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Lab-Report

Laboratory Number: 44	Patient: Demo Stool
Date received: 01/14/2010	
Date outcome: 01/20/2010	
Specimen: Stool	

Inflammation-Panel	Findings	Norm	Valuation	reduc. norm elev.
Stool-Flora:				
Bacteroides	2·10 ⁸	CfU/g 10 ⁹ -10 ¹⁰	slightly reduced	
Bifidobacteria	3·10 ⁸	10 ⁸ -10 ¹⁰	normal value	
Lactobacilli	3·10 ⁴	10 ⁵ -10 ⁷	slightly reduced	
Clostridia	5·10 ⁸	up to 10 ⁶	strongly elevated	
other anaerobes	<1·10 ⁶	10 ⁶ -10 ⁸ ?	normal value ?	
E.coli	3·10 ⁵	10 ⁶ -10 ⁷	slightly reduced	
E.coli-lact.neg.	1·10 ⁶	up to 10 ⁵	slightly elevated	
Enterobacteriaceae	<1·10 ⁴	up to 10 ⁵	normal value	
Enterococci	1·10 ⁸	10 ⁶ -10 ⁷	moderately elevated	
other aerobes	<1·10 ⁴	up to 10 ⁴	normal value	
Candida	1·10 ³	up to 10 ²	moderately elevated	
Geotrichum	<1·10 ²	up to 10 ²	normal value	
other fungi	<1·10 ²	up to 10 ²	normal value	
pH-value	5.8	6-7	below normal range	
Digestive residues:				
Fat	9.3	% 3.0-6.5	strongly elevated	
Protein	7.2	% 5.5-10.0	normal value	
Water	65.4	% 71.0-81.0	moderately reduced	
Sugars	0.061	% 0.0-0.059	slightly elevated	
Fiber	2.9	% 1.3-4.1	normal value	
Additional tests:				
Bile acids	<0.20	µmol/g 0.7-2.00	strongly reduced	
Pancreatic elastase	165	µg/g 301-2000	moderately reduced	
Defensine	18.8	ng/ml 15-30 ng/ml	normal value	
Histamine	2135	ng/g 0-250	strongly elevated	
Serotonine	126	ng/ml 500-1500	reduced	
Blood occult	0	normal value	normal value	
Helicobacter pylori Antigen	1	normal value	proof	
Tumormarker M2PK	18.52	U/ml 0-4.0	slightly elevated	
Parasites	1	normal value	proof	
Anti-Gliadin IgA	392	U/l <100 U/l	proof	

Short Chain Fatty Acids

Total Fatty Acids	50,3 mmol/kg	35-47,5 mmol/kg	elevated	
Acetate	31,2 mmol/kg	17-22 mmol/kg	elevated	
Propionate	12,3 mmol/kg	>7,5 mmol/kg	normal value	
n-Butyrate	6,9 mmol/kg	>7,5 mmol/kg	reduced	
i-Butyrate	0,6 mmol/kg	<0,15 mmol/kg	elevated	
i-Valeriate	0,7 mmol/kg	>0,5 mmol/kg	normal value	

Gut Mucosal Immunology

Enteral IgE	<20.0	ng/g	< 100 ng/g	normal value	
Enteral IgG	122	ng/g	< 50 ng/g	elevated	
Secret. Immunglobuline A1	24.0	µg/ml	50.1-300	reduced	
Secret. Immunglobuline A2	736	µg/ml	50.1-300	strongly elevated	

Interpretation:

Increased *Clostridia*: Increased *Clostridia* in stool indicates putrefaction in the intestine and a likely increase in the burden of metabolic toxins. Specific causes of this increase can be excessive supply of specific macro-nutrients (protein and fat) as a consequence of an unbalanced diet (i.e.: Atkin's ketogenic diet) and/or deficiencies in digestion and/or absorption. Specific therapy approaches are causal (substitution of digestive enzymes; stimulation of gallbladder function and bile flow) dietetic (reduced protein and fat, increase quality complex carbohydrates and dietary fibers) antagonistic (probiotics), specific (e.g. antimicrobial therapy), and hygienic (colon hydrotherapy).

Increased *Enterococci*: Increased enterococci in stool indicates disturbances in balance of intestinal flora. The milieu is possibly acidified, which could play a role in chronic enteritis. Specific causes are unknown. Specific therapy approaches are unknown. Conceivable causes must be eliminated and the milieu must be improved by dietary measures.

Increased *Yeasts*: Increased yeasts (*Candida*) and/or fungi (*Geotrichum*, *Aspergillus*, *Penicillium*, *Mucor*) in stool indicates deficiencies in colonisation resistance, disturbances of intestinal flora and/or defects of intestinal mucosa. Yeast species utilize superficial colonization of the gastrointestinal mucosa and may burden the body with toxic metabolites. Consider *Dysbiosis Organic Acid* panel by *Metamatrix Clinical Laboratory* at 1-800-221-4640. Inflammation is associated with a penetration deep into the mucosa (overt infection, thrush). Specific causes of fungal overgrowth may include lowered local resistance and may represent a consequence of antibiotic therapy, immune-suppressive therapy, chemotherapy, hormone therapy or radiation, diabetes or a diet rich in simple sugars. Specific therapy approaches are causal (lower simple sugar consumption); specific (antifungal volatile oils and plant extracts, and in severe cases Nystatin or Imidazoles); preventive (improving defense, e.g. Probiotics and immune support) and supportive (improving the milieu, e.g. brewer's yeast or *Saccharomyces boulardii*). Dietary approaches ("starving" the fungi through a "sugar-free anti-fungal diet" as advocated by Crooke) may be helpful but generally are not extremely effective, as yeasts find other sources of nourishment.

Acid pH value: Detection of acid stool pH indicates disorders of intestinal ecology. The mucosa can be damaged by high amounts of fermentative bacterial metabolic products (lactic/acetic/propionic acid), from bifidobacteria, lactobacilli, and enterococci. Breast-fed infants host a flora that's dominated by bifidobacteria with a high protective value! Possibly disordered carbohydrate digestion impacts the "availability" of nutrients. Specific therapy approaches are causal: avoiding "incompatible" lactose, substitution of digestive enzymes, and dietetic (reduce slightly fermentable carbohydrates).

Increased *Fat*: Increased fat in stool (steatorrhea) indicates deficiencies in fat digestion and absorption. The body can suffer losses of energy, fat-soluble vitamins, and essential fats. The increased availability of intestinal fat can cause "putrefactive dyspepsia". Causes of steatorrhea are excessive consumption of fat, fat digestion disorders (bile acid deficits or reduced bile flow) and/or disorders of the absorption of digested fats (malabsorption due to mucosal inflammation). For differential diagnostic purposes, please see bile acids marker. Specific therapy approaches are causal (reduction of excessive fat consumption), improvement of fat digestion (stimulation of gallbladder), and substitution of digestive enzymes.

Reduced Water: Reduced water content in stool may indicate nutritional or digestive disorders and may result in thickened bowel contents, delayed transit time and constipation. Causes for a water reduction can be restricted intake of liquids or reduced intestinal motility. Specific therapy approaches are dietary: daily fluid intake of at least 8 glasses water (1/2 gallon) and increased intake of fiber.

Increased Sugars: Increased “Sugars” in stool (Glucose, Fructose, Saccharose) indicates mainly digestive disorders in small intestine who causes insufficiencies of Disaccharidases. We interpret increased sugar as an Indicator of Small-Bowel-Inflammation followed by lack of mucosal digestive enzymes like Lactase, Sucrase, Amylase. Insufficiency of Saccharidases can apply to Monosaccharides (Glucose, Fructose), Disaccharides (Lactose, Saccharose, Maltose) and Polysaccharides (Starch). The acidifying flora utilizes these undigested sugars and form large quantities of Lactic, Acetic, Butyric and Propionic Acid (“Fermentation Dyspepsia”). Yeasts species also proliferate in a high carbohydrate environment. Specific therapy approaches include first algae (e.g. Spirulina), lowering “Sugar” consumption and substitution of Digestive Enzymes. Please consider further diagnostics like inflammation marker Histamine, Serotonine, Hemoglobine, Calprotectine, CRPs and Antigliadine as well as causes of inflammation like Enteropathic Bacteria/Viruses/Parasites and Food Intolerance/Allergy to apply a cause related, specific therapy.

Reduced Bile Acids: Detection of reduced bile acids in stool indicates deficits in formation, release or flow of bile. The resulting maldigestion of fat can cause steatorrhea and “putrefactive dyspepsia”. Causes of this reduction are organic: (insufficiency, stones) or functional: (spasm, thickened bile). Specific therapy approaches are causal (choloretics/biliary tract stimulants) therapeutic (cholelitholytic and/or cholelasmolytic agents) and dietetic (reduced intake of inappropriate fats). Clarification of causes with further diagnostic measures may be appropriate (abdominal ultrasound, MR, endoscopic retrograde cholangiopancreatography, etc.).

Reduced Pancreatic Elastase: Reduced pancreatic elastase in stool indicates insufficiency of excretory pancreatic function (global decrease in pancreatic enzyme production and/or release). In contrast to the 3 times-detection of the obsolete markers of trypsin and chymotrypsin, the 1 time-detection of the modern pancreatic elastase marker is sufficient for a diagnosis of exocrine pancreatic insufficiency, even if the patient is using exogenous enzyme substitution therapy.

Increased Histamine: Increased histamine in stool is a direct indicator of mucosal inflammation and should raise suspicion of an intestinal hyperpermeability (“leaky gut”) state. Causes can be diet-induced histaminosis, chronic sensitization (food allergies or pseudoallergies) and/or dysbiosis. Histamine is formed and deposited in mast cells (basophilic granulocytes) and released upon activation of these cells through IgE and IgG pathways in cases of allergy. Other mediators may also be produced after consuming red wine, hard cheese, salt-water fish, shellfish, pork, sauerkraut, food preservatives, food-colorants and glutamate, medication (e.g. analgesics, cardiac stimulants, acid blockers), by virtue of stress or through chronic inflammation from other causes. The level of histamine is generally directly proportional to clinical symptoms. Histamine, along with lactoferrin, levels may be useful in the differentiation of organic disorders such as “Inflammatory Bowel Diseases” and functional disorders, such as “Irritable Bowel Syndrome“. Normal histamine and lactoferrin levels along with symptoms of gastrointestinal symptoms (pain, gas, diarrhea) indicates the probability of a more functional vs. organic disorder (i.e.: “Irritable Bowel Syndrome“). In functional bowel disorders, such as IBS, psychological counseling may be required for optimal therapeutic results. Food allergy testing is also recommended.

Serotonine decreased:

Serotonine is mainly builded in gut as neurotransmitter of the “gut brain” and is known as “wellness-hormone” or “truth drug”. It’s found in walnut, banana, pineapple, avocado, tomatoe, prune. It’s builded from the amino-acid tryptophane, founded in cashew, beef, sunflower, tuna, chicken, egg, bran and mostly in cheese. For this building from tryptophane there is a need of vitamins B2 and B6, the daily need is 3,5 mg/kg body-weight.

Reduced levels of Serotonine indicates the possibility of reduced wellbeing up to depression.

Detection of *Helicobacter pylori* antigen: Detection of *Helicobacter pylori* antigen in stool indicates Helicobacter pylori on the gastric and the duodenal mucosa, which is the case in over 50 % of the world’s population. *H. pylori* gastritis can be asymptomatic, as a clinically irrelevant inflammation reaction or as the main cause of severe gastroduodenal illnesses, such as duodenal ulcer, ventricular ulcer, and carcinoma or lymphoma of the stomach. The detection of *H. pylori* antigen in stool is consistent with other detection methods (respiratory test, serology, urease test, histology and culture).

Indications for the test: are: to monitor the efficacy of therapy (detection of *H. pylori* after eradication means treatment failure) and to avoid gastroscopy. Patients over 45 years of age with alarming symptoms (anemia, weight loss, dyspepsia, malabsorption, occult blood) and in areas with a high percentage of antibiotic-resistant *H. pylori* should absolutely undergo gastroscopy for clinical and microbiological diagnostics (antibiotic testing required !). The indication for the eradication of *H. pylori* arises in particular from the clinical symptoms. The "gold standard" for *H. pylori* eradication is the "Italian triple therapy" with antacids, erythromycin and metronidazol, however, trials have also demonstrated success with natural antimicrobial volatile oils and plant extracts. Please note that the percentage of recidivity is 20 % and that resistance to treatment is increasing.

Tumor Marker M2PK suspicious:

M2PK shows specific metabolic activities of tumor cells, the "Pyruvate-Kinase".

This enzyme is builded only by malignant tumor cells (e.g. from colonic carcinoma or other carcinomas in the gastro-intestinal tract), not by normal cells of the gut epithelium or other tissues.

But there is a slight restriction: in case of gut inflammation we observe unspecific raises of M2PK values.

So we recommend to treat this inflammation and to repeat the test in 4 weeks.

After healing the gut inflammation, slightly raised values will drop down in the normal range. In the rare cases they don't drop, we recommend coloscopy.

Detection of Enteropathogenic Parasites: Detection of enteropathogenic parasites in stool may indicate possible causes of diarrhea and other abdominal symptoms. The need for treatment is often determined by symptoms. Specific therapy approaches include the use of antiparasitic volatile oils or plant extracts, and in many instances, medications (i.e: Metronidazol for protozoa, Praziquantel for worms). Any antiparasitic therapy should be followed-up with re-testing to confirm success, particularly when non-pharmaceutical agents are used.

Anti-Gliadin IgA increased: Increased Anti-Gliadin-IgA-Antibodies in stool indicates the possibility of Celiac-Disease (Sprue, Gluten-Enteropathia). Malabsorption-symptoms at Celiac-Disease-patients are often moderate, although mucosa perturbations gluten-free diets are necessary (Malignom risk). For confirmation of diagnosis, use biopsy, stool weight (>250 g/day), stool fat (>3,5 %), D-Xylose-test (Jejunum-functiontest with urine- or blood analysis) and lactose-tolerance-test (proof of lactase-deficite, which is nearly always existing). The proof of IgE-Antigliadin in blood is possible at ROSMED. Antibody-determinations in stool and/or blood are recommended for therapy-control (gluten-free diet), for screening of risk groups (family examination, associated diseases), for patients with indistinct symptoms just as for determination of the right biopsy-timing after gluten-provocation.

Enteral IgE in normal value: eIgE applies for the gut mucosa both as a protection-factor against enteral parasitosis and a pathogenetic-factor for excessive immunologic reaction like inflammation in food-allergy type 1.

Only 10 % of the total amount can be found in blood, however 90 % in gut, whereas these exists no correlations with acute or chronical inflammation.

In case of unconfirmed clinical suspicion of food-allergy is to be considered that this often takes place in the IgG-related "delayed" range (type 3). Rosmed offers special blood diagnostics for both IgE and IgG-Food-Allergy, please ask for information.

Please pay attention on differential-diagnostic option compared to food-intolerance/histaminosis.

Histamin	enteral IgE	Diagnosis	Therapy Consequences
Normal value	Normal value	None	Symptomatic Differential-Diagnosis
	Increased	Food-Allergy Immediate-Type1	Elimination-Diet Inflammation-Therapy
Increased	Normal value	Food-Intolerance (Histaminosis)	Nutrition-counselling Inflammation-Therapy? Stress? Alcohol? Drugs ?.
	Increased	Food-Intolerance+ Food-Allergy Immediate-Type1	Histaminosis + Food-Allergy

Enteral IgG increased: increased IgG values indicates a “chronical” (delayed) IgG-typed food-allergy of type3.

Secretoric Immunglobuline A 1 decreased: sIgA1 is primarily generated by B-Lymphocytes in the small intestine. Decreased values indicate deficient activity of the intestinal immune system in the small intestine. Causes could be: inflammatory irritation of the small intestine mucosa, stress, breakdown by microbial proteases or immuno-suppression, e.g. chemo/hormone therapy, radiation, environmental irritants.

Secretoric Immunglobuline A2 increased: sIgA2 is primarily generated by B-Lymphocytes in the large intestine. Increased values indicate excessive activity of the intestinal immune system in the large intestine. Causes of an increased immune reaction could be, e.g.: chronical enteritis (Crohn’s Disease, Ulcerative Colitis), Irritable Bowel Syndrome, immune response to increased quantities of microorganisms of the local flora (dysbiosis, putrefaction or fermentation dyspepsia), disruption of intestinal function (Spastic Colon, Chronical Constipation).

Conclusion:

Exocrine Pancreas Insufficiency: Reduced content of Pancreatic Elastase in the stool indicates Insufficiency of the Exocrine Pancreas or diseases of the Small Intestine (e.g. Food Intolerance/Allergy, Celiac Disease, Mucoviscidosis, Stress). The specificity with respect to the differentiation between primary Pancreas Insufficiency and Intestinal Malabsorption is limited. After mucosal-regeneration, e.g. after a successful diet, the specificity is high.

Therefore, we also recommend, after periodic check-up examinations of the Pancreatic Elastase, a clinical exam, ultrasound, etc. and, if needed, the identification of additional parameter in the stool sample (Histamine, Serotonine, Calprotectine, CRPs, Anti-Gliadin-IgA) and/or blood tests (nutritive IgE / IgG).

Therapy-Recommendation:

Exocrine Pancreas Deficiency: Occurs more frequently with diabetes, gall stone sufferers and in the case of increased osteoporosis-risk or is “mimicked” in inflammations of the small intestine area; we recommend therefore a corresponding blood and imaging diagnostic panel. Therapeutically, the emphasis is on shutting down exogenic noxins (strict alcohol abstinence) as well as substitution of pancreas enzymes in individual dosage until the complaint ceases. Periodic test examinations of Pancreas-Elastase are also recommended and possible along with enzyme substitution.

Histaminosis: Removing the cause is the first priority.

Nutrition:

MSG-Glutamate-content of foods: Glutamine Acid in e.g. Soy Sauce, Sea Weed (the hypothesized production by the intestinal flora is doubtful).

Histamine-content of food: Tuna Fish, Molluscs, Gorgonzola, Parmesan, Salami, uncooked Ham, Sauerkraut, baked goods containing Yeast, Apple Cider, Pickled Meat, Red Wine.

Foods that could potentially release histamines: Citrus Fruits, Papaya, Strawberries, Pineapple, Nuts, Chocolate, Spinach, Tomatoes, Liquorice, Pork.

Histamine-releasers in foods: MSG (flavour enhancer), “spices” and all Permitted Food Additives (Conservants, Colourants, Stabilizers).

Alcohol: DAO-Blocker (no physiological breakdown of histamine).

Vitamin deficiency: e.g. Vitamin B6, Vitamin C, alcoholism, polytoxicomania.

Drugs: DAO-Blocker Multitude of Modern Drugs (e.g. Acid Blockers, Beta-Blockers).

Stress

Allergies: (if suspected, blood analysis of IgE and IgG-anti-bodies at Vitalan/Rosmed).

Therapy: In the event of clinical pathology (headaches, diarrhoea, hypotension, arrhythmia, urticaria, flush, asthma, suspicion of allergies along with unremarkable IgE findings) antioxidants help and short-term antihistamines as well as a basic diet (boiled rice and potatoes alternating for one week); Quercetin, Pycnogenol, Gingko as well as high doses of Vitamin B6 and Vitamin C stabilise the mast cells and act against additional histamine release; Omega-3-fatty acids plus Glutamine as well as

Methionine and Tryptophan contribute to the restoration of the inflamed- permeable intestinal epithelium.

Since in the case of Histaminosis, Hyper-Acidosis often occurs as well, a supplementary de-acidification is helpful (e.g. Bullrichs-Vital, bicarbonate-baths).

In the case of ongoing therapy-resistant Histaminosis, I recommend identifying the DAO in the blood.

Balance of Neurotransmitters in the Stool

Noticeable [clinically significant] constellations appear especially when:

- Histaminosis during inflammations can cause Serotonin deficiency;
- Histaminosis during stress can cause Serotonin deficiency;
- Histaminosis “eats” Vitamin B6 and can therefore cause Serotonin deficiency;
- Serotonin deficiency can condition Dopamine deficiency (depression) as well as Melatonin deficiency (sleepless).

Histamine	Serotonin	Differential Diagnostic	Therapy
Normal range	Normal range	none	None
Normal range	Reduced	none	5-HTP, Vitamin B6
Normal range	Increased	NLP	Eliminations-Diet
Increased	Normal range	possible NLP	Histaminosis * Vit. B6
Increased	Reduced	possible NLP	Histaminosis * 5HTP, Vit. B6
Increased	Increased	NLP possible ADHS poss. Carcinoid+Abusus	Histaminosis* Vit. B6 Eliminations-Diet Malnutrition Protein

Legend: NLP = Nutrigenetic Load Profile (IgG-antibodies versus food)

5-HTP = Hydroxy-tryptophan, e.g. griffonia (alternative 50–100g cheese/day)

ADHS = Attention-Deficit-Hyperactivity-Syndrome (urine test)

* = Nutritional diary, polytoxicomania, stress, alcohol

Therapeutic Options on Intestinal Mucosa Inflammation:

Removing the cause is the first priority.

Additionally, we recommend:

1. Nutritional counselling for a bland diet: a light, bland diet supports effective healing processes in the stomach and intestinal area, if need by including the elimination of grain products (containing gluten), eggs, cow’s milk, yeast and soy. In the case of painful inflammation processes, a diet consisting entirely of boiled potatoes or boiled rice in daily alternation for one week is helpful.
2. Naturopathic remedies: Colostrum, Antioxidants, Vitamines A, C, E, Glutamine, Omega 3+6 Oil.
3. The following have supporting effects: Enzymes (even Digestive Enzymes), Healing Earth, Carminatives (Galingale, Ginger, Sage, Okoubaka).

Serotonin Deficiency: Causal therapy is emphasized in treating Serotonin deficiency, i.e. removal of all possible disruptions in the framework of a Gut Sanitation. Additionally, it can be helpful to recommend the intake of 5-HTP/hydroxy-tryptophan 0.5–2g daily for 4 weeks or the consumption of 100g of cheese or 50g of chocolate per day.

Proven home remedies for depression are cacao (1–2 tsp/day), in the case of difficulty falling asleep, warm milk with honey (1–2- tsp).

As an experiment, one can also try “Dinner-Cancelling” (i.e. refraining from eating food after 6pm) along with increased formation of STH/GH (Growth Hormone) to improve the depressed mood, accelerate the healing of inflamed intestinal mucosa and reduce peristaltics.

The frequent attacks of extreme Hunger (especially for Sweets, so-called “Consolation Eating”) in women can be caused by additional estrogen fluctuations, and in this case one needs to consider balancing them out using phytohormones (e.g. red clover, soy) or stimulating production (via DHEA).

Vitamin B 6 and Zinc are essentials to forming Serotonin. For this reason, think about the analysis and if a substitution is needed (if not already done).

In the case of ongoing Psychosocial Stress there is often also a significant increase in the need for tryptophan, since the increased production of cortisol leads to accelerated Tryptophan breakdown. This is one of the reasons that one must make sure of adequate Tryptophan supply in the case of memory problems.

Balance of Neurotransmitters in Stool

Histamine	Serotonine	Differential Diagnosis	Therapy
Normal Range	Normal Range	No	No
Normal Range	Decreased	No	5-HTP
Normal Range	Increased	NSP	Elimination-Diet
Increased	Normal Range	NSP if necessary	Histaminosis *
Increased	Decreased	NSP if necessary	Histaminosis * 5-HTP
Increased	Increased	NSP ADHS if necessary Carcinoid+Abuse if n.	Histaminosis * Elimination-Diet Malnutrition Protein

Legend: NSP = Nutrigenic Stress Profile (IgG-Antibodies against Foodstuff)
 5-HTP = Hydroxy-Tryptophane (alternative 50-100 g cheese/day)
 ADHS = Attention-Deficiency-Hyperactivity-Syndrome (urine diagnostics)
 • = Food-Diary, Polytoxicomania, Stress, Alcohol

Short Chain Fatty Acids

Distinct imbalances of “short chain fatty acids” with high acetic- and i-butyric, but low n-butyric-acids indicates the possibility of inflammation on gut mucosa. Supplementary intake of antioxidants and colostrum recommended.

“Putrifaction-Dyspepsia” involving Clostridia/E.coli/E.coli-Biovars and/or Enterobacteria is a sign of serious disruption in the intestinal ecology. Large amounts of enterogenic toxic metabolic by-products such as Indol, Phenol, Skatol, Cadaverine, Putrescine, Ketone, Methylalcohol overload the detoxification systems in the liver and damage the intestinal mucosa locally even by limiting blood flow due to the resulting gas pressure. Additionally, clostridias form excessive ammonium, which as a result of the transformation into **ammonia** consumes bases and reduces the alkali reserve for the long term, with the consequence of acidification: $\text{NH}_4 + \text{HCO}_3^- \rightarrow \text{NH}_3 + \text{H}_2\text{O} + \text{CO}_2$.

The causes of increased microbial reproduction probably lie in the disruptions of eubiosis, damage to the physiologically antagonistic microbes and/or the mucosal substrate. Malnutrition/Maldigestion/Malabsorption (poor digestion of fats, proteins and dietary fibre) appears to be less involved as a cause.

Therapeutic approaches are causal (remove causes) and aimed at restoration of eubiosis as well as the integrity of the mucosa. In dubious cases, a “bland diet” is always recommended. Antagonistic probiotics (live Bifidobacteria and Lactobacilli) clean out the intestinal environment and strengthen local defences. Supporting the liver metabolism and flow of gall, the pancreas, de-acidification as well as changing the environment (e.g. L+ Lactic acid, Minerals) accelerates the breakdown of clostridia and promotes eubiosis.

Clostridia

Antibiogram with Plant Extracts: S = Sensitive R = Resistant

Tea Tree Oil	S
Citrus/Grapefruit Seed	S
Mastix	S
Oregano	R
Garlic	R
Myrtle	R
Rosemary	R
Cumin	R

Indication for antibacterial therapy results only from clinical symptoms. Only extracts marked „S“ can be used effective for treatment.

Gluten-Enteropathy: Gluten (α -Gliadin) is found in Wheat, Spelt Rye, Barley and Oats which often causes or follows Inflammation with Malabsorption on the intestinal mucosa due to toxicological and immunological influences.

The most effective therapeutic measure in the event of excessive values in the analysis is **Gluten-free food**. Such products are obtained in health food stores and specialty bakeries (breads, noodles and baked goods made from Millet, Buckwheat, Amaranth, Rice, Corn). Prior to starting therapy, the diagnosis “celiac disease” should be verified if need be (blood diagnostic, histology) since the diagnosis cannot be made with any certainty once the gluten-free diet is in use.

Interpretation of various Antibody-Constellations in Gluten-Sensitive Enteropathy

Transglutaminase (Endomysium)	Gliadin IgA	Gliadin IgG	Celiac Disease
+	+	+	certain
+	+	-	certain
+	-	+	certain
+	-	-	likely
-	+	+	likely
-	+	-	possible
-	-	+	possible

Therapy Recommendation: In the case of inflammatory symptoms, we recommend a bland diet and naturopathic medicines like Colostrum, Omega 3 oils.

Suspicion of IgG-typed Food-Allergy: increased values of eIgG indicates „delayed“ food-allergy of type 3. For clarification of the responsible Food-allergens I recommend the specification of IgG-Antibodies in blood (Nutrigenic Stress Profile at Rosmed). We offer you, depending on clinical report, special diagnosis (Pre-Test: 20 food-stuffs, Standard-Test: 90 food-stuffs without Eliminationsdiet-cookbook, Medium Test: 180 food-stuffs with Eliminationsdiet-cookbook, Super-Test: 275 food-stuffs with Eliminationsdiet-cookbook).

Due to the complexity of the allergy-happening please think about: IgE-typed allergy, Lactose- and Fructose-intolerances, Gluten-sensitivity and parallel Histaminosis.

Balance of aspects food-allergy IgE and IgG in stool

n = 100/2009

IgE normal value (up to 100 U/g)	76	IgG normal value (up to 50 U/g)	68
		IgG increased (more as 50 U/g)	10
IgE increased (more as 100 U/g)	24	IgG normal (value up to 50 U/g)	12
		IgG increased (more as 50 U/g)	10

Food-allergy develops in multiple levels, as well individuell in IgE-level (acut, type 1) or IgG-level (delayed, type 3), as combined in both levels.

Cholestasis: To improve digestion of fats, production and release of gall has to be stimulated. The condition of the gall bladder needs to be established. Moreover, in connection with Hyperlipidemia (e.g. cardiovascular risk, metabolic syndrome) and Detoxification, strive for a continuous flow of gall, on the one hand to prevent the build-up of cholesterine concretions, on the other hand to support the metabolic processes of the liver.

Parasitological Finding: Evidence of Blastocystis hominis

The therapeutic necessity derives from the clinical pathology, e.g. gas, colic, diarrhoea. The standard therapy includes Metronidazol and/or Cotrimoxazol with individual dosing and duration. Prescribe if needed 14 Tabs Metronidazol as Crash-Therapy with Day 1:5 Tabs, Day 2:5 Tabs and Day 3:4 Tabs, so that little disruption of the intestinal floral accompanies a strong anti-parasitic effect. In the case of recidivation, Paromomycin (Humatin) comes into question, dosing 2x2 Tabs at 250mg daily for 14 days.

Naturopathic Approach: Mixed plant extracts with antiparasitical effect, e.g. Paracid by *Vitasan*.

Immune Deficiency on the Small Intestine Mucosa: sIgA1 is primarily generated by B-lymphocytes in **the small intestine**. Reduced values indicate deficient activity of the intestinal immune system in the small intestine. Causes could be: inflammatory irritation of the small intestine mucosa (mostly from food sensitivity or allergies), stress, breakdown by microbial proteases (e.g. in the case of small bowl overgrowth) or immuno-suppression, e.g. chemo/hormone therapy, radiation, environmental irritants.

Promising therapeutic approaches are: strengthening local defences using **Probiotics** (e.g. live Bifidobacteria/Lactobacilli at least 10⁹ CfU/day over four weeks) and if need be supplemental

Prebiotics. Probiotics are especially effective in the small intestine over sIgA1 and are well-suited for long-term use in order to stabilise the intestinal ecology.

An additional option for oral stimulation of the immune system is the use of **Patient-adapted Probiotics**, which are made from live bifidobacteria and lactobacilli following the findings from the stool sample and have the advantages of individual, patient-adapted efficacy and excellent compatibility.

Colostrum offers passive immediate protection especially in children and patients with severe enteritis, and under its influence one can actively build the body's own defences using probiotics.

To clear up therapy-resistant immune deficiencies in the intestinal mucosa, I recommend the supplemental analysis of the **“Mucosal Immunity” Profile** (if not already done) using: sIgA1 (active in the small intestine), sIgA2 (active in the large intestine), Defensin and, if needed, enterol IgE (acute nutritional allergy) with IgG (delayed nutritional allergy).

Alternative oral immune stimulation can proceed using Ginseng, Eleutherococcus, Echinacea and possibly Fungi (Mycotherapy).

Inflammation of Large Intestine Mucosa: sIgA2 is primarily generated by B-lymphocytes in **the large intestine**. Increased values indicate excessive activity of the intestinal immune system in the large intestine. Causes of an increased immune reaction could be, for example: IBD (Crohn's Disease, Ulcerative Colitis), immune response to increase quantities of microorganisms of the local flora (dysbiosis, putrefaction or fermentation dyspepsia), disruption of intestinal function (Diverticulosis, Spastic Colon, Chronical Constipation). Clinical examination and analysis of additional stool and blood parameters (if not already done): stool: Enteropathogenic Agents, Inflammation Markers, Histamine, Serotonin, Calprotectine, CRPs, Antigliadine; blood: CRP, catecholamines all indicate specific causes and have individual therapeutic approaches.

The emphasis in therapy is avoiding causes as well as anti-inflammatory therapy on the basis of a bland diet (light whole foods). In the case of painful inflammation processes, a diet consisting entirely of boiled potatoes or boiled rice in daily alternation for one week is helpful. Colostrum, antioxidants and glutamine have supporting effects as do Enzymes, Healing Earth, Carminatives (Galingale, Ginger, Sage, Okoubaka).

Nutritional counselling for a bland diet: a light, bland diet supports effective healing processes in the stomach and intestinal area, if need be including the elimination of grain products containing gluten, eggs, cow's milk, yeast and soy. In the case of painful inflammation processes, a diet consisting entirely of boiled potatoes or boiled rice in daily alternation for one week is helpful. The intake of digestive enzymes and high doses of micro-nutrients (e.g. glutamine, vitamin C, vitamin E, curcuma) as well as Healing Earth, Carminatives (Galingale, Ginger, Sage, Okoubaka) is helpful.



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