



SHINE CONFERENCE

with Dr. Ritamarie Loscalzo (MS, DC, CCN, DACBN)

SCIENTIFIC AND HOLISTIC INVESTIGATION
OF NUTRITIONAL ENDOCRINOLOGY



Mission Possible

**A New Paradigm
of Health Care**

My Mission

Your Mission

Our Mission

Disease Management



True Health Care





The Power of WHY?

Johanna Quaas, 87



Stanislaw Kowalski, 106

The World's Oldest Athlete





What's Your Big WHY?



My Big WHY

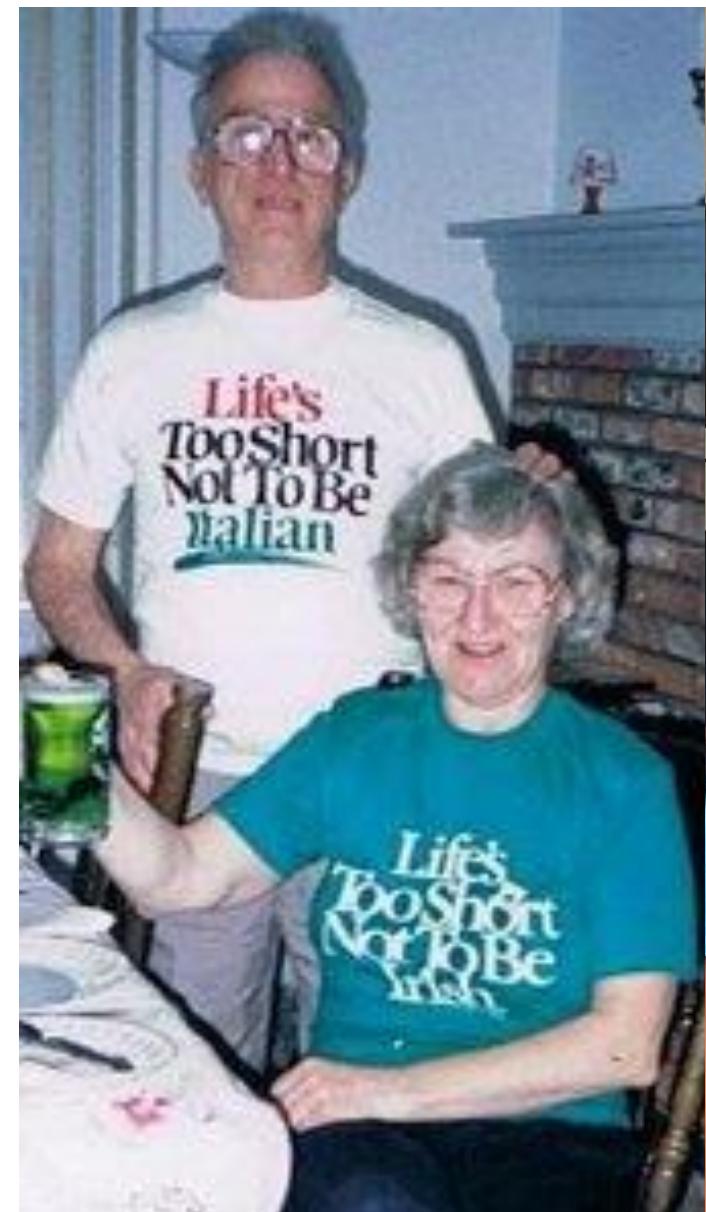


My Big WHY



From Health Crisis to Health Coach





My Big WHY





If I Could Wave
My Magic
Wand...

Day 1: Evaluate



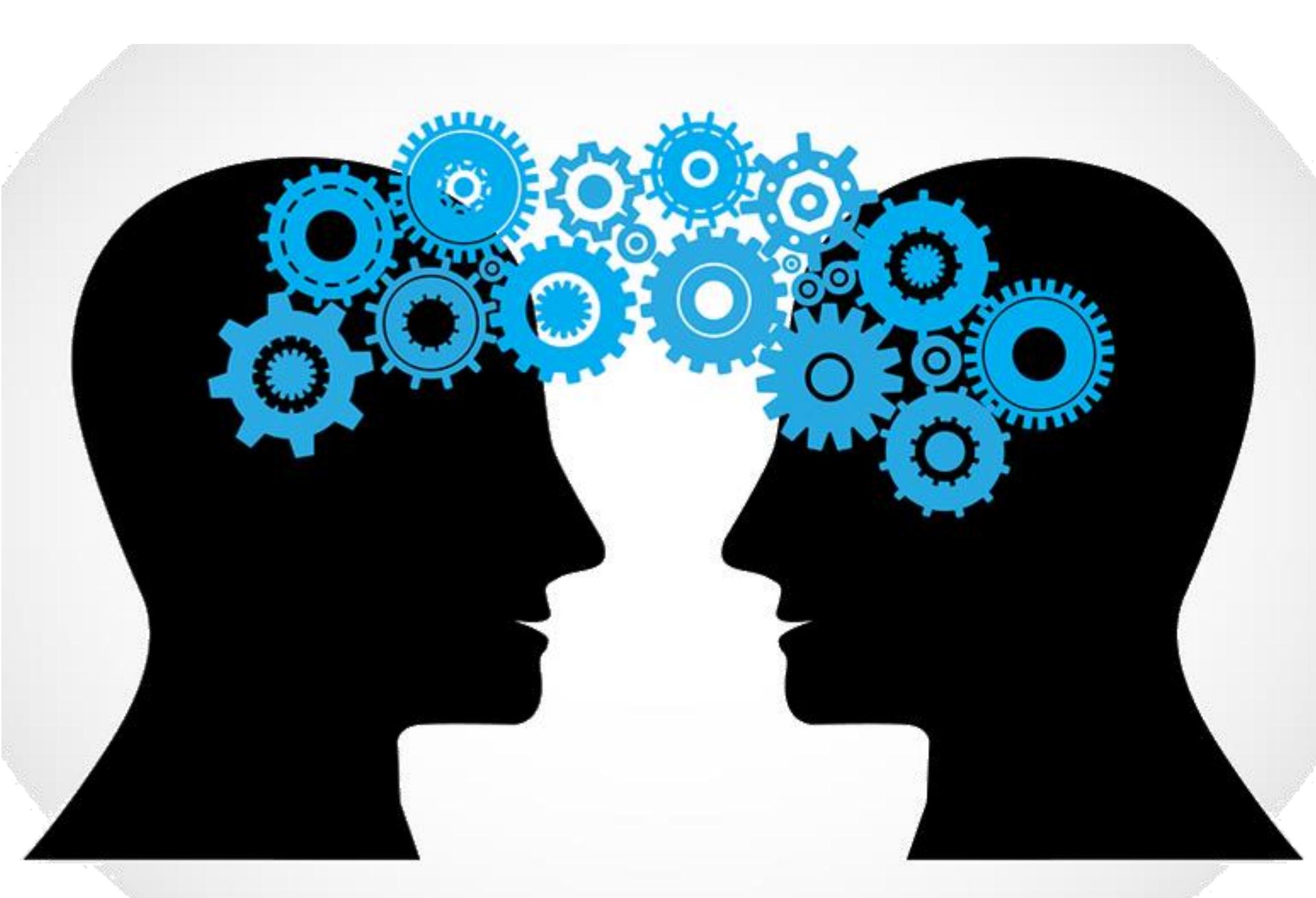
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OF NUTRITIONAL ENDOCRINOLOGY



Medical Disclaimer: The information in this presentation is not intended to replace a one-on-one relationship with a qualified health care professional and is not intended as medical advice. It is intended as a sharing of knowledge and information from the research and experience of Dr. Ritamarie Loscalzo, drritamarie.com, and the experts who have contributed. We encourage you to make your own health care decisions based upon your research and in partnership with a qualified health care professional. This presentation is provided for informational purposes only and no guarantees, promises, representations or warranties of any kind regarding specific or general benefits, have been or will be made by Dr. Ritamarie Loscalzo, her affiliates or their officers, principals, representatives, agents or employees. Dr. Ritamarie Loscalzo is not responsible for, and shall have no liability for any success or failure, acts and/or omissions, the appropriateness of the participant's decisions, or the use of or reliance on this information.



What Does It Take to Succeed?

It Starts with Passion!

**The
Power
of
WHY?**



What Else Does It Take to Succeed?

- ✓ Superior interview skills and excellent listening skills
- ✓ Knowledge about how the body works
- ✓ Functional assessment tools aka “Detective skills”
- ✓ A system and a complete holistic toolbox
- ✓ A support network





How to Be Unstoppable in Your Health Care Practice



**Impeccable
Self-Care**



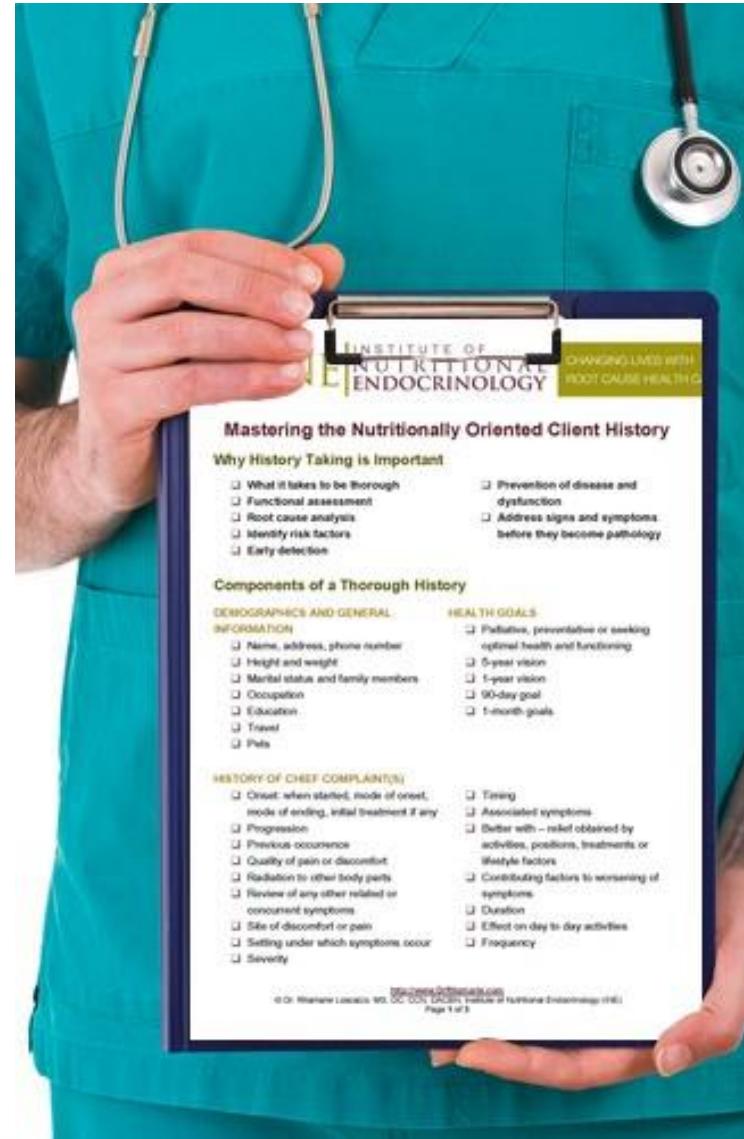
**Clinical
Mastery**



**Effective Business
and Marketing**

The Next 3 Days...

- ✓ Functional testing in YOUR practice
- ✓ History taking – the right way
- ✓ When, what, and how to order tests
- ✓ Physical evaluation



The Next 3 Days...

- ✓ What you can and cannot say
- ✓ Blood chemistry – gems often overlooked
- ✓ Immune testing
- ✓ Assessments from
the east and ancient
healing modalities



The Next 3 Days...

- ✓ Reproductive testing
- ✓ Digestive testing
- ✓ Genetics testing
- ✓ A variety of functional tests



The Next 3 Days...

- ✓ Home and in-office testing
- ✓ Creating action plans from test results
- ✓ Getting your message out



A woman with blonde hair, wearing a green dress, is holding a white tray with a meal consisting of a sandwich and a salad. She is standing next to a man with grey hair, wearing a white shirt. They are both looking towards the camera. The background is a plain, light color.

**Results Vary From
Client To Client And
Practitioner To Practitioner**

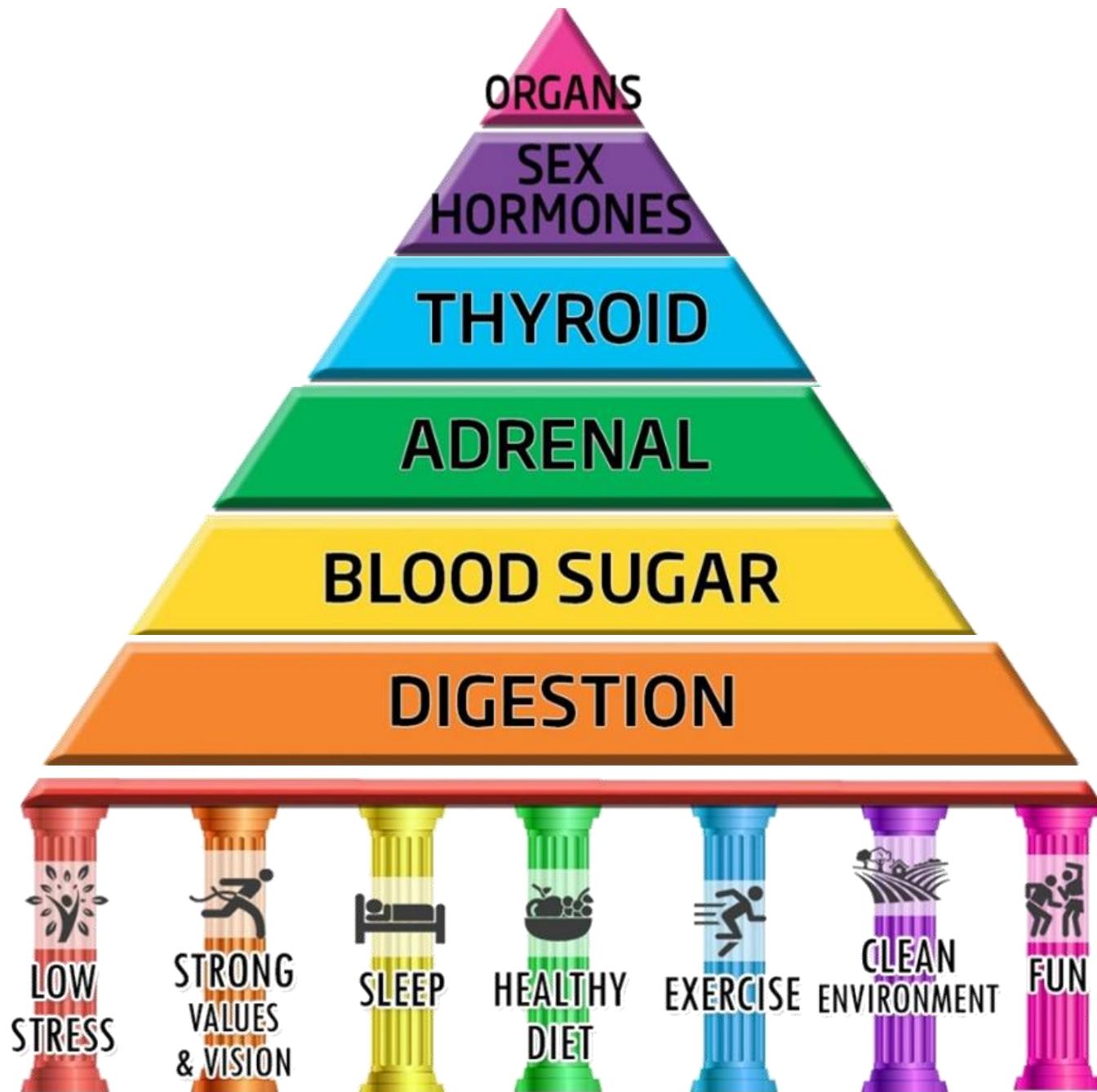
4 Pillars of a Functional Assessment

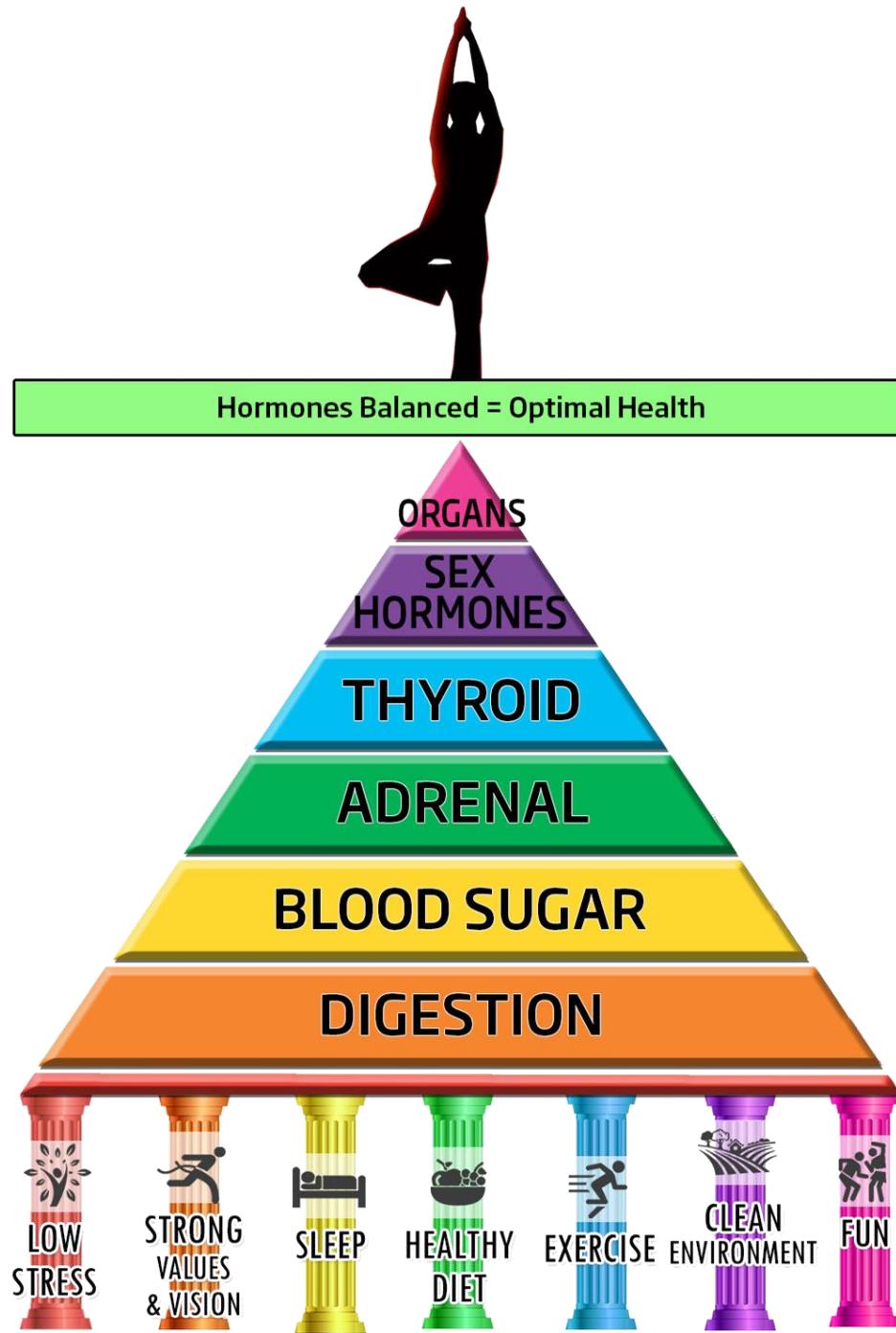


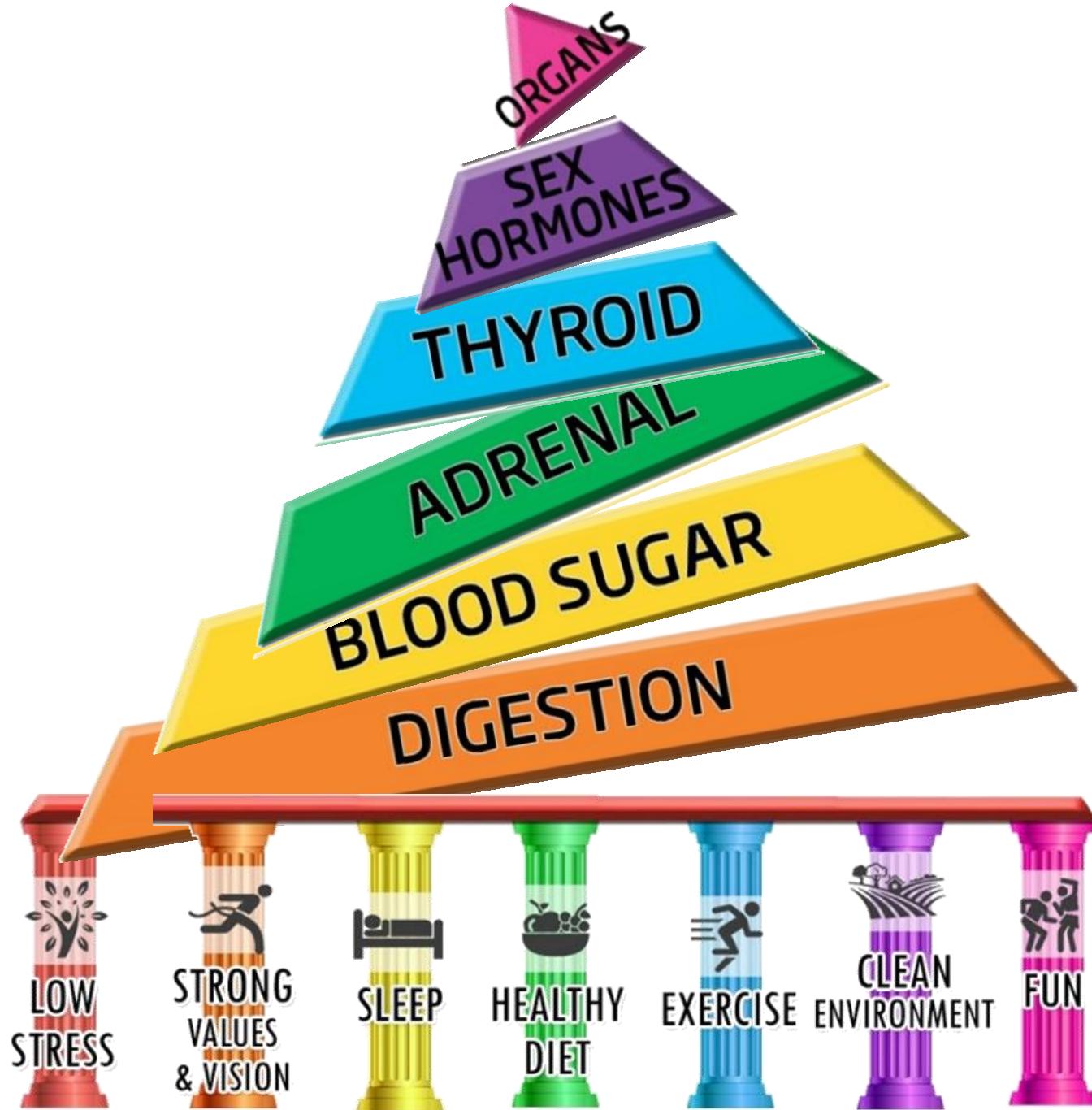
- ✓ “Detective” history taking and interview skills
- ✓ Functional physical evaluation
- ✓ Functional lab tests – blood, saliva, urine, hair, stool
- ✓ In-office/at-home testing

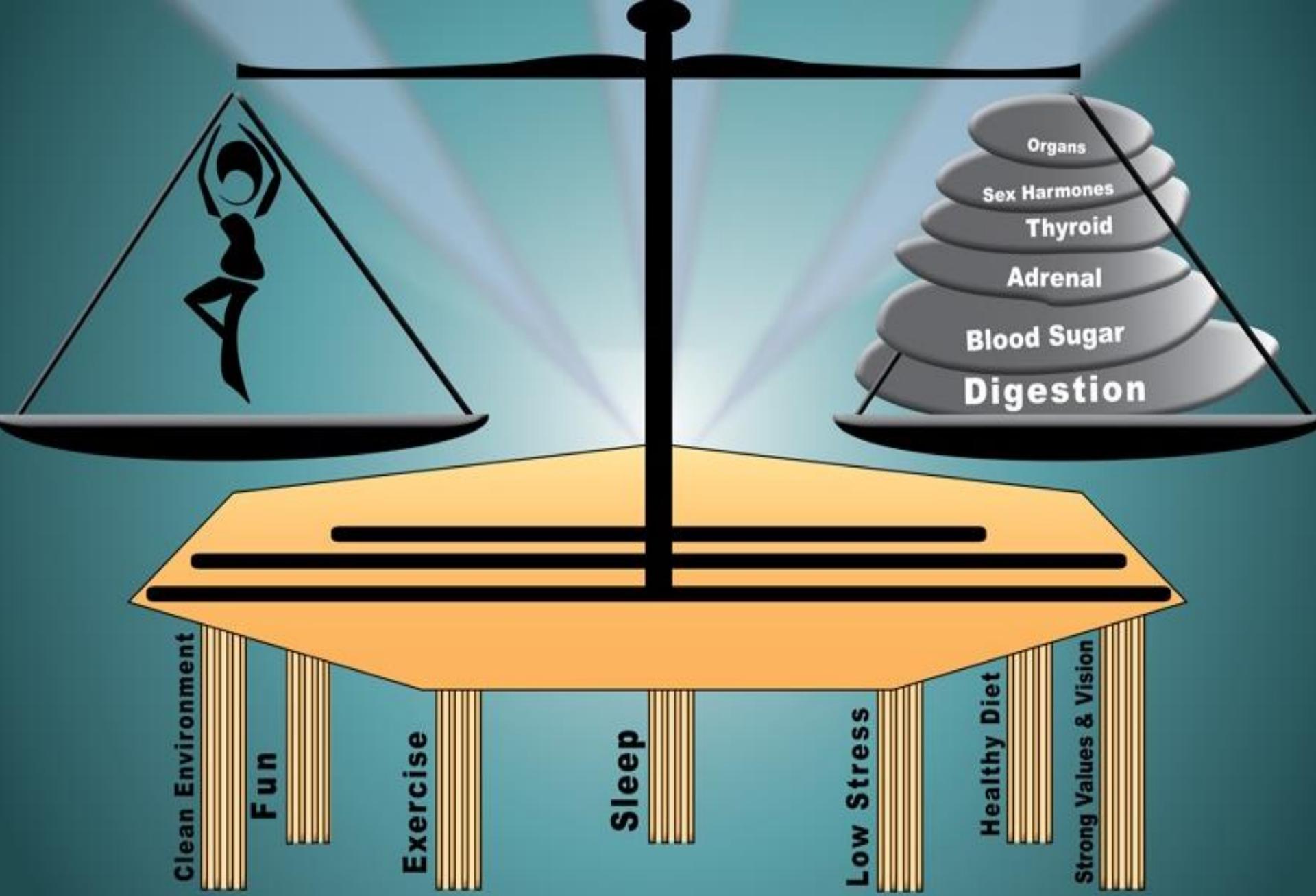
The right way to take a history to get 75-90% of what you need right away

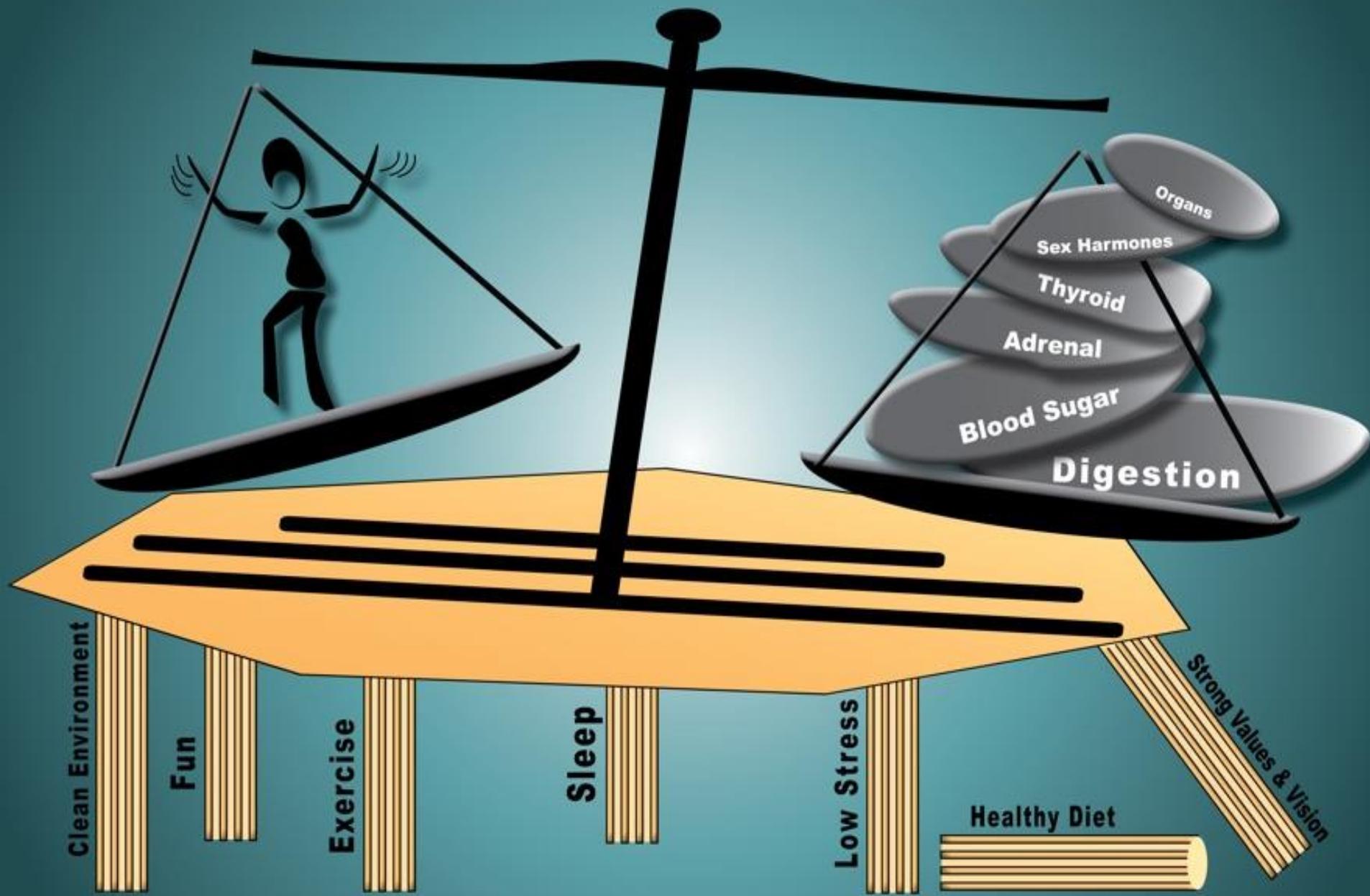












History Taking the Right Way

The

Power

of

WHY?

Components of a Thorough History

- ✓ Demographics
- ✓ Health goals
- ✓ History of chief complaint(s)
- ✓ Current health and exposures
- ✓ Past health and family health
- ✓ Nutrient evaluation
- ✓ Journals and tracking forms
- ✓ “Ready and willing” assessment



Components of a Thorough History

Demographics and General Information

- ✓ Name, address, phone number
- ✓ Height and weight
- ✓ Marital status and family members
- ✓ Occupation
- ✓ Education
- ✓ Travel
- ✓ Pets



Components of a Thorough History

Health Goals

- ✓ Palliative, preventative, or seeking optimal health and functioning
- ✓ 5-year vision
- ✓ 1-year vision
- ✓ 90-day goal
- ✓ 1-month goal



Components of a Thorough History

Chief Complaint(s)

- ✓ **Onset:** when began, mode of onset, mode of ending, initial management
- ✓ **Progression** and previous occurrence
- ✓ **Quality** of pain or discomfort
- ✓ **Related symptoms**
- ✓ **Setting** when symptoms occur
- ✓ **Timing**



Components of a Thorough History

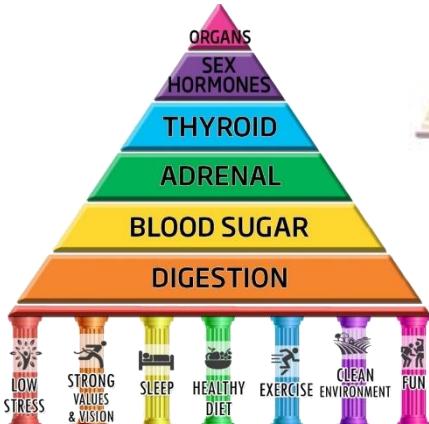
Current Health and Exposures

- ✓ Review of body systems
- ✓ Stress and attitude evaluation
- ✓ Sleep habits and history
- ✓ Nutrition and lifestyle habits
- ✓ Exercise habits and history
- ✓ Environmental influences
- ✓ Medications and nutritional supplements
- ✓ Dental evaluation
- ✓ Current health care procedures



Identifying Obstacles

- Stress
- Attitude
- Sleep
- Nutrition
- Exercise
- Environment
- Fun & Relationships



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NUTRITIONAL
ENDOCRINOLOGY

CHANGING LIVES WITH
ROOT CAUSE HEALTH CARE

7 Pillars Scorecard Assessment

Pillar 1: Stress						
Use the descriptions to choose the appropriate score. Calculate your results as go.						
Stress Part 1		0	1	2	3	
How often do you practice the power of appreciation and an "attitude of gratitude" throughout the day?		0 = 5 or more times per day 1 = 3-4 times per day 2 = 1-2 times per day 3 = Never, or just started	0	1	2	3
How often are you practicing a stress management method or technique (e.g., meditation, prayer, HeartMath "Quick Coherence", etc.)?*		0 = 5 or more times per day 1 = 3-4 times per day 2 = 1-2 times per day 3 = Never, or just started	0	1	2	3
How often are you feeling "stressed out" (i.e. above a 7) on a stress scale from 0 to 10?		0 = About once or twice a week, or less 1 = A few to several times a week 2 = A few to several times a day 3 = All the time! Every waking moment!	0	1	2	3
Total for Each Column (number of checkmarks x value)						
Subtotal Part 1 (Max 9)						
Stress Part 2		YES	NO			
Do you feel clear about your goals in life?		0	3			
Overall, do your daily actions align with your most important values and visions?		0	3			
Are you happy most of the time?		0	3			
Do you feel your life has meaning and purpose?		0	3			
Do you like the work you do?		0	3			
Would you describe your experience as a child in your family as happy and secure?		0	3			
Did you feel safe growing up?		0	3			
Total for Each Column (number of checkmarks x value)						
Subtotal Part 2 (Max 21)						
Subtotal Parts 1 – 2 (Max 30)						
Stress Part 3		YES	NO			
Do you feel significantly less vital than you did a year ago?		3	0			
Do you believe stress is presently reducing the quality of your life?		3	0			
Have you experienced major losses in your life?		3	0			
Do you spend the majority of your time and money to fulfill responsibilities and obligations?		3	0			
Have you ever been involved in abusive relationships in your life?		3	0			
Was alcoholism or substance abuse present in your childhood home?		3	0			

7 Pillars Scorecard

Pillar	Max Score	Your Score	Priority:	1 = low (green) 2 = medium (blue) 3 = high (yellow) 4 = very high (red)
Pillar 1: Stress	1556			
Pillar 2: Attitude and Beliefs	66			
Pillar 3: Sleep	51			
Pillar 4: Nutrition Part 1 - Negative Habits	126			
Pillar 4: Nutrition Part 2 - Positive Habits	66			
Pillar 5: Fitness	21			
Pillar 6: Environment	249			
Pillar 7: Fun	48			

Health Tracker



Habits and Obstacles			
Client Name		Coach Name	
Habits and Obstacles	Positive Habits	Negative Habits	Challenges
Diet			
Movement			
Stress			
Sleep			
Schedule			
Environment			
Fun and Recreation			
Relationships			

Components of a Thorough History

Past Health and Family History

- ✓ Illnesses and injuries
- ✓ Hospitalizations and surgeries
- ✓ Medication history
- ✓ Trauma
- ✓ Prenatal care
- ✓ Childhood health and diet
- ✓ Family history: past and present



Components of a Thorough History

Nutrient Evaluation

- ✓ Vitamins
- ✓ Minerals
- ✓ Amino acids
- ✓ Fatty acids



Nutrient Status

Name: _____				
Point Scale: 0 = No, Never/Rarely or almost never 2 = Moderate/Frequent experiences/effects 1 = Mild/Sometimes experiences/effects 3 = Yes, Severe/Daily experiences/effects				
Section 1: Essential Fatty Acids				
Do you experience pain relief with aspirin?	0	1	2	3
Do you crave fatty or greasy foods?	0	1	2	3
Do you have a history of following a low or reduced-fat diet? <i>0 = never, 1 = years ago, 2 = within last year, 3 = within past 3 months</i>	0	1	2	3
Do you experience tension headaches at the base of your skull?	0	1	2	3
Do you get headaches when out in the hot sun?	0	1	2	3
Do you sunburn easily or suffer sun poisoning?	0	1	2	3
Do your muscles easily fatigue?	0	1	2	3
Do you have dry, flaky skin?	0	1	2	3
Do you ever experience "goose flesh/goose bumps"?	0	1	2	3
Do you have ridged, cracked, and/or peeling nails?	0	1	2	3
Do you have magnesium or vitamin B6 deficiencies that don't respond to supplements?	0			3
Do you have dandruff?	0	1	2	3
Do you have areas of inflamed soft tissue?	0	1	2	3
Do you have inflamed joints?	0	1	2	3
Do you have cracks in your heels?	0	1	2	3
Do you have red cuticles?	0	1	2	3
Do you have acne?	0	1	2	3
Do you have breast cysts?	0	1	2	3
Do you suffer from diarrhea?	0	1	2	3
Do you have dry hair?	0	1	2	3
Do you have Eczema?	0	1	2	3
Do you have excess earwax?	0	1	2	3
Do you have gallstones?	0	1	2	3
Have you experienced hair loss?	0	1	2	3
Do you suffer from any immune impairment?	0	1	2	3

Nutrient Scorecard

Percent score is calculated by dividing your score by the max score and multiplying by 100. Look up the % score in the chart below to determine priority.

Nutrient	Max Score	Your Score	Your % Score	Priority:	1=low (green) 2=medium (blue) 3=high (yellow) 4=very high (red)
Essential Fatty Acids	99				
Amino Acids	24				
Vitamin A	30				
B Vitamins	45				
	45				

Score Interpretation:

- 0-10%: Overall good balance. Sound nutrition and healthy habits will maintain good balance.
- 11-25%: In need of a tune up to restore balance before serious illness sets in. Diet and lifestyle improvements should shift to normal.
- 26-50%: Your nutrient balance is compromised and likely to significantly affect your state of health, well-being, and energy level.
- 51-100%: Your nutrient balance is severely compromised and requires immediate attention. Take steps now to restore balance to your health, well-being, and energy level.

Nutrient Balance: General Assessment

Date of Assessment					
Essential Fatty Acid Needs					
Amino Acid Needs					

Nutrient Balance: Vitamin Assessment

Date of Assessment					
Vitamin A					
B Vitamins					
Vitamin B1 - Thiamin					
Vitamin B2 - Riboflavin					
Vitamin B3 - Niacin					
Vitamin B5 - Pantothenic acid					
Vitamin B6 - Pyridoxine					
Vitamin B7 - Biotin					
Vitamin B9 - Folic Acid					
Vitamin B12 - Cobalamin					
Vitamin C					
Vitamin D					
Vitamin E					
Vitamin K					

Nutrient Balance: Mineral Assessment

Date of Assessment					
Calcium					
Chromium					
Copper					
Iodine					
Iron					
Magnesium					
Manganese					
Phosphorus					
Potassium					
Zinc					

Body System and Organ Assessment					
Date of Assessment: mm/dd/yy					
Digestion - Low Stomach Acid					
Digestion - Excess Stomach Acid					
Digestion - Liver and Gallbladder					
Digestion - Small Intestine and Pancreas					
Digestion - Large Intestine					
Cardiovascular System					
Kidney and Bladder					
Immune System					
Hormone and Gland Assessment					
Date of Assessment					
Adrenal – General					
Adrenal Hypofunction					
Adrenal Hyperfunction (Cortisol high)					
Blood Sugar Dysregulation					
Blood Sugar Handling - Insulin Resistance					
Blood Sugar Handling - Glucose Fluctuation					
Thyroid Low (Hypo)					
Thyroid Excess (Hyper)					
Pituitary					
Male - Prostate					
Male - Hormones					
Female - Hormones					
Female - Menopausal					
Brain and Neurotransmitter Assessment					
Date of Assessment					
General Brain Function					
Serotonin					
Dopamine					
GABA					

Mineral Test Kit



The test kits allow you to test for the following minerals:

- 1. Potassium
- 2. Zinc
- 3. Magnesium
- 4. Copper
- 5. Chromium
- 6. Manganese
- 7. Molybdenum
- 8. Selenium

<http://www.drritamarie.com/go/EmersonEcologics>

Use code **fresh1** to access

Interpretation of Mineral Tests

Taste Test Score	Clinical implication
1 Sweet	Definitely need the mineral
2 Pleasant	Need the mineral
3 No Taste	Need the mineral
4 Hmm...taste something	Sufficient
5 So-So, there is some taste	Do not need mineral
6 Don't like	Do not need mineral
7 Gross taste	Do not need mineral

- Write down the appropriate response on the score card
- Repeat this process for each of the remaining minerals

Components of a Thorough History

Journals and Tracking

- ✓ Food and mood
- ✓ Activity and symptom tracker
- ✓ Medications and supplements
- ✓ Bowel habits
- ✓ Blood sugar
- ✓ pH



Components of a Thorough History

“Ready and Willing” Assessment

- ✓ Change diet
- ✓ Take supplements
- ✓ Keep records
- ✓ Modify lifestyle
- ✓ Practice relaxation techniques
- ✓ Exercise
- ✓ Have periodic lab tests to assess progress



BEFORE First Appointment

- ✓ Basic health questionnaire
- ✓ Ask for health records and prior labs
- ✓ “Ready and Willing” evaluation
- ✓ Diet diary



Initial Consultation Flow

- ✓ Create rapport
- ✓ Review pre-consultation forms
- ✓ Discuss goals
- ✓ Discuss daily activities and diet
- ✓ Review old labs
- ✓ Suggest a few actions



My UNSTOPPABLE HEALTH Roadmap

Name: _____ Date: _____

My Current Health Concerns

Top Stressed Body Systems

Top Nutrient Deficiencies

Present/Past Health (Surgery, Trauma, etc.)

My Positive Habits

Obstacles: Keeping Me From My Goals

Stress, Schedule, Limiting Beliefs	Sleep	Diet	Movement/ Physical Limitations	Environment	Fun/ Relationships

Lab Findings

Physical Exam Findings

My Plan to Take Me to My Goals

Week 1	Month 1	90 Days	1 Year

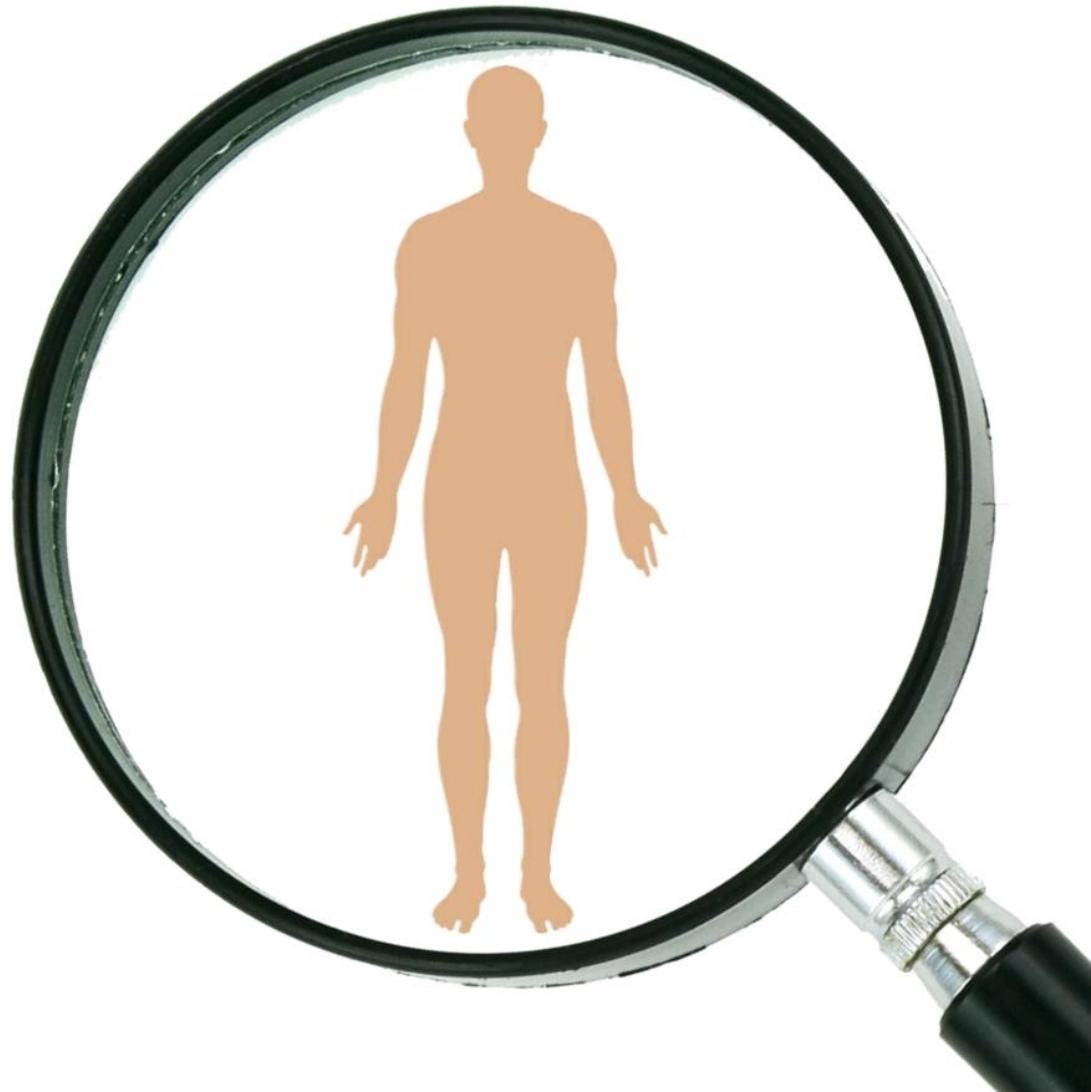
My Core Values

My Goals

My BIG Vision

Functional Exam Components

- ✓ Blood pressure
- ✓ Measurements
- ✓ Eyes
- ✓ Lips and mouth
- ✓ Face
- ✓ Tongue
- ✓ Head
- ✓ Hands
- ✓ Skin



Nutritionally Oriented Physical Exam Interpretation Guide

Adrenal (Calculate score based on the column headings)

Highlight or circle your positive finding	0	1	2	3
• Blood pressure upon standing	Incr: 10	Same	Decr <= 10	Decr >10
• Pupil constriction with bright light	20 sec	10-20 sec	<10 Sec	<5 sec
• Rib margin tenderness	Absent	Mild	Moderate	Severe
• Brown discoloration below eyelids	Absent	Mild	Moderate	Severe
• Black discoloration below eyelids	Absent	Mild'	Moderate	Severe
• Dark gray or reddish back of tongue	Absent	Mild	Moderate	Severe
• Ulcerations or canker sores	Absent	Mild	Moderate	Severe
• Bad breath	Absent	Mild	Moderate	Severe
• Rough, red, flaky cuticles	Absent	Mild	Moderate	Severe
• Tongue signs: <i>Distinguishing Marks</i> diagram - deep seated fear/anxiety	Absent	Present		
• Tongue signs: <i>Distinguishing Marks</i> diagram signs - emotions along spinal column	Absent	Present		
Total Adrenal				

Nutritionally Oriented Physical Exam Interpretation Guide

Digestion – Liver and Gallbladder

- Yellow discoloration below bottom eyelids
- Yellow/brown sclera
- Red sclera
- Green sclera
- Facial color: yellow
- Creases between eyes
- Bulbous nose
- Tongue irritation/redness
- Splitting cuticles
- Excessive vertical ridges on nails
- Clubbing (nails grow downward, end of finger noticeably enlarges, nails break in odd ways)
- Grey ring around the cornea

Digestion – Low Stomach Acid

- Painful dentures
- Acne
- Dandruff
- Splitting, breaking nails

Nutritionally Oriented Physical Exam

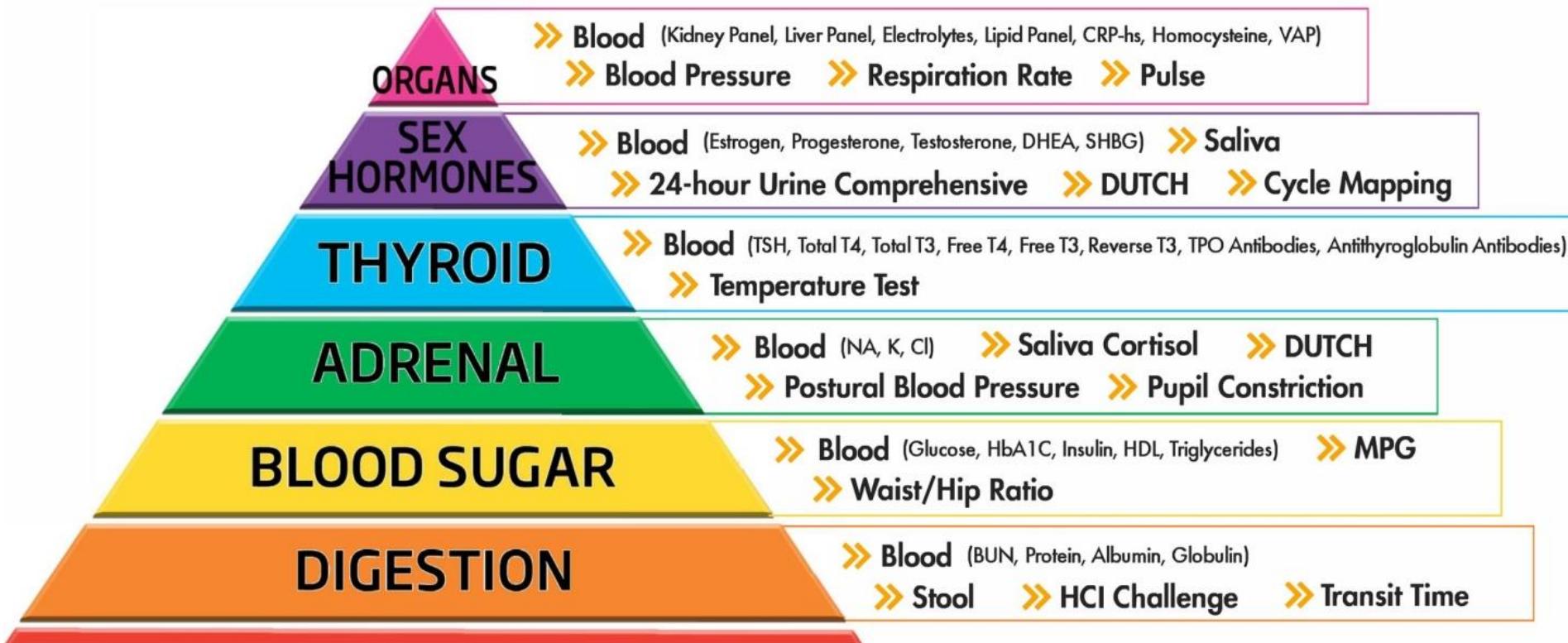
Name:	Date:		
Height:	Weight:		
Frame size (check one):	Small	Medium	Large
Respiration – breaths per minute:			
Pulse – beats per minute:	Temperature:		
Blood Pressure			
Seated, legs uncrossed Left Arm: Right Arm:		If difference between left and right is > 10 , top or bottom, there may be a blockage.	
Lying Face Up			
Standing Immediately upon arising: 1m: 2m: 3m: 4m: 5m:		Systolic blood pressure (top number) should increase by 10 when you stand up. If it does not or if it decreases, it's suggestive of adrenal stress. The more time it takes to restore the blood pressure to what it should be is suggestive of the degree of adrenal distress. Measure once a minute for up to 5 minutes. Stop when pressure increases by 10 points.	

Functional Lab Test Guidelines

- ✓ When to use
- ✓ Which tests to recommend
- ✓ The ideal order



Assessment Checklist by Body System



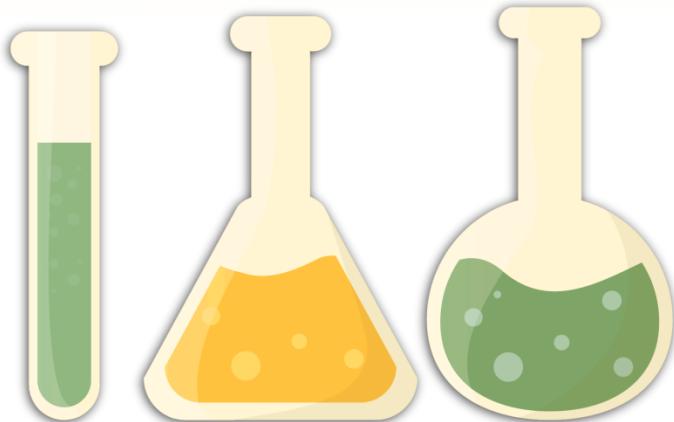


Why Do Blood Testing?





Lab Normal Ranges Vs. Functional (Ideal) Ranges





Secrets To Finding Nutritional Pearls Most Doctors Miss



Blood Chemistry Testing Resources

✓ **Direct Labs:**

www.directlabs.com

✓ **Personal Labs:**

www.personalabs.com

✓ **Life Extensions:**

www.lef.org/Vitamins-Supplements/Blood-Tests/index.htm

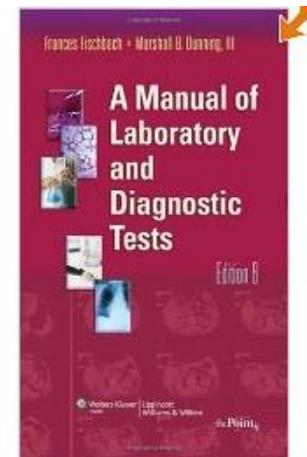


Conventional Medical Interpretation Books

- ✓ **A Manual of Laboratory and Diagnostic Tests**

Frances Fischbach and Marshall B. Dunning

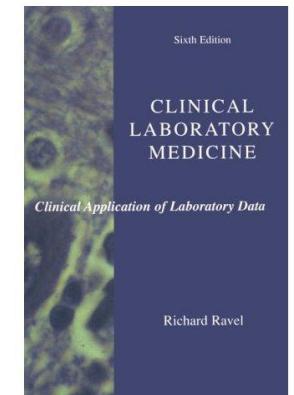
<http://www.drritamarie.com/go/ManualOfLabDiagnosticTests>



- ✓ **Clinical Laboratory Medicine: Clinical Applications of Laboratory Data**

Richard Ravel MD

<http://www.drritamarie.com/go/CLMLabData>



- ✓ **Lab Tests Online**

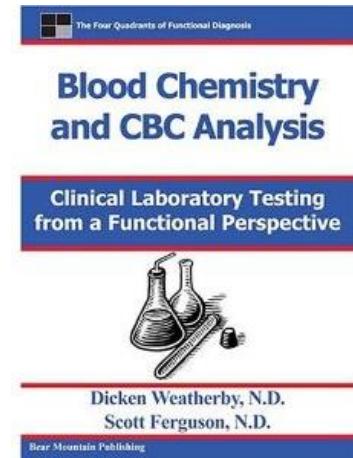
<http://www.drritamarie.com/go/LabTestsOnline>

Functional Interpretation Books

✓ Blood Chemistry and CBC Analysis

Dicken Weatherby, ND, Scott Ferguson

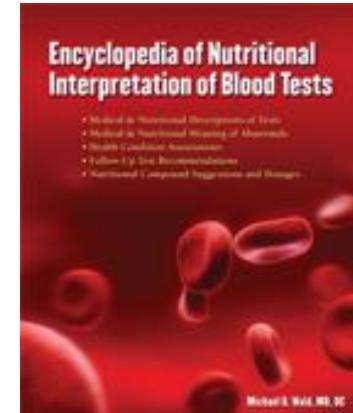
<http://www.drritamarie.com/go/BloodChemCBCWeatherby>



✓ Encyclopedia of Nutritional Interpretation of Blood Tests

Michael Wald, MD, DC

<http://www.drritamarie.com/go/EncycNutrlInterpBloodTestsMichaelWald>



“Routine” Blood Chemistry Screen: What’s Usually Included

- ✓ CBC
- ✓ Thyroid w/TSH
- ✓ Lipid profile
- ✓ Liver profile
- ✓ Kidney panel
- ✓ Glucose
- ✓ Fluids, electrolytes, and minerals



Non-Optional Extras

- ✓ Vitamin D3: Vitamin D, 25-Hydroxy
- ✓ Thyroid Antibodies
- ✓ Iron
- ✓ Ferritin
- ✓ Hemoglobin A1c
- ✓ Free T3



Specialty Blood Tests

- ✓ C-reactive Protein
- ✓ Homocysteine
- ✓ Sedimentation Rate (ESR)
- ✓ Fasting Insulin
- ✓ DHEA
- ✓ Testosterone
- ✓ Estrogen
- ✓ PSA



A Cutting-Edge Analysis Tool: Lab Results Tracking Spreadsheet

CATEGORIES	Units	LAB RANGE		RANGE		DATE	DATE	DATE	Possible Interpretation			Follow-up
		Min	Max	Min	Max				Results	Results	Results	
Lab Markers												
Glucose, serum	mg/dL	65.0	110.0	75.0	89.0							
Uric Acid, serum (Female)	mg/dL	1.8	7.0	3.2	5.5							
Uric Acid, serum (Male)	mg/dL	1.8	7.0	3.7	6.0							
BUN	mg/dL	8.0	28.0	13.0	18.0							
Creatinine, serum	mg/dL	0.5	1.2	0.7	1.1							
eGFR	mL/min/1.73	59.0	-	59.0	-							
eGFR (African American)	mL/min/1.73	59.0	-	59.0	-							
BUN/Creatinine Ratio	-	8.0	27.0	8.0	27.0							
Sodium, serum	mmol/L	135.0	148.0	135.0	140.0							
Potassium, serum	mmol/L	3.5	5.5	4.0	4.5							
Chloride, serum	mmol/L	99.0	111.0	100.0	106.0							

Lab Results - U.S.						Lab Results - U.S.						
Coach Name	Dr. Ritamarie					02/18/15	DATE	Possible Interpretation			Follow-up	
	Units	LAB RANGE		IDEAL RANGE				Min	Max	Results	Results	
CATEGORIES												
Lab Markers												
Glucose, serum	mg/dL	65.0	110.0	75.0	89.0	75				Diabetes; insulin resistance; thiamin deficiency; stress; liver. Gout; atherosclerosis; oxidative stress; rheumatoid arthritis; kidney; circulation; leaky gut syndrome.	Hypoglycemia; low adrenal	Test fasting insulin, hemoglobin A1C
Uric acid, serum (female)	mg/dL	1.8	7.0	3.2	5.5	2.9				Deficiency of molybdenum, B-12/folate and/or copper	If high, evaluate for signs and symptoms of joint pain. If low, check for other signs of B12 deficiency and mineral deficiency (home tests)	
Uric acid, serum (male)	mg/dL	1.8	7.0	3.7	6.0					Deficiency of molybdenum, B-12/folate and/or copper	If high, evaluate for signs and symptoms of joint pain. If low, check for other signs of B12 deficiency and mineral deficiency (home tests)	
Blood urea nitrogen (BUN), serum	mg/dL	8.0	28.0	13.0	18.0	10				Malabsorption; kidney issues; dehydration; excessive protein intake; hyperadrenal	Malabsorption; liver dysfunction; low protein diet	HCl challenge, enzymes, optimize digestion
Creatinine, serum	mg/dL	0.5	1.2	0.7	1.1	0.65				Urinary tract congestion/obstruction; kidneys; prostate	Muscle wasting; malabsorption	HCl challenge, enzymes, optimize digestion
Estimated glomerular filtration rate (eGFR), serum	mL/min/1.73 m^2	59.0	-	59.0	-	105						referral to kidney specialist
Estimated glomerular filtration rate (eGFR) (African American),	mL/min/1.73 m^2	59.0	-	59.0	-							referral to kidney specialist
BUN/Creatinine Ratio	-	8.0	27.0	8.0	27.0	16				See BUN & Creatinine	See BUN & Creatinine	HCl challenge, enzymes, optimize digestion
Sodium, serum	mEq/L	135.0	148.0	135.0	140.0	140				Hyperadrenal; dehydration	Hypoadrenal; edema; laxative use	check for signs of edema or dehydration, Adrenal Stress Index Test, HeartMath and other stress management skills
Potassium, serum	mEq/L	3.5	5.5	4.0	4.5	3.8				Hypoadrenal; dehydration; acidosis	Hyperadrenal; hypertension; diuretics	Check for signs of edema or dehydration, Adrenal Stress Index Test, HeartMath and other stress management skills
Chloride, serum, plasma	mEq/L	99.0	111.0	100.0	106.0	101				Acidosis; hyperadrenal	Hypochlorhydria; alkalosis; hypoadrenal	HCl challenge, pH monitoring and appropriate diet changes, Adrenal Stress Index Test, HeartMath and other stress management skills
Carbon dioxide, total, serum	mEq/L	19.0	31.0	25.0	30.0	24				Alkalosis; hyperadrenal; hypochlorhydria; respiratory distress	Acidosis; thiamin (B-1) deficiency; hyperventilation	pH monitoring and appropriate diet changes, HCl challenge

Lab Results - U.S.							Lab Results - U.S.		
Calcium, serum	mg/dL	8.7	10.5	9.2	10.1	9.1	Hypothyroid; vitamin D excess; hypoadrenal; hyperparathyroid	Hypochlorhydria; hypoparathyroid; deficiency of vitamin D, essential fatty acids, or calcium	Check serum vitamin D, HCl challenge, optimize omega 6 to 3 fat ratio per the chart and consider blood spot fatty acid test
Phosphorus, serum	mg/dL	2.3	4.8	3.5	4.0	3.3	Hypoparathyroid; fracture; excess vitamin D intake; excess dietary phosphate (soda); kidney	Hyper parathyroid; hypochlorhydria; hyperinsulin; high carb diet; vitamin D deficiency	Test and adjust vitamin D supplementation, HCl challenge, enzymes, optimize digestion
Protein, total, serum	g/dL	6.2	8.3	6.9	7.4	5.9	Dehydration	Hypochlorhydria; poor digestion; GI inflammation; liver; low protein diet	Protein intake, HCl challenge, enzymes, optimize digestion, supplement with raw protein powder (Sunwarrior, Warrior Food, Vitamin Code raw protein) until digestive status is optimized
Albumin, serum	g/dL	3.8	5.0	4.0	5.0	4.1	Dehydration	Hypochlorhydria; liver; oxidative stress; vitamin C deficiency	Rule out liver problems, check protein intake, HCl challenge, enzymes, optimize digestion, supplement with raw protein powder (Sunwarrior, Warrior Food, Vitamin Code raw protein) until digestive status is optimized
Globulin, total, serum	g/dL	2.0	3.8	2.4	2.8	1.8	Hypochlorhydria; liver; oxidative stress; metals/chemicals; autoimmune/allergy	Poor digestion; GI inflammation; low immunity	Rule out liver problems, check protein intake, HCl challenge, enzymes, optimize digestion, supplement with raw protein powder (Sunwarrior, Warrior Food, Vitamin Code raw protein) until digestive status is optimized
A/G Ratio	calc	1.1	2.3	1.5	2.0	2.3	See Globulin & Albumin	See Globulin & Albumin	
Bilirubin, serum, total	mg/dL	0.1	1.5	0.2	1.2	0.4	Liver/gallbladder; thymus; oxidative stress; RBC hemolysis; Gilbert's syndrome	Spleen	Check liver
Alkaline phosphatase, serum	UI/L	27.0	142.0	70.0	90.0	47	Liver/gall bladder; bone loss/disease; leaky gut syndrome; shingles; vitamin C deficiency	Estrogen dominance; zinc and/or B-6 deficiency; malabsorption; hypothyroid/adrenal	If >120, do isoenzymes
Lactate dehydrogenase (LDH), serum	UI/L	89.0	215.0	140.0	180.0	144	Liver/gall bladder; heart; B12/folate deficiency; inflammation; tissue destruction; viral infection	Hypoglycemia	Isoenzymes if high
Aspartate aminotransferase (AST) (SGOT), serum	UI/L	1.0	45.0	10.0	26.0	19	Liver; heart; muscle breakdown; mono/EBV/CMV	Vitamin B-6 deficiency; alcoholism	If the SGOT is elevated above SGPT, look outside of liver

CBC: Complete Blood Count

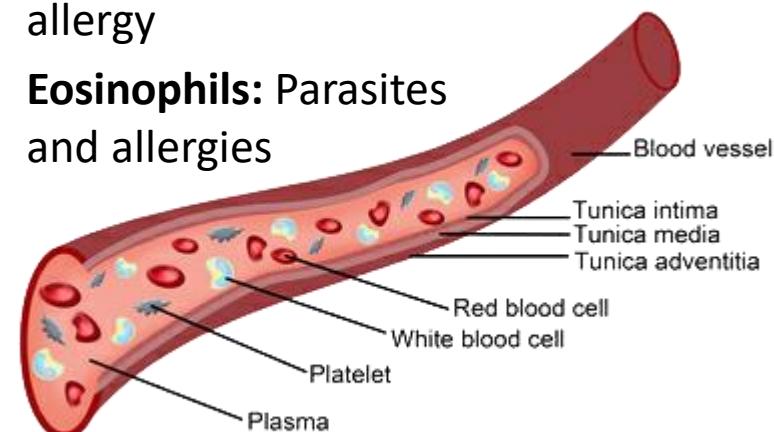
Anemia Markers:

- ✓ **RBC:** Red blood cells - carry oxygen
- ✓ **Hemoglobin:** Transports oxygen and gives the red color to blood
- ✓ **Hematocrit:** Percentage of blood made up of red blood cells
- ✓ **MCV:** Mean Corpusclar Volume - Red blood cell size, as volume
- ✓ **MCH:** Mean Corpuscular Hemoglobin - the average amount of hemoglobin in red blood cells
- ✓ **MCHC:** Mean Corpuscular Hemoglobin Concentration - the average hemoglobin concentration in red blood cells
- ✓ **RDW:** Variation in the size of the RBC's

Platelets: Blood cell particles involved with the forming of blood clots

Immune System Markers:

- ✓ **WBC:** White blood cells - primary defense against disease
- ✓ **Neutrophils:** Often elevated in bacterial infection
- ✓ **Lymphocytes:** Often elevated in viral infection
- ✓ **Monocytes:** Second line of defense – elevated in recovery stage and chronic infection
- ✓ **Basophils:** Related to histamines and allergy
- ✓ **Eosinophils:** Parasites and allergies



CBC: Immune System Markers

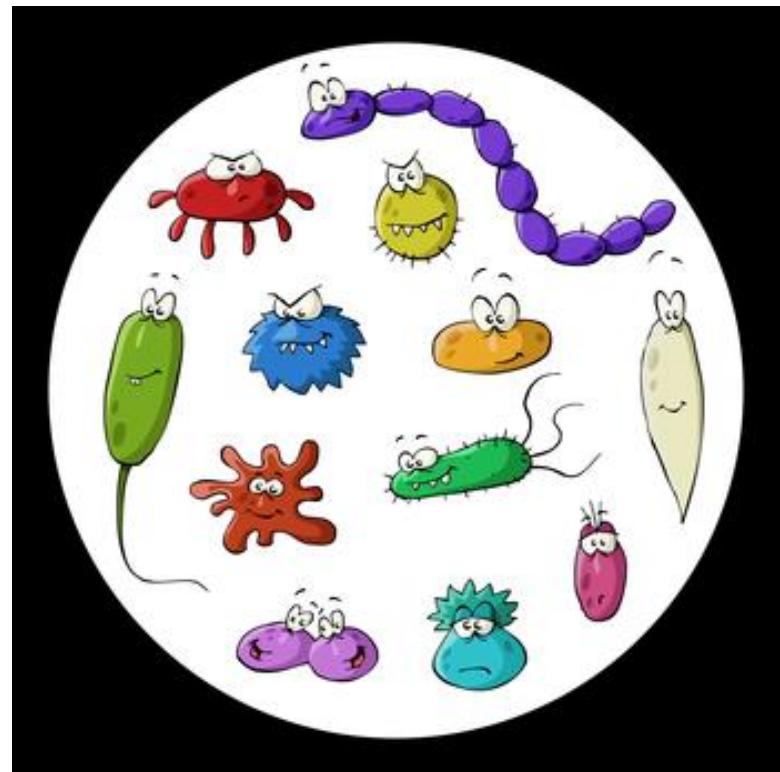
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Immune System

Bacterial Infection

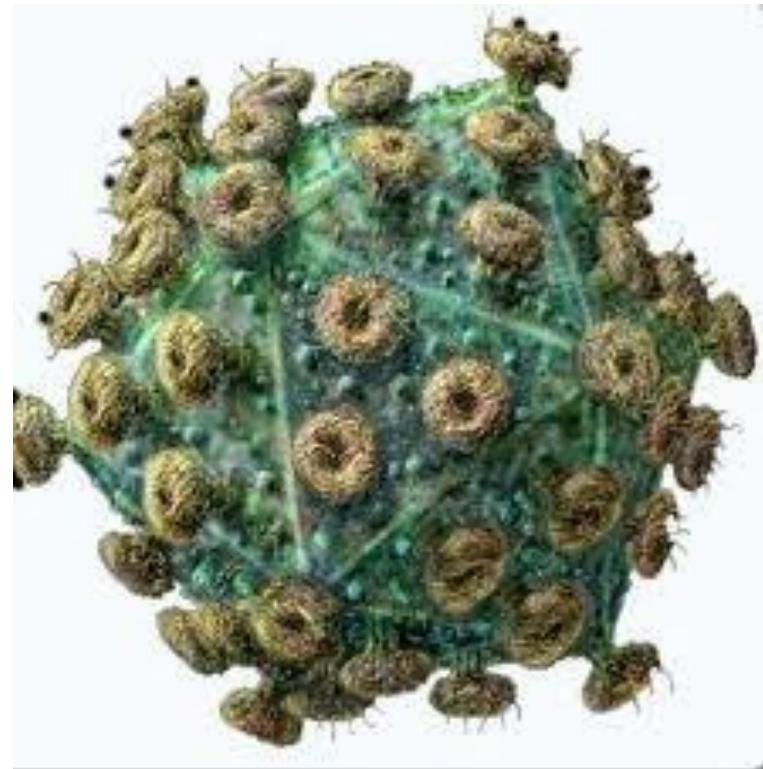
- ✓ WBC (high or low)
- ✓ Neutrophil (high)
- ✓ Lymphocytes (low)



Immune System

Viral Infection

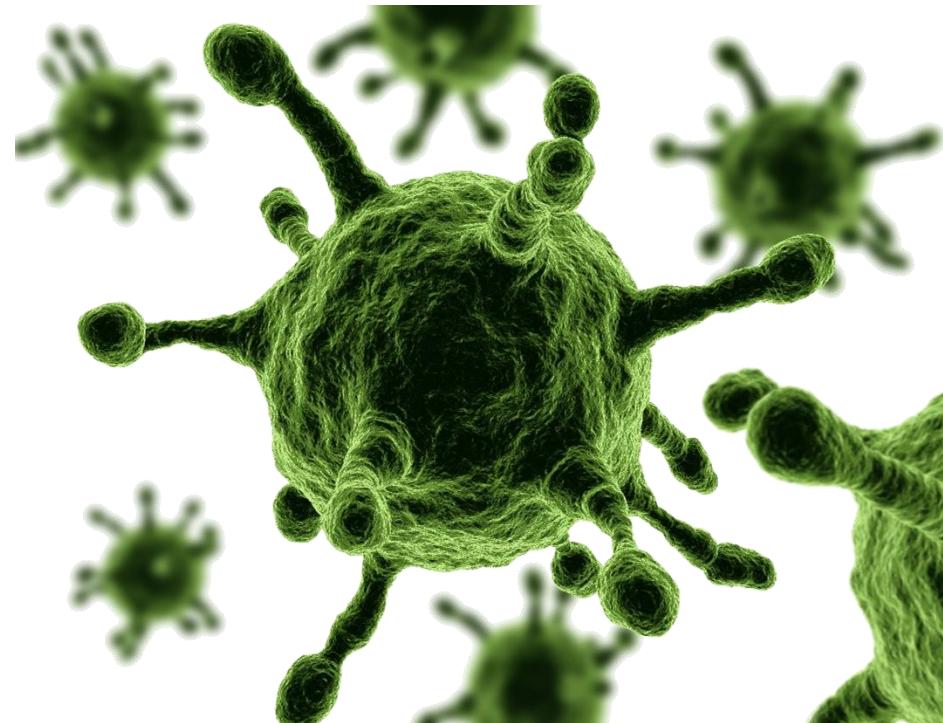
- ✓ **WBC** (high or low)
- ✓ **Neutrophil** (low)
- ✓ **Lymphocytes** (high)



Immune System

Parasite Infection

- ✓ **Hematocrit (lo)**
- ✓ **WBC (hi)**
- ✓ **Eosinophils (hi)**
- ✓ **Basophils (hi)**
- ✓ **Monocytes (hi)**
- ✓ **MCV (hi)**



Other Immune System Markers

- ✓ **Uric Acid (hi):** RA, gout
- ✓ **Globulin (lo):** infections (low antibodies)
- ✓ **Globulin (hi):** autoimmune, allergy, chronic infection
- ✓ **Bilirubin (hi):** liver inflammation
- ✓ **Alkaline Phosphatase (hi):** shingles
- ✓ **LDH (hi):** inflammation, viral
- ✓ **AST (hi):** mono, EBV, CMV, hepatitis
- ✓ **Iron (hi):** viral
- ✓ **Cholesterol or LDL (lo):** autoimmune
- ✓ **HDL (hi):** autoimmune
- ✓ **Thyroid Antibodies (hi):** autoimmune
- ✓ **Other Autoimmune Antibodies,**
i.e. ANA, RA, intrinsic factor, etc.

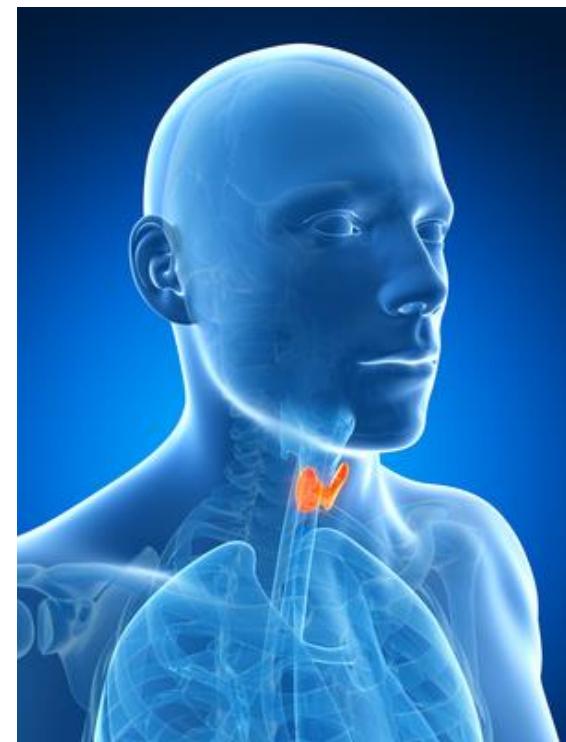


Inflammation Markers

- C-reactive Protein: CRP, hs-CRP
- Erythrocyte Sedimentation Rate (Sed Rate) aka ESR
- Homocysteine
- Blood Spot Fatty Acid
- ANA: Antinuclear Antibodies
- Rheumatoid Factor (RF)
- Interleukins and Cytokines (Advanced Testing)
- Cardiovascular Advanced Testing:
i.e. Apolipoprotein B, A1, ratio



Thyroid Lab Ranges



NAME of TEST	US Units	Lab Range	Ideal Range
TSH: Thyroid-stimulating hormone	µIU/mL	0.3-5.7	1.5-3.0
Total T4 or TT4 (total thyroxine)	µg/mL	4.5-12.5	6.0-12.0
Total T3 or TT3 (total triiodothyronine)	ng/dL	100.0-180.0	100.0-180.0
Free T4 or FT4 (thyroxine, free)	ng/dL	0.7-2.0	1.0-1.5
Free T3 or FT3 (triiodothyronine, free)	pg/dL	2.0-4.4	3.0-4.5
Thyroglobulin antibody screen (or antithyroglobulin)	IU/mL	0.0-1.0	0.0-1.0
Thyroid peroxidase (TPO) antibodies	IU/mL	0.0-34.0	0.0-2.0
Thyroxine-binding globulin (TBG)	µg/mL	18.0-27.0	18.0-27.0
Reverse T3 or RT3 (reverse triiodothyronine)	ng/dL	90.0-350.0	Ratio 1:20 to FT3
T3 uptake	%	27.0-37.0	28.0-38.0
Free Thyroxine Index (FTI)		1.2-4.9	1.2-4.9

Thyroid Lab Analysis

Basic Screen

- ✓ Total T-4 (Thyroxine)
- ✓ T3 Uptake
- ✓ Free Thyroxine Index (FTI) aka T-7
- ✓ TSH

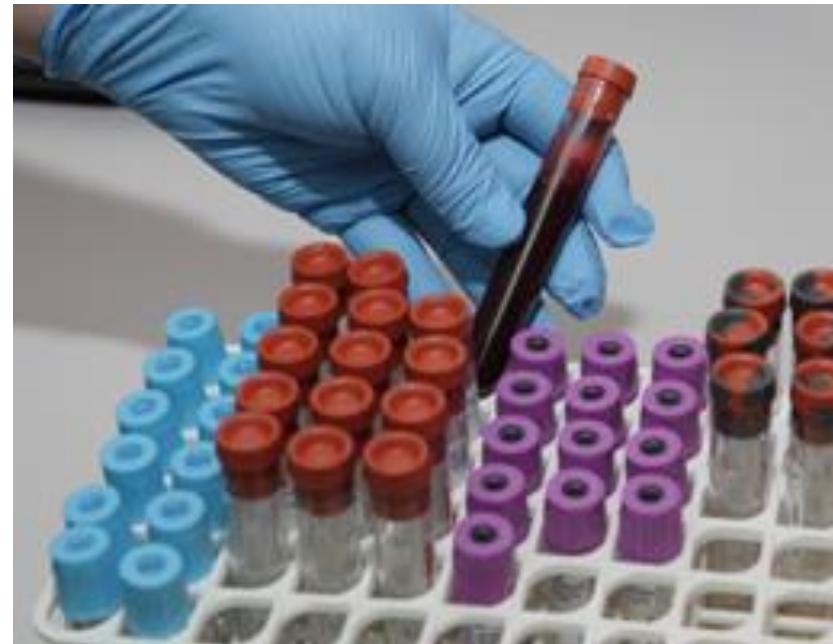


Essential Extras

- ✓ Thyroid Peroxidase Antibodies (TPO)
- ✓ Antithyroglobulin Antibodies (TAA)
- ✓ Free T3 (FT3)
- ✓ Free T4 (FT4)
- ✓ Total T3 (TT3)
- ✓ Reverse T3 (rT3)

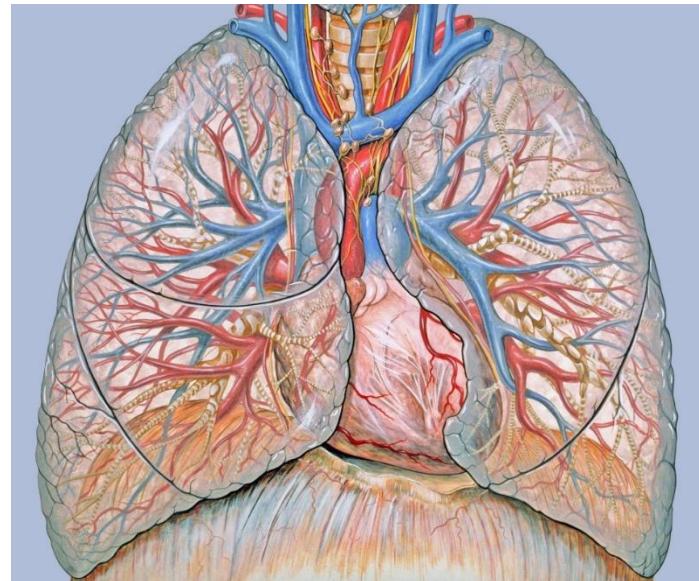
Complete Blood Sugar Testing

- ✓ Fasting glucose
- ✓ Fasting insulin
- ✓ Triglycerides
- ✓ HDL
- ✓ Hemoglobin A1c
- ✓ Postprandial glucose
- ✓ Postprandial insulin



Lipid Profile and Cardiovascular Health

- ✓ Cholesterol, Total
- ✓ HDL
- ✓ LDL
- ✓ Cholesterol/HDL Ratio
- ✓ Triglycerides
- ✓ hs-CRP
- ✓ Homocysteine
- ✓ CPK



Vitamin D Action Plan



Optimal Range: 60.0 - 100.0

Rough guidelines - if in doubt be sure to consult primary provider.

- ✓ **Vitamin D <20:** Take 20,000 IU every day for a week or up to a month, then 10,000 IU for 2 months, then retest
- ✓ **Vitamin D 20 - 30:** Take 10,000 IU for 3 months, then retest
- ✓ **Vitamin D 30 - 40:** Take 6,000 IU for 3 months, then retest
- ✓ **Vitamin D 40 - 60:** Take 2,000 – 4,000 IU per day for 3 months, then recheck
- ✓ **Vitamin D 60 or above:** If you live in a northern climate, take 1,000 – 2,000 until spring and on days that you don't get out in the sun for at least 30 minutes. Retest in 4 - 6 months. If you get regular sun exposure in a warm climate throughout the winter, continue what you're doing and retest in 3 months.

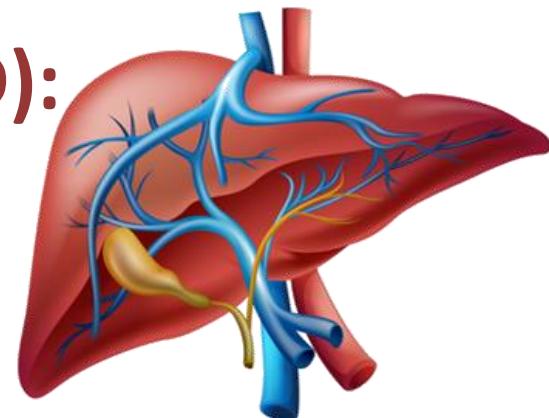
Vitamin D Testing Protocol



- ✓ Baseline test
- ✓ Supplement if indicated
- ✓ Retest every 3 months until stable, for at least a year
- ✓ Be sure to test in winter and summer

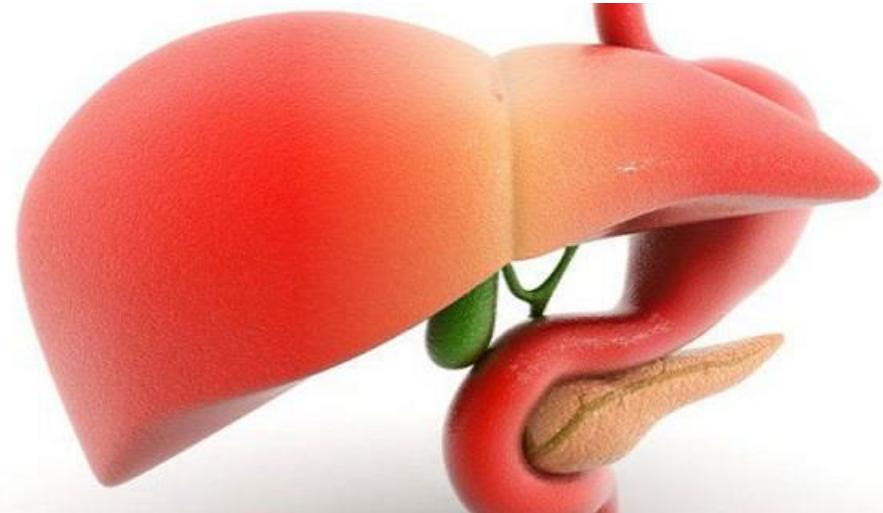
Liver Profile Part 1

- **Alanine Aminotransferase (ALT or SGPT):**
Liver and heart
- **Aspartate Aminotransferase (AST or SGOT):**
Skeletal, heart, liver, and other organs
- **Bilirubin, Total**
- **Alkaline Phosphatase:** Bone, liver, and leaky gut
- **Lactate Dehydrogenase (LDH or LD):**
Heart, muscles, liver, kidney, brain,
and red blood cells



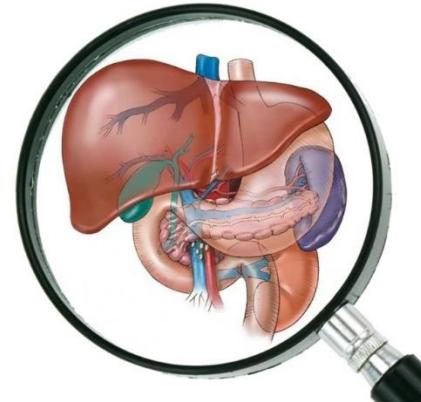
Liver Profile Part 2

- Protein, Total
- Albumin, Serum
- Globulin, Total
- Albumin/Globulin Ratio
- GGT (Gamma-Glutamyl Transferase): Liver and bile duct injury, alcoholism, toxic exposure



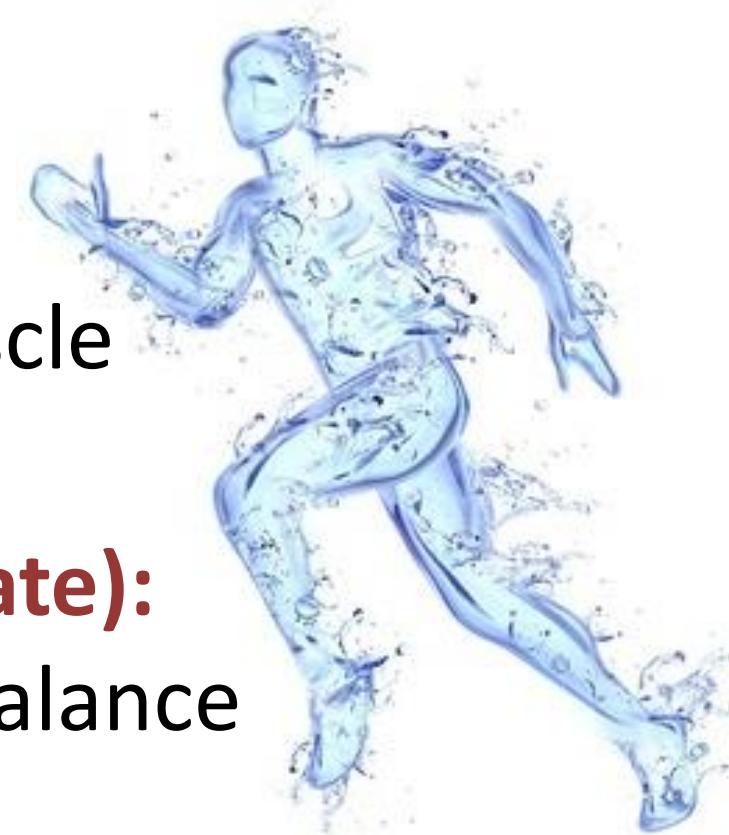
Liver and Gallbladder Pattern

- ✓ Glucose (hi)
- ✓ BUN (lo)
- ✓ Protein (lo)
- ✓ Albumin (lo)
- ✓ Globulin (hi)
- ✓ Bilirubin (hi)
- ✓ Alkaline Phosphatase (hi)
- ✓ LDH (hi)
- ✓ AST (hi)
- ✓ ALT (hi)
- ✓ ALT (lo) early fatty liver
- ✓ GGT (hi)
- ✓ Iron (hi)
- ✓ Cholesterol or LDL (hi) - fatty liver, fat malabsorption, gallbladder stress
- ✓ Iron (hi) - hemochromatosis
- ✓ Triglycerides (lo or hi) - fat malabsorption
- ✓ HDL (lo)
- ✓ Monocytes (hi)



Fluids and Electrolytes

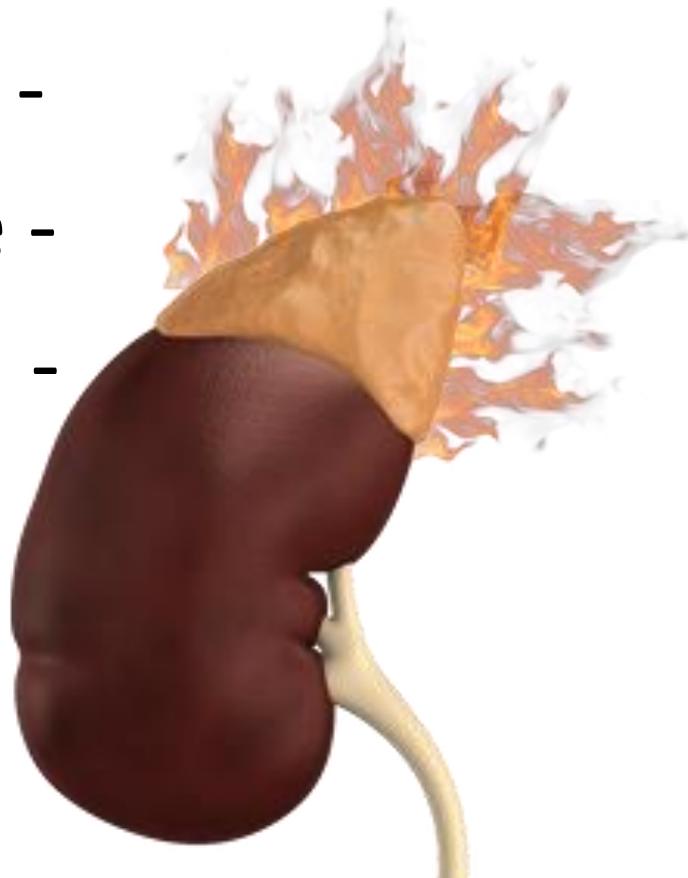
- **Sodium:** fluid and electrolyte balance; electrical activity of nerves and muscles
- **Chloride, Serum:** fluid and electrolyte balance
- **Potassium:** Nerve and muscle balance
- **Carbon Dioxide (Bicarbonate):** indicator of acid/alkaline balance



Electrolytes and Adrenals

Adrenal Fatigue

- ✓ Potassium +
- ✓ Sodium -
- ✓ Chloride -
- ✓ Glucose -



Adrenal Hyperfunction

- ✓ Potassium -
- ✓ Sodium +
- ✓ Chloride +
- ✓ Glucose +
- ✓ Triglycerides +

Minerals: Iron

High

- Hemochromatosis - iron overload disease (check ferritin)
- Excess iron supplementation
- Alcohol: increases iron absorption
- Fortified cereals

Low

- Iron deficiency anemia
- Blood loss
- Chronic disease
- Other disease



Minerals: Calcium

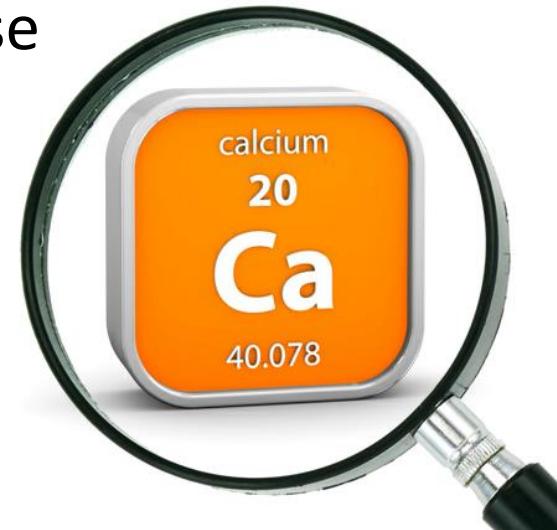
Blood levels remain fairly constant except in disease states

High

- Thyroid supplementation
- Alcoholism
- Hyperparathyroidism (most common cause)
- Cancer (rare – less than 0.01%)

Low

- Thyroid imbalance
- Vitamin D deficiency
- Magnesium deficiency
- Hypoparathyroidism
- Kidney disease
- Decreased calcium absorption
- Pancreatitis
- Medications



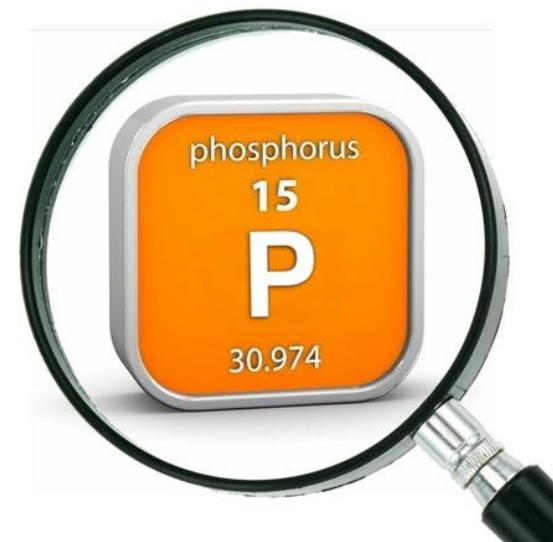
Minerals: Phosphorus

High

- Excess vitamin D intake
- Kidney disease, renal failure (check BUN to confirm)
- Laxative (Phospho-Soda) abuse
- Tumor lysis
- Rhabdomyolysis
- Hypoparathyroidism
- Healing fractures

Low

- Vitamin D deficiency
- Low stomach acid
- Vomiting
- Severe diarrhea

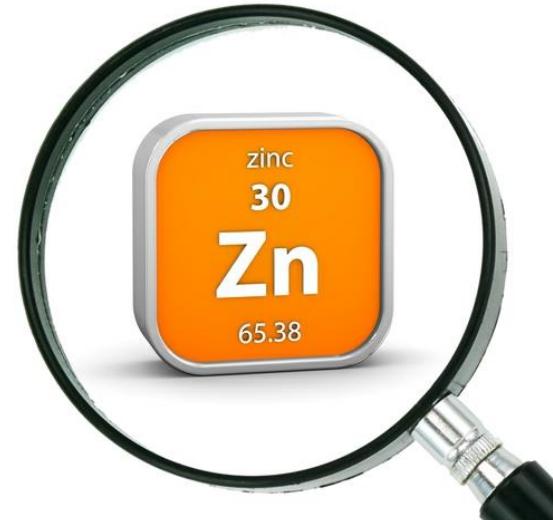


Minerals

Indirect indicators in serum

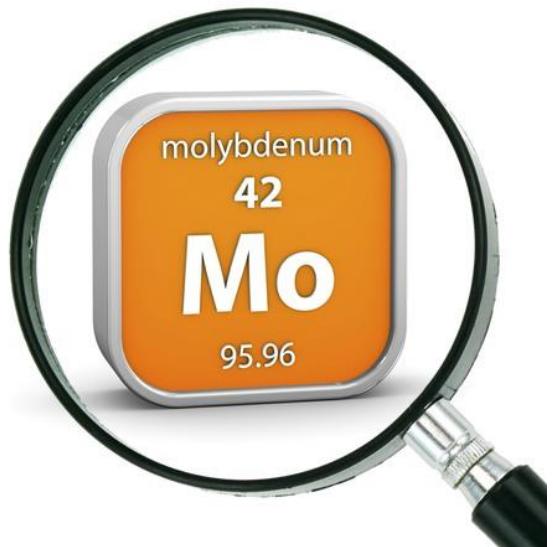
✓ Zinc

- Alkaline Phosphatase low
- Decreased WBC



✓ Molybdenum

- Increased Serum Iron
- Decreased Uric Acid



Blood Sugar Markers

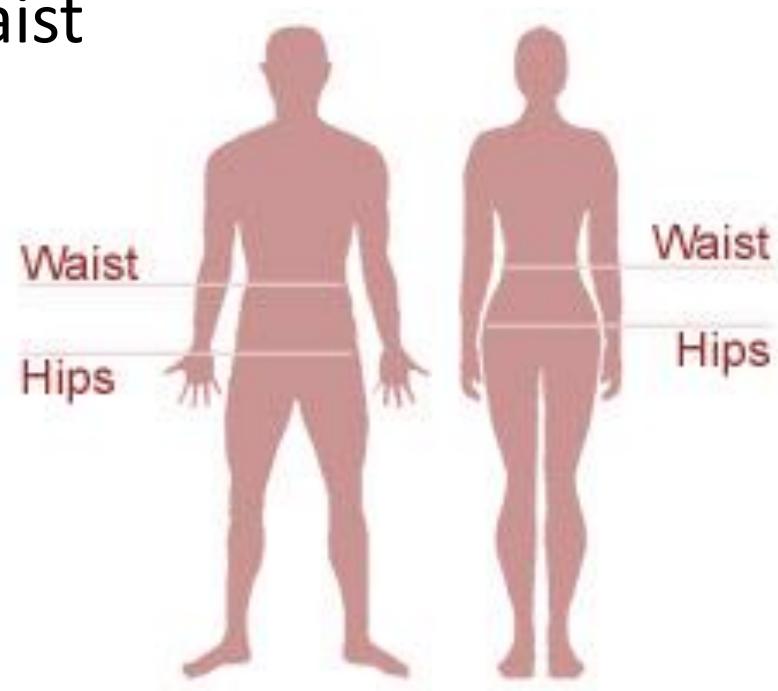
- ✓ **Glucose - fasting:** Ideal 75 - 85
- ✓ **Insulin:** Ideal 2 - 5
- ✓ **Hemoglobin A1c:** Ideal 4.5 - 5
- ✓ **Triglycerides:** Ideal 50 - 100
- ✓ Glucose meter



If fasting glucose is high and hemoglobin A1c is normal, it may be a vitamin B1 deficiency (which also has $CO_2 < 25$, $LDH < 140$)

Insulin Resistance

- ✓ High glucose (> 100, less than 120)
- ✓ Possible hemoglobin A1c > 5.7
- ✓ Fasting insulin > 5
- ✓ Increased weight around the waist
 - Waist to hip ratio
 - > or equal to 1 in a male, or waist > 40 inches
 - Waist to hip ratio
 - > or equal to 0.8 in a female, or waist > 35 inches



Low Stomach Acid

- ✓ BUN (hi or lo)
- ✓ Chloride (lo)
- ✓ Carbon Dioxide (hi)
- ✓ Calcium (lo)
- ✓ Phosphorus (lo)
- ✓ Protein (lo)
- ✓ Albumin (lo)
- ✓ Globulin (hi)
- ✓ Iron (lo)
- ✓ Hemoglobin (lo)
- ✓ MCV (hi)
- ✓ MCH (hi)
- ✓ MCHC (hi)
- ✓ Uric Acid (lo)
- ✓ Ferritin (lo)



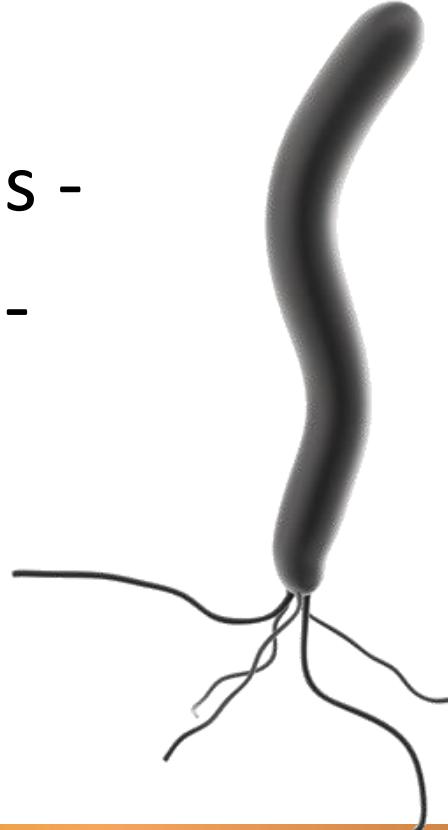
Stomach

Hypochlorhydria

- Total Protein +/-
- Globulin +/-
- BUN +/-
- Phosphorus -
- Creatinine -
- Iron -
- Calcium -

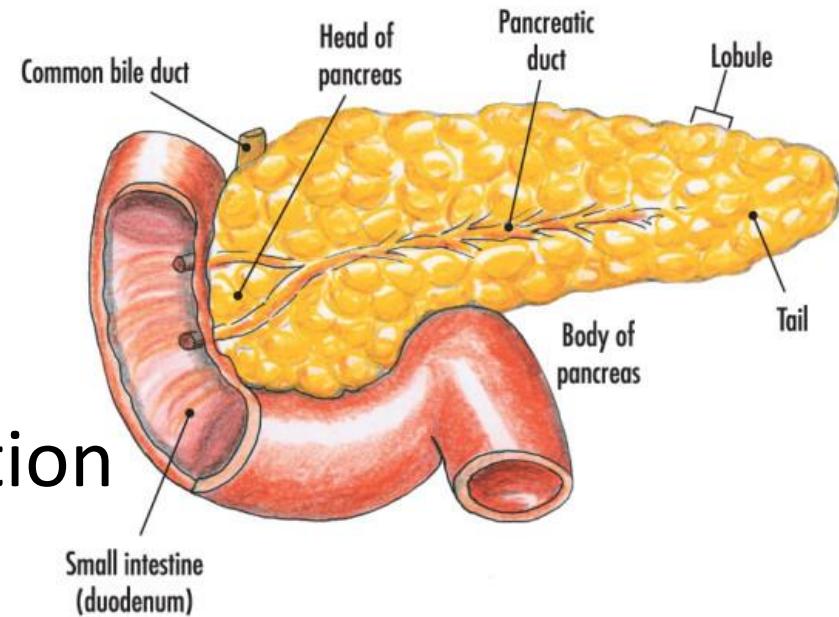
Helicobacter Pylori

- WBC +/-
- Neutrophil +
- Monocytes normal to +
- Lymphocytes -
- Urea Breath Test
- Special testing for *H. pylori* antigens



Small Intestine and Pancreas

- ✓ Uric Acid (hi)
- ✓ BUN (lo)
- ✓ Creatinine (lo)
- ✓ Protein (lo)
- ✓ Globulin (lo): GI inflammation
- ✓ Alkaline phosphatase (lo)
- ✓ Alkaline Phosphatase (hi): leaky gut
- ✓ GGT (lo): malabsorption
- ✓ Hematocrit (lo): inflammation



Large Intestine

- ✓ Eosinophils + parasites
- ✓ Sodium low
 - possible laxative use

For in-depth look, need to do:

- ✓ Comprehensive stool and digestive analysis
- ✓ Parasitology
- ✓ Organic Acids Test (OAT) has markers for dysbiosis



Kidney Panel

- **Blood Urea Nitrogen (BUN):** By-product of protein metabolism eliminated through the kidneys
- **Creatinine:** A muscle breakdown product used as an indicator of kidney function
- **Uric Acid:** Another by-product of protein metabolism eliminated through the kidneys
- **BUN/Creatinine:** Ratio calculated by dividing the BUN by the Creatinine
- **Glomerular Filtration (eGFR):** Provides an assessment of the filtering capacity of the kidney



Blood Urea Nitrogen (BUN)

High

- Low stomach acid
- Electrolyte depletion
- Dehydration
- Kidney disease
- Heart attack



Low

- Malabsorption
 - i.e., celiac disease and gluten intolerance
- Low stomach acid
- Steroid use
- Malnutrition
- Liver or kidney disease

Creatinine

High

- Dehydration
- Enlarged prostate
- Kidney disease
- Muscle

Low

- Low stomach acid or inadequate protein
- Pregnancy
- Severe liver disease
- Muscle wasting



Uric Acid

High

- Gout
 - Deficiency of B6 and Magnesium
- Insulin resistance
- Diabetes
- Starvation

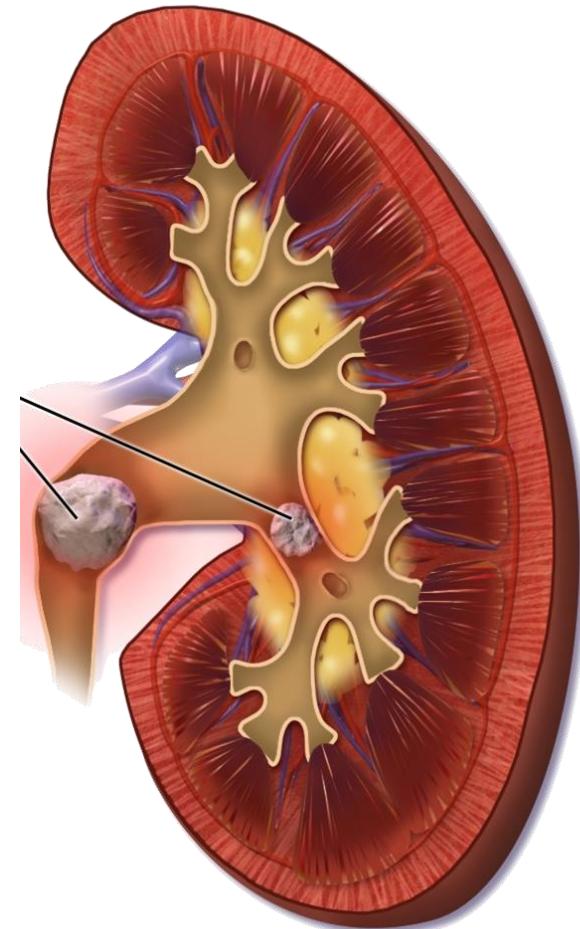
Low

- B12 deficiency
- Folate deficiency
- Molybdenum deficiency



Kidney Marker Patterns: Renal Dysfunction

- ✓ BUN: +
- ✓ Creatinine: -
- ✓ BUN/Creatinine Ratio: +
- ✓ Phosphorus: +
- ✓ LDH: +
- ✓ SGOT: +
- ✓ Uric Acid: +

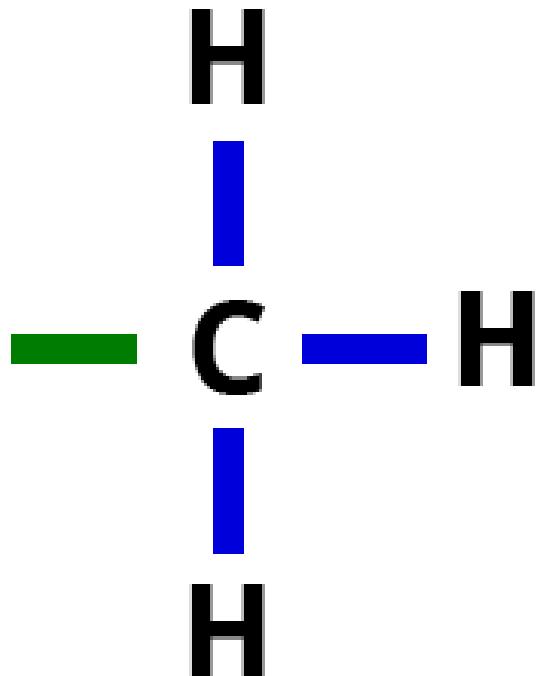


Kidney Marker Patterns: Muscle Wasting

- ✓ Creatinine: +
- ✓ SGOT: + or normal
- ✓ SGPT: + or normal
- ✓ LDH: + or normal
- ✓ CPK: + or normal
- ✓ LDH: Isoenzyme #4 and #5 +
LDH-4: Kidney
LDH-5: Skeletal muscle and liver
- ✓ CPK: Isoenzyme CK:MM +



Methylation



Methyl group

Methyl Donors

- SAM-e
- Folate
- Vitamin B12
- TMG (Betaine)
- DMG
- DMAE

Methylation Lab Markers

1. Homocysteine
2. MCV
3. Methylmalonic acid (urine)
4. Folate and metabolites
5. Serum vitamin B12
(not the best)

