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-.CHRISTINE SULLIVAN
7 COONUNGAI PLACE
TINGALPA QLD 4173

SHAE AITKEN

24-Jun-1983

Female

**58 TARONG AVENUE
NORTH LAKES QLD 4509**

LAB ID : 3873119
UR NO. : 6178633
Collection Date : 28-Feb-2023
Received Date:02-Mar-2023



3873119

COMPLETE DIGESTIVE STOOL ANALYSIS - Level 4

MACROSCOPIC DESCRIPTION

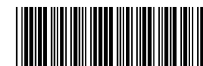
| | Result | Range | Markers |
|--------------|---------------|--------|--|
| Stool Colour | Brown | Brown | Colour - Brown is the colour of normal stool. Other colours may indicate abnormal GIT conditions. |
| Stool Form | Formed | Formed | Form -A formed stool is considered normal. Variations to this may indicate abnormal GIT conditions. |
| Mucous | NEG | < + | Mucous - Mucous production may indicate the presence of an infection, inflammation or malignancy. |
| Occult Blood | NEG | < + | 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.

Faecal Occult Blood Negative:

Faecal occult blood has not been detected in this specimen. If the test result is negative and clinical symptoms persist, additional follow-up testing using other clinical methods is recommended.



MICROSCOPIC DESCRIPTION

| | Result | Range | Markers |
|------------------|--------|-------|--|
| RBCs (Micro) | NEG | < + | RBC(Micro) - The presence of RBCs in the stool may indicate the presence of an infection, inflammation or haemorrhage. |
| WBCs (Micro) | 0 | < 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

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.

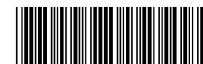
Treatment:

- 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.

FOOD REMNANTS PRESENT: Consider hypochlorhydria, pancreatic insufficiency, inadequate chewing.

Treatment:

- Consider hydrochloride, digestive enzymes or other digestive aids
- Improve chewing
- Assess other CDSA markers such as pH, pancreatic elastase 1, H. pylori & other food fibres.



DIGESTIVE AND ABSORPTION MARKERS

Short Chain Fatty Acids, Putrefactive



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

Pancreatic Elastase 1



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



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.

VEGETABLE FIBRES & CELLS PRESENT:

An indirect indicator of maldigestion from insufficient chewing, gastric hypoacidity, decreased bile salts or diminished pancreatic output.

PANCREATIC ELASTASE: Normal exocrine pancreatic function.

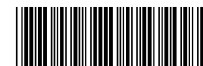
Pancreatic Elastase reflects trypsin, chymotrypsin, amylase and lipase activity.

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.

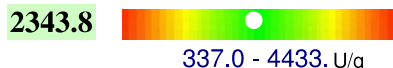
The clinician should therefore consider digestive enzyme supplementation if one or more of the following conditions is present:

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



METABOLIC MARKERS

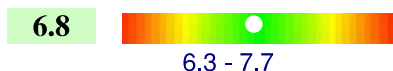
b-Glucuronidase



Markers

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

pH



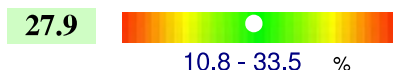
pH - Imbalances in gut pH, will influence SCFA production and effect.

Short Chain Fatty Acids, Beneficial



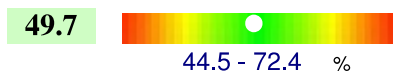
Short Chain Fatty Acids, Beneficial (Total) - Elevated SCFAs may indicate bacterial overgrowth. Inadequate SCFAs may indicate inadequate normal flora.

Butyrate



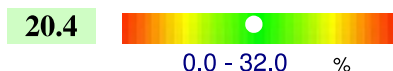
Butyrate - Decreased Butyrate levels may indicate inadequate colonic function.

Acetate



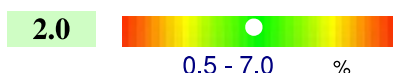
Acetate - Decreased Acetate levels may indicate inadequate colonic function.

Propionate



Propionate - Decreased Propionate levels may indicate inadequate colonic function.

Valerate



Valerate - Decreased Valerate levels may indicate inadequate colonic function.

Metabolic Markers Comment

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

The primary SCFAs butyrate, propionate and acetate are produced by predominant commensal bacteria via fermentation of soluble dietary fibre and intestinal mucus glycans.

Key producers of SCFAs include *Faecalibacterium prausnitzii*, *Akkermansia muciniphila*, *Bacteroides fragilis*, *Bifidobacterium*, *Clostridium* and *Lactobacillus* Spp.

The SCFAs provide energy for intestinal cells and regulate the actions of specialised mucosal cells that produce anti-inflammatory and antimicrobial factors, mucins that constitute the mucus barriers, and gut active peptides that facilitate appetite regulation and euglycemia. Abnormal SCFAs may be associated with dysbiosis, intestinal barrier dysfunction and inflammatory conditions.

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| BENEFICIAL BACTERIA | Result | Range | | Result | Range |
|------------------------------|--------|--------|---------------------------|--------|--------|
| Bifidobacterium longum. | 4+ | 2 - 4+ | Lactobacillus plantarum | 3+ | 2 - 4+ |
| Bifidobacterium bifidum | 1+ *L | 2 - 4+ | Lactobacillus rhamnosus. | 1+ *L | 2 - 4+ |
| Bifidobacterium animalis | 2+ | 2 - 4+ | Lactobacillus paracasei | 1+ *L | 2 - 4+ |
| Bifidobacterium pseudocaten. | 4+ | 2 - 4+ | Lactobacillus casei | 2+ | 2 - 4+ |
| Bifidobacterium breve | 2+ | 2 - 4+ | Lactobacillus acidophilus | 3+ | 2 - 4+ |
| Escherichia coli | 2+ | 2 - 4+ | Enterococci | 1+ | 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 intestinal pH, 3) the reduction of cholesterol, 4) the synthesis of vitamins and disaccharidase enzymes.

PATHOGENIC BACTERIA

| Organism | Growth | Range | Classification |
|-------------------|--------|-------|----------------|
| Aeromonas species | NEG | | |
| Campylobacter | NEG | | |
| Salmonella | NEG | | |
| Shigella | NEG | | |
| Yersinia | NEG | | |

COMMENTS:

The above Pathogenic Bacteria are those that have the potential to cause disease in the GI tract. A result of **ISOLATED** may require a notification to the Department of Health and also cross tested via a secondary method such as PCR or sequencing. Should this be the case, you will also be notified.

OPPORTUNISTIC AND DYSBIOTIC BACTERIA

| Organism | Growth | Range | Classification |
|-----------------------------|--------|-------|----------------|
| Clostridium species. | 1+ | < 4+ | Non-Pathogen |
| Streptococcus parasanguinis | 1+ | < 4+ | Non-Pathogen |
| Streptococcus species. | 1+ | < 4+ | Non-Pathogen |
| Enterococcus faecalis. | 1+ | < 4+ | Non-Pathogen |

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.



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YEASTS

| Organism | Growth | Range | Classification |
|------------------|--------|---------|----------------|
| Candida albicans | NEG | < ++ | |
| Geotrichum spp | NEG | < ++ | |
| Rhodotorula spp | NEG | < +++++ | |
| Other Yeasts | NEG | < +++++ | |

COMMENTS:

No Yeast or Fungal organisms isolated

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

| | |
|-----------------------|--------------|
| Blastocystis Hominis | NOT DETECTED |
| Dientamoeba fragilis | NOT DETECTED |
| Cryptosporidium | NOT DETECTED |
| Giardia lamblia | NOT DETECTED |
| Entamoeba Histolytica | NOT DETECTED |
| Other Parasites | NOT DETECTED |

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

Amoxicillin
Ampicillin
Augmentin
Ciprofloxacin
Norfloxacin
Meropenem
Cefazolin
Gentamycin.
Trimethoprim/Sulpha
Erythromycin
Penicillin.

LEGEND

| | | |
|---------------|---------------|------------------|
| S = Sensitive | R = Resistant | N/A = Not Tested |
|---------------|---------------|------------------|

Inhibitors

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

LEGEND

| | | | | | |
|----------------|----|----|-----------------|----|-----|
| Low Inhibition | | | High Inhibition | | |
| 0 | 20 | 40 | 60 | 80 | 100 |



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YEAST - SENSITIVITIES and NATURAL ANTIFUNGALS

Antifungals

Fluconazole

Voriconazole

Itraconazole

INHIBITION CATEGORY

| | | |
|------------|---------------------------------|---|
| R | Resistant | This category indicates that the organism is not inhibited by obtainable levels of the pharmaceutical agent |
| I | Intermediate | This category indicates where the minimum inhibition concentrations (MIC) approach obtainable pharmaceutical agent levels and for which response rates may be lower than for susceptible isolates |
| SDD | Susceptible, Dose Dependent | This category indicates that clinical efficacy is achieved when higher than normal dosage of a drug is used to achieve maximal concentrations |
| S | Susceptible | This category indicates that the organisms are inhibited by the usual achievable concentration of the agent |
| NI | No Interpretative Guidelines | This category indicates that there are no established guidelines for MIC interpretation for these organisms |

Non-absorbed Antifungals

Nystatin

Natural Antifungals

Berberine.

Garlic

Black Walnut.

Citrus Seed.

Coptis.

Golden seal.

Oregano.

LEGEND

Low Inhibition

High Inhibition





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WORM EXAMINATION

Ancylostoma duodenale, Roundworm

Negative

Ascaris lumbricoides, Roundworm

Negative

Necator americanus, Hookworm

Negative

Trichuris trichiura, Whipworm

Negative

Enterobius vermicularis, Pinworm

Negative

Taenia species, Tapeworm

Negative

Negative results indicate the absence of detectable DNA in the sample for the worms reported

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PATHOGEN SUMMARY

CLOSTRIDIUM:

Source:

The genus Clostridium are anaerobic gram positive, spore-forming bacteria. The organism has many natural habitats including hay, soil, cows, horses and dogs. Almost 50% of neonates carry this organism asymptotically as part of their gastrointestinal flora during the first year of life. This rate decreases sequentially to about 3% in adults and less in children over two years of age.

Pathogenicity:

C. difficile is the major cause of antibiotic associated diarrhoea and pseudomembranous colitis and the most common cause of hospital-acquired diarrhoea. Isolation of C. difficile without a positive toxin test has little clinical value. It is important to test for both toxins A and B in the stool. Toxin A is an enterotoxin and toxin B is a cytotoxin that inhibits bowel motility. It is thought that both toxins are important in the pathogenesis.

Symptoms:

Mild cases of C. difficile disease are characterized by frequent, foul-smelling, watery stools. More severe symptoms, indicative of pseudomembranous colitis, include diarrhoea that contains blood and mucous, and abdominal cramps.

Treatment:

Severe C. difficile intestinal disease is usually treated with oral vancomycin or metronidazole. However, antimicrobial therapy often results in relapse of the disease. In addition, there is concern that oral vancomycin can lead to the emergence of vancomycin-resistant Enterococci.

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.

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.

Treatment:

Treatment of Enterococcus species in gut flora may not be necessary or recommended. However,



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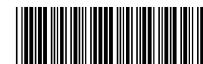
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overgrowth of this genus may be implicated in other infections such as urinary tract infections. Enterococci are challenging to treat due their drug-resistant mechanisms. Ampicillin is the preferred antibiotic used to treat enterococci infections if required.



The Four “R” Treatment Protocol

| | | | |
|--------------------|--|----------------------------------|--|
| REMOVE | 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. Consider testing IgG96 foods as a tool for removing offending foods. | 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 |
| | | ANTIPARASTIC | 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 | In cases of maldigestion or malabsorption, it may be necessary to restore proper digestion by supplementing with digestive enzymes. | DIGESTIVE SUPPORT | Betaine hydrochloride, tilactase, amylase, lipase, protease, apple cider vinegar, herbal bitters |
| REINOCULATE | Recolonisation with healthy, beneficial bacteria. Supplementation with probiotics, along with the use of prebiotics helps re-establish the proper microbial balance. | PREBIOTICS | Slippery elm, pectin, larch arabinogalactans |
| | | PROBIOTICS | Bifidobacterium animalis subsp 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 | 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. | 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 |