

Using Nutritional Supplements Within a Functional & Integrative Medicine Framework

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Objectives:

Understand a functional medicine framework – ask WHY

Utilize the patient timeline

Recognize diagnostic tools

Apply supplements to symptom complexes

Build a care team



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Case Study: 6-year-old male

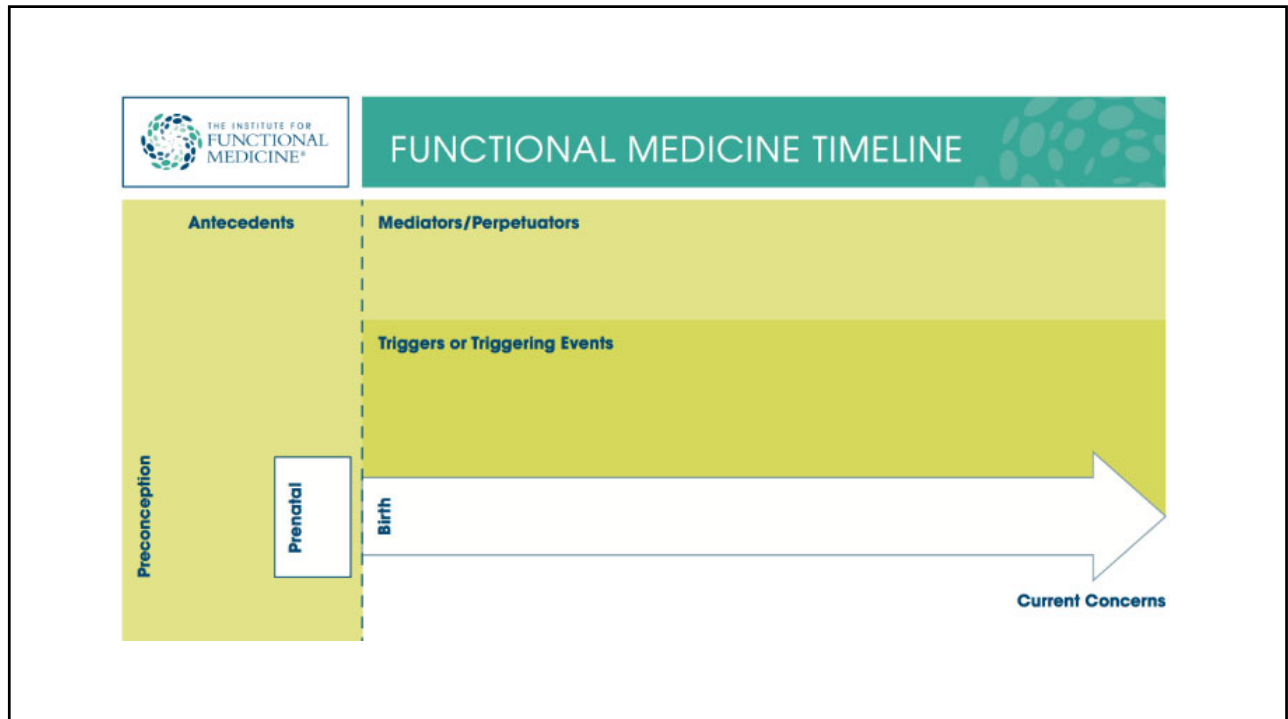
Primary Parental Concerns = constipation, seasonal allergies, behavioral dysregulation and learning struggles, and poor sleep

Where do I start? TIMELINE

- **Family history:** Crohn's disease, ADHD, seasonal allergies
- **Prenatal history:** Mom took SSRI, regular prenatal care, heartburn
- **Birth story:** full term, Cesarean, GBS+ treated, no complications, breast fed
- **Infancy:** feeding struggles and transitioned to formula. Colic, reflux and flatulence, changed formulas with partial improvements. Trouble sleeping, started daycare at 3 months, 1 ear infections.
- **Toddler:** More ear infections 2-3 times annually, influenza, stool variability - trouble potty training or constipation pattern begins or possible withholding pattern, becomes a picky eater. Daycare/preschool reports some behavioral issues and some separation anxiety and difficulties with transitions.
- **Elementary:** onset of seasonal allergies, learning and social or behavioral challenges, seems to catch every virus he's exposed to. Constipation starts, early satiety, trouble sitting through mealtime and starts to skip breakfast. Complains of leg pains that are not associated with growth spurts.



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Recognizable Patterns:



Start asking WHY and look for PATTERNS



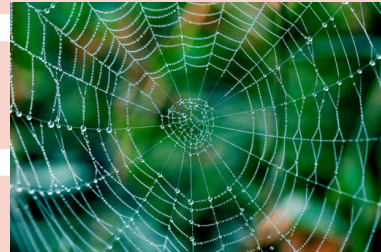
Dysbiotic factors



Slowed immune resilience and autoimmunity



Mitochondrial insufficiency



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Where do we start?

- Identify areas of function that need support
- Ask patient/family where they suggest to start
- Lifestyle - nutrition, sleep hygiene, stress supports
- Nutrients & Labs
 - Conventional Labs (Zinc/Copper, Carnitine, Omega check, Vit D, Ferritin/CRP, CBC, LFTs, Creatinine)
 - Stool labs – pancreatic elastase, fecal fat, calprotectin, hemocult
- If in doubt, start with the gut!
- Expand the care team – make a referral

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Supplement Categories

Bowel Motility – Magnesium (citrate/hydroxide), Herbs, Fiber

Sleep – Melatonin, L-theanine

Mood – L-theanine, GABA, Magnesium (glycinate)

Immunity – Quercetin, N-acetyl Cystine (NAC), Xlear

Pain & Inflammation – Ginger, Palmitoethylamide (PEA), Magnesium (glycinate)

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Magnesium

Forms

- Citrate/hydroxide – constipation
 - Rx hydroxide
 - CALM powder citrate 250mg/scoop
 - Dr. Mortiz Gummies 400mg (citrate)
- Glycinate/Malate/L-Threonate – brain calming, muscle relaxation, antispasmodic
 - Bioclinic Naturals glycinate powder
 - pure encapsulations glycinate caps
 - Tinies Bears glycinate Gummies 250mg

Dose

- 1-3 yr = 25-100mg/d
- 4-8 yr = 50-150mg/d
- 9-12 yr = 150-300/d
- > 12 = 400-600mg/d

Side effects

- diarrhea, abdominal pain, and bloating

Contraindications

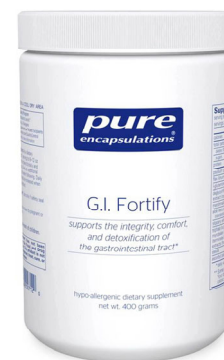
- renal impairment and myasthenia gravis



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Other Constipation Aids

- Fiber – From foods and with good hydration, psyllium, GI Fortify (psyllium, flax, glutamine, DGL, marshmallow, aloe, slippery elm, triphala), Sunfiber
 - Dose – ½ - 1 Scoop (8.9g)
 - CI - dehydration
- Herbs – NDF Pooper by Bioray Kids (flaxseed, rhubarb, magnolia, bitter orange, white peony, American ginseng, lycium fruit)
 - Dose - 2 ml per 50 lbs, QD-BID. If bowels are not moving within 1-2 days, continue adding 1 mL per fifty pounds until desired results.
 - CI – allergies to any ingredients



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Sleep Support

- Melatonin
 - Immediate release and sustained release formulations
 - Dissolvable tablets, gummies (watch out since they're tasty!)
 - 0.5 -3 mg given about 30-60 minutes before bed
 - Side effects – drowsiness, headache, dizziness, less often headache, dizziness, GI symptoms and mood changes
 - CI – no absolute contraindications
- L-theanine
 - "busy brain" before bedtime, mostly sleep latency
 - 3-5 yr 25-50 mg QD or BID
 - >5 yr 50-200 mg QD or BID
 - Side effects – none reported
 - CI – none reported
- German Chamomile Essential Oil
 - Drops on pillow
 - Drops in bath
 - Side Effects – none reported
 - CI –allergy to chamomile/Asteraceae



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Mood Support

- L-theanine
 - Anxiety, brain calming
 - 2.5 mg/kg and fixed doses of 200 mg/ QD- split BID
 - Side effects – none reported
 - CI – none reported
- GABA
 - Anxiety, May be combined with L-theanine and B6 in formulas (CopaCalm)
 - Side Effect - hypotension with patients on antihypertensive
 - CI – observe for transient
- Magnesium glycinate
 - Depression, dysregulation
 - Watch for loose stools as side effect of higher doses
 - CI: renal impairment and myasthenia gravis



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Immune/Allergy Support

- Quercetin
 - 1-4 years: 50mg/day,
 - 4-8 years 50-200mg/day,
 - > 8 years 200-500mg/day
 - CI: cytochrome P450 inhibitors
- N-acetylcysteine (NAC)
 - 60 mg/kg/day divided into multiple doses
 - CI: previous hypersensitivity reaction to NAC
- Xlear nasal spray
 - Purified Water, Xylitol, USP Sodium Chloride, Grapefruit Seed Extract
 - CI: known hypersensitivity to xylitol



Amount Per Serving
 Vitamin C ... 75mg
 (as Ascorbic Acid USP)
 Quercetin Dihydrate ... 100mg
 Stinging Nettle ... 100mg
 (Leaves)
 Bromelain ... 25mg
 (2,400 GDU/g)(from Pineapple)
 N-Acetyl-L-Cysteine USP ... 12mg

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Pain & Inflammation



- Ginger
 - Tea, 550 mg capsules or 500 mg chewable, 1-3 time daily
 - Side effect: heartburn/warming in stomach. Take with food.
 - CI: with anticoagulants or antiplatelet agents
- Palmitoethylamide (PEA)
 - 400 mg capsule or 600 mg chewable, 1-2 times daily
 - CI: none known
- Magnesium glycinate



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Back to the 6-year-old

- **Where do we start?**
 - If in doubt, treat the gut!
 - Start with constipation
- **If I can do 2 things, which ones would I recommend?**
 - Get the bowels moving and help the child rest
 - Consider a sleep tool for as long as it's needed. This can help digestion, motility, mood, food choices, cognitive and physical energy
- **Don't be afraid to refer out to round out the care team**
 - Integrative nutrition (personalize the food plan for the patient and family)
 - Functional Medicine
 - Specialty evaluation – Gastroenterology, Psychiatry, Psychology, Allergist



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Monday Morning Pearls

- **Timeline**
- **Consider the web**
- **Ask for starting point**
- **Toolbelt**
- **Future considerations**

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