelling

What Factors Lead to Food Sensitivities?

Genetics

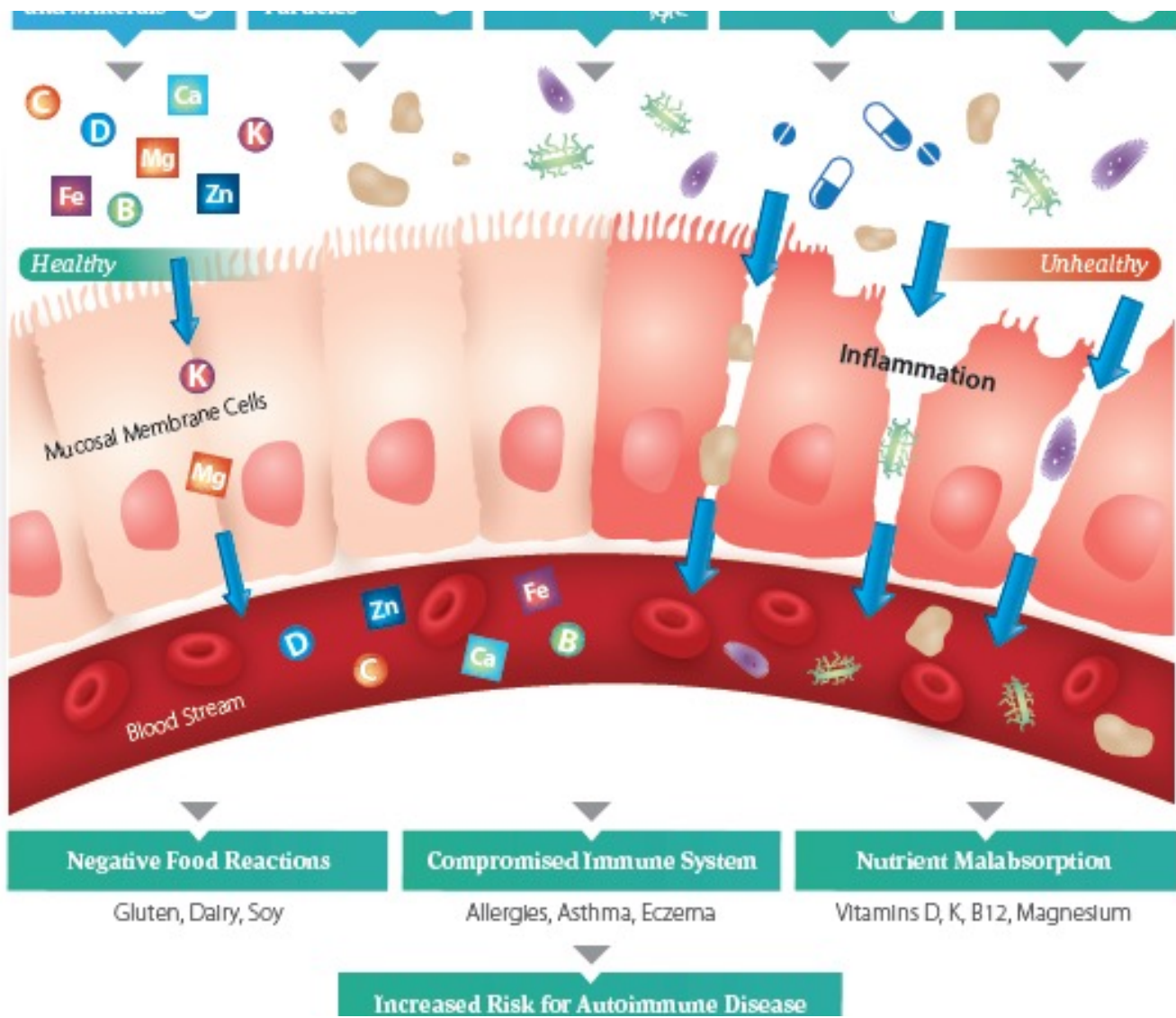
Food and/or environmental allergies

Maldigestion

Dysbiosis

Nutritional insufficiencies

Intestinal permeability




Intestinal Permeability (Leaky Gut)

Leaky gut is a condition where the intestinal barrier is compromised and allows many antigens and proteins to pass into the blood stream every day.

Your tissues are also made of proteins that can look like foreign proteins.

This is a quality control issue where the immune system also starts making antibodies to thyroid tissues.



Case Study – Hashimoto's Thyroiditis

Case Study

Patient is a 40-year-old female with a prior diagnosis of Hashimoto's thyroiditis and currently taking levothyroxine

She presents for concerns of fatigue and inability to lose weight

Current symptoms also include an inability to tolerate cold temperatures, afternoon fatigue, brittle nails and hair loss

A low-calorie diet has not helped with weight loss, and she is now eating a typical American diet

Her bowel movements occur every three to four days

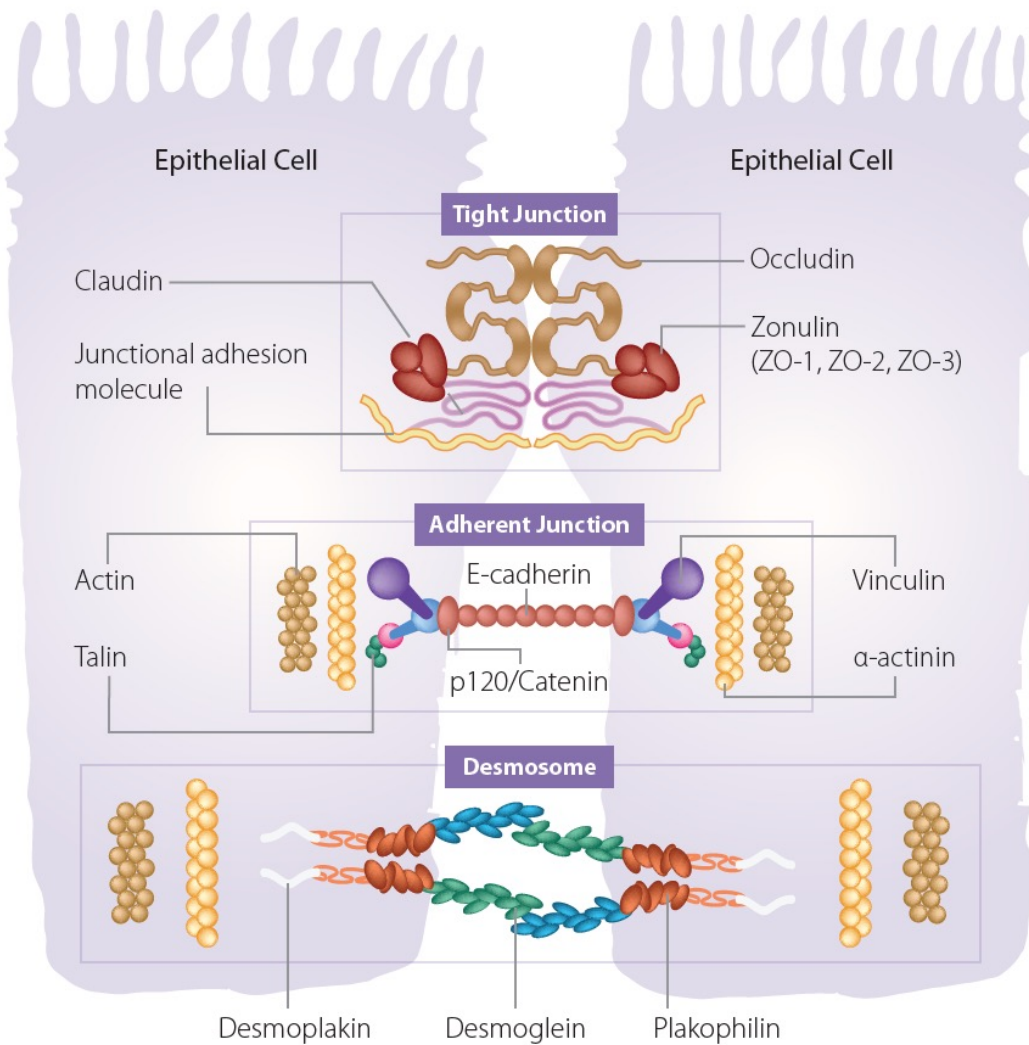
She has a history of chronic herbal laxative use

First Office Visit

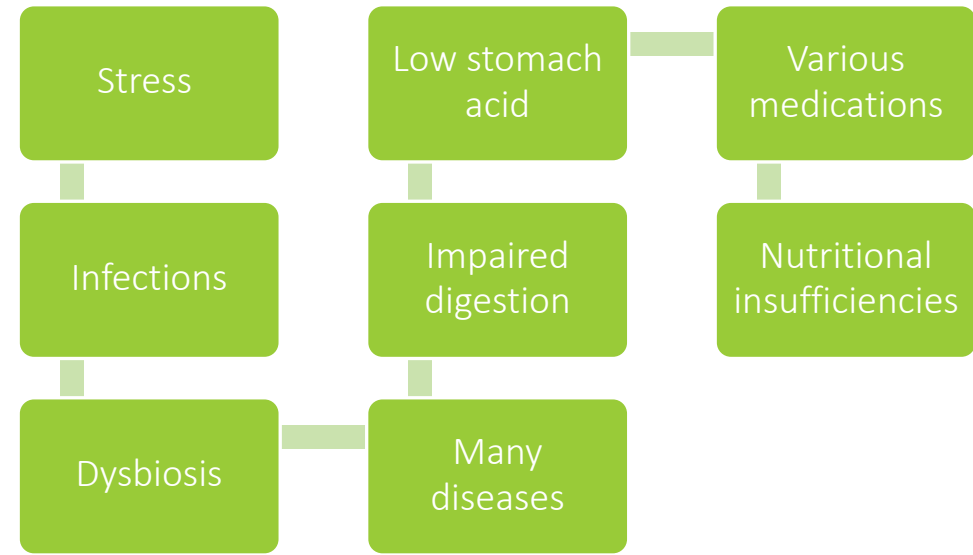
She undergoes a thorough health history to identify root causes

Specialized functional labs are drawn, including:

- Thyroid labs
 - TSH (thyroid-stimulating hormone)
 - Her TSH level is **elevated**, indicating poor thyroid function
 - TPO (thyroid peroxidase) and TG (thyroglobulin) antibodies
 - Her TPO antibodies are **elevated**, indicating autoimmune damage to her thyroid
- Intestinal permeability panel
 - IgM to occludin/zonulin and LPS are **elevated**, indicating increased intestinal permeability
- Food immune reactivity panel (IgG)
 - Reactivity to **wheat (gluten), dairy and corn** are found



Triggers For Intestinal Permeability



Genetic predisposition

Intestinal permeability!!!

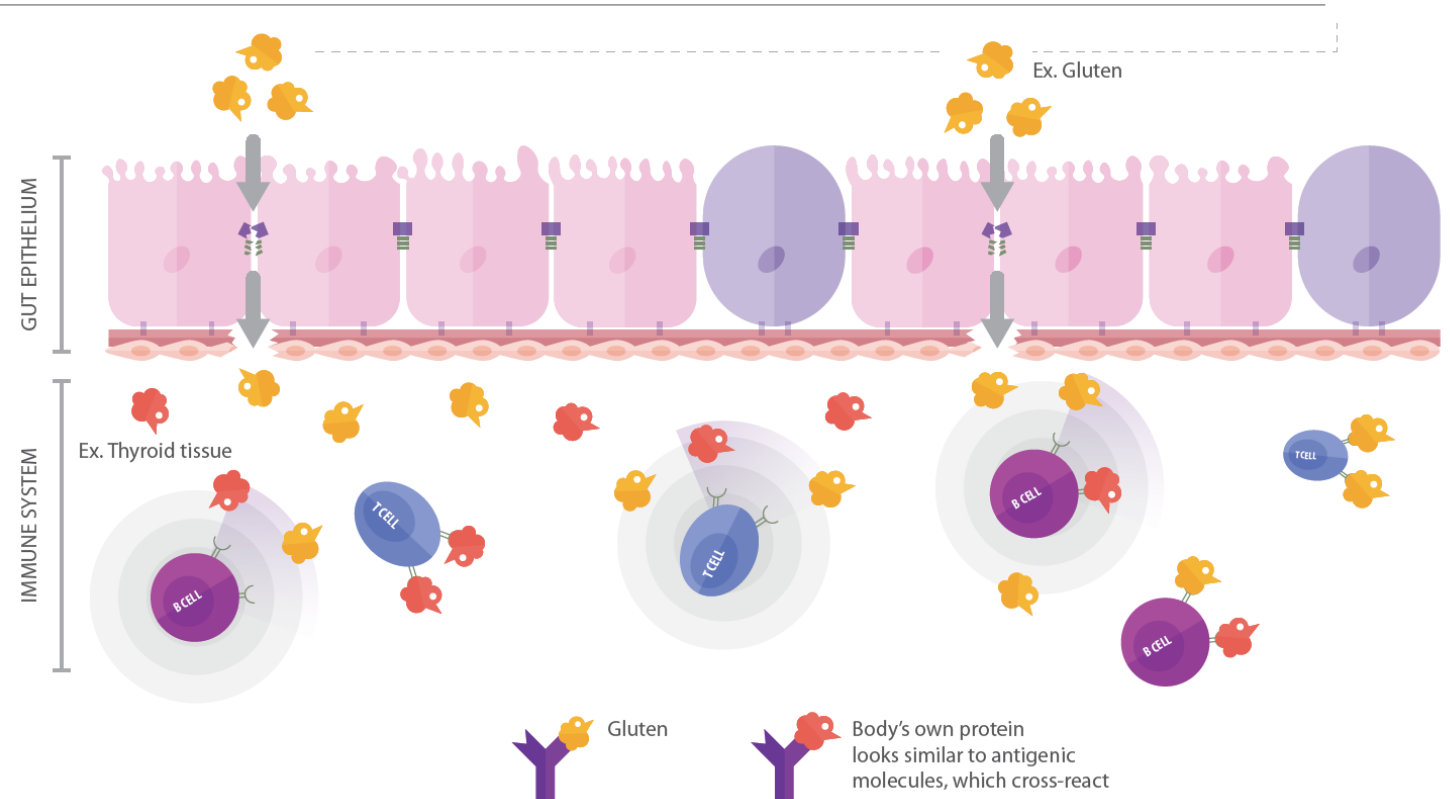
Environmental triggers

Three Risk
Factors For
Autoimmunity

Food Sensitivities and Autoimmunity

The mechanism of leaky gut that causes food sensitivities is also a common factor in the development of autoimmunity.

As your body is exposed to many organisms and food proteins, the antibodies to those can overlap with autoantibodies that attack your own tissues.





Problems with Testing

When food sensitivities are tested before everything else, it's common for there to be many positive results.

The recommendation is often to avoid those foods.

Avoiding those foods without addressing gut permeability will mean you produce a new set of antibodies to the new food replacements because you have not resolved the root causes of the sensitivities.



Treatment Strategies

Identify the factors contributing to leaky gut, such as:

- Infections
- Elevated zonulin
- Gluten
- Medications
- Stress
- Inflammatory diet

Addressing the causes can repair the intestinal barrier.

Inflammatory Foods	Possible Allergenic/ Inflammatory Foods	Anti-Inflammatory Foods
Alcohol	*Tree nuts	Organic vegetables
Caffeine	*Soy	Organic fruits
Sugar	*Eggs	Raw seeds
*Milk	*Shellfish	Organic herbs and spices
*Wheat products (gluten)	*Fish	Extra virgin olive oil
Fast food	Gluten-free grains	Unrefined coconut oil
Fried foods	Meat	
Processed meat	Yogurt	
Corn		
Polyunsaturated fats		
Trans fats		
Omega-6 fatty acids		
*Peanuts		
Cheese		

** Indicates the top 8 most-allergenic foods*

Lifestyle Recommendations

Diet – Mediterranean type diet without dairy, gluten and corn

- Variety of fruits and veggies rich in antioxidants
- Fiber – 30-50g per day (soluble and insoluble)
- Avoidance of excess alcohol
- Avoidance of known food triggers!

Adequate sleep and sleep quality

Regular exercise and movement

Stress management strategies

Suggested Supplements for Leaky Gut

High-Dose Probiotics – 100 billion CFUs

- Maintains healthy gut microbiome

L-Glutamine – 4 g/day

- Amino acid used as fuel to nourish gut cells

Serum-Derived Bovine Immunoglobulins (SBI) – 2 g/day

- Binds and eliminates pathogens and their toxins, such as LPS, to decrease immune burden

Omega-3 fatty acids – 3-5 g/day

- Reduce inflammation and support healthy membranes

Vitamin D – 5,000 IU/day

- Tighten gap junctions and create a strong GI barrier while soothing the tissues of the GI tract

Vitamin K2 – 180 mcg/day

- To synergize with vitamin D

Case Study Outcome

After four weeks, the patient's constipation resolved.



After 12 weeks, the TPO antibodies began declining and her TSH began normalizing.



The patient also reports having more daily energy, clear skin and improved sleep.

What Is the Immune Foundations Program?

Evaluation with a questionnaire

Group visits

Resources for homework

Follow-up appointment

History and timeline

Testing ordered

Supplements and lifestyle intervention



Questionnaire

Understanding key contributors to immune health will help identify the best course of action for recovery of immune function. After reviewing this questionnaire with your health care provider, please refer to the Immune Foundations Patient Handbook for dietary, lifestyle and nutrient therapy recommendations.

Please list your top 3 major health concerns in order of importance:

1. _____
2. _____
3. _____

Overall Immune & Inflammatory Balance

- Do you tend to catch cold easily or recover slowly from illness? Y N
- Have you been diagnosed with a recent or chronic infection (such as Lyme disease, Epstein-Barr, Candidiasis, herpes simplex)? Y N
- Do you suffer from chronic fatigue, chronic pain, fibromyalgia or migraine headaches? Y N
- Do you have unexplained rashes, redness or itching? Y N

Diet & Lifestyle

- Do you eat at least five servings of fruits and vegetables per day? Y N
- Do you regularly eat at restaurants or consume prepared foods from the grocery store? Y N
- Do you exercise at least five days per week? Y N
- Do you have any known allergies or sensitivities to foods or medications? Y N

Gastrointestinal Health

- Do you regularly have less than one or more than three bowel movements per day? Y N
- Do you experience frequent heartburn, burping, gas or bloating? Y N
- Have you used antibiotic medications within the past two years? Y N
- Do you consume alcohol, antacids or anti-inflammatory/pain killer drugs regularly? Y N

Stress

- Do you feel less able to handle stress or experience more stress now than in the past? Y N
- Do you experience mental fogginess or have trouble concentrating? Y N
- Do you have trouble falling or staying asleep? Y N
- Do you wake feeling unrested or depend on caffeine to keep yourself going throughout the day? Y N

Environmental & Toxic Exposures

- Do you have regular exposure to exhaust fumes, tobacco smoke, pesticides, commercial chemicals, paint, cleaning chemicals or volatile fumes? Y N
- Have you lived in a house or worked in an office environment with a history of water damage or known mold? Y N
- Are you sensitive to smells or fragrances? Y N
- Do you have seasonal allergies, asthma or an autoimmune disease? Y N

Implementation Plan

Key area(s) to be addressed:

Overall Immune & Inflammatory Balance

Diet & Lifestyle

Stress

Gastrointestinal Health

Environmental & Toxic Exposures

Formulation	Dose (capsules, tablets or scoops)	Frequency Per Day

Additional Recommendations:

Patient Education Tear Pads

Patient Name: _____ Date: _____

Lyme Disease

Lyme disease has become the fastest-growing insect-borne infection in the United States and while most people still associate Lyme disease with a bullseye rash, we now know that there are many ways it can present without a bullseye rash. As with most infectious disease, a large part of the intervention is prevention. It's easier to prevent Lyme disease or treat it in its early stages than it is to treat a chronic case. Since testing is notoriously inaccurate and Lyme disease is known as the great imitator, it can often go undiagnosed for many years as conditions such as fibromyalgia or chronic fatigue syndrome before arriving at an accurate diagnosis. It's also worth mentioning that while Lyme disease is a common focus, most individuals will also suffer from one of the common co-infections such as Bartonella or Babesia. Because Lyme is a subset of biotoxin illness, it can often have overlap with other chronic inflammatory conditions such as mold.

While antibiotics can be an effective intervention in the acute stages, they become significantly less beneficial and have real impacts on the gut and immune system if used in chronic cases or over long periods of time. For chronic Lyme disease, plant compounds have functions such as:

Lyme Disease



Lyme Disease

When looking at how it could change location

Early Signs

Head Sound, Light or Double or Blurred Vision

Persistent Swollen Glands

Chest Pain or Rib Soreness

Joint Pain Swelling or Stiffness

Muscle Tiredness Muscle Pain or Cramps

Patient Name: _____ Date: _____

Mold Illness

Mycotoxin illnesses can range from simple fungal infections to life-threatening black mold exposure. Because of the ubiquitous nature of mold, the spectrum of severity, and the global symptomatology, mold illness tends to be overlooked. Once diagnosed, emphasis is placed on the removal of exposure, which can be from one's home, work, car, etc. Once the source of exposure is removed, treating the physiological byproducts of exposure can be addressed. Some examples of physiological responses to exposure include:

- fatigue
- joint pain
- inflammation
- neurologic issues
- headaches
- sinus congestion

Mold Exposure

Step 1: Remove exposure

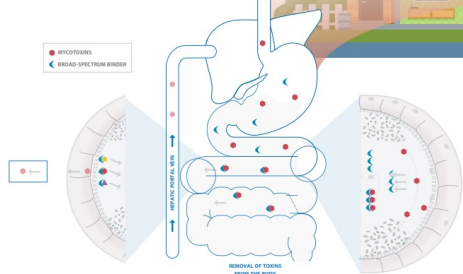
Test home for mold via an ERMI test and implement any necessary remediation - Common areas: under sinks, ceilings, crawl space, and visible water damage.

Step 2: Support liver and bile function

Step 3: Support gut and elimination of toxins

Step 4: Address chronic sinus involvement

Step 5: Address fungal overgrowth, if necessary



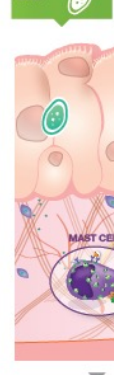
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Patient Name: _____ Date: _____

IgE-Mediated Allergies

Allergies occur when the immune system overreacts to common substances such as dust, mold, pet dander, or even foods like shellfish and peanuts. Certain membranes in the body produce mucus, which traps foreign particles and keeps them out of the lungs, but these substances can still cause a reaction in the body. The mucous membranes lining the bronchial and nasal passages contain immune cells, called mast cells, loaded with histamine. By releasing these chemical "alarms," mast cells bring other key players of the immune defense system to areas of the body where they are needed. The subsequent misery of sneezing, runny nose, watery eyes and itching, what we know as allergies, is all in an effort to help the body get rid of the intruder.

Mold



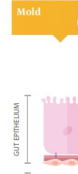
Intermediate Reactions

Histamine release

A Healthy Gut for Healthy Immunity

A leaky gut, or intestinal permeability, is the gateway to autoimmunity. Cells in the gut have a gating system with proteins called tight junctions that only allow nutrients to pass through while keeping pathogenic bacteria, viruses and parasite agents out of circulation. When there is a constant influx of toxic agents, these tight junctions can degrade, creating entry points for pathogens to pass through the barrier. The cells of the immune system, which include B cells and T cells, recognize these as foreign or "non-self" entities and work to remove them from the body. However, many of these foreign molecules resemble the body's own proteins and tissues. This causes a cross-reaction in which specific T cells are not able to distinguish between the two.

Mold



Immune System

Ex. Thyroid Dis.

THE VICIOUS CYCLE OF MITOCHONDRIAL DECLINE



MITOCHONDRIAL DYSFUNCTION HAS BEEN ASSOCIATED WITH:

- Chronic Fatigue Syndrome
- Migraine headaches
- Metabolic Syndrome
- Fibromyalgia
- Cardiovascular disease
- Alzheimer's & Parkinson's
- Mold Illness
- Lyme Disease
- Allergies & Asthma
- Autoimmune disorders
- Frequent infections

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Patient Name: _____ Date: _____

Upper Respiratory Tract Infections

Upper respiratory tract infections (URTIs) affect the head, nose, and throat. They are most often caused by a virus (usually the common cold or influenza), but they can also be bacterial or fungal. While antibiotic prescriptions are common, they are ineffective against viral or fungal URTIs. Antibiotic use also creates imbalances in the bacteria of the GI tract, and their overuse can harm overall health. Acute infections typically resolve on their own within 14 days, but chronic infections concern us last longer. Healthy immune systems may have one or two URTIs per cold and flu season without cause for concern. But, a challenged immune system may easily have three or more, and they may also take longer than 14 days to resolve.

Immune Cascade

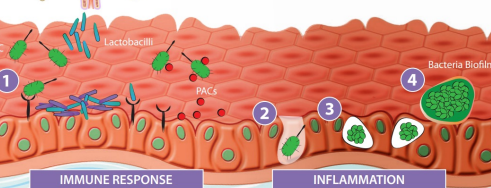
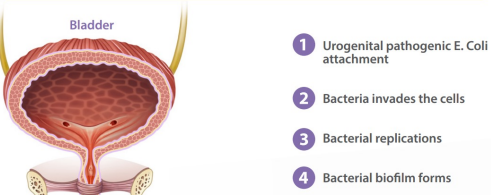
Patient Name: _____ Date: _____

Urinary Tract Infections

The urinary tract is made up of the kidneys, bladder, and the tubes leading to and from these organs, the ureters and the urethra, and is responsible for producing urine and eliminating it from the body. As an important organ of elimination, a healthy urinary system is essential to the health of the entire body. Urinary Tract Infections (UTIs) are one of the most common bacterial infections in humans and account for a large amount of doctor visits every year. While prevention is key, sometimes treatment is needed and preventing recurrence is the goal. Since the adhesion and growth of E. coli is the main culprit, preventing adhesion is of utmost importance.

UTIs don't always cause signs and symptoms, however symptoms may include:

- A strong, persistent urge to urinate
- Passing frequent, small amounts of urine
- Strong-smelling urine
- A burning sensation when urinating
- Urine that appears cloudy
- Urine that appears red, bright pink, or a sign of blood in the urine
- Pelvic pain



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Questions?
