



MasterClass
February 2, 2017
Session 1

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SIBO Master Class Course

- Session 1
 - Review of SIBO testing
 - Bi-phasic Diet
 - Antimicrobials and Prokinetics
 - Basic case management
 - Other testing which could suggest SIBO
 - Case review

- Session 2
 - Advanced GIT concepts in SIBO
 - Histamine, salicylates, and other food irritants
 - Methylation pathways to consider in SIBO
 - Dysbiosis:
 - Biogenic amines
 - pH balance
 - SIBO-C: retraining a sluggish colon
 - Case review

- Session 3
 - Advanced case management: putting it all together
 - Biofilms
 - External support of your patient
 - Adhesion work: Barral technique trained PT
 - Hydrotherapy
 - NeurOptimal neurofeedback
 - Support groups
 - Case reviews

Objectives of the Master Class (to be discussed over the 3 sessions)

1. Increase your confidence in the assessment and treatment of SIBO
 - Review SIBO testing and treatment
 - Case review
2. Other testing to consider
3. Understand the nuances of individualised treatment
 - Changing the diet to suit your patient
 - Sensitive patients
 - Leaky gut, immuno impaired
4. Question and Answer time

Basic SIBO review

- The typical SIBO patient
- Prep diet– how to properly prepare the patient
- Laboratory review
- Test results
- Treatment: diet, antimicrobials, prokinetics
- Treatment Flow

The typical SIBO patient

- BLOATING
- Constipation, diarrhea, or alternating
- Fatigue
- Increasing food reactions— often come in with a self restricted diet
- Gluten intolerance but not feeling much better off gluten
- Mucosal issues: abdominal pain, bladder issues.
- Often anxious and stressed

Don't forget to consider SIBO

- Acne rosacea
- Fibromyalgia
- Non alcoholic steatohepatosis (fatty liver)
- Gallstones
- Diabetes
- Restless leg syndrome

Laboratories– how to be a discerning practitioner

Important factors/questions to ask

- Prep diet- how restrictive?
- open or closed sample collection system
- testing for hydrogen, methane, CO2
- grams of test sugars
 - 10 g Lactulose
 - 100g Glucose
 - 25g Fructose



Test Kits and Testing Protocols			
	SIBOtest	Lab 1	Lab2
One test kit for SIBO	Yes- only 1 test kit needed	No- require 2 test kits, thus more cost and inconvenience to the patient	No- require 2 test kits, thus more cost and inconvenience to the patient
Closed sample collection device	Yes- vacuum tube collection	No- bag collection	Yes- vacuum tube collection
10 samples in 3 hours	Yes	Yes	No – only 7 samples in 3 hours
Glucose test kits	Yes, sample every 20 minutes for 3 hours	Yes, sample every 20 minutes for 3 hours	No- sample every 30minutes for 3 hours, thus increasing possibility of missing a rise in gas
Control CO2 to assess if sample is viable	Yes	Not reported on results	Not reported on results
Customer Service and Practitioner Support			
1 week turnaround for results	Yes	No	No
Naturopathic support staff	Yes	No	No
Online Practitioner portal: patient results, education and resource support	Yes	No	No
SIBO-treating practitioner referral data base	Yes	No	No
Patient prep diet guidelines	Strictest Prep diet for most accurate results	Low FODMAP guidelines	Loose low FODMAP guidelines (no portion sizes given)
Natural Treatment Protocol	Yes	No	No
Patient Diagnostic Quiz	Yes	No	No



BREATH HYDROGEN AND METHANE TEST

Time (mins)	Breath Hydrogen (ppm)	Breath Methane (ppm)	Symptoms
0	5	14	
Dose 20 g Lactulose			
20	16	19	
40	52	26	
60	68	28	
90 H	63	23	Diarrhoea
150	93	22	Diarrhoea

Comments:

Patient is a methane producer.
Results consistent with Small Bowel Bacterial Overgrowth.

NP

1 Normal
2 Notes Required
3 Patient Notified
4 Make Appointment
5 Collect Script
6. Continue Tx
7 Check with Doctor
8 Type Results
9 For Filing
10 Patient will call

HYDROGEN & METHANE BREATH TEST RESULTS

Date: 3 September 2015
 Practitioner: [REDACTED]
 Patient Details: [REDACTED]

Patient DOB: 04/06/64

TEST	Date	TIME 0min	30min	60min	90min	120min	150min	180min	Symptoms*
Lactulose									
H2 (ppm)	23/08/15	20	14	13	13	19	20	22	
CH4 (ppm)		23	19	11	11	14	12	12	
Lactose									
H2 (ppm)									
CH4 (ppm)									
Fructose									
H2 (ppm)									
CH4 (ppm)									
Glucose									
H2 (ppm)									
CH4 (ppm)									

30 minute intervals, no CO2 control, 11 days before analysis

H₂/METHANE BREATH TEST – REMOTE KIT

Provided to: Patient via Post

Date: 28.08.15

For Patient: [REDACTED]
 Address: [REDACTED]

Clinical Question: ? SIBO

Time (min)											Symptoms
Lactulose 22.08.15	0	20	40	60	80	100	120	140	160	180	None Reported
Hydrogen (ppm)	15	26	20	19	22	19	30	26	43	40	
Methane (ppm)	10	21	7	7	7	4	5	5	7	6	

Time (min)										Symptoms
Glucose 24.08.15	0	15	30	45	60	75	90	105	120	None reported
Hydrogen (ppm)	6	14	9	10	11	10	7	10	7	
Methane (ppm)	24	19	20	18	19	22	18	23	20	

Comment: There is no evidence suggesting the presence of proximal bowel bacterial overgrowth.

Open collection device, no CO2 reported

Patient Preparation Guidelines for SIBO Breath Testing



PROCEDURES, MEDICATIONS, AND SUPPLEMENTS

You must wait at least 1 month after colonoscopy, barium studies, and colonics, as well as antibiotic use before testing

One week prior to testing please stop the following

- Antacids/acid blocking medication
- Probiotics, such as Inner Health, or any probiotic containing product (yogurt, Yakult)
- Herbal antimicrobials

One day prior to testing, please stop

- Laxatives
- Digestive aids such as enzymes or hydrochloric acid
- Please avoid any non essential supplements during preparation and testing period

TEST KITS

If you have ordered one test kit, please follow the instruction below. If you have 2 kits, resume the prep diet after completing the first test kit and use the second test kit the following morning.

For example,

Monday: prep diet followed by overnight fast

Tuesday AM: complete Lactulose test kit (3 hours) followed by resuming the prep diet and a 12 hour overnight fast

Wednesday AM: Glucose test kit (3 hours), then resume normal diet.

SAMPLE MEAL PLAN

Only to be consumed during the first 12 hours, 48 hours if you are constipated.

- Baked or broiled chicken, fish or turkey (Salt and pepper for seasoning)
- Plain steamed white rice (Basmati or Jasmine)
If you are already on a grain free diet, please do not consume rice
- Hard aged cheese (Parmesan, Pecorino) unless you are sensitive to dairy
- Eggs
- Clear meal broth (not bone)
- Olive oil or coconut oil – 1 tablespoon only, for cooking
- Weak black tea or weak black coffee - 1 cup consumed in the morning - NO herbal teas
- Plain water - No mineral water

PREPARATION GUIDE

Preparation begins 24 hours prior to testing, in 2 stages of 12 hours. If you suffer from constipation, please allow 48 hours prior to testing.

- First 12 hours consists of a restricted meal plan (see sample meal plan below), 36 hours if you are constipated
- Second 12 hours will be fasting – only water may be consumed;
- No smoking, including secondhand smoke, for at least 1 hour before or at any time during testing period;
- No sleeping or vigorous exercise for at least 1 hour before or at any time during testing period;
- Recent antibiotic therapy or runny diarrhea may affect the results of the breath tests – please consult with your practitioner about these conditions prior to performing the test as testing may need to be rescheduled;
- Drinking water only during your breath test is allowed in moderation.
- Wake up at least an hour before commencing the test. You can brush your teeth as normal.

Prior to commencing the test make sure you watch the instructional video

www.sibotest.com/pages/about-the-sibo-breath-test

Avoid all other types of food during this 12 hour/48 hour period as this will ensure accurate test results

EXAMPLE

8AM TILL 8PM: 12 or 48 hours of restricted meal plan

Breakfast: Scrambled eggs with parmesan cheese

Mid morning snack: Chicken broth

Lunch: Chicken and white rice seasoned with salt & pepper

Mid afternoon snack: Chicken broth

Dinner: Fish and white rice seasoned with salt & pepper

Drinks: Water

8PM TILL 8AM: 12 hours fasting

Water

Commence testing after 8am.



Test Results- Lactulose

Date of Analysis: 21-Nov-14

Practitioner: [REDACTED]

Sample	Sample #	ppm H2	ppm CH4	Combined	CO2 %
Control	1	1	29	30	5.50
20 min	2	3	20	23	4.10
40 min	3	8	18	26	4.60
60 min	4	22	21	43	4.90
80 min	5	76	48	124	4.60
100 min	6	89	55	144	4.30
120 min	7	55	42	97	4.20
140 min	8	43	37	80	4.50
160 min	9	34	34	68	5.00
180 min	10	30	27	57	4.70

Hydrogen (H₂) and Methane (CH₄) values corrections are based on CO₂ content in the samples. CO₂ is not used for diagnosis, only for quality assurance of samples.

“Classic” SIBO positive if in 100min

- H₂ rise of 20ppm
- CH₄ rise of 12
- Combined rise of 15ppm

Date of Analysis: 30-Jan-15

Practitioner: [REDACTED]

Sample	Sample #	ppm H2	ppm CH4	Combined	CO2 %
Control	1	4	5	9	4.40
20 min	2	3	5	8	4.30
40 min	3	2	4	6	4.50
60 min	4	2	5	7	4.50
80 min	5	1	4	5	4.00
100 min	6	1	2	3	4.60
120 min	7	0	4	4	4.30
140 min	8	3	4	7	4.30
160 min	9	30	5	35	4.60
180 min	10	30	8	38	3.60

Hydrogen (H₂) and Methane (CH₄) values corrections are based on CO₂ content in the samples. CO₂ is not used

Test Results - Glucose

Date Samples Collected: 03-May-16
Date of Analysis: 06-May-16
Practitioner: Dr Nirala Jacobi

Sample	Sample #	ppm H ₂	ppm CH ₄	Combined	CO ₂ %
Control	1	1	3	4	3.90
20 min	2	2	2	4	3.10
40 min	3	4	4	8	1.50
60 min	4	3	3	6	1.60
80 min	5	18	5	23	2.10
100 min	6	3	1	4	0.40
120 min	7	2	2	4	0.20
140 min	8	98	14	112	2.30
160 min	9	89	11	100	2.90
180 min	10	48	11	59	2.50

Hydrogen (H₂) and Methane (CH₄) values corrections are based on CO₂ content in the samples. CO₂ is not used for diagnosis, only for quality assurance of samples.

Date Samples Collected: 04-May-16
Date of Analysis: 06-May-16
Practitioner: Dr Nirala Jacobi

Sample	Sample #	ppm H ₂	ppm CH ₄	Combined	CO ₂ %
Control	1	2	3	5	3.40
20 min	2	30	7	37	3.10
40 min	3	60	9	69	2.90
60 min	4	71	9	80	3.10
80 min	5	65	10	75	2.80
100 min	6	48	7	55	3.00
120 min	7	22	5	27	3.00
140 min	8	29	7	36	3.20
160 min	9	16	5	21	3.10
180 min	10	0	0	0	0.20

Hydrogen (H₂) and Methane (CH₄) values corrections are based on CO₂ content in the samples. CO₂ is not used for diagnosis, only for quality assurance of samples.

Frequently seen- no need for alarm!

Date of Analysis: 05-Feb-16

Practitioner: [REDACTED]

Sample	Sample #	ppm H2	ppm CH4	Combined	CO2 %
Control	1	3	42	45	5.00
20 min	2	5	40	45	4.70
40 min	3	11	46	57	4.10
60 min	4	9	67	76	3.60
80 min	5	25	52	77	4.90
100 min	6	64	91	155	4.90
120 min	7	60	71	131	4.80
140 min	8	54	56	110	5.10
160 min	9	63	61	124	4.50
180 min	10	52	49	101	4.20

Hydrogen (H₂) and Methane (CH₄) values corrections are based on CO₂ content in the samples. CO₂ is not used for diagnosis, only for quality assurance of samples.

Date of Analysis: 31-Mar-16

Practitioner: [REDACTED]

Sample	Sample #	ppm H2	ppm CH4	Combined	CO2 %
Control	1	4	12	16	4.60
20 min	2	4	15	19	4.00
40 min	3	55	17	72	3.80
60 min	4	105	18	123	4.20
80 min	5	125	21	146	4.10
100 min	6	132	21	153	4.70
120 min	7	141	21	162	4.00
140 min	8	139	18	157	4.70
160 min	9	130	18	148	4.20
180 min	10	155	20	175	3.90

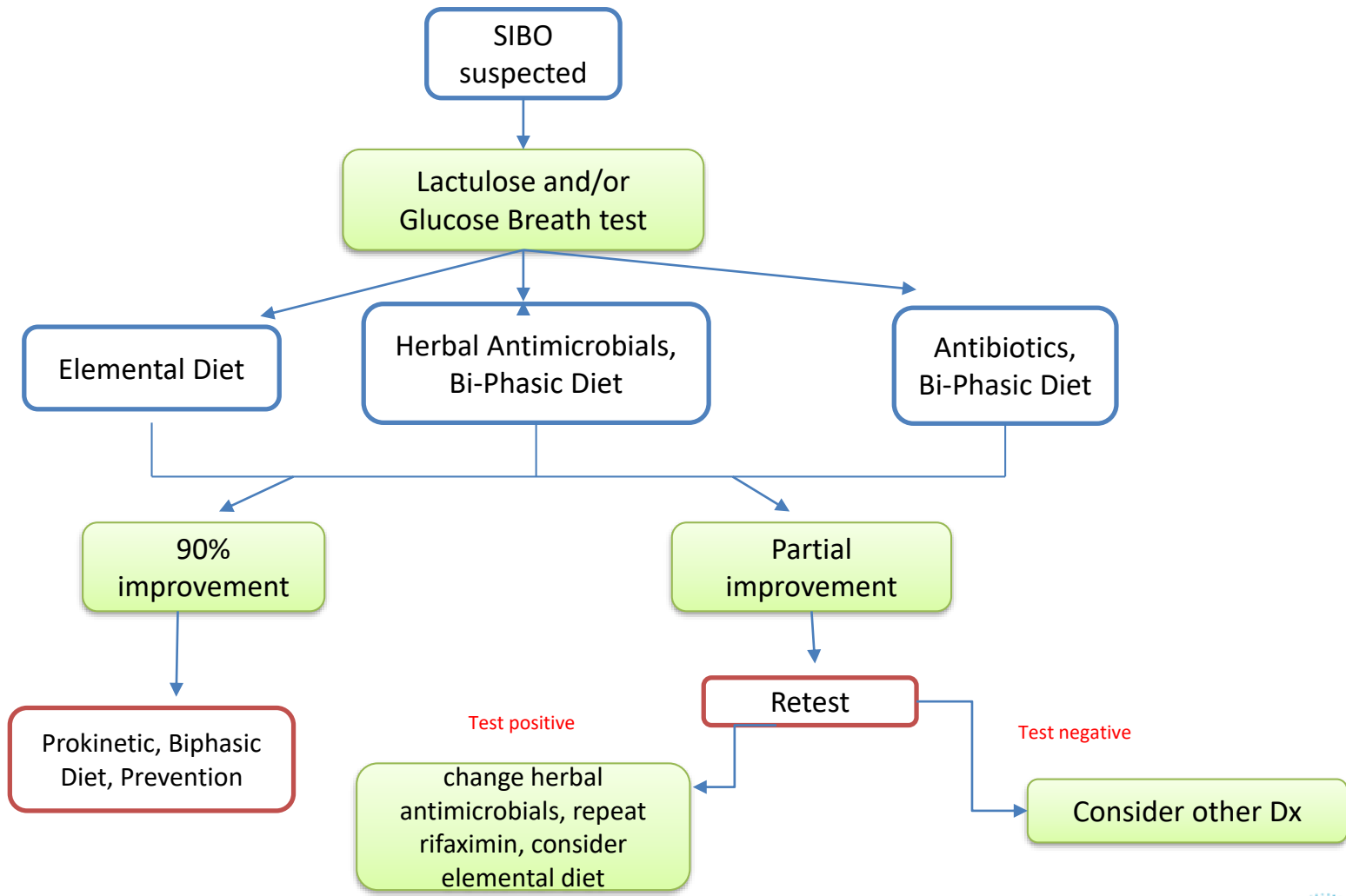
Hydrogen (H₂) and Methane (CH₄) values corrections are based on CO₂ content in the samples. CO₂ is not used

Reduced methane by almost 70 ppm in 7 weeks!



If Lactulose breath test is **negative** but you think it is SIBO

- Lactulose breath test is not 100% accurate in detecting SIBO but it is the easiest and least expensive. Some bacteria (e.coli, some strep) don't ferment lactulose well so test can be negative.
- When in doubt, confirm with Glucose



The SIBO Bi-Phasic Diet



3 month Treatment Protocol
to help restore the function
of the small intestine

Dr. Nirala Jacobi, BHSc, ND (USA)

- Available for download in the practitioner section of [SIBOtest.com](https://www.sibotest.com)
- 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



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 1: Reduce and Repair (4-6 weeks)



All listed quantities are per meal

RESTRICTED DIET ✔	SEMI-RESTRICTED ⊖ <small>Add (or increase) these foods from the Restricted Diet</small>	AVOID UNTIL FURTHER NOTICE ⊗
Protein Meat/Fish/Poultry/Eggs	Protein Meat/Fish/Poultry/Eggs	Protein All legumes
Dairy Products Avoid	Dairy Products Avoid	Dairy Products All Dairy products
Vegetables (unlimited) Bamboo shoots, bok choy, carrot, chives, cucumber, eggplant, witlof, ginger, kale, lettuce, olives, capsicum, radicchio, radish, rocket, spring onion (green part only), tomatoes/sundried, sunflower sprouts, alfalfa sprouts	Vegetables (unlimited) Parsnip, spring onion (white part)	Vegetables Potato: white, sweet Starch powder: arrowroot, corn, rice, and tapioca canned vegetables, Onions, Garlic, Mushrooms
Vegetables (1 per meal) Asparagus – 1 spears Artichoke hearts – 1/8 cup Beet root – 2 slices Broccoli – ½ cup Brussels sprouts 2ea Butternut or Jap pumpkin – 1/4 cup Cabbage – ½ cup Cauliflower – ½ cup Cabbage, savoy – ¾ cup (Wombok) Celery – 1 stick Celery root – ½ cup Chilli – 11cm/28g Fennel bulb – ½ cup green beans 10 ea Peas, green – 1/4 cup Snow peas 5 pods Spinach 15 leaves zucchini ¾ cup	Vegetables (1 per meal) Asparagus – 2-3 spears Brussels sprouts ½ cup Pumpkin: ½ cup Leek ½ ea Spinach >15 leaves/150g Zucchini 1 cup	
Fruit (2 serves per day) Lemons Limes	Fruit (2 serves per day) Banana- ½ Berries – all varieties – ½ cup Citrus – 1 piece Kiwi – 1 piece Rock melon, honeydew, paw paw, pineapple – ¼ cup Passion fruit – 1 piece Rhubarb – 1 stalk Avocado – ¼ Cherries – 3 Grapes – 10 Lychee – 5 Pomegranate – ½ small or ¼ cup of seeds	Fruit Canned fruit in fruit juice (Apple, apricot, blackberries, custard apple, fig, jam, mango, nashi, nectarine, peach, pear, persimmon, plum, watermelon) – allowed after Phase 2 at discretion of practitioner



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





All listed quantities are per meal

<p>Grains, starches, breads and cereals</p> <p>Avoid all – this includes all grains, breads, cereals, cakes, biscuits</p>	<p>Grains, starches, breads and cereals</p> <p>Quinoa, White rice: basmati or jasmine only, ½ cup cooked per serve</p>	<p>Grains, starches, breads and cereals</p> <p>Avoid all grains, breads, cereals, cakes, biscuits, except if practitioner ok's rice</p>
<p>Legumes (lentils, beans)</p> <p>Avoid</p>	<p>Legumes (lentils, beans)</p> <p>Avoid</p>	<p>Legumes (lentils, beans)</p> <p>Avoid</p>
<p>Soups</p> <p>Homemade broths: Beef or Lamb bone broths, chicken meat broths</p>	<p>Soups</p> <p>Homemade broths: Beef or Lamb bone broths, chicken meat broths</p>	<p>Soups</p> <p>Canned soups and soup boullions, broths made from chicken frames</p>
<p>Beverages</p> <p>Water, Herbal teas, black coffee (1 cup daily), black tea</p>	<p>Beverages</p> <p>Water, Herbal teas, black coffee, black tea, Alcohol (clear spirits) no more than 30ml 2x weekly</p>	<p>Beverages</p> <p>Soft drinks, fruit juices, wine, beer, dark liqueurs and spirits, energy drinks</p>
<p>Sweeteners</p> <p>Stevia (pure, not containing inulin)</p>	<p>Sweeteners</p> <p>Stevia, Dextrose, Glucose Organic Honey (clear) – no more than 2 tbsp per day</p>	<p>Sweeteners</p> <p>Xylitol, Artificial sweeteners, agave nectar, maple syrup</p>
<p>Nuts and Seeds</p> <p>Almonds 10ea, 2T almond flour/meat Coconut flour/shredded ¼ cup, Ayam blue label coconut milk ¼ cup (or any other brand without thickeners) Coconut cream 2 Tablespoons Hazelnuts 10ea, Macadamia 20ea, Pecans 10ea, Pine nuts 1T, Pumpkin seeds 2T, sesame seeds 1T, sunflower seeds 2t, Walnuts 10ea</p>	<p>Nuts and Seeds</p> <p>Unsweetened Almond Milk 1 cup (Sanitorium or other brand without added thickeners) Hazelnuts 20ea Pecans 40ea Walnuts 100g</p>	<p>Nuts and Seeds</p> <p>Peanuts, Chia or Flax seeds</p>
<p>Condiments</p> <p>Sugarless Mayonnaise, Tabasco, Wasabi, Mustard (without garlic) Vinegar: apple cider, distilled, white/red All fresh and dried herbs and spices but not the spice blends Turmeric and ginger are particularly beneficial as they are anti-inflammatory</p>	<p>Condiments</p> <p>Sugarless Mayonnaise Coconut Aminos 2 tbsp fish sauce All fresh and dried herbs and spices but not the blends</p>	<p>Condiments</p> <p>Spice sachets or pre-mixes READ LABELS! – no maltodextrin, starches, sugar etc Asafetida, chicory root, gums/carrageenans/thickeners, soy sauce/tamari, balsamic vinegar, onions, garlic</p>
<p>Fats/Oils</p> <p>Coconut, olive, infused oils (ie garlic or chili) Ghee, MCT oil, Polyunsaturated Vegetable oil: Flax (low lignin), grape seeds, pumpkin seed, sesame, sunflower, walnut</p>	<p>Fats/Oils</p> <p>Butter, Coconut, olive, infused oils (ie garlic or chili)</p>	<p>Fats/Oils</p> <p>Palm oil, soybean oil</p>

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 DIET 	AVOID UNTIL FURTHER NOTICE 
<p>Protein Meat/Fish/Poultry/Eggs (organic)</p>	
<p>Dairy Products (Organic) Homemade yoghurt, Butter, Cheese: aged 1 month or more: example parmesan, pecorino</p>	<p>Dairy Products All other Dairy products</p>
<p>Vegetables (unlimited) Bamboo shoots, bok choy, carrot, chives, cucumber, eggplant, witlof, ginger, kale, lettuce, olives, capsicum, radicchio, radish, rocket, spring onion, tomatoes/sun dried, sunflower sprouts, alfalfa sprouts, Parsnip</p>	<p>Vegetables Potato: white, sweet Starch powder: arrowroot, corn, rice, and tapioca canned vegetables, Onions, Garlic, Mushrooms</p>
<p>Vegetables (1-2 serves per meal) Asparagus – 2-3 spears Artichoke hearts – ¼ cup Beet – 2 slices Broccoli – ½ cup Brussels sprouts ½ cup Cabbage – ½ cup Cauliflower – ½ cup Cabbage, savoy – ¾ cup (Wombok) Celery – 1 stick Celery root – ½ cup Chilli – 1cm/28g Fennel bulb – ½ cup Green beans 10 ea Peas, green – ¼ cup Pumpkin: ½ cup Snow peas 5 pods Leek ½ ea Spinach > 15 leaves/150g Zucchini > ¾ cup</p>	
<p>Fruit (2 serves per day) Banana- ½ Berries – all varieties – ½ cup Citrus – 1 piece Kiwi – 1 piece Rock melon, honeydew, paw paw, pineapple – ¼ cup Passion fruit – 1 piece Rhubarb – 1 stalk Avocado – ¼ Cherries – 3 Grapes – 10 Lychee – 5 Pomegranate – ½ small or ¼ cup of seeds</p>	<p>Fruit Canned fruit in fruit juice (Apple, apricot, blackberries, custard apple, fig, jam, mango, nashi, nectarine, peach, pear, persimmon, plum, watermelon) – allowed after Phase 2 at discretion of practitioner</p>
<p>Grains, starches, breads and cereals White Rice: Basmati or Jasmine only. ½ cup per serve, plain rice cakes 2, rice noodle ½ cup cooked, Quinoa ½ cup</p>	<p>Grains, starches, breads and cereals Avoid all - this includes all grains, breads, cereals, cakes, biscuits</p>

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

All foods from Phase 1 allowed. Foods listed in **bold** are new in Phase 2

<p>Legumes (cooked) Lentil: brown ½ cup, green and red lentil ¼ cup, Lima bean ¼ cup</p>	<p>Legumes All other legumes and beans</p>
<p>Soups Homemade broths: Beef or Lamb bone broths, chicken meat broths</p>	<p>Soups Canned soups and soup boullions, broths made from chicken frames</p>
<p>Beverages Water, Herbal teas, black coffee, black tea, Alcohol (clear spirits) no more than 30ml every other day</p>	<p>Beverages Soft drinks, fruit juices, wine, beer, dark liqueurs and spirits, energy drinks</p>
<p>Sweeteners Raw Cacao (1 teaspoon per day), Stevia, Dextrose, Glucose Organic Honey (clear) – no more than 2 tsp per day</p>	<p>Sweeteners Xylitol, Artificial sweeteners, agave nectar, maple syrup</p>
<p>Nuts and Seeds Almonds: 10ea, 2T almond flour/meal, Unsweetened Almond Milk 1 cup (Sanitorium or other brand without added thickeners) Coconut: flour/shredded ¼ cup, Ayam blue label coconut milk ¼ cup, coconut cream 2-3 tablespoons Hazelnuts 10ea, Macadamia 20ea, Pecans 10ea, Pine nuts 1T, Pumpkin seeds 2T, sesame seeds 1T, sunflower seeds 2t, Walnuts 10ea Hazelnuts 20ea Pecans 40ea Walnuts 100g</p>	<p>Nuts and Seeds Peanuts, Chia or Flax seeds</p>
<p>Condiments Sugarless Mayonnaise, Tabasco, Wasabi, Mustard (without garlic), Vinegar: apple cider, distilled, white/red Tamari, fresh (not powdered) Miso, fish sauce All fresh and dried herbs and spices but not the spice blends Turmeric and ginger are particularly beneficial</p>	<p>Condiments Spice sachets or pre-mixes READ LABELS! – no maltodextrin, starches, sugar etc Asafetida, chicory root, gums/carrageenans/thickeners, soy sauce, balsamic vinegar, onions, garlic</p>
<p>Fats/Oils Coconut, olive, infused oils (ie garlic or chili) Butter, Ghee, MCT oil, Polyunsaturated Vegetable oil: Flax (low lignin), grape seeds, pumpkin seed, sesame, sunflower, walnut</p>	<p>Fats/Oils Palm oil, soybean oil</p>



SIBO Treatment
ANTIMICROBIALS,
ELEMENTAL DIET, AND PROKINETICS

The Culprits

Predominant SIBO bacteria isolated on duodenal aspirate (Pimentel, 2015):

- ***gram positive:***
 - Enterococcus spp (other studies also identified Streptococcus and Staphylococcus)
- ***gram negative:***
 - Proteus mirabilis
 - E.coli
 - Klebsiella pneumoniae
- Methanobrevibacter smithii (methane)

Co-morbid SIFO – 24% of SIBO patients (I believe this to be higher)

- candida and other fungal spp

Herbal Antimicrobials

Berberine: Phellodendron, Oregon grape, Coptis chinensis, Berberis vulgaris, Hydrastis canadensis effective against

E.coli, Strep and candida spp which often are overgrown in LI
poorly absorbed from GI thus ideal for local infections

Pomegranate: E.coli, Klebsiella, Proteus spp, Strep spp. Also Blastocystis h

Manuka: (no extensive studies as of yet) – E.coli, MRSA, candida spp

Qing Hao: E.coli, Klebsiella, Proteus, Strep spp

Burr Marigold: specifically useful in mucous membrane infections: E.coli, Enterococcus, candida spp

Cinnamon: E.coli, Enterobacter

Essential oils of Oregano, Cinnamon, Thyme – both methane and hydrogen

Tincture (equal parts): Pomegranate/Oregon grape/Burr Marigold/Qing Hao 7.5ml BID (before bed and upon arising)

Currently investigating:

Thyme: Clostridium spp, Enterococcus, spp, MRSA, E.coli, Klebsiella, Pseudomonas spp

Lomatium: Clostridium spp, MRSA, Strep spp, E. coli, Proteus, candida spp

Usnea: Clostridium spp, Bacteroides spp, Enterococcus spp, Strep spp, candida spp

Holy Basil: Strep spp, MRSA, E.coli, vancomycin resistant Enterococci, candida spp

Combination products

- Bactrex (Metagenics) 2 caps BID
- Bacto-cand (MediHerb) 2 BID
- Berberine 500 (Thorne) 2 BID (Nausea!)
- Allimax (Biomedica) 3 BID
- Allimax (iHerb.com) – pure Allisure

Conventional Antibiotics

- Hydrogen only: Rifaximin 1650 mg per day x 14 days 550 mg tid. (Pimentel)
- Methane +/- Hydrogen:
 - Rifaximin 1600 mg per day + Neomycin 1000 mg per day x 10 days
- Other conventional antibiotics are used but I do not generally recommend this

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 instead 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 brand– expensive
- PED- Physician Elemental Diet – ITI brand.
Expensive
- Patient can order ingredients and make at home. Get the handout from siboinfo.com
Drawback: not very tasty, difficulty with compliance

Prokinetics

- Aid in resetting the proper motility of the SI
- Indicated for all SIBO patients but mostly for those whose SIBO was triggered by Gastroenteritis or who have damaged vagus nerve

Natural Prokinetics

- Bitter Herbs
- Serotonin and acetylcholine precursors – 5HTP, acetyl L-carnitine
- Melatonin
- Immature bitter orange, D-Limonene
- Iberogast

Conventional Prokinetics

- Many have side effects
- LDE- low dose Erythromycin 50mg hs
- Prucalopride (Resotrans)
- LDN – low dose naltrexone

Benefits of herbal antimicrobial therapy

- Individualizing the medicine to the patient
 - Antibacterial
 - Antifungal – horopito, pau d'arco
 - Nervines – lavender, kava, passionflower,
 - Digestive support- bitters: gentian, oregon grape, dandelion,etc
 - Circulation – cayenne, ginkgo
 - Antiinflammatory/Antioxidants – turmeric, green tea, maritime pine
- can add minerals and homeopathics to tinctures
- Less damage to the microbiome

Treatment Flow

STEP 1:

Diet: Start with Phase 1 restricted diet. As soon as their sxs improve, move to Phase 1 semi-restricted 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

How long on phase 2?

Once you've started Antimicrobials, typically methane gas will reduce by 20-30ppm with each 4-6 week course. 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 2

- If symptoms are not 80% resolved: Retest! to ensure all the bacteria are gone. If levels are still high, keep going with antimicrobials or change herbs

Step 3 once the test is clear, start with Pro-Kinetics another 3-6 months and begin reintroducing some FODMAPS (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

Considerations

- There is no “one size fits all” to SIBO treatment
- Use herbs before microbiome-disrupting antibiotics.
- Refer to someone who has experience with herbal extracts if you don't
- Only use herbal medicines from reputable manufacturers who test batches frequently
- Rotate antimicrobial herbs maintain effectiveness
- Do not use the low FODMAP diet or Bi-phasic diet indefinitely

Other digestive support

Digestion: HCL, Herbal bitters,

L- Glutamine, BioMatrix (Biomedica)

Enzymes: Critical Digestion (Enzymedica)

Probiotics

Pain and hypersensitivity: Kawakawa, Peppermint,
Caraway

Have them return after 3 weeks to check in and see
if anything needs to be changed



Other useful markers in SIBO (NOT diagnostic for SIBO)

- CDSA:
 - sIGA
 - fecal fat
 - Short chain fatty acids (SCFA)
- e/LFT: chloride – below 100 could indicate hypochlorhydria. Could be an important piece of the puzzle
- Zonulin

slgA

- The only non-inflammatory Immunoglobulin we produce
- Essential to mucosal immunity and microflora
- Reduced with stress, inflammation, chronic infections, frustration (decrease slgA 50%)
- Adequate slgA = 67% increase in microbial adherence
- Prevents candida and other opportunistic infections

Increasing sIgA

Saccharomyces boulardi:

- Anti-inflammatory (decreases IL6, IL8, TNFa, NFKb)
- Improves brush border enzyme functions
- Reduces leaky gut and raises sIgA

Stress reduction!

Sarsaparilla (Smilax), Pelargonium

Zinc, Vitamin A

Faecal Fat on CDSA

- Faecal fat is an important marker for bile acid deconjugation only when pancreatic elastase is in normal range
- It indicates the presence of fat even though pancreatic lipase production/release may be intact
- If SIBO bacteria are destroying bile acids, they are unable to emulsify fats – thus the presence of faecal fat

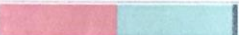

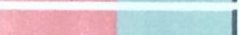
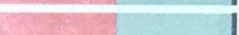
Faecal pH	6.8			
Pancreatic Elastase	> 500		ug/g	> 199
Tryglicerides	0.8*		g/100g	< 0.5
Cholesterol	0.6*		g/100g	< 0.5

Parasitology

Sample 1:

Collection	22/06/15
Wet Prep	No ova, cysts or parasites detected.
Concentrate	No ova, cysts or parasites detected.
Fixed Smear	No Cryptosporidia or Giardia detected.

Culture

Strep/Enterococci	4+	
E. coli	4+	
Bifidobacterium sp.	4+	
Lactobacilli	4+	

Comments:

Dysbiosis factor : 4. (Expected range 1 - 3)

SCFA

- Short chain fatty acids are a product of bacterial fermentation.
- Elevated SCFA on a CDSA could be an indication of SIBO

Case review

- Age 46 woman, Registered nurse
- Diagnosis: CREST syndrome (at age 35)- a form of scleroderma
- Condensed history:
 - Recurrent colds and flus in childhood
 - “soft teeth”, multiple mercury fillings
 - Multiple laparoscopies and IVF treatments
 - Multiple antibiotics throughout her life
 - Chronic constipation
 - Chronic body pain since childhood
- Treatments:
 - Stop statin treatment; anti-yeast therapy; methyl B12; Epsom salt baths; BioGest; integrative dentist; minerals
 - 2012 Rifaximin 500 bd and Neomycin 500 bd 12 days – empirical treatment
 - Improvements in health and wellbeing but stools still like pellets
 - Trigger point injections with dentist 2013

Lactulose Breath Test Results

Date of Analysis: 23-Jan-15
 Practitioner: Kathleen Wilson

Sample	Sample #	ppm H2	ppm CH4	Combined	CO2 %
Control	1	9	4	13	5.00
20 min	2	8	5	13	4.20
40 min	3	16	6	22	3.80
60 min	4	39	6	45	4.80
80 min	5	36	6	42	4.90
100 min	6	56	7	63	4.60
120 min	7	90	8	98	4.80
140 min	8	78	8	86	3.90
160 min	9	94	8	102	4.10
180 min	10	122	7	129	4.10

Fructose Malabsorption Test Results

Date of Analysis: 23-Jan-15
 Practitioner: Kathleen Wilson

Sample	Sample #	ppm H2	ppm CH4	Combined	CO2 %
Control	1	3	3	6	5.30
1 hour	2	7	2	9	4.50
2 hours	3	3	3	6	4.20
3 hours	4	1	4	5	4.30



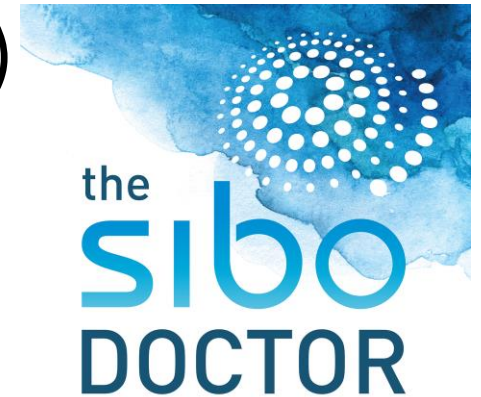
- At this time KP was taking Lovan 20 mg; Fish oil 1200 mg daily; BioGest 2 bd; OmegaGen Cardio 2 bd; Vitamin D; prune juice alternate days and all-bran fibre every day; Mega Mg/Ca alternate nights; NAC
- Given Rifaximin 500 tds and Neomycin 500 bd for 14 days – well tolerated – Bowel motions were a lot more normal on the treatment
- Then Motil Pro 3 nocte
- She relapsed within about 1 month so a second round of treatment was prescribed – WHAT I WOULD DO NOW is RETEST after this AND use higher doses/ multiple Prokinetics – due to the scleroderma KP is in the chronic 2/3 relapsing group
- Further treatments/ issues:
 - Iron infusions from GP
 - Lyrica started by rheumatologist
 - Feldene and Somac used for pain management
 - Enteromend and NAC added by me in Dec 2016, also Lugol's iodine because of very low T4

Review Jan 2017

- Gut and energy better than Dec visit
- Discussed SIBO retesting – pt has just completed Nutrition studies at a naturopathic college and preferred to test ZONULIN as a marker for leaky gut instead – she mainly did not want to do the prep diet - she has a lot of stress packing up the house in preparation to moving – and her scleroderma symptoms are clearly slowly worsening (tight fingertips)

Thank You and Questions?

The SIBO Doctor Podcast is now LIVE– subscribe at www.TheSIBOdoctor.com (iTunes, etc)



- Next MasterClass – February 16, 6p:30pm AEST
- Please send your cases and questions to Emily admin@sibotest.com