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The Bi-Phasic SIBO Protocol Module 2 "Reduce and Repair"



Module 2- "Reduce and Repair"

- 1. Considering SIBO Causes- a model for targeted treatment strategies to prevent relapse
- 2. Phase 1 of the Bi-phasic protocol
 - Diet
 - Digestive aids
 - Healing leaky gut
- 3. Phase 2 of the Bi-phasic protocol
 - Diet
 - Antimicrobials covered in Module 3



The SIBO Matrix

"The Bucket"

Environmental toxins

Detox impairments

Genomics

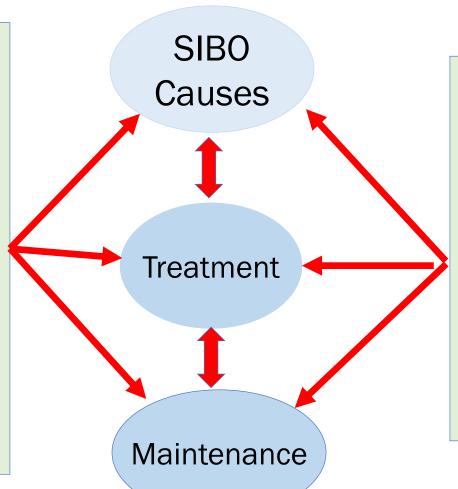
Microbiome

Hormonal

Oxidative

stress/Mitochondrial

Immunological/inflammation



Contributing Factors

Stress

Sleep

Dehydration

Diet Habits/nutrition

Lack of movement



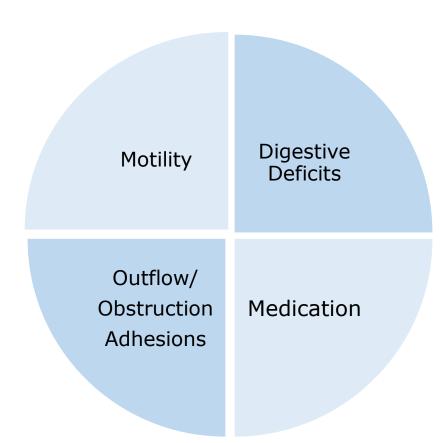
Comprehensive SIBO treatment aims to address the CAUSE

1. Impaired Motility

- Autoimmune/MMC
- TBI
- Hypothyroidism
- Chronic infection
- Diabetes
- Mould toxicity
- EDS
- Scleroderma

3. Impaired flow through intestines

- Abdominal surgery
- Endometriosis
- EDS
- Ileocecal valve dysfunction



2. Impaired Digestion

- Hypochlorhydria
- Poor Bile flow
- Pancreatic enzyme
- Brush border enzymes
- Secretory IgA deficiency
- Chronic Fight or Flight
- Microbiome dysfunction

- Opiates/Narcotics
- Antispasmodics
- Tricyclic antidepressants
- Proton pump inhibitors
- cholestyramine



New Patient Questionnaire coming soon

- >To find the cause
- ➤ Up to 2/3 of patients will relapse if the cause is not treated
- ➤ Based on the 4 categories of causes
 - Impaired Motility
 - Impaired Digestion
 - Impaired Outflow
 - Medications

Motility

Digestive Deficits

Outflow/ Obstruction Adhesions



1. Impaired Motility

- Autoimmune/MMC- Case of gastroenteritis/food poisoning/traveler's diarrhea lasting for longer than 24h
- Traumatic Brain Injury "shaken brain" eg football injury, heading
 the ball in soccer, "I fell but didn't hit my
 head" such as horseback riding or bike
 accident, or a shock wave such as an
 explosion whether or not anything struck
 the head, falling hard on the coccyx
- Hypothyroidism
- Diabetes vagal autonomic neuropathy

Motility

Digestive Deficits

Outflow/
Obstruction
Adhesions



Impaired Motility cont'd

- Mould toxicity lack of VIP (vasoactive intestinal peptide)
- Stealth infection eg Lyme (affecting antral accomodation/vagus nerve)
- Scleroderma -thickening of the intestinal wall alters motility
- Ehler's Danlos Syndrome or other connective tissue condition. (Beighton score as an in office screening test)

Motility

Digestive Deficits

Outflow/
Obstruction
Adhesions



2. Impaired Digestion

This affects the digestive defense – bacteria are NOT KILLED in the Small intestine

- Hypochlorhydria
- Reduced output of
 - Pancreatic enzymes
 - Brush border enzymes
 - Bile
- Decreased slgA

Motility

Digestive Deficits

Outflow/
Obstruction
Adhesions



Impaired Digestion - symptoms

- Belching or gas within one hour after eating
- Heartburn or acid reflux
- Bloating within one hour after eating
- Halitosis
- Loss of taste for meat
- Sense of excess fullness after meals
- Stomach pains or cramps
- Undigested foods in
- Greasy stools/toilet water after stool

Motility

Digestive Deficits

Outflow/
Obstruction
Adhesions



3. Impaired Outflow – Bacteria are allowed to remain in SI due to:

- Abdominal surgery: cesarean, hysterectomy, appendectomy, removal of gallbladder, laparoscopy
- Endometriosis a major source of relapsing SIBO
- Pelvic inflammatory disease, pelvic or abdominal surgery or radiation treatment All of these can cause thickening of the bowel or adhesions which alter motility.
- History of perforated appendix common cause of adhesions.
- Internal hemorrhage such as ruptured ovarian cyst another adhesion cause.
- Blind loops, diverticuli, and other anatomical abnormalities (bacteria "hide out" and are not be flushed out by the migrating motor complex).
- Superior mesenteric artery syndrome a rare but important cause of partial duodenal obstruction.

Motility

Digestive Deficits

Outflow/

Obstruction Adhesions



4. Medications and SIBO

- Opiates/narcotics
- Antispasmodics (eg dicyclomine/bentyl, hyosyamine/levsin, cimetropium)
- Tricyclic antidepressants (eg amitriptyline)
- Alosetron (lotronex)
- Lomotil (diphenoxaylate/atropine)
- Imodium (loperamide)
- Proton pump inhibitors
- Cholestyramine (cholestipol, questran)

Motility

Digestive Deficits

Outflow/
Obstruction
Adhesions



Treating SIBO

Step 1– treat SIBO, which is the RESULT of the underlying CAUSE. Many practitioners only do this step and many of their patients will relapse

Step 2- Treat the CAUSE

Step 3 – Microbiome restoration



The Naturopathic Therapeutic Order

Surgery

Pharmaceuticals or synthetics

Address pathology- use specific natural substances or interventions

Correct structure

Address weakened systems/organs: strengthen immune system, decrease toxicity, decrease inflammation, optimize metabolic function, balance regulatory function, enhance regeneration, harmonize with your life force

Stimulate the *Vis Medicatrix Naturae* – the healing power of nature. Stimulate self healing processes

Establish conditions for health. Identify and remove disturbing factors



ongoing prokinetics

Nutritional support: eg ALA, Lion's Mane, Phoshoplipids, Brain support

Address alignment

Vagal exercises, Neuro-feedback, Homeopathy, acupuncture

Prevent further food poisoning

Impaired Motility



PPI, etc

Address alignment

HCL, bitters, enzymes, ox bile

Vagal exercises, Breathing, Mindful eating, Gut centered Hypnotherapy, homeopathy

Remove stressors, increase Parasympathetic tone

Impaired Digestion



Adhesion removal

Address alignment

Connective tissue support: Pancreatic enzymes, Gotu Kola

Visceral Manipulation, Acupuncture, Cold Laser, hydrotherapy

Remove stressors, prevent further adhesion formation

Impaired Outflow



Continue with Medication

Address alignment, herbal alternatives

Specific Tissue Support

Hydrotherapy, Sauna, Exercise

Assess reason for medication and treat - eg stress, social isolation, mental health



The SIBO Bi-Phasic Diet

- Available for download
- General SIBO diet plans can be confusing and highly variable
- Patients often need customized approaches
 - Leaky gut, digestive deficits
 - Other intolerances: histamine, salicylates, oxalates etc
 - Malnutrition



Small Intestine bacterial overgrowth is a condition where bacteria which are normally found lower in the large intestine have overgrown in the small intestine instead.



Health care disclaimer. This treatment protocol is not intended as medical advise and is best used with the guidance of a health care profession of. Please ask your doctor if this protocol is appropriate for your cendition before starting.

They damage the microvilli— the absorptive surface of the small intestine. This can lead to malabsorption of nutrients. Microvilli are also responsible for the digestion of small starch molecules from food. When the microvilli are not working, the bacteria use these small starch molecules to cause fermentation. This bacterial fermentation produces methane and hydrogen gas. Not only is this uncomfortable, but causes further damage to the microvilli.

Research has now shown that SIBO is a major cause of intestinal permeability, or 'teaky gut', a condition where partially digested food particles are absorbed through the lining of the small intestines where they can cause an immune reaction. Leaky gut also causes bacterial by-products to be absorbed — a major trigger for inflammation.

- Leaky gut can also cause malabsorption of nutrients from your food which can cause a wide variety of symptoms such as resitess legs at night, fatigue, skin rashes, muscle aching as well as a host of directive symptoms.
- The bacteria couse the motility of the small intestine to slow down or work improperty, causing further fermentation. Restoring proper motify in the small intestines is a major focus of eliminating SIBO for good and your practitioner is likely to prescribe a "prokinetic" supplement or medication.
- 4. Many people who test positive for SIBO will also have a co-infection with fungal organisms, a condition known as SIFO (small intestine fungal overgrowth) — the SIBO BI-Phasic diet helps to address this as well.

Visit www.TheSiBODoctor.com for more information

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The Bi-Phasic diet allows for a sequential treatment approach

Phase 1: "Reduce and Repair" (4-6 weeks)

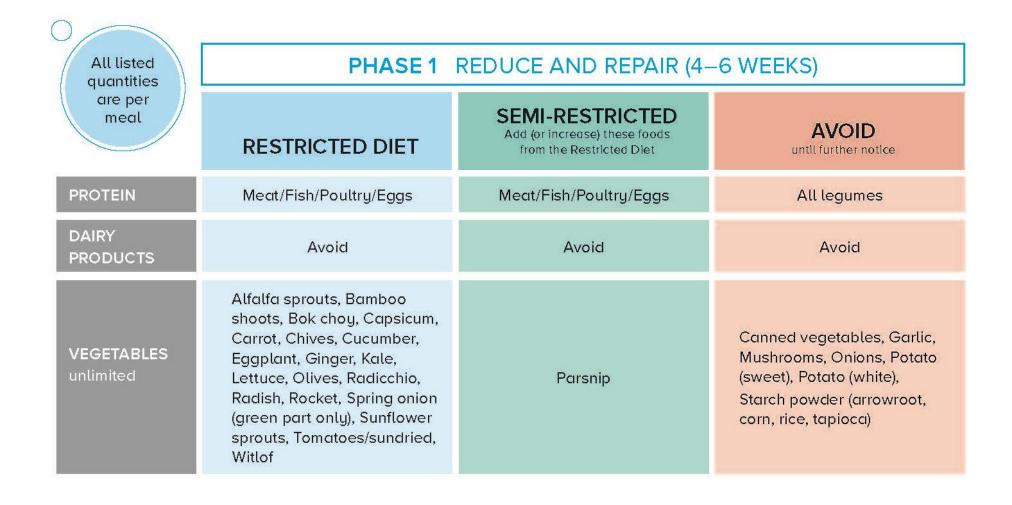
- Reduce: fermentable starches and fibers and therefore bacterial fermentation
- Repair: intestinal inflammation, brush border enzymes, other digestive support
- Starts out with very restricted food plan, patients move into "semi-restricted" as soon as symptoms improve

Phase 2: Remove and Restore (4-6 weeks)

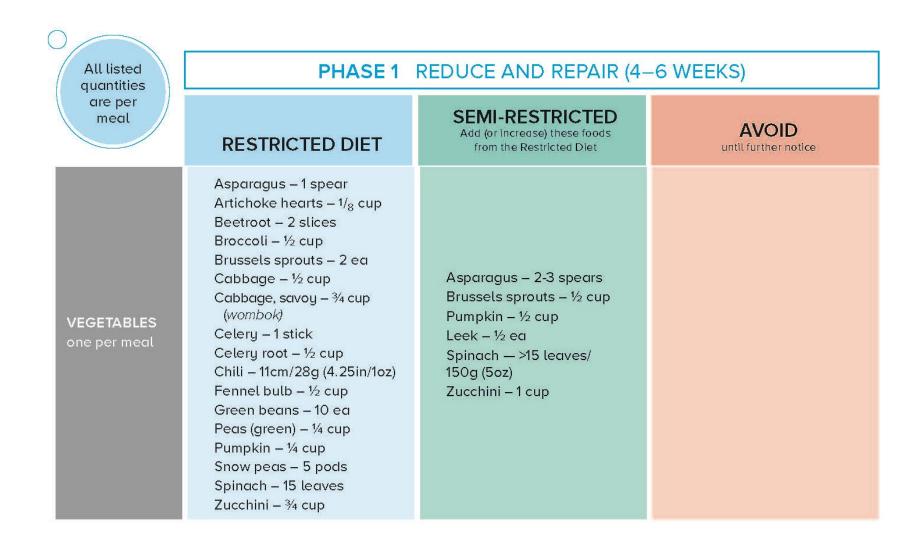
- Removing bacteria (and fungi) with antimicrobials
- Restore Motility



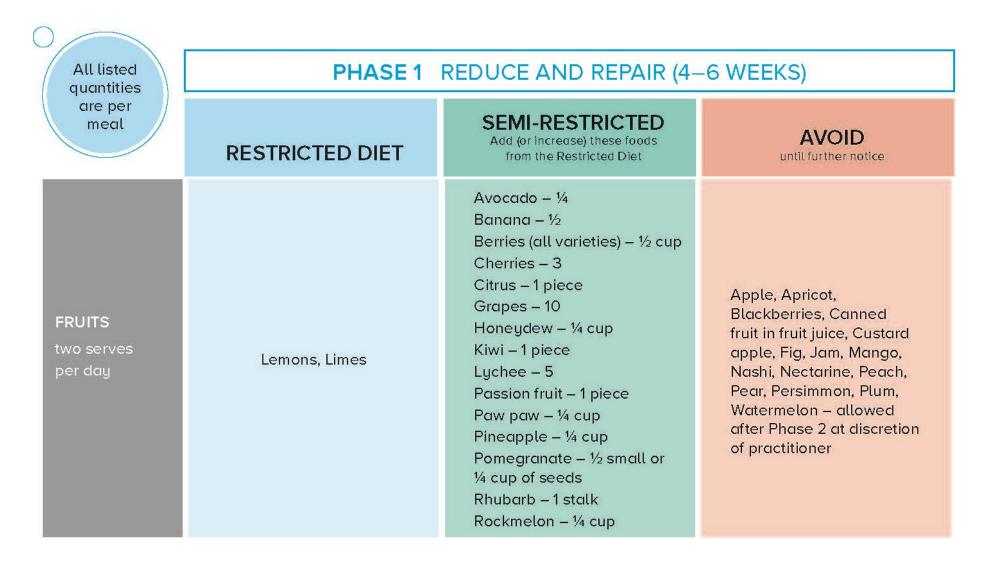




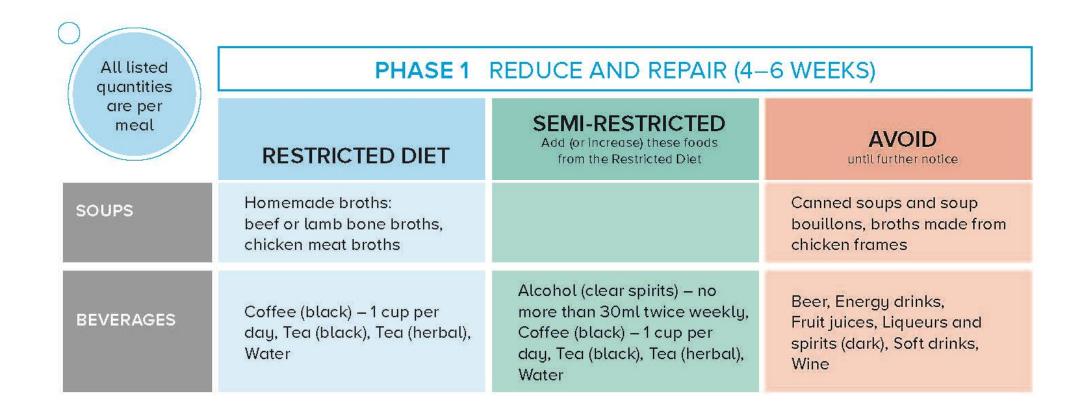




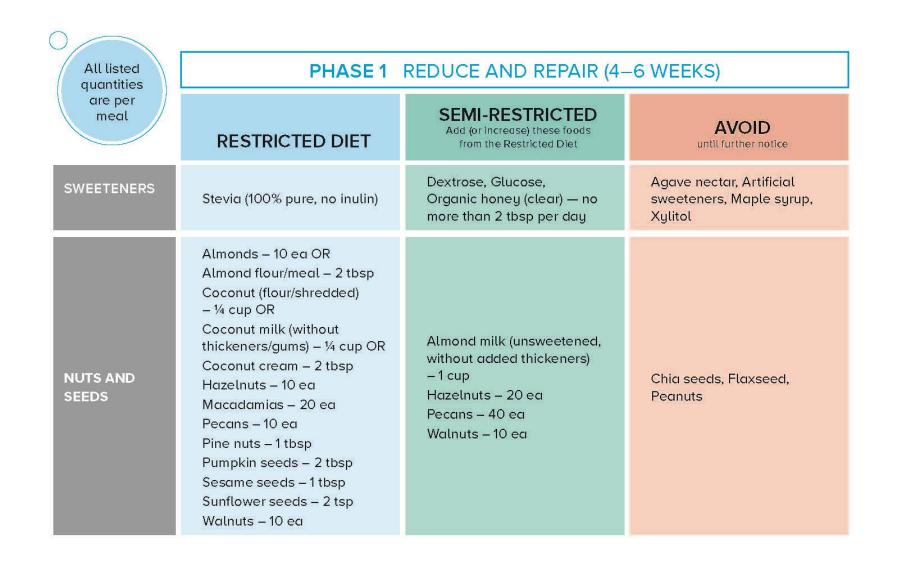




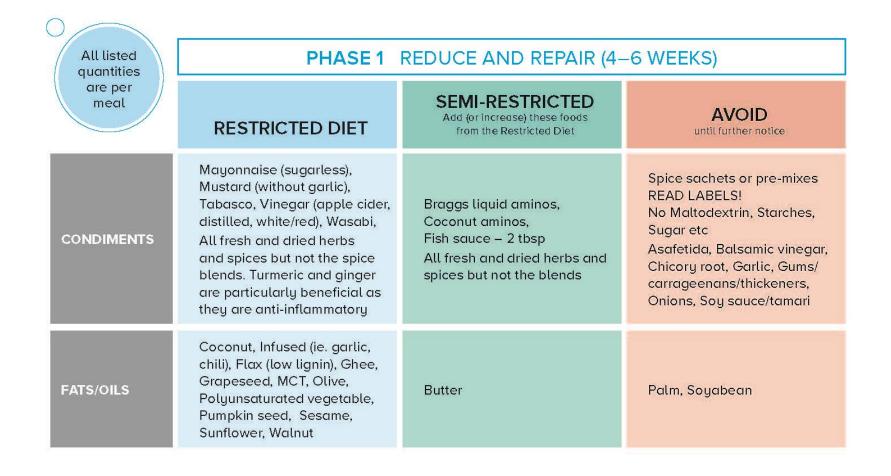












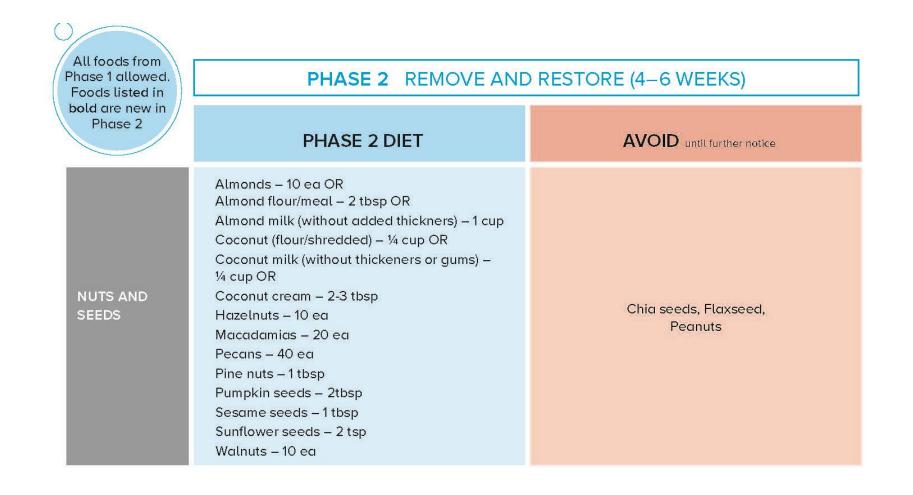


Phase 2: "Remove and Restore" (4-6 weeks)

All foods from Phase 1 allowed. Foods listed in bold are new in Phase 2	PHASE 2 REMOVE AND RESTORE (4–6 WEEKS)	
	PHASE 2 DIET	AVOID until further notice
LEGUMES cooked	Lentils (brown) – ½ cup, Lentils (green and red) – ¼ cup Lima beans – ¼ cup	All other legumes and beans
SOUPS organic	Homemade broths: beef or lamb bone broths, chicken meat broths	Canned soups and soup bouillons, broths made from chicken frames
BEVERAGES	Alcohol (clear spirits) — no more than 30ml every other day, Coffee (black) — 1 cup per day, Tea (black), Tea (herbal), Water	Beer, Energy drinks, Fruit juices, Liqueurs and spirits (dark), Soft drinks, Wine
SWEETENERS	Cacao (raw) — 1 tsp per day, Dextrose, Glucose, Organic honey (clear) — no more than 2 tbsp per day, Stevia,	Agave nectar, Artificial sweeteners, Maple syrup, Xylitol

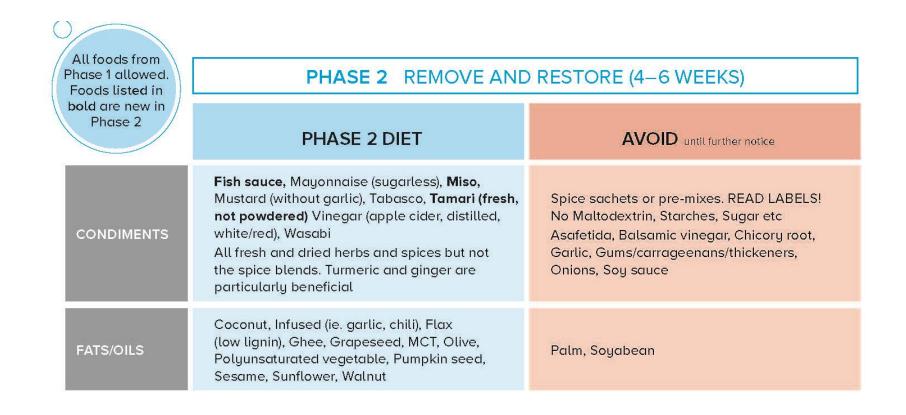


Phase 2: "Remove and Restore" (4-6 weeks)





Phase 2: "Remove and Restore" (4-6 weeks)





SIBO Cookbooks









Phase 1

Patient to follow Phase 1 diet. Start with restrictive, move to semirestrictive when patient feels at least 50-60% improved)

RESTRICTED: No grains, dairy, honey, legumes, fruit. Basically protein and vegetables. Rapid sxs relief with this

For underweight patients – use white rice, more pumpkin, more butter and macadamia butter if tolerated

SEMI-RESTRICTED: builds on restricted diet, plus white rice and fruit, always as tolerated



Supportive Treatment for Phase 1

- Digestive Support
- Healing Leaky Gut
- Nutritional repletion especially
 - B12
 - Magnesium
 - Trace minerals
 - Careful with B complexes
 - Iron

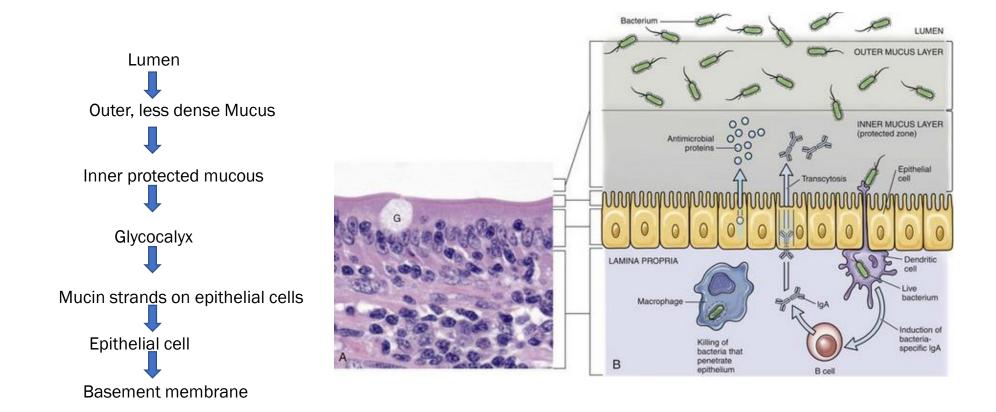


Digestive Support

- Hydrochloric acid- start with 1 capsule with meals, increase by 1 capsule daily until at 2 caps 3x daily with meals
 - Betaine HCL, pepsin- not with gastritis
 - No need to feel the "burn"
- Herbal Bitters
- Pancreatic Enzymes 1-2 caps with meals
- Brush border enzymes
 - Eg Maltase, isomaltase, alpha galactosidase, Dipeptidyl Dipeptide 4 (DPP4)
- Bile oxbile, cholagogues



Layers of Lumen to Basement membrane





Mucous, Glycocalyx, and Tight Junctions

- 1. Mucous: loosely adherent mucus layer provides lubrication and protection. Provides antimicrobial and immune proteins. Mucous provides habitat for local microbiome
- 2. The dense inner layer protects epithelial cells. Major component of mucous is mucin, secreted by goblet cells, composed of glycoproteins. These are peptide back bone linked to oligosaccharide chain
- 3.Glycocalyx mucin strands integrated with the epithelial cell membrane. Prevention of microbial adherence
- 4.Epithelial cells dependent on luminal nutrients, require a large amount of energy. Dietary amino acids are their major fuel
- 5. Tight junctions: seal adjacent cells.
- 6.Basement membrane layer of ECM. Provides structural support, acts as additional barrier, regulates epithelial proliferation

Support for Phase 1 and 2: Mucosal repair

N-acetyl glucosamine – glycocalyx support

Amino acids

- Threonine, proline, serine Mucin support
- Glycine- important in basement membrane, GSH production
- L-Glutamine next slide

Probiotics

- S.boulardii increases slgA, anti-inflammatory, villous repair
- Nissle strain E.Coli- motility, anti-inflammatory, abdominal hypersensitivity
- L. rhamnosus GG: motility, abdominal hypersensitivity, antiinflammatory

Lactoferrin/Colostrum - immune support, antiinflammatory



Support for Phase 1 and 2: Mucosal repair

- Tight junction repair
 - Vit D facilitates mucosal barrier homeostasis, decreases inflammatory cytokines
 - Vitamin A 20,000-50,000 IU for a few weeks, then reduce
 - Quercetin 500mg TID or more
- Epithelial cell repair
 - zinc carnosine 75mg BID
 - L-Glutamine 5g-10g/d
 - increases production of GSH
 - Major fuel source for enterocytes/epithelial cells
 - Supports tight junctions
 - Reduces IL-6 and IL-8, increases IL-10



Herbal mucosal support

- DGL deglycerrhinated licorice
- Curcumin (careful with salicylates)
- though high in polysaccharides and/or fiber, these seem to be well tolerated by most
 - Aloe gel/juice ½ cup 2-3 x daily
 - Slippery Elm powder
 - Arabinogalactans
 - PHGG



Problematic ingredients in Gut Healing Formulas

- Prebiotics
 - Inulin
 - FOS
- Xylitol and other sugar alcohol sweeteners
- Cane juice and other sugars
- Resistant starch
- Psyllium fiber



Other support

GOAL: increase circulation (blood and lymph), reduce sympathetic tone and increase parasympathetic tone in ENS

- Relaxation! Especially before eating
- Meditation, apps, inner balance
- Breathing exercises (Buteyko)
- Constitutional Hydrotherapy
- Acupuncture
- Gut Centered Hypnotherapy



Phase 2

- Patient to move to Phase 2 diet, paying attention with introduction of dairy, honey)
 - More generous than phase 1
- Antimicrobials and Prokinetics (Module 3)
- May need to continue with Phase 1 digestive or mucosal support
- Die- off support



Die-off

- "Hercksheimer reaction" massive increase in LPS and other bacterial and fungal toxins as these organisms die
- Patients often react to this, especially when their "bucket is full",
 and especially if constipated
- Noticed after a few days of initiating antimicrobial treatment
- Pt often thinks they are "reacting to the product" and discontinue it



Die-off Support

General:

- Stop the antimicrobial for a few days until sxs subside, then start again at a much lower dose
- Increase water intake to 3 Litres/quarts daily
- Vitamin C 1000mg 3x daily if tolerated

Increasing systemic circulation:

- Sauna
- Exercise
- Hydrotherapy



Die-off support

Binders:

- Activated Charcoal 2 caps 3 x daily
- Bentonite clay (can be constipating)
- Zeolite/clinolyptite



Treatment Flow

Step 1:

Start with Phase 1 <u>restricted</u> diet. As soon as patient's sxs improve, move to Phase 1 <u>semi-restricted</u> diet.

This phase typically lasts 1 month

Don't start antimicrobials until phase 2.

• This helps to reduce die-off and addresses the issue of "feeding whilst killing"



Treatment Flow

Step 2

After 1 month, and test results indicate SIBO+, start with Phase 2 diet and antimicrobials

Customise this as per your patient's needs

- Food allergies (dairy, eggs, almonds)
- Food intolerances (histamine, salicylates, etc)
- Raw vs cooked foods



Treatment flow

How long on phase 2?

Once you've started Antimicrobials, typically methane gas will reduce by

20-30ppm with <u>each 4-6 week course</u>. Hydrogen gas is less predictable

So if someone has high levels of methane and/or hydrogen you can expect them to be on antimicrobials for a good 2-3 months.



Treatment flow

Step 3

If symptoms are not 80%-90% resolved: **Retest!** (to ensure all the bacteria are gone)

If levels are still high, keep going with antimicrobials or change herbs.

Step 4

once the test is clear, start with Prokinetics another 3-6 months and begin reintroducing <u>some</u> fermentable carbohydrates (increasing amounts of vegetables etc).



Typical Treatment Flow

1st patient visit

- You suspect SIBO patient orders breath test
- Start with Phase 1 of Diet, gut healing nutrients if indicated, bitters

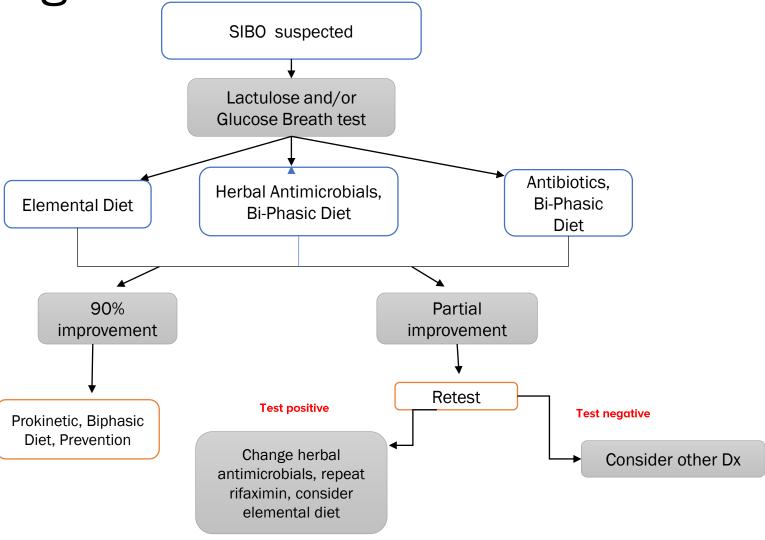
2nd patient visit 3-4 weeks

- SIBO breath test positive
- Initiate appropriate antimicrobials
- Move to phase 2 of diet

3rd patient visit 4-6 weeks Consider another round of antimicrobials Consider prokinetics Consider re-testing



Re-testing





Special Bi-phasic Diet Adjustments Vegetarians/Vegans

Replace existing protein category with

- Plain firm tofu 2/3 cup (160g)
- Plain tempeh 100g
- Increase eggs if vegetarian
- Pea protein (less than 1g fiber) 1 serve twice daily in unsweetened almond or rice milk
- Sprouted Mung beans 2/3 cup
- Canned lentils ½ cup (drain and rinse)





Special Bi-phasic Diet Adjustments IBS-C positive Methane

- High baseline methane on test, stays high throughout the test (LI methane contribution)
- A diet high in protein and low in fiber can worsen constipation
- Replace some animal proteins with the vegetarian protein choices (especially tofu and tempeh)
- Increase fibers if tolerated: flax seeds or PHGG (usually fairly well tolerated-start with ½ scoop and work up to 1 scoop)



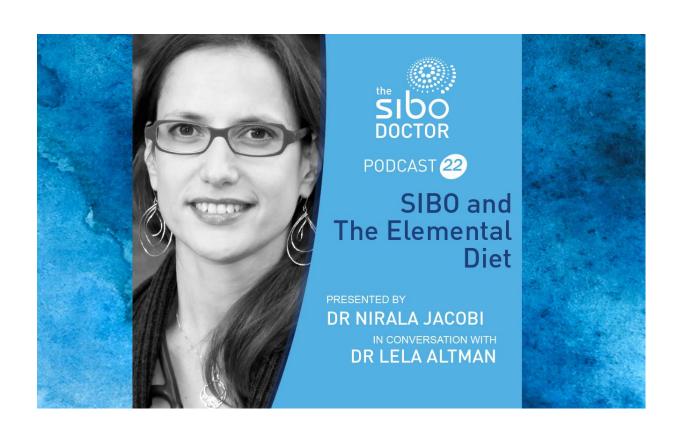
Elemental Diet

- Complete meal replacement for 2-3 weeks
- Specifically formulated free form amino acid powder (NOT whey, pea or other types of protein powder), mixed with rapidly absorbing glucose, MCT or other oil.
- Used <u>instead</u> of herbal or conventional antimicrobials absorbed within the first 60cm of the SI. Starves bacteria but feeds the patient
- We see the most dramatic gas reduction with elemental diet (150ppm in some cases)



Elemental Diet

- Vivonex is commercial brandexpensive
- PED Expensive but tasty. (May need to use an antifungal)
- Patient can order ingredients and make at home.
 - Get the handout from siboinfo.com
 - Dr Siebecker also has made 3
 videos available for free
- Tips: listen to podcast with Dr Lela Altman





Considerations on the SIBO Diet

- There is no "one size fits all" to dietary SIBO treatment
- Consider working with a nutritionist or holistic dietician
- Do not use the low FODMAP diet or Bi-Phasic diet indefinitely







Thank You

Module 3 – Antimicrobials, Prokinetic and Biofilm treatments

Join the closed Facebook Group:

The SIBO Doctor Practitioner Forum

