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The Stress/Gut Connection in Anxiety A Functional Approach

Presenter:
Jules Galloway, Naturopath
Co-Host: Linda Dal Molin



Our Presenter




Presenter | Jules Galloway, Naturopath,

With over 15 years of industry experience, Jules has made it her mission to help people recover from fatigue, anxiety, burnout and complex health issues. She has guided thousands back to health through her eCourses, eBooks and podcast. She also sees clients 1:1 via Zoom.

As a mentor, she is passionate about inspiring and guiding the next generation of new and emerging practitioners to show up online and become confident in speaking out. Her dream is for ALL practitioners to be able to create a wildly successful and rewarding business they love... without burning out – and for our industry to be one that embraces collaboration and connection rather than competition.

When she's not helping her clients, Jules can be found hanging out with her husband and their rescue dogs, lifting heavy things at the gym, surfing, doing yoga, or having a cheeky coffee or wine. Because fun, adventure and balance are just as important for a successful and long-lasting career.

You can find Jules at julesgalloway.com, on Facebook and Instagram at [@julesgallowayhealth](https://www.instagram.com/julesgallowayhealth), her mentoring account is at [@the_thriving_prac](https://www.instagram.com/the_thriving_prac), and check out her podcast on Apple Podcasts and Spotify – just search for Straight Talking Natural Health.

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WEBINAR: The Stress/Gut Connection in Anxiety

Our Host



Host | Linda Dal Molin, ND

Linda Dal Molin is the Director of Sales and Education for Designs for Health Australia.

Linda has a Masters in Human Nutrition, Bachelor of Health Science (Complementary Medicine), Advanced Diploma Naturopathy. She has been a practitioner for 22 years and worked in the natural health space for 26 years.

Linda has developed a strong relationship with the Designs for Health practitioner community. She will moderate the Q&A discussion with Jules in this webinar and engage our live Designs for Health practitioner community to bring insight and practical clinical pearls for all.

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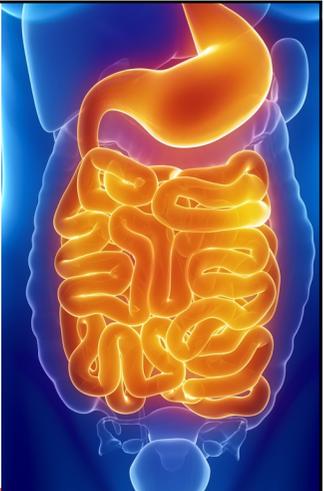
WEBINAR: The Stress/Gut Connection in Anxiety

Welcome!

In this presentation, we will look at the role of stress and gut dysfunction in the onset and escalation of anxiety, fatigue and related symptoms.

We will cover:

- Why anxiety cases have increased over the last 2.5 years.
- Why EVERY anxious and fatigued client needs a gut assessment.
- The impact of stress on gut function (and what to do about it!).
- Functional pathology testing options.
- How to deliver a treatment plan that addresses these underlying drivers, without overwhelming your client.



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WEBINAR: The Stress/Gut Connection in Anxiety

Our "New Normal" for many of our clients is that they have chronic anxiety

According to Beyond Blue in Australia, anxiety is the most common mental health condition in Australia. On average, one in four people (one in three women and one in five men) will experience anxiety at some point in their life.



OVER TWO MILLION
Australians have experienced anxiety in the last 12 months.¹

The last 2.5 years have proved to be the perfect storm for stress, anxiety and fatigue

- Stress/Uncertainty/Increased mental load (eg home schooling, navigating Covid restrictions) → increased cortisol production → HPA Axis dysfunction.
- More screen time → less melatonin.
- Less sunlight → less vitamin D, serotonin.
- Poor eating habits (supply chain shortages, emotional eating) → more gut issues, blood sugar issues.
- Possible exposure to mould in the home → neuroinflammation, gut issues.
- Less exercise → less serotonin, dopamine, endorphins, brain derived neurotrophic factor (BDNF).²
- Less in-person human connection! Less oxytocin → less serotonin is released.

...and even post-lockdowns in our "new normal," some of these above patterns/habits haven't changed.

The definition of anxiety

According to the Encyclopaedia of Pharmapsychology, Generalised Anxiety Disorder (GAD) is "characterised by excessive and inappropriate worrying and not restricted to particular circumstances."³

GAD is to be considered when the worrying becomes frequent and the person has trouble "controlling, stopping, and preventing" their anxiety.

Symptoms of GAD include:

- Worry
- Restlessness
- Fatigue
- Irritability
- Sleeplessness

GAD can also become a gateway to other anxiety disorders, like Obsessive-Compulsive Disorder (OCD), Panic Disorder and Social Phobia (or Social Anxiety Disorder).

GAD is also often found as a common comorbidity in clients with ADHD and ASD – which are becoming more prevalent since lockdowns. For example, 1 in 5 adults with ASD also has an anxiety disorder.⁴

The current medical treatments for anxiety

First line of treatment:

- CBT and other psychological treatments/counselling techniques.
- Meditation/Mindfulness exercises and techniques.
- Medications – SSRIs, SNRIs.

Next lines of treatment:

- Valium/Benzodiazepines.
- Other antidepressants, antipsychotics.

Due to the overload on our mental healthcare system, some areas have up to a 6 month wait to see a psychologist/psychiatrist (depending on the severity of the patient's presentation).

Which means that people with mild to moderate cases will be seeking out other alternatives for management of their symptoms while they wait.

Plus – some clients will be looking for natural alternatives, as medications sometimes either don't work, become less effective over time, become addictive (benzos), or cause unwanted side effects.



And now we're both wired and tired

If all of this wasn't enough, our clients are now also sliding from anxious to downright exhausted.

THE MEDICAL DEFINITION OF FATIGUE:

- Weakness of exhaustion from stress or exertion.
- Unusually high levels of tiredness, occurring daily.
- Not relieved by sleep.

A NATUROPATHIC ADDITION TO THIS DEFINITION:

- Ongoing tiredness which affects the client's ability to live their best lives.
 - Ongoing tiredness which impacts work, relationships, social life and overall happiness.
- is it causing them to have less joy in their lives?



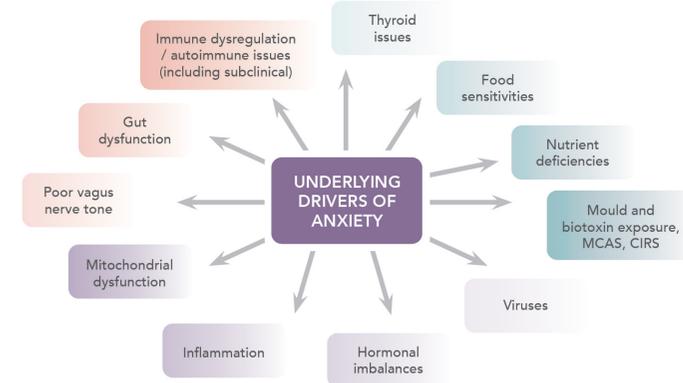
When does it become chronic fatigue?

- Greatly lowered ability to do activities that were usual before the illness.
- Post exertional malaise (worsening of symptoms after increased physical or mental activity).
- Sleep problems (including waking unrefreshed).
- Problems with cognition – thinking, memory, brain fog.
- Orthostatic intolerance – weakness/dizziness/fainting/visual disturbances when going from lying down to standing or sitting up.

The last 2.5 years have been intense... but is stress really the cause of all this?

As natural health practitioners, we treat the whole person, not just the disease... which means taking the case thoroughly and looking at the whole picture.

Sure – Stress may be the trigger for anxiety to come to the surface, but what else is going on?



...and it's the gut dysfunction that we will be focusing on today.

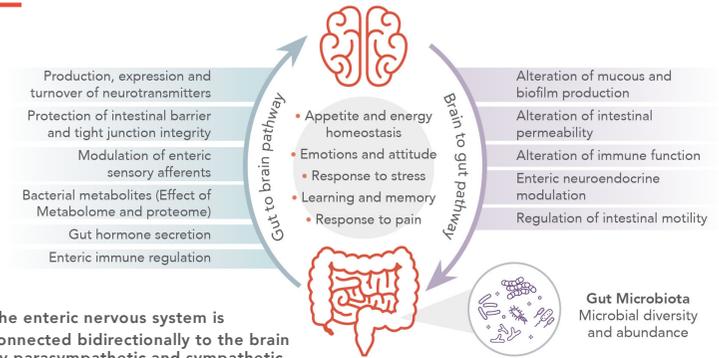
When most of hear “Gut Dysfunction”, we automatically think of:

- SIBO – Small Intestinal Bacterial Overgrowth
- LIBO – Large Intestinal Bacterial Overgrowth
- SIFO – Small Intestinal Fungal Overgrowth
- Food allergies/intolerances
- Increased intestinal permeability

...but these are the end results.

Our job is to discover what’s causing our clients to be susceptible to these gut issues in the first place.

Enter... the Gut-Brain Axis...



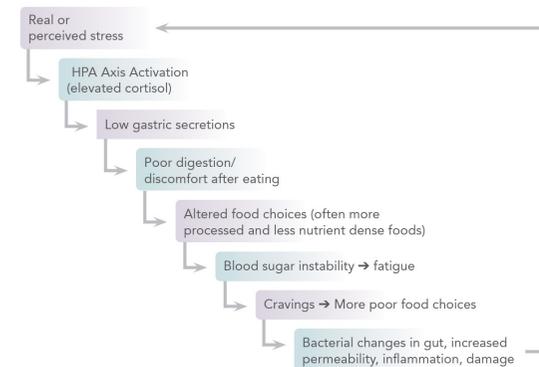
“ The enteric nervous system is connected bidirectionally to the brain by parasympathetic and sympathetic pathways forming the brain-gut axis.”⁵

Stress can lead to the following changes in the gut:^{6,7,8}

- Alterations in gastrointestinal motility (e.g. increased colonic motor activity, slowed gastric emptying).
- Increases in visceral perception (eg pain scores).
- Changes in gastrointestinal secretion (ie low HCl).
- Increases in intestinal permeability.
- Reduced regenerative capacity of gastrointestinal mucosa and mucosal blood flow.
- Negative effects on intestinal microbiota.

“ Corticotropin releasing factor (CRF) is a key mediator of the central stress response. Two CRF receptor subtypes, R1 and R2, have been described. They mediate increased colonic motor activity and slowed gastric emptying, respectively, in response to stress.”⁹

What we see as clinicians



To help end the cycle of stress and poor digestion

DIET:

- Bitters before meals (e.g. ACV/lemon in water).
- Easy to digest proteins.
- Slow burning carbohydrates.
- Chew food thoroughly.

HERBS/SUPPLEMENTS:

- Herbal bitters (e.g. Gentian).
- Betaine HCl and pancreatic enzymes with meals, to assist with digestion.
- B vitamins and Magnesium for blood sugar stability and better response to stress.
- Withania for stress and adrenal support.

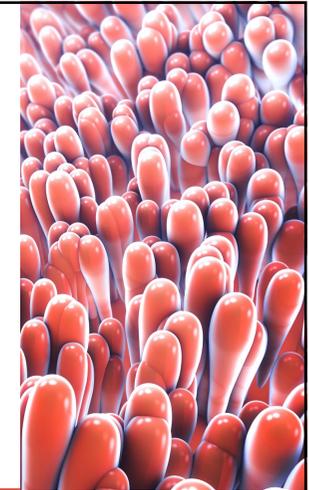


Stress also lowers secretory IgA (SigA)¹⁰

SigA is an antibody made in the intestinal lamina propria (gut mucosa) and is our first line of defence in protecting the intestinal epithelium from enteric pathogens and toxins.

It works by inhibiting pathogen attachment to the gastrointestinal epithelium, which prevents bacterial colonisation and cell invasion, and neutralises bacterial enterotoxins. It can also bind to pathogens and reduce inflammation and damage done to tissue from bacterial infections.¹¹

Lower levels of SIgA can lead to IBS, IBD, GI infections, food allergies/intolerances, increased intestinal permeability.



SigA is needed to prevent "Leaky Gut"

// Down modulation of SIgA associated with stress can have negative repercussions on intestinal function and integrity. This can take the form of increased adhesion of pathogenic agents to the intestinal epithelium and/or an altered balance of inflammation leading to greater intestinal permeability.¹²

Saccharomyces boulardii and beta glucans have both been shown to raise SIgA levels, along with Vitamin A and Vitamin D.^{13,14,15}

FUN FACT:

SB has also been shown to play a role in repairing intestinal barrier disruption (i.e. healing "leaky gut")¹⁶

To increase SigA

DIET:

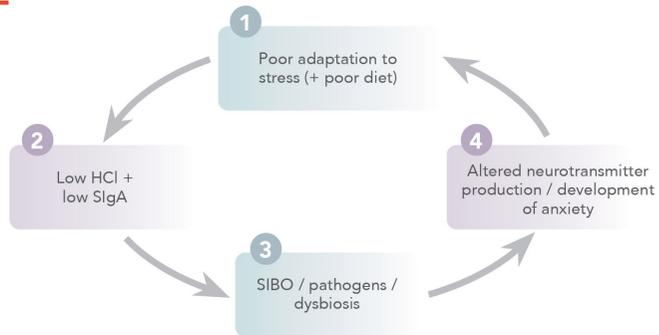
Rolled oats are one of the richest sources of beta glucans. If your client is grain free, beta glucans can also be found in some mushrooms (shiitake, reishi, maitake).

SUPPLEMENTS:

- Vitamin A.
- Vitamin D 5000IU daily.
- Saccharomyces cerevisiae (boulardii) 250mg BD.



Soooo... if stress has been high and HCl and SigA have been low for a while, you now have a vicious cycle



Let's talk about SIBO

FACTORS THAT PROTECT AGAINST THE DEVELOPMENT OF SMALL INTESTINE BACTERIAL OVERGROWTH:¹⁷

- Gastric acid
- Pancreatic enzymes
- Bile acids
- Motility
- Migrating motor complex
- SigA

// Bacterial dysbiosis in SIBO can disrupt epithelial tight junctions increasing small intestine paracellular permeability, translocation of endotoxins, and induction of proinflammatory cytokines.¹⁸

SIBO is found in approximately 56% of patients with irritable bowel syndrome (IBS).¹⁹

So if your anxious or fatigued client also has IBS symptoms (or even just milder symptoms like bloating or brain fog!), then SIBO testing may be advised.

A new way at looking at bacterial overgrowth (LIBO/SIBO): it's all about the prebiotics

Butyrate is used as the main energy source by colonocytes to maintain the colonic protective barrier and also inhibits pathogenic bacteria by lowering colonic luminal pH. Other SCFAs such as propionate are thought to also be helpful.

// The consumption of low fibre Western diets can increase the risk of microbiota dysbiosis and associated reductions in psychological well-being, which in turn can induce poor stress response behaviour and moods through the vagus nerve, whereas fibre rich healthy diets can improve microbiota health to positively impact psychological well-being. SCFAs such as butyrate and propionate directly affect brain physiology and behaviour by acting on microglial cells and astrocytes to promote anti-inflammatory action and manage overall brain maintenance by scavenging for damaged or unnecessary neurons and synapses, and infectious agents.²⁰

Fibre is our friend

A 2018 study has observed the following results after pectin intake:²¹

- Increases in healthy bacteria including species belonging to butyrate producing Clostridium cluster XIV (e.g., Lachnospira), and Sutterella.
- Increased microbiota production of the SCFAs acetate, butyrate and propionate.
- Increased survival of probiotic bacteria such as Lactobacillus in the stomach and small intestine.
- Re-balancing of the colonic microbiota towards a higher anti-inflammatory profile by increasing the Bacteroidetes/Firmicutes ratio, and increasing the abundance of Bifidobacterium and Clostridium clusters.
- Supporting certain Faecalibacterium prausnitzii strains in utilising the fermentation of pectin to exert anti-inflammatory effects.
- Enhanced colonic mucosal barrier integrity and function.
- Increased mucosal immunity.
- Decreased enteric pathogens.
- Decreased inflammation.

Fibre is our friend continued...

A 2020 study confirmed the benefits of PHGG:²²

- Changes in species evenness and diversity.
- Increases in butyrate, acetate and various amino acids.
- On a taxonomic level, PHGG intake was associated with a bloom in Ruminococcus, Fusicatenibacter, Faecalibacterium and Bacteroides.



And don't forget good ol' Psyllium!

A 2019 study found that psyllium husks were found to cause significant (and beneficial) changes to intestinal microbiota, especially in constipated patients.²³

// While psyllium supplement had a small but significant effect on the microbial composition of healthy adults (increasing Veillonella and decreasing Subdoligranulum), in constipated subjects there were greater effects on the microbial composition (increased Lachnospira, Faecalibacterium, Phascolarctobacterium, Veillonella and Sutterella and decreased uncultured Coriobacteria and Christensenella) and alterations in the levels of acetate and propionate. We found several taxa to be associated with altered GI transit, SCFAs and faecal water content in these patients. Significant increases in three genera known to produce butyrate, Lachnospira, Roseburia and Faecalibacterium, correlated with increased faecal water."

Dysbiosis, bacterial overgrowth and SIBO



DIET:

- Low FODMAP.
- SIBO Diet.

HERBS/SUPPLEMENTS:

- Grain free fibre supplement (with PHGG, fruit fibres, psyllium husks and pectin) to increase SCFAs.
- GI healing powder with 1g of pectin twice daily can help increase butyrate production and reduce inflammation.
- If there is SIBO/LIBO/SIFO overgrowth - antimicrobials - Berberine, Oregano oil (only in select cases).
- Betaine HCl to help improve digestion.
- Saccharomyces boulardii or NAC to break the biofilm.

If there's ongoing dysbiosis or bacterial infection in the gut, the mast cells may become involved...

// Mast cells (MC) are important effectors of brain-gut axis that translate the stress signals into the release of a wide range of neurotransmitters and proinflammatory cytokines, which may profoundly affect the gastrointestinal physiology."²⁴

Mast cells release histamine, proteases and inflammatory cytokines, which can lead to:

- Dysbiosis
- Breakdown of intestinal barrier
- Inflammation (and even IBD)

High levels of histamine can also lead to:

- Hayfever-like symptoms
- Hives, rashes, flushing, sweating, itching
- Swelling in your tongue/lips, throat
- Wheezing, trouble breathing
- Low BP, rapid HR
- Headache
- Nausea, abdominal pain, GI symptoms
- **Confusion**
- **Anxiety**
- **Insomnia**
- **Fatigue**



To downregulate mast cell activity and reduce histamine symptoms:

DIET:

- Low histamine diet

We also need to consider whether anything else is causing mast cells to release histamine, e.g. mould/biotoxin exposure, food allergies, gene SNPs, etc.

HERBS/SUPPLEMENTS:

- High dose Curcumin
- PEA
- Liposomal Vitamin C (preferably before meals)
- Clinoptilolite/Binders
- NAC/Glutathione

Gluten as a trigger for anxiety and fatigue

Research has now confirmed that patients with coeliac disease are more likely to have high levels of anxiety. Interestingly, after 1 year on a gluten free diet, anxiety levels dropped significantly.²⁵

Gluten free diets have also been shown to benefit those experiencing anxiety alongside neurodiverse presentations like ASD or ADHD (ASD is especially known for being linked with higher levels of intestinal permeability).²⁶

And it's not just coeliac disease – We need to rule out other food allergies and intolerances as well. Casein has especially been mentioned frequently in the literature.

// After 1 year on a gluten free diet, patients with CD experienced a significant increase in major serotonin and dopamine metabolite concentrations. Thus, this theory is incomplete but suggests that L-tryptophan and serotonin may be involved in the pathophysiologic link between gluten mediated immune responses and psychiatric comorbidities."

And of course, no treatment plan would be complete without symptomatic relief of anxiety

WITHANIA (My "desert island" herb!)

Participants in the NC (Naturopathic Care) group received dietary counselling, deep breathing relaxation techniques, a standard multivitamin, and the herbal medicine, ashwagandha (*Withania somnifera*) (300 mg b.i.d. standardised to 1.5% withanolides, prepared from root).

Beck Anxiety Inventory (the measurement of outcome) group scores were significantly decreased in the Naturopathic Care group compared to PT (Psychotherapy Intervention Only) group, who received psychotherapy, and matched deep breathing relaxation techniques, and placebo.²⁷

// Both NC and PT led to significant improvements in patients' anxiety. Group comparison demonstrated a significant decrease in anxiety levels in the NC group over the PT group. Significant improvements in secondary quality of life measures were also observed in the NC group as compared to PT."

BONUS! Withania also has a neuroprotective effect

// Withania extract was shown to have neuroprotective actions. It was proven to up-regulate BDNF message and protein levels, as well as the expression of BDNF mRNA."²⁸

BDNF (a member of the neurotrophin family of growth factors) is key in maintaining a healthy central nervous system, it promotes neuroplasticity in learning and memory, supports the survival of existing neurons, and protects our brains from neurodegenerative diseases.

Further to that, BDNF levels appear to be lower in patients with anxiety disorder. (But more research is needed).²⁹



GABA is made in the gut

Gamma-Aminobutyric Acid (GABA) is an amino acid that acts as a neurotransmitter. It has a calming action, reducing the activity of neurons in the brain and nervous system.

// We isolated a variety of GABA-producing bacteria, and found that Bacteroides ssp. produced large quantities of GABA... A transcriptome analysis of human stool samples from healthy individuals showed that GABA-producing pathways are actively expressed by Bacteroides, Parabacteroides and Escherichia species."³⁰

Signs and symptoms of low GABA include:

- Anxiety
- Poor sleep
- Food cravings
- Headaches
- Muscle pain
- Substance abuse issues

For symptomatic relief

DIET:

- Gluten free
- Consider other food allergies/intolerances.

HERBS/SUPPLEMENTS:

- Withania :)
- So many calming herbs! Passionflower, Kava, Skullcap, Oats
- Herbs for sleep
- Adaptogen/Tonic herbs
- Magnesium
- Zinc
- Iron
- B Complex
- GABA
- 5-HTP



Pathology tests to consider:

- Cortisol Awakening Response.
- Nutritional Markers: Copper/Zinc, Iron, B12, Vitamin D.
- SIBO Breath Test.
- Food allergy/intolerance testing (+ coeliac panel/colonoscopy if needed).
- GI-Map:
 - Pathogenic, opportunistic and dysbiotic bacteria
 - Fungal/yeast markers
 - SlgA
 - Normal/commensal bacteria
 - Anti-gliadin antibodies

If anxiety is severe and/or the person is also fatigued:

- Full Thyroid Profile: TSH, T4, T3, Rev T3, TPO, TGAb, TSH Receptor Abs/TSI.
- Inflammatory/Autoimmune Markers: ESR, CRP, ANAs.
- Mould/Biotoxin Testing: VCS Test, OAT Mycotoxin Profiles, and more...
- Hormones: Female Hormone Profile, DUTCH.
- Viral Panel.
- Tick Borne Illness Testing.
- Heavy Metals – Hair Mineral Analysis (or blood/urine if recent exposure).

Putting together your treatment plan:

Assess priorities:

- How severe are the anxiety symptoms?
- Panic attacks – yes/no?
- Is your client sleeping?
- Is there inflammation present?
- Are there nutritional deficiencies contributing to anxiety and fatigue?
- Do you suspect a gut issue?

A sample of a (non-overwhelming!) treatment plan:

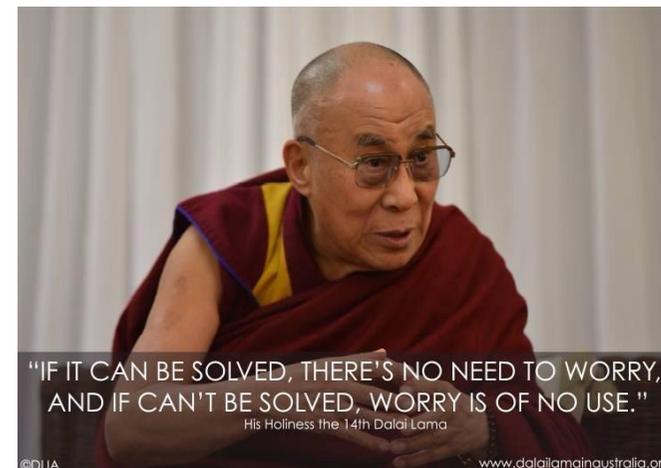
Reduce anxiety symptoms and improve sleep
Withania, Calming herbs, Sleep mix.

Reduce inflammation
PEA, Curcumin.

Correct nutritional deficiencies
B Complex, B12, Iron, Zinc, Vitamin D.

Start with some basic gut support while you wait for more info
Diet changes, Gut healing powder, Prebiotic fibre.

Look for underlying causes/drivers
GI Map Testing, SIBO Testing, Food allergy/intolerance Testing.



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