THE INSTITUTE OF NUTRITIONAL ENDOCRINOLOGY®

BIOFIT

BLUEPRINTBOOTCAMP

Blood Chem Introduction

Dr. Ritamarie Loscalzo

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Biofit Blood Chem Module Outline

Week 1

- Blood Sugar
- Advanced Blood Sugar
- Kidney
- Fluids and Electrolytes

Biofit Blood Chem Module Outline

Week 2

- Bones and Minerals
- Liver and Gallbladder
- CBC and Anemia
- Lipids and Cardiovascular System
- Advanced Heart-Related Testing and Inflammatory Markers

Biofit Blood Chem Module Outline

Week 3

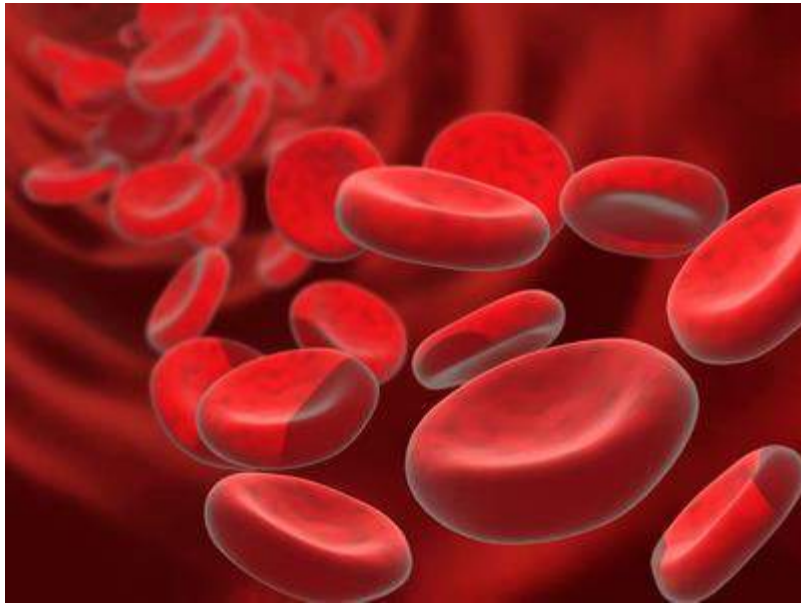
- Thyroid
- Vitamins
- Steroid Hormones
- Immune Function

Introduction to Blood Analysis

- ✓Why do blood testing
- ✓What it is…
- ✓What it isn't…
- ✓Lab normal ranges vs. functional (ideal) ranges
- ✓Secrets to finding nutritional pearls most doctors miss

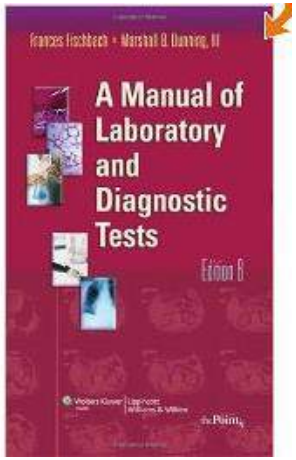
“Routine” Blood Chemistry Screen

- ✓How often to run
- ✓How can non-licensed practitioners run them
- ✓How much does it cost?
- ✓Interpretation
- ✓What’s usually included

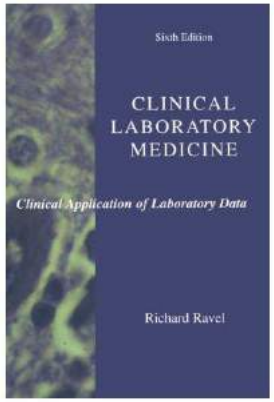


Conventional Medical Interpretation Books

✓ **A Manual of Laboratory and Diagnostic Tests**
Frances Fischbach and Marshall B. Dunning

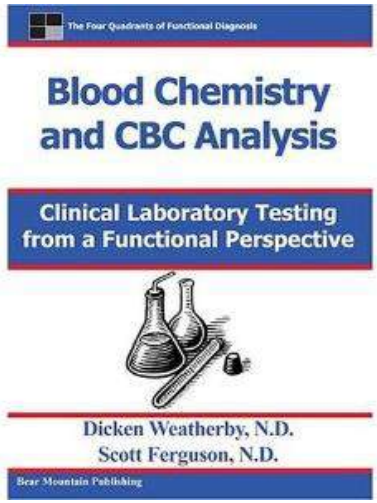


✓ **Clinical Laboratory Medicine: Clinical Applications of Laboratory Data**
Richard Ravel MD
http://www.labtestsonline.org/



Functional Interpretation Resources

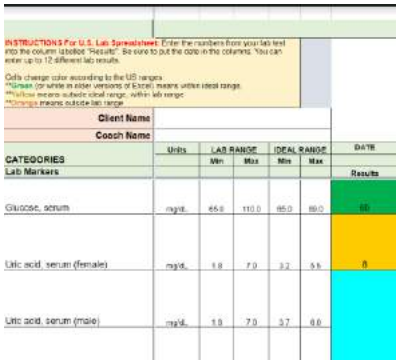
- ✓ **Blood Chemistry and CBC Analysis** Dicken Weatherby, ND and Scott Ferguson. N.D.



- ✓ **Optimal DX Report** https://www.optimaldx.com/

ODX | OptimalDX

- ✓ **Dr. Ritamarie's Master Tracker Spreadsheet –** see link on member's area



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

- ✓ CBC
- ✓ Thyroid - TSH
- ✓ Lipid Profile
- ✓ Blood Sugar
- ✓ Liver Panel
- ✓ Kidney Panel
- ✓ Minerals & Bones
- ✓ Fluid & Electrolytes

Additionally Required for Completeness

- ✓ Vitamin D3: Vitamin D, 25-Hydroxy
- ✓ Thyroid
  - ➢ Total T4
  - ➢ Free T4
  - ➢ Free T3
  - ➢ Thyroid Peroxidase Antibodies (TPO)
  - ➢ Antithyroglobulin
- ✓ Iron
- ✓ Ferritin
- ✓ Hemoglobin A1C
- ✓ Homocysteine
- ✓ Insulin
- ✓ C-Reactive Protein

Connecting the Dots to History

A	B	C	D
History		Lab testing	
Risk Factors and Conditions	YES/NO	Tests to Review	Findings
Cardiovascular	☐	Lipid Panel	
	☐	Advanced Lipids incl Lp(a)	
	☐	Homocysteine	
	☐	hs-CRP	
Anemia/Fatigue	☐	CBC - RBC	
	☐	CBC - Hemoglobin	
	☐	CBC - Hematocrit	
	☐	CBC - MCV	
	☐	CBC - RDW	
	☐	Iron	
	☐	Ferritin	
Immune system	☐	CBC	
	☐	Immunoglobulins	
	☐	Alkaline Phosphatase	

https://drritamarie.com/BiofitLabHX

Connecting the Dots to Scorecards

A	B	C	D	E	F	G	H
LAB EXPLANATIONS							
Categories/Markers	**Units**	**LAB Range**		**IDEAL Range**		**Results**	**Results**
Digestion - Low Stomach Acid							
· BUN (hi or lo)	mg/dL	8.0	28.0	13.0	18.0		
· Chloride (lo)	mmol/L	99.0	111.0	100.0	106.0		
· Carbon Dioxide (hi)	mmol/L	19.0	31.0	25.0	30.0		
· Calcium (lo)	mg/dL	8.7	10.5	9.2	10.1		
· Phosphorus (lo)	mg/dL	2.3	4.8	3.5	4.0		
· Protein (lo)	G/dl	6.2	8.3	6.9	7.4		
· Albumin (lo)	G/dl	3.8	5.0	4.0	5.0		
· Globulin (hi)	G/100 ml	2.0	3.8	2.4	2.8		
· Iron (lo)	ug/dl	40.0	180.0	85.0	130.0		
· Hemoglobin (lo) (Female)	gm/dl	12.0	16.0	13.5	14.5		
· Hemoglobin (lo) (Male)	gm/dl	12.0	16.0	13.5	14.5		
· MCV (hi)	cu microns	82.0	103.0	85.0	92.0		
· MCH (hi)	g/cu microns	27.0	34.0	27.0	32.0		
· MCHC (hi)	g/cu microns	30.9	35.4	32.0	35.0		
Liver and Gallbladder							
· Glucose (hi)	mg/dl	65.0	110.0	75.0	89.0		

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A Cutting-Edge Analysis Tool: Lab Results Tracking Spreadsheet

		Units	LAB RANGE		RANGE		DATE	DATE	DATE			
5												
6	CATEGORIES		Min	Max	Min	Max				Possible Interpretation		
7	Lab Markers						Results	Results	Results	High	Low	Follow-up
8	Glucose, serum	mg/dl	65.0	110.0	75.0	89.0				Diabetes; insulin resistance; thiamin deficiency; stress; liver	Hypoglycemia; low adrenal	Test fasting insulin, hemoglobin A1C
9	Uric Acid, serum (Female)	mg/dL	1.8	7.0	3.2	5.5				Gout; atherosclerosis; oxidative stress; rheumatoid arthritis; kidney; circulation; leaky gut syndrome	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)
10	Uric Acid, serum (Male)	mg/dL	1.8	7.0	3.7	6.0				Gout; atherosclerosis; oxidative stress; rheumatoid arthritis; kidney; circulation; leaky gut syndrome	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)
11	BUN	mg/dL	8.0	28.0	13.0	18.0				Malabsorption; kidney issues; dehydration; excessive protein intake; hyperadrenal	Malabsorption; liver dysfunction; low protein diet	HCl challenge, enzymes, optimize digestion
12	Creatinine, serum	mg/dL	0.5	1.2	0.7	1.1				Urinary tract congestion/obstruction; kidneys; prostate	Muscle wasting; malabsorption	HCl challenge, enzymes, optimize digestion
13	eGFR	mL/min/1.73	59.0	-	59.0	-						referral to kidney specialist
14	eGFR (African American)	mL/min/1.73	59.0	-	59.0	-						referral to kidney specialist
15	BUN/Creatinine Ratio	-	8.0	27.0	8.0	27.0				See BUN & Creatinine	See BUN & Creatinine	HCl challenge, enzymes, optimize digestion
16	Sodium, serum	mmol/L	135.0	148.0	135.0	140.0				Hyperadrenal; dehydration	Hypoadrenal; edema; laxative use	check for signs of edema or dehydration, Adrenal Stress Index Test, Heart Math and other stress management skills
17	Potassium, serum	mmol/L	3.5	5.5	4.0	4.5				Hypoadrenal; dehydration; acidosis	Hyperadrenal; hypertension; diuretics	check for signs of edema or dehydration, Adrenal Stress Index Test, Heart Math and other stress management skills
18	Chloride, serum	mmol/L	99.0	111.0	100.0	106.0				Acidosis; hyperadrenal	Hypochlorhydria; alkalosis; hypoadrenal	HCl challenge, ph monitoring and appropriate diet changes, Adrenal Stress Index Test, Heart Math and other stress management skills
										Alkalosis; hyperadrenal;	Acidosis; thiamin (B-1)	ph monitoring and appropriate diet

Typical Report From Lab

TESTS	RESULT	FLAG	UNITS	REFERENCE INTERVAL	LAB
Glucose, Serum	79		mg/dL	65-99	01
Uric Acid, Serum	3.6		mg/dL	2.4-8.2	01
BUN	9		mg/dL	5-26	01
Creatinine, Serum	0.80		mg/dL	0.57-1.00	01
eGFR	>59		mL/min/1.73	>59	01
eGFR AfricanAmerican	>59		mL/min/1.73	>59	01
Note: Persistent reduction for 3 months or more in an eGFR <60 mL/min/1.73 m2 defines CKD. Patients with eGFR values >/=60 mL/min/1.73 m2 may also have CKD if evidence of persistent proteinuria is present. Additional information may be found at www.kdoqi.org.					
BUN/Creatinine Ratio	11			8-27	01
Sodium, Serum	138		mmol/L	135-145	01
Potassium, Serum	4.1		mmol/L	3.5-5.2	01
Chloride, Serum	101		mmol/L	97-108	01
Carbon Dioxide, Total	26		mmol/L	20-32	01
Calcium, Serum	9.5		mg/dL	8.7-10.2	01
Phosphorus, Serum	3.7		mg/dL	2.5-4.5	01
Protein, Total, Serum	7.6		g/dL	6.0-8.5	01
Albumin, Serum	4.6		g/dL	3.5-5.5	01
Globulin, Total	3.0		g/dL	1.5-4.5	01
A/G Ratio	1.5			1.1-2.5	01
Bilirubin, Total	0.5		mg/dL	0.1-1.2	01
Alkaline Phosphatase, S	28		IU/L	25-150	01
LDH	184		IU/L	100-250	01
AST (SGOT)	37		IU/L	0-40	01
ALT (SGPT)	20		IU/L	0-40	01
GGT	8		IU/L	0-60	01
Verified by repeat analysis					
Iron, Serum	67		ug/dL	35-155	01
Cholesterol, Total	159		mg/dL	100-199	01
Triglycerides	41		mg/dL	0-149	01
HDL Cholesterol	69		mg/dL	>39	01
According to ATP-III Guidelines, HDL-C >59 mg/dL is considered a negative risk factor for CHD.					
LDL Cholesterol Calc	82		mg/dL	0-99	01
T. Chol/HDL Ratio	2.3		ratio units	0.0-4.4	01
TSH	2.300		uIU/mL	0.450-4.500	01
Please note reference interval change					

