Small Intestinal Bacterial Overgrowth (SIBO)

Dr. John Bergman

What is SIBO?

"Small intestinal bacterial overgrowth (SIBO), defined as excessive bacteria in the small intestine, remains a poorly understood disease. Initially thought to occur in only a small number of patients, it is now apparent that this disorder is more prevalent than previously thought.

Journal of Gastroenterology and Hepatology [1]

Symptoms of SIBO

- Nausea
- Bloating
- Vomiting
- Diarrhea
- Malnutrition
- Weight loss
- Joint pain
- Fatigue
- Rashes
- Acne
- Eczema
- Asthma
- Depression
- Rosacea

SIBO Statistics

"The prevalence rates of SIBO in young and middle-aged adults appear to be low, whereas prevalence rates appear to be consistently higher in the older patient (14.5–15.6%)"

Journal of Gastroenterology and Hepatology [1]

"The overall prevalence of SIBO in the general public is unknown. In general, SIBO is substantially underdiagnosed."

World Journal of Gastroenterology [3]

Prevalence of SIBO in other Conditions

- 30%-85% - Irritable Bowel Syndrome
- 50%-66%- Celiac Disease
- 50%- Liver Cirrhosis
- 90%- Lactose Malabsorption
- 17%- Morbidly Obese People
- 43%- Diabetes
- 55%- Motility disorders
- 34%- Pancreatitis

Sources [1-3]

Complications Associated with SIBO

- Malnutrition
- Vitamin B12 Deficiency
- Anemia
- Poor Absorption of Fat
- Osteoporosis
- Kidney Stones
- Damage to Intestinal Lining

What Causes SIBO?

"SIBO develops when the normal homeostatic mechanisms that control enteric bacterial populations are disrupted. The two processes that most commonly predispose to bacterial overgrowth are diminished **gastric acid secretion and small intestine dysmotility.** Disturbances in gut immune function and anatomical abnormalities of the GI tract also increase the likelihood of developing SIBO."

Journal of Gastroenterology and Hepatology [1]

Gastric Acid

"Gastric acid suppresses the growth of ingested bacteria, thereby limiting bacterial counts in the upper small intestine."

"Diminished acid production (hypochlorhydria) is a risk factor for SIBO, and can develop after colonization with ***Helicobacter pylori*** **or as a consequence of aging**."

Journal of Gastroenterology and Hepatology [1]

Helicobacter pylori

- Live in the mucous layer that covers and protects tissues that line the stomach and small intestine.

H. pylori can be found in about half the world's population. most people never show any symptoms of the infection.

Helicobacter pylori

"It's not clear how H. pylori spreads. It may be transmitted from person to person by close contact, such as kissing. People may also contract H. pylori through food and water."

(American College of Gastroenterology)

The Facts on Helicobacter pylori

- Scientists still aren't sure why it affects some people and not others, and why some people never become infected at all
- **Approximately 70% of infected people are asymptomatic**.
- The risk of infected people developing peptic ulcer disease during their lifetime is estimated at **10% to 15%.** Their risk of developing **gastric cancer is less than 3%.**

Proton Pump Inhibitors and SIBO

"Long-term administration of **proton pump inhibitors** may cause bacterial overgrowth in the stomach and duodenum."

World Journal of Gastroenterology [3]

"Inhibition of acid secretion via **histamine type 2 receptor blockers (H2RAs) or proton-pump inhibitors** (PPIs) may predispose to SIBO"

Journal of Gastroenterology and Hepatology [1]

PPI's and H2 Blockers

- Proton pump inhibitors and risk of gastric cancer: a population-based cohort study. (British Journal of Cancer)
- **PPI's Increase Adenocarcinoma's**
- Proton pump inhibitor (PPI) use leads to hypergastrinaemia
- gastric cancer incidence increased among PPI users with most prescriptions
- Antacids loosen the LES cause acid to flow up the esophagus

Gut Motility and SIBO

"Normal GI motility involves a complex, tightly coordinated series of events designed to move material through the GI tract. During periods of fasting, a migrating motor complex (MMC) develops approximately every 90-120 minutes to sweep residual debris through the GI tract. Several studies have demonstrated that abnormalities in the MMC may predispose to the development of SIBO."

Impaired gastric peristalsis can lead to SIBO due to stasis of food and bacteria in the upper GI tract."

Journal of Gastroenterology and Hepatology [1]

Chronic Stress and the Digestive System

- **4 times less blood flow to your digestive system**
- Decreased metabolism
- Decreased enzymatic output in your gut
- Decreased nutrient absorption
- Decreased oxygenation to your gu
- Elevated cholesterol
- Elevated triglycerides
- Decreased gut flora populations
- Increased food sensitivity

Are we under constant stress?

Annual Stress Survey by the American Psychological Survey

- 25% of Americans are experiencing **High Levels of Stress**
- 50% of American experience **Moderate stress**

The 3 Types of Stress:

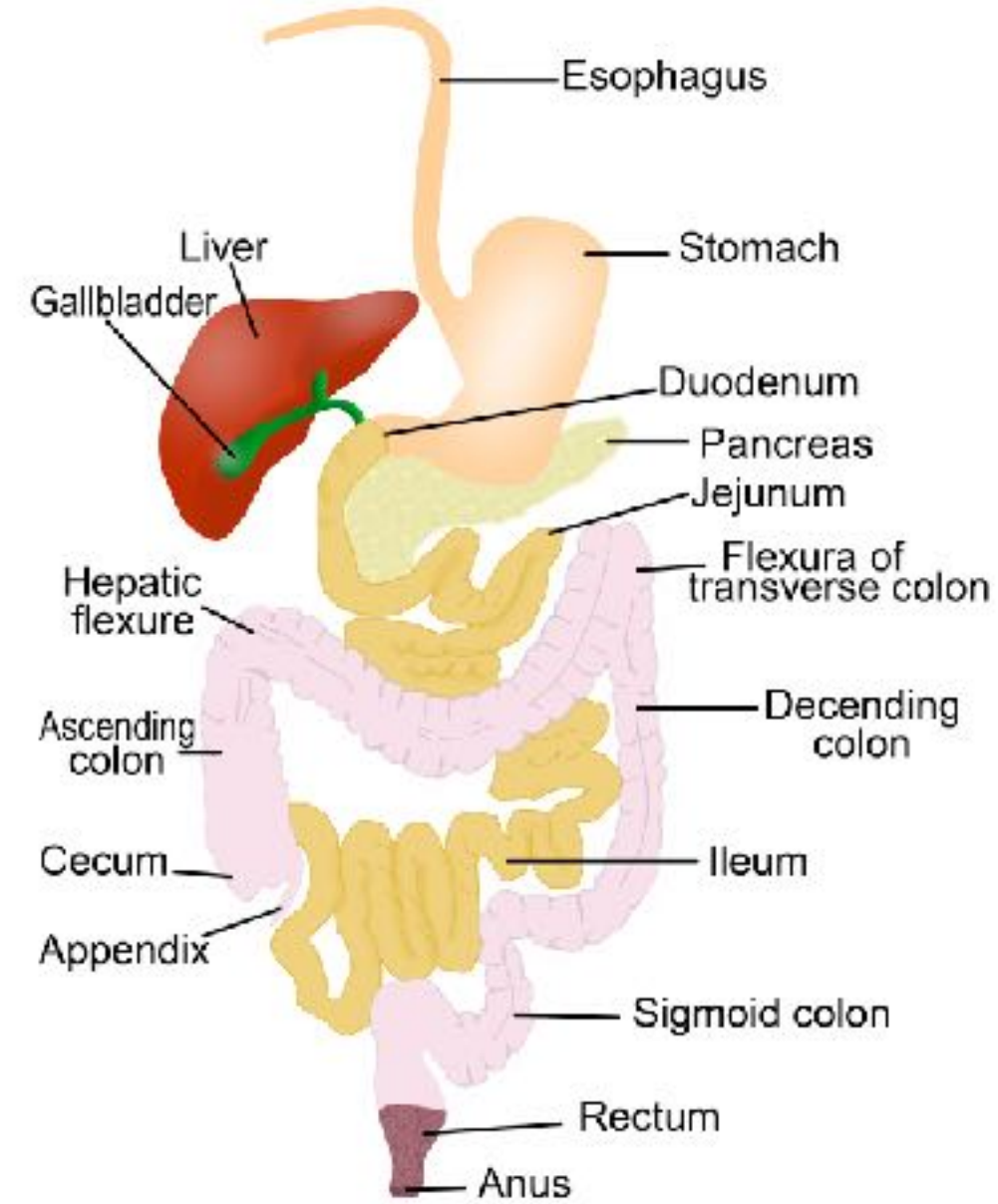
Emotional

Physical

Chemical

Are we under Chronic Stress?

DIGESTIVE SYSTEM



Does the Body have a Defense against SIBO?

“Bacterial flora of the gastrointestinal tract is an important factor for preservation of its integrity and normal functioning in humans.”

“They participate in the protection of macro-organisms against pathogenic micro-organisms, stimulate the human immune system and influence the metabolic and trophic function of the intestinal mucosa.”

World Journal of Gastroenterology [3]

What's the function of Normal Bacteria?

"Enteric bacteria produce some nutrients (e.g. short-chain fatty acids) and vitamins such as folates and vitamin K. Last but not least, they impact the sensor and motor function of the gut."

"On the other hand, **intestinal bacteria are influenced by many factors**, first of all by the amount and composition of food, but also by environmental (and geographic) effects, drugs, alcohol and probably by several other factors (lifestyle, psychosomatic stress, *etc*.)."

World Journal of Gastroenterology [3]

Avoid Disruptions to Your Microflora and Immune System

- Vaccinations
- Antibiotics
- Medications
- Processed Foods

49 DOSES OF 14 VACCINES BEFORE AGE 6?
69 DOSES OF 16 VACCINES BY AGE 18?

Before you take the risk, find out what it is.

BIRTH (12 hours)

Hepatitis B

2 MONTHS

Diphtheria
Tetanus
Pertussis
Polio
HIB
Rotavirus
Hepatitis B
PCV

4 MONTHS

Diphtheria
Tetanus
Pertussis
Polio
HIB
Rotavirus
PCV

6 MONTHS

Diphtheria
Tetanus
Pertussis
Polio
Rotavirus
Hepatitis B
PCV
Influenza

7 MONTHS

Influenza

12 - 18 MONTHS

Diphtheria
Tetanus
Pertussis
Measles
Mumps
Rubella
HIB
PCV
Varicella
Hepatitis A (2)

2 - 6 YEARS

Diphtheria
Tetanus
Pertussis
Polio
Measles
Mumps
Rubella
Varicella
Influenza (5)

7-18 YEARS

Diphtheria
Tetanus
Pertussis
Influenza (12)
HPV (3)
Meningococcal (2)

Th1 and Th2 Immune Responses

Th1 immunity

- Is responsible for normal reactions to anything in your environment, from pollen to animal dandruff, dust mites, chemicals, food.
- Th1 is **kept robust and healthy by your gut flora.**
- TH1- cell mediated response from **mucus membranes**
- If your gut flora is abnormal, your Th1 become increasingly disabled

Th2 immunity

- TH2-vaccines (puncture wound so the body needs an immediate response this is why there is **no lifetime immunity** from vaccinations, because the proper immune system cells are not built)
- **inflammatory reaction = inflammatory cytokines**
- **allergies and intolerances**

Artificial Sweeteners

Splenda (Sucralose)

- is a Chlorinated artificial sweetener
- Increases the pH level in your intestines, and
- Reduces the amount of good bacteria in your intestines by 50%

Sucralose has a potent inhibitory effect on your gut bacteria and inactivates digestive protease. It also alters gut barrier function.

Journal of Toxicology

Antibiotics

- Of the estimated **154 million** prescriptions for antibiotics written in doctor's offices and emergency departments each year, 30 percent are unnecessary
- About 44 percent of outpatient antibiotic prescriptions are written to treat patients with acute respiratory conditions

Approximately 50% of antibiotic prescriptions written in the outpatient setting may be inappropriate

CDC 6 & 9

Antibiotics

Confined animal feeding operations (CAFO's)

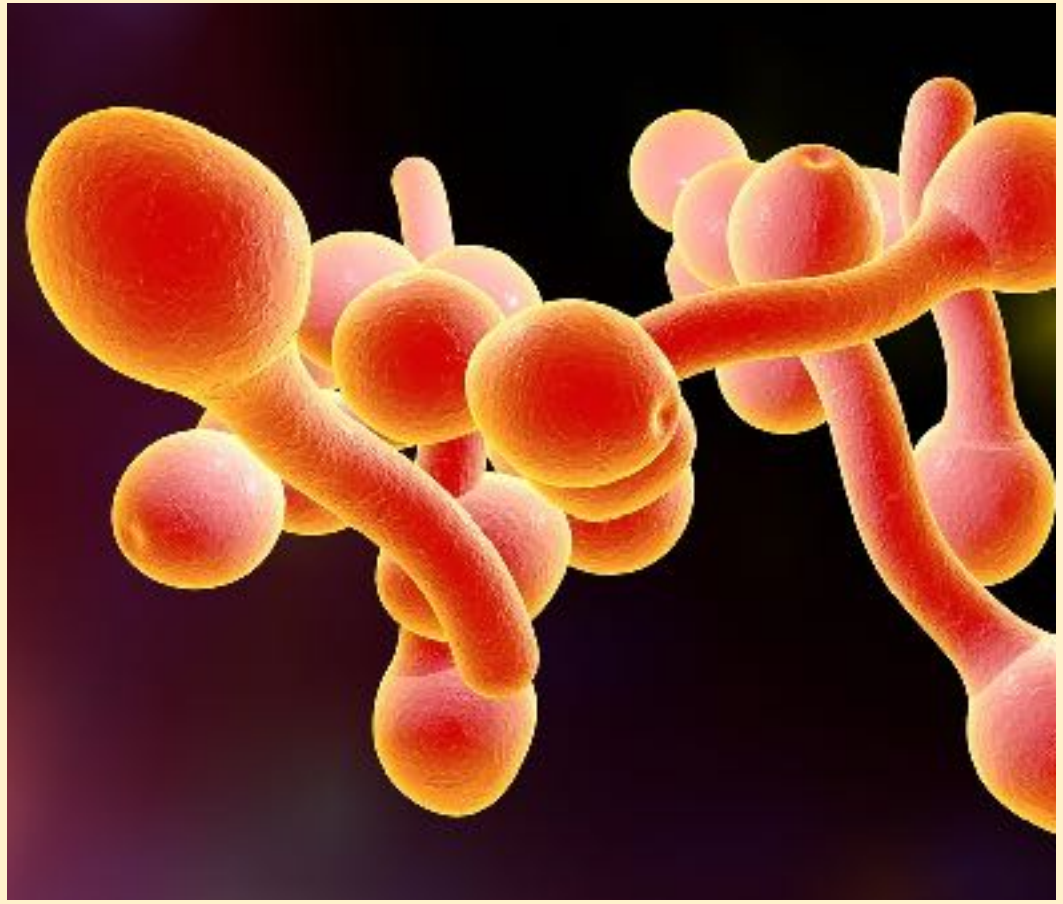
- American factory farms used ***29 million pounds*** of antibiotics in 2009 alone
- Estimated non-therapeutic use of antibiotics in livestock accounted for **70 percent** of the total antibiotic use (FDA)

Effects of Antibiotics

- Kill both beneficial and pathologic bacteria
- Upset the delicate balance of your intestinal terrain

Yeasts are opportunistic organisms and will take over = **Dysbiosis**

Yeast use their hyphae (tendrils) to literally poke holes through the lining of your intestinal wall = **Leaky Gut**



Dangers of Glyphosate

Glyphosate is a very powerful **selective antibiotic** that kills beneficial, but not pathogenic, microorganisms in the soil and intestine.

Residue levels permitted in food are **40 to 800 times** the antibiotic threshold and concentrations shown in clinical studies to damage mammalian tissues.

Warning:
From the US Department of Agriculture and the EPA

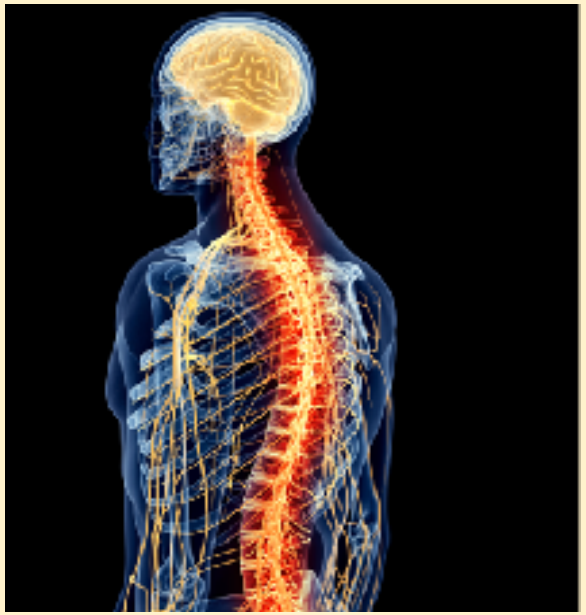
Processed, slow-release pesticide-laden gluten causes:

- Intestinal permeability
- Imbalanced gut bacteria
- Immune activation and allergic response
- Impaired digestion
- Damage to the intestinal wall

Medications that Disrupt your Microflora

- Antibiotics
- Antacids
- Birth Control Pills
- Steroids
- NSAIDs
- Antidepressants
- Statins

The 5 Keys to Health and Healing



Proper nerve supply

Regular Exercise

Proper Nutrition

Sufficient Rest

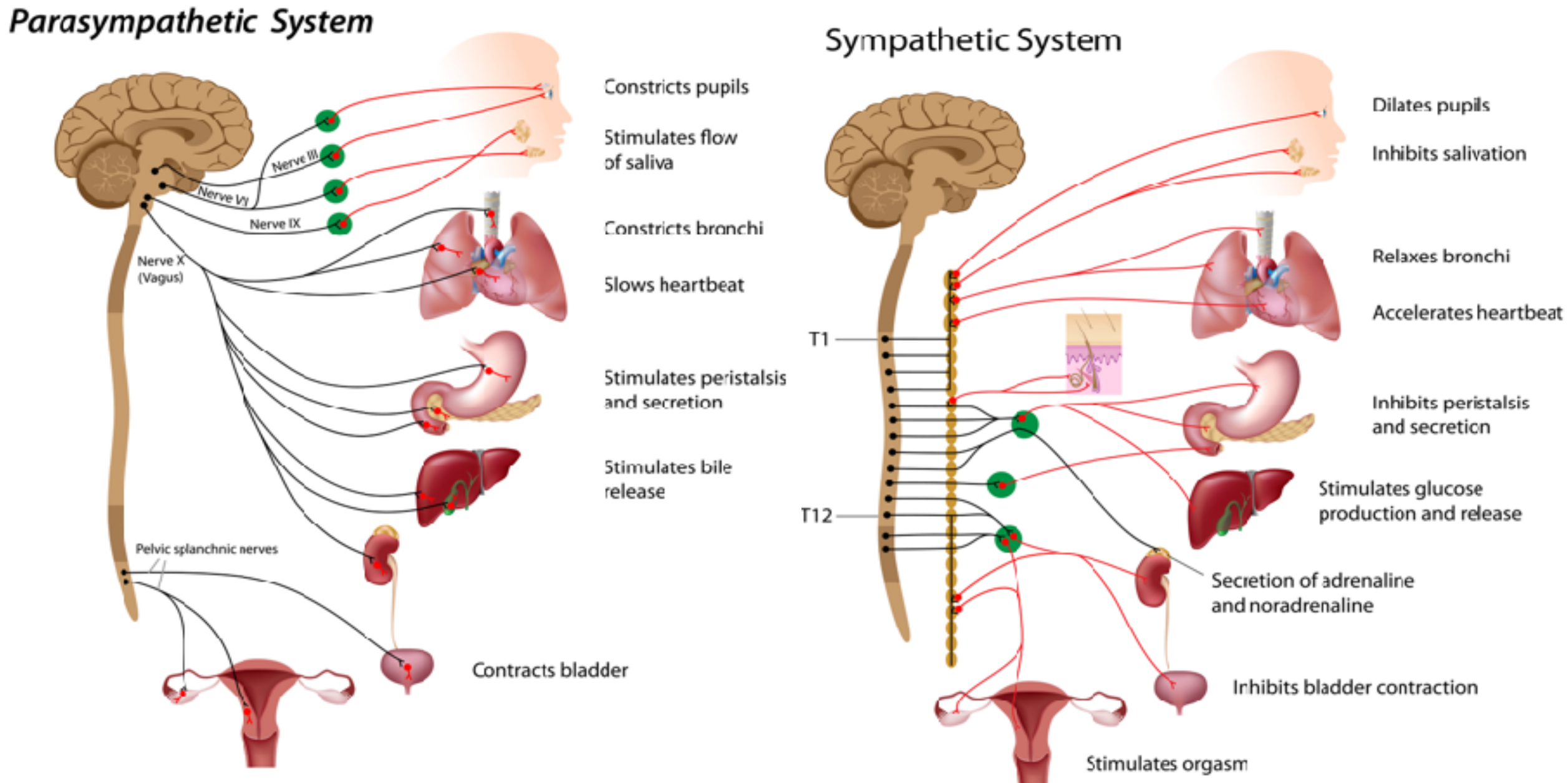
Prayer and Meditation

Proper Nerve Supply

- The nervous system controls digestive function from several different regions.
- The **Vagus nerve** which courses out of the brain stem and runs near the **atlas bone** innervates all the major organs of digestion and functions to stimulate the digestive process.
- Other major areas controlling the pace of digestion include the **sympathetic nerves** coming out of the thoracic & lumbar regions and the sacral parasympathetic nerve fibers.
- **Spinal misalignment in any of these regions can lead to neurological compromise and altered digestive function.**

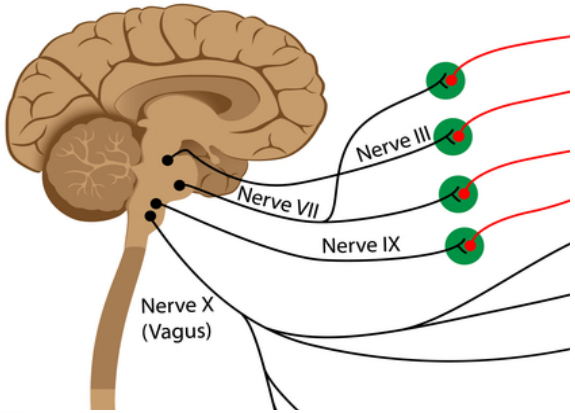
Sources [9-12]

Digestion and the Nervous System

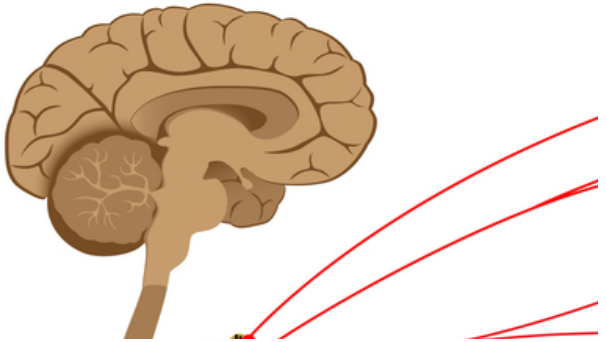


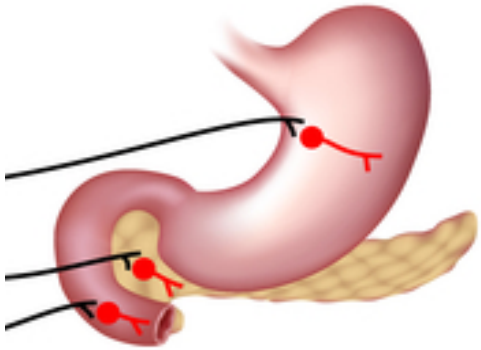
Digestion and the Nervous System

Parasympathetic System

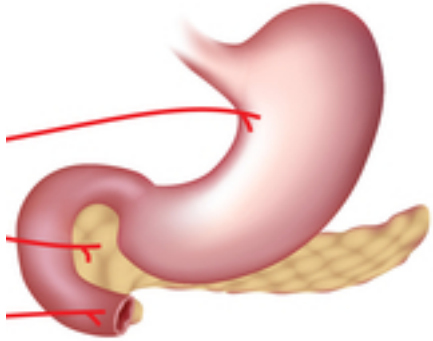


Sympathetic System

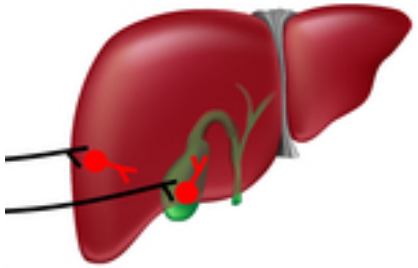




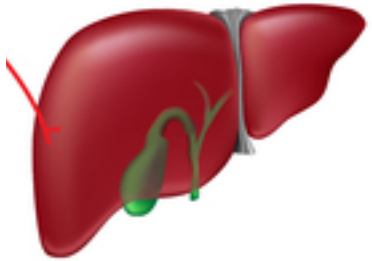
Stimulates peristalsis and secretion



Inhibits peristalsis and secretion



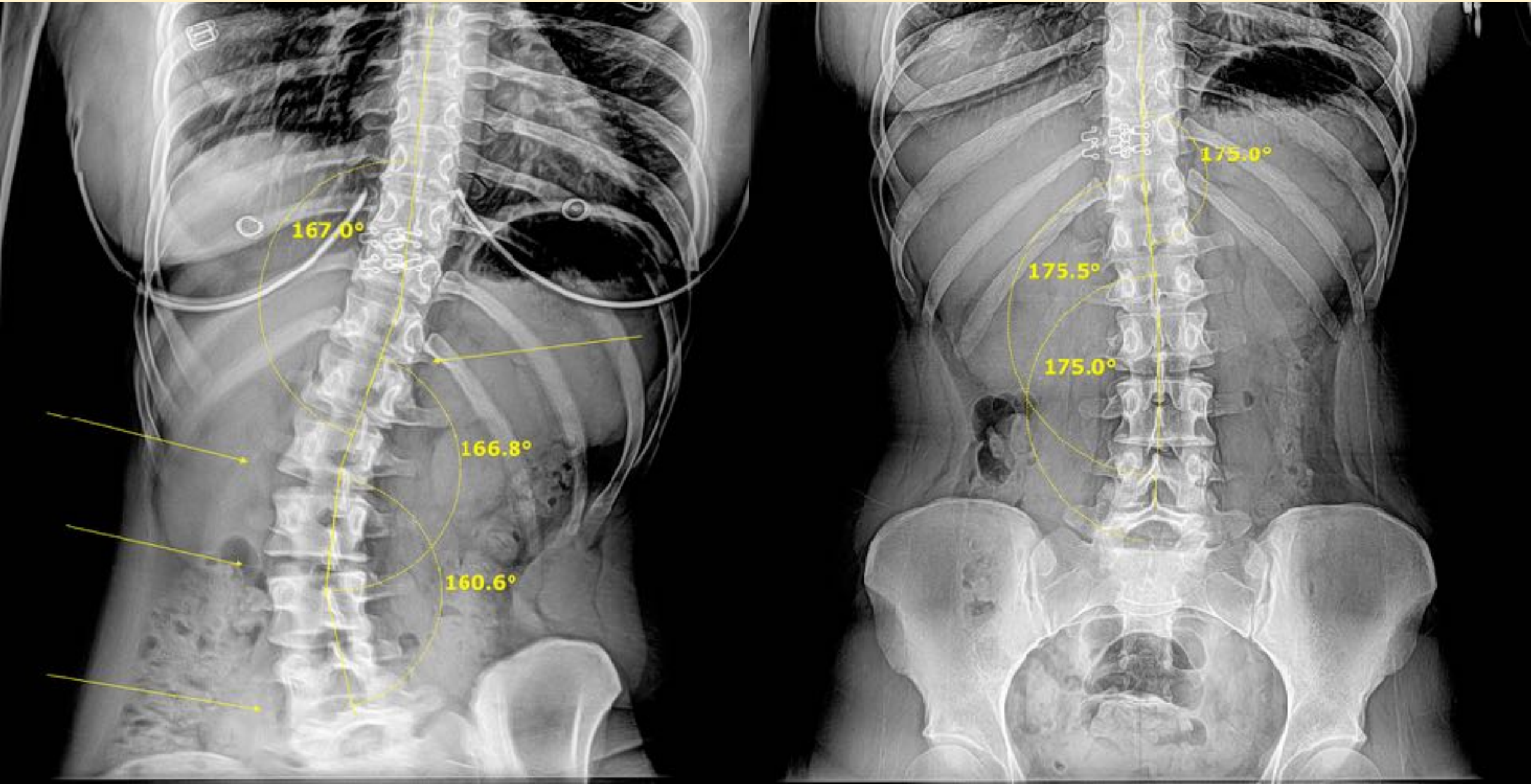
Stimulates bile release



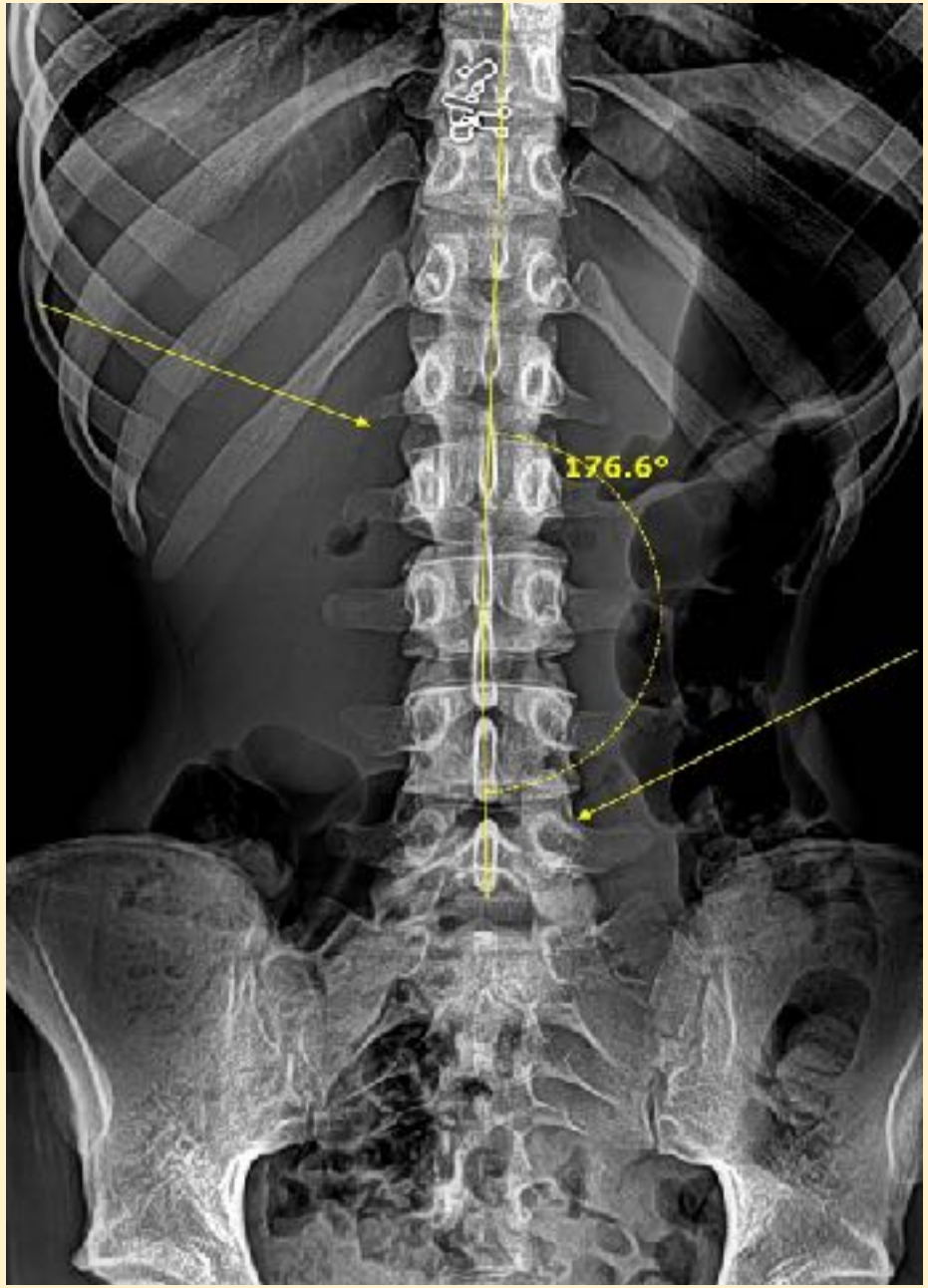
Stimulates glucose production and release

Before

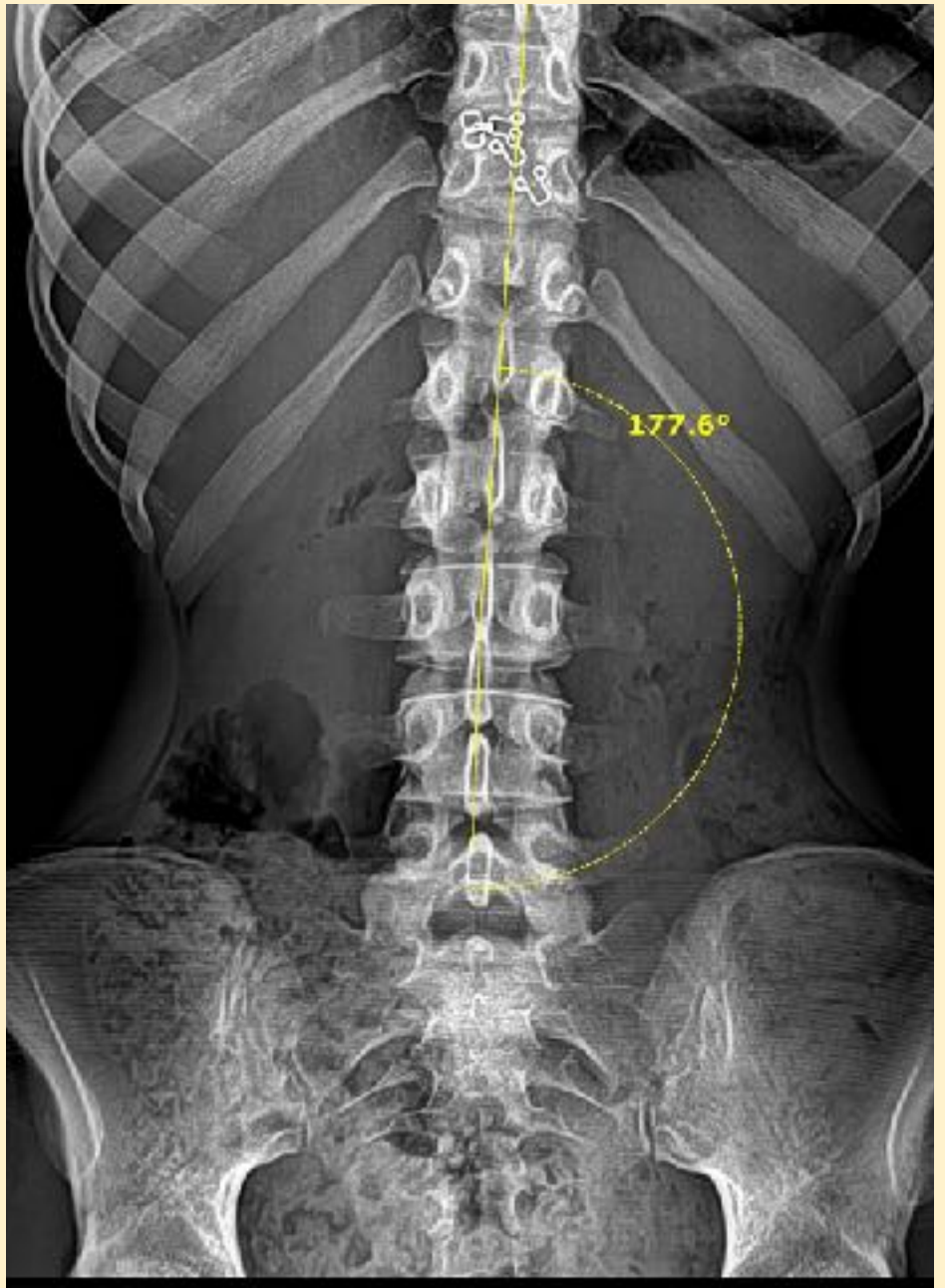
After



Abnormal Before

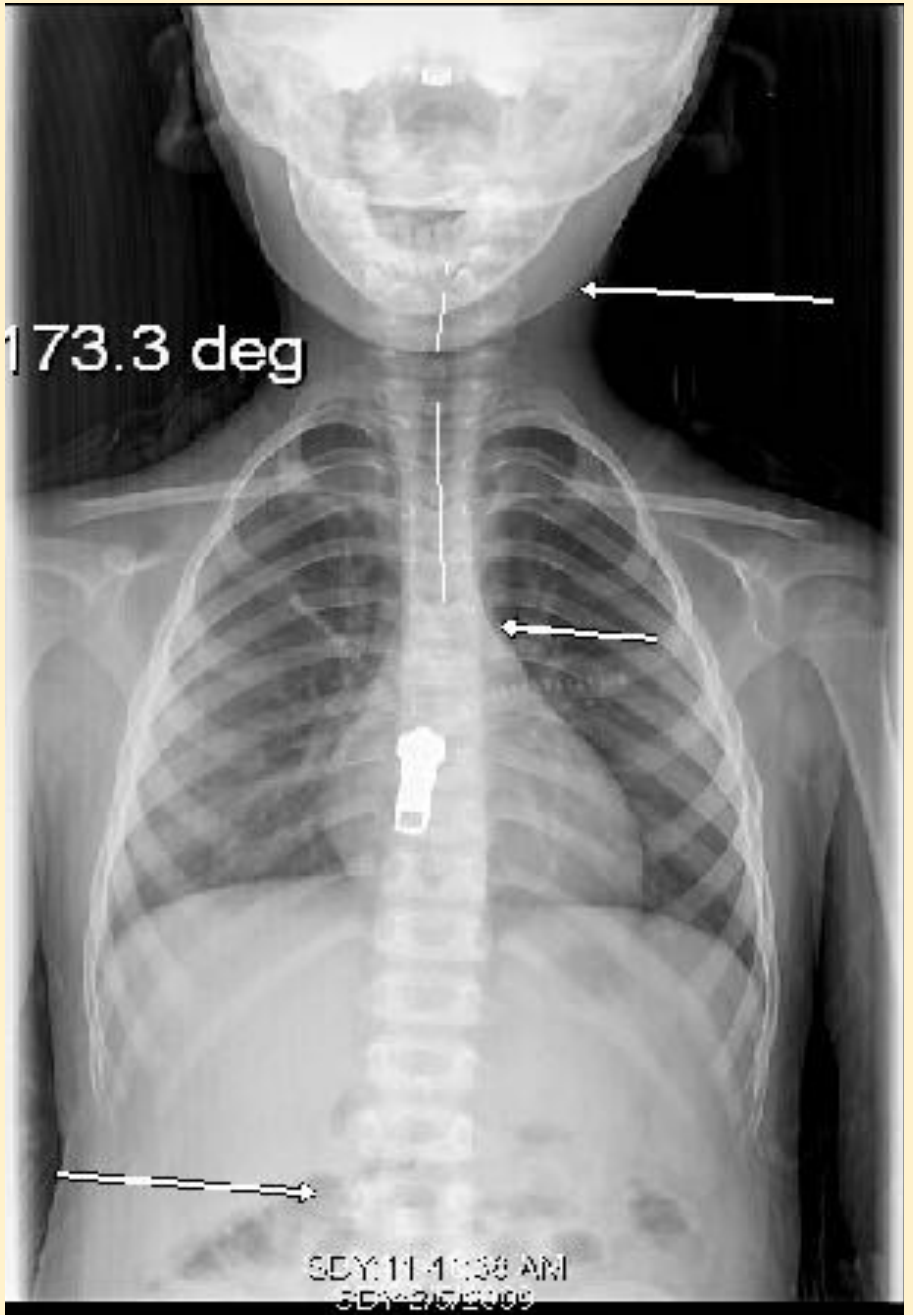


Normal: After



Abnormal Before

Normal: After

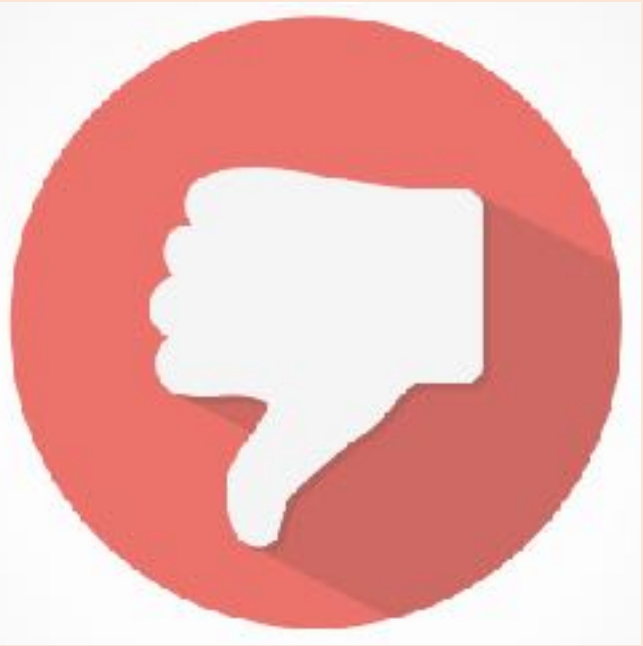


The SIBO Diet

The goal of the SIBO diet is to repair the intestinal lining, ease inflammation, get rid of the bacterial overgrowth and eat a diet rich in the essential nutrients that your body hasn't been absorbing.

Phase 1 of Reversing SIBO

Avoid these:



- Processed food
- GMO's
- Grains
- Artificial and processed sugars
- Pasteurized and Homogenized Dairy
- Unhealthy meat (antibiotics, hormones, etc)
- Unhealthy fats (corn oil, canola oil, soy oil, etc)

Phase 1 of Reversing SIBO

Eat these:

- Wild-caught fish (salmon, sardines, mackerel, anchovies)
- Grass-fed beef and lamb
- Free-range poultry and eggs
- Raw hard cheeses
- Leafy greens
- Squash
- Carrots
- Cucumbers
- Tomatoes
- Bananas
- Blueberries
- Grapes
- Cantaloupe and honeydew melons
- Pineapple
- Strawberries
- Quinoa

Phase 2 (The GAPS Diet)- Gut and Psychology Syndrome

- Use coconut oil or ghee for cooking.
- Eat fruit in between meals, not with meals.
- Drink one cup of bone broth with each meal.
- Introduce probiotic-rich foods slowly (cultured vegetables, kombucha, natto, etc.)
- Consume only raw dairy fermented 24 hours or longer.
- Include one tablespoon fermented vegetable juice with each meal. (Sauerkraut juice)
- Incorporate organic coconut oil whenever possible during this stage.

Supplements for SIBO

- Vitamin B12
- Vitamin D
- Vitamin K
- Probiotics
- Digestive Enzymes
- Iron
- Zinc

Note: It’s always best to get your nutrients through natural sources!

Natural Sources For Vitamin B12

- Beef Liver
- Sardines
- Beef (grass-fed)
- Raw Cheese
- Cottage cheese
- Lamb
- Raw Milk
- Eggs
- Wild caught Salmon

Vitamin D

- **UVB exposure** from the Sun is the best way to optimize your vitamin D levels
  - At least 20 minutes of **sun exposure daily** during mid day
  - Your shadow shouldn't be longer than your height

- Most regions of the planet don't get proper sunlight for **6 months** out of the year
- Vitamin D3 supplementation during the winte
- Adults required about **8,000 IUs per day**

Vitamin D and Vitamin K2

- Vitamin K2 is essential for proper utilization of vitamin D

Sources of Vitamin K2

- Grass-fed organic animal products (eggs, butter, dairy)
- Fermented foods
- Certain cheeses (Brie, Gouda)

Natural Sources For Vitamin K

- Green Leafy Vegetables (Kale
- Spring Onions (Scallions)
- Brussels Sprouts
- Cabbage
- Broccoli
- Fermented Dairy
- Prunes
- Cucumbers
- Dried Basil

Fermented Foods instead of Probiotics

- Help promote growth of beneficial bacteria, supports healthy immune function
- Help increase vitamin b, omega 3, digestive enzyme, and lactase/lactic acid

- Kefir (fermented milk)
- Kombucha
- Sauerkraut
- Pickles
- Miso
- Kimchi

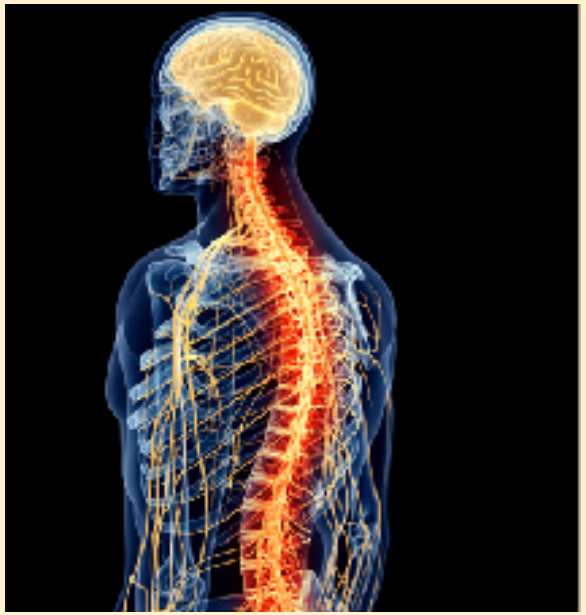
Natural Sources of Iron

- Beef Liver
- Beef and Lamb
- Oysters
- Chickpeas
- Nuts (Cashew, Pine, Hazelnut, Almond)
- Beans (lentils)
- Dark Leafy Greens (Spinach, Swiss Chard)
- Dark Chocolate (Cacao)

Natural Sources of Zinc

- Grass-fed beef
- Kefir or Yogurt
- Lamb
- Chickpeas (Garbanzo beans
- Pumpkin seeds
- Cashews
- Cocoa powder
- Chicken
- Mushrooms
- Spinach

The 5 Keys to Health and Healing



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Prayer and Meditation

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