

Webinar SIBO

Karin Pijper, Dennis Zeilstra, Wim de Jong 20-06-2024

Medical topics



Karin Pijper
*Founder MC, Medical
director, family doctor*

Moderator



Wim de Jong
General director

Scientific topics

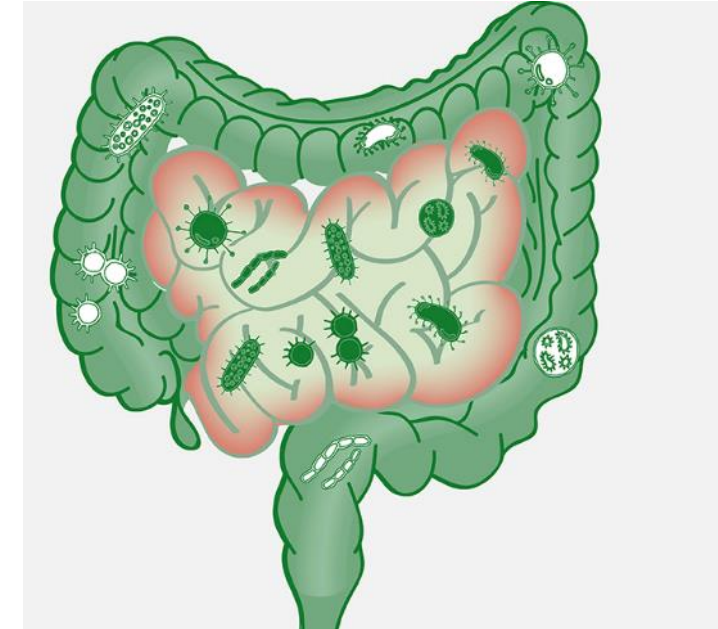


Dennis Zeilstra
*Director for science
and technology*

1. What is SIBO?

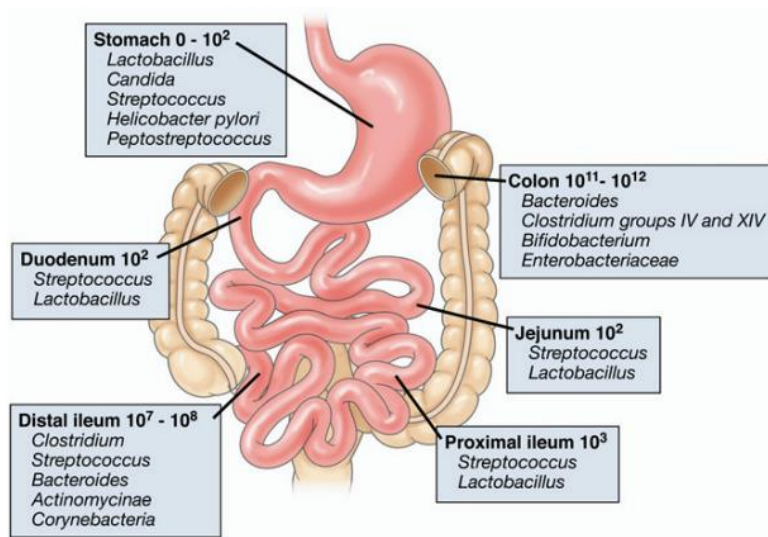
SIBO is short for **S**mall **I**ntestinal **B**acterial **O**vergrowth. But what does it mean?

- There is no exact and consistent definition of SIBO¹.
- Origin or term: research from '60 on malabsorption in people with connection between colon and small intestines¹:
 - Bacteria from colon found which can metabolize e.g. amino acids, deconjugate bile acids, break down B12, or synthesize folate.
- Breath test replaced invasive jejunal aspiration and are basis of most of the SIBO research¹.
- Due to issues and inconsistencies the most meaningful definition according to **American Gastroenterological Association** is¹:
 - The presence of excessive numbers of bacteria in the small intestines causing GI complaints.

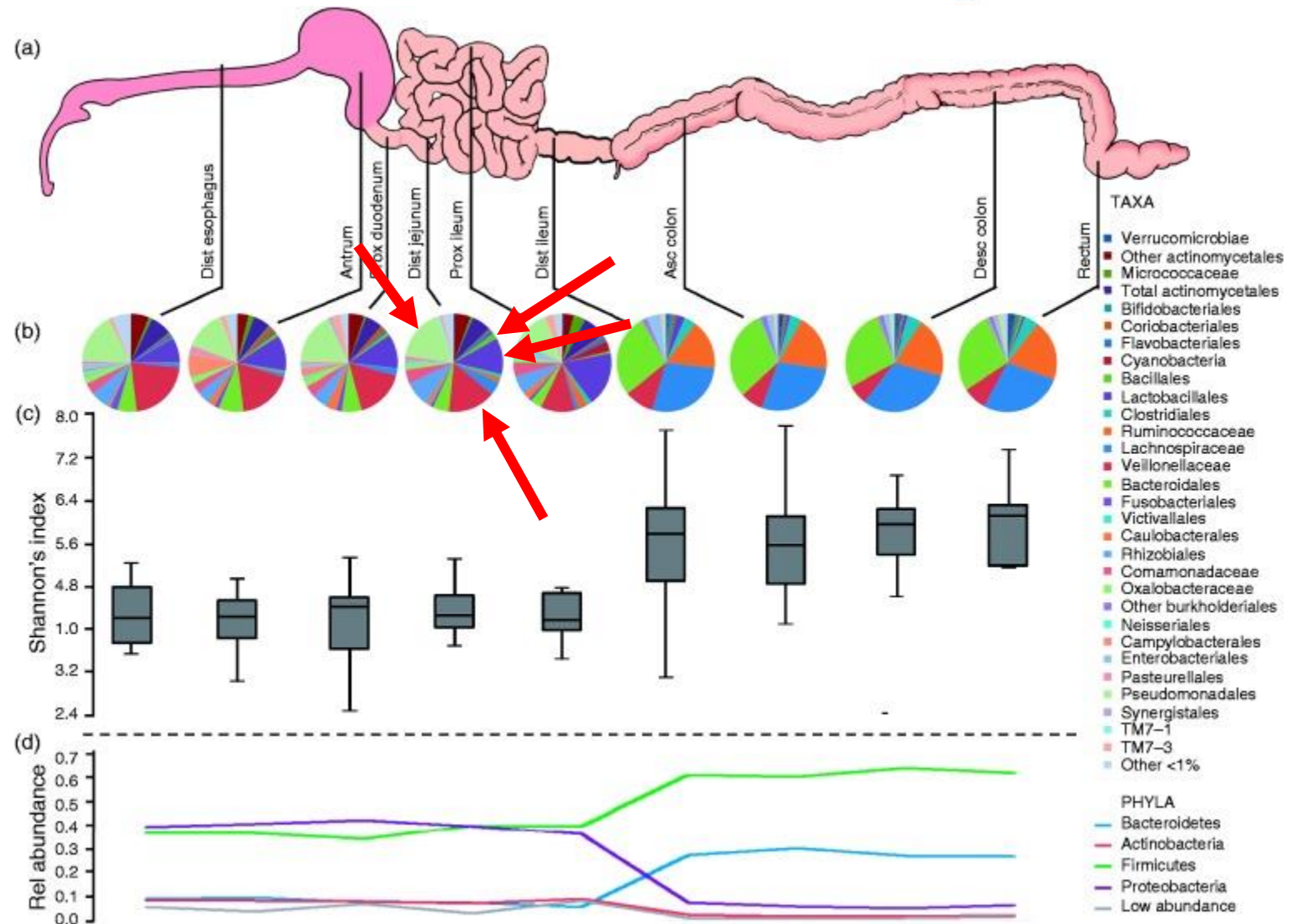


1. E. M. M. Quigley, J. A. Murray, M. Pimentel, *Gastroenterology*. **159**, 1526–1532 (2020).

2. Normal small intestinal ecology



- The further analysis methods develop, the more complex the picture gets^{1,2}.
- Note: in upper part of small intestines the abundance of Bacillales and Lactobacillales is relatively high.

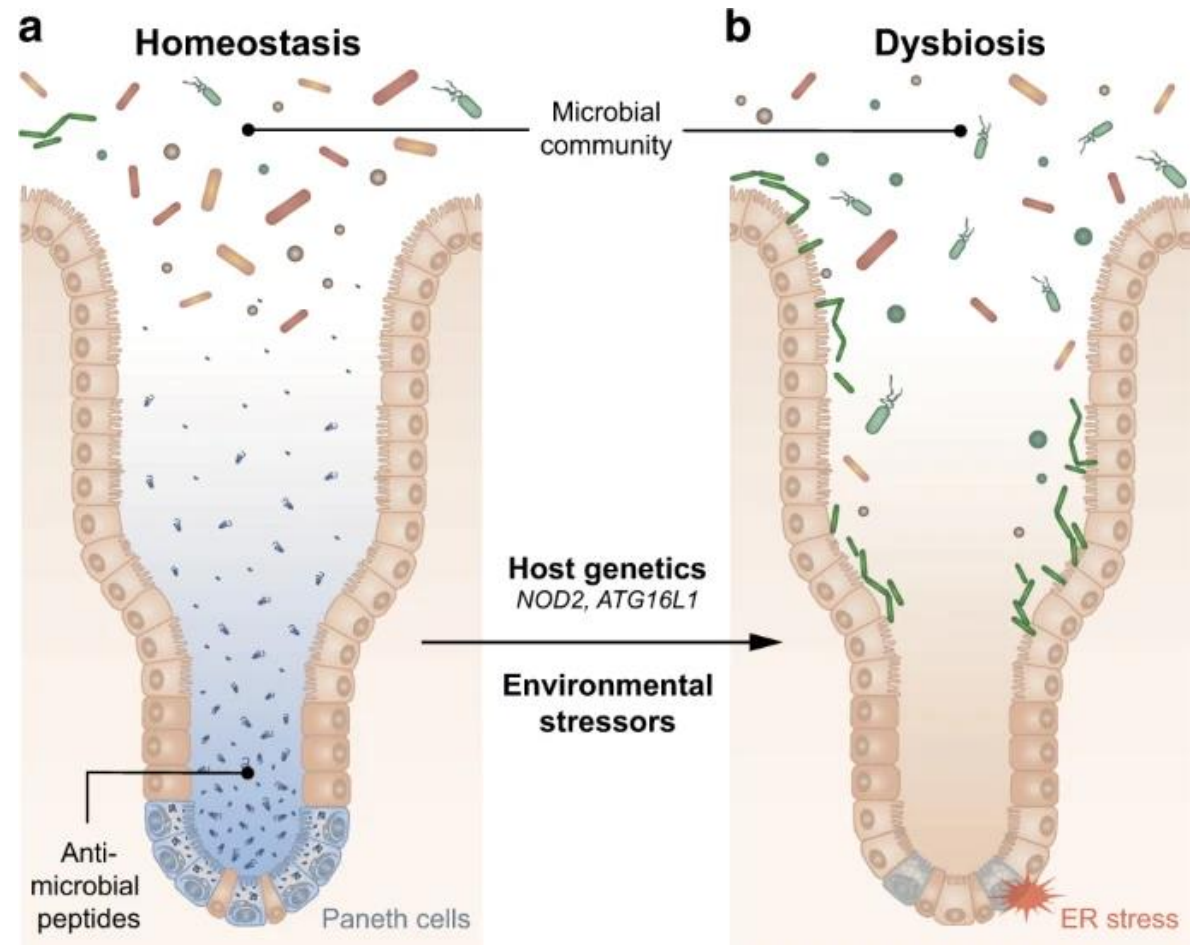


1. R. B. Sartor, *Gastroenterology*. 134, 577–594 (2008).

2. F. Vuk et al., *United European Gastroenterol J*. 7, 897–907 (2019).made public, or distributed without explicit written permission of Microbiome Center. This content shall not be considered medical advice and is provided for information purpose only. The content is exclusively intended for health care professionals.

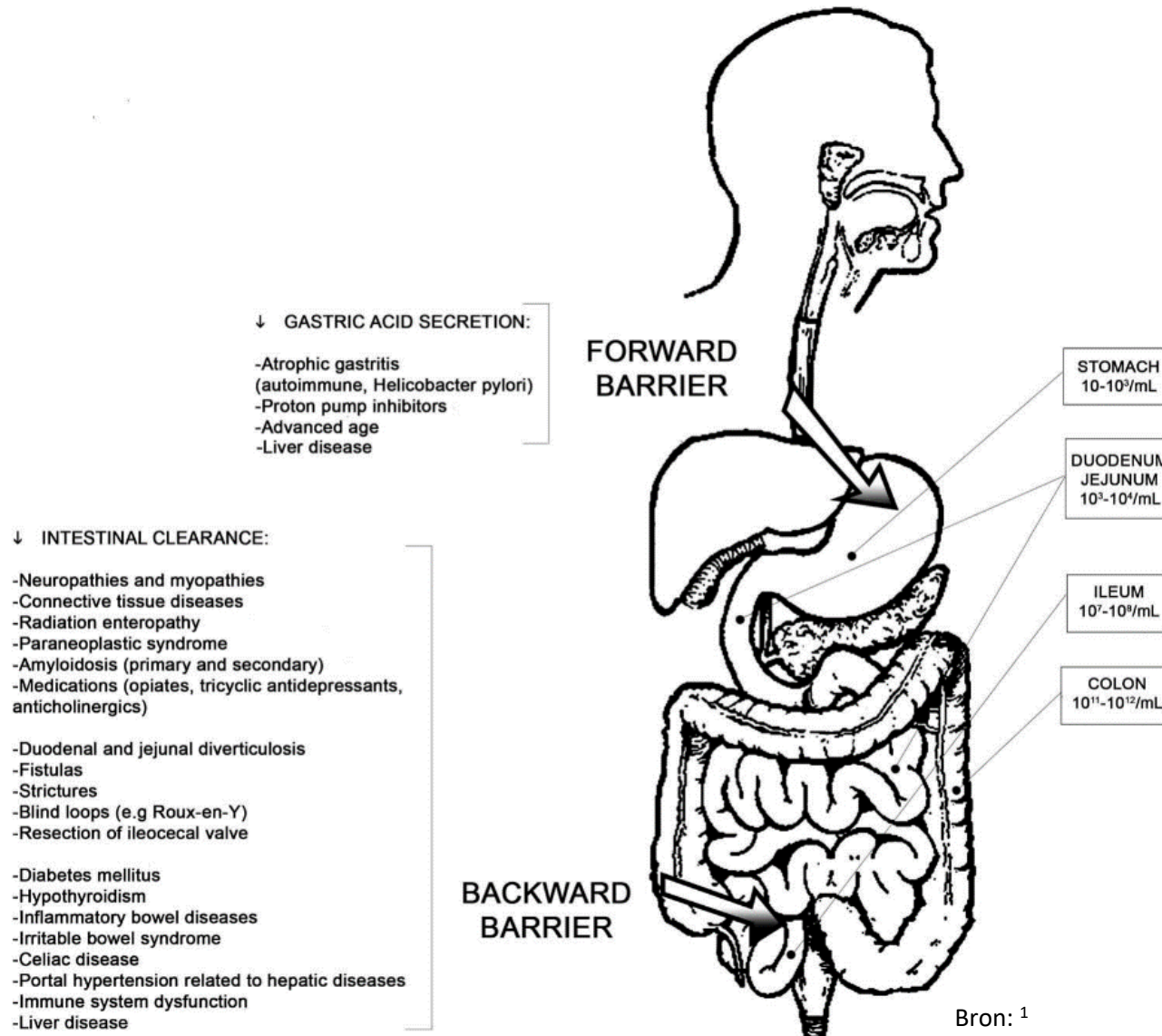
2. Normal small intestinal ecology

- In the upper small intestines, the richest nutrients are available¹.
 - High microbial density would be very disadvantageous for the host.
 - Control of microbes is crucial.
- Two physiological barriers (stomach acid, emptying) are key^{1,2}.
- Other factors play role too^{1,2}:
 - Oxygen gradient
 - Active immune regulation: Paneth cells



1. M. X. Byndloss, S. R. Pernitzsch, A. J. Bäuml, Mucosal Immunol. 11, 1299–1305 (2018).
2. W. Ruan, M. A. Engevik, J. K. Spinler, J. Versalovic, Dig Dis Sci. 65, 695–705 (2020).

3. What causes SIBO?

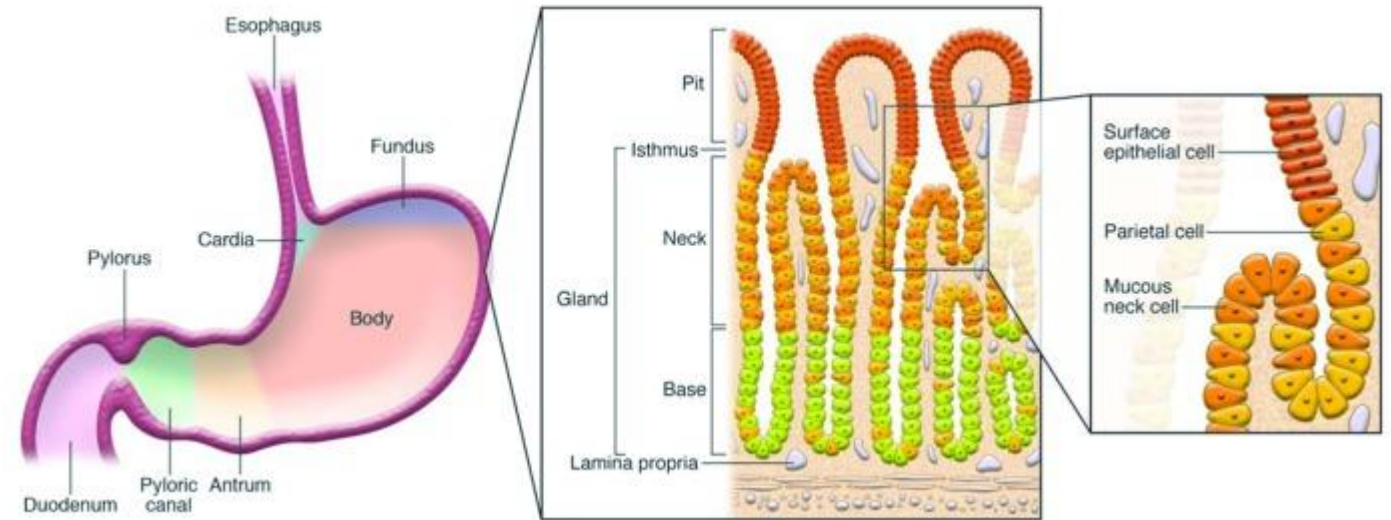


- The ecological circumstances in the small intestines determine the local microbiome.
- Two physiological barriers ensure compartmentalisation of the small intestines¹:
 - The acidic stomach
 - Continuous emptying of the small intestines (motility, secretion bile, pancreas enzymes, IgA, etc.)

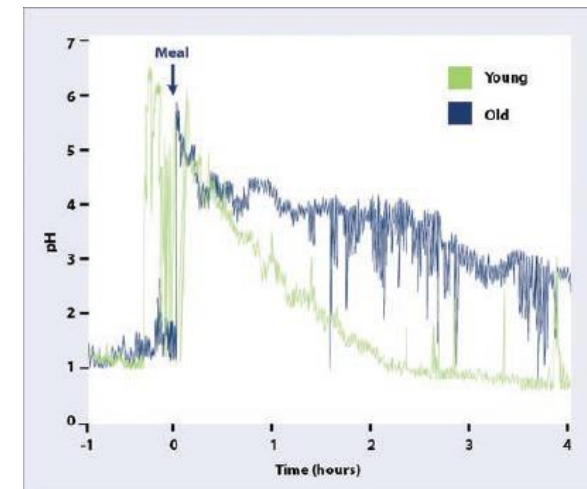
1. F. R. Ponziati, V. Gerardi, A. Gasbarrini, Expert Review of Gastroenterology & Hepatology. 10, 215–227 (2016).

3. What causes SIBO?

- Failing forward barrier^{1,2}:
 - Antacids (PPIs)
 - Gastritis (auto-immune, *H. pylori*)
 - Microbiome of stomach³
 - Gastrectomy
 - Aging
- Low stomach acid also leads to²:
 - Malabsorption/deficiencies
 - Food intolerances
 - Infections



Bron: ³

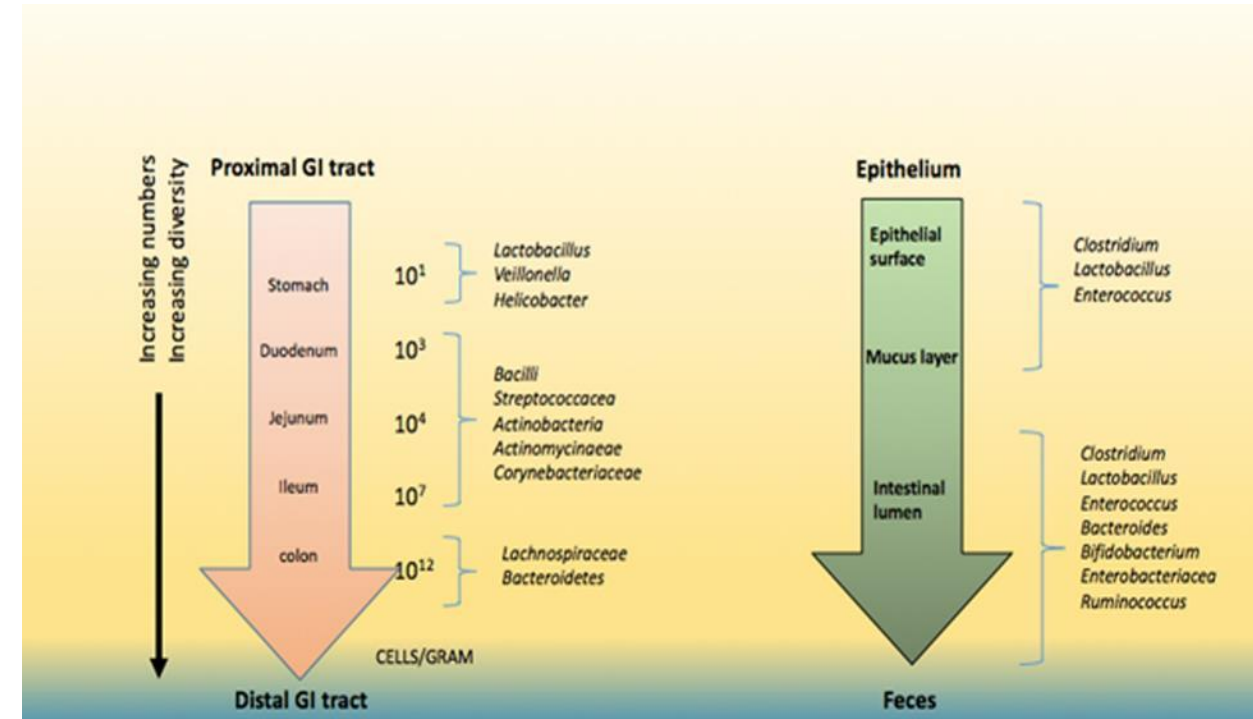


Bron: ²

1. F. R. Ponziani, V. Gerardi, A. Gasbarrini, Expert Review of Gastroenterology & Hepatology. 10, 215–227 (2016).
2. T. G. Guillems, L. E. Drake, Integr Med (Encinitas). 19, 32–36 (2020).
3. A. Sheh, J. G. Fox, Gut Microbes. 4, 505–531 (2013).

3. What causes SIBO?

- Failing backward barrier¹:
 - Reduced motility¹:
 - Hypothyroidy
 - Diabetes
 - IBD
 - IBS
 - Celiac disease
 - Medication
 - Portal hypertension due to liver diseases
 - Lowered immune function¹:
 - sIgA
 - T-cell deficiency
 - Dysfunction of Paneth cells
 - Anatomical problems (fistulas, diverticulosis, etc.)¹
 - Lowered excretion of bile acids³
 - Pancreas insufficiency^{3,4}

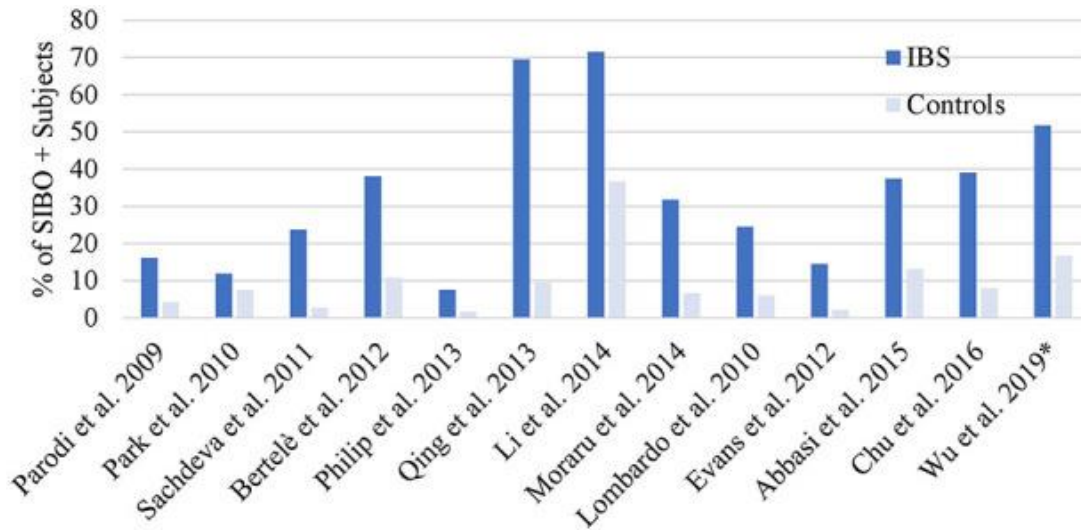


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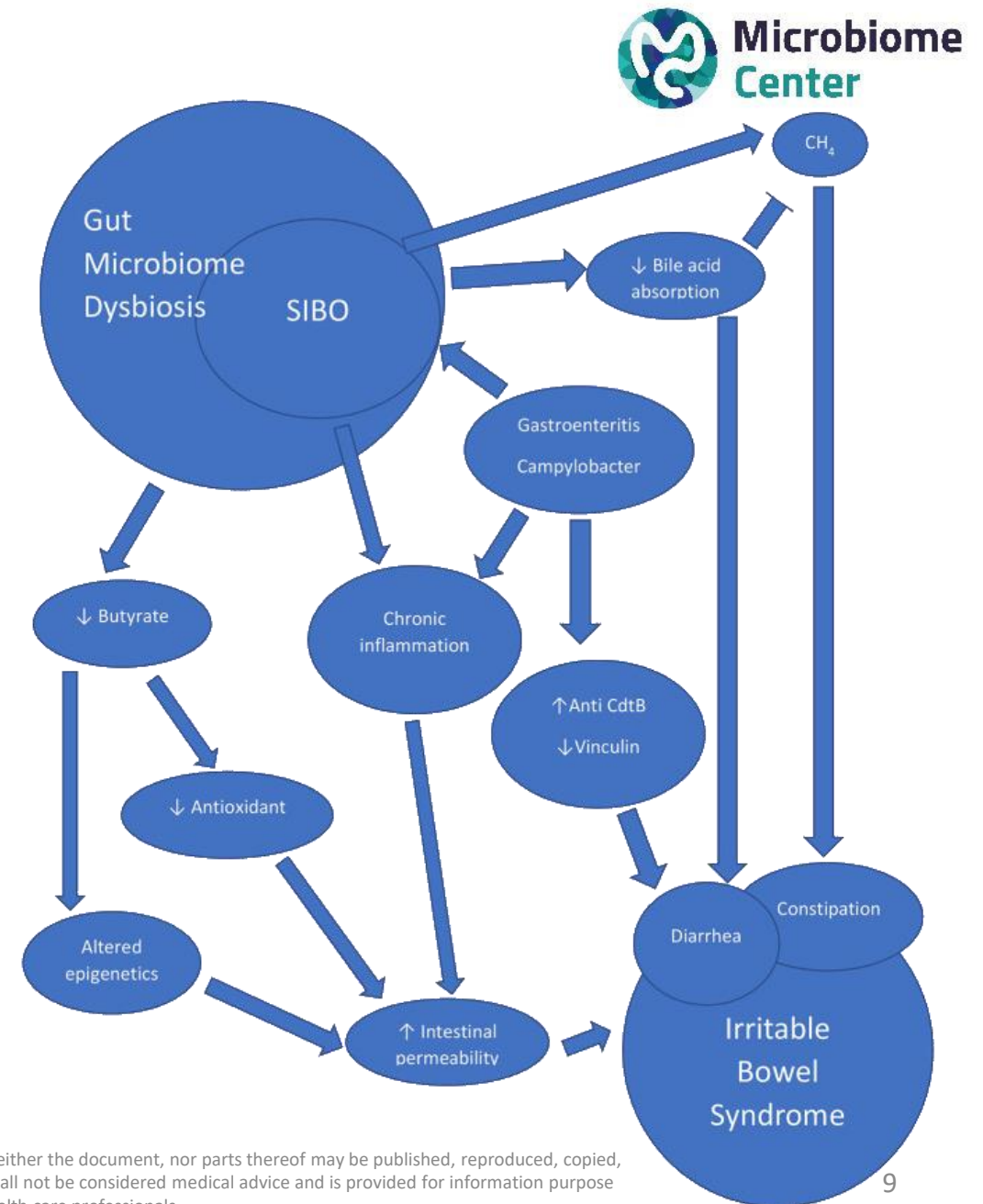
1. F. R. Ponziani, V. Gerardi, A. Gasbarrini, Expert Review of Gastroenterology & Hepatology. 10, 215–227 (2016).
2. H. Zafar et al., Crit Rev Oncog. 25, 365–379 (2020).
3. J. Bures et al., World J Gastroenterol. 16, 2978–2990 (2010).
4. H. M. Ni Chonchubhair et al., Pancreatology. 18, 379–385 (2018).

3. What causes SIBO?

- Overlap with IBS¹:
 - Prevalence SIBO is high in IBS patients
 - Large overlap in symptoms
- IBS: set of symptoms
- SIBO: mechanistic explanation
→ most likely subgroup of IBS



1. W. Takakura, M. Pimentel, Front Psychiatry. 11, 664 (2020).



4. What do we see in practice?



- After period of (severe) stress
- Use of antacids or antibiotics
- Dietary factors:
 - More carbs
 - Often eating small bits during the day
 - More sugar
 - Alcohol

4. What do we see in practice?



Also after:

- (History of) food poisoning
- Eating Disorder (e.g. bulimia)
- Lyme's disease and co-infections
- Gastric surgery/bypass
- Pancreas surgery
- Cholecystectomy

Do you recognize this as causes?

5. Consequences and symptoms

- Consequences of SIBO¹:
 - Sugars and proteins fermented by bacteria
 - Bile acids deconjugated
 - Toxic metabolites
 - Reduced fat absorption
- Typical symptoms¹⁻³:
 - Bloating
 - Bulging
 - Diarrhea/constipation/fluctuating
 - Pain
 - Burping
 - Fatty stool
 - Flatulence
- Derived symptoms due to malabsorption:
 - Weight loss
 - Vitamin deficiencies: mooneye, hypocalcemia, osteoporosis, etc.



1. F. R. Ponziani, V. Gerardi, A. Gasbarrini, Expert Review of Gastroenterology & Hepatology. 10, 215–227 (2016).
2. E. M. M. Quigley, J. A. Murray, M. Pimentel, Gastroenterology. 159, 1526–1532 (2020).
3. S. S. C. Rao, J. Bhagatwala, Clin Transl Gastroenterol. 10, e00078 (2019).

6. Symptoms in practice

- Bloating after eating
- Fatty, sticky feces
- Tired after eating
- Hungry after eating
- Fatigue
- Food intolerances
- Skin problems
- Allergies
- Auto-immune diseases
- Etc.



Do you recognize these symptoms?

7. Treatment in practice – case report

Mrs. C.

- Female 52y, Slim and vital, yoga teacher, **healthy lifestyle**.
- Got Lyme juni '20, received AB **double course** (Doxy) (with probiotics) because she was late. Severe reaction to AB: constipation and **dermatitis**, and remained so fatigued.
- Lab sept '20 blood no abnormalities, dermatitis worsened and vague complaints.
- Acting GP prescribed terbinafine for skin, used 2 days and got very ill, so stopped. Received 2 cremes without effect, advice to visit dermatologist but went to own GP Karin first.
- Sensitive gut, predominantly **bloating** and **varying stools**, but above all **very fatigued!**
- Last year up and down dermatitis, itching red rash.



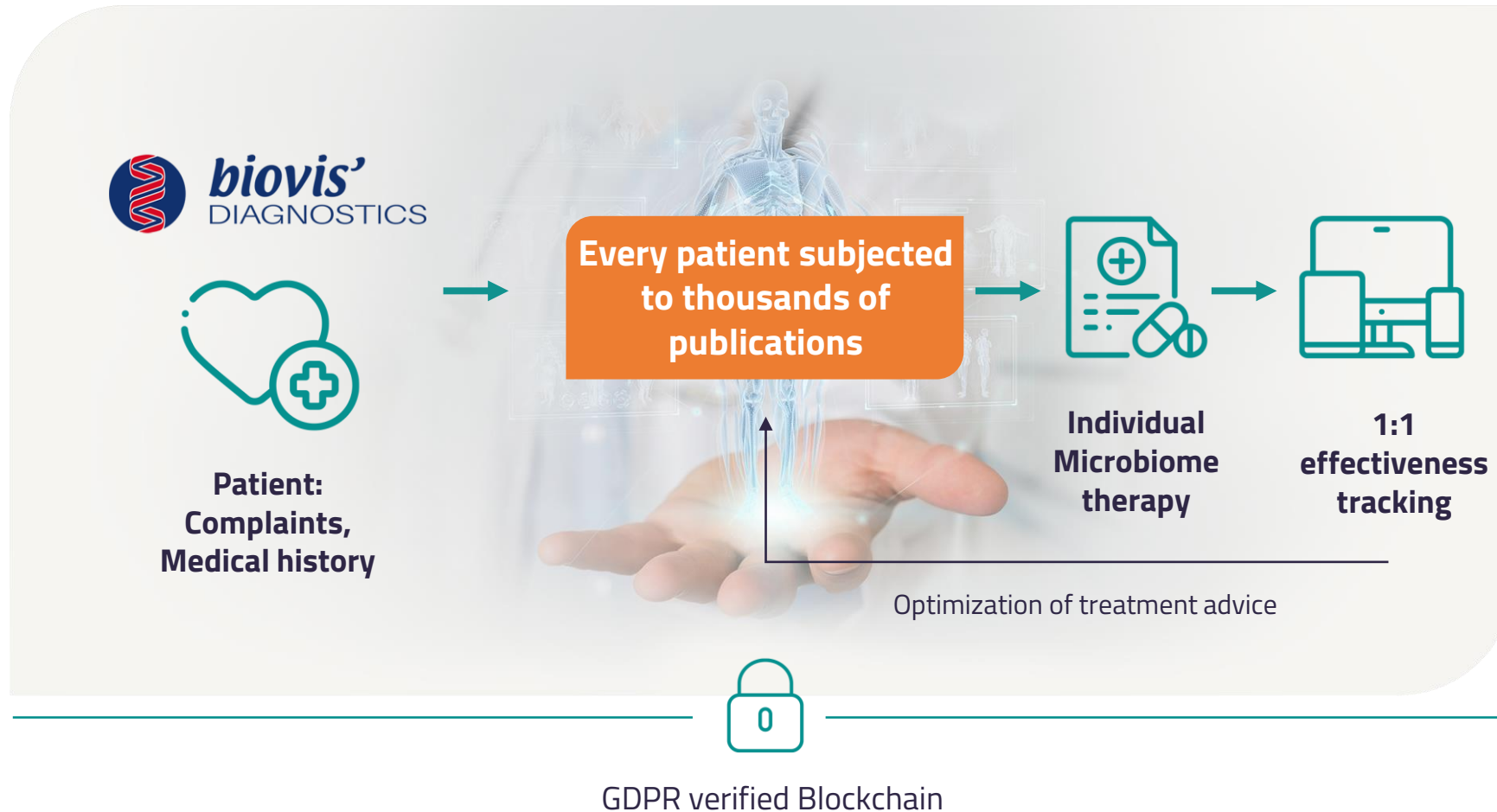
7. Treatment in practice – case report

- Diversity 6, dysbiosis index 18, PH 6,9
- A bit low Akkermansia, Enterococci and Lactobacilli
- High fat concentration and elevated zonulin
- Conclusion: “leaky gut” combined with reduced lactobacilli and enterococci, poor fat absorption and slightly elevated PH
→ could be SIBO.

Advice Module makes it **easy** and **fast** to link all the complaints, medical background, and stool analysis results to alle available **evidence** from all ingredients.

Immunogeen werkende bacteriën				
Escherichia coli	1,1 x 10 ⁷	KVE/g feces	10 ⁶ - 10 ⁷	
Enterococcus spp.	< 1,0 x 10 ⁵	KVE/g feces	10 ⁶ - 10 ⁷	
Lactobacillus spp.	< 1,0 x 10 ⁵	KVE/g feces	10 ⁵ - 10 ⁷	
Mucine vorming / slijmvliesbarrière				
Akkermansia muciniphila	4,0 x 10 ⁷	KVE/g feces	> 5,0 x 10 ⁹	
Faecalibacterium prausnitzii	1,3 x 10 ¹¹	KVE/g feces	> 5,0 x 10 ¹⁰	
Vertering				
Vetgehalte	8,90	g/100g	< 3,5	
Stikstofgehalte	1,00	g/100g	< 1,0	
Suikergehalte	2,70	g/100g	< 2,5	
Watergehalte	68,70	g/100g	75 - 85	
Extra parameter(s)				
Calprotectine	21,08	mg/l	< 50	
Alpha-1-antitripsine	21,3	mg/dl	< 27,5	
Secretoir Immunoglobuline A	620,5	µg/ml	510 - 2040	
Zonuline	66,74	ng/ml	< 55	
Speciale gastro-enterologische diagnostiek				
Gluten-sensitieve enteropathie / coeliakie				
Anti-gliadine antilichamen in feces	41,63	U/l	< 100	
Anti-transglutaminase antilichamen in feces	73,49	U/l	< 100	

Microbiome Center makes personalised, evidence base microbiome treatments advice easily accessible for practitioners.



7. Treatment in practice – case report

1. Complaints (example)

Constipation	3	Does the patient experience constipation? 0 = no; 1 = yes, may skip a day; 2 = yes, defecation every 2-3 days; 3 = yes, defecation every 4-5 days; 4 = yes, defecation every 6 days or longer;
Diarrhea	0	How often does the patient experience diarrhea? 0 = never; 1 = once every two weeks; 2 = once every week; 3 = two-three times per week; 4 = four-six times per week; 5 = daily.
Bloating / flatulence	0	How often does the patient experience bloating/flatulence? 0 = never; 1 = once every two weeks; 2 = once every week; 3 = two-three times per week; 4 = four-six times per week; 5 = daily.
Abdominal pain (gut related)	0	How often does the patient have abdominal pain? 0 = never; 1 = a few times per month; 2 = a few times per week; 3 = daily, but not throughout the day; 4 = daily throughout the day.
Cognition	0	Does the patient experience cognitive problems? 0 = no; 1 = somewhat; 2 = quite a bit; 3 = severely; 4 = very severe.
Susceptibility to sad mood	5	Does the patient experience sad mood? 0 = never; 1 = sometimes; 2 = less than half of the time; 3 = more than half of the time; 4 = most of the time; 5 = always.
Increased stress level	1	Does the patient experience an increased level of stress? 0 = never; 1 = sometimes; 2 = less than half of the time; 3 = more than half of the time; 4 = most of the time; 5 = always.
Anxiety	0	Does the patient experience an increased level of anxiety? 0 = never; 1 = sometimes; 2 = less than half of the time; 3 = more than half of the time; 4 = most of the time; 5 = always.
Fatigue	4	How severe was the fatigue/exhaustion during the last six months? 0 = symptom not present; 1 = mild; 2 = moderate; 3 = severe; 4 = very severe.
Bacterial vaginosis (smelling gray-white discharge, itching, burning)	0	Does the patient have complaints that are indicative for bacterial vaginosis (smelling gray-white discharge, itching, burning)? 0 = N/A, never; 1 = sometimes; 2 = regularly; 3 = often; 4 = all the time.

Ok

7. Treatment in practice – case report

4. Advice (example)

☐ Standard Product
 ☒ Magistral mixture (MiBlend)

Proposed prescription

4 g/d PHGG 

3 g/d 2'-Fucosyllactose 

2 g/d L. rhamnosus GG 

2 g/d Bacillus coagulans Unique IS-2 

2 g/d Barrier 

2 g/d Lactiplantibacillus plantarum DR7 

Based on these scores

- Susceptibility to sad mood 
- Constipation 
- Mucus production / mucin degrading bacteria 
- Respiratory tract infections 
- Low levels of butyrate 
- Intestinal permeability 
- Low levels of butyrate 
- Respiratory tract infections 
- Constipation 
- Increased stress level 
- Intestinal permeability 
- Respiratory tract infections 
- Susceptibility to sad mood 
- Respiratory tract infections 
- Inflammation 
- Increased stress level 

Ok, Create Prescription

7. Treatment in practice – case report

- Left: before MyOwnBlend; right: only 3 weeks later (end of October).



- 20 December 2021
 - Skin calmer, some stains, but hardly visible;
 - No longer fatigued, gut much calmer but varying, sensitive for constipation, notices that milk is tricky.



7. Treatment in practice – case report

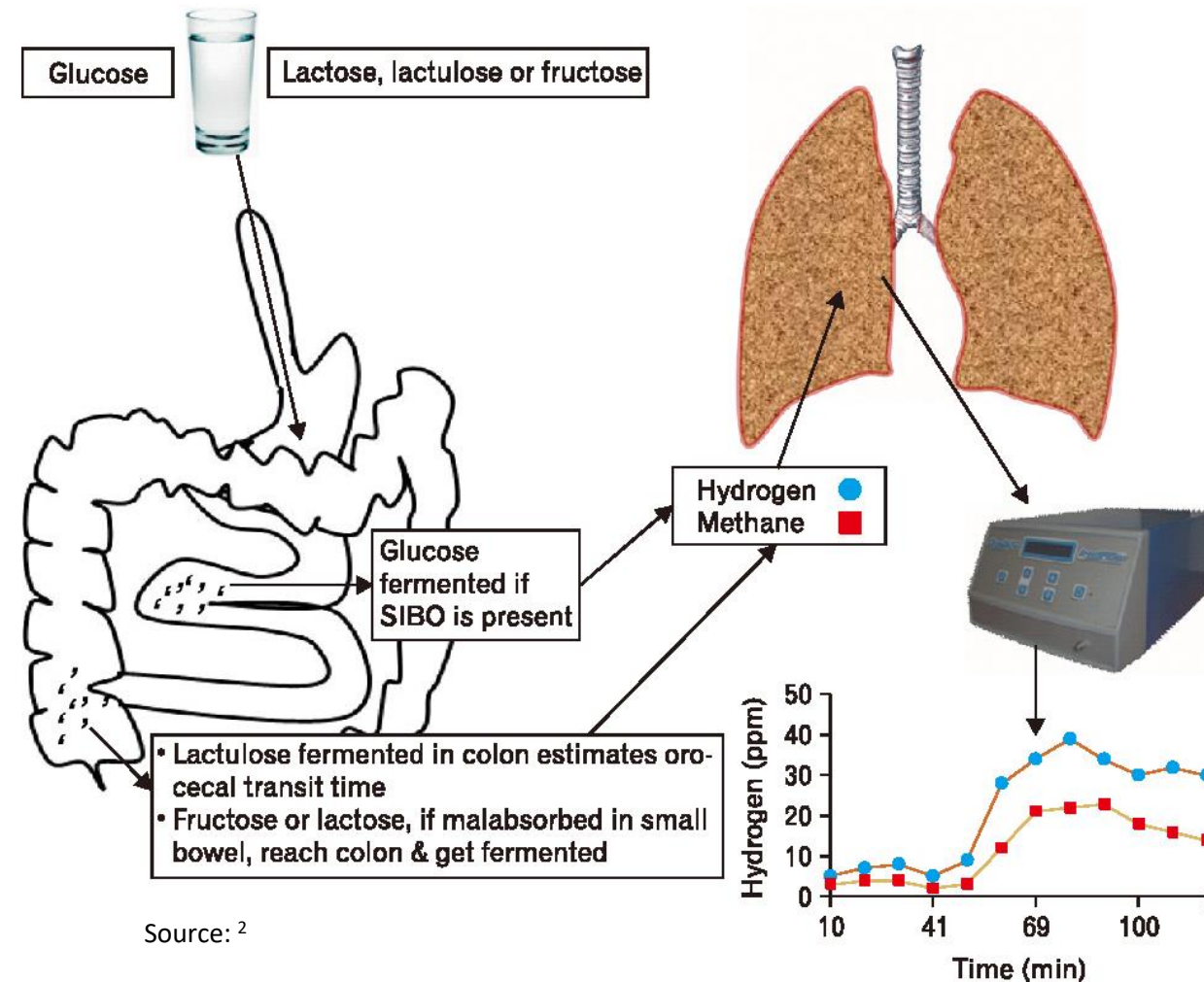
Follow-up:

- Diversity 5, dysbiosis index 17, PH 6,5
- Immunogenic bacteria improved, gut permeability improved (but not optimal yet), and digestion could be better.
- **GI complaints completely resolved**
- Once a day a cigar
- Sometimes still constipation after milk products
- *Advice:* moved to sourdough spelled bread, enzymes with meal and see what happens.

Immunogeen werkende bacteriën				
Escherichia coli	3,3 x 10 ⁶	KVE/g feces	10 ⁶ - 10 ⁷	1,1 x 10 ⁷
Enterococcus spp.	9,9 x 10 ⁸	KVE/g feces	10 ⁶ - 10 ⁷	< 1,0 x 10 ⁵
Lactobacillus spp.	1,5 x 10 ⁷	KVE/g feces	10 ⁵ - 10 ⁷	< 1,0 x 10 ⁵
Mucine vorming / slijmvliesbarrière				
Akkermansia muciniphila	7,0 x 10 ⁷	KVE/g feces	> 5,0 x 10 ⁹	4,0 x 10 ⁷
Faecalibacterium prausnitzii	1,3 x 10 ¹¹	KVE/g feces	> 5,0 x 10 ¹⁰	1,3 x 10 ¹¹
Vertering				
Vetgehalte	10,20	g/100g	< 3,5	8,90
Stikstofgehalte	1,00	g/100g	< 1,0	1,00
Suikergehalte	2,10	g/100g	< 2,5	2,70
Watergehalte	67,60	g/100g	75 - 85	68,70
Extra parameter(s)				
Calprotectine	<17,90	mg/l	< 50	21,08
Alpha-1-antitripsine	15,7	mg/dl	< 27,5	21,3
Secretoir Immunoglobuline A	175,0	µg/ml	510 - 2040	620,5
Zonuline	49,66	ng/ml	< 55	66,74

8. Diagnosis

- Symptoms are indicative but non-specific.
 - Together with fatty stool a bit stronger
- Most accurate diagnostic test: direct measurement of bacterial overgrowth¹.
 - Feasibility in practice very limited.
- More practical method: breath test^{1,2}:
 - Fermentation of glucose or lactulose results in H₂ and CH₄: absorbed and exhaled
 - Time till H₂ and CH₄ exhalation is key: within 90 minutes 20 ppm and 10 ppm respectively.



1. D. Bushyhead, E. M. Quigley, Gastroenterol Clin North Am. 50, 463–474 (2021).
2. U. Ghoshal, Journal of neurogastroenterology and motility (2011), doi:10.5056/jnm.2011.17.3.312.

8. Diagnose: guidelines breath test

- There are different guidelines. An often used recent is the North American Consensus Statement¹:

Preparation:

1. Stop antibiotics 4 weeks before test
2. If the patient can handle it: stop motility-increasing medication and laxatives 1 week before test
3. Stop eating fermentable foods (e.g. fibers) the day before the test
4. Fast at least 8-12 hours before test
5. No smoking on day of test (can increase hydrogen level)
6. Minimize physical activity during the test (can lower hydrogen level)
7. No need to stop antacids

Execution:

8. 10g lactulose with or followed by glass of water (or 75g glucose)
9. Measure hydrogen, methane, and nitrogen simultaneously

Interpretation:

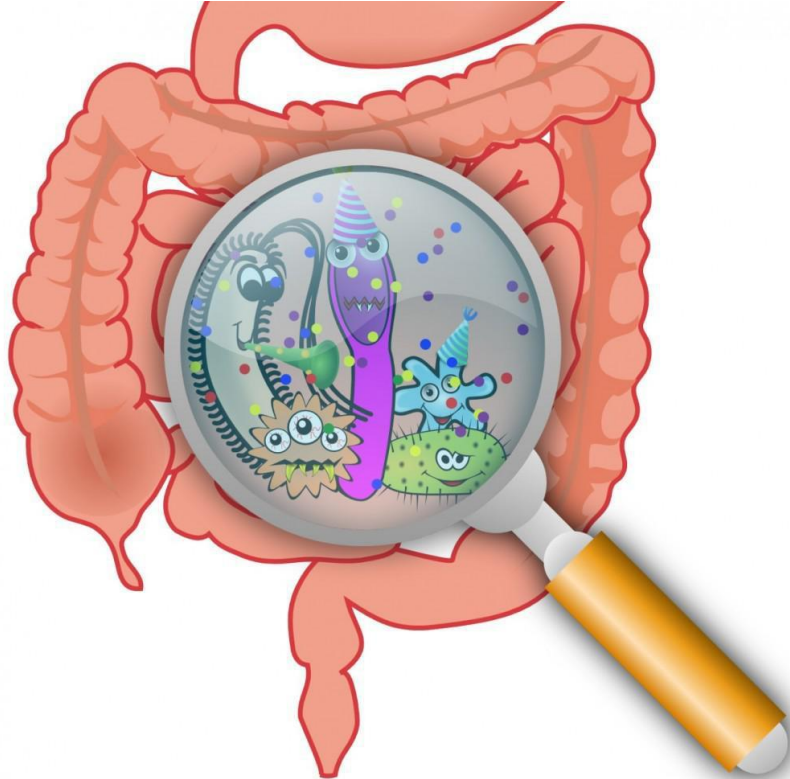
10. Increase of hydrogen concentration compared to baseline of ≥ 20 ppm within 90 minutes
11. Increase of methane concentration compared to baseline of ≥ 10 ppm



biovis'
DIAGNOSTIK

1. A. Rezaie et al., American Journal of Gastroenterology. 112, 775–784 (2017).
2. <https://www.youtube.com/watch?v=o2caoYTOZhY>

9. Treatment



- The literature mentions three core parts of treatment^{1,2}:
 1. Identifying and treat underlying causes
 2. Solve deficiencies
 3. Treat bacterial overgrowth

1. E. M. M. Quigley, J. A. Murray, M. Pimentel, *Gastroenterology*. 159, 1526–1532 (2020).
2. H. Zafar et al., *Crit Rev Oncog*. 25, 365–379 (2020).

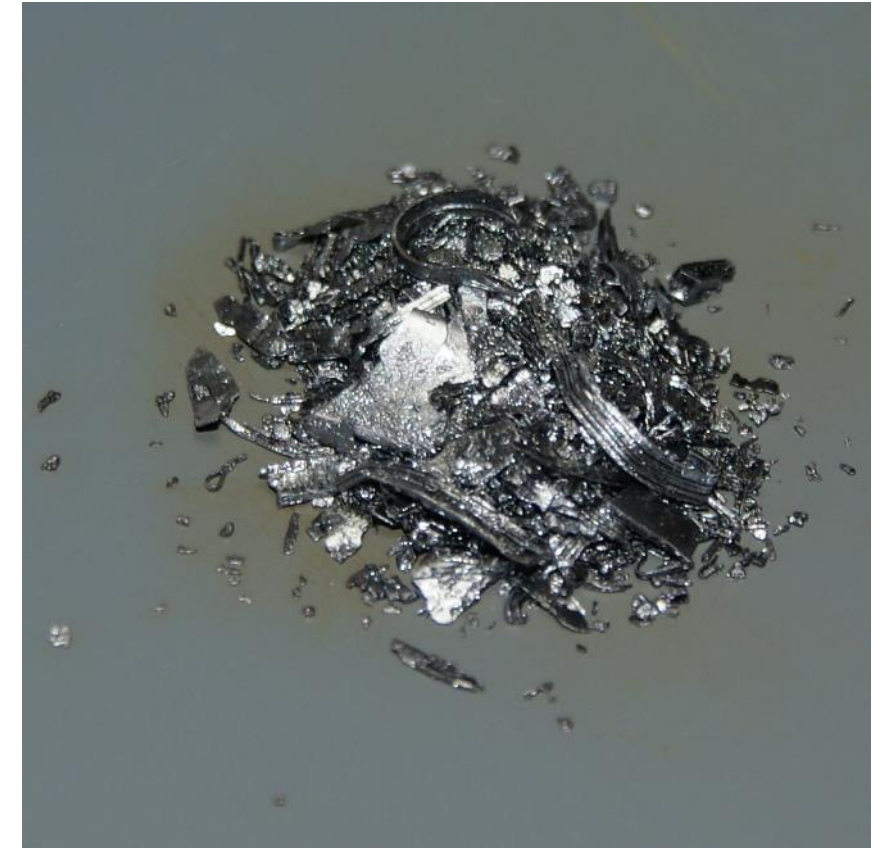
9. Treatment

- **Point 1**, identify and treat underlying causes:
 - In classic cases, this means (surgical) correction of fistula, diverticulosis, etc.
 - However, in most prevalent cases, this means repairing the two barriers:
 - **Forward barrier:**
 - Gastric acid
 - Potential influence of antacids, or diet
 - **Backward barrier:**
 - Solve constipation
 - Bile acid production and excretion
 - Pancreas enzymes
 - Immune system



9. Treatment

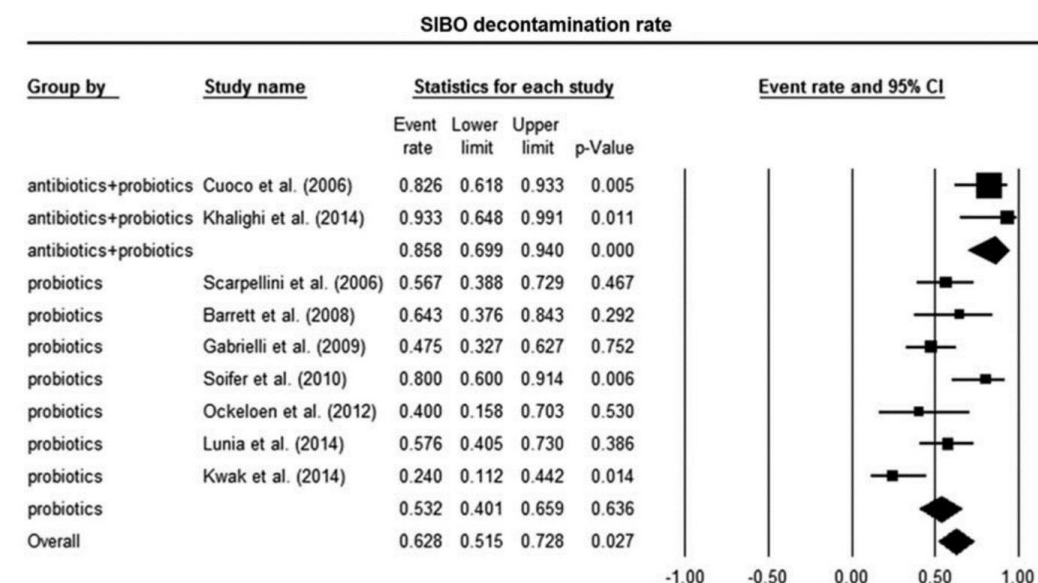
- **Point 2** is about direct solving deficiencies that are (potentially) caused by SIBO.
- This could mean supplementation of:
 - Vitamins (in particular fat soluble)
 - Minerals
 - Proteins
 - Essential fatty acids



9. Treatment

Point 3 is about actual treatment of SIBO.

- Traditional guidelines often mention antibiotics¹⁻³:
 - American Gastroenterological Association states that rifaximin is a somewhat more studied option¹.
 - However, targeted AB is desirable but difficult, because many species are present in SIBO.
 - Often relapse: 13% after 3m going up to 44% after 9m⁴
- Now, better treatment is available via microbiome-therapy:
 - Antibiotics disturb the entire microbiome, with many downstream consequences.
 - Meta-analysis of 18 studies published in 2017 shows that probiotic interventions are effective for both overgrowth and symptoms⁵ (**figure**).
 - Another meta-analysis shows that specific strains and combinations are effective in IBS⁶.



1. E. M. M. Quigley, J. A. Murray, M. Pimentel, *Gastroenterology*. 159, 1526–1532 (2020).

2. H. Zafar et al., *Crit Rev Oncog*. 25, 365–379 (2020).

3. W. Takakura, M. Pimentel, *Front Psychiatry*. 11, 664 (2020).

4. Guiliams, T. G. et al. *The Standard Monograph Series* 17, (2021)

5. C. Zhong, C. Qu, B. Wang, S. Liang, B. Zeng, *Journal of Clinical Gastroenterology*. 51, 300–311 (2017).

6. W. Takakura, M. Pimentel, *Front Psychiatry*. 11, 664 (2020).

9. Treatment: MyOwnBlend components for SIBO



Strains with good efficacy evidence for SIBO:

- *Enterococcus faecium* + *B. subtilis*^{1,2}.
 - Large effect on symptoms (figure) and on positive SIBO test (56% vs. 28%)¹.
- *Bacillus clausii*^{3,4}
- *Bacillus coagulans*⁵
- *Saccharomyces boulardii* (figure)⁶
- PHGG⁷

NB: a number of these studies are included in the meta-analysis (previous slide)

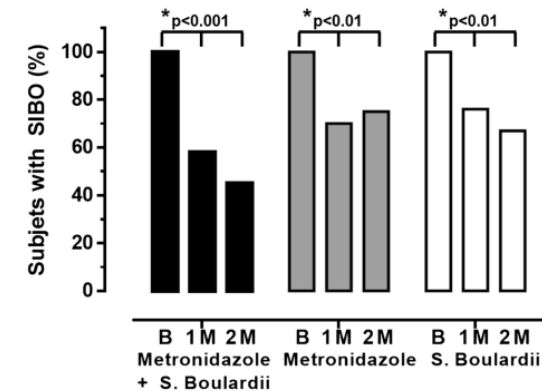
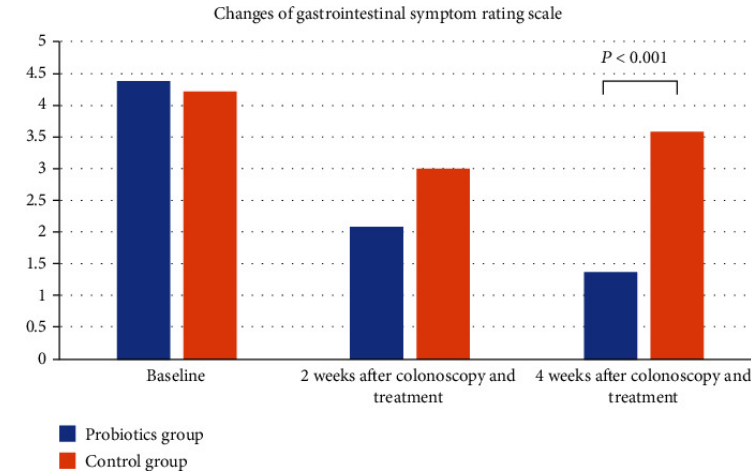
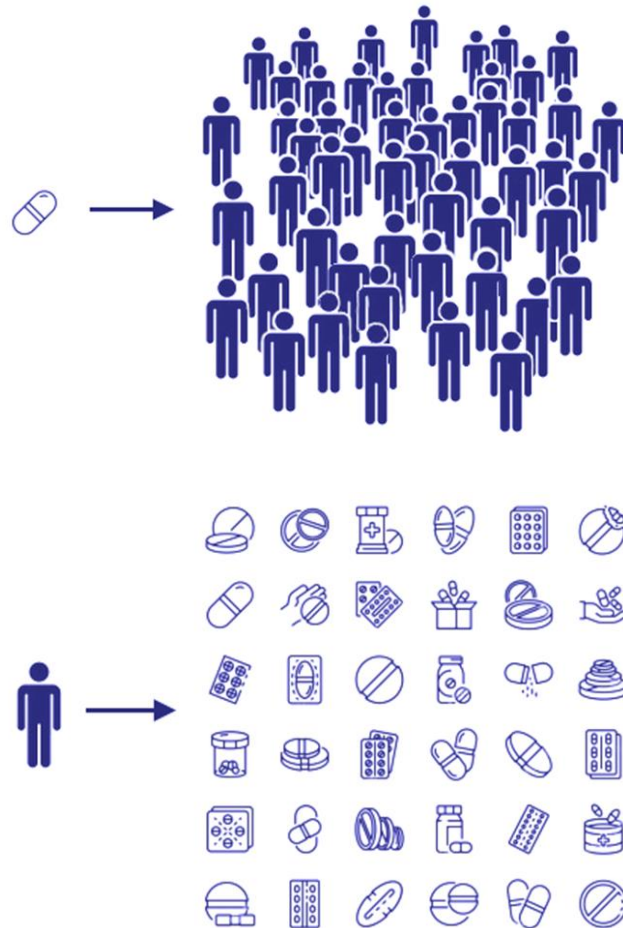


Fig.2 Prevalence of SIBO before and after treatment. Prevalence of SIBO at the beginning of the study (B=basal), first (1M) and second month (2M) after the intervention. Data presented in percentage of patients with SIBO. *Chi-squared test. There was no difference between 1M and 2M

1. H. Zafar et al., Crit Rev Oncog. 25, 365–379 (2020).
2. Q.-H. Sun, H.-Y. Wang, S.-D. Sun, X. Zhang, H. Zhang, World J Gastroenterol. 25, 2110–2121 (2019).
3. M. Gabrielli et al., Am J Gastroenterol. 104, 1327–1328 (2009).
4. E. Scarpellini et al., Digestive and Liver Disease. 38, 532 (2006).
5. A. R. Khalighi et al., Indian J Med Res. 140, 604–608 (2014).
6. G. Garcia-Collinot et al., Dig Dis Sci. 65, 1134–1143 (2020).
7. Furnari, M. et al. Aliment Pharmacol Ther 32, 1000–1006 (2010)

9. Personalized treatment: e.g. unique complaints



- Evidence-based medicine typically based on clinical studies. Studies are valuable, but not necessarily related to your patient¹.
 - The doctor's/practitioner's perspective is reversed: **what is the best for this patient.**
- Why? Because each (SIBO) patient has different:
 - Medical background: multimorbidity is the most common chronic condition²
 - Complaints
 - A unique microbiome³ and stool analysis outcomes
 - Preferences
 - Lifestyle, medicine use, diet
- Because every patient is unique, it makes sense to **take all aspects of the patient into account**



1. Zeilstra, D. et al. in Proceedings of the 16th International Scientific Conference on Probiotics, Prebiotics, Gut Microbiota and Health (CZECH-IN s. r. o., 2023)
 2. Tinetti, M. E. et al. JAMA 307, 2493–2494 (2012)
 3. Tierney, B. T. et al. Cell Host & Microbe 26, 283–295.e8 (2019)

10. Diagnosis & treatment in practice

Diagnosis:

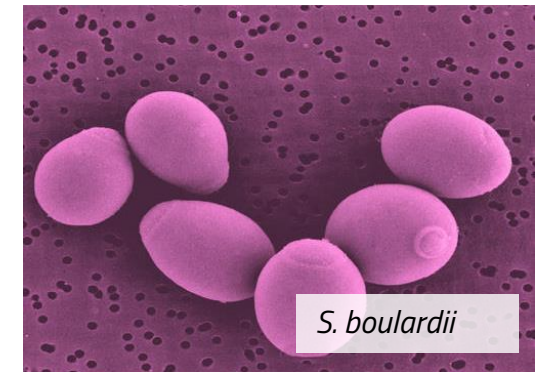
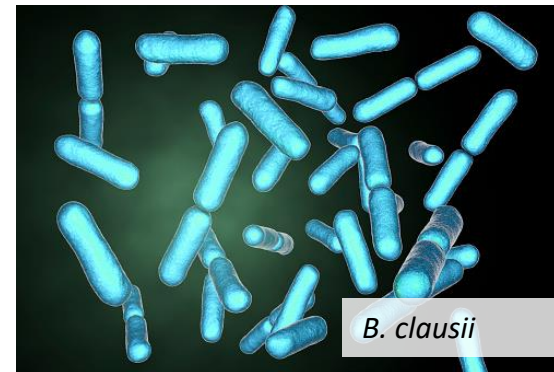
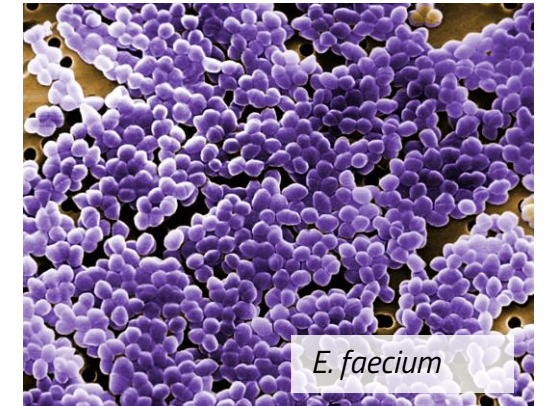
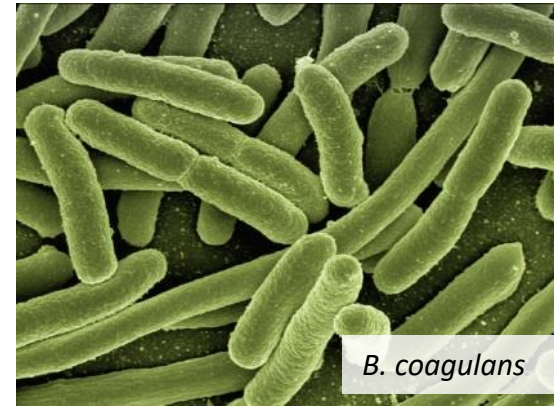
- Combination of complaints and diagnostic tests
- Complaints:
 - Bloating
 - Sticky, fatty feces
 - Tired/ill/hungry after eating
- Possibly: stool analysis:
 - High pH
 - Depletion of lactos and enterococcus spp.
 - High level of fat in stool
- Possibly: positive SIBO breath test (Biovis)
- Many IBS patients actually have SIBO



10. Diagnosis & treatment in practice

Practical hints:

- Change diet
 - Towards FODMAP
 - Intermittent fasting
 - Chew properly, limit stress, sleep quality
 - Fresh and dried herbs
- Microbiome treatment:
 - *Bacillus coagulans*
 - *Bacillus clausii*
 - *Bacillus subtilis* + *Enterococcus faecium*
 - *Saccharomyces boulardii*
 - PHGG
- Optional: antimicrobial herbs or antibiotics, or enzymes



H₂S

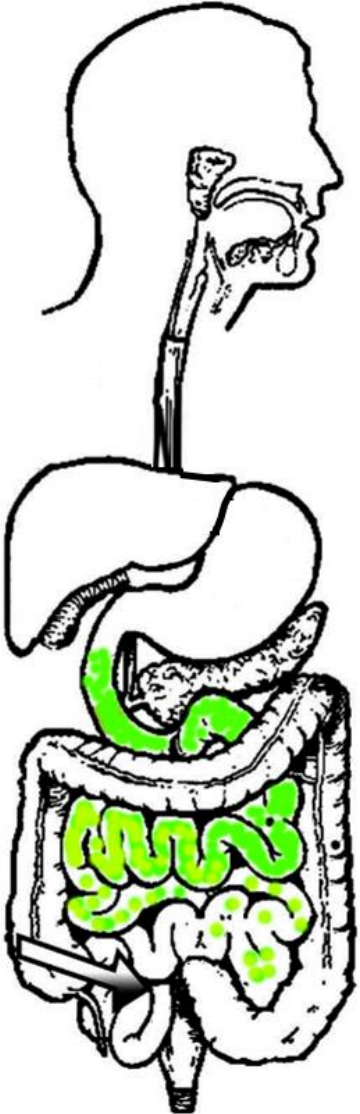


CH₄



H₂

12. Approach: microbiome therapy



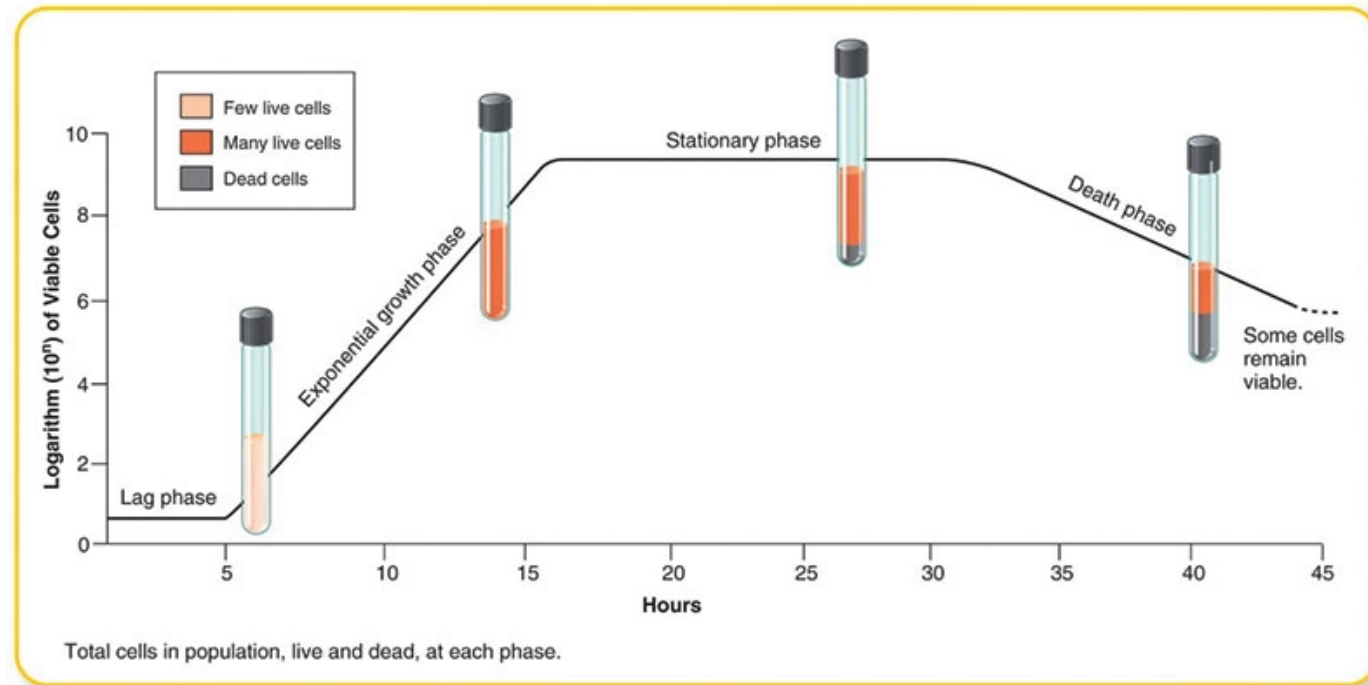
- How to ensure that probiotic microbes are active in upper part of small intestine?
 - Specific strains +
 - Pre-fermentation
- Probiotic bacteria:
 - Cannot metabolize complex compounds
 - Compete with and inhibit undesired bacteria
 - Activate peristaltic



12. Approach: microbiome therapy

Advances of pre-fermentation:

- Re-hydration in 'friendly environment'
- Bacteria in log-phase:
 - Cell count drastically increased
 - Bacteria metabolically active
 - Larger number survive GI passage
- Already have synthesized pathogene inhibiting metabolites:
 - Lactate
 - Acetate
 - Propionate
 - Etc.
- Exhausted any nutrients

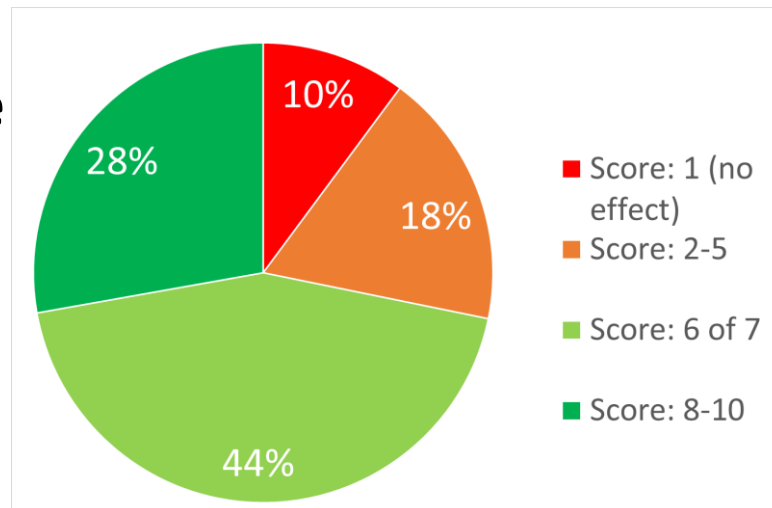


12. Approach: microbiome therapy

The SIBO package contains:

- A MyOwnBlend magistral preparation for 2 months
- Thermos flask with temperature indicator
- *Additional* SIBO leaflet with explanation on the use of pre-fermentation

**SIBO package
+ SIBO ≥ 3
(n=88)**
72% good or
excellent



13. Case report

Case female, S (50y):

- **Abdominal pain** predominantly left, borborygmi worse after eating, bloating, quickly feeling full and pain in upper part of belly after eating, worse last 4y, very fatigued, poor sleep, less and less appetite, headache, myalgia, sometime feverish feeling.
- History: Endometriosis (for which Mirena), hay fever, sensitive to milk, 2x pyelonephritis last year, 18y ago **eccyesis broken** at 3mth, seems start of complaints.
- Diet: bread/crackers and cup a soup, **sensitive to veggies**. Not much meat, some fish, no alcohol, some coffee; after reducing wheat and lactose less GI complaints, but no complete resolution.
- Def: varying mushy **fatty**, sometimes very hard, almost never cigar.
- Med: none
- Supplements: none
- Diagnostics: Fecal analysis and SIBO breath test

Test	Uitslag	Eenheid	Normbereik	Vorig onderzoek
Fecesdiagnostiek				
Mikrobiomanalyse Maxi PLUS (Microbioom Center)				
Moleculair-genetische microbioomanalyse 3.0				
Kenmerken van de feces				
Kleur	bruin			FE NAJ VESU
Consistentie	brijig			FE NAJ VESU
pH-waarde	6,5		5,8 - 6,5	FE NAJ TESTO
Diversiteit				
Diveriteit	5,00		> 5	FE NAJ MGSSEQ

De diversiteit aan bacteriën in de darm kan van mens tot mens sterk variëren. Frequent gebruik van antibiotica, infecties, toenemende leeftijd, eenzijdige voeding of roken zijn hierop van invloed.

Grad

5

Enterotype				
Bacteroides				FE NAJ MGSSEQ

Het menselijke microbiom kan in drie enterotypes ingedeeld worden. De darmbacteriën vormen, afhankelijk van het enterotype, stabiele, maar duidelijk verschillende clusters met typische metabolische eigenschappen. Enterotype 1 wordt gekenmerkt door hoge aantallen Bacteroides en enterotype 2 door een sterke Prevotella kolonisatie. Enterotype 3 wordt gekenmerkt door een Ruminococcus flora.

Enterotyp

1

Dysbiose-index				
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De dysbiose index is een maatstaf die afwijkingen binnen het microbiom weergeeft. Bij deze maatstaf wordt rekening gehouden met alle onderzochte bacteriefyla, -geslachten en -soorten e.e.a. afhankelijk van hun relevantie.

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Ratio				
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0,73

1,39

0,00

Firmicutes / Bacteroidetes
Normbereik: < 1,5

Actinobacteria / Proteobacteria
Normbereik: > 0,5

Prevotella / Bacteroides
Normbereik: > 0,1

*Externe analyse (R). A) geaccrediteerd NA) niet geaccrediteerd

Test	Uitslag	Eenheid	Normbereik	Vorig onderzoek
Indeling van bacteriën naar fyllum				
Actinobacteria	2,5	%	1,0 - 5,0	FE NAJ MGSSEQ
Bacteroidetes	55,3	%	30 - 60	FE NAJ MGSSEQ
Firmicutes	40,3	%	30 - 60	FE NAJ MGSSEQ
Fusobacteria	0,0	%	0,0 - 1,0	FE NAJ MGSSEQ
Proteobacteria	1,8	%	1,5 - 5,0	FE NAJ MGSSEQ
Verrucomicrobia	0,0	%	1,5 - 5,0	FE NAJ MGSSEQ
Overige	0,1	%		FE NAJ MGSSEQ

Metabooloom (stofwisselingsactieve bacteriegroepen)				
Secundaire galzuren	5,4	%		FE NAJ MGSSEQ
TMA / TMAO	-49,7	%		FE NAJ MGSSEQ
Indoxylsulfaat	-50,0	%		FE NAJ MGSSEQ
Fenolen	-36,8	%		FE NAJ MGSSEQ
Ammoniak	-35,0	%		FE NAJ MGSSEQ
Histamine	-50,0	%		FE NAJ MGSSEQ
Equol	-42,9	%		FE NAJ MGSSEQ
Beta-glucuronidasen	-50,0	%		FE NAJ MGSSEQ

Indeling van bacteriën naar fyllum met de belangrijkste bacteriegeslachten en -soorten				
Actinobacteria				
Bifidobacterium	2,4 x 10 ⁴	KVE/g feces	> 5,0 x 10 ⁹	FE NAJ MGSSEQ
Bifidobacterium adolescentis	41	%		FE NAJ MGSSEQ
Bifidobacterium longum	13	%		FE NAJ MGSSEQ

Bacteroidetes				
Bacteroides	4,7 x 10 ¹¹	KVE/g feces	> 1,5 x 10 ¹¹	FE NAJ MGSSEQ
Bacteroides plebeius	50	%		FE NAJ MGSSEQ
Bacteroides uniformis	10	%		FE NAJ MGSSEQ
Prevotella	2,6 x 10 ⁷	KVE/g feces	> 1,0 x 10 ¹⁰	FE NAJ MGSSEQ

Firmicutes				
Butyraatproducerende bacteriën				
Totaal kiemgetal	2,3 x 10 ¹¹	KVE/g feces	> 1,2 x 10 ¹¹	FE NAJ MGSSEQ
Faecalibacterium prausnitzii	1,3 x 10 ¹¹	KVE/g feces	> 5,0 x 10 ¹⁰	FE NAJ MGSSEQ
Eubacterium rectale	3,2 x 10 ¹⁰	KVE/g feces	> 1,0 x 10 ¹⁰	FE NAJ MGSSEQ
Eubacterium hallii	6,8 x 10 ⁸	KVE/g feces	> 5,0 x 10 ⁹	FE NAJ MGSSEQ
Roseburia spp.	5,8 x 10 ¹⁰	KVE/g feces	> 2,0 x 10 ¹⁰	FE NAJ MGSSEQ
Ruminococcus spp.	5,0 x 10 ⁹	KVE/g feces	> 3,0 x 10 ¹⁰	FE NAJ MGSSEQ
Coprococcus spp.	6,6 x 10 ⁹	KVE/g feces	> 2,0 x 10 ¹⁰	FE NAJ MGSSEQ
Butyrivibrio spp.	3,7 x 10 ⁸	KVE/g feces	> 5,0 x 10 ⁹	FE NAJ MGSSEQ

Clostridia				
Totaal kiemgetal	3,6 x 10 ⁹	KVE/g feces	< 4,0 x 10 ⁹	FE NAJ MGSSEQ
Clostridia Cluster I	1,0 x 10 ⁵	KVE/g feces	< 2,0 x 10 ⁹	FE NAJ MGSSEQ
Clostridium histolyticum	< 1,0 x 10 ⁵	KVE/g feces	< 2,0 x 10 ⁹	FE NAJ MGSSEQ
Clostridium perfringens	< 1,0 x 10 ⁵	KVE/g feces	< 1,0 x 10 ⁸	FE NAJ MGSSEQ
Clostridium sporogenes	< 1,0 x 10 ⁵	KVE/g feces	< 1,0 x 10 ⁸	FE NAJ MGSSEQ

Verdere Firmicutes				
Christensenellaceae	1,6 x 10 ⁸	KVE/g feces	> 1,0 x 10 ⁹	FE NAJ MGSSEQ

FE=feces

*Externe analyse (R). A) geaccrediteerd NA) niet geaccrediteerd

Test	Uitslag	Eenheid	Normbereik	Vorig onderzoek
Dialister spp.	< 1,0 x 10 ⁴ 5	KVE/g feces	< 4,0 x 10 ⁴ 10	FE
Cl. butyricum	5,3 x 10 ⁴ 8	KVE/g feces	> 1,0 x 10 ⁴ 8	FE
Fusobacteria				
Fusobacterium	< 1,0 x 10 ⁴ 5	KVE/g feces	< 1,0 x 10 ⁴ 7	FE
Verrucomicrobia				
Akkermansia muciniphila	< 1,0 x 10 ⁴ 5	KVE/g feces	> 5,0 x 10 ⁴ 9	FE
Proteobacteria				
Pathogene of potentieel pathogene bacteriën				
Haemophilus spp.	1,9 x 10 ⁴ 9	KVE/g feces	< 1,0 x 10 ⁴ 9	FE
Acinetobacter spp.	< 1,0 x 10 ⁴ 5	KVE/g feces	< 1,0 x 10 ⁴ 6	FE
Proteus spp.	< 1,0 x 10 ⁴ 5	KVE/g feces	< 1,0 x 10 ⁴ 6	FE
Klebsiella spp.	< 1,0 x 10 ⁴ 5	KVE/g feces	< 1,0 x 10 ⁴ 6	FE
Enterobacter spp.	< 1,0 x 10 ⁴ 5	KVE/g feces	< 1,0 x 10 ⁴ 6	FE
Serratia spp.	< 1,0 x 10 ⁴ 5	KVE/g feces	< 1,0 x 10 ⁴ 6	FE
Hafnia spp.	< 1,0 x 10 ⁴ 5	KVE/g feces	< 1,0 x 10 ⁴ 6	FE
Morganella spp.	< 1,0 x 10 ⁴ 5	KVE/g feces	< 1,0 x 10 ⁴ 6	FE
Citrobacter spp.	< 1,0 x 10 ⁴ 5	KVE/g feces	< 5,0 x 10 ⁴ 8	FE
Pseudomonas spp.	< 1,0 x 10 ⁴ 5	KVE/g feces	< 5,0 x 10 ⁴ 7	FE
Providencia spp.	< 1,0 x 10 ⁴ 5	KVE/g feces	< 5,0 x 10 ⁴ 7	FE
H2S-vorming				
Sulfaatreducerende bacteriën	2,1 x 10 ⁴ 8	KVE/g feces	< 2,0 x 10 ⁴ 9	FE
Desulfivibrio piger	< 1,0 x 10 ⁴ 5	KVE/g feces	< 1,0 x 10 ⁴ 9	FE
Desulfomonas pigra	< 1,0 x 10 ⁴ 5	KVE/g feces	< 1,0 x 10 ⁴ 9	FE
Bifidobacterium wadsworthii	< 1,0 x 10 ⁴ 5	KVE/g feces	< 2,0 x 10 ⁴ 9	FE
Oxalaatafbrekende bacteriën				
Oxalobacter formigenes	< 1,0 x 10 ⁴ 5	KVE/g feces	> 1,0 x 10 ⁴ 8	FE
Immunogeniteit / mucine vorming				
Immunogeen werkende bacteriën				
Escherichia coli	2,6 x 10 ⁴ 5	KVE/g feces	10 ⁴ 6 - 10 ⁴ 7	FE
Enterococcus spp.	5,3 x 10 ⁴ 7	KVE/g feces	10 ⁴ 6 - 10 ⁴ 7	FE
Lactobacillus spp.	< 1,0 x 10 ⁴ 5	KVE/g feces	10 ⁴ 5 - 10 ⁴ 7	FE
Mucine vorming / slijmvliesbarrière				
Akkermansia muciniphila	< 1,0 x 10 ⁴ 5	KVE/g feces	> 5,0 x 10 ⁴ 9	FE
Faecalibacterium prausnitzii	1,3 x 10 ⁴ 11	KVE/g feces	> 5,0 x 10 ⁴ 10	FE
Archaea				
Methanogenen				
Methanobrevibacter spp.	< 1,0 x 10 ⁴ 5	KVE/g feces	< 1,0 x 10 ⁴ 8	FE
Mycobloom: relevante gisten				
Candida albicans (CA)	7,4 x 10 ⁴ 3	KBE /g Stuhl	<1,0 x 10 ⁴ 3	FE
Candida krusei (CK)	<1,0 x 10 ⁴ 3	KBE /g Stuhl	< 1,0 x 10 ⁴ 3	FE
Candida glabrata (CG)	<1,0 x 10 ⁴ 3	KBE /g Stuhl	< 1,0 x 10 ⁴ 3	FE
Candida dubliniensis (CD)	<1,0 x 10 ⁴ 3	KBE /g Stuhl	< 1,0 x 10 ⁴ 3	FE
Candida parapsilosis (CP)	<1,0 x 10 ⁴ 3	KBE /g Stuhl	< 1,0 x 10 ⁴ 3	FE
Candida tropicalis (CTp)	<1,0 x 10 ⁴ 3	KBE /g Stuhl	< 1,0 x 10 ⁴ 3	FE
Candida lusitanae (CL)	<1,0 x 10 ⁴ 3	KBE /g Stuhl	< 1,0 x 10 ⁴ 3	FE

FE=feces *Externe analyse (R). A) geaccrediteerd NA) niet geaccrediteerd

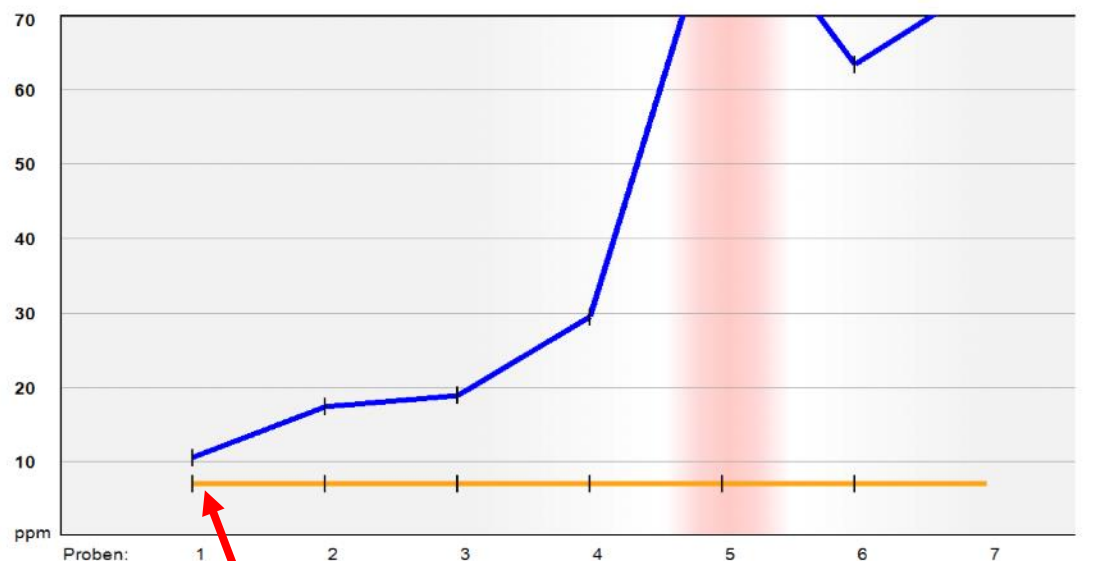
Test	Uitslag	Eenheid	Normbereik	Vorig onderzoek
Parasieten				
Pathobionten				
Blastocystis hominis	negatief		negatief	FE
Dientamoeba fragilis	negatief		negatief	A) MOLEK
Pathogene darmprotozoa				
Giardia lamblia	negatief		negatief	FE
Entamoeba histolytica	negatief		negatief	A) MOLEK
Cryptosporidium spp.	negatief		negatief	FE
Cyclospora cayetanensis	negatief		negatief	A) MOLEK
Vertering				
Vetgehalte	5,30	g/100g	< 3,5	FE
Stikstofgehalte	0,40	g/100g	< 1,0	NA) PHOT
Suikergehalte	2,60	g/100g	< 2,5	FE
Watergehalte	81,50	g/100g	75 - 85	NA) PHOT
Extra parameter(s)				
Calprotectine	21,78	mg/l	< 50	FE
Alpha-1-antitripsine	9,5	mg/dl	< 27,5	A) ELISA
Secretoir Immunoglobuline A	1376,3	µg/ml	510 - 2040	FE
Zonuline	77,03	ng/ml	< 55	A) ELISA
Speciale gastro-enterologische diagnostiek				
Gluten-sensitieve enteropathie / coeliakie				
Anti-gliadine antilichamen in feces	<25,00	U/l	< 100	FE
Anti-transglutaminase antilichamen in feces	<50,00	U/l	< 100	A) ELISA

13. Case report

- Result breath test of this patient

SIBO-Test

SIBO



T=0 30min 50min 70min 90min 120min 150min



SIBO-Test (Wasserstoff)

Ademgasanalyse 1	10,6	ppm	< 20
Ademgasanalyse 2	17,4	ppm	< 20
Ademgasanalyse 3	18,9	ppm	< 20
Ademgasanalyse 4	29,5	ppm	< 20
Ademgasanalyse 5	87,3	ppm	< 20
Ademgasanalyse 6	63,4	ppm	< 20
Ademgasanalyse 7	74,6	ppm	< 20

SIBO-Test (Methan)

Ademgasanalyse 1	<8,0	ppm	< 10
Ademgasanalyse 2	<8,0	ppm	< 10
Ademgasanalyse 3	<8,0	ppm	< 10
Ademgasanalyse 4	<8,0	ppm	< 10
Ademgasanalyse 5	<8,0	ppm	< 10
Ademgasanalyse 6	<8,0	ppm	< 10
Ademgasanalyse 7	<8,0	ppm	< 10

13. Case report

Conclusion:

Both complaints and analysis match SIBO

Approach:

MyOwnBlend “pre-fermented”

- *S. Boulardii*
- *B. Clausii*
- *B. Coagulans* Unique
- *Enterococcus faecium* + *Bacillus subtilis*
- Pathogene reductor



13. Case report

Result:

- Belly is now calm
- Improved appetite
- Better tolerance to several kinds of vegetables
- More energy
- Defecation once a day a cigar



Bristol Stool Chart

Type 1		Losse harde keutels, zoals noten (moeilijk uit te scheiden)
Type 2		Als een worst, maar klonterig
Type 3		Als een worst, maar met barstjes aan de buitenkant
Type 4		Als een worst of slang, glad en zacht
Type 5		Zachte keutels met duidelijke randen (makkelijk uit te scheiden)
Type 6		Zachte stukjes met gehavende randen, een papperige uitscheiding
Type 7		Waterig, geen vaste stukjes. Helemaal vloeibaar

13. Case report

Datum monsterafname 04.04.2022 00:00 Gevalideerd door Dr. Herbert Schmidt Uitslagstatus Eindbericht
Materiaal FE Gevalideerd op 12.04.2022 Uitslagstatus op 12.04.2022

Test	Uitslag	Eenheid	Normbereik	Vorig onderzoek
Fecesdiagnostiek				
Mikrobiomanalyse Midi PLUS (Microbiome Center)				
Moleculair-genetische microbioanalyse 3.0				
Kenmerken van de feces				
Kleur	donkerbruin		braun	FE NA/MSGE
Consistentie	brijig		brijig	FE NA/MSGE
pH-waarde	7,0		5,8 - 6,5	FE NA/TESTS
Diversiteit				
Diversiteit	4,91		> 5	FE NA/MSGE

De diversiteit aan bacteriën in de darm kan van mens tot mens sterk variëren. Frequent gebruik van antibiotica, infecties, toenemende leeftijd, eenzijdige voeding of roken zijn hierop van invloed.

Grad

4

Enterotype				
Bacteroides			1	FE NA/MSGE

Het menselijke microbiom kan in drie enterotypes ingedeeld worden. De darmbacteriën vormen, afhankelijk van het enterotype, stabiele, maar duidelijk verschillende clusters met typische metabolische eigenschappen. Enterotype 1 wordt gekenmerkt door hoge aantallen Bacteroides en enterotype 2 door een sterke Prevotella kolonisatie. Enterotype 3 wordt gekenmerkt door een Ruminococcus flora.

Enterotyp

1

Dysbiose-index				
			22	NA/RECHN

De dysbiose index is een maatstaf die afwijkingen binnen het microbiom weergeeft. Bij deze maatstaf wordt rekening gehouden met alle onderzochte bacteriefyla, -geslachten en -soorten e.e.a. afhankelijk van hun relevantie.

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Ratio				
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0,48

1,37

0,00

Firmicutes / Bacteroidetes
Normbereik: < 1,5

Actinobacteria / Proteobacteria
Normbereik: > 0,5

Prevotella / Bacteroides
Normbereik: > 0,1

FE=feces

*Externe analyse (R), A) geaccrediteerd NA) niet geaccrediteerd

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Metabool (stofwisselingsactieve bacteriegroepen)

Secundaire galzuren	84,4	%	
TMA / TMAO	-49,5	%	
Indoxylsulfaat	-50,0	%	
Fenolen	-48,4	%	
Ammoniak	-9,2	%	
Histamine	-50,0	%	
Equol	-24,3	%	
Beta-glucuronidasen	-48,6	%	

Indeling van bacteriën naar fyllum met de belangrijkste bacteriegroepen en -soorten

Actinobacteria

Bifidobacterium	6,4 x 10 ¹⁰	KVE/g feces	> 5,0 x 10 ⁹	2,4 x 10 ¹⁰	FE NA/MSGE
Bifidobacterium longum	41	%		adolescentis	FE NA/MSGE
Bifidobacterium adolescentis	38	%		longum	FE NA/MSGE

Bacteroidetes

Bacteroides	4,9 x 10 ¹¹	KVE/g feces	> 1,5 x 10 ¹¹	4,7 x 10 ¹¹	FE NA/MSGE
Bacteroides plebeius	35	%		plebeius	FE NA/MSGE
Bacteroides uniformis	28	%		uniformis	FE NA/MSGE
Prevotella	1,0 x 10 ¹⁷	KVE/g feces	> 1,0 x 10 ¹⁰	2,6 x 10 ¹⁷	FE NA/MSGE

Firmicutes

Butyraatproducerende bacteriën

Totaal kiemgetal	1,1 x 10 ¹¹	KVE/g feces	> 1,2 x 10 ¹¹	2,3 x 10 ¹¹	FE NA/MSGE
Faecalibacterium prausnitzii	6,7 x 10 ¹⁰	KVE/g feces	> 5,0 x 10 ¹⁰	1,3 x 10 ¹¹	FE NA/MSGE
Eubacterium rectale	1,2 x 10 ¹⁰	KVE/g feces	> 1,0 x 10 ¹⁰	3,2 x 10 ¹⁰	FE NA/MSGE
Eubacterium hallii	3,0 x 10 ⁹	KVE/g feces	> 5,0 x 10 ⁹	6,8 x 10 ⁸	FE NA/MSGE
Roseburia spp.	1,7 x 10 ¹⁰	KVE/g feces	> 2,0 x 10 ¹⁰	5,8 x 10 ¹⁰	FE NA/MSGE
Ruminococcus spp.	4,4 x 10 ⁹	KVE/g feces	> 3,0 x 10 ¹⁰	5,0 x 10 ⁹	FE NA/MSGE
Coprococcus spp.	5,5 x 10 ⁹	KVE/g feces	> 2,0 x 10 ¹⁰	6,6 x 10 ⁹	FE NA/MSGE
Butyrivibrio spp.	1,3 x 10 ⁹	KVE/g feces	> 5,0 x 10 ⁹	3,7 x 10 ⁸	FE NA/MSGE

Clostridia

Totaal kiemgetal	7,0 x 10 ⁸	KVE/g feces	< 4,0 x 10 ⁹	3,6 x 10 ⁹	FE NA/MSGE
Clostridia Cluster I	1,0 x 10 ⁵	KVE/g feces	< 2,0 x 10 ⁹	1,0 x 10 ⁵	FE NA/MSGE

Fusobacteria

Fusobacterium	< 1,0 x 10 ⁵	KVE/g feces	< 1,0 x 10 ⁷	< 1,0 x 10 ⁵	FE NA/MSGE
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Verrucomicrobia

Akkermansia muciniphila	< 1,0 x 10 ⁵	KVE/g feces	> 5,0 x 10 ⁹	< 1,0 x 10 ⁵	FE NA/MSGE
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Proteobacteria

FE=feces

*Externe analyse (R), A) geaccrediteerd NA) niet geaccrediteerd

Microbiome Center - NL-

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13. Case report

Test	Uitslag	Eenheid	Normbereik	Vorig onderzoek
Pathogene of potentieel pathogene bacteriën				
Haemophilus spp.	7,2 x 10 ⁷ KVE/g feces	< 1,0 x 10 ⁹	1,0 x 10 ⁹	FE
Acinetobacter spp.	< 1,0 x 10 ⁵ KVE/g feces	< 1,0 x 10 ⁶	< 1,0 x 10 ⁶	FE
Proteus spp.	< 1,0 x 10 ⁵ KVE/g feces	< 1,0 x 10 ⁶	< 1,0 x 10 ⁶	FE
Klebsiella spp.	< 1,0 x 10 ⁵ KVE/g feces	< 1,0 x 10 ⁶	< 1,0 x 10 ⁶	FE
Enterobacter spp.	< 1,0 x 10 ⁵ KVE/g feces	< 1,0 x 10 ⁶	< 1,0 x 10 ⁶	FE
Serratia spp.	< 1,0 x 10 ⁵ KVE/g feces	< 1,0 x 10 ⁶	< 1,0 x 10 ⁶	FE
Hafnia spp.	< 1,0 x 10 ⁵ KVE/g feces	< 1,0 x 10 ⁶	< 1,0 x 10 ⁶	FE
Morganella spp.	< 1,0 x 10 ⁵ KVE/g feces	< 1,0 x 10 ⁶	< 1,0 x 10 ⁶	FE
Citrobacter spp.	< 1,0 x 10 ⁵ KVE/g feces	< 1,0 x 10 ⁶	< 1,0 x 10 ⁶	FE
Pseudomonas spp.	< 1,0 x 10 ⁵ KVE/g feces	< 5,0 x 10 ⁷	< 1,0 x 10 ⁶	FE
Providencia spp.	< 1,0 x 10 ⁵ KVE/g feces	< 5,0 x 10 ⁷	< 1,0 x 10 ⁶	FE
H2S-vorming				
Sulfaatreducerende bacteriën	1,2 x 10 ⁹ KVE/g feces	< 2,0 x 10 ⁹	2,1 x 10 ⁸	FE
Desulfovibrio piger	< 1,0 x 10 ⁵ KVE/g feces	< 1,0 x 10 ⁹	< 1,0 x 10 ⁶	FE
Desulfomonas pigra	< 1,0 x 10 ⁵ KVE/g feces	< 1,0 x 10 ⁹	< 1,0 x 10 ⁶	FE
Bilophila wadsworthii	< 1,0 x 10 ⁵ KVE/g feces	< 2,0 x 10 ⁹	< 1,0 x 10 ⁶	FE
Immunogeniteit / mucine vorming				
Immunogeen werkende bacteriën				
Escherichia coli	1,4 x 10 ⁷ KVE/g feces	10 ⁶ - 10 ⁷	2,8 x 10 ⁶	FE
Enterococcus spp.	5,1 x 10 ⁷ KVE/g feces	10 ⁶ - 10 ⁷	5,3 x 10 ⁷	FE
Lactobacillus spp.	2,1 x 10 ⁶ KVE/g feces	10 ⁵ - 10 ⁷	< 1,0 x 10 ⁶	FE
Mucine vorming / slijmvliesbarrière				
Akkermansia muciniphila	< 1,0 x 10 ⁵ KVE/g feces	> 5,0 x 10 ⁹	< 1,0 x 10 ⁶	FE
Faecalibacterium prausnitzii	6,7 x 10 ¹⁰ KVE/g feces	> 5,0 x 10 ¹⁰	1,3 x 10 ¹¹	FE
Archaea				
Methanogenen				
Methanobrevibacter spp.	< 1,0 x 10 ⁵ KVE/g feces	< 1,0 x 10 ⁸	< 1,0 x 10 ⁶	FE
Mycobiom: relevante gisten				
Candida albicans (CA)	6,9 x 10 ⁴ KVE/g feces	< 1,0 x 10 ³	7,4 x 10 ³	FE
Candida krusei (CK)	< 1,0 x 10 ³ KVE/g feces	< 1,0 x 10 ³	< 1,0 x 10 ³	FE
Candida glabrata (CG)	< 1,0 x 10 ³ KVE/g feces	< 1,0 x 10 ³	< 1,0 x 10 ³	FE
Candida dubliniensis (CD)	< 1,0 x 10 ³ KVE/g feces	< 1,0 x 10 ³	< 1,0 x 10 ³	FE
Candida parapsilosis (CP)	< 1,0 x 10 ³ KVE/g feces	< 1,0 x 10 ³	< 1,0 x 10 ³	FE
Candida tropicalis (CTp)	< 1,0 x 10 ³ KVE/g feces	< 1,0 x 10 ³	< 1,0 x 10 ³	FE
Candida lusitanae (CL)	< 1,0 x 10 ³ KVE/g feces	< 1,0 x 10 ³	< 1,0 x 10 ³	FE
Parasieten				
Pathobionten				
Blastocystis hominis	negatief	negatief	negatief	FE
Dientamoeba fragilis	grenswaarde	negatief	negatief	FE
Pathogene darmprotozoa				
Giardia lamblia	negatief	negatief	negatief	FE
Entamoeba histolytica	negatief	negatief	negatief	FE
Cryptosporidium spp.	negatief	negatief	negatief	FE
Cyclospora cayentanensis	negatief	negatief	negatief	FE

Test	Uitslag	Eenheid	Normbereik	Vorig onderzoek
Vertering				
Vetgehalte	3,60	g/100g	< 3,5	5,30
Stikstofgehalte	0,50	g/100g	< 1,0	0,40
Suikergehalte	2,50	g/100g	< 2,5	2,60
Watergehalte	80,10	g/100g	75 - 85	81,50
Extra parameter(s)				
Calprotectine	18,55	mg/l	< 50	21,78
Alpha-1-antitripsine	24,7	mg/dl	< 27,5	9,5
Secretoir Immunoglobuline A	1510,8	µg/ml	510 - 2040	1376,3
Zonuline	58,36	ng/ml	< 55	77,03

14. Conclusions

- SIBO: overgrowth **of wrong bacteria** in small intestines
- Most often due to failure of the two physiological barriers
- Strong overlap IBS and SIBO → SIBO subgroup of IBS
- Symptoms: bloating, bulging, tired/ill/hungry after eating, diarrhea/constipation/mixed, abdominal pain, sticky/fatty feces
- Breath tests can help with diagnosis
- Three-point treatment approach (causes, deficiencies, overgrowth)
- Microbiome treatment is good approach:
 1. Specific strains
 2. Use personalized approach because of comorbidities
 3. Preferment increases effect of targeted strains

Updates

Laboratory results

13.1.2020 Extended microbiome analysis with markers (OmicSnap)

Hide available Biovis results Log in to Biovis for (more) results

Processed Process

Diversity 6 ↑ The value of the diversity in the lab report.

Dysbiosis index (informative) 0 ↓ What is the dysbiosis index in the lab report?

Low levels of butyrate 1 = Is there a low abundance of butyrate producing bacteria? 0 = not lowered; 1 = moderately lowered; 2 = lowered; 3 = severely lowered; 4 = very severely lowered.

(Potential) pathogenic bacteria overgrowth 0 = Is there an increase in abundance of potential pathogenic bacteria? 0 = no; 1 = somewhat; 2 = overgrowth; 3 = severe overgrowth; 4 = very severe overgrowth.

Oxalate degrading capacity 0 = Is there a low abundance of oxalate degrading bacteria? 0 = not lowered; 1 = moderately lowered; 2 = lowered; 3 = severely lowered; 4 = very severely lowered.

Acacia fiber 0 =



Acacia fiber: Acacia fiber is derived from the gum of Acacia Senegal trees and consists of over 90% fibers (also known as gum arabic). Research on acacia fibers has been conducted for decades. In MyOwnBlend, a realistically achievable dosage of approximately 5g/day is assumed, but in most clinical studies, a daily dosage of 25g/day or higher has been used. Therefore, the evidence score for many indications is somewhat lower. With this caveat, there is reasonable evidence from an RCT for bloating (1). There is also evidence from several clinical, non-blinded studies for a beneficial effect on constipation (2-4, 18). One of these studies shows a trend of improvement in IBS-C, which can be seen as some degree of evidence for IBS (18). A number of RCTs show an effect on metabolic dysfunction/insulin resistance (including 5-7). Additionally, there is some evidence for an effect in ulcerative colitis (8), inconsistent evidence for an effect on diarrhea (9-11), and some evidence for an effect on periodontitis (12). Furthermore, there is some clinical and in vitro evidence that acacia fibers can increase butyrate production (13, 14). Finally, various open-label studies demonstrate anti-inflammatory effects (including 15-17).

Active components: Organic Acacia Senegal Fiber

Ingredients: Organic Acacia Senegal Fiber

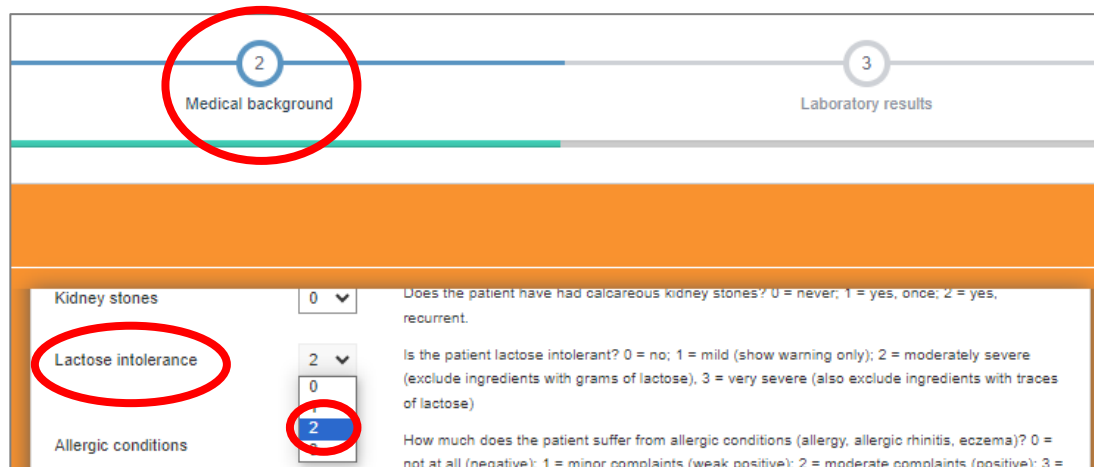
Min: 3 g/d, **Max:** 20 g/d

References:

(1) The Effect of Gum Arabic (Acacia senegal) on Cardiovascular Risk Factors and Gastrointestinal Symptoms in Adults at Risk of Metabolic Syndrome: A Randomized Clinical Trial

Advice Aid: continuously improved & fast

Improved processing of Lactose intolerance

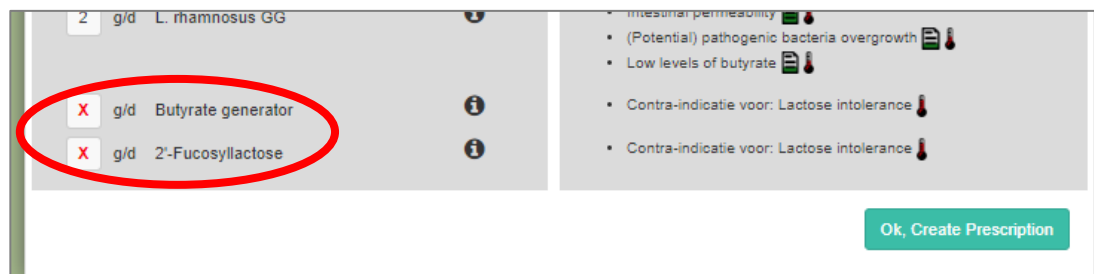


2 Medical background 3 Laboratory results

Kidney stones 0 Does the patient have had calcareous kidney stones? 0 = never; 1 = yes, once; 2 = yes, recurrent.

Lactose intolerance 2 Is the patient lactose intolerant? 0 = no; 1 = mild (show warning only); 2 = moderately severe (exclude ingredients with grams of lactose); 3 = very severe (also exclude ingredients with traces of lactose)

Allergic conditions 2 How much does the patient suffer from allergic conditions (allergy, allergic rhinitis, eczema)? 0 = not at all (negative); 1 = minor complaints (weak positive); 2 = moderate complaints (positive); 3 =



2 g/d L. rhamnosus GG

2 g/d Butyrate generator

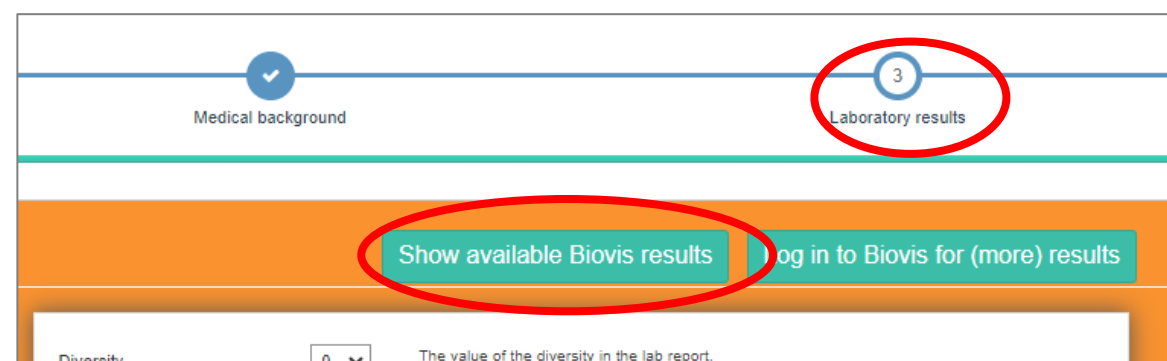
2 g/d 2'-Fucosyllactose

Intestinal permeability

- (Potential) pathogenic bacteria overgrowth
- Low levels of butyrate
- Contra-indicatie voor: Lactose intolerantie
- Contra-indicatie voor: Lactose intolerantie

Ok, Create Prescription

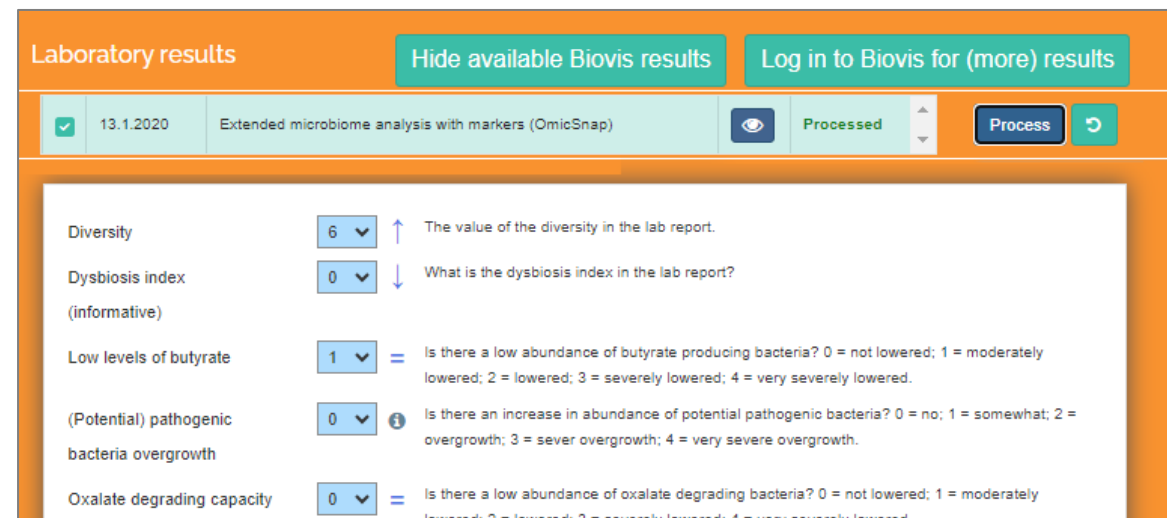
Automatic processing of Biovis results



Medical background 3 Laboratory results

Show available Biovis results Log in to Biovis for (more) results

Diversity 0 The value of the diversity in the lab report.



Laboratory results Hide available Biovis results Log in to Biovis for (more) results

13.1.2020 Extended microbiome analysis with markers (OmicSnap) Processed Process

Diversity 6 The value of the diversity in the lab report.

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Advice Aid: flexibility of ingredient selection

Additional suggestions for potentially useful BBs

☐ Standard Product
 ☐ Magistral product
 ☒ Magistral mixture (MyOwnBlend)

Proposed prescription	Based on these scores
2 g/d <i>Bacillus coagulans</i> Unique IS-2	- IBS - Constipation - Vaginal complaints
4 g/d PHGG	- IBS - Constipation - Sad mood
2 g/d <i>L. rhamnosus</i> GG	- IBS - Intestinal permeability - General diarrhea (Diarrhea, Antibiotics)
3 g/d DJ repair poeder	- IBS - Intestinal permeability - Fatigue
2 g/d <i>S. Boulardii</i>	(Potential) pathogenic bacteria overgrowth - Intestinal permeability - General diarrhea (Diarrhea, Antibiotics)
2 g/d <i>L. acidophilus</i> LA02	- IBS (Potential) pathogenic bacteria overgrowth - Intestinal permeability

Alternatives (4)

0 g/d <i>Enterococcus faecium</i> + <i>Bacillus subtilis</i>	- IBS - SIBO (small intestinal bacterial overgrowth) - Fatigue
0 g/d <i>L. plantarum</i> P-8	- IBS - Stress - Anxiety
0 g/d Barrier	- Intestinal permeability (Potential) pathogenic bacteria overgrowth - Sad mood
0 g/d Microbiota booster - vezelcomplex	- IBS - Constipation - Intestinal permeability

Contraindications (2)

Ok, Create Prescription

Ingredients *

<i>Bacillus coagulans</i> Unique IS-2	2	gram/d	
PHGG	4	gram/d	
<i>L. rhamnosus</i> GG	2	gram/d	
DJ repair poeder	3	gram/d	
<i>S. Boulardii</i>	2	gram/d	
<i>L. acidophilus</i> LA02	2	gram/d	

Alternatives

<i>Enterococcus faecium</i> + <i>Bacillus subtilis</i>	0	gram/d	
<i>L. plantarum</i> P-8	0	gram/d	
Barrier	0	gram/d	
Microbiota booster - vezelcomplex	0	gram/d	

Other Ingredients

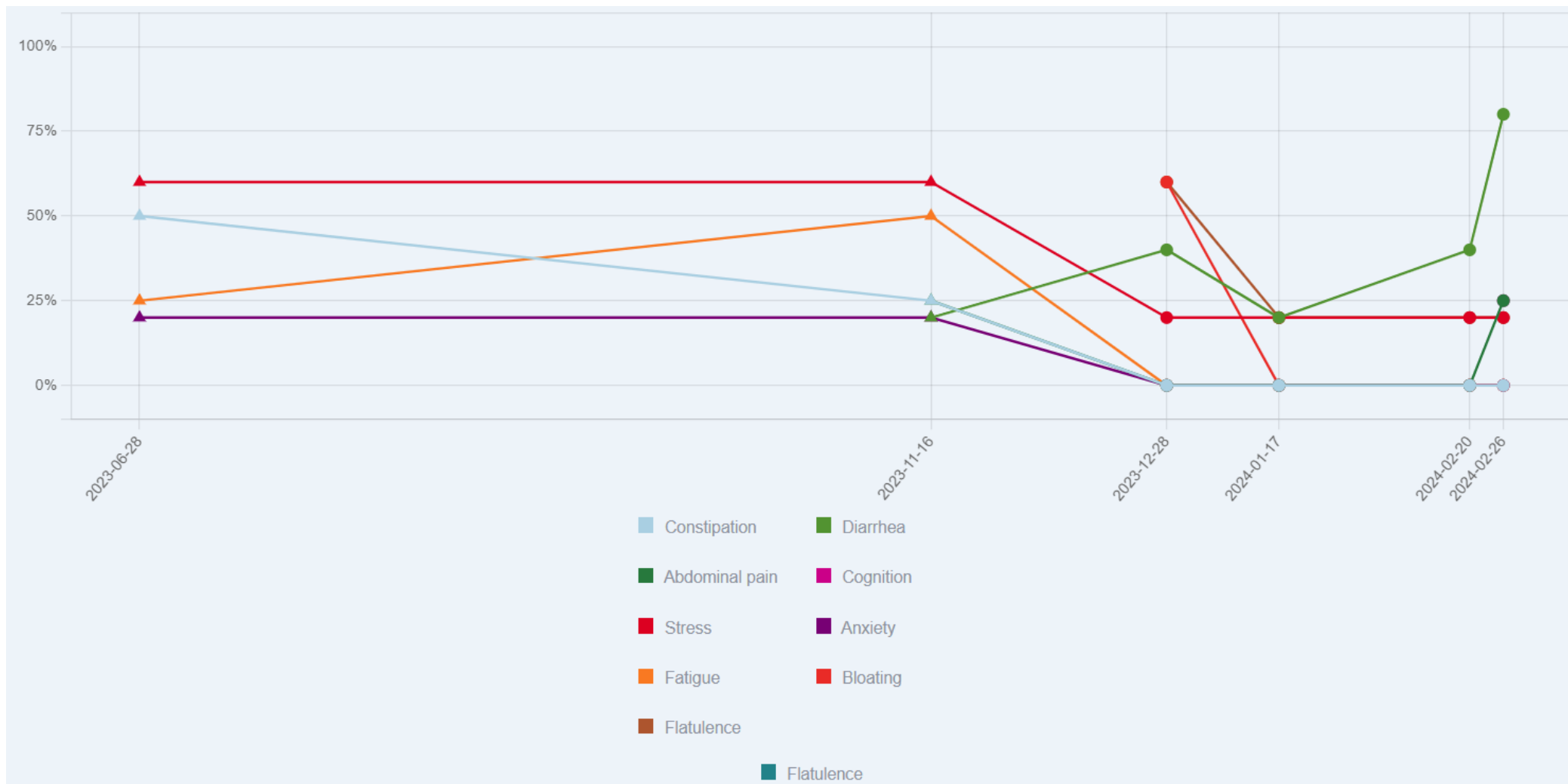
Advised based on

- IBS
- Stress
- Anxiety

Support your treatment



Tracking the
complaints of
clients

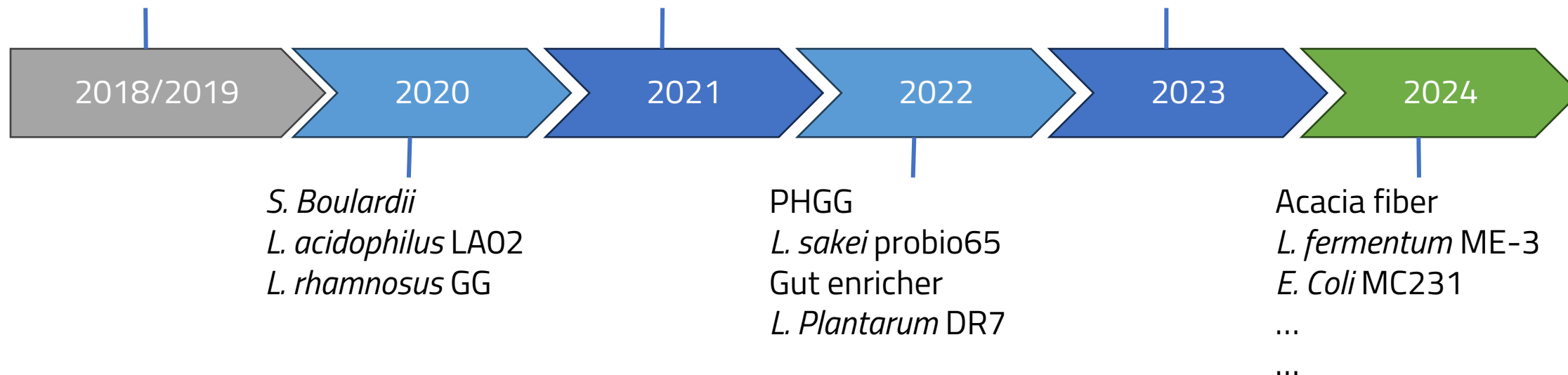


Ingredients are continuously expanded

Barrier
Bifido booster
DJ repair
IL-10 Immune balancer
TH1/TH2 Immune balancer
Pathogene reduction
Yeast reduction
Vitamin K2 booster
Butyrate generator
Microbiota booster

Bacillus clausii UBBC-07
Bacillus coagulans Unique IS-2
Enterococcus faecium Rosell-26 +
Bacillus subtilis Rosell-179
2'-Fucosyllactose
L. plantarum P8

L. rhamnosus SP1
Akkermansia
Bifidobacterium lactis HN019
Vaginal suppositories



New ingredient

Added acacia fiber

Acacia fiber



Product information:

This prebiotic is derived from the gum of Acacia Senegal trees and consists of over 90% fibers (also known as gum arabic). Research on acacia fibers has been conducted for decades. In MyOwnBlend, a realistically achievable dosage of approximately 5g/day is assumed, but in most clinical studies, a daily dosage of 25g/day or higher has been used. Therefore, the evidence score for many indications is somewhat lower. With this caveat, there is reasonable evidence from an RCT for bloating (1). There is also evidence from several clinical, non-blinded studies for a beneficial effect on constipation (2-4, 18). One of these studies shows a trend of improvement in IBS-C, which can be seen as some degree of evidence for IBS (18). A number of RCTs show an effect on metabolic dysfunction/insulin resistance (including 5-7). Additionally, there is some evidence for an effect in ulcerative colitis (8), inconsistent evidence for an effect on diarrhea (9-11), and some evidence for an effect on periodontitis (12). Furthermore, there is some clinical and in vitro evidence that acacia fibers can increase butyrate production (13, 14). Finally, various open-label studies demonstrate anti-inflammatory effects (including 15-17).

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Ingredients: Organic Acacia Senegal Fiber

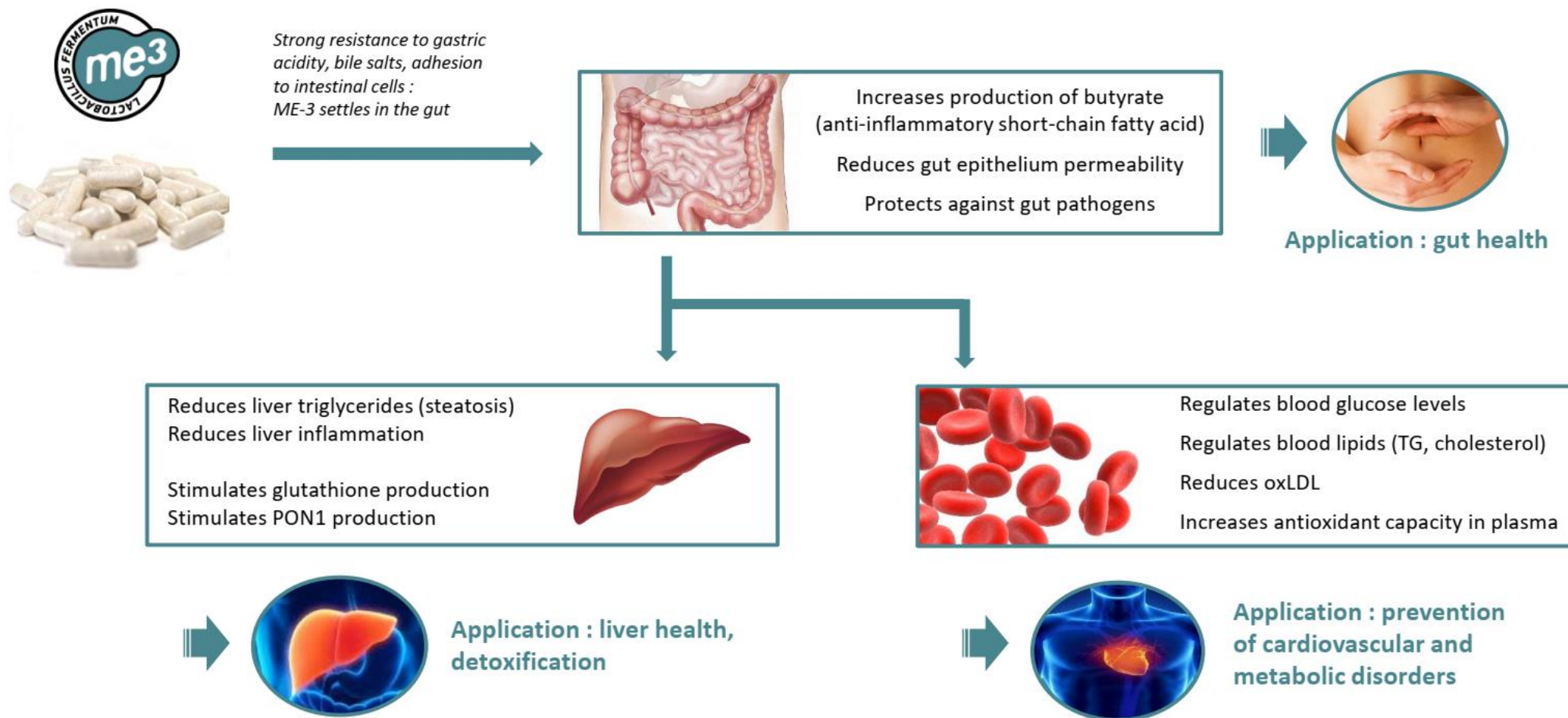
Min:3 g/d, **Max:**20 g/d

References:

(1) The Effect of Gum Arabic (Acacia senegal) on Cardiovascular Risk Factors and Gastrointestinal Symptoms in Adults at Risk of Metabolic Syndrome: A Randomized Clinical

Near future new ingredient

In the process of adding *L. fermentum* ME-3



Calender



Starters, intervision, Arbeitskreis

- Thursday 11 July 2024: Case discussions (NL)
- Wednesday 26 June: Arbeitskreis for MC starters (DE/EN)

Thematic webinars

- Tuesday 2 July 2024: Personalized Microbiome Therapy (DE)
- Monday 8 Jul 2024: Vaginal microbiome (EN)
- Monday 23 September 2024: SIBO part 2 (NL)
- Thursday 26 September 2024: SIBO part 2 (NL)

Thank you for your attention!

For more information, contact:



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wim@microbiome-center.nl



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- 10k+ patients helped, with 72% positive effect
- Treatment advice in minutes
- Most up-to-date treatment
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