FlorInScan

Personalized Report

Mrs.
-TESTER, Tester

TESTDOKTOR
TESTD

ZONE INDUSTRIELLE
DE-54290 FEYEN

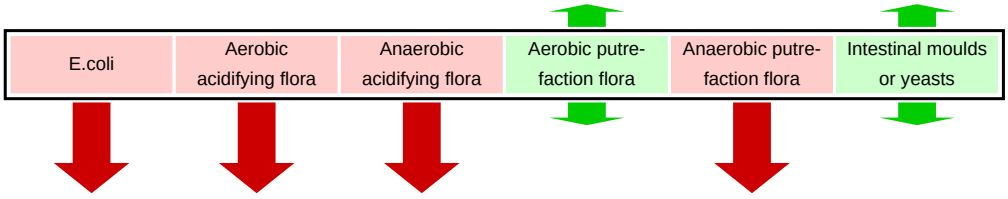
Reference: 1302206005
Patient-ID: 1978-12-12

Entry date:	Date of report:	Validated by:
20.02.2013	25.02.2013	Prof. Dr. med. Bernard WEBER

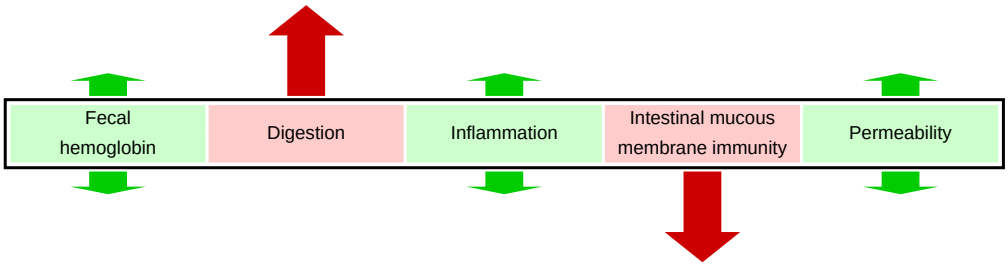
State of the intestinal flora: 8 (Presence of a marked dysbiosis)

State of the intestinal flora	
0-3	No particular dysbiosis
4-5	Presence of a weak dysbiosis
6-7	Presence of a moderate dysbiosis
8-14	Presence of a marked dysbiosis
>14	Very pronounced dysbiosis

FlorInScan



FlorInScan+ (FlorInScan plus)



Summary

The growth of E. coli is decreased. E. coli plays an important role in the defense mechanism of the intestinal barrier. A reduced growth rate of E. coli may be associated with an impaired mucosal immunity.
The physiological stool flora is characterized by an important reduction of the aerobic acidifying and anaerobic probiotic flora. These findings are indicative of a massive perturbation of the colonization resistance promoting the implantation of pathogenic germs. The reduced growth of the acidifying flora may lead to an alkalization of the intestinal environment, especially of the colon.
Diminshed pancreatic elastase-1 levels are typical for an exocrine pancreatic insufficiency. Beware of the dilution effect in presence of diarrhoea.
Decreased secretory IgA values are associated with an impaired activity of the mucosal immune system.
Presence of an increased risk for gastrointestinal infections and allergic reactions.

Colonization resistance:
The obligate intestinal germs such as E.coli, Enterococcus, Lactobacillus, Bacteroides and Bifidobacterium and the secretory IgA create a hostile environment and serve as a protection against colonization with pathogenic bacteria and with yeast or mould. If the intestinal equilibrium is disturbed for example by a decreased growth of one of the above mentioned germs, an ecological niche is created and supports the implantation of potential pathogenic germs. This is a so called diminished colonization resistance.

Results

	measured value and tendency		Tolerance range	previous values (06.08.2012)
Microbiology				
Aerobic flora				
E. coli	< $1 \cdot 10^5$ CFU/g	↓	$5 \cdot 10^5$ - $1 \cdot 10^7$	$1 \cdot 10^3$
E. coli var	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
Enterobacteriaceae	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
Proteus mirabilis	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
Proteus vulgaris	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
Klebsiella oxytoca	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
Klebsiella pneumoniae	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
Citrobacter spp	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
Serratia spp	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
Hafnia alvei	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
Morganella morganii	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
Providencia spp	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
Pseudomonas spp	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
Enterococcus	< $1 \cdot 10^5$ CFU/g	•	$1 \cdot 10^6$ - $1 \cdot 10^7$	< $1 \cdot 10^5$
other aerobic germs	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
β-*haemolys. Streptococcus*	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
Bacillus spp	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
Staphylococcus aureus	< $1 \cdot 10^5$ CFU/g		≤ $9 \cdot 10^4$	< $1 \cdot 10^5$
Anaerobic flora				
Bacteroides spp	< $1 \cdot 10^5$ CFU/g	↓	$1 \cdot 10^8$ - $1 \cdot 10^{10}$	$1 \cdot 10^9$
Clostridium spp	< $1 \cdot 10^5$ CFU/g		≤ $1 \cdot 10^5$	< $1 \cdot 10^5$
Bifidobacterium spp	< $1 \cdot 10^5$ CFU/g	↓	$1 \cdot 10^8$ - $1 \cdot 10^{10}$	$1 \cdot 10^9$
Lactobacillus spp	< $1 \cdot 10^5$ CFU/g	•	$5 \cdot 10^5$ - $1 \cdot 10^8$	< $1 \cdot 10^5$
Mycology				
Candida albicans	< $1 \cdot 10^5$ CFU/g	↓	≤ $1 \cdot 10^3$	$5 \cdot 10^3$
Candida spp.	< $1 \cdot 10^5$ CFU/g		≤ $1 \cdot 10^3$	< $1 \cdot 10^3$
Geotrichum	< $1 \cdot 10^5$ CFU/g		≤ $1 \cdot 10^3$	< $1 \cdot 10^3$
Mould	< $1 \cdot 10^5$ CFU/g		≤ $1 \cdot 10^3$	< $1 \cdot 10^3$
Other markers				
Fecal hemoglobin	-			-
pH	5	↓	5.8 - 6.5	5.2
Color	brown			
Consistency	soft			
Parasitic examination after enrichment	+			
Types	Heterophyes heyterophyes, Opisthorchis viverreni			
Digestion				
Starch	+	↑		-
Lipids	+	•		+
Muscle	+	↑		-
Pancreatic elastase 1	< 50 µg/g	↓	≥ 200	>500
Immunology				
sIgA	< 40 µg/ml	↓	510 - 2040	1936
Inflammation / Permeability				
Calprotectin	< 25 mg/kg		≤ 50	<25
Alpha-1-antitrypsin	20 µg/ml		≤ 270	92

↑ = Value increased in comparison to the previous value; ↓ = Value decreased in comparison to the previous value; • = Value not changed in comparison to the previous value

Results and interpretation

Important growth reduction of the obligate aerobic intestinal flora. This deficiency can lead to a decreased colonization resistance and an increased predisposition to infections. A supplementation with probiotic E.coli and Enterococcus strains is highly recommended.

The probiotic saccharolytic flora is reduced. Bifidobacteria and Lactobacillus are decreased, as well as the Bacteroides bacterial counts. This leads to a significant weakening of the colonisation resistance and to a facilitated colonisation by pathogens such as fungi. A substitution of the lacking probiotic flora is recommended.

Absence of colonization by yeasts or moulds.

Pesence of a low pH value. This result is untypical and is either due to a strict vegetarian diet or to a carbohydrate metabolism disorder. Laboratory tests for the diagnosis of lactose and/or fructose intolerance are recommended.

Absence of digestive residues. There is no sign of a digestive or resorption disorder.

The secretory IgA is the first immunological barrier of the intestinal mucous membrane. Decreased sIgA values are indicative of allergic disorders (atopic rhinitis, asthma, neurodermatitis, food allergies of type 1 and 3) and predispose to infections and to intestinal mycoses. Reduced sIgA values can be found in immunosuppressive disorders (chemotherapy, irradiation) and congenital absence of IgA. Watery stools can also lead to false low levels.
A control testing is recommended.
A decreased pancreas-1-elastase concentration may be a sign of a deficiency of the exocrine pancreatic function. Watery stools can lead to falsely reduced values through a dilution effect.
A control testing is recommended.

Absence of human fecal hemoglobin.

General explications

Escherichia coli
E.coli has been considered for a long time as the most important intestinal germ although it represents less than 0.01% of the entire bacterial flora. E. coli plays however an important role in the intestinal ecosystem:

- Antibacterial porperties: synthesis of microbiocides which have an antagonistic effect against enteropathogenic germs
- Stabilization of the intestinal barrier: stimulation of the mucosal immune system and production of sIgA through lipopolysaccharids (LPS) and low-weight peptides
- Metabolic properties: production of short-chain fatty acids through the degradation of carbon hydrates
- Gas production (H_2 and CO_2) in the presence of increased carbon hydrate concentrations (reduced absorption or digestion problems)
- Energy production through the degradation of proteins (increased intake or digestion problems) whereby toxic biogenic amines and ammonia can be produced.

Proteolytic enzymes exhibit maximum activity at a pH over 6.5, causing hereby an alkalization of the intestinal content.

Enterococcus
Enterococcus spp. belongs due to its resistance against bile and acids to the obligate resident flora of the small and large intestines. Some strains are present in fermented food such as sausage and cheese. Enterococci are predominantly saccharolytic acteria as they use carbon hydrates as energy source. Through the synthesis of short- chain fatty acids, they acidify the intestinal content, contributing hereby to the protection against pathogenic germs by the production of bacteriostatic or bactericidal substances, which are also called enterocines.

Bacteroides spp.
Bacteroides spp. constitutes the largest part of the intestinal flora and plays an important role in the colonization resistance against transient and pathogenic bacteria. Its main metabolic activity is proteolytic but of minor impotance for the gut ecology. The optimal growth of Bacteroides is at pH values higher than 7. Some strains are able to produce mutagenic substances from bile in case of a lipid and protein-rich diet.

Bifidobacterium spp.
The large and small intestine, the buccal cavity and the vagina are the natural habitat of Bifidobacteria. They belong to the obligate resident intestinal flora. They represent the majority of the germs of the intestinal flora (10^9 to 10^{11} CFU/g) of breast fead babies. As they are present in large numbers and as they have a saccharolytic metabolic activity, they contribute to the colonization resistance. In combination with Lactobacteria and Enterococci, they help to maintain a mild acid milieu. Their maximal growth rate is situated at a pH between 6 and 7.

Lactobacillus spp.
Lactobacilli are present in large concentrations in vegetables and are used as preservative agents by the food industry. Lactobacilli belong to the obligate but not to the resident flora of the small and large bowel, the buccal cavity and the vagina. A continuous supply needs to be provided through the consumption of yoghurts, cheese and crout. The metabolic activity olf lactobacilli is purely saccharolytic. They play a key role in pH regulation by producing short-chain fatty acids. Lactobacilli inhibit the proliferation of the putrefaction flora and the synthesis of carcinogenic compounds through the production of bactericins. The optimal pH for lactobacillus metabolic activity is about 6.

pH
The pH reflects the acid-base balance of the bowel content and is neither related to nor influenced by the pH of the stomach.
Following factors influence the intestinal pH:
Fibers and the composition of the food, fermented products, intestinal flora, antibiotics and transit time of stool. An acidic stool is frequently associated with a carbon hydrate metabolism disorder. Laxatives (chemical and herbal substances) are associated with an acidification of the stool (pH <6). Increased consumption of a protein-rich food, slow transit /constipation and reduced fiber intake alkalinize the stool (pH >7.0).

sIgA
Secretory IgA (sIgA) is the most relevant immunoglobulin in the intestinal lumen and is the main constituent of the mucosal immunity. sIgA is produced by plasmocytes under a dimeric form and is transported by epithelial cells to the intestinal lumen. The integrity of the intestinal barrier especially of the enterocytes plays a dominant role in the synthesis of sIgA. The main task of sIgA is the elimination of antigens by exclusion. The invasion and colonization of bacteria and viruses is hereby impeded. The synthesis of sIgA is independent of the production of IgA in the serum. A decrease of sIgA is found in following diseases:

- Allergies and hypersensitivity reactions such as asthma, atopic rhinitis, neurodermatitis, food allergies of type 3
- Recurrent infections
- Intestinal mycosis
- Immunodeficiency

Increased sIgA values are observed in case of a stimulation of the immune system and a local inflammation of the intestinal mucous membrane.

Pancreatic elastase-1

The pancreatic elastase-1 is exclusively produced in the human pancreas. Its main task is the degradation of proteins without being metabolized on its own and being able to pass freely the intestinal tract. The measurement of the activity is a sure and non-invasive method to determine the function of the exocrine pancreas. The values are not influenced by an eventual supplementation of pancreatic enzymes so there is no need to interrupt the medication or a special diet. However watery stools can lead to falsely negative values.

Examples of our Genetic Profiles:

FEMgen:	Sporadic breast cancer
OSTEOgen:	Osteoporosis
THROMBOgen:	Thrombosis
PROSTATEgen:	Prostate cancer
DETOXgen:	Detoxification capacities
DETOXgen heavy metals:	Detoxification of heavy metals
OXIgen:	Oxidative stress
DENTYgen:	Periodontitis
NEUROgen	Neurodegenerative diseases
CARDIOgen:	Cardiovascular diseases
MACULAgen:	Age-Related Macular Degeneration
LIPIDgen:	Lipid metabolism disorders
DIABETOgen:	Diabetes type II
COLOgen:	Sporadic colon carcinoma
ALOPECIAgen:	Androgenetic alopecia
EMOgen:	Emotional instability
AUTISMgen:	Autism
SKINgen:	Skin health
WEIGHTgen:	Weight control
WELL-BEING:	Anti-aging
NICOTINEgen:	Nicotine addiction

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