

TEST PATIENT**Dr.TEST DOCTOR**

P: 1300 688 522
 E: info@nutripath.com.au
 A: PO Box 442 Ashburton VIC 3142

Date of Birth : 01-Jan-1962
 Sex : F
 Collected : 23/Aug/2019
 Received: 23-Aug-2019
 123 TEST STREET
 BURWOOD VIC 3125
 Lab id : **3629214** UR#:

TEST HEALTH CENTRE
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COMPLETE DIGESTIVE STOOL ANALYSIS - Level 3

MACROSCOPIC DESCRIPTION

	Result	Range	Markers
Stool Colour	Brown	Brown	Colour - Brown is the colour of normal stool. Other colours may indicate abnormal GIT conditions.
Stool Form	Formed	Formed	Form -A formed stool is considered normal. Variations to this may indicate abnormal GIT conditions.
Mucous	NEG	< +	Mucous - Mucous production may indicate the presence of an infection, inflammation or malignancy.
Occult Blood	+	< +	Occult Blood - The presence of blood in the stool may indicate possible GIT ulcer, and must always be investigated immediately.

Macroscopy Comment

BROWN coloured stool is considered normal in appearance.

BLOOD PRESENT: Consider blood vessel injury, inflammation, infection, ulceration, hemorrhoids, severe constipation & other injury.

Treatment:

- Investigate the cause of bleeding using other diagnostic tools such as endoscopy
- Assess other CDSA markers such as calprotectin, H. pylori, M2PK & microbiology markers.





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MICROSCOPIC DESCRIPTION

	Result	Range	Markers
RBCs (Micro)	+	< +	RBC(Micro) - The presence of RBCs in the stool may indicate the presence of an infection, inflammation or haemorrhage.
WBCs (Micro)	1	< 10	WBC(Micro) - The presence of WBCs in the stool may indicate the presence of an infection, inflammation or haemorrhage.
Food Remnants	+	< ++	Food Remnants - The presence of food remnants may indicate maldigestion.
Fat Globules	+	< +	Fat Globules -The presence of fat globules may indicate fat maldigestion.
Starch	NEG	< +	Starch - The presence of starch grains may indicate carbohydrate maldigestion.
Meat Fibres	NEG	< +	Meat Fibres - The presence of meat fibres may indicate maldigestion from gastric hypoacidity or diminished pancreatic output.
Vegetable Fibres	+	< ++	Vegetable Fibres - The presence of vegetable fibres may indicate maldigestion from gastric hypoacidity or diminished pancreatic output.

Microscopy Comment

RED BLOOD CELLS DETECTED: Consider blood vessel injury, inflammation, infection, ulceration, hemorrhoids, severe constipation & other injury.

Treatment:

- Investigate the cause of bleeding using other diagnostic tools such as endoscopy
- Assess other CDSA markers such as calprotectin, H. pylori, M2PK & microbiology markers.

FAT GLOBULES PRESENT:

The presence of fat globules in faeces is an indirect indicator of incomplete fat digestion. Consider high dietary fat intake, cholestasis, malabsorption & digestion (diarrhoea, pancreatic or bile salt insufficiency), intestinal dysbiosis, parasites, NSAIDs use, short bowel syndrome, whipples disease, Crohn's disease, food allergies & sensitivities.

Treatment:

- Prebiotic and probiotic supplementation
- Supplement hydrochloride, digestive enzymes or other digestive aids
- Investigate underlying causes
- Investigate food sensitivities and allergies
- Remove potential irritants
- Assess other CDSA markers such as pancreatic elastase 1, calprotectin, & microbiology markers.

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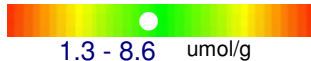
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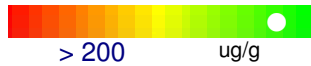
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DIGESTIVE AND ABSORPTION MARKERS**Chymotrypsin****10.2**

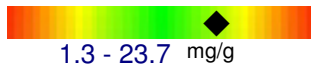
Chymotrypsin - Chymotrypsin is involved in protein digestion. Low levels of chymotrypsin may indicate protein maldigestion due to pancreatic insufficiency.

Short Chain Fatty Acids, Putrefactive**5.6**

Short Chain Fatty Acids, Putrefactive - Putrefactive SCFAs are produced when anaerobic bacteria ferment undigested protein, indicating protein maldigestion.

Pancreatic Elastase 1**>500**

Pancreatic Elastase is used to assess pancreatic exocrine function. Pancreatic insufficiency is associated with diabetes mellitus, cholelithiasis, pancreatic tumour, cystic fibrosis and osteoporosis. This test is not affected by substitution therapy with enzymes of animal origin. PE-1 levels decline with age.

Long Chain Fatty Acids**24.0**

Long Chain Fatty Acids - Elevated levels of total LCFAs in the stool may indicate inadequate lipid absorption

Absorption Comment

Long Chain Fatty Acids ELEVATED:

Suspect malabsorption, increased mucosal cell turnover, bacterial overgrowth of the small intestine, bile insufficiency.

PANCREATIC ELASTASE: Normal exocrine pancreatic function.

Pancreatic Elastase reflects trypsin, chymotrypsin, amylase and lipase activity.

This test is not affected by supplements of pancreatic enzymes.

Healthy individuals produce on average 500 ug/g of PE-1. Thus, levels below 500 ug/g and above 200 ug/g suggest a deviation from optimal pancreatic function.

The clinician should therefore consider digestive enzyme supplementation if one or more of the following conditions is present:

Loose watery stools, Undigested food in the stools, Post-prandial abdominal pain, Nausea or colicky abdominal pain, Gastroesophageal reflux symptoms, Bloating or food intolerance.

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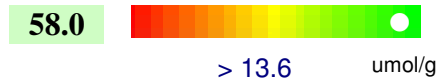
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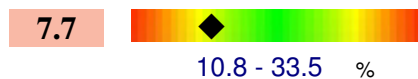
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METABOLIC MARKERS AND SHORT CHAIN FATTY ACIDS

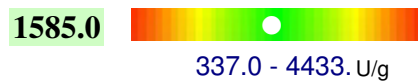
Short Chain Fatty Acids, Beneficial



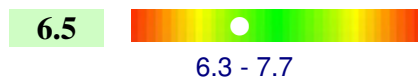
Butyrate



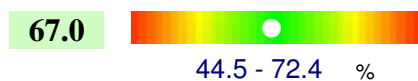
b-Glucuronidase



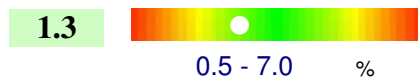
pH



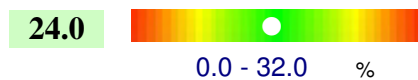
Acetate



Valerate



Propionate

**Markers**

Short Chain Fatty Acids, Beneficial (Total) - Elevated SCFAs may indicate bacterial overgrowth. Inadequate SCFAs may indicate inadequate normal flora.

Butyrate - Decreased Butyrate levels may indicate inadequate colonic function.

b-Glucuronidase - Increased levels of b-Glucuronidase may reverse the effects of Phase II detoxification processes.

pH - Imbalances in gut pH, will influence SCFA production and effect.

Acetate - Decreased Acetate levels may indicate inadequate colonic function.

Valerate - Decreased Valerate levels may indicate inadequate colonic function.

Propionate - Decreased Propionate levels may indicate inadequate colonic function.

Metabolic Markers Comment

In a healthy gut Short Chain Fatty Acids are exhibited in the following proportions; Butyrate, Acetate, Propionate (16% : 60% : 24%)

Butyrate levels are LOW:

Suspect insufficient fiber, slow transit time, recent antibiotic therapy. Low butyrate is associated with an increased risk of ulcerative colitis, colon cancer & constipation.

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BENEFICIAL BACTERIA

	Result	Range
Bifidobacteria	++++	2 - 4 +
Lactobacilli	++++	2 - 4 +
Eschericia coli	++++	2 - 4 +
Enterococci	+	1 - 2 +

COMMENTS:

Significant numbers of Lactobacilli, Bifidobacteria and E coli are normally present in the healthy gut: Lactobacilli and Bifidobacteria, in particular, are essential for gut health because they contribute to 1) the inhibition of gut pathogens and carcinogens. 2) the control of intetinal pH, 3) the reduction of cholesterol, 4) the synthesis of vitamins and disaccharidase enzymes.

OPPORTUNISTIC AND DYSBIOTIC BACTERIA

	Result	Range
Klebsiella	NEG	<+++
Citrobacter	NEG	<+++
Pseudomonas	NEG	<+++
Proteus	NEG	<+++
Campylobacter	NEG	<+
Salmonella	NEG	<+
Streptococcus	++	<+++
Yersinia	NEG	<+
Other Bacteria.	++	<+++

COMMENTS:

Commensal bacteria are usually neither pathogenic nor beneficial to the host GI tract. Imbalances can occur when there are insufficient levels of beneficial bacteria and increased levels of commensal bacteria. Certain commensal bacteria are reported as dysbiotic at higher levels. Dysbiotic bacteria consist of known pathogenic bacteria and those that have the potential to cause disease in the GI tract. A detailed explanation of bacteria that may be present can be found in the Pathogen Summary at the end of this report.

YEASTS

	Result	Range
Candida albicans	NEG	<+
Geotrichum spp	NEG	<+
Rhodotorula spp	NEG	<+
Other Yeasts	NEG	<+

COMMENTS:

Yeast may normally be present in small quantities in the skin, mouth, and intestine. A detailed explanation of yeast that may be present can be found in the Pathogen Summary at the end of this report.

PARASITES

	Result	Range
Blastocystis Hominis	++	<+
Dientamoeba fragilis	+	<+
Cryptosporidium	NEG	<+
Giardia lamblia	NEG	<+
Entamoeba Histolytica	NEG	<+
Other Parasites	+	<+

COMMENTS:

Parasites are organisms that are not present in a normal/healthy GIT. A detailed explanation of parasites that may be present can be found in the Pathogen Summary at the end of this report.

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ANTIBIOTIC SENSITIVITIES and NATURAL INHIBITORS

Antibiotics

- Ampicillin
- Augmentin
- Ciprofloxacin
- Norfloxacin
- Meropenem
- Cephalothin
- Gentamycin.
- Trimethoprim/Sulpha
- Erythromycin
- Penicillin.

Inhibitors

- Berberine
- Black Walnut
- Caprylic Acid
- Citrus Seed
- Coptis
- Garlic-
- Golden seal
- Oregano

LEGEND





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PATHOGEN SUMMARY

OTHER BACTERIA PRESENT:

Organism	Result	Range	Classification
The following group of organisms are deemed commensal, being neither beneficial or pathogenic. Where present, often inadequate levels of beneficial bacteria are also noted. These organisms may become dysbiotic at high levels where treatment may become necessary.			
Bacillus species	2+	0 - 3+	Non-Pathogen
Enterococcus faecalis	2+	0 - 3+	Non-Pathogen
Enterococcus faecium	2+	0 - 3+	Non-Pathogen
Streptococcus salivarius	3+	0 - 3+	Non-Pathogen
Streptococcus oralis	3+	0 - 3+	Non-Pathogen
Streptococcus anginosus	3+	0 - 3+	Non-Pathogen

OTHER YEASTS PRESENT:

Organism	Result	Range	Classification
NO FUNGAL ORGANISMS ISOLATED			

OTHER PARASITES PRESENT:

Organism	Result	Range	Classification
Blastocystis hominis	2+ * H	<1+	PATHOGEN
Dientamoeba fragilis	1+ * H	<1+	PATHOGEN
Endolimax nana	1+ * H	<1+	PATHOGEN

BACILLUS SPECIES:

Bacillus species are spore forming, gram-positive rods belonging to the Bacillaceae family. There are currently 50 valid species within the genus.

Sources:

Meat dishes are a common source of infection in other species of Bacillus such as B. subtilis and B. licheniformis.

Pathogenicity:

As yet, no toxins or other virulence factors have been identified in association with the symptoms that accompany non-B. cereus species.

Symptoms:

B. licheniformis and B. subtilis are associated with food-borne diarrheal illness.

Treatment:

B. species is almost always susceptible to clindamycin, erythromycin and vancomycin.

ENTEROCOCCUS:

Description:

Enterococcus species are gram-positive bacterium that are part of normal flora in the human gut. It can however be implicated in a variety of infections of which urinary tract infections are the most common. These infections can be exceptionally difficult to treat due to the genus exhibiting antibiotic resistance.

Sources:

Enterococcus infections spread from person to person through poor hygiene. Because these bacteria are found in faeces, people can transmit the infection if they don't wash their hands after using the bathroom. The bacteria can get into food or onto common touched surfaces.

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Treatment :

Treatment of Enterococcus species in gut flora may not be necessary or recommended. However, overgrowth of this genus may be implicated in other infections such as urinary tract infections. Enterococci are challenging to treat due their drug-resistant mechanisms. Ampicillin is the preferred antibiotic used to treat enterococci infections if required.

STREPTOCOCCUS:**Description:**

Streptococcus is a common isolate from gut flora. With the exception of very rare cases, streptococcus species are not implicated in gastric pathogenesis. However, there has been correlations with the presence of streptococcus pyogenes in patients who have, or have recently had scarlet fever. Streptococcus species are also implicated in urinary tract infections and faecal flora are the common source of contamination for urinary tract infections.

Sources :

Recent infections with streptococcus pyogenes or scarlet fever can be linked to the presence of this species in faeces.

Treatment :

Treatment of streptococcus in gut flora is not always recommended. A practitioner may take into consideration a range of patient factors and symptoms to determine if treatment is necessary.

BLASTOCYSTIS HOMINIS :

B. hominis has recently been reclassified as a protozoan, of which there are thought to be four separate serologic groups.

Sources :

This organism is transmitted via the fecal-oral route or from contaminated food or water. Prevention can be enhanced by improving personal hygiene and sanitary conditions.

Pathogenicity:

When this organism is present in the absence of any other parasites, enteric organisms or viruses, it may be considered the etiological agent of disease.

Symptoms :

Symptoms can include: diarrhea, cramps, nausea, fever, vomiting and abdominal pain. B. hominis has been associated with irritable bowel syndrome, infective arthritis and intestinal obstruction.

Treatment :

Currently, Metronidazole (Flagyl) is considered the most effective drug (750 mg tid x 10 days). Iodoquinol (Yodoxin) is also an effective medication (650 mg tid x 20 days). Recommended therapy can also eliminate G. lamblia, E. histolytica and D. fragilis, all of which may be concomitant undetected pathogens and part of patient symptomology.

DIENTAMOEBIA FRAGILIS :

It is closely related to Histomonas and Trichomonas species. D. fragilis is known to cause non-invasive diarrheal illness in humans. 90% of children are symptomatic, whereas only 15-20% of adults are. The most common symptoms associated with D. fragilis are intermittent diarrhea, fatigue, abdominal pain, fatigue, nausea, anorexia, malaise and unexplained eosinophilia. Diarrhea is predominately seen during the first 1-2 weeks of infection and abdominal pain may persist for 1-2 months.

Treatment :

Iodoquinol (650 mg tid x 20 days) or Tetracycline (500 mg qid x 10 days) or Metronidazole (500-750 mg tid x 10 days) have been used to treat D. fragilis. Another alternative is

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Paromomycin (500 mg tid x 7 days).

ENDOLIMAX NANA:

Endolimax nana transmission occurs by ingestion of the cyst stage in contaminated food or water. The organism resides in the lumen of the colon and cecum. Infections may be asymptomatic or present with diarrhea. Infection has also been associated with reactive arthritis and urticaria. Although textbooks traditionally consider this organism a commensal, it may be associated with and play a role in chronic illness.



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The Four “R” Treatment Protocol

REMOVE	<p>Using a course of antimicrobial, antibacterial, antiviral or anti parasitic therapies in cases where organisms are present. It may also be necessary to remove offending foods, gluten, or medication that may be acting as antagonists.</p> <p>Consider testing IgG96 foods as a tool for removing offending foods.</p>	ANTIMICROBIAL	Oil of oregano, berberine, caprylic acid
		ANTIBACTERIAL	Liquorice, zinc carnosine, mastic gum, tribulus, berberine, black walnut, caprylic acid, oil of oregano
		ANTIFUNGAL	Oil of oregano, caprylic acid, berberine, black walnut
		ANTIPARASITIC	Artemesia, black walnut, berberine, oil of oregano
		ANTIVIRAL	Cat's claw, berberine, echinacea, vitamin C, vitamin D3, zinc, reishi mushrooms
		BIOFILM	Oil of oregano, protease
REPLACE	<p>In cases of maldigestion or malabsorption, it may be necessary to restore proper digestion by supplementing with digestive enzymes.</p>	DIGESTIVE SUPPORT	Betaine hydrochloride, tilactase, amylase, lipase, protease, apple cider vinegar, herbal bitters
REINOCULATE	<p>Recolonisation with healthy, beneficial bacteria. Supplementation with probiotics, along with the use of prebiotics helps re-establish the proper microbial balance.</p>	PREBIOTICS	Slippery elm, pectin, larch arabinogalactans
		PROBIOTICS	Bifidobacterium animalis sup lactise, lactobacillus acidophilus, lactobacillus plantarum, lactobacillus casei, bifidobacterium breve, bifidobacterium bifidum, bifidobacterium longum, lactobacillus salivarius ssp salivarius, lactobacillus paracasei, lactobacillus rhamnosus, Saccaromyces boulardii
REPAIR & REBALANCE	<p>Restore the integrity of the gut mucosa by giving support to healthy mucosal cells, as well as immune support. Address whole body health and lifestyle factors so as to prevent future GI dysfunction.</p>	INTESTINAL MUCOSA IMMUNE SUPPORT	Saccaromyces boulardii, lauric acid
		INTESTINAL BARRIER REPAIR	L-Glutamine, aloe vera, liquorice, marshmallow root, okra, quercetin, slippery elm, zinc carnosine, Saccaromyces boulardii, omega 3 essential fatty acids, B vitamins
		SUPPORT CONSIDERATION	Sleep, diet, exercise, and stress management