CELLMATE™ WELLNESS SYSTEMS

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FRANK

Test date: 10/17/2002
(accession: A0143344)
Entered: 10/18/2002

Next Test Due: 9/10/2003

CellMate™ Gold Standard Wellness Profile Report

Practitioner

Printed on Thursday, April 3, 2003 for:

If there is a problem with this report, please contact us as soon as possible at: (775) 832-8485 or Fax (775) 832-8488

Basic Status Report (High/Low)

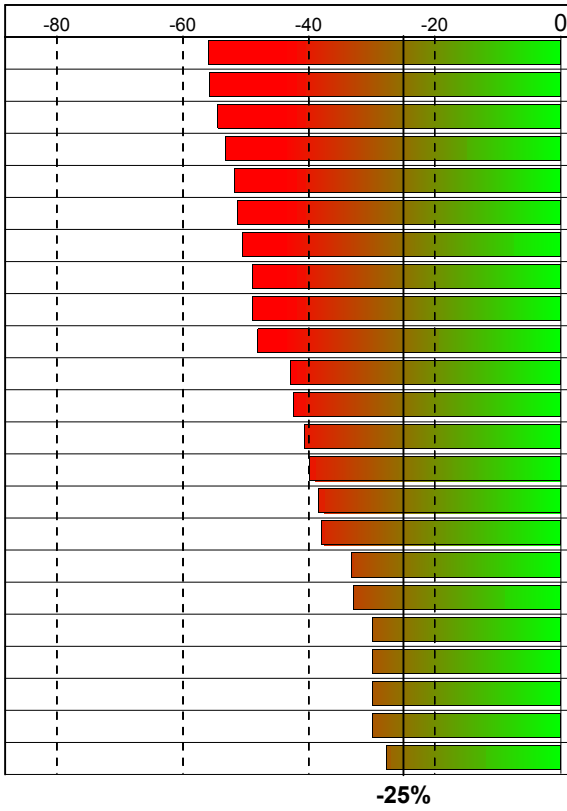
FRANK **Gold Standard Wellness Profile Date: 10/17/2002**

Male / Age: 58

Client ID:548664859 (9732)

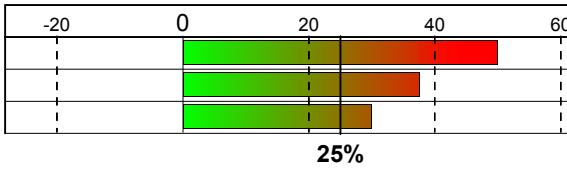
The % Status is the weighted deviation of the laboratory result.

Low Results



	% Status		Result	Low	High
Lysine - P	-56.00	L	**141.00**	150.00	300.00
Glycine - P	-55.78	L	**212.00**	225.00	450.00
Proline - P	-54.44	L	**118.00**	130.00	400.00
Tryptophan - P	-53.33	L	**34.00**	35.00	65.00
Arginine - P	-51.82	L	**48.00**	50.00	160.00
Glutamine - P	-51.33	L	**594.00**	600.00	1050.00
Taurine - P	-50.50	L	**49.00**	50.00	250.00
Anserine - P	-49.00	L	**0.01**	0.00	1.00
Carnosine - P	-49.00	L	**0.01**	0.00	1.00
Glutamic Acid - P	-48.10	L	**47.00**	45.00	150.00
Histidine - P	-42.86	L	**75.00**	70.00	140.00
Serine - P	-42.50	L	**99.00**	90.00	210.00
Threonine - P	-40.67	L	**114.00**	100.00	250.00
Cystine - P	-40.00	L	**18.00**	10.00	90.00
Phenylalanine - P	-38.42	L	**56.00**	45.00	140.00
Methionine - P	-38.00	L	**28.00**	25.00	50.00
Aspartic Acid - P	-33.33	L	**10.00**	6.00	30.00
Tyrosine - P	-32.86	L	**62.00**	50.00	120.00
b-Alanine - P	-30.00	L	**1.00**	0.00	5.00
Gamma-aminobutyric Acid-P	-30.00	L	**1.00**	0.00	5.00
Ornithine - P	-30.00	L	**80.00**	50.00	200.00
Sarcosine - P	-30.00	L	**1.00**	0.00	5.00
Asparagine - P	-27.65	L	**64.00**	45.00	130.00

High Results



	% Status		Result	Low	High
Cystathionine - P	50.00	H	**4.00**	0.00	4.00
Ethanolamine - P	37.50	H	**7.00**	0.00	8.00
1-Methylhistidine - P	30.00	H	**16.00**	0.00	20.00

Basic Status Report (High/Low)

FRANK **Gold Standard Wellness Profile Date: 10/17/2002**

Male / Age: 58

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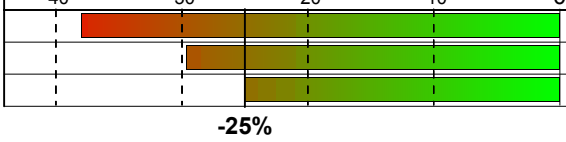
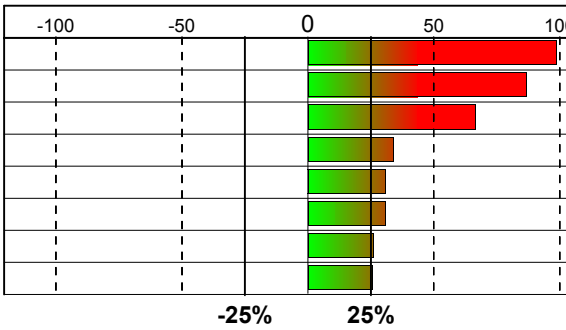
Low Results



	% Status		Result	*Low*	*High*
Neutrophils	-38.00	**L**	**51.00**	48.00	73.00
Neutrophil Count	-29.68	**L**	**3060.00**	1800.00	8000.00
CO2	-25.00	**L**	**23.00**	20.00	32.00

High Results



	% Status		Result	*Low*	*High*
Triglycerides	98.74	**H**	**296.00**	0.00	199.00
Anion Gap	86.67	**H**	**24.40**	8.00	20.00
Eosinophils	66.67	**H**	**7.00**	0.00	6.00
LDL	33.82	**H**	**119.00**	62.00	130.00
Cholesterol	31.00	**H**	**221.00**	140.00	240.00
MCH	30.79	**H**	**31.85**	27.00	33.00
T-3 Uptake	26.00	**H**	**35.40**	24.00	39.00
MCV	25.58	**H**	**95.12**	80.00	100.00

Basic Status Report (High/Low)

FRANK **Gold Standard Wellness Profile Date: 10/17/2002**

Male / Age: 58

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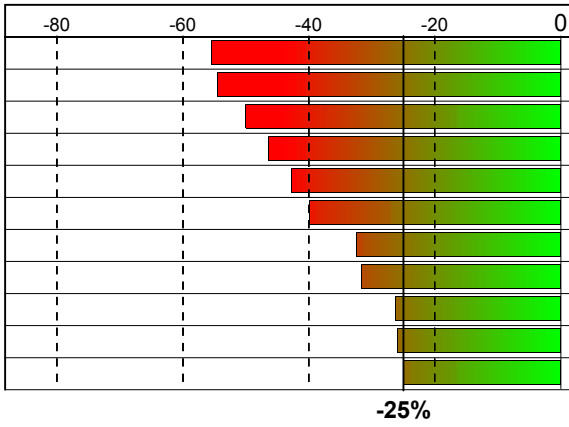
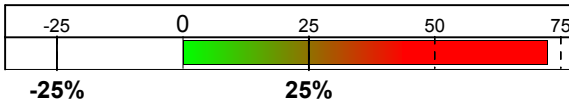
Low Results



	% Status		Result	*Low*	*High*
Copper - RBC	-55.41	**L**	**0.44**	0.52	2.00
Molybdenum - RBC	-54.55	**L**	**0.01**	0.01	0.03
Vanadium - RBC	-50.00	**L**	**0.10**	0.10	0.28
Manganese - RBC	-46.36	**L**	**0.27**	0.25	0.80
Chromium - RBC	-42.73	**L**	**0.29**	0.25	0.80
Aluminum - RBC	-40.00	**L**	**0.30**	0.00	3.00
Magnesium - RBC	-32.50	**L**	**47.00**	40.00	80.00
Calcium - RBC	-31.67	**L**	**3.30**	0.00	18.00
Potassium - RBC	-26.25	**L**	**1475.00**	1000.00	3000.00
Zinc - RBC	-26.00	**L**	**7.20**	6.00	11.00
Cadmium - RBC	-25.00	**L**	**0.01**	0.00	0.04

High Results



	% Status		Result	*Low*	*High*
Magnesium/Calcium	72.42	**H**	**14.24**	2.00	12.00

Basic Status Report (High/Low)

FRANK **Gold Standard Wellness Profile Date: 10/17/2002**

Male / Age: 58

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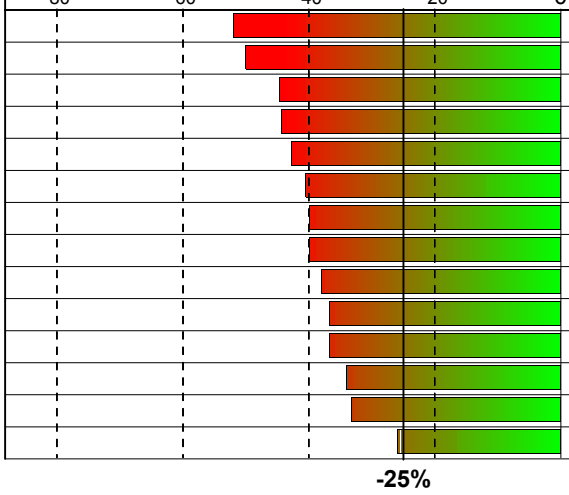
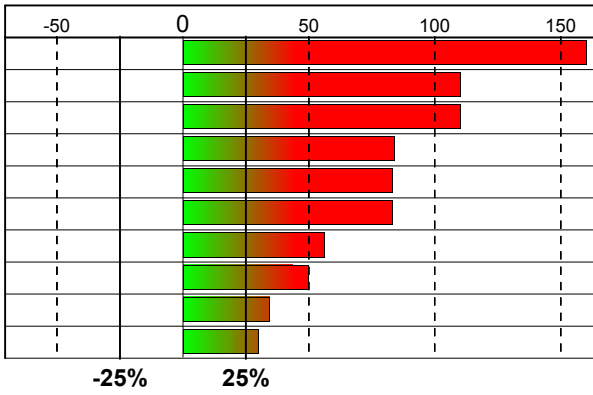
Low Results



	% Status		Result	Low	High
Succinate	-52.00	L	**4.40**	5.00	35.00
Homovanillate	-50.00	L	**1.00**	1.00	5.00
p-Cresol	-44.67	L	**8.00**	0.00	150.00
Tricarballylate	-44.44	L	**0.10**	0.00	1.80
Sulfate	-42.78	L	**193.00**	180.00	360.00
5-Hydroxyindoleacetate	-40.48	L	**1.20**	0.80	5.00
a-Ketoisocaproate	-40.00	L	**0.20**	0.00	2.00
Ethylmalonate	-40.00	L	**0.40**	0.00	4.00
Lactate	-38.08	L	**7.10**	4.00	30.00
Adipate	-36.67	L	**0.40**	0.00	3.00
Methylmalonate	-36.67	L	**0.40**	0.00	3.00
Benzoate	-34.00	L	**0.80**	0.00	5.00
Phenylacetate	-33.33	L	**0.20**	0.00	1.20
a-Ketoglutarate	-25.91	L	**8.30**	3.00	25.00

High Results



	% Status		Result	Low	High
Yeast Markers	376.67	H	**128.00**	0.00	30.00
Tartarate	110.00	H	**128.00**	0.00	80.00
Fumarate	110.00	H	**1.80**	0.20	1.20
p-Hydroxybenzoate	84.00	H	**6.70**	0.00	5.00
Vanillylmandelate	83.33	H	**2.60**	0.20	2.00
2-Methylhippurate	83.00	H	**1.33**	0.00	1.00
Citrate	56.17	H	**2411.00**	500.00	2300.00
Pyruvate	50.00	H	**0.70**	0.00	0.70
a-Keto-b-methylvalerate	34.17	H	**1.01**	0.00	1.20
p-Hydroxyphenyllactate	30.00	H	**0.40**	0.00	0.50

Basic Status Report (Alphabetic)

FRANK **Gold Standard Wellness Profile Date: 10/17/2002**

Male / Age: 58

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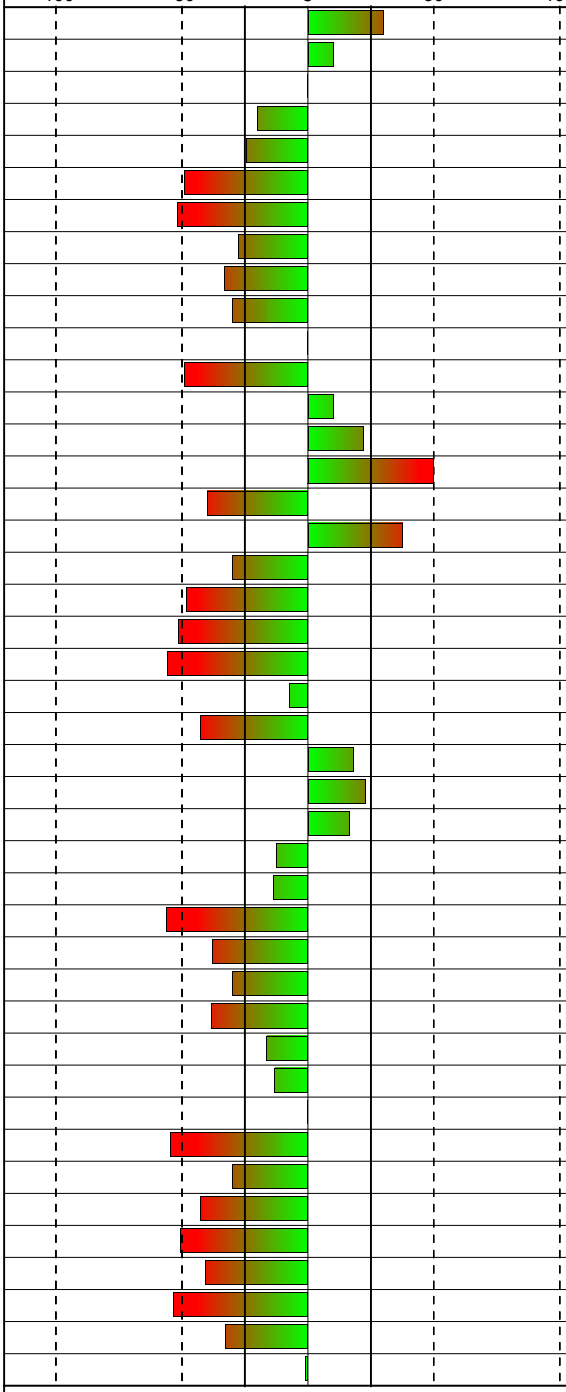

	% Status		Result	Low	High
1-Methylhistidine - P	**30.00**	**H**	**16.00**	0.00	20.00
3-Methylhistidine - P	10.00		3.00	0.00	5.00
a-Aminoadipic Acid - P	0.00		2.00	0.00	4.00
a-Amino-N-Butyric Acid - P	-20.00		19.00	10.00	40.00
Alanine - P	-24.29		340.00	250.00	600.00
Anserine - P	**-49.00**	**L**	**0.01**	0.00	1.00
Arginine - P	**-51.82**	**L**	**48.00**	50.00	160.00
Asparagine - P	**-27.65**	**L**	**64.00**	45.00	130.00
Aspartic Acid - P	**-33.33**	**L**	**10.00**	6.00	30.00
b-Alanine - P	**-30.00**	**L**	**1.00**	0.00	5.00
b-Aminoisobutyric Acid - P	0.00		1.00	0.00	2.00
Carnosine - P	**-49.00**	**L**	**0.01**	0.00	1.00
Citrulline - P	10.00		48.00	15.00	70.00
Collagen Related AA	22.00		118.00	10.00	160.00
Cystathionine - P	**50.00**	**H**	**4.00**	0.00	4.00
Cystine - P	**-40.00**	**L**	**18.00**	10.00	90.00
Ethanolamine - P	**37.50**	**H**	**7.00**	0.00	8.00
Gamma-aminobutyric Acid-P	**-30.00**	**L**	**1.00**	0.00	5.00
Glutamic Acid - P	**-48.10**	**L**	**47.00**	45.00	150.00
Glutamine - P	**-51.33**	**L**	**594.00**	600.00	1050.00
Glycine - P	**-55.78**	**L**	**212.00**	225.00	450.00
Glycine/Serine Ratio	-7.24		2.14	1.50	3.00
Histidine - P	**-42.86**	**L**	**75.00**	70.00	140.00
Homocystine - P	18.00		0.68	0.00	1.00
Hydroxylysine - P	23.00		0.73	0.00	1.00
Hydroxyproline - P	16.67		20.00	0.00	30.00
Isoleucine - P	-12.73		91.00	50.00	160.00
Leucine - P	-13.64		130.00	90.00	200.00
Lysine - P	**-56.00**	**L**	**141.00**	150.00	300.00
Methionine - P	**-38.00**	**L**	**28.00**	25.00	50.00
Ornithine - P	**-30.00**	**L**	**80.00**	50.00	200.00
Phenylalanine - P	**-38.42**	**L**	**56.00**	45.00	140.00
Phenylalanine/Tyrosine	-16.40		0.90	0.50	1.70
Phosphoethanolamine - P	-13.33		11.00	0.00	30.00
Phosphoserine - P	0.00		6.00	0.00	12.00
Proline - P	**-54.44**	**L**	**118.00**	130.00	400.00
Sarcosine - P	**-30.00**	**L**	**1.00**	0.00	5.00
Serine - P	**-42.50**	**L**	**99.00**	90.00	210.00
Taurine - P	**-50.50**	**L**	**49.00**	50.00	250.00
Threonine - P	**-40.67**	**L**	**114.00**	100.00	250.00
Tryptophan - P	**-53.33**	**L**	**34.00**	35.00	65.00
Tyrosine - P	**-32.86**	**L**	**62.00**	50.00	120.00
Valine - P	-0.80		293.00	170.00	420.00
Total Status Deviation	**30.46**				
Total Status Skew	**-21.01**				

Basic Status Report (Alphabetic)

FRANK — **Gold Standard Wellness Profile Date: 10/17/2002**

Male / Age: 58

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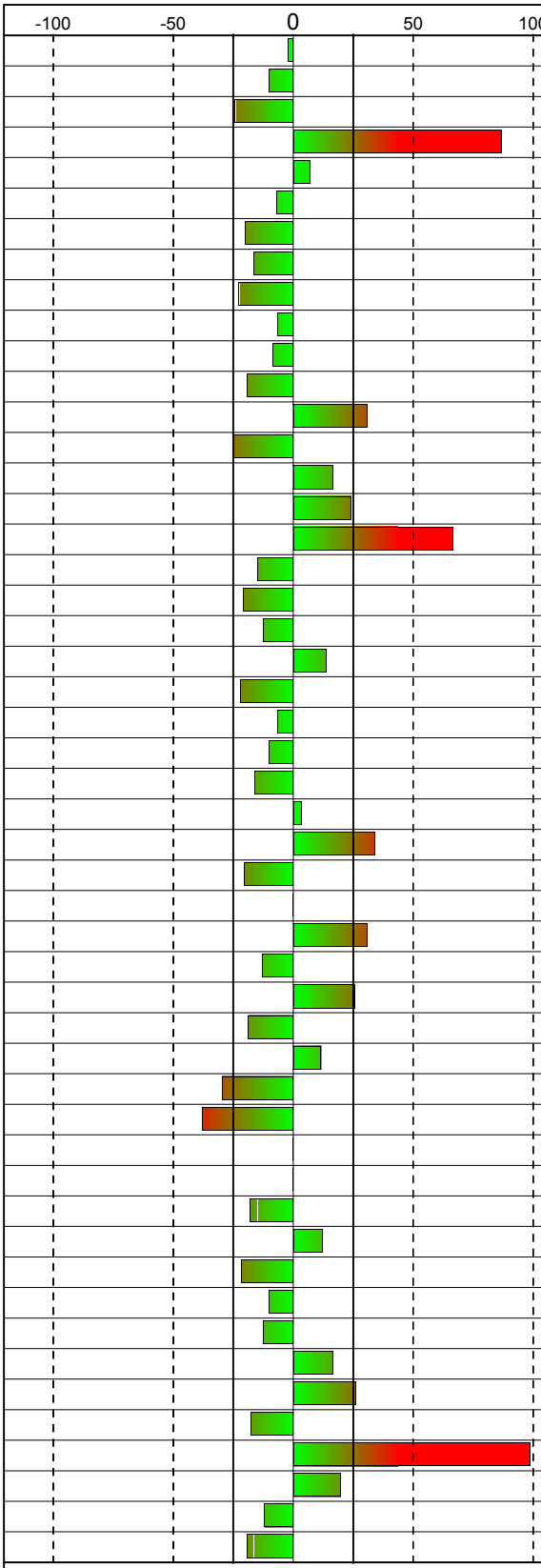

	% Status		Result	Low	High
A/G Ratio	-2.31		1.72	1.10	2.40
Albumin	-10.00		4.30	3.50	5.50
Alkaline Phosphatase	-24.40		57.00	25.00	150.00
Anion Gap	**86.67**	**H**	**24.40**	8.00	20.00
B.U.N.	7.14		17.00	5.00	26.00
B.U.N./Creatinine Ratio	-7.02		14.17	6.00	25.00
Basophil Count	-20.00		60.00	0.00	200.00
Basophils	-16.67		1.00	0.00	3.00
Bilirubin, Total	-22.73		0.40	0.10	1.20
Calcium	-6.52		9.50	8.50	10.80
Calcium/Phosphorus Ratio	-8.57		2.71	2.30	3.30
Chloride	-19.23		100.00	96.00	109.00
Cholesterol	**31.00**	**H**	**221.00**	140.00	240.00
CO2	**-25.00**	**L**	**23.00**	20.00	32.00
Creatinine	16.67		1.20	0.60	1.50
Eosinophil Count	24.00		420.00	50.00	550.00
Eosinophils	**66.67**	**H**	**7.00**	0.00	6.00
Free T4 Index (T7)	-15.00		6.80	4.00	12.00
GGT	-20.77		19.00	0.00	65.00
Globulin	-12.50		2.50	1.90	3.50
Glucose	13.64		93.00	65.00	109.00
HDL-Cholesterol	-22.09		43.00	31.00	74.00
Hematocrit	-6.67		44.80	37.00	55.00
Hemoglobin	-10.00		15.00	13.00	18.00
Iron, Total	-16.09		79.00	40.00	155.00
LDH	3.33		128.00	0.00	240.00
LDL	**33.82**	**H**	**119.00**	62.00	130.00
Lymphocyte Count	-20.50		1980.00	800.00	4800.00
Lymphocytes	0.00		33.00	18.00	48.00
MCH	**30.79**	**H**	**31.85**	27.00	33.00
MCHC	-12.95		33.48	32.00	36.00
MCV	**25.58**	**H**	**95.12**	80.00	100.00
Monocyte Count	-18.89		480.00	200.00	1100.00
Monocytes	11.54		8.00	0.00	13.00
Neutrophil Count	**-29.68**	**L**	**3060.00**	1800.00	8000.00
Neutrophils	**-38.00**	**L**	**51.00**	48.00	73.00
Phosphorus	0.00		3.50	2.50	4.50
Potassium	0.00		4.40	3.50	5.30
Protein, Total	-18.00		6.80	6.00	8.50
Protein/Globulin Ratio	12.00		2.72	2.10	3.10
R.B.C.	-21.67		4.71	4.20	6.00
sGOT	-10.00		16.00	0.00	40.00
sGPT	-12.50		15.00	0.00	40.00
Sodium	16.67		143.00	135.00	147.00
T-3 Uptake	**26.00**	**H**	**35.40**	24.00	39.00
Thyroxine (T4)	-17.50		6.60	4.00	12.00
Triglycerides	**98.74**	**H**	**296.00**	0.00	199.00
Ultra-Sensitive TSH	19.81		3.94	0.35	5.50
Uric Acid	-12.07		4.60	2.40	8.20
W.B.C.	-19.23		6.00	4.00	10.50
Total Status Deviation	**20.09**				
Total Status Skew	**0.62**				

Basic Status Report (Alphabetic)

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Male / Age: 58

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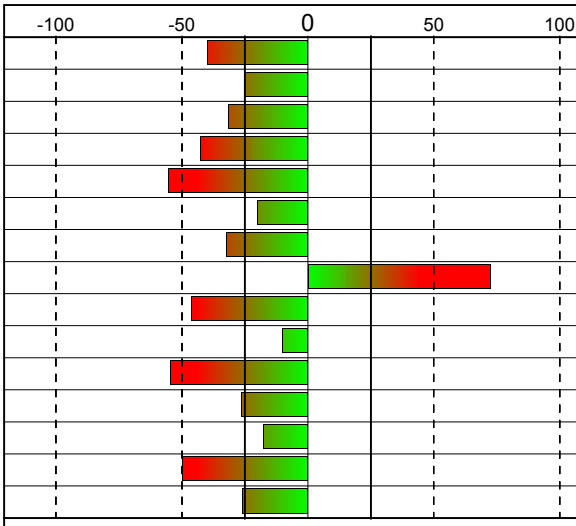

	% Status		Result	Low	High
Aluminum - RBC	**-40.00**	**L**	**0.30**	0.00	3.00
Cadmium - RBC	**-25.00**	**L**	**0.01**	0.00	0.04
Calcium - RBC	**-31.67**	**L**	**3.30**	0.00	18.00
Chromium - RBC	**-42.73**	**L**	**0.29**	0.25	0.80
Copper - RBC	**-55.41**	**L**	**0.44**	0.52	2.00
Lead - RBC	-20.00		0.03	0.00	0.10
Magnesium - RBC	**-32.50**	**L**	**47.00**	40.00	80.00
Magnesium/Calcium	**72.42**	**H**	**14.24**	2.00	12.00
Manganese - RBC	**-46.36**	**L**	**0.27**	0.25	0.80
Mercury - RBC	-10.00		0.00	0.00	0.00
Molybdenum - RBC	**-54.55**	**L**	**0.01**	0.01	0.03
Potassium - RBC	**-26.25**	**L**	**1475.00**	1000.00	3000.00
Selenium - RBC	-17.86		0.21	0.12	0.40
Vanadium - RBC	**-50.00**	**L**	**0.10**	0.10	0.28
Zinc - RBC	**-26.00**	**L**	**7.20**	6.00	11.00
Total Status Deviation	**36.72**				
Total Status Skew	**-27.06**				

Basic Status Report (Alphabetic)

FRANK **Gold Standard Wellness Profile Date: 10/17/2002**

Male / Age: 58

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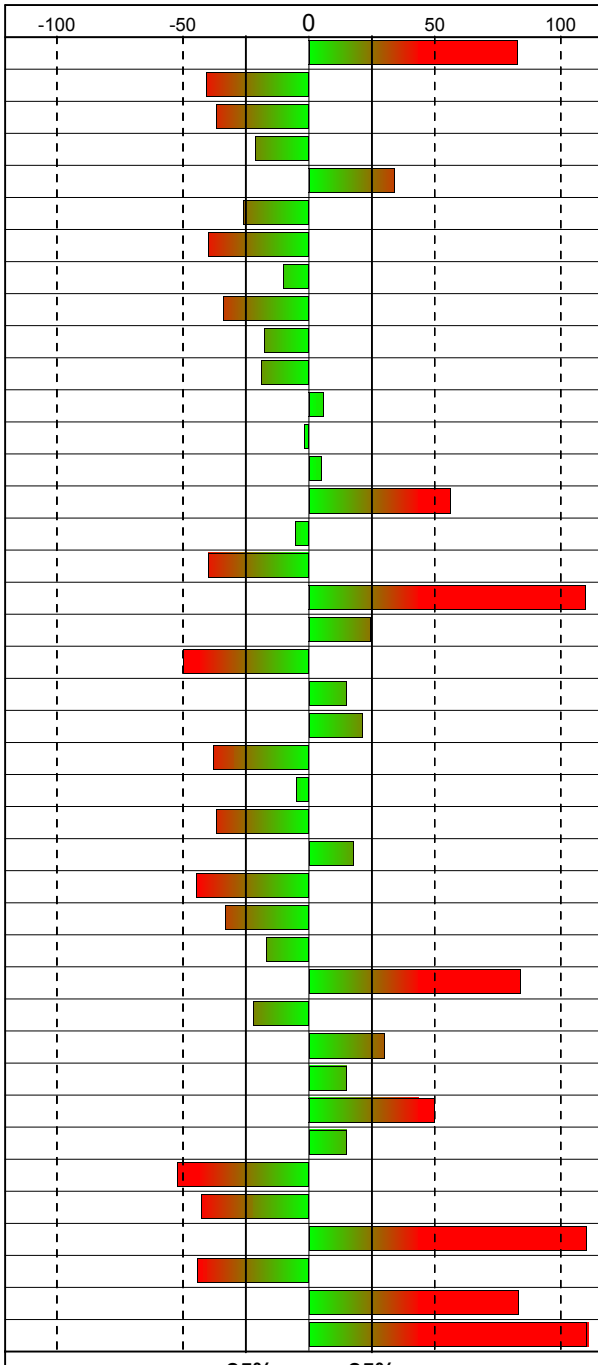

	% Status		Result	Low	High
2-Methylhippurate	**83.00**	**H**	**1.33**	0.00	1.00
5-Hydroxyindoleacetate	**-40.48**	**L**	**1.20**	0.80	5.00
Adipate	**-36.67**	**L**	**0.40**	0.00	3.00
a-Hydroxybutyrate	-21.20		14.40	0.00	50.00
a-Keto-b-methylvalerate	**34.17**	**H**	**1.01**	0.00	1.20
a-Ketoglutarate	**-25.91**	**L**	**8.30**	3.00	25.00
a-Ketoisocaproate	**-40.00**	**L**	**0.20**	0.00	2.00
a-Ketoisovalerate	-10.00		0.60	0.00	1.50
Benzoate	**-34.00**	**L**	**0.80**	0.00	5.00
b-Hydroxybutyrate	-17.50		13.00	0.00	40.00
b-Hydroxyisovalerate	-19.00		6.20	0.00	20.00
b-Ketoglutarate	6.00		0.56	0.00	1.00
cis-Aconitate	-1.84		123.00	5.00	250.00
Citramalate	5.00		5.50	0.00	10.00
Citrate	**56.17**	**H**	**2411.00**	500.00	2300.00
DHPP	-5.56		0.40	0.00	0.90
Ethylmalonate	**-40.00**	**L**	**0.40**	0.00	4.00
Fumarate	**110.00**	**H**	**1.80**	0.20	1.20
Hippurate	24.63		597.00	0.00	800.00
Homovanillate	**-50.00**	**L**	**1.00**	1.00	5.00
Hydroxymethylglutarate	15.00		0.72	0.20	1.00
Isocitrate	21.33		585.00	50.00	800.00
Lactate	**-38.08**	**L**	**7.10**	4.00	30.00
Malate	-5.00		2.70	0.00	6.00
Methylmalonate	**-36.67**	**L**	**0.40**	0.00	3.00
Orotate	17.78		122.00	0.00	180.00
p-Cresol	**-44.67**	**L**	**8.00**	0.00	150.00
Phenylacetate	**-33.33**	**L**	**0.20**	0.00	1.20
Phenylpropionate	-16.67		0.40	0.00	1.20
p-Hydroxybenzoate	**84.00**	**H**	**6.70**	0.00	5.00
P-Hydroxyphenylacetate	-22.00		14.00	0.00	50.00
p-Hydroxyphenyllactate	**30.00**	**H**	**0.40**	0.00	0.50
Pyroglutamate	15.00		52.00	0.00	80.00
Pyruvate	**50.00**	**H**	**0.70**	0.00	0.70
Suberate	15.00		2.60	0.00	4.00
Succinate	**-52.00**	**L**	**4.40**	5.00	35.00
Sulfate	**-42.78**	**L**	**193.00**	180.00	360.00
Tartarate	**110.00**	**H**	**128.00**	0.00	80.00
Tricarballylate	**-44.44**	**L**	**0.10**	0.00	1.80
Vanillylmandelate	**83.33**	**H**	**2.60**	0.20	2.00
Yeast Markers	**376.67**	**H**	**128.00**	0.00	30.00
Total Status Deviation	**86.31**				
Total Status Skew	**50.82**				

Nutritional Support

The following supplements may help to balance your biochemistry. Consult your practitioner.

- ☐ **1-CAC Phase 2 Protocol**
  See Nutrition Detail
- ☐ **1-Copper**
  1x daily 2 mg
- ☐ **1-Magnesium**
  2x daily 200 mg
- ☐ **1-Oral Electrolyte - Sports Formula**
  2x daily
- ☐ **1-Yeast Reduction Protocol**
  See Nutrition Detail
- ☐ **2-Magnesium Citrate or Glycinate**
  2x daily 150 mg
- ☐ **3-5-Hydroxy-Tryptophan (5-HTP)**
  2x daily 50 mg
- ☐ **H - Green Tea**
  1 - 3 times daily (Can be used as a drink)
- ☐ **1-Carbohydrate Metabolism Profile**
  See Nutrition Detail
- ☐ **1-Detoxification Protocol**
  See Nutrition Detail
- ☐ **1-Molybdenum**
  2x daily 25 mcg
- ☐ **1-Pyridoxal-5-Phosphate**
  2x daily 50 mg
- ☐ **1-Zinc Sulfate or Citrate**
  2x daily 25 mg
- ☐ **2-Vitamin E & Beta-carotene**
  1x daily see details
- ☐ **H - Garlic**
  1 - 3 times daily

Nutritional Supplements to AVOID

The following supplements may aggravate already out-of-balance biochemistry.

MCT Oil

Food Recommendations

The following foods may help to balance or strengthen your biochemistry.

Apricots, Dried	Artichoke	Beef	Black Pepper
Blackberries	Blackeyed Peas	Blueberries	Bok Choy Cabbage
Boysenberries	Broccoli	Brussel Sprouts	Butter Beans
Cantaloupe	Carrot	Cauliflower	Cherries
Clams	Cornish Game Hens	Duck	Escarole
Fava Beans	Flounder	Goose	Grapefruit
Green Beans	Gruyere Cheese	Guava	Haddock
Halibut	Kale	Kidney Beans	Loganberries
Macadamia Nuts	Mango	Mozarella Cheese	Mushrooms
Mussels	Mustard Greens	Navy Beans	Onions
Orange	Oysters	Papaya	Peanuts
Pecans	Plaintains	Potatoes	Pumpkin
Rabbit	Red Peppers	Salmon	Snapper
Sole	Soy	Spinach	Strawberries
Sturgeon	Swiss Chard	Turkey	Veal
Walnuts	Wild Rice	Yams	

Foods to AVOID

The following foods may aggravate already out-of-balance biochemistry.

Bacon	Cholesterol Rich Foods	Chuck Roast	Coconut Cream
Coconut Milk	Dairy Cream	Egg Yolk	Hydrogenated Fats
Liver Pate	Margarine	Sweetbreads	

Results Missing From Test

A more comprehensive report would have been generated if the following results were provided.

Formiminoglutamic Acid	Quinolinate	Indican	D-Lactate

Out-Of-Balance Panel Values

The following panels have a PSD of greater than 25% indicating need for further review. PSD is the Panel Status Deviation, or the average imbalance of that subset of results. The PSS is the Panel Status Skew, or the direction, negative (deficiency) or positive (excess), of that subset of results.

Panel Name	PSD	PSS
Immune Metabolites	43.45%	-43.45%
Gluconeogen	43.31%	-43.31%
Neuroendocrine Met.	42.33%	-42.33%
Hepatic Metabolism	38.87%	-19.45%
Essential Minerals	38.33%	-38.33%
CNS Metabolism	38.13%	-31.31%
Citric Acid Cycle	35.91%	14.72%
Gastrointest. Function	35.85%	26.02%
Essential Amino Acid	34.83%	-34.83%
Neurotransmitters	34.76%	-1.43%
Muscle Metabolites	34.50%	-14.50%
Intestinal Dysbiosis	33.71%	6.23%
Ammonia/Energy	33.25%	-31.82%
Carbohydrate Metabolism	31.69%	-6.69%
Lipid	30.94%	23.58%
Lipid Metabolism	30.56%	-20.56%
Fat Metabolism	30.12%	-30.12%
Liver Detox Indicators	30.09%	8.50%
Inflammatory Process	28.76%	11.75%
Amino Acid Catabolism	28.06%	-5.28%
B-Complex Markers	27.97%	-14.30%
Adrenal Function	27.67%	27.67%
Anti Oxidant Status	27.05%	10.47%
Differential	26.57%	4.71%
Cellular Distortions	26.06%	-3.56%

Lab Reported out-of-range Values

The following results are out-of-range (as reported by the lab), and should be carefully reviewed.

CAC Entry (2077.68%)

A high result for the marker respresenting the entry into the citric acid may indicate carbohydrate metabolism impairment especially if pyruvate and/or lactate are elevated. Possibilities causing this particular blockade include mercury, arsenic or petrochemical exposure.

Yeast Markers (376.67%)

A high reading of this important ratio indicates a high probability of a yeast and/or a fungal infection.

CAC Phase 3 (134.94%)

A high result may be indicative of the lack B-complex nutrients and/or an array of amino acids especially aspartic acid. Supplementing a balanced amino acid blend with a B-complex may help bring a surge of energy. This phase of the citric acid cycle is the movement from Isocitrate to a-ketoglutarate.

Tartarate (110.00%)

Elevated levels have been seen in children with autistic traits and/or in cases of an overgrowth of yeast or fungi especially after repeated use of antibiotics.

Fumarate (110.00%)

Elevated fumarate is indicative of a Coenzyme Q10 deficiency.

Triglycerides (98.74%)

Triglycerides is where most of the stored fat in the body resides. While high triglycerides are clearly associated with coronary heart disease, it is also been shown to be responsive to dietary changes.

Drugs which may have an adverse affect:
Itraconazole, Levothyroxine, Methyldopa, Miconazole, Polythiazide, Propranolol, Tamoxifen

Nutrients which may have an adverse affect:
MCT Oil

Foods which may have an adverse affect:
Bacon, Cholesterol Rich Foods, Chuck Roast, Coconut Cream, Coconut Milk, Dairy Cream, Egg Yolk, Margarine, Sweetbreads

Anion Gap (86.67%)

The anion gap is used to measure the concentration of cations (sodium and potassium) and the anions (chloride and CO2) in the extracellular fluid of the blood. Numerous clinical implications can be gathered from the Anion Gap. An increased measurement is associated with metabolic acidosis due to the overproduction of acids or severe dehydration.

p-Hydroxybenzoate (84.00%)

Elevated levels may be indicative of overgrowth of intestinal bacterial or protozoa. This organic acid when high along with high p-Cresol and p-Hydroxyphenylacetate may be indicative of a tyrsosine deficiency. A comprehensive amino acid test may be helpful.

Vanillylmandelate (83.33%)

High levels of this organic acid should be correlated with homovanillic acid (HVA) for potential abnormal cell growth.

Drugs which may have an adverse affect:
Insulin, Lithium, Reserpine

2-Methylhippurate (83.00%)

This organic acid is an indication of exposure to or xylene. A comprehensive detoxification program should be undertaken to help the body excrete these petrochemicals. The use of antioxidants and glycine are recommended.

CAC Return (75.99%)

As the citric acid returns to the beginning through the conversion of Malate to Citrate through Oxalacetate, a high result may be due to low amino acid reserves especially aspartic acid.

CAC Phase 5 (-75.19%)

This phase of the citric acid cycle is the reaction caused by removing electrons from Succinate to form Fumarate. Additions of phenylalanine and tyrosine may help balance this ratio when low by resupplying fumarate.

Magnesium/Calcium (72.42%)

Magnesium and calcium are two essential trace minerals that need to be kept in balance. A high result may be due to excessive magnesium intake.

CAC Phase 1 (71.68%)

This is the first phase of the citric acid cycle moving from Citrate to cis-Aconitate. A high reading may indicate a disruption in the efficiency of energy production. It can also be due to a problem clearing ammonia due to an arginine deficiency.

Eosinophils (66.67%)

Eosinophils protect the body from parasites and allergic reactions, therefore, elevated levels may indicate an allergic response.

Drugs which may have an adverse affect:
Allopurinol, Ampicillin, Carbamazepine, Chlorpromazine, Clindamycin, Desipramine, Erythromycin, Fluorides, Fluphenazine, Haloperidol, Imipramine, Indomethacin, Kanamycin, Methyldopa, Naproxen, Nitrofurantoin, Penicillamine, Penicillin, Phenylbutazone, Phenytoin, Procainamide, Protriptyline, Rifampin, Streptomycin, Sulfamethoxazole, Sulfasalazine, Sulfisoxazole, Tetracycline, Triameterene, Viomycin

CAC Phase 6 (-60.87%)
The last phase of the citric acid cycle, this stage marks the conversion of Fumarate into Malate. When the ratio is low, this may signify that the body is not refilling its losses along the entire cycle. Supplementing with a broad spectrum amino acid along with niacin may help restore balance.

Citrate (56.17%)
A high reading of this organic acid may be indicative of an amino acid deficiency or a problem with metabolism.

Lysine - P (-56.00%)
Lysine, an essential amino acid, is crucial in carbohydrate metabolism and the creation of the amino acids citrulline and carnitine, as well as in the development of collagen. A low plasma level of lysine may be due to poor dietary intake and/or excessive intake of arginine and/or ornithine. May inhibit collagen production.

Glycine - P (-55.78%)
Glycine plays an important role in the body's ability to detoxify itself as well as in wound healing. It is also important in the creation of nucleic acids and bile acids. This amino acid is non-essential as it can be synthesized from serine and threonine. A low result may be indicative of poor nitrogen retention or a low intake of quality proteins.

Copper - RBC (-55.41%)
An important trace mineral, copper deficiencies can lead to anemia, neural degeneration, lung and bone disturbances and CVD. Numerous enzyme reactions are also copper dependent.

Molybdenum - RBC (-54.55%)
Found in very small quantities, molybdenum is important in the pathway that converts purines into uric acid, alcohol detoxification, and sulfur detoxification. It is found primarily in whole grains and legumes.

Proline - P (-54.44%)
May be indicative of a defect in connective tissue synthesis.

Tryptophan - P (-53.33%)
Tryptophan metabolism requires B6, folic acid, and magnesium. Also, niacin and glutamine are important requirements for normal metabolism. Niacin can be made from tryptophan. A low result may be indicative of depression and insomnia.

Drugs which may have an adverse affect:
Aspirin

Succinate (-52.00%)
A low reading of this organic acid may be indicative of a need for BCAA's (Branched Chain Amino Acids).

Arginine - P (-51.82%)
Arginine, an essential amino acid in childhood (it can be synthesized by adults) has been used to improve cardiovascular health, immune function (not herpes virus), and protein metabolism throughout the body. A low result may be due to poor diet, especially poor quality protein sources. A deficiency in arginine may also lead to a higher risk of cardiovascular disease.

Glutamine - P (-51.33%)
Glutamine is abundant in both blood and cerebrospinal fluid and easily passes the blood-brain barrier. This amino acid also acts as a detoxifier of ammonia from the brain and may be a protector against certain bacteria and alcohol poisoning. A low level may be indicative of poor absorption of proteins.

Taurine - P (-50.50%)
Taurine is known as an inhibitory amino acid because of its ability to control excitable tissues and its use in seizure activity. It also is helpful in cases of congestive heart disease as well as in the prevention of stroke. Low levels may be indicative of oxidative stress, fat maldigestion, artherosclerosis, angina, seizure disorders, or arrhythmias. Females are more likely to have a taurine synthesis problem than males.

Cystathionine - P (50.00%)
May be due to a functional B6 deficiency.

Homovanillate (-50.00%)

Low levels of this organic acid may be related to low CNS levels of epinephrine and norepinephrine. Clinical signs include depression, sleep disturbances, and the inability to handle stress and fatigue.

Drugs which may have an adverse affect:
Haloperidol

Pyruvate (50.00%)

Pyruvate is the end product of glucose metabolism. An elevated level may be indicative of a fundamental deficiency of B-complex vitamins and lipoic acid.

Additional Tests

The following additional lab tests may help in diagnosis.

Consider ordering prostate specific antigen (PSA)

Rationale: Sex is Male
Age is >= 40

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1-CAC Phase 2 Protocol See Nutrition Detail

Rationale

CAC PHASE 2 PROTOCOL

Decreased | **Normal** | **Increased**
CAC Phase 2

An elevated reading of this ratio may be due to a need for Lipoic Acid, Magnesium and Manganese.
Lipoic Acid
Children: 100 mg daily
Adults: 100 mg 3 times daily
Magnesium
Children: 200 mg daily
Adults: 400 mg daily
Manganese
Children: 10 mg daily
Adults: 20 mg daily

1-Carbohydrate Metabolism Profile See Nutrition Detail

CARBOHYDRATE METABOLISM PROFILE

Decreased | **Normal** | **Increased**
Triglycerides

When Triglycerides are elevated to this degree it indicates a potential for impaired carbohydrate metabolism. This pattern indicates suboptimal operation of carbohydrate metabolism, interfering with efficient cellualr energy production. Various pathways being over- or under- utilized can be nutritionally supported with digestive enzymes, B-Complex, Lipoic acid, and CoEnzyme Q10 supplementation. Recommended nutrients include:
B-Complex (2x daily)
Lipoic Acid (2x daily)
CoEnzyme Q10 (2x 50 mg daily)
Digestive Enzymes (1-2 with each meal)

Wallace, DC, Mitochondrial genetics: a paradigm for aging and degenerative diseases?, Science, 256:628-632 (1992).
Corral-Debrinski, Shffner JM, Lott MY, Wallace DC, Association of mitochondrial DNA damage with aging and coronary artherosclerotic heart disease. Mutat Res, 275:169-180 (1992).

1-Copper 1x daily 2 mg

COPPER (Cu)

Decreased | **Normal** | **Increased**
Copper - RBC

2 mg
A component of various proteins and enzymes. Regulates cholesterol metabolism, heme, immune function, myelin, catecholamine, temperature, bone mineralization and cross linking of collagen and elastin.

1-Detoxification Protocol See Nutrition Detail

DETOXIFICATION PROTOCOL

Decreased | **Normal** | **Increased**
Hippurate | 2-Methylhippurate

Due to the elevated level of 2-Methylhippurate, is is important that you avoid xylene, a compound found in fossil fuels and as a solvent as well as toluene and styrene. A comprehensive detoxification protocol should include at least 250 mg of glycine daily along with a balanced amino acid complex and a broad spectrum antioxidant formula with Vitamin C and CoEnzyme Q10.
Adults:
Glycine - 500 mg 2x daily
Amino Acid Complex - 5 grams 2x daily
Broad Spectrum Antioxidant - 2x daily

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1-Magnesium 2x daily 200 mg

MAGNESIUM (Mg)
Second most abundant mineral in intracellular fluid. It helps facilitate Na - K transport and influences Ca levels. It is involved in vasodilation, contraction, as well as cardiac and skeletal muscle cells. Required in over 300 enzymes, temperature control, neuronal homeostasis and has a profound effect on cardiac physiology

Rationale

Decreased	Normal	Increased
Magnesium - RBC		

1-Molybdenum 2x daily 25 mcg

MOLYBDENUM (Mo)
Vital constituent of xanthine oxidase (uric acid production), aldahyde and sulfate oxidase. Functions in transfer of electrons for redox process and completion of sulfur amino acid catabolism. It is also involved in hemoglobin synthesis.

Decreased	Normal	Increased
Molybdenum - RBC		

1-Oral Electrolyte - Sports Formula 2x daily

ORAL ELECTROLYTE
The main electrolytes in the human body are sodium, potassium, phosphorus, calcium, chloride, magnesium and bicarbonate. During illness, the equilibrium present in healthy individuals, is disturbed. A well balanced formula is helpful in restoring a state of equilibrium. A sports formula will have greater levels of bicarbonate yet still keeping the proportion of the other salts in line.

Decreased	Normal	Increased
CO2		

1-Pyridoxal-5-Phosphate 2x daily 50 mg

PYRIDOXINE (B6)
B6 function involves many complex interrelated functions around amino acid metabolism. Cell processes involve PLP in immune modulation, fatty acids, steroid hormone, receptors, neurotransmitters, gluconeogenesis, and heme synthesis.

Decreased	Normal	Increased
		Cystathionine - P

1-Yeast Reduction Protocol See Nutrition Detail

YEAST REDUCTION PROTOCOL
Because of the relative increase in the markers for yeast and fungi (Tartarate and Citramalate) it may be helpful to begin a yeast reduction protocol. Avoiding refined carbohydrates such as sugar, alcohol and other yeast-containing products is recommended. The introduction of probiotics such as Lactobacilli should also be started.
Probiotics - 3 times daily if D-Lactate is normal or low
Olive leaf extract - 2 times daily
Grapefruit seed extract - 2 times daily

Decreased	Normal	Increased
		Yeast Markers

1-Zinc Sulfate or Citrate 2x daily 25 mg

ZINC (Zn)
Active in the structure and function of biomembranes. Involved in more than 200 key enzymes including carbohydrate metabolism, connective tissue metabolism, T-cell function and prostaglandin secretion.

Decreased	Normal	Increased
Zinc - RBC		

2-Magnesium Citrate or Glycinate 2x daily 150 mg

MAGNESIUM (Mg)
Second most abundant mineral in intracellular fluid. It helps facilitate Na - K transport and influences Ca levels. It is involved in vasodilation, contraction, as well as cardiac and skeletal muscle cells. Required in over 300 enzymes, temperature control, neuronal homeostasis and has a profound effect on cardiac physiology

Decreased	Normal	Increased
		Ethanolamine - P

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2-Vitamin E & Beta-carotene 1x daily see details

VITAMIN E
800 IU - Adult, 400 IU - Children
Vitamin E is a major antioxidant, scavenging free radicals - enhancing lymphocyte production, increasing nitrogen retention, maintaining cellular integrity, and aiding in the biosynthesis of heme proteins.
BETA-CAROTENE
25,000 IU - Adult, 12,500 - Children
Beta-carotene is involved in the growth and repair of tissue and helps maintain healthy skin. It is essential in the maintenance of eyesight, building of bones, teeth and blood. Do not take if pregnant.

Rationale

Decreased	Normal	Increased
		1-Methylhistidine - P

3-5-Hydroxy-Tryptophan (5-HTP) 2x daily 50 mg

TRYPTOPHAN
A carbon skeleton indispensible amino acid, tryptophan is the precursor to the neurotransmitter serotonin. The only form available presently is 5-HTP.

Decreased	Normal	Increased
Tryptophan - P		

H - Garlic 1 - 3 times daily

GARLIC
Garlic's use has been reported to be beneficial in lowering blood lipid (fat) levels. May cause unwanted bodily odors. As with any herb, caution should be taken with its use.

Decreased	Normal	Increased
		Cholesterol
		LDL

H - Green Tea 1 - 3 times daily Can be used as a drink

GREEN TEA
Green tea has been extensively reported to be very beneficial in the prevention of many forms of cancer as well as an potent antioxidant. Caution should be used when consuming green tea as it may contain caffeine. As with any herb, caution should be taken with its use.

Decreased	Normal	Increased
		Cholesterol
		Anion Gap

AVOID THE FOLLOWING SUPPLEMENTS

AVOID MCT Oil Prescription only

MCT OILS (MEDIUM CHAIN TRIGLYCERIDES)
Saturated fatty acids that are 6 to 12 carbons long. They are absorbed easily because of the greater solubility due to their smaller molecular size.

Decreased	Normal	Increased
		Triglycerides

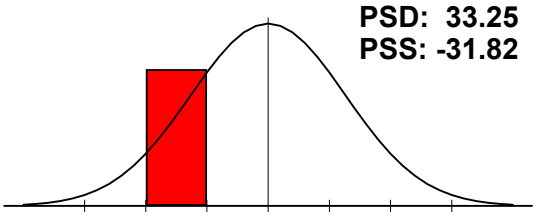
Drugs listed below tend to further aggravate elements of blood chemistry that are out of range (H or L). The (#) after each drug denotes the number of times that drug is flagged as being potentially harmful.

Acetazolamide(2)	Acyclovir	Allopurinol(2)	Amantadine
Amitriptyline	Amoxicillin	Ampicillin	Aspirin(3)
Carbamazepine(4)	Chlorpromazine(3)	Clindamycin(2)	Clofibrate
Cortisone	Desipramine(2)	Diazepam	Epinephrine
Erythromycin	Fluorides	Fluphenazine(2)	Furosemide
Gentamicin	Griseofulvin	Haloperidol(2)	Hydroxyurea(2)
Ibuprofen(2)	Imipramine(4)	Indomethacin(2)	Insulin
Itraconazole	Kanamycin	Levodopa	Levothyroxine(2)
Lincomycin	Lithium(3)	Lovastatin	MAO Inhibitors
Methimazole(2)	Methotrexate	Methyldopa(4)	Miconazole(2)
Naproxen	Neomycin	Nitrofurantoin(2)	Paramethadione(2)
Penicillamine(3)	Penicillin(2)	Phenobarbital(2)	Phenylbutazone(3)
Phenytoin(4)	Polythiazide(2)	Prednisone(2)	Procainamide
Propranolol(3)	Protriptyline	Reserpine	Rifampin(2)
Salicylates	Steroids	Streptomycin(2)	Sulfamethoxazole
Sulfasalazine(2)	Sulfisoxazole	Tamoxifen(2)	Tetracycline(3)
Triameterene(3)	Trimethadione(3)	Vancomycin	Viomycin(2)

Ammonia/Energy

Arginine - P[L], Threonine - P[L], Glycine - P[L], Serine - P[L], a-Aminoadipic Acid - P, Asparagine - P[L], Aspartic Acid - P[L], Citrullin.

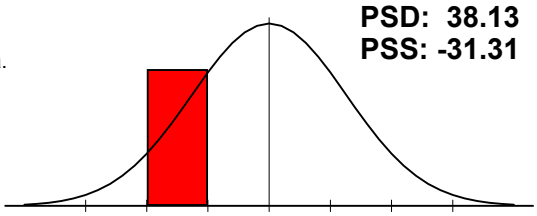
A panel profile such as this may be indicative of inadequate protein intake, poor absorption or poor quality protein intake.



CNS Metabolism

Arginine - P[L], Tryptophan - P[L], Gamma-aminobutyric Acid-P[L], Glycine - P[L], Serine - P[L], Taurine - P[L], Aspartic Acid - P[L], Gluta.

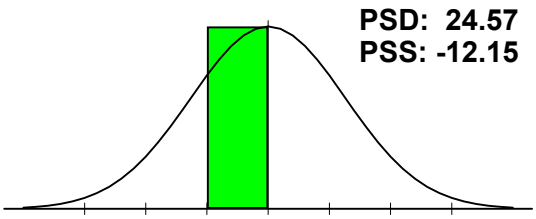
The panel profile seen here may be indicative of poor central nervous system functioning including memory loss, fatigue, poor concentration.



Connective Tissue

Leucine - P, Methionine - P[L], Valine - P, Cystine - P[L], Hydroxylysine - P, Hydroxyproline - P, 3-Methylhistidine - P, Proline - P[L].

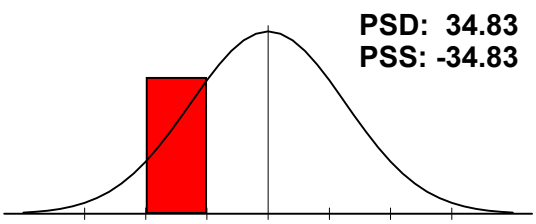
This panel profile shows that there is adequate supply and metabolism of amino acids to produce healthy connective tissue and collagen.



Essential Amino Acid

Arginine - P[L], Histidine - P[L], Isoleucine - P, Leucine - P, Lysine - P[L], Methionine - P[L], Phenylalanine - P[L], Threonine - P[L], Tr.

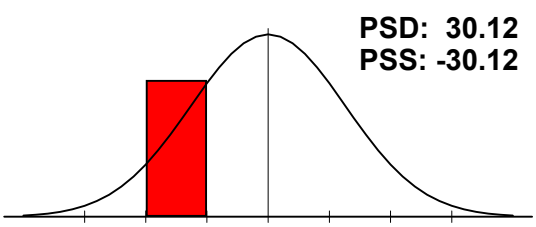
The panel profile seen here indicates a low density of essential amino acids. Since they cannot be synthesized in the human body, these building blocks must be taken in via diet or supplements.



Fat Metabolism

Arginine - P[L], Isoleucine - P, Leucine - P, Valine - P, Taurine - P[L], Glutamine - P[L], Sarcosine - P[L].

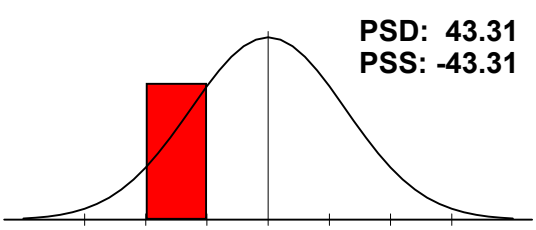
A panel profile such as this may indicate an inability of the body to properly metabolize dietary fats. Check for dysbiosis, or try supplementation with lipase digestive enzymes as well as broad spectrum amino acids.



Gluconeogen

Threonine - P[L], Tryptophan - P[L], Glycine - P[L], Serine - P[L], Alanine - P.

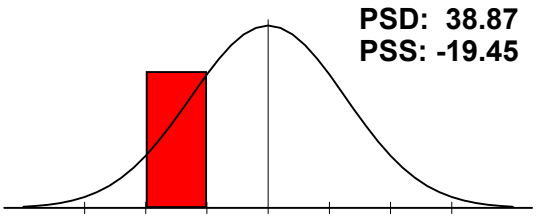
This panel profile may be indicative of hypoglycemia or poor dietary protein intake.



Hepatic Metabolism

Methionine - P[L], Taurine - P[L], Glutamine - P[L], Cystine - P[L], Cystathionine - P[H], Homocystine - P, Alanine - P.

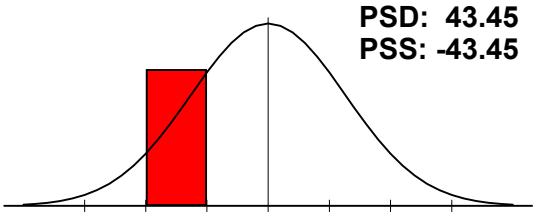
A panel profile such as this may be indicative of an underfunctioning liver or poor dietary protein intake.



Immune Metabolites

Arginine - P[L], Threonine - P[L], Glutamine - P[L], Ornithine - P[L].

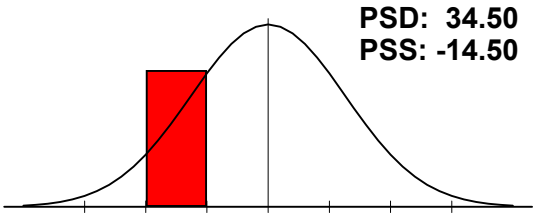
A panel profile such as this may be indicative of a poor functioning immune system or low dietary intake of protein.



Muscle Metabolites

Anserine - P[L], Carnosine - P[L], 1-Methylhistidine - P[H], 3-Methylhistidine - P.

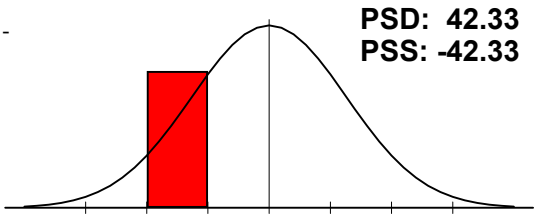
This panel profile may be indicative of the lack of ability in building muscle or a poor dietary intake of protein.



Neuroendocrine Met.

Gamma-aminobutyric Acid-P[L], Glycine - P[L], Serine - P[L], Taurine - P[L], Tyrosine - P[L].

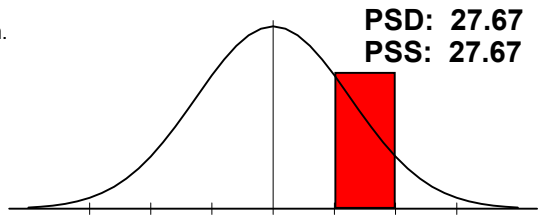
This panel profile may be indicative of an underfunctioning endocrine system or poor dietary intake of protein.



Adrenal Function

Cholesterol[H], Eosinophils[H], Eosinophil Count, Potassium, Sodium.

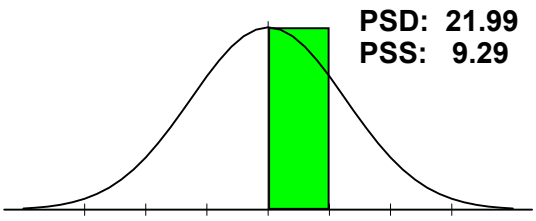
This profile may be in part due to poor nutritional habits, allergies and inadequate fluid intake. Clinical signs may include inability to handle stress, poor circulation, and fatigue.



Allergy

Eosinophils[H], Globulin, Lymphocytes, Monocytes, W.B.C..

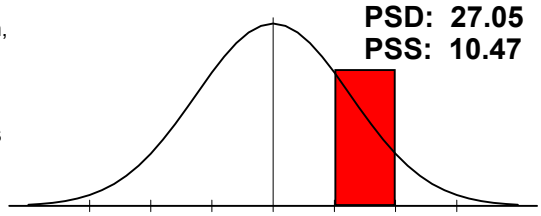
This panel is used to assess the individual's response to potential allergens. Abnormalities in this panel may indicate the need for additional allergy testing. The deviation was below 25% so no abnormalities were found.



Anti Oxidant Status

Anion Gap[H], Bilirubin, Total, Chloride, Cholesterol[H], Glucose, Iron, Total.

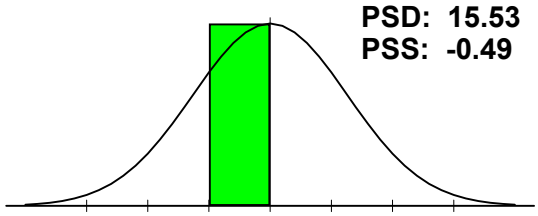
This panel profile may indicate that the patient needs to increase their intake of antioxidants and make appropriate lifestyle changes (smoking, alcohol, reduce stress, etc.). A varied, broad spectrum of antioxidants is preferable to one or two alone.



Athletic Potential

B.U.N./Creatinine Ratio, Cholesterol[H], CO2[L], Creatinine, LDH, Potassium, Protein, Total, Sodium, HDL-Cholesterol.

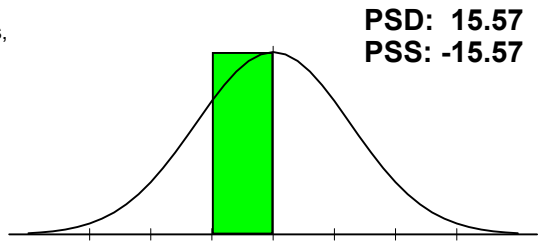
This panel is used to help assess athletic potential. Keeping this panel in a normal range may be helpful in improving athletic performance and reducing the risk of injury. The deviation was below 25% so no abnormalities were found.



Bone/Joint

Albumin, Alkaline Phosphatase, Calcium, Neutrophils[L], Phosphorus, Protein, Total, Uric Acid.

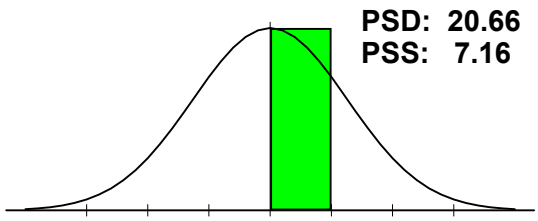
This panel may be helpful in assessing bone and joint health. Keeping the elements of this panel in a normal range may be helpful in reducing the risk of osteoporosis and other bone and joint disorders. The deviation was below 25% so no abnormalities were found.



Cardiac Marker

Cholesterol[H], GGT, Iron, Total, LDH, sGOT, Triglycerides[H], Uric Acid, HDL-Cholesterol, LDL[H].

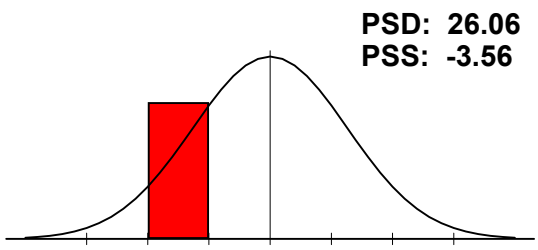
This panel may be helpful in assessing cardiovascular disease risk. Keeping the elements in this panel in a normal range is important in reducing the risk of CVD. The deviation was below 25% so no abnormalities were found.



Cellular Distortions

Alkaline Phosphatase, Anion Gap[H], GGT, Iron, Total, LDH, Neutrophils[L], W.B.C..

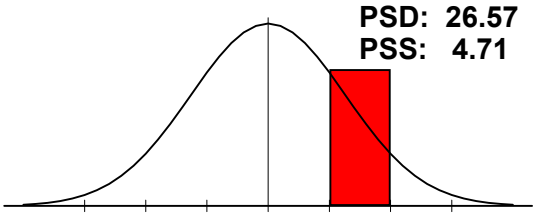
The profile shown here may be indicative of poor nutritional habits so an assessment of the patient's nutrient intake and overall nutrient density may be necessary. If the Anion Gap is low, consider increased intake of electrolytes, minerals and amino acids.



Differential

Basophils, Eosinophils[H], Lymphocytes, Monocytes, Neutrophils[L].

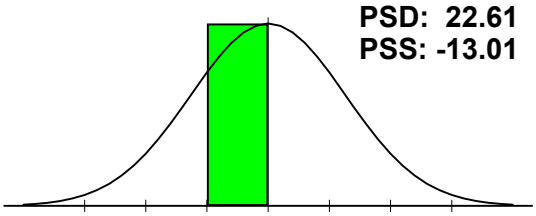
This panel profile may be indicative of a hightened immune system response. A careful review of the individual components of this panel is recommended.



Differential Count

Basophil Count, Eosinophil Count, Lymphocyte Count, Monocyte Count, Neutrophil Count[L].

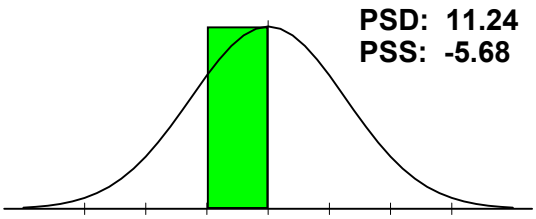
This panel may be helpful in assessing immune system health. Excesses or deficiencies in this panel may indicate a compromised immune system. The deviation was below 25% so no abnormalities were found.



Electrolyte

Calcium, Chloride, CO2[L], Phosphorus, Potassium, Sodium.

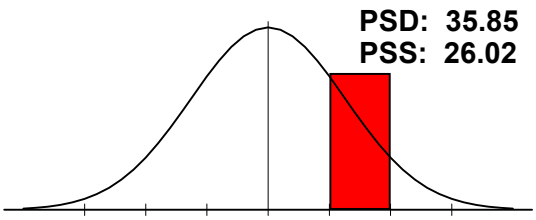
This panel is a representation of electrolyte balance in blood. Balance is critical in maintaining and achieving optimal health. The deviation was below 25% so no abnormalities were found.



Gastrointest. Function

Anion Gap[H], Chloride, Cholesterol[H], CO2[L], Monocytes, Potassium, Sodium, Triglycerides[H], LDL[H].

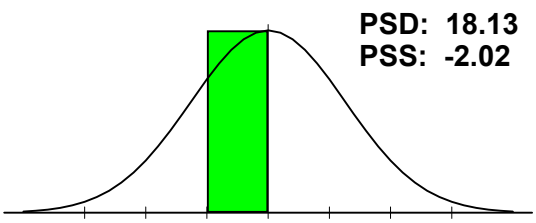
This panel profile indicates the need for further evaluation of gastrointestinal integrity, digestion and absorption. Check for dysbiosis, food allergies or "leaky gut" syndrome.



Hematology

Hematocrit, Hemoglobin, MCH[H], MCHC, MCV[H], R.B.C., W.B.C..

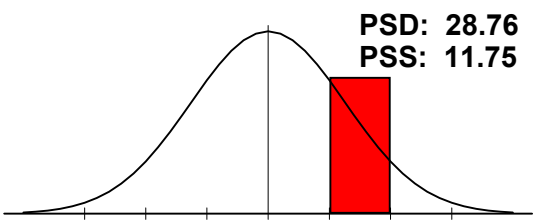
The hematology panel assesses the production of red blood cells and their function. The deviation was below 25% so no abnormalities were found.



Inflammatory Process

Eosinophils[H], Globulin, LDH, Neutrophils[L], Potassium, sGOT, sGPT, Triglycerides[H], Uric Acid, LDL[H].

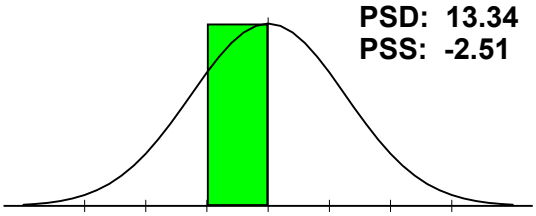
This panel profile may indicate the presence of an ongoing inflammatory process. Consider increasing B-complex vitamins and having the patient avoid saturated and trans fats as well.



Kidney Function

Albumin, B.U.N., B.U.N./Creatinine Ratio, Chloride, CO2[L], Creatinine, Glucose, Potassium, Protein, Total, Sodium.

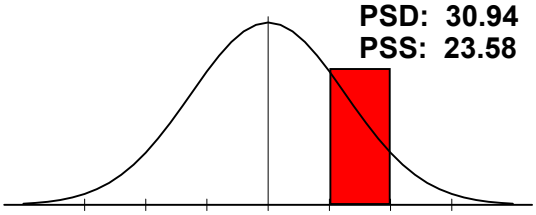
This panel may be helpful in assessing kidney function. It is important to keep the elements of this subset in balance to help the body eliminate waste material. The deviation was below 25% so no abnormalities were found.



Lipid

Cholesterol[H], Triglycerides[H], HDL-Cholesterol, LDL[H].

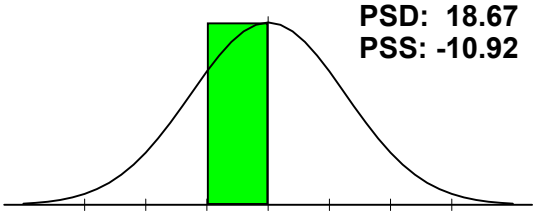
The panel profile seen here suggests that the patient may be at a greater risk for coronary heart disease than the general population. A dietary evaluation should be undertaken as well to educate the patient about saturated and trans fats.



Liver Function

Albumin, Alkaline Phosphatase, Bilirubin, Total, Cholesterol[H], GGT, Protein, Total, sGOT, sGPT.

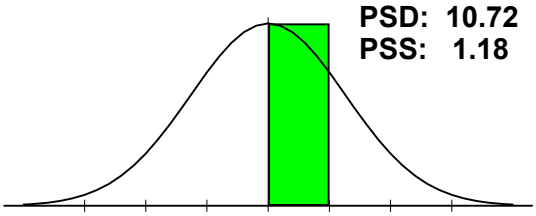
Assessing liver function is important in determining the individual's ability to detoxify itself as well as processing amino acids and other important biological processes. The deviation was below 25% so no abnormalities were found.



Nitrogen

B.U.N., B.U.N./Creatinine Ratio, Creatinine, Uric Acid.

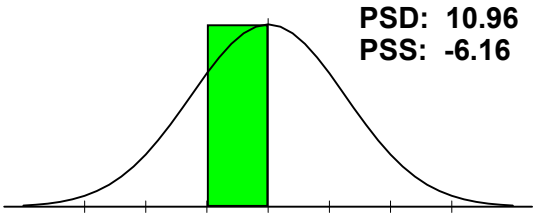
Nitrogen is an important element in achieving optimal wellness. The elements in this panel are important in determining nitrogen competency. The deviation was below 25% so no abnormalities were found.



Protein

A/G Ratio, Albumin, Globulin, Protein, Total, Protein/Globulin Ratio.

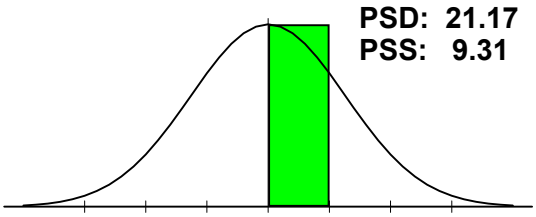
Proteins are the basic building blocks of hormones, muscle, neurotransmitters, immune systems responses and more. Assessing their competency is crucial in achieving optimal wellness. The deviation was below 25% so no abnormalities were found.



Pulmonary Function

Anion Gap[H], Calcium, CO2[L], LDH, Potassium, sGOT, Sodium.

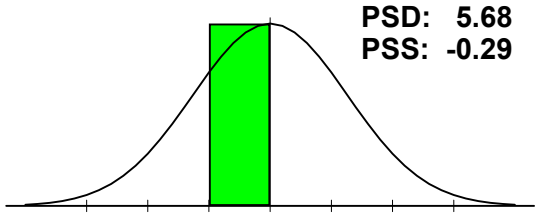
This panel may be helpful in assessing lung and respiratory function. The deviation was below 25% so no abnormalities were found.



Ratios

A/G Ratio, B.U.N./Creatinine Ratio, Calcium/Phosphorus Ratio, Sodium/Potassium Ratio, Protein/Globulin Ratio.

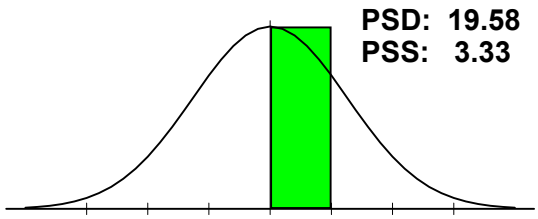
This panel may be helpful in determining the general balance of the overall chemistry of the individual. The deviation was below 25% so no abnormalities were found.



Thyroid

Thyroxine (T4), T-3 Uptake[H], Free T4 Index (T7), Ultra-Sensitive TSH.

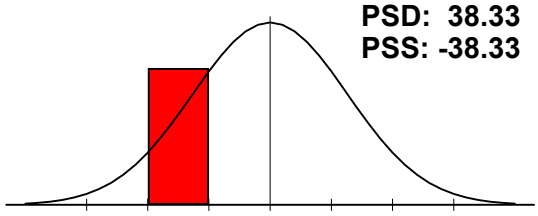
This panel may be helpful in determining the overal health of the thyroid gland. The deviation was below 25% so no abnormalities were found.



Essential Minerals

Calcium - RBC[L], Chromium - RBC[L], Copper - RBC[L], Magnesium - RBC[L], Manganese - RBC[L], Molybdenum - RBC[L], Potassium - RBC[L], Selen.

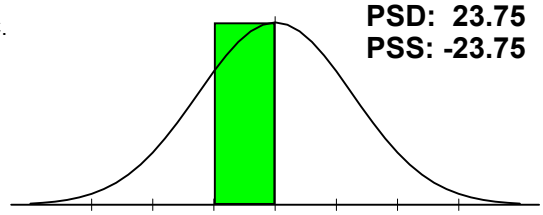
The low reading of this panel suggests the need for trace mineral supplementation. Check the Nutritional Detail section of the report for specific recommendations.



Toxic Minerals

Aluminum - RBC[L], Cadmium - RBC[L], Lead - RBC, Mercury - RBC.

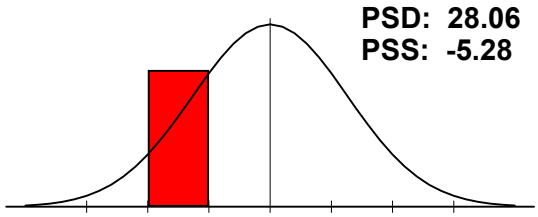
No level of toxic metals is healthy and this profile exhibits a level above what is optimal for good health.



Amino Acid Catabolism

a-Ketoisovalerate, a-Ketoisocaproate[L], a-Keto-b-methylvalerate[H].

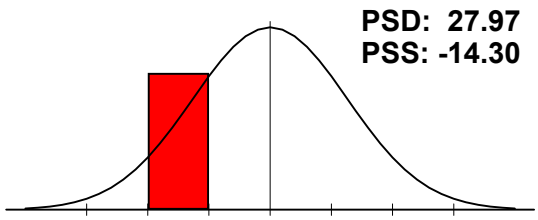
This panel abnormality may be due to poor amino acid metabolism or a lack of quality protein in the diet. Supplementation of high grade amino acids may be necessary.



B-Complex Markers

b-Hydroxyisovalerate, a-Ketoisovalerate, a-Ketoisocaproate[L], a-Keto-b-methylvalerate[H], Methylmalonate[L].

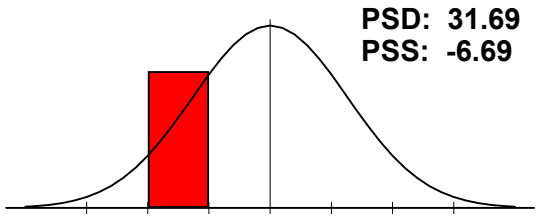
This panel profileis often due to poor amino acid metabolism or a lack of quality protein in the diet.



Carbohydrate Metabolism

Lactate[L], Pyruvate[H], a-Hydroxybutyrate, b-Hydroxybutyrate.

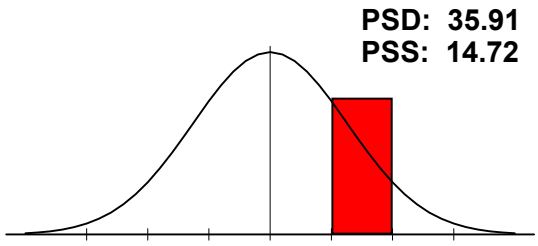
This profile may be due to poor carbohydrate metabolism or intake. It may also be due to low levels of physical activity or in well conditioned athletes.



Citric Acid Cycle

Citrate[H], cis-Aconitate, Isocitrate, a-Ketoglutarate[L], Succinate[L], Fumarate[H], Malate, Hydroxymethylglutarate.

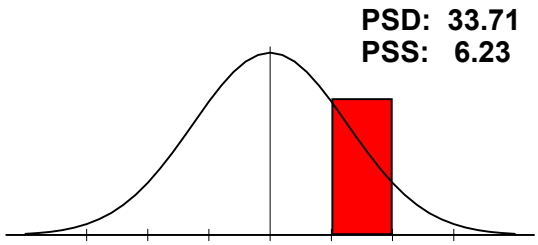
This panel profile result may be due to a breakdown in the Citric Acid Cycle. Supplementation with specific amino acid combinations and precursor vitamins and minerals may help to reverse this imbalance. Review the Nutritional Support section for further details.



Intestinal Dysbiosis

Hippurate, Benzoate[L], p-Hydroxybenzoate[H], p-Hydroxyphenyllactate[H], Phenylacetate[L], Phenylpropionate, p-Cresol[L], Tricarballylate[L].

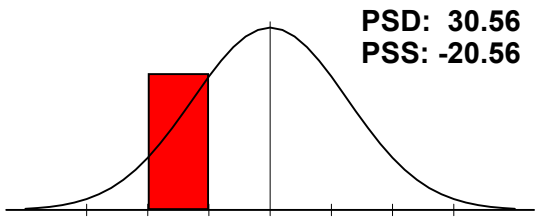
This panel profile may be indicative of intestinal dysbiosis. Poor absorption and metabolism of proteins, fats and carbohydrates may occur. A review of potential bacteria, protozoa, Clostridial spp., yeast or fungus may be necessary.



Lipid Metabolism

Adipate[L], Suberate, Ethylmalonate[L].

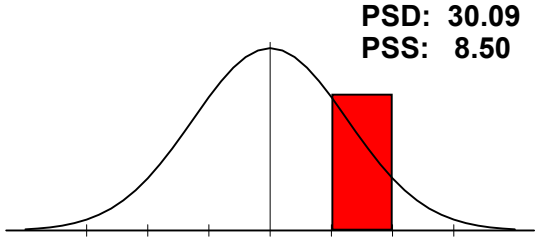
This profile may indicate inefficient metabolism of fats.



Liver Detox Indicators

2-Methylhippurate[H], P-Hydroxyphenylacetate, Orotate, Pyroglutamate, Sulfate[L].

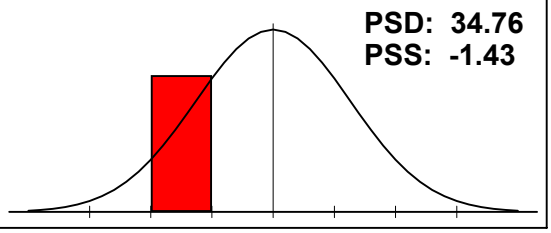
This panel profile may be due in part to environmental toxins, improper regulation of cell growth, hereditary deficiencies, and a depressed ability of the liver to detoxify itself. A program of detoxification may be helpful in this case. Review Nutritional Status for additional recommendations.



Neurotransmitters

Vanillylmandelate[H], Homovanillate[L], 5-Hydroxyindoleacetate[L].

The panel profile seen here may be indicative of low levels of the neurotransmitters, serotonin, epinephrine and norepinephrine. See Nutritional Support section for recommended nutrients, especially amino acid precursors like 5-HTP, tyrosine and phenylalanine.



This report "MATCHES" clinical observations with the lab test. Elements shown, normal and abnormal, tend to characterize the observation. Highlighted elements are those reported to "MATCH" the characteristics of the clinical observation. Others are NOT matches but are elements in the observation.

Cystathioninuria (270.4) — 100.00% (1 of 1)

Decreased	*Normal*	*Increased*
		50.00 Cystathionine - P

Depression () — 100.00% (4 of 4)

Decreased	*Normal*	*Increased*
-38.00 Methionine - P		
-38.42 Phenylalanine - P		
-53.33 Tryptophan - P		
-32.86 Tyrosine - P		

Fatigue/Low Cellular Energy Production () — 100.00% (1 of 1)

Decreased	*Normal*	*Increased*
-33.33 Aspartic Acid - P		

Impaired Ca+ and Zn Transport () — 100.00% (2 of 2)

Decreased	*Normal*	*Increased*
-49.00 Anserine - P		
-49.00 Carnosine - P		

Mild Hyperammonemia () — 100.00% (1 of 1)

Decreased	*Normal*	*Increased*
-48.10 Glutamic Acid - P		

Potential Excessive Oxidative Damage () — 100.00% (1 of 1)

Decreased	*Normal*	*Increased*
-50.50 Taurine - P		

Potential Rheumatoid Arthritis () — 100.00% (1 of 1)

Decreased	*Normal*	*Increased*
-42.86 Histidine - P		

Review Cardiovascular Risk Factors () — 66.67% (4 of 6)

Decreased	*Normal*	*Increased*
	-22.09 HDL-Cholesterol	**31.00 Cholesterol**
		13.64 Glucose
		98.74 Triglycerides
		-12.07 Uric Acid
		33.82 LDL

This report "MATCHES" clinical observations with the lab test. Elements shown, normal and abnormal, tend to characterize the observation. Highlighted elements are those reported to "MATCH" the characteristics of the clinical observation. Others are NOT matches but are elements in the observation.

Review Cardiovascular Risk Factors (continued)

Review family history or personal history of cardiovascular risk factors such as smoking, excessive alcohol intake, high fat diet, and/or sedentary lifestyle.