

Casual Friday Presents

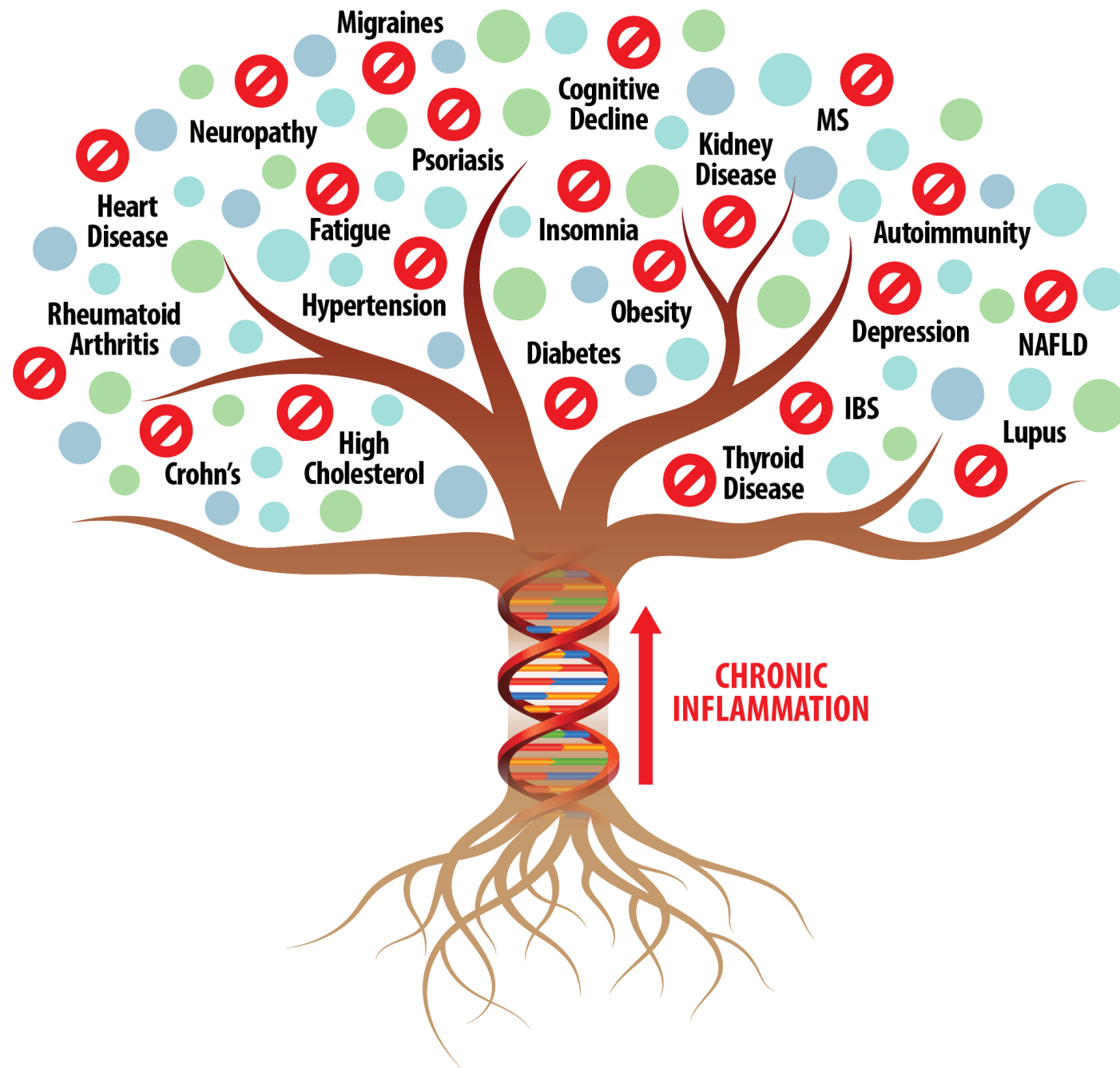
Case Review Friday

FM Strategies: Physiology, Pathology, Interventions.

A BIOGENETIX CLINICAL PRESENTATION

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Typical Mechanistic Flow of Parkinsons

- **Loss of Dopaminergic Neurons:** The core issue is the degeneration of neurons in the **substantia nigra**, a critical region of the midbrain.
- **Dopamine Depletion:** These dying neurons fail to produce **dopamine**, a vital neurotransmitter responsible for transmitting signals that coordinate smooth and purposeful muscle movements.
- **Alpha-Synuclein Aggregation:** Inside the surviving brain cells, a protein called **alpha-synuclein** misfolds and clumps together.
- **Lewy Body Formation:** These protein clumps form abnormal deposits called **Lewy bodies**, which disrupt cellular function and trigger cell death.
- **Basal Ganglia Dysfunction:** The lack of dopamine disrupts the entire **basal ganglia circuit**, the brain network responsible for controlling voluntary movement.
- **Imbalanced Signaling:** Without dopamine to inhibit certain pathways, the brain sends erratic signals to the muscles, leading to classic symptoms like **tremors, rigidity, and bradykinesia (slowed movement)**.

CBC With Differential/Platelet

Test	Current Result and Flag	Previous Result and Date		Units	Reference Interval
WBC ⁰¹	7.1	6.2	11/12/2025	x10E3/uL	3.4-10.8
RBC ⁰¹	5.00	5.00	11/12/2025	x10E6/uL	4.14-5.80
Hemoglobin ⁰¹	15.2	15.2	11/12/2025	g/dL	13.0-17.7
Hematocrit ⁰¹	46.7	45.0	11/12/2025	%	37.5-51.0
MCV ⁰¹	93	90	11/12/2025	fL	79-97
MCH ⁰¹	30.4	30.4	11/12/2025	pg	26.6-33.0
MCHC ⁰¹	32.5	33.8	11/12/2025	g/dL	31.5-35.7
RDW ⁰¹	12.2	13.0	11/12/2025	%	11.6-15.4
Platelets ⁰¹	192	183	11/12/2025	x10E3/uL	150-450
Neutrophils ⁰¹	44	52	11/12/2025	%	Not Estab.
Lymphs ⁰¹	39	34	11/12/2025	%	Not Estab.
Monocytes ⁰¹	11	10	11/12/2025	%	Not Estab.
Eos ⁰¹	5	3	11/12/2025	%	Not Estab.
Basos ⁰¹	1	1	11/12/2025	%	Not Estab.
Neutrophils (Absolute) ⁰¹	3.2	3.3	11/12/2025	x10E3/uL	1.4-7.0
Lymphs (Absolute) ⁰¹	2.8	2.1	11/12/2025	x10E3/uL	0.7-3.1
Monocytes(Absolute) ⁰¹	0.8	0.6	11/12/2025	x10E3/uL	0.1-0.9
Eos (Absolute) ⁰¹	0.3	0.2	11/12/2025	x10E3/uL	0.0-0.4
Baso (Absolute) ⁰¹	0.1	0.0	11/12/2025	x10E3/uL	0.0-0.2
Immature Granulocytes ⁰¹	0	0	11/12/2025	%	Not Estab.
Immature Grans (Abs) ⁰¹	0.0	0.0	11/12/2025	x10E3/uL	0.0-0.1

Comp. Metabolic Panel (14)

Test	Current Result and Flag	Previous Result and Date		Units	Reference Interval
Glucose ⁰¹	93	116	11/12/2025	mg/dL	70-99
BUN ⁰¹	17	15	11/12/2025	mg/dL	8-27
Creatinine ⁰¹	0.81	0.90	11/12/2025	mg/dL	0.76-1.27
eGFR	101	98	11/12/2025	mL/min/1.73	>59
BUN/Creatinine Ratio	21	17	11/12/2025		10-24
Sodium ⁰¹	140	143	11/12/2025	mmol/L	134-144
Potassium ⁰¹	4.8	4.8	11/12/2025	mmol/L	3.5-5.2
Chloride ⁰¹	101	101	11/12/2025	mmol/L	96-106

Comp. Metabolic Panel (14) (Cont.)

Carbon Dioxide, Total ⁰¹	25	30	11/12/2025	mmol/L	20-29
Calcium ⁰¹	10.0	10.2	11/12/2025	mg/dL	8.6-10.2
Protein, Total ⁰¹	6.9	7.4	11/12/2025	g/dL	6.0-8.5
Albumin ⁰¹	4.6	4.7	11/12/2025	g/dL	3.8-4.9
Globulin, Total	2.3	2.7	11/12/2025	g/dL	1.5-4.5
Bilirubin, Total ⁰¹	0.5	0.4	11/12/2025	mg/dL	0.0-1.2
Alkaline Phosphatase ⁰¹	82	103	11/12/2025	IU/L	47-123
AST (SGOT) ⁰¹	21	24	11/12/2025	IU/L	0-40
ALT (SGPT) ⁰¹	16	16	11/12/2025	IU/L	0-44

Urinalysis (No Micro)

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
Specific Gravity ⁰¹	1.026	1.013 07/02/2025		1.005-1.030
pH ⁰¹	7.5	7.5 07/02/2025		5.0-7.5
Urine-Color ⁰¹	Yellow	Yellow 07/02/2025		Yellow
▶ Appearance⁰¹	Cloudy Abnormal	Clear 07/02/2025		Clear
WBC Esterase ⁰¹	Negative	Negative 07/02/2025		Negative
Protein ⁰¹	Negative	Negative 07/02/2025		Negative/Trace
Glucose ⁰¹	Negative	Negative 07/02/2025		Negative
▶ Ketones⁰¹	Trace Abnormal	Negative 07/02/2025		Negative
Occult Blood ⁰¹	Negative	Negative 07/02/2025		Negative
Bilirubin ⁰¹	Negative	Negative 07/02/2025		Negative
Urobilinogen, Semi-Qn ⁰¹	0.2	0.2 07/02/2025	mg/dL	0.2-1.0
Nitrite, Urine ⁰¹	Negative	Negative 07/02/2025		Negative

LP+Chol/HDL+LDL/HDL+CHD Risk

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
Lipids ⁰¹				
▲ Cholesterol, Total⁰¹	204 High	217 07/02/2025	mg/dL	100-199
Triglycerides ⁰¹	72	89 07/02/2025	mg/dL	0-149
HDL Cholesterol ⁰¹	51	50 07/02/2025	mg/dL	>39
VLDL Cholesterol Cal	13	16 07/02/2025	mg/dL	5-40
▲ LDL Chol Calc (NIH)	140 High	151 07/02/2025	mg/dL	0-99
T. Chol/HDL Ratio	4.0	4.3 07/02/2025	ratio	0.0-5.0

Thyroid Panel With TSH

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
▼ TSH ⁰¹	0.006 Low	0.007 12/01/2025	uIU/mL	0.450-4.500
Thyroxine (T4) ⁰¹	9.8	7.5 07/02/2025	ug/dL	4.5-12.0
T3 Uptake ⁰¹	36	34 07/02/2025	%	24-39
Free Thyroxine Index	3.5	2.6 07/02/2025		1.2-4.9

Iron and TIBC

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
Iron Bind.Cap.(TIBC)	343	358 07/02/2025	ug/dL	250-450
UIBC ⁰¹	202	182 07/02/2025	ug/dL	111-343
Iron ⁰¹	141	176 07/02/2025	ug/dL	38-169
Iron Saturation	41	49 07/02/2025	%	15-55

Hgb A1c with eAG Estimation

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
Hemoglobin A1c ⁰¹	5.4	5.2 07/02/2025	%	4.8-5.6
Please Note: ⁰¹	Prediabetes: 5.7 - 6.4 Diabetes: >6.4 Glycemic control for adults with diabetes: <7.0			
Estim. Avg Glu (eAG)	108	103 07/02/2025	mg/dL	

Thyroxine (T4) Free, Direct

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
▲ T4,Free(Direct) ⁰¹	2.23 High	2.04 12/01/2025	ng/dL	0.82-1.77

Testosterone

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
Testosterone ⁰¹	626	578 11/12/2025	ng/dL	264-916
Adult male reference interval is based on a population of healthy nonobese males (BMI <30) between 19 and 39 years old. Travison, et.al. JCEM 2017;102;1161-1173. PMID: 28324103.				

Vitamin D, 25-Hydroxy

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
Vitamin D, 25-Hydroxy ⁰¹	45.4	56.6 07/02/2025	ng/mL	30.0-100.0
Vitamin D deficiency has been defined by the Institute of Medicine and an Endocrine Society practice guideline as a level of serum 25-OH vitamin D less than 20 ng/mL (1,2). The Endocrine Society went on to further define vitamin D insufficiency as a level between 21 and 29 ng/mL (2). 1. IOM (Institute of Medicine). 2010. Dietary reference intakes for calcium and D. Washington DC: The National Academies Press. 2. Holick MF, Binkley NC, Bischoff-Ferrari HA, et al. Evaluation, treatment, and prevention of vitamin D deficiency: an Endocrine Society clinical practice guideline. JCEM. 2011 Jul; 96(7):1911-30.				

C-Reactive Protein, Cardiac

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
C-Reactive Protein, Cardiac ⁰¹	0.34	0.51 07/02/2025	mg/L	0.00-3.00
Relative Risk for Future Cardiovascular Event Low <1.00 Average 1.00 - 3.00 High >3.00				

Homocyst(e)ine

Test	Current Result and Flag	Previous Result and Date		Units	Reference Interval
Homocyst(e)ine ⁰¹	13.0	9.2	07/02/2025	umol/L	0.0-14.5

Uric Acid

Test	Current Result and Flag	Previous Result and Date		Units	Reference Interval
Uric Acid ⁰¹	4.3	6.1	07/02/2025	mg/dL	3.8-8.4
Therapeutic target for gout patients: <6.0					

Phosphorus

Test	Current Result and Flag	Previous Result and Date		Units	Reference Interval
Phosphorus ⁰¹	3.0	2.4	07/02/2025	mg/dL	2.8-4.1

LDH

Test	Current Result and Flag	Previous Result and Date		Units	Reference Interval
LDH ⁰¹	151	165	07/02/2025	IU/L	121-224

GGT

Test	Current Result and Flag	Previous Result and Date		Units	Reference Interval
GGT ⁰¹	8	8	07/02/2025	IU/L	0-65

Triiodothyronine (T3)

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
Triiodothyronine (T3) ⁰¹	128	115 07/02/2025	ng/dL	71-180

Magnesium

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
Magnesium ⁰¹	2.0	2.1 07/02/2025	mg/dL	1.6-2.3

Fibrinogen Activity

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
Fibrinogen Activity ⁰¹	230	247 07/02/2025	mg/dL	193-507

Ferritin

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
Ferritin ⁰¹	315	168 07/02/2025	ng/mL	30-400

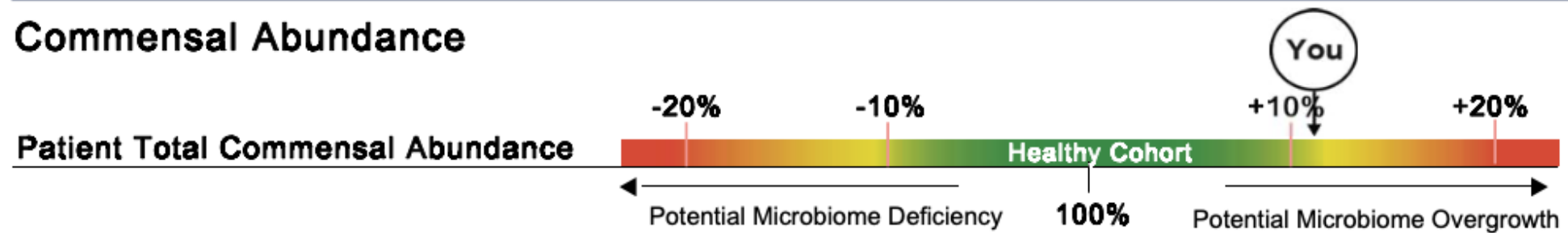
Triiodothyronine (T3), Free

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
Triiodothyronine (T3), Free ⁰¹	4.4	4.8 12/01/2025	pg/mL	2.0-4.4

High					
Test Name	Current	Previous	Result		Reference
			75th	95th	
2-Hydroxyethyl Mercapturic Acid (HEMA)^ (ug/g)	16.99		1.7	4.75	≤4.75
Ochratoxin A (OTA) (ng/g)	8.77		3.83	6.8	≤6.8
Verrucarin A (ng/g)	4.11		0.75	1.33	≤1.33
Suboptimal					
Test Name	Current	Previous	Result		Reference
			75th	95th	
Atrazine mercapturate^ (ug/g)	0.03		0.02	0.05	≤0.05
Dimethyldithiophosphate (DMDTP)^ (ug/g)	0.77		0.67	6.12	≤6.12
Dimethylthiophosphate (DMTP)^ (ug/g)	8.03		5.91	33.7	≤33.7
Diphenyl Phosphate (DPP) (ug/g)	1.18		1.1	3.7	≤3.7
Ethylparaben ^ (ug/g)	11.00		5.41	99.3	≤99.3
Phenyl glyoxylic Acid (PGO)^ (ug/g)	408.31		285	518	≤518
Nickel (ug/g)	9.40		6.37	12.13	≤12.13
Creatinine					
Test Name	Current	Previous	Result		Reference
Urine Creatinine (mg/mL)	0.97		0	2.16	0.25-2.16

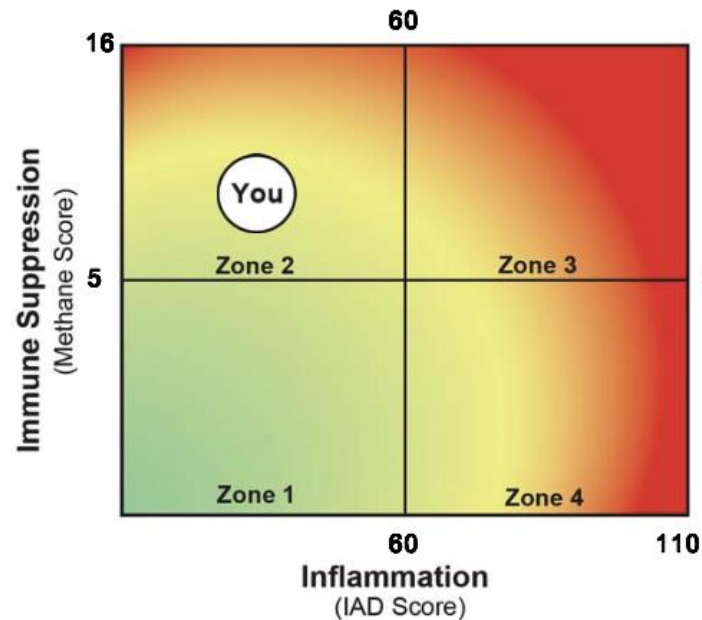
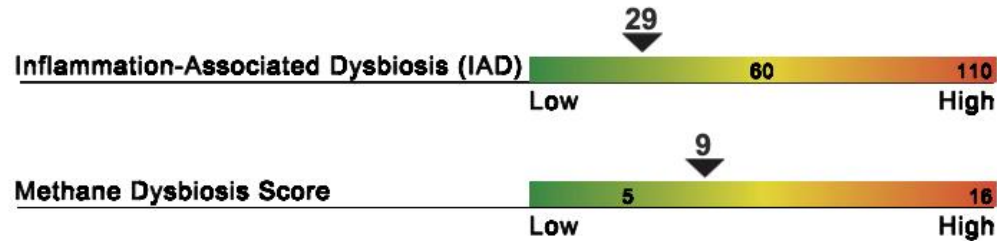
Functional Imbalance Scores				
Key < 2 : Low Need for Support 2-3 : Optional Need for Support 4-6 : Moderate Need for Support 7-10 : High Need for Support				
Need for Digestive Support	Need for Inflammation Modulation	Need for Microbiome Support	Need for Prebiotic Support	Need for Antimicrobial Support
MALDIGESTION 4	INFLAMMATION 0	DYSBIOSIS 10	METABOLIC IMBALANCE 1	INFECTION 2
Biomarkers Products of Protein Breakdown △ Fecal Fats △ Pancreatic Elastase ●	Calprotectin ● Eosinophil Protein X ● Secretory IgA ● Occult Blood ●	IAD/Methane Score △ PP Bacteria/Yeast △ Reference Variance △ Total Abundance △	SCFA (%) ▽ Total SCFA's ● n-Butyrate Conc. ● Beta-glucuronidase ●	PP Bacteria/Yeast △ Total Abundance △ Parasitic Infection ● Pathogenic Bacteria ●
Therapeutic Support Options - Digestive Enzymes - Betaine HCl - Bile Salts - Apple Cider Vinegar - Mindful Eating Habits - Digestive Bitters	- Elimination Diet/ Food Sensitivity Testing - Mucosa Support: Slippery Elm, Althea, Aloe, DGL, etc. - Zinc Carnosine - L-Glutamine - Quercetin - Turmeric - Omega-3's - GI Referral (If Calpro is Elevated)	- Pre-/Probiotics - Increase Dietary Fiber Intake - Consider SIBO Testing - Increase Resistant Starches - Increase Fermented Foods - Meal Timing	- Pre-/Probiotics - Increase Dietary Fiber Intake - Increase Resistant Starches - Increase Fermented Foods - Calcium D-Glucarate (for high beta-glucuronidase)	- Antibiotics (if warranted) - Antimicrobial Herbal Therapy - Antiparasitic Herbal Therapy (if warranted) <i>Saccharomyces boulardii</i>

Commensal Abundance



Total Commensal Abundance: The total commensal abundance is a sum-total of the reported commensal bacteria compared to a healthy cohort. Low levels of commensal bacteria are often observed after antimicrobial therapy, or in diets lacking fiber and/or prebiotic-rich foods and may indicate the need for microbiome support. Conversely, higher total commensal abundance may indicate potential bacteria overgrowth or probiotic supplementation.

Dysbiosis Patterns



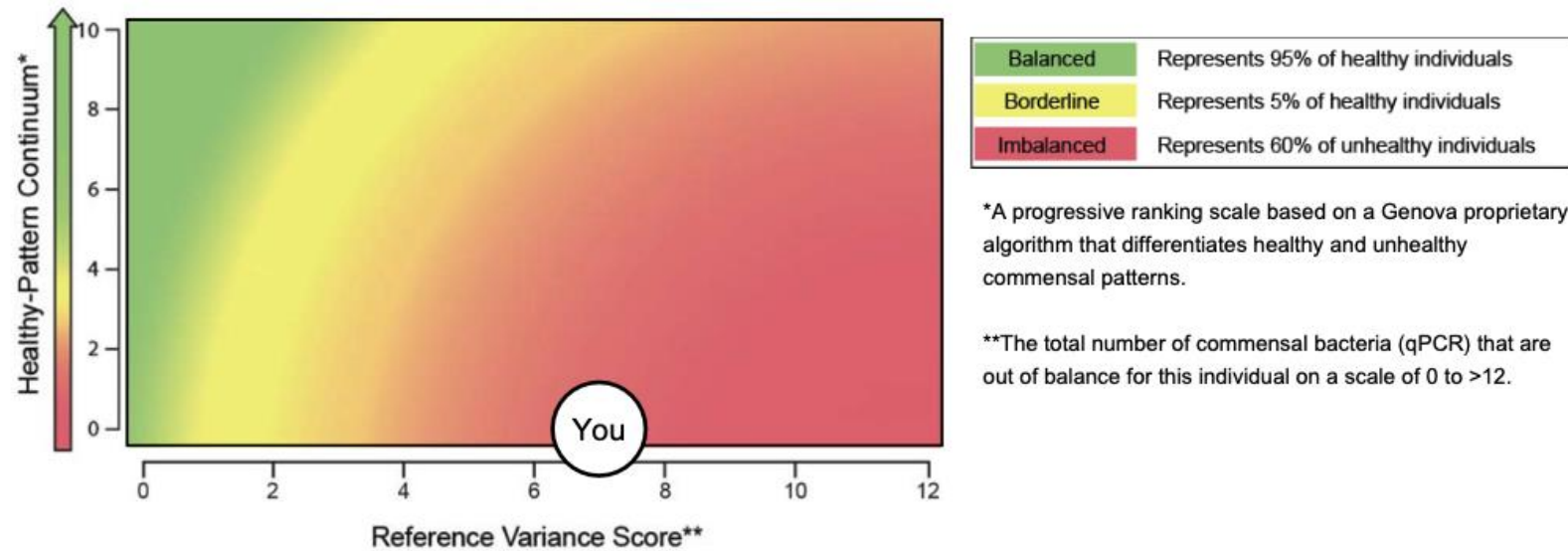
Dysbiosis Patterns: Genova's data analysis has led to the development of unique dysbiosis patterns, related to key physiologic disruptions, such as immunosuppression and inflammation. These patterns may represent dysbiotic changes that could pose clinical significance. Please see Genova's published literature for more details: <https://rdcu.be/bRhzv>

Zone 1: The commensal profile in this zone does not align with profiles associated with intestinal inflammation or immunosuppression. If inflammatory biomarkers are present, other causes need to be excluded, such as infection, food allergy, or more serious pathology.

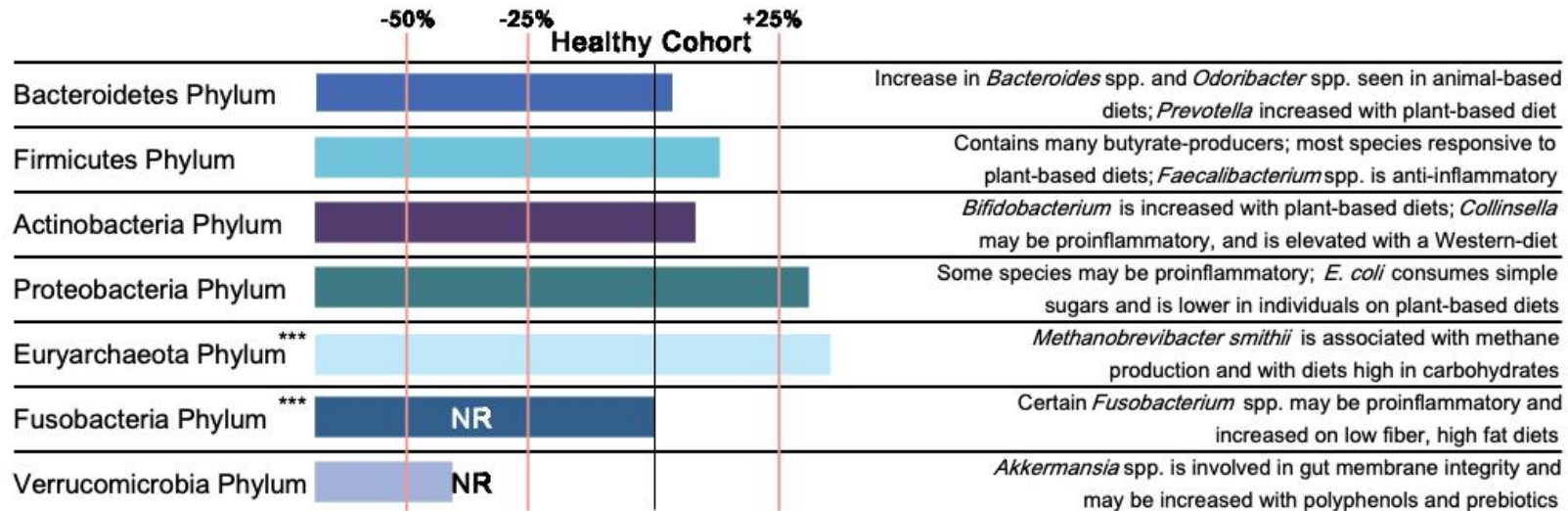
Zone 2: This pattern of bacteria is associated with impaired intestinal barrier function (low fecal sIgA and EPX). Patients in this zone have higher rates of opportunistic infections (e.g. *Blastocystis spp.* & *Dientamoeba fragilis*) as well as fecal fat malabsorption. Commensal abundance is higher in this group suggesting potential bacterial overgrowth.

Zone 3: Patients in this zone may have more inflammation compared to those in zone 4. However, commensal abundance is usually higher making use of antimicrobial therapy relatively safer. Patients in this zone may have higher rates of pathogenic infections.

Zone 4: This commensal profile is associated with increased intestinal inflammation. IBD patients are more likely to have this pattern of bacteria. Commensal abundance is lower in this zone; therefore, antibiotic use for GI potential pathogens should be used with caution. In addition to standard treatment for intestinal inflammation, modulation of the commensal gut profile is encouraged.



Relative Commensal Abundance



Bacteriology (Culture)

Lactobacillus spp.

NG

Escherichia coli

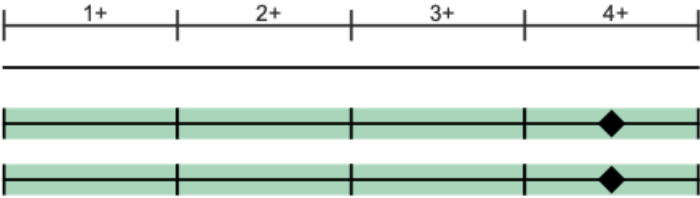
4+

NP

Bifidobacterium (Anaerobic Culture)

4+

NP



Additional Bacteria

Salmonella spp.

NG

Shigella spp.

NG

alpha haemolytic Streptococcus

4+

NP

Enterobacter ludwigii

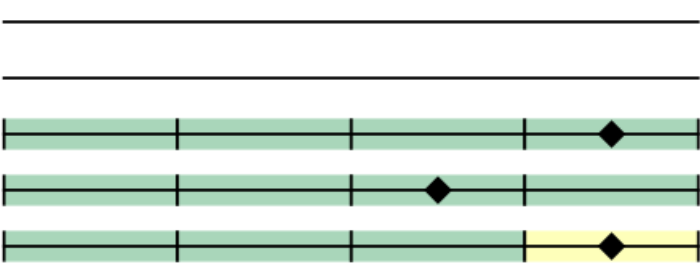
3+

NP

Citrobacter freundii

4+

PP



Mycology (Culture)

Yeast, not Candida albicans

1+

NP



Clinical Flow:

Intervention design

Implementation

Medical Rx adjustments

Surgical Intervention

Perspective Shift

Intervention updates



Biogenetix™

Thyroxine (T4) Free, Direct

Test	Current Result and Flag	Previous Result and Date		Units	Reference Interval
T4,Free(Direct) ⁰¹	1.69	1.39	06/04/2026	ng/dL	0.82-1.77

TSH

Test	Current Result and Flag	Previous Result and Date		Units	Reference Interval
TSH ⁰¹	0.514	8.270	06/04/2026	uIU/mL	0.450-4.500

Thyroxine (T4)

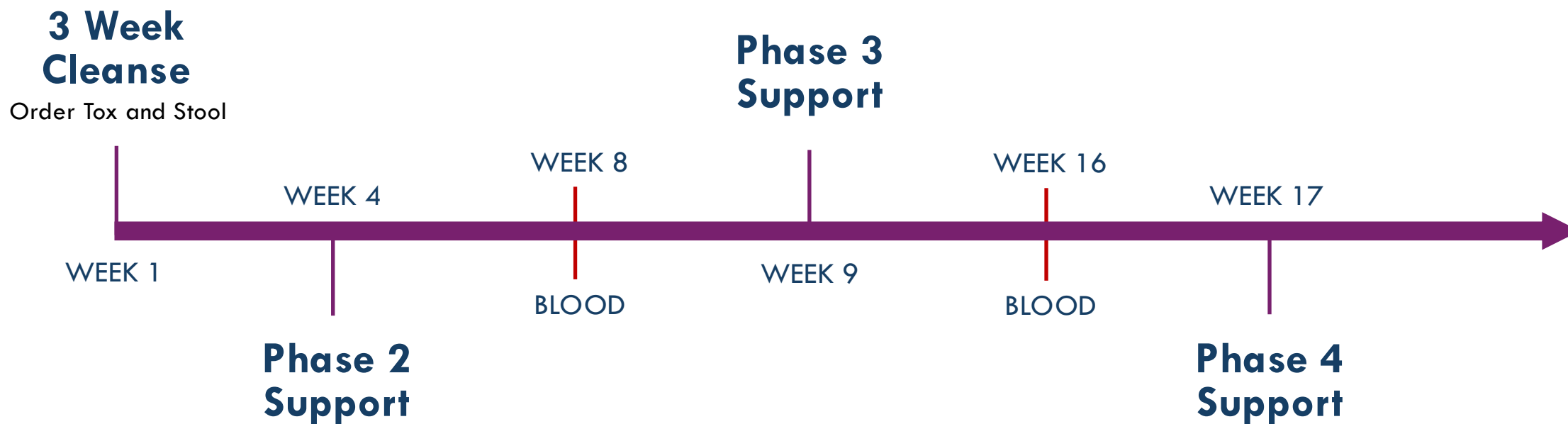
Test	Current Result and Flag	Previous Result and Date		Units	Reference Interval
Thyroxine (T4) ⁰¹	8.4	9.8	01/30/2026	ug/dL	4.5-12.0

Triiodothyronine (T3)

Test	Current Result and Flag	Previous Result and Date		Units	Reference Interval
Triiodothyronine (T3) ⁰¹	79	147	03/04/2026	ng/dL	71-180

Triiodothyronine (T3), Free

Test	Current Result and Flag	Previous Result and Date		Units	Reference Interval
Triiodothyronine (T3), Free ⁰¹	2.8	2.1	06/04/2026	pg/mL	2.0-4.4



We Want to Hear from You!

Give us your Casual Friday feedback
with this short 5-question survey.



biogenetix.com/survey