

### Comprehensive Stool with Parasitology x3

The Comprehensive Stool with Parasitology profile is designed to test the ecology and physiology of the gut. This profile is an important tool for identifying imbalances in intestinal microflora. It includes comprehensive bacteriology and yeast cultures to identify the presence of beneficial flora, imbalanced flora including Clostridium species, and dysbiotic flora, as well as detection of infectious pathogens and evaluation for the presence of parasites. Antimicrobial susceptibility testing to prescriptive and natural agents is also performed for appropriate bacterial and fungal species at no additional charge. Parasitology testing can include one, two, or three day collection, based on practitioner preference.

### Analytes Tested

- Additional pathogens culture - stool
- Bacteriology culture, aerobic - stool
- Cryptosporidium - stool
- Day 2 Parasitology, trichrome - stool
- Day 3 Parasitology, trichrome - stool
- Giardia lamblia - stool
- Parasitology, concentrate - stool
- Parasitology, trichrome - stool
- Yeast culture - stool

### This test is useful for

- Autoimmune disease
- Fatigue
- Food sensitivities
- Gastrointestinal symptoms
- IBD/IBS
- Inflammation
- Nutritional deficiencies

### Detailed Information

The Comprehensive Stool with Parasitology profile is an important tool for identifying imbalances in intestinal microflora. It includes comprehensive bacteriology and yeast cultures to identify the presence of beneficial flora, imbalanced flora including Clostridium species and dysbiotic flora, as well as detection of infectious pathogens and evaluation for the presence of parasites.

### Bacteriology

A good balance of beneficial microflora has been known to be associated with health benefits since the turn of the century. The immunology pioneer, Elie Metchnikoff, drew attention to the adverse effects of dysbiotic gut microflora on the host and suggested that ingestion of fermented milks ameliorated what he called "autointoxication." He proposed that the consumption of large quantities of Lactobacillus species would reduce the number of toxin-producing bacteria and result in better health and increased lifespan.

Over the past 90-plus years, there has been extensive scientific research demonstrating that a good balance of Lactobacilli, Bifidobacteria and beneficial E. coli bacteria are important to the functional health of the gut, and as a result, to the whole organism. The benefits identified include inhibition of microbial pathogens, prevention and treatment of antibiotic-associated diarrhea, prevention of travelers' diarrhea, reduction of lactose intolerance symptoms, reduction in serum cholesterol levels, enhancement of the immune system, and inhibition of the proliferation of Candida albicans. Research has shown that improved biological value of food can be achieved through the activity of Lactobacilli and Bifidobacteria which have been reported to produce folic acid, niacin, thiamin, riboflavin, pyridoxine, biotin and vitamin K.

The mechanisms by which these benefits are derived are not yet fully understood. However, research suggests that some of the beneficial effects may be due to the following activities of beneficial bacteria:

- Release of substances antagonistic to enteropathogenic microorganisms such as: lactocidin, lactobacillin, and acidolin
- Competition with pathogens for adhesion receptors
- Production of lactase
- Production of short chain fatty acids (SCFAs) such as butyrate, propionate and acetate



In a healthy balanced state of intestinal flora, the beneficial bacteria make up a significant proportion of the total microflora. However, in many individuals, there is an imbalance of beneficial bacteria and an overgrowth of non-beneficial or even pathogenic microorganisms dysbiosis. This can be due to a variety of factors including:

- Daily exposure to chemicals in our drinking water that are toxic to friendly bacteria
- The use of antibiotics
- Chronic consumption of highly processed foods (low in fiber, high in sugar)
- High stress levels

Patients may present with chronic symptoms such as irritable bowel syndrome, autoimmune diseases, such as rheumatoid arthritis, fatigue, chronic headaches, and allergies to a variety of foods. Antimicrobial susceptibility testing to prescriptive and natural agents is also performed for appropriate bacterial species at no additional charge. This provides the clinician with important and specific clinical information to help plan an appropriate treatment protocol.

## Yeast

Infection with yeast species can cause a variety of symptoms, both intra- and extra-gastrointestinal, and in many cases, may escape suspicion as a pathogenic agent. Controversy remains as to the relationship between Candida infection and episodes of recurrent diarrhea. However, episodes of yeast infection after short-term and long-term antibiotic use have been identified in patients with both gastrointestinal and vaginal symptoms.

There is some evidence linking yeast infections with more chronic extra-gastrointestinal conditions. Studies suggest that the production of antibodies against Candida albicans may contribute to atopic dermatitis in young adults. Other studies have identified the potential role of candidiasis in chronic fatigue syndrome.

Identification of abnormal levels of specific yeast species in the stool is an important diagnostic step in therapeutic planning for the patient with chronic gastrointestinal and extra-gastrointestinal symptoms.

Antimicrobial susceptibility testing to prescriptive and natural agents is also performed for appropriate fungal species at no additional charge. This provides the clinician with useful clinical information to help plan an appropriate treatment protocol.

## Parasitology

According to Dr. Hermann R. Bueno of the Royal Society of Tropical Medicine and Hygiene in London, "parasites are the missing diagnosis in the genesis of many chronic health problems, including diseases of the gastrointestinal tract and endocrine system."

While parasitic infection may be an underlying etiological factor in several chronic disease processes, doctors often do not consider the potential for parasitic involvement because signs and symptoms of parasitic infection often resemble those of other diseases. However, it has been shown that parasite testing is a reasonable approach to the detection of causative agents for chronic gastrointestinal disorders.

Most Americans are inclined to believe that parasitic infection is a rare and exotic occurrence, limited to those who have traveled to distant, tropical lands. However, for a number of reasons, there has been an increase in the incidence of parasitic infection in this country. These may include:

- Contamination of the water supply
- Increased use of daycare centers
- Increased travel to, and visits from, countries where parasitic infection is an endemic
- Household pets
- Consumption of exotic and uncooked foods
- Antibiotic use
- Changing sexual partners

Signs and symptoms of parasitic infection vary from one individual to another. The more common signs include constipation, diarrhea, bloating, gas, symptoms of irritable bowel syndrome, arthralgias, myalgias, anemia, increased allergic reactions, skin lesions, agitation and anxiety, difficulty with sleep, decreased energy, malnutrition and decreased immune function. Infection can occur by four different pathways. These routes include:

- Contaminated food or water
- Insect vectors
- Sexual contact
- Passage through the skin and nose

A thorough patient history will help assess the possibility of parasitic infection and the need for appropriate testing to confirm the suspicion. Parasitology testing can include one-, two- or three-day collection, based on practitioner preference.

