

Casual Friday Series

Crohn's Disease Part 3

A Biogenetix Clinical Presentation

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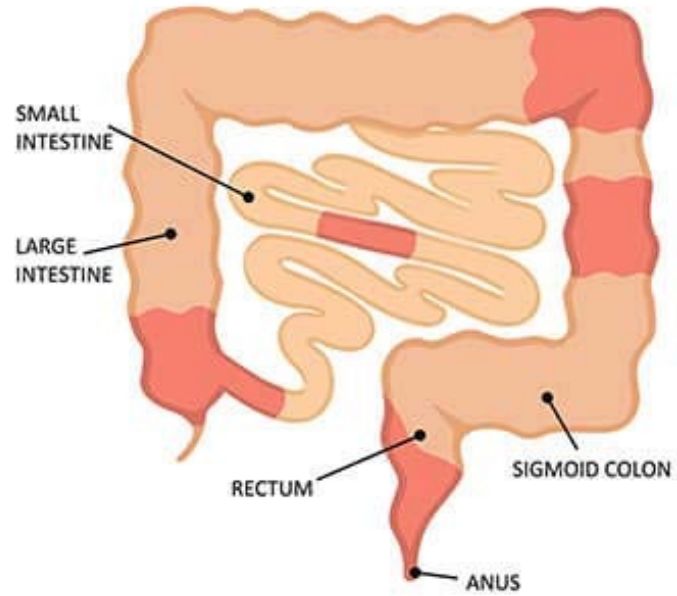
Disclaimer

- *Information in this presentation is not intended to diagnose, treat, reverse, cure, or prevent any disease. While this presentation is based on medical literature, findings, and text, The following statements have not been evaluated by the FDA.*
- *The information provided in this presentation is for your consideration only as a practicing health care provider. Ultimately you are responsible for exercising professional judgment in the care of your own patients.*



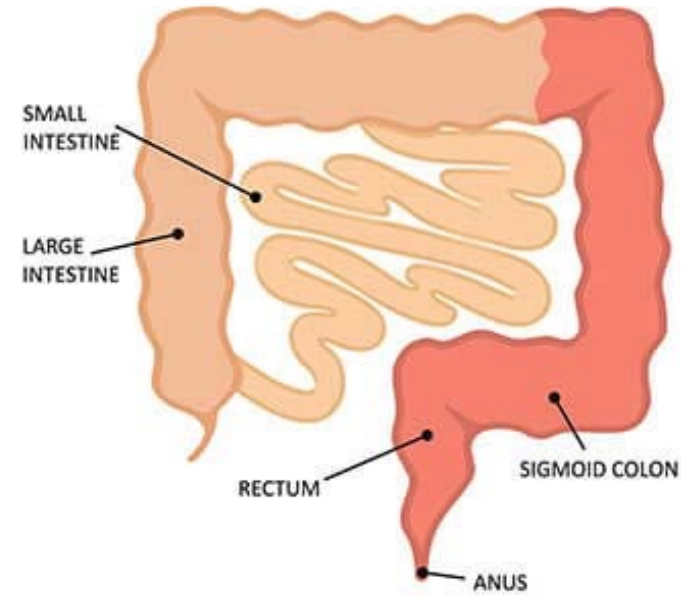
CROHN'S DISEASE

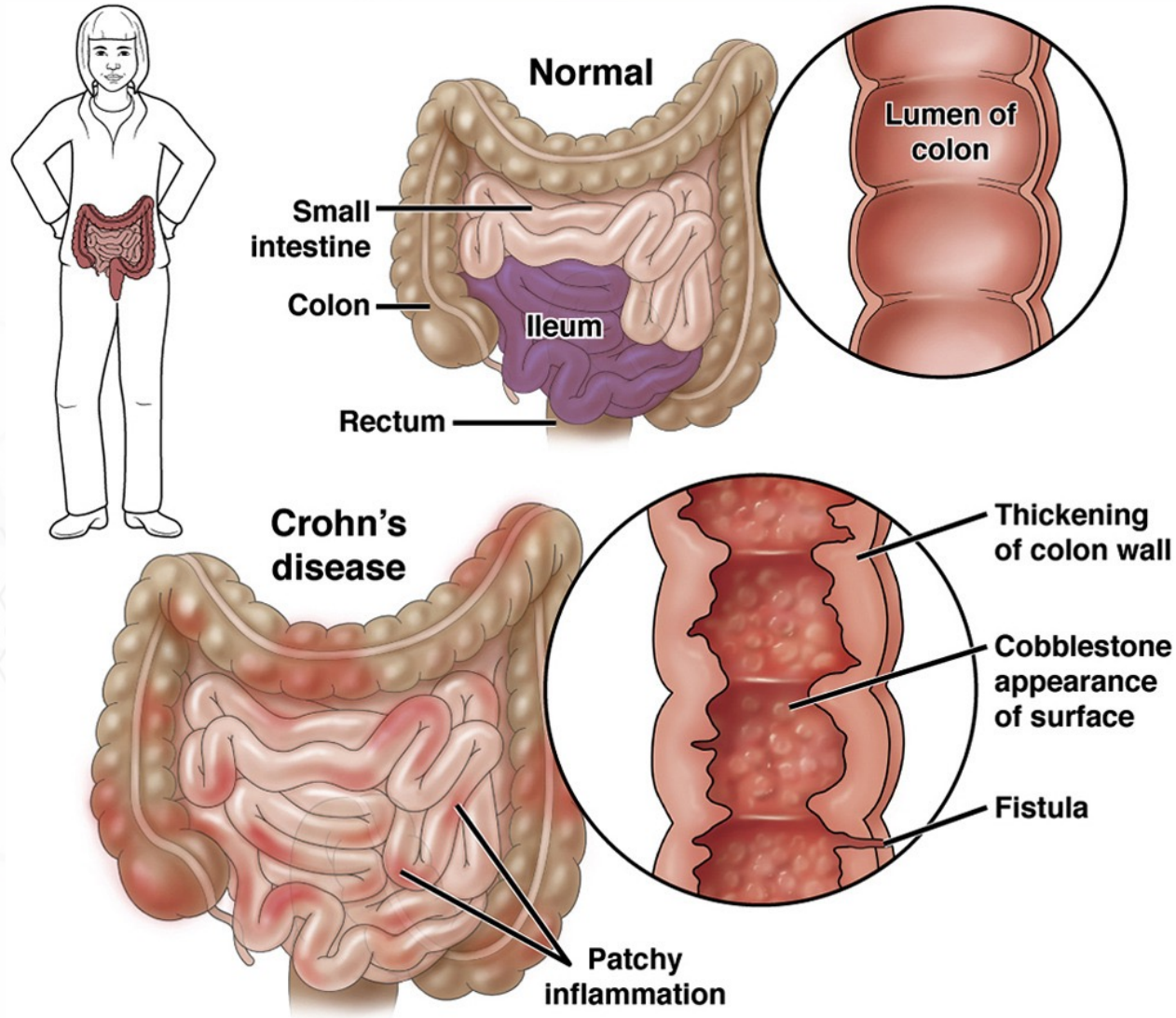
PATCHY INFLAMMATION THROUGHOUT
SMALL AND LARGE BOWEL



ULCERATIVE COLITIS

CONTINUOUS AND UNIFORM
INFLAMMATION IN THE LARGE BOWEL





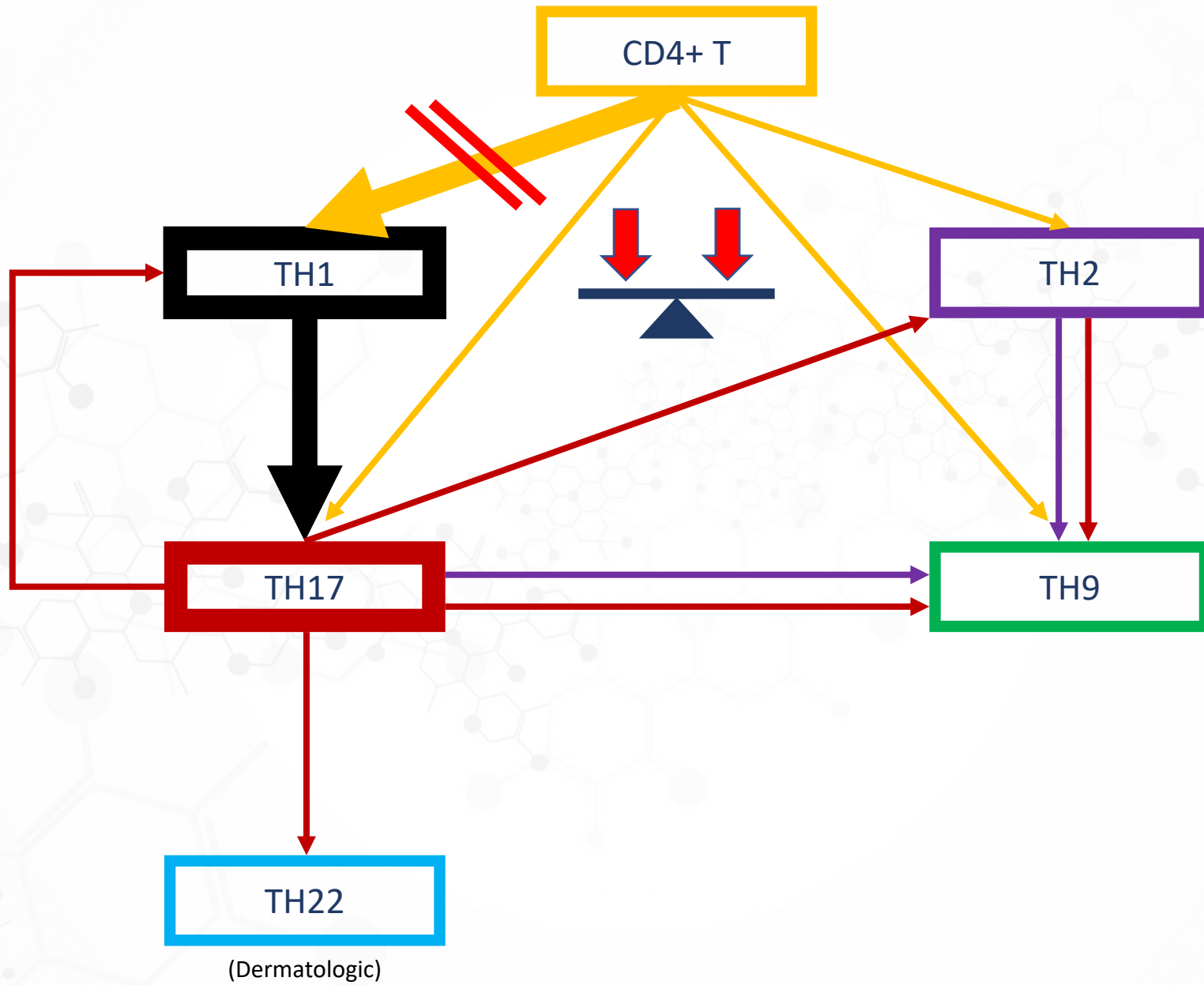


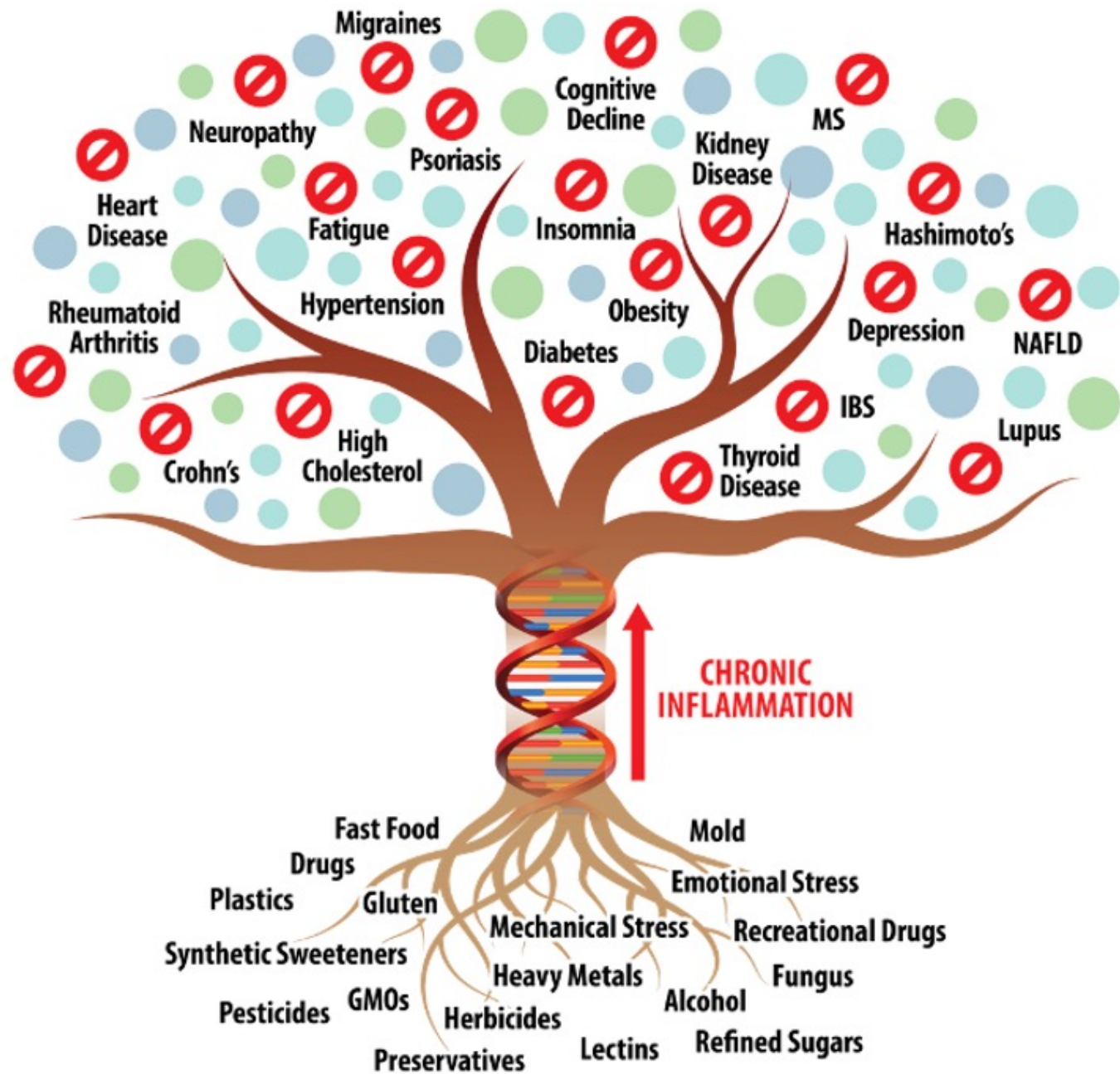
Stool tests to rule out infections include culture and sensitivities, ovum and parasites, Clostridium difficile toxins, leukocyte count. Stools for calprotectin can detect active Crohn disease and are also used for monitoring disease.[\[12\]](#)
[\[13\]](#)[\[14\]](#)[\[15\]](#)

Blood tests including complete blood count and a metabolic panel can highlight the presence of anemia (B12 or iron deficiency) or liver disease. Special serology such as normal anti-neutrophil cytoplasmic antibodies (ANCA) and raised anti-saccharomyces cerevisiae antibodies (ASCA) can distinguish Crohn disease from ulcerative colitis. C-reactive protein (CRP) or erythrocyte sedimentary rate (ESR) can reflect the severity of the inflammation.

Before initiation of any treatment, vaccination history (tetanus, diphtheria, pertussis, human papillomavirus, influenza, pneumococcal, hepatitis A, hepatitis B, measles, mumps, rubella, varicella-zoster virus) should be known, if no prior history titers of hepatitis A, hepatitis B, measles, mumps, rubella, and the varicella-zoster virus should be checked. Baseline Mantoux test with chest radiograph should also be checked before any treatment. Baseline thiopurine methyltransferase (TPMT) levels should be checked before deciding on treatment options. Low levels of TPMT may result in an increased risk of side effects, whereas very high levels may decrease the effectiveness of prescribed treatment.







Efficacy of the Autoimmune Protocol Diet for Inflammatory Bowel Disease

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Despite diet being implicated in the pathogenesis of IBD,⁴ we have limited data to guide the use of nutritional therapy as either primary or adjunctive treatment for these conditions. Conventional medical therapy for IBD focuses on suppression of the immune system by targeting a variety of pathways, yet response rates continue to remain suboptimal. Therefore, there is an important need to study dietary factors that may not only help improve response to conventional treatment but also potentially be used as primary therapy or maintenance therapy for patients with IBD. A Western diet, high in refined carbohydrates, omega-6 fatty acids, saturated fat, low in fiber, vitamins, and generally nutrient dense foods, are associated with an increased risk of IBD.⁴ Recent albeit limited data suggest that a semivegetarian diet⁵ (allowing milk and eggs, fish once per week, and other meat once every 2 weeks), specific carbohydrate diet^{6–8} (removal of all grains, most dairy products, and sweeteners except for honey), or anti-inflammatory diet⁹ (modified carbohydrate and fatty acid intake, and increased prebiotic/probiotic ingestion) can be associated with improved rates of achieving or maintaining clinical response.

The autoimmune protocol (AIP) diet is an extension of the Paleolithic diet¹⁰ and incorporates some of the dietary changes previously studied in IBD, including avoidance of gluten and refined sugar. The AIP diet focuses on an initial elimination phase of food groups including grains, legumes, nightshades, dairy, eggs, coffee, alcohol, nuts and seeds, refined/processed sugars, oils, and food additives.^{10,11} The rationale is to avoid foods, additives, or medications (e.g., nonsteroidal anti-inflammatory drugs) that can trigger intestinal inflammation, dysbiosis, and/or symptomatic food intolerance.^{10,12–14} It also emphasizes consumption and preparation of fresh, nutrient dense foods, bone broth, and fermented foods, while addressing factors that are known to associate with disability due to IBD, such as sleep and sleep hygiene, stress management, forming a support system, and physical activity.¹⁵ The elimination phase is followed by a maintenance phase, the duration of which can vary by individual, until they achieve a measurable improvement in their symptoms and overall well-being. Staged reintroduction of food groups is then initiated gradually, as patients identify unique foods or food groups that may contribute to symptoms while liberalizing their diet.^{10,11}



Efficiency of the Autoimmune Protocol Diet for Inflammatory Bowel Disease

TABLE 3.

Effect of AIP Diet on Fecal and Serum IBD Biomarkers

Week 0 versus 6 Results	n	Week 0	Week 6	<i>P</i>
FC (μg/g), mean (SD)	8	267 (367)	157 (251)	0.45
Baseline FC >50 μg/g, mean (SD)	5	412 (406)	196 (317)	0.36
CRP (mg/L), mean (SD)	11	8.3 (11.5)	7.0 (14.5)	0.46
Albumin (g/dL), mean (SD)	11	3.9 (0.4)	3.9 (0.4)	0.82
Week 0 versus 11 Results	n	Week 0	Week 11	<i>P</i>
FC (μg/g), mean (SD)	6	471 (562)	112 (104)	0.12
Baseline FC >50 μg/g, mean (SD)	4	701 (563)	139 (113)	0.09
CRP (mg/L), mean (SD)	9	3.9 (5.2)	3.4 (5.3)	0.82
Albumin (g/dL), mean (SD)	10	4.1 (0.4)	3.9 (0.4)	0.36

(76% Reduction)



46 yo male, current diagnosis and brief hx:

- Fatigue, blurry vision, insomnia, gi/inguinal abscesses, ED
- DM2
- Depression
- GERD
- Hairy-cell leukemia, experimental chemo
- Family hx of NAFLD, Alz, DM2, Cx

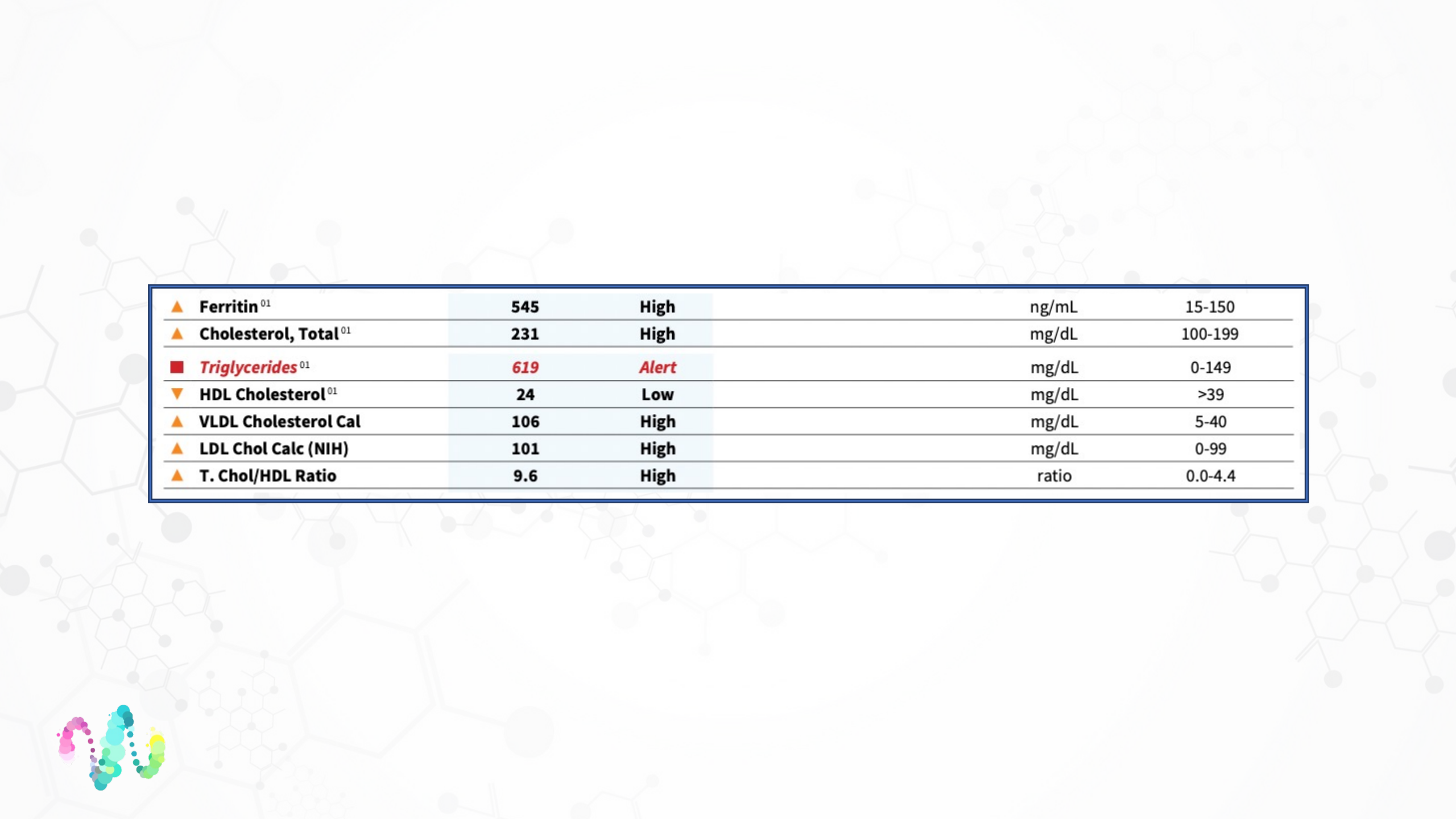
Please list all current medications, supplements, vitamins:

<u>Metformin</u>	<u>Multi vitamin</u>
<u>Fish oil</u>	<u>Tumeric</u>
<u>Cinnamon</u>	<u>Omeprazole</u>
<u>Biotin</u>	<u>Fenofibrate</u>
<u>Cymbalta</u>	<u>Humulin 70/30</u>
<u>Fluoxetine</u>	<u>Methylphenidate</u>
<u>Glimepiride</u>	



Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
Chemistries ⁰¹				
▲ Glucose ⁰¹	133 High		mg/dL	65-99
	Effective September 26, 2022 Glucose reference interval will be changing to:			
			70 - 99	
▲ Hemoglobin A1c ⁰¹	11.5 High		%	4.8-5.6
Please Note: ⁰¹				
	Prediabetes: 5.7 - 6.4 Diabetes: >6.4 Glycemic control for adults with diabetes: <7.0			
Uric Acid ⁰¹	3.9		mg/dL	2.6-6.2
	Therapeutic target for gout patients: <6.0			
BUN ⁰¹	12		mg/dL	6-24
▲ Creatinine ⁰¹	1.05 High		mg/dL	0.57-1.00
eGFR	66		mL/min/1.73	>59
BUN/Creatinine Ratio	11			9-23
Sodium ⁰¹	137		mmol/L	134-144
Potassium ⁰¹	3.9		mmol/L	3.5-5.2
Chloride ⁰¹	100		mmol/L	96-106
Carbon Dioxide, Total ⁰¹	22		mmol/L	20-29
Calcium ⁰¹	9.5		mg/dL	8.7-10.2
Phosphorus ⁰¹	3.4		mg/dL	3.0-4.3
Magnesium ⁰¹	1.8		mg/dL	1.6-2.3
Protein, Total ⁰¹	7.1		g/dL	6.0-8.5
Albumin ⁰¹	3.9		g/dL	3.8-4.8
Globulin, Total	3.2		g/dL	1.5-4.5
A/G Ratio	1.2			1.2-2.2
Bilirubin, Total ⁰¹	0.4		mg/dL	0.0-1.2
Alkaline Phosphatase ⁰¹	102		IU/L	44-121
LDH ⁰¹	124		IU/L	119-226
▲ AST (SGOT) ⁰¹	48 High		IU/L	0-40
▲ ALT (SGPT) ⁰¹	50 High		IU/L	0-32
GGT ⁰¹	59		IU/L	0-60





▲ Ferritin ⁰¹	545	High	ng/mL	15-150
▲ Cholesterol, Total ⁰¹	231	High	mg/dL	100-199
■ Triglycerides ⁰¹	619	Alert	mg/dL	0-149
▼ HDL Cholesterol ⁰¹	24	Low	mg/dL	>39
▲ VLDL Cholesterol Cal	106	High	mg/dL	5-40
▲ LDL Chol Calc (NIH)	101	High	mg/dL	0-99
▲ T. Chol/HDL Ratio	9.6	High	ratio	0.0-4.4

Homocyst(e)ine ⁰¹	7.5		umol/L	0.0-14.5
▲ TSH ⁰¹	5.390	High	uIU/mL	0.450-4.500
Thyroxine (T4) ⁰¹	8.2		ug/dL	4.5-12.0
T3 Uptake ⁰¹	29		%	24-39
Free Thyroxine Index	2.4			1.2-4.9
Triiodothyronine (T3) ⁰¹	108		ng/dL	71-180
Triiodothyronine (T3), Free ⁰¹	2.7		pg/mL	2.0-4.4
Reverse T3, Serum ^{A,02}	21.7		ng/dL	9.2-24.1
T4,Free(Direct) ⁰¹	1.26		ng/dL	0.82-1.77
Thyroid Peroxidase (TPO) Ab ⁰¹	<8		IU/mL	0-34
Thyroglobulin Antibody ⁰¹	<1.0		IU/mL	0.0-0.9
Thyroglobulin Antibody measured by Beckman Coulter Methodology				
▼ Vitamin D, 25-Hydroxy ⁰¹	15.5	Low	ng/mL	30.0-100.0
<p>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).</p> <ol style="list-style-type: none"> 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. 				



MCH ⁰¹	29.6		pg	26.6-33.0
MCHC ⁰¹	33.0		g/dL	31.5-35.7
RDW ⁰¹	14.2		%	11.7-15.4
Platelets ⁰¹	171		x10E3/uL	150-450
Neutrophils ⁰¹	26		%	Not Estab.
Lymphs ⁰¹	67		%	Not Estab.
Monocytes ⁰¹	5		%	Not Estab.
Eos ⁰¹	2		%	Not Estab.
Basos ⁰¹	0		%	Not Estab.
Neutrophils (Absolute) ⁰¹	1.7		x10E3/uL	1.4-7.0
▲ Lymphs (Absolute)⁰¹	4.5	High	x10E3/uL	0.7-3.1
Monocytes(Absolute) ⁰¹	0.3		x10E3/uL	0.1-0.9
Eos (Absolute) ⁰¹	0.1		x10E3/uL	0.0-0.4
Baso (Absolute) ⁰¹	0.0		x10E3/uL	0.0-0.2
Immature Granulocytes ⁰¹	0		%	Not Estab.
Immature Grans (Abs) ⁰¹	0.0		x10E3/uL	0.0-0.1
CBC, Platelet Ct, and Diff⁰¹				
WBC ⁰¹	6.7		x10E3/uL	3.4-10.8
RBC ⁰¹	4.77		x10E6/uL	3.77-5.28
Hemoglobin ⁰¹	14.1		g/dL	11.1-15.9
Hematocrit ⁰¹	42.7		%	34.0-46.6
MCV ⁰¹	90		fL	79-97



C-Peptide, Serum

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
C-Peptide, Serum ⁰¹	2.7		ng/mL	1.1-4.4

C-Peptide reference interval is for fasting patients.

Insulin

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
▲ Insulin ⁰¹	42.0 High		uIU/mL	2.6-24.9

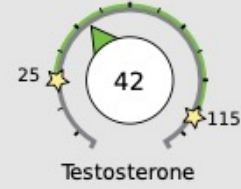


Dutch Test

Key (how to read the results):



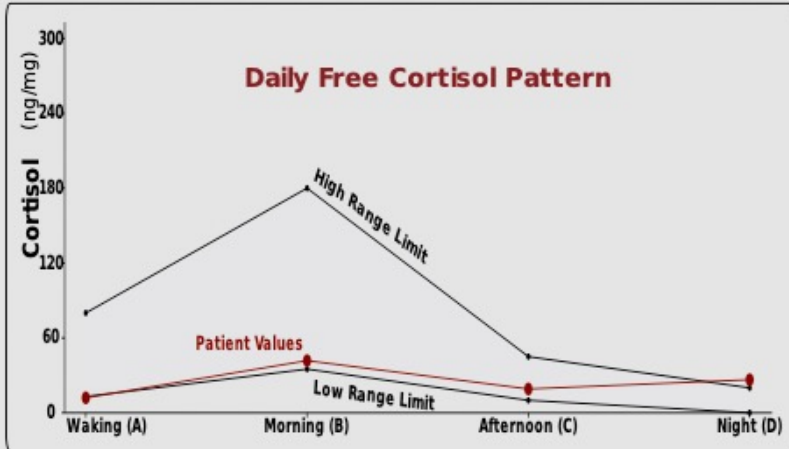
Sex Hormones



Testosterone

Age	Range
18-25	50-115
26-40	40-95
41-60	30-80
>60	25-60

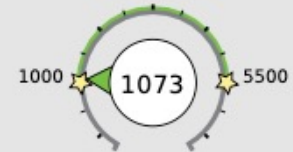
Adrenal Hormones See pages 4 and 5 for a more complete breakdown of adrenal hormones



Free cortisol best reflects tissue levels. Metabolized cortisol best reflects total cortisol production.

Total DHEA Production

Age	Range
20-39	3000-5500
40-60	2000-4000
>60	1000-2500



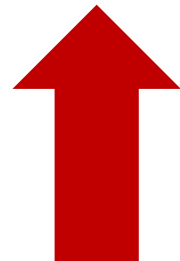
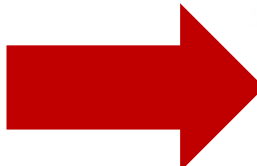
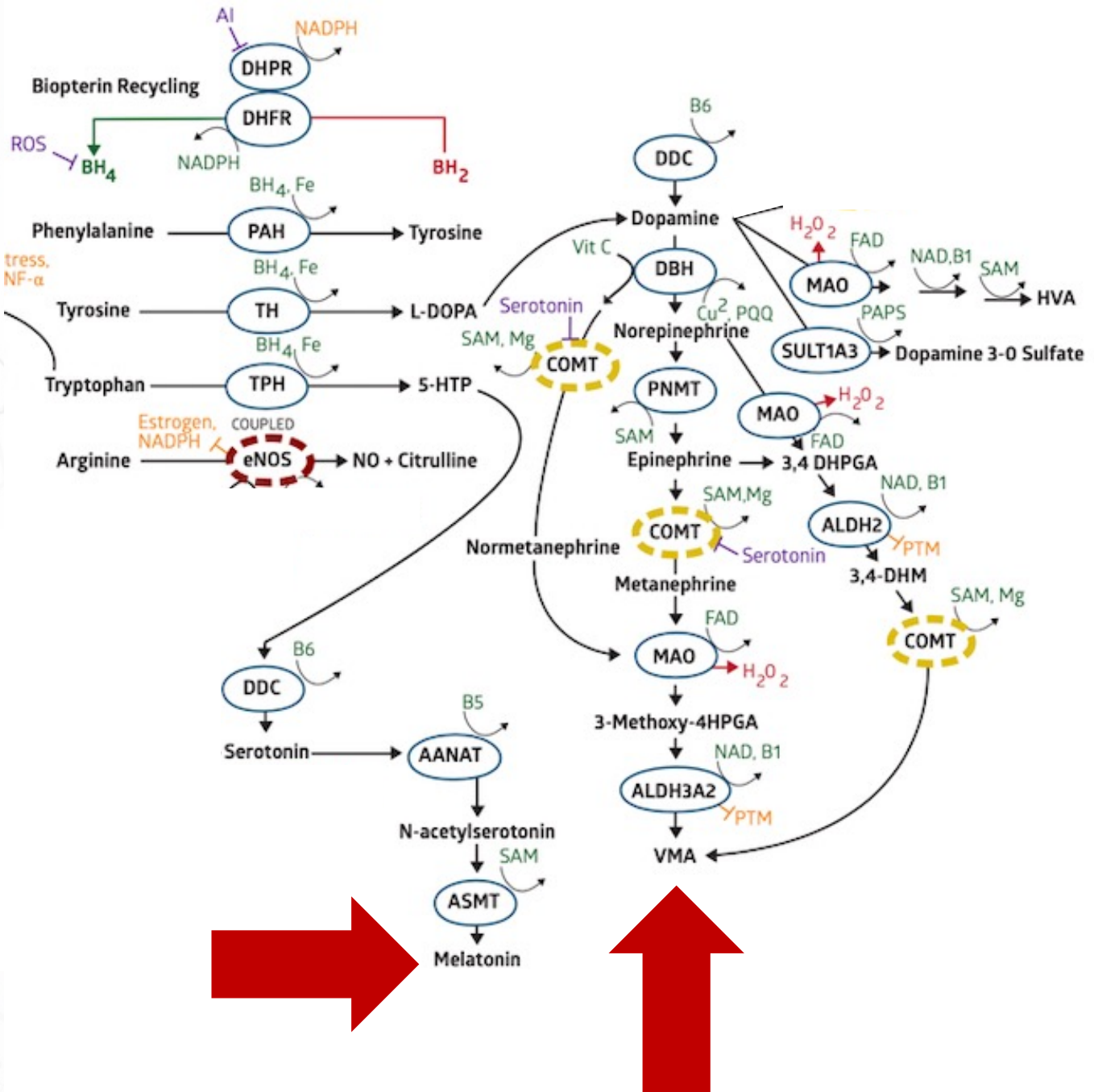
cortisol
metabolism



Dutch Test

Category	Test	Result	Units	Normal Range
Nutritional Organic Acids				
Vitamin B12 Marker (may be deficient if high) - (Urine)				
	Methylmalonate (MMA)	Within range	2.58 ug/mg	0 - 3.5
Vitamin B6 Markers (may be deficient if high) - (Urine)				
	Xanthurenate	Within range	0.54 ug/mg	0.2 - 1.9
	Kynurenate	Within range	2.02 ug/mg	1 - 6.6
Glutathione Marker (may be deficient if low or high) - (Urine)				
	Pyroglutamate	Below range	32.3 ug/mg	38 - 83
Biotin Marker (may be deficient if high) - (Urine)				
	b-Hydroxyisovalerate	Within range	13.2 ug/mg	0 - 18
Gut Marker (potential gut putrefaction or dysbiosis if high) - (Urine)				
	Indican	Within range	106.1 ug/mg	0 - 131
Neuro-related Markers				
Dopamine Metabolite - (Urine)				
	Homovanillate (HVA)	Below range	3.4 ug/mg	4 - 16
Norepinephrine/Epinephrine Metabolite - (Urine)				
	Vanilmandelate (VMA)	Low end of range	2.6 ug/mg	2.5 - 7.5
Neuroinflammation Marker - (Urine)				
	Quinolate	Within range	6.8 ug/mg	0 - 12.5
Additional Markers				
Melatonin (*measured as 6-OH-Melatonin-Sulfate) - (Urine)				
	Melatonin* (Waking)	Low end of range	18.4 ng/mg	10 - 85
Oxidative Stress / DNA Damage, measured as 8-Hydroxy-2-deoxyguanosine (8-OHdG) - (Urine)				
	8-OHdG (Waking)	Within range	2.39 ng/mg	0 - 8.8






Stool Sample Doctor's Data

BACTERIOLOGY CULTURE		
Expected/Beneficial flora	Commensal (Imbalanced) flora	Dysbiotic flora
3+ <i>Bacteroides fragilis</i> group	2+ <i>Klebsiella pneumoniae/variicola</i>	3+ <i>Citrobacter freundii</i> complex
2+ <i>Bifidobacterium</i> spp.	2+ <i>Rothia dentocariosa</i>	3+ <i>Citrobacter freundii</i> complex, isolate 2
NG <i>Escherichia coli</i>	3+ <i>Streptococcus anginosus</i>	
2+ <i>Lactobacillus</i> spp.	3+ <i>Streptococcus salivarius</i>	
NG <i>Enterococcus</i> spp.	2+ <i>Streptococcus agalactiae</i> (Beta strep, group B)	
2+ <i>Clostridium</i> spp.		

NG = No Growth

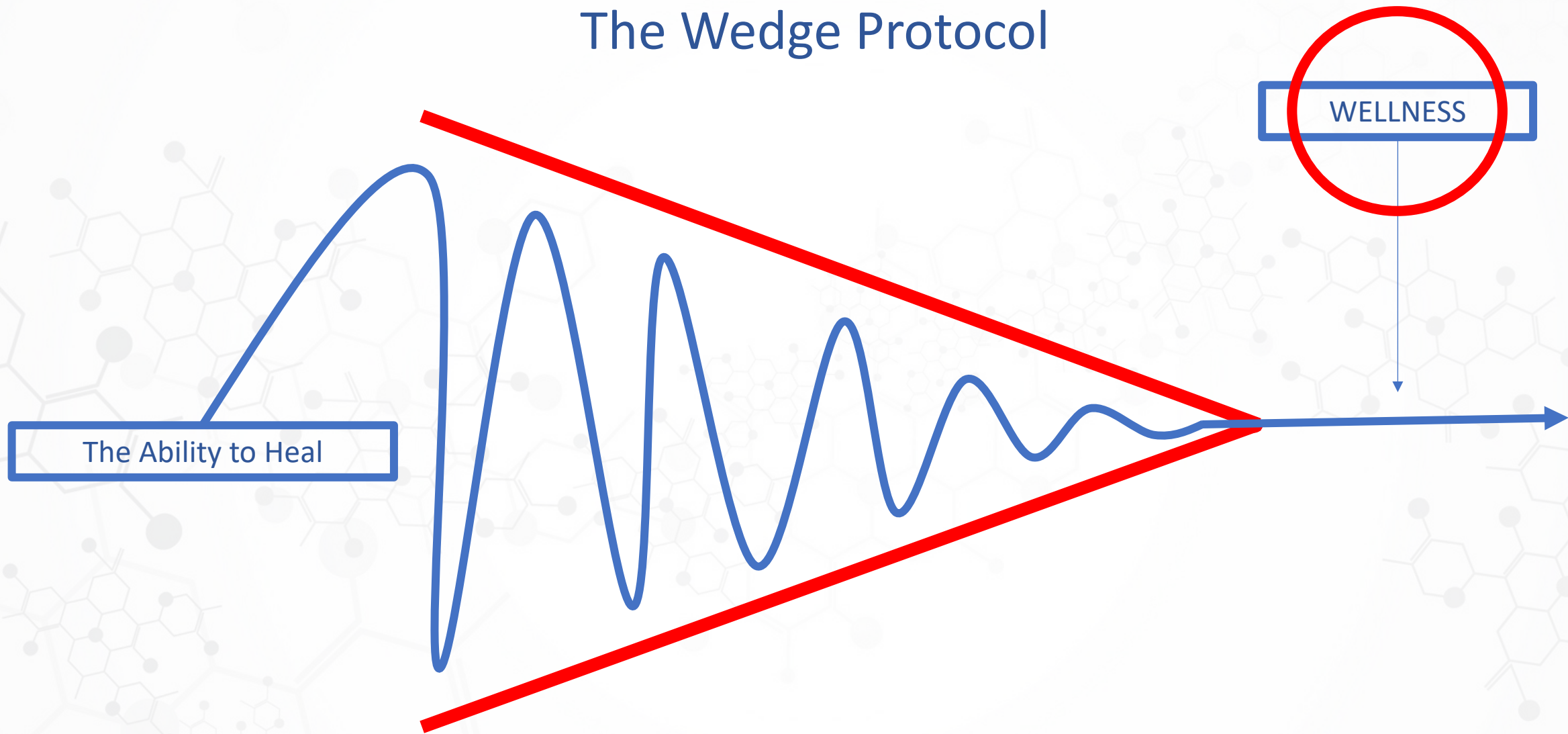


Stool Sample Doctor's Data

Digestion / Absorption	Result	Unit		Reference Interval
Elastase	60	µg/g	<input type="checkbox"/>	> 200
Fat Stain	Not Detected		<input checked="" type="checkbox"/>	None – Moderate
Carbohydrates [†]	Negative		<input checked="" type="checkbox"/>	Negative
Inflammation	Result	Unit		Reference Interval
Lactoferrin	11.8	µg/mL	<input type="checkbox"/>	< 7.3
Calprotectin	276	µg/g	<input type="checkbox"/>	< 80
Lysozyme*	342	ng/mL	<input checked="" type="checkbox"/>	≤ 500
Immunology	Result	Unit		Reference Interval
Secretory IgA*	0.7	mg/dL	<input type="checkbox"/>	30 – 275
Short Chain Fatty Acids	Result	Unit		Reference Interval
% Acetate [‡]	57	%	<input checked="" type="checkbox"/>	50 – 72
% Propionate [‡]	25	%	<input checked="" type="checkbox"/>	11 – 25
% Butyrate [‡]	13	%	<input checked="" type="checkbox"/>	11 – 32
% Valerate [‡]	6.2	%	<input type="checkbox"/>	0.8 – 5.0
Butyrate [‡]	0.83	mg/mL	<input checked="" type="checkbox"/>	0.8 – 4.0
Total SCFA's [‡]	6.5	mg/mL	<input checked="" type="checkbox"/>	5.0 – 16.0
Intestinal Health Markers	Result	Unit		Reference Interval
pH	6.5		<input checked="" type="checkbox"/>	5.8 – 7.0
Occult Blood	Positive		<input type="checkbox"/>	Negative
Macroscopic Appearance	Result	Unit		Reference Interval
Color	Brown		<input checked="" type="checkbox"/>	Brown
Consistency	Soft		<input checked="" type="checkbox"/>	Soft



The Wedge Protocol



The Ability to Heal

WELLNESS



The Wedge Protocol

