

## **ATTACHMENT:**

Useful remarks for patient and doctor, to be associated to the analytical results. Your doctor should interpret this report.

**Cod. ID: 123456**

**CCV: 000**

**Date: 01/01/2014**

**Patient: Rossi Mario**



Rapport de:

NatrixLab

Via Cavallotti, 16

42122 Reggio Emilia

Aut.n. 67 del 26.01.10

Direttore Sanitario

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# **DYSBIO CHECK (Assessment of intestinal dysbiosis)**

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## **INTESTINAL DYSBIOSIS**

Intestinal Dysbiosis is an alteration in the balance and composition of intestinal bacterial flora. This all leads to a series of symptoms and disorders in the gastrointestinal apparatus that can have consequences on other organs and apparatuses that are distant from the intestine. In the gastrointestinal tract there is an organ called the Microbiota, which is formed of at least 500 species of microorganisms that are part of the intestinal flora. The type and number of intestinal bacteria contribute to determine the status of health of the digestive system and the whole organism.

### **FUNCTION OF INTESTINAL BACTERIAL FLORA**

Intestinal flora performs various functions, including:

- Producing fundamental enzymes for the digestive processes.
- Vitamin synthesis (vitamin K, B group vitamins, such as B12) that are important for the health of the entire organism.
- Producing medium and short chain fatty acids, that are the main source of energy for the colon cells and the bacteria that live there, and also source of energy for man.
- Activating the production of biliary acids for the correct digestion of proteins and lipids.
- Producing antimicrobial and antimycotic substances, essential to defend the intestinal tract against attack from pathogens.
- Modulating the immune system, whose most important base is in the intestine, by producing proinflammatory molecules (e.g. LPS), which guarantee a basic physiological inflammation that keeps the immune system active always, ready to defend the intestine from external attack.
- Boosting the function of the intestinal barrier to prevent excessive permeability. Regulating the mobility in the digestive tract and intestinal passage.
- Regulating the pH in the gastrointestinal apparatus, to aid the digestive processes, the absorption of vitamins and mineral salts, and the elimination of pathogens that grow at different pH levels.

### **MAIN CAUSES OF INTESTINAL DYSBIOSIS**

Of the main causes for Intestinal Dysbiosis we should list:

- Food allergies (which can be both cause and consequence);
- Poor eating habits:
  - Hyperproteic diet;
  - Diet rich in simple sugars and refined cereals;
  - Hyperlipidic diet, especially saturated animal fats and hydrogenated fats;
  - Diet poor in fibers (found in fruit, vegetables, unrefined foods) ;
- Scarce digestive secretions, such as biliary acids and digestive enzymes;
- Psychophysical stress caused by hectic living pace and psychological stress;
- Antibiotic and drug treatment for infections;
- Weakened immune system due to vitamin deficiency, previous illnesses or the use of cortisones or other drugs (antibiotics, antacids, protein pump inhibitors, abuse of laxatives);
- Poor nutrient absorption by the intestine due to altered permeability;
- Chronic inflammation (Chron's disease, ulcerous colitis, celiac, etc.);
- Sedentary life.

### **TYPES OF INTESTINAL DYSBIOSIS**

At least five different types of Intestinal Dysbiosis can be identified:

- Deficiency dysbiosis: due to a deficit of intestinal bacterial flora (bifid bacterium and lactobacillus), mainly caused by a diet poor in soluble fibers and/or rich in prepacked, refined, sterilized foods or after antibiotic treatment;
- Putrefactive dysbiosis: aided by a diet too rich in animal fat and meat, poor in fibers (increase in the number of bacterioids, clostridium, peptococcus and eubacteria);
- Fermentative dysbiosis: characterised by a relative intolerance to carbohydrates or due to an excessive intake of simple sugars, leading to accentuated bacterial fermentation (excessive bacterial growth in the small intestine, normally less populated by microorganisms);
- Sensitisation dysbiosis: caused by an immune response to components in the physiological intestinal

bacterial micro flora (deficit in the immune barrier formed of the IgA secretions);

- Fungi dysbiosis (intestinal candida and excessive yeast): due to the overgrowth of *Saccharomyces* (fungi) or *Candida*, aided by a diet rich in simple sugars, leavened foods, refined carbohydrates and poor in fibers.

## **SYMPTOMS ASSOCIATED WITH DYSBIOSIS**

The Intestinal dysbiosis may manifest with a wide range of signs and symptoms including:

- Poor digestion which results in alterations to the intestinal passage (frequent constipation or diarrhoea, meteorism, irritable colon, intestinal irregularity);
- Sense of being bloated and abdominal tautness, with pain, flatulence, general feeling of being indisposed and unwell;
- Increased susceptibility to infection due to the decreased immune defences;
- Increased probability of mycosis in the intestine (candidosis), vaginitis and cystitis in women.
- General disorders: nervousness, anxiety, sleep disorders, tiredness, asthenia and mood swings.

Intestinal Dysbiosis can be assessed through a simple urine test that highlights the excess or lack of metabolites derived from the metabolic activity of the intestinal bacterial flora. The test reveals the presence in the urine of two tryptophan metabolites, called Indican and Skatole, thus enabling to test whether there are any fermentative or putrefactive events occurring in the intestine.

### **INDICAN**

The Tryptophan amino acid normally consumed in the diet undergoes a metabolisation process, by certain species of intestinal bacteria, that produces the metabolite called Indole. As the small intestine is poorly populated by bacterial flora, there are low levels of Indican in the urine of a clinically healthy person. A high level of Indican in the urine shows there is dysbiosis in the small intestine.

### **SKATOLE**

3-methyl-indole, better known as Skatole, is an organic compound that comes from the decarboxylation of tryptophan in the intestine (especially in the colon). If the intestinal flora is not balanced, the amino acids derived from an incomplete digestion of proteins undergo the process of decarboxylation that produces high skatole so it should be found in the urine.

## **USEFUL ADVICE AND INTERPRETING THE REPORT**

In the case of intestinal disorders, the results should be followed by a careful study of the person's medical history and additional tests, to evaluate the aetiology of the symptoms. In the same way, it is useful to know: which strain of bacteria is missing and which pathogenic strain is in overgrowth, the assessment of inflammatory markers and intestinal permeability, the presence food intolerances.

The profile can give indications about which intestinal tract has unbalanced bacterial flora:

- Alterations in Indican values indicate Dysbiosis in the small intestine - fermentative dysbiosis, advisable to take supplements with strains of *Lactobacilli* (*Acidophilus*, *Rhamnosus*, *Salivarius*, *Casei*, *Plantarum*, *Reuteri*);
- Alterations in Skatole values indicated Dysbiosis in the colon - putrefactive dysbiosis, advisable to take supplements with strains of *Bifidus* bacteria;
- Alterations in both parameters indicate Intestinal Dysbiosis in both the small intestine and the colon, to be treated with various strains of probiotics.

Besides integrating with probiotics (bacteria that repopulate the gastrointestinal tract) it can be useful to integrate prebiotics, i.e. soluble food fibers able to aid the growth of "good" bacterial flora. Some examples of prebiotics are: inulin, fructose-oligo-saccharides and alcohol-sugars. Inulin aids the growth of *bifidus* bacteria and *lactobacilli* in the intestine. Fructose-oligo- saccharides (FOS) stimulate the selective growth of *bifidus* bacteria, inhibiting the growth of pathogenic bacteria, not able to break the FOS chemical bonds. Lactitol (alcohol-sugar) reaches the colon intact, where it promotes acidification locally, aiding the growth of *lactobacilli* to the detriment of putrefactive coliforms.

A healthy lifestyle, with a balanced diet combined with the intake of prebiotics and probiotics specific to the type of dysbiosis, contribute to improving the health of the gut and in the whole organism. The ideal diet for those suffering from dysbiosis consists of fruits, vegetables, legumes, lean meats, fish, vegetable fats and fibers (about 25-30 grams per day).

### REPEATING THE TEST

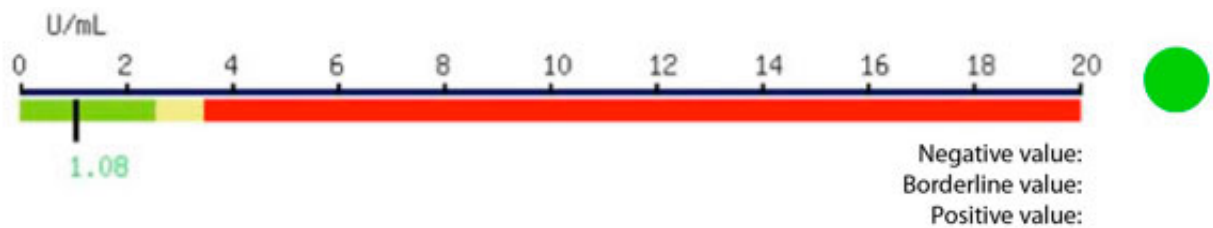
If the test is positive, it is advisable to repeat it after 2/3 months, after following treatment based on supplements and good diet. In the case of therapeutic monitoring or pathologies, it is advisable to repeat the test according to the advice from the doctor who prescribes it. If there are problems in interpreting the results, or if there are any pathologies in progress, a specialist's opinion is recommended, who is able to provide the specific therapeutic assistance.

### IMPORTANT

The test results must always be interpreted and integrated by the doctor into each patient's case. This test cannot be reproduced partially. The laboratory results, graphs and explanations contained in this leaflet must not be taken as a medical diagnosis. Therefore they are exclusively an extra instrument for the doctor, who is able to use them and integrate them with the other factors that emerge during the check up or other diagnostic tests, to then formulate the correct treatment and diagnosis of the patient's health.

### GUIDE TO READING THE TEST

- **GREEN TRAFFIC LIGHT:** value in the norm
- **YELLOW TRAFFIC LIGHT:** borderline value
- **RED TRAFFIC LIGHT:** value out of normal range



# TEST RESULTS:

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## **DYSBIO CHECK** **(Assessment of intestinal dysbiosis)**

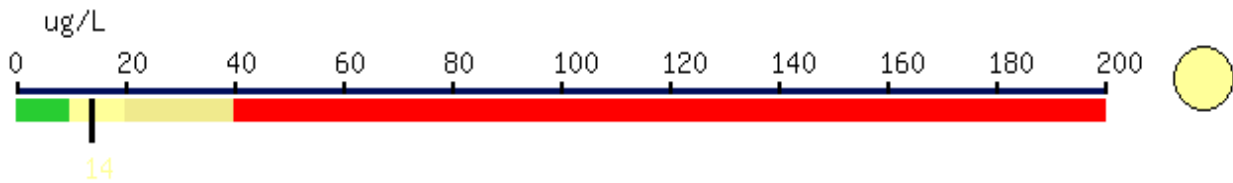
Dott.ssa Ausilia Rausa

A handwritten signature in black ink, appearing to read "ARausa", is positioned below the printed name.

## Results

Skatole

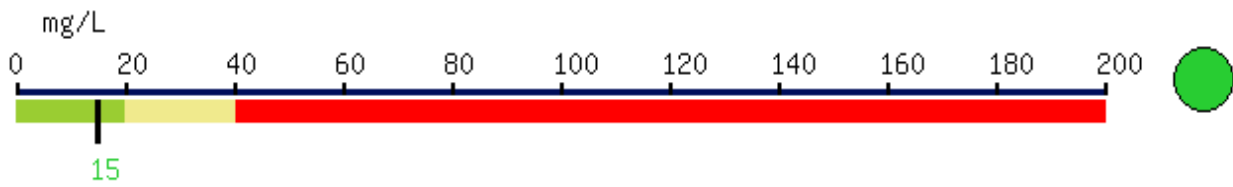
14 ug/L



No dysbiosis: 0 - 10  
Dysbiosis Slight: 10 - 20  
Medium dysbiosis: 20 - 40  
Dysbiosis: 40 - 200

Indican

15 mg/L



No dysbiosis: 0-20  
Medium dysbiosis: 20-40  
Serious dysbiosis: 40-200