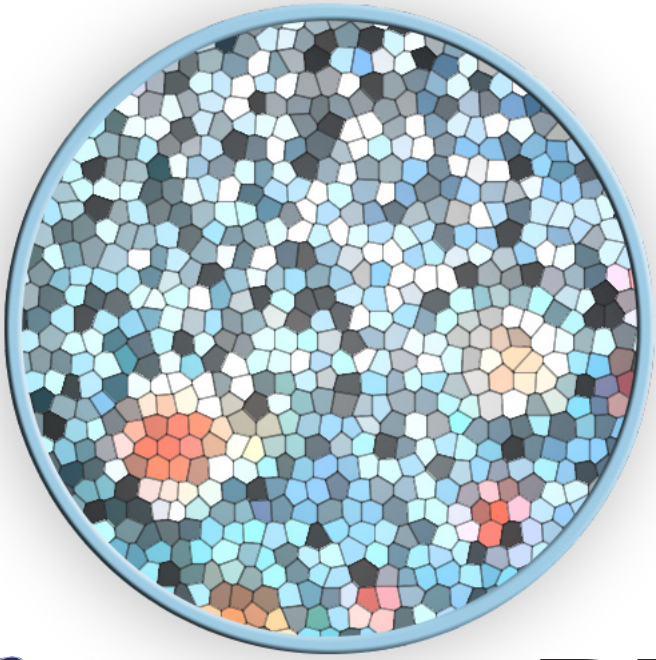
Optimising Gut Health

Using Comprehensive Microbiology Testing



fxMED

First in Nutritional and Environmental Medicine

DDI DOCTOR'S DATA INC.

SCIENCE + INSIGHT

Comprehensive Stool Analysis with Parasitology

Clinical microbiology plays a crucial role in individual and community health. Because most microbes living on or within the body are beneficial, distinguishing those that are disease-producing is a critical function of a clinical microbiology laboratory.

Through stool specimens collected and the use of advanced assays and technology, Doctor's Data determines what microorganisms are present and which may be causing infection. Doctor's Data provides world-class diagnostic microbiology testing that helps to assess digestive and absorptive functions, detect pathogens or parasites and identify specific bacteria and yeast.

- Bacteria, Yeast and Parasites
- Digestion and Absorption
- Inflammation

Gastrointestinal complaints are among the most common in healthcare, with symptoms ranging from diarrhoea, constipation, bloating and indigestion to irritable bowel syndrome and malabsorption.

Performed using high sensitivity and specificity stool analysis techniques including MALDI-TOF MS; a similar method of detection that has been used by NASA in effort to determine if planet Mars had been hospitable for microbial inhabitance.

This comprehensive panel is the starting point for pinpointing the causes of gastrointestinal symptoms and chronic conditions, and measures key markers of digestive and absorptive function and inflammation, all to guide targeted treatment selection.

Doctor's Data can identify more than 1,250 bacteria and 250 yeast in stool using growth-based culture, the standard of practice in clinical microbiology.

More information

Gastrointestinal (GI) complaints are among the most common reasons that patients seek healthcare

The ability to digest and selectively absorb nutrients from our foods and beverages is one of the cornerstones of good health. To obtain benefits from food that is consumed, nutrients must be appropriately digested and then efficiently absorbed.

Poor digestion and malabsorption of vital nutrients can contribute to problems with degenerative diseases, compromised immune status, and deficiency states caused by inadequate mineral, vitamin, carbohydrate, fats, and amino acids status.

Signs of Unfavourable Gut Health

- Loose stool/ Persistent Diarrhoea
- Constipation
- Gas/ bloating
- Indigestion
- CHO sensitivity
- Blood or mucus
- IBS/ IBD
- Antibiotics
- Skin conditions
- Arthritis (AS)
- Food sensitivities
- Foul breath
- Nutritional deficiencies
- ASD/ ADD/ ADHD
- Poor detoxification

Impairment in Intestinal Function

In addition to digestion and selective absorption issues, in some cases the absorptive capacity or the barrier function of gut (as in "excessive intestinal permeability") can become impaired.

Impairment can result from a number of suspected causes such as low stomach acid; chronic maldigestion; food allergens; bacterial overgrowth or imbalances (dysbiosis); pathogenic bacteria, yeast or parasites; toxic irritants; and the use of NSAID's and antibiotics.

Impairment in intestinal function can contribute to the development of food allergies, systemic illnesses, autoimmune disease, and toxic overload.

Cases

Case 1: Female with bloating, constipation, gastrointestinal discomfort and pain, and increasing fatigue

A 25 year old female had been taking medications and supplements for 12 months to relieve her symptoms. Her bowel motions were completely regulated by the medication but if she forgot to take them or ran out then she was instantly constipated again. Furthermore her other symptoms of pain, bloating, and extreme fatigue remained.

After completing a Comprehensive Stool Analysis with Parasitology x 3, results revealed very low beneficial flora, a long list of imbalanced flora, mild levels of candida, Blastocystis hominis, and low levels of secretory IgA.

This information gave her practitioner all the information required to be able to balance the flora and eradicate the parasite that had been causing the issues.

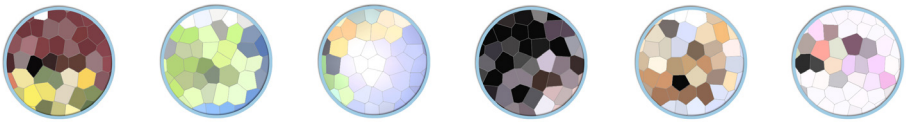
Case 2: Male with persistent bloating, alternating diarrhoea and constipation, and reoccurring respiratory tract infections.

A 46-year-old male had experienced persistent bloating over the last 5 years, which had become worse over the last 6 months. He regularly complained of alternating diarrhoea and constipation, explaining that he mainly suffered constipation during the week (when stressed at work) and the diarrhoea was worse on the weekend, when he eats greasy take-away foods. In the last year, he had used up all of his sick leave at work due to reoccurring respiratory tract infections (for which he had been prescribed antibiotics three times).

His practitioner requested that he complete a Comprehensive Stool Analysis with Parasitology x 3. The test results demonstrated imbalances in beneficial flora, significant candida overgrowth, microscopic yeast, low levels of elastase (an enzyme involved in protein digestion) and high fat stain (indicating poor digestion/absorption of fats), and low secretory IgA.

The test results correlated with the patient's diet and lifestyle, indicating that stress, food choices and poor digestion/absorption were playing a role in the health of the digestive tract, immune function and thus the resulting signs and symptoms.

This information was used by his practitioner to work with him to balance the multiple imbalances in his gut.



Doctor Data Comprehensive Stool Analysis (CSA)

A CSA aids in the investigation of digestive problems that may be contributing to digestive symptoms of unknown origin. This test will allow the practitioner to pinpoint the issue or issues without guesswork and recommend the best dietary /nutritional changes. It will also identify digestion function and absorption of different food groups, and can identify possible pathogens (infective agents that can contribute to illness).

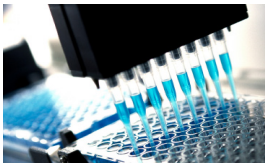
What does the Comprehensive Stool Analysis Assess?

- Bacteria Culture – Beneficial (Expected) Bacteria, Commensal (Imbalanced) Bacteria & Dysbiotic (potential pathogens) Bacteria
- Yeast Culture – Normal Yeasts and Dysbiotic Yeasts
- Microscopic Yeast
- Parasitology (trained parasitologists look for hundreds of potential parasites at multiple stages of their life cycles)
- Giardia/Cryptosporidium (two of the most common parasites)
- Digestion/Absorption Markers – Elastase, Fat Stain, Muscle Fibres, Vegetable Fibres, Carbohydrates
- Inflammatory Markers – Lysozyme, Lactoferrin, Calprotectin, White Blood Cells, Mucous
- Immunology – Secretory IgA (secreted in the gastrointestinal tract and plays an important role in immune function)
- Short Chain Fatty Acids (help to maintain normal pH and make the gastrointestinal tract an unsuitable environment for pathogens)
- Intestinal Health Markers – Red Blood Cells, pH, Occult Blood

How is the Test Performed?

Doctors Data have multiple stool testing options available however the most comprehensive and popular test is the **Comprehensive Stool Analysis with Parasitology x3 (CSAPx3)** which requires the patient to collect a stool sample daily for 3 days, and send all samples to FxMed as soon as they have completed the collection.

Why Choose Doctors Data?



Employing gold standard O&P Microscopy along with Enzyme Immunoassays (EIA), parasite identification is done differently at Doctor's Data. When multiple specimens are provided for parasitology, each specimen is concentrated and analysed independently rather than being combined - a total of six slides for a Parasitology x 3. Research has clearly demonstrated that combining all three specimens does not improve detection of parasites, including protozoa, despite unfounded claims to the contrary.

Doctor's Data uses the most expansive open reference database available for identification for GI bacteria and yeast. Their high-complexity microbiology combined with **MALDI-TOF proteomic methodology** affords the opportunity to identify over 1,400 bacteria and yeast, including 84 Clostridium spp. and 170 species of yeast (80 Candida spp.). Bacteria, Yeast and Parasites.

Doctors Data has the most extensive database in the world, and processes receives over 1400 samples daily.

In Summary

- Industry-leading Accuracy; Uses MALDI-TOF technology
- Culture Growth for all Beneficial, Imbalanced and Dysbiotic Bacteria
- Culture Growth for all Yeast
- Multiple Ova & Parasite Microscopic Analysis (Gold Standard)
- Assessments for SCFAs, Secretory IgA, Lysozyme, Lactoferrin
- Calprotectin, White Blood Cells, Mucus, Elastase, Carbohydrates
- Fat Stain, Vegetable & Muscle Fibres, Red Blood Cells, pH, Occult Blood
- Susceptibility (Pharmaceutical & Botanical) testing for guiding
- Dysbiotic Bacteria and Yeast antimicrobial agents
- Patient personalised commentary provided

FAQs

What if the patient doesn't have a bowel motion everyday?

It is ideal to collect the samples consecutively however if this is not possible the samples can be taken over a number of days. However, the third sample needs to be taken within 7 days of the first sample.

How should the samples be stored during the collection process and until the courier arrives?

Samples 1 and 3 can be stored at room temperature OR in the fridge (fridge is recommended for Australian climate). Sample 2 consists of splitting the sample into two separate vials - one of which can be stored at room temperature OR in the fridge and the other needs to go in the freezer.

What if the patient needs to be on medication to allow bowel motions?

Depending on the supplement or medication, it is preferable that any non essential medications be ceased prior to the test to minimise interference with the results.

What about discontinuing medicines before testing?

The patient should refrain from taking anti fungal or antibiotic medications for 3 days before beginning the collection. They should also refrain from taking digestive enzymes, laxatives (particularly mineral oil and castor oil) antacids, aspirin and substances containing barium and/or bismuth for two days prior (unless otherwise instructed). Avoidance of panadol is also recommended, however the sample is still acceptable if panadol has been taken during collection.

Why do Doctors Data require 3 stool specimens for the CSAPx3 Test?

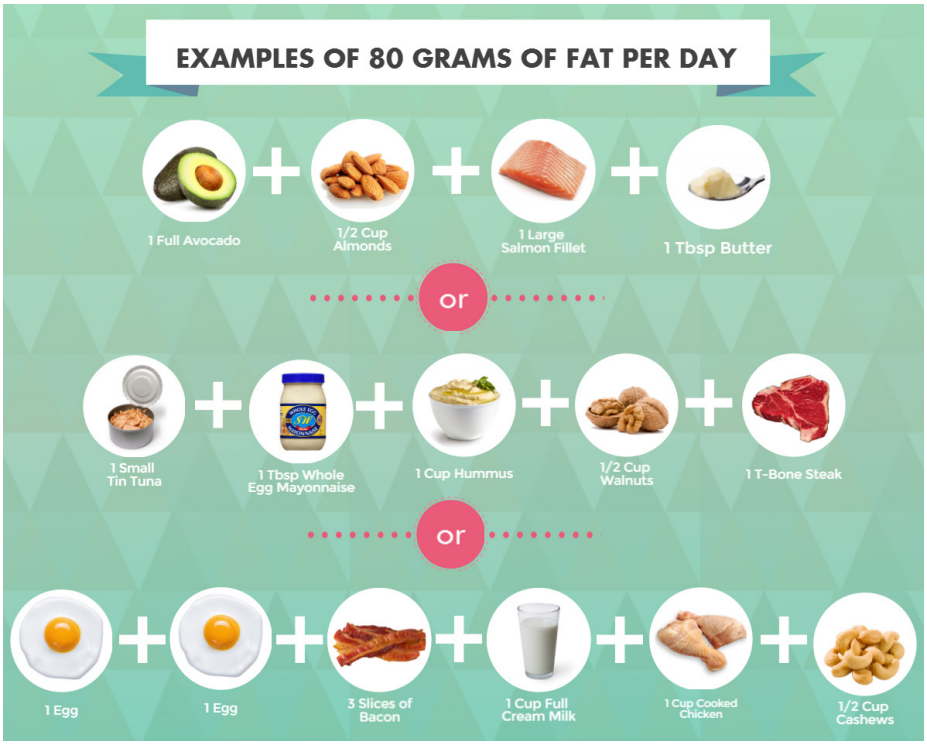
This is solely for parasite life cycle/stage fluctuations - to ensure the best assessment of their presence. (Parasite eggs do not appear on stool specimens on a homogenous/regular basis, therefore need to be tested over three days). It also provides the ability to check on irregular yeast proliferation due to dietary/immune fluctuations.

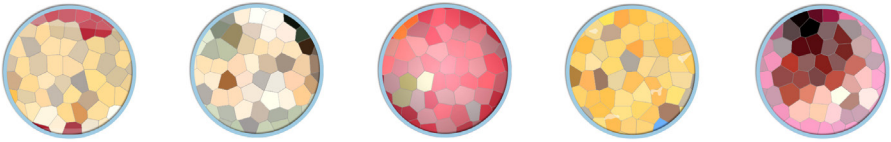
How is the sample kept stable?

The vials contain the recommended transport media for stool specimens (called Cary-Blair Media), which is a buffered solution that prevents shifts in pH and has a very low nutrient content that inhibits the further growth of the bacteria. The solution also contains a reducing agent that significantly lowers the oxygen content to ensure the bacteria survive. The levels of different bacteria have been shown to remain stable in the transport media for up to 14 days.

Should certain foods be consumed/avoided before testing?

No foods need to be avoided. However, 60-100g of dietary fat should be consumed daily for three days prior to the collection. Refer to below chart for examples of how to fulfil this amount daily.





Optimal Gut Flora is Fundamental in Maintaining Optimum Health.

Research and clinical studies have shown that optimising gut health may be one of the most important steps in maintaining wellness.

Functional Testing can provide a holistic integrative picture that supports the unique expression of health and vitality for each individual. By providing health practitioners the necessary tools to identify possible factors that can alter body systems, an overall state of balance can be maintained, promoting optimal health and wellness.

Gastrointestinal Testing Options

Bacteriology Culture (1)	Culture for Beneficial/Expected, Imbalanced, and Dysbiotic Bacteria Includes Susceptibility testing for all Dysbiotic Bacteria Cultured
Yeast Culture (2)	Culture for all Yeast. Includes Susceptibility testing for any Yeast Cultured.
Microbiology Profile (1+2)	Culture for Beneficial, Imbalanced, and Dysbiotic Bacteria Culture for all Yeast. Includes Susceptibility testing for all Dysbiotic Bacteria Cultured and Includes Susceptibility testing for any Yeast Cultured.
Parasitology (3)	A x1, x2, or x3 collection of stool to test for parasites and EIA testing for *Cryptosporidium* and *Giardia lamblia*
Comprehensive Parasitology (1+2+3)	Culture for Beneficial, Imbalanced, and Dysbiotic Bacteria Culture for all Yeast. Includes Susceptibility testing for all Dysbiotic Bacteria Cultured and Includes Susceptibility testing for any Yeast Cultured. A x1, x2, or x3 collection of stool to test for parasites and EIA testing for *Cryptosporidium* and *Giardia lamblia*
Comprehensive Stool Analysis (NO Parasitology) (1+2+4)	Culture for Beneficial, Imbalanced, and Dysbiotic Bacteria Culture for all Yeast. Includes Susceptibility testing for all Dysbiotic Bacteria Cultured and Includes Susceptibility testing for any Yeast Cultured. Includes Short Chain Fatty Acids, Secretory IgA, Lysozyme, Lactoferrin, White Blood Cells, Mucus, Elastase, Carbohydrates, Fat Stain, Vegetable and Muscle Fibers, Red Blood Cells, pH and Occult Blood
Comprehensive Stool Analysis WITH Parasitology (1+2+3+4)	Culture for Beneficial, Imbalanced, and Dysbiotic Bacteria Culture for all Yeast. Includes Susceptibility testing for all Dysbiotic Bacteria Cultured and Includes Susceptibility testing for any Yeast Cultured. A x1, x2, or x3 collection of stool to test for parasites and EIA testing for *Cryptosporidium* and *Giardia lamblia* Includes Short Chain Fatty Acids, Secretory IgA, Lysozyme, Lactoferrin, White Blood Cells, Mucus, Elastase, Carbohydrates, Fat Stain, Vegetable and Muscle Fibers, Red Blood Cells, pH and Occult Blood
Comprehensive Clostridium Culture (5)	Culture for all Clostridium species if *C. Difficile* is detected, the sample will automatically be tested for Toxins A & B at no additional charge (DNA probe)

Doctors Data is a U.S.-based clinical laboratory providing innovative, accurate speciality testing since 1972

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Doctors Data Hair Analysis is available in New Zealand via FxMed

Please contact FxMed's Technical Support Team on techsupport@fxmed.co.nz for further technical assistance or Customer Services on support@fxmed.co.nz to order a test kit.

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