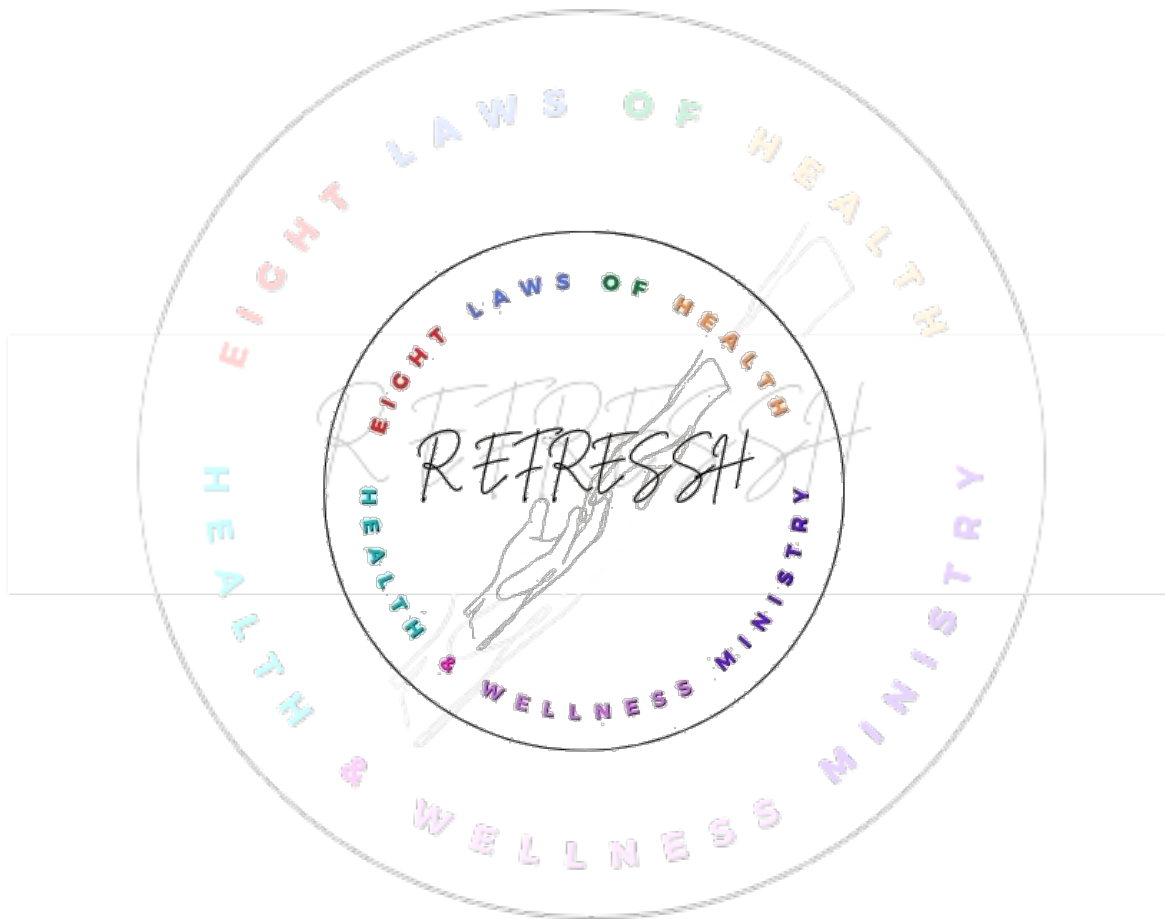


Truro Session 5: The Foundation of Health: Restoring Gut Health, Digestion, and the Microbiome

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MAIN TOPICS

- Why Gut Health Matter
- Understanding the Digestive System
- Common Causes of Gut Imbalance
- Steps to Restore Gut Health
- The Role of Detoxification in Gut Health
- Restoring the Microbiome
- Lifelong & Long-term Gut Health Maintenance
- The Gut-Brain Connection
- Bowel Movements
- Key Takeaways

Understanding The Digestive System

"For I will restore health unto thee, and I will heal thee of thy wounds, saith the Lord." Jer 30:17

Why Gut Health Matters

- The gut is central to overall health
- Digestion, immunity, mental clarity and energy are all affected by the gut
- Signs of gut imbalance include bloating, constipation, diarrhea, fatigue, brain fog and skin issues
- The status of the gut determines the health and wellness of the whole-body

The Digestive System

- The digestive tract is an elongated system of muscles 16 – 23 feet that begins at the mouth and ends at the anus
- It is also called the alimentary system, the gut and the gastrointestinal (GI) system

- It includes the following – mouth, pharynx, esophagus, stomach, small intestine and large intestine
- There are also other accessory organs that are outside of the digestive tract – teeth, tongue, salivary glands, gallbladder, pancreas and liver
- The main function of the digestive system is to ingest food, digest food and eliminate undigested matter from the body
- At the most basic level, it turns our food into molecules that our cells can use for energy, maintenance, growth and repair and waste products
- At a deeper level, it aids in metabolism and protects us from infections and foreign substances that we may ingest through our food
- Nutrients such as enzymes, vitamins and minerals are absorbed which our cells use for energy, growth and repair
- If our digestion is not healthy, our cells lose their capacity to function fully and as a result, we can begin to feel and be unwell

Additional Functions

- The digestive structure is muscular
- Most of the immune system lies in the digestive system
- The enteric* nervous system is complex and has more nerve endings than our spines and more neurotransmitters than our brain. There is a direct gut-brain connection relating to the intestines
- The digestive system has 16+ known digestive hormones such as gastrin, ghrelin and secretin
- Probiotic bacteria aids in cardiovascular health by normalizing cholesterol and triglyceride levels
- The commensal bacteria in the digestive system drive metabolism in the body

Key Takeaways

The gut is central to overall health and wellness

A sick gut = a sick body, mind and soul

Organ Functions

MOUTH:

- Chews and liquifies the food
- Salivary gland produce saliva which softens food, begins dissolving soluble parts and helps keep the mouth and teeth clean
- Chewing food thoroughly can enhance digestion, eliminating some indigestion issues

ESOPHAGUS:

- Tube that passes from mouth to stomach
- Peristalsis pushes the food along the digestive tract
- Well chewed food passes through in about 6 seconds

STOMACH:

- Chops, dices & liquefies food changing it into chyme, a soupy liquid
- The hormone gastrin is produced in the stomach and stimulates gastric juices to break down the ingested food
- Food stays here for 2-4 hours – less with low fat-meal, more with high-fat or high-fiber meal
- Chronic stress can lengthen the time food is in the stomach, whilst short-term stress can shorten the time in the stomach
- Chyme is passed into the duodenum of the small intestine over several hours

SMALL INTESTINES

- 15 – 20 ft long 3 parts – duodenum, jejunum, ileum
- Digested food is moved into the bloodstream via the enterocytes It blocks the absorption of foreign substances, bacteria, and other large molecules found in food
- The Gut Mucosa is the inner lining of the digestive tract and is here that our food first makes contact with us and is then absorbed in the intestines
- It is home to trillions of bacteria and fungi, is the center of our immune system which makes it the first line of defense against infections and other toxic invaders

PANCREAS

- Aids in the digestion of food
- Produces insulin and glucagon hormones which regulate blood sugar levels – both digestive and global function
- Manufactures and secretes specific digestive enzymes

LIVER

- Regulates carbs, fats, proteins
- Manufactures bile to emulsify fats for digestion
- Makes and breaks down hormones, including cholesterol, testosterone, estrogens
- Regulates blood sugar levels
- Processes all food, nutrients, alcohol, drugs, and other materials that enter the bloodstream thus passing, breaking down or storing them
- Stores nutrients – B₁₂, A, D, E, K, zinc, iron, copper, magnesium
- Breaks down toxins ingested with food

GALLBLADDER

- Stores and concentrates bile produced by the liver to emulsify fats, cholesterol and fat-soluble vitamins eaten

COLON/LARGE INTESTINE

- 3-5 feet long
- 3 main parts - ascending, transverse, descending
- Absorbs water and remaining nutrients from chyme and forms stool
- Efficient colon pulls 80% of the water out of the chyme, which is absorbed into the bloodstream
- Stool begins to form in the transverse colon
- Stool, when well formed, is pushed down into the descending colon, then rectum, and held until there is sufficient volume to have a bowel movement

Key Takeaways

The Digestive System relies on major organs that all contribute to the process

Any issues with any of these organs creates a digestive issue

The Digestive Process

1. Eating begins when materials are put into the mouth
2. Digestion occurs in the mouth, stomach, and small intestine requiring cooperation from the liver and pancreas
3. Secretion is ongoing inside the lumen of the digestive tract; it helps maintain pH levels, uses water and enzymes to facilitate the digestive process
4. Mixing and Motility are muscular functions that move the food along
5. Absorption occurs when digested food molecules pass from the small intestine into the blood stream and to the liver where they are filtered, then to the cells
6. Assimilation is when fuel and nutrients enter the cells. Not technically a part of the digestive system, but the goal of it
7. Elimination is the final step to get rid of waste from the body

What If The Process is Broken?

- Eating healthy food ensures proper digestion, right? Well, not really!!
- Digestion that is at ease allows us to digest and absorb 90% to 97% of the food we eat – whole plant foods.
- What remains is plant fibers that create bulk to create stool

- Lots of intestinal gas indicates that food is fermenting rather than digesting
- Malabsorption can cause food sensitivities, fatigue, skin rashes, and migraine headaches
- Assimilation problems of glucose into the cells can cause diabetes
- Constipation and diarrhea are elimination problems that provide a caveat that digestion is not occurring

Key Takeaways

The digestive system ingests and digests food and eliminates undigested matter from the body

If the process is broken in any way, our whole body can be affected

Breaking Down Digestion

Enzymes: Catalyst for Digestion

- Digestive enzymes break down macronutrients into absorbable forms:
 - Amylase in saliva & pancreas, breaks down carbohydrates
 - Protease in stomach & pancreas, breaks down proteins
 - Lipase in pancreas, breaks down fats
 - Enzyme production decreases with stress, aging and poor diet leading to bloating, gas and malabsorption
 - Supporting enzymes naturally
 - Eating raw fruits & vegetables
 - Herbal support - ginger, turmeric
 - Consuming fermented or cultured foods

Stomach Acid: The Breakdown

- **HYDROCHLORIC ACID (HCl)** In the stomach
 - Activates pepsin, which breaks down proteins
 - Kills harmful bacteria and pathogens

- Helps absorb minerals like iron, calcium and magnesium
- Low stomach acid (hypochlorhydria) leads to bloating, indigestion, and nutrient deficiencies
- Supporting stomach acid naturally:
 - Drink warm lemon water
 - Eat bitter green - dandelion, arugula
 - Avoid excess processed foods that reduce acid production
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Bile: The Key to Fats Digestion & Detoxification

- Produced by the liver, stored in the gallbladder and released into the small intestine
- Emulsifies fats, making them easier for lipase to digest
- Carries toxins and excess cholesterol out of the body
- The liver is directly linked to gut health via bile production for digestion and elimination
- Bile stagnation, due to low-fiber diet or lack of bitter food, can lead to sluggish digestion and poor fat absorption
- Supporting bile flow naturally:
 - Eat bitter foods - dandelion greens, artichokes
 - Drink herbal teas that stimulate bile - milk thistle, burdock root or use a herbal extract
 - Eat enough fiber to bind toxins excreted in bile

Key Takeaways

Enzymes are imperative to digestion. They only are found in **LIVE, RAW food**

HCL and Bile are also imperative to the digestion process. They need to be supported with the right foods to function effectively.

Intestinal Lining Integrity & Leaky Gut

Intestinal Lining

- The gut lining acts as a barrier, allowing nutrients to pass while keeping toxins, pathogens and undigested food out
- It has tight junctions, cells linked together to prevent leaks
- A healthy gut lining supports nutrient absorption, immune function, and overall well-being

Leaky Gut

- Leaky gut, intestinal permeability, occurs when the gut lining is damaged, allowing toxins, food particles and bacteria to pass into the bloodstream.
- This triggers inflammation, immune reactions and can contribute to autoimmune conditions, food sensitivities and chronic disease

- Processed foods, refined sugars, food additives
- Chronic stress and high cortisol levels
- Gut infections - candida, bacterial overgrowth
- Overuse of antibiotics, pharmaceutical drugs and NSAIDs - non-steroidal anti-inflammatory drugs
- Toxin overload - heavy metals, pesticides

Causes of Leaky Gut

- Sulfonation - adding sulfur groups
- Amino acid conjugation - binding toxins to amino acids
- Caveat: If Phase 2 is sluggish, due to poor nutrition, chronic stress or toxin overload, the liver cannot keep up, leaving harmful toxins circulating in the body

Supporting Gut Lining Integrity

- **Nutrient-Rich Foods**
 - Leafy greens high in polyphenols protect the gut
 - Flaxseeds and chia seeds soothe the gut with mucilage

- Zinc, glutamine and Vitamin A - pumpkin seeds, leafy green, carrots
- **Gut-healing herbs** - slippery elm, aloe vera, marshmallow root, soothe and repair the gut lining
- **Reducing Inflammatory Triggers** - avoiding processed foods, refined sugars and artificial additives
- **Managing stress** - deep breathing, relaxation techniques and sleep quality

Key Takeaways

What we eat has a significant impact on the integrity of our intestinal lining
Leaky gut is the result of improper diet, use of drugs and stress

The Gut Microbiome

What is the Gut Microbiome?

- The gut is home to trillions of bacteria, fungi and other microbes
- Beneficial bacteria, probiotics, help digest foods, produce vitamins, regulate immunity and prevent harmful bacteria from overgrowing

Gut Bacteria Supports Digestion

- Break down fiber into short-chain fatty acids (SCFAs) which fuel gut lining cells
- Help digest complex carbohydrates and plant compounds
- Produce vitamins B12, K2 and biotin
- Regulate the gut's immune response and reduce inflammation

What disrupts the Gut Microbiome?

- Antibiotics, processed foods, high sugar intake, chronic stress
- Artificial sweeteners, pesticides and emulsifiers in packaged foods

Restoring & Supporting Gut Flora

- **Prebiotics:** Feeding good bacteria with fiber-rich foods like bananas, onions, garlic, asparagus, flaxseeds
- **Probiotics:** Using cultured coconut yogurt, kimchi, naturally cultured vegetables

- **Herbal Antimicrobials:** Oregano, thyme and berberine for addressing bacterial overgrowth (SIBO, candida)
- **Reducing Sugar and Processed Carbs:** Preventing overgrowth of harmful bacteria and yeast
- **Fasting & Gut Reset:** Short-term fasting to give the digestive system a break and promote healing
- **Diversity of Whole Plant Foods** - eating a wide variety of plant-based foods encourages microbial diversity

Key Takeaways

Our gut microbiome is critical to digestion
Avoiding all processed and refined foods and sticking to a whole plant food diet is our best option to keep our gut microbiome healthy

Gut Imbalances and Restoration

Causes of Gut Imbalance

- Processed foods, refined sugars, and artificial additions damage gut bacteria
- Overuse of antibiotics, NSAIDs, and other medications
- Chronic stress reducing digestive function and altering gut bacteria balance
- Toxin exposure from pesticides, heavy metals and chemicals affecting digestion
- Poor hydration and lack of fiber contributing to sluggish digestion and constipation

Steps to Restore Gut Health

- **Whole Plant Food Nutrition:** Prioritizing fiber-rich, unprocessed foods
- **Hydration:** Drinking the right amount of distilled water at the right time daily for cellular hydration

- **Chewing Food Properly:** Supporting digestion by breaking down food before swallowing
- **Reducing Gut Irritants:** Avoiding processed foods, artificial sweeteners and inflammatory oils
- **Supporting Stomach Acid Production:** Using digestive herbs, bitter greens and lemon water
- **Herbal and Nutrient Support:** Aloe vera, marshmallow root, slippery elm, licorice root to heal gut lining

Detoxification in Gut Health

- Toxin buildup in the liver and colon contribute to gut issues
- Fiber, raw fruits and vegetables naturally detox the body
- Detox juicing and herbal teas cleanse the digestive system
- Detoxing supports the normal elimination pathways - bowel movements, sweating and kidney function

Gut Health Maintenance

- Stick to a high-fiber, whole plant food diet
- Manage stress to prevent digestive disturbances - deep breathing, prayer, nature walks
- Maintain hydration with pure, distilled water
- Avoid the use of antibiotics and NSAIDs
- Consume gut-supporting herbal extracts, teas and natural probiotics
- Tune into the body's digestive signals and make adjustments as needed

Key Takeaways

- Stress, dehydration, poor diet, toxins and use of pharmaceuticals can cause gut imbalances
- Having and maintaining a healthy lifestyle can limit or eliminate gut imbalances

The Gut-Brain Connection

Gut-Brain Connection

- The gut and brain communicate through the gut-brain axis
- This influences digestion, mood and overall well-being
- The vagus nerve acts as a major highway between the gut and the brain
- It regulates digestion, inflammation and stress responses

Stress and Digestion

- Chronic stress weakens digestion, slows motility and alters gut bacteria balance
- Stress triggers the 'fight or flight' response, reducing stomach acid and enzyme production
- Anxiety and depression are often linked to gut health imbalances

Healthy Gut & Mental Health

- Over 90% of **serotonin** - the "feel-good" neurotransmitter, is produced in the gut
- Beneficial gut bacteria influence brain function, emotional resilience and cognitive health

Strengthening the Gut-Brain Connection

- **Deep Breathing & Prayer** activates the vagus nerve, shifting the body into 'rest and digest' mode
- **Hydration & Nutrient-Dense Foods** support nerve function and neurotransmitter production
- **Herbs & Adaptogens** support nervous system balance - Holy basil, ashwagandha, chamomile
- **Gentle Fasting & Meal Timing** give the digestive system a break and enhances gut repair

- **Physical Movement & Stretching** helps activate the vagus nerve and improve gut motility

Key Takeaways

There is a direct link between the gut and the brain
This link has an impact on moods and cognitive function

Bowel Movements

Do you not yet understand that whatever enters the mouth goes into the stomach and is eliminated?

Matthew 15:17

Why Bowel Movements Matter

- They reflect digestion, nutrient absorption and detoxification
- Irregular, infrequent or difficult bowel movements can signal gut imbalances
- **Diarrhea** occurs when chyme passes through the colon too quickly as water is not absorbed - 5% of US population has symptoms at any given time
- **Constipation** occurs when the stool is sitting too long in the colon, becomes dry and hard to pass – 16% of of US adults have symptoms

How Much is Normal?

- People on Western diets excrete only 5 ozs of stool per day
- Africans eating traditional diets excrete 16 ozs daily
- Well-formed stool indicates when it is ready to be eliminated

How Often??

- Healthy people generally have the number of bowel movements based on the number of meals eaten in a day: 1 – 3 is considered normal
- Elimination can occur 15 to 90 mins after eating a meal

Supporting Healthy Bowel Movements

- **Fiber-Rich Whole Plant Foods:** fruits, vegetables, nuts, seeds, grains, legumes support motility
- **Hydration:** Drinking the right amount of distilled water at the right time daily and consuming foods like melon, cucumbers
- **Prebiotic & Probiotic. Foods:** bananas, onions, garlic, fermented, cultured foods
- **Digestive Enzymes & Bitter Herbs:** Dandelion, gentian and ginger can stimulate bile flow and digestion
- **Daily Movement:** Walking, stretching or gentle exercises help intestinal motility

Key Takeaways

Bowel Movements tell the story of our health and wellness or lack thereof
What we put into our bodies will determine what comes out!!!!

Resources

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