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Female Patient

Date: 4/29/2009

Next Test Due: 10/28/2009

LabAssist™ Organic Acids & Environmental Pollutants Report

Patient

Printed on Friday, August 14, 2009 for:

US BioTek Laboratories

13500 Linden Ave North
Seattle, WA 98133
206-365-1256
206-363-8790 (fax)

If there is a problem with this report, please contact us as soon as possible at: (775) 851-3337 or Fax (775) 851-3363

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Basic Status High/Low - Environmental Pollutants Exposure on 4/29/2009

Female Patient

Organic Acids & Environmental Pollutants Date: 4/29/2009

Female / Age: 55

US BioTek Laboratories (7045)

Client ID: (32693)

206-365-1256

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

Low Results

		% Status	Result	Low	High
-80	-60	-40	-20	0	
		Hippurate	-68.39 L	15.17	40.00 175.00
		3,4-Dimethylhippurate	-50.00 L	0.00	0.00 0.40

-25%

High Results

		% Status	Result	Low	High
-20	0	20	40	60	
		Phenylglyoxylate	46.00 H	1.92	0.00 2.00
		Quinolinate	42.22 H	41.50	0.00 45.00
		Phthalate	38.00 H	0.88	0.00 1.00
		p-Hydroxybenzoate	37.00 H	0.87	0.00 1.00
		2-Methylhippurate	36.43 H	2.42	0.00 2.80
		M + P	30.88 H	2.75	0.00 3.40

25%

Basic Status High/Low - Urine Organic Acid on 4/29/2009

Female Patient

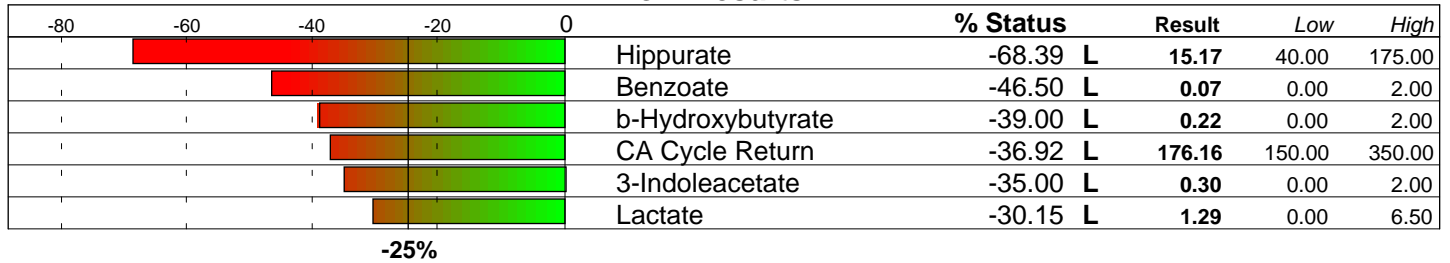
Organic Acids & Environmental Pollutants Date: 4/29/2009

Female / Age: 55

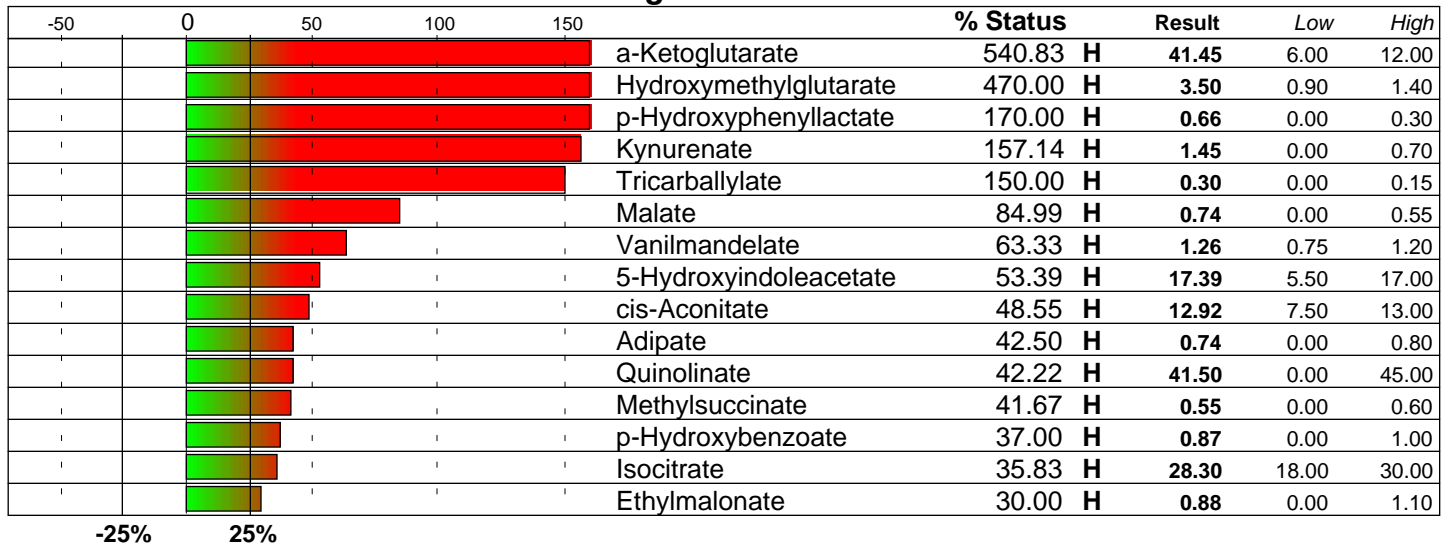
US BioTek Laboratories (7045)

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

Low Results



High Results



Basic Status Alphabetic - Environmental Pollutants Exposure on 4/29/2009

Female Patient

Organic Acids & Environmental Pollutants Date: 4/29/2009

Female / Age: 55

US BioTek Laboratories (7045)

The % Status is the weighted deviation of the laboratory result relative to the range.

-100 -50 0 50 100		% Status	Result	<i>Low</i>	<i>High</i>
		2-Methylhippurate	36.43 H	2.42	0.00 2.80
		3,4-Dimethylhippurate	-50.00 L	0.00	0.00 0.40
		3-Methylhippurate	-19.63	0.82	0.00 2.70
		Hippurate	-68.39 L	15.17	40.00 175.00
		M + P	30.88 H	2.75	0.00 3.40
		Mandelate	9.29	0.83	0.00 1.40
		Monoethyl Phthalate	-7.00	1.72	0.00 4.00
		Phenylglyoxylate	46.00 H	1.92	0.00 2.00
		Phthalate	38.00 H	0.88	0.00 1.00
		p-Hydroxybenzoate	37.00 H	0.87	0.00 1.00
		Quinolinate	42.22 H	41.50	0.00 45.00
		t,t-Muconic Acid	7.50	0.23	0.00 0.40
-25%	25%	Total Status Deviation	32.70		
		Total Status Skew	8.52		

Client Summary Review
Organic Acids & Environmental Pollutants Date: 4/29/2009

Female Patient

Female / Age: 55

US BioTek Laboratories (7045)

Nutritional Support

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

- | | |
|--|--|
| <input type="checkbox"/> 1-5-HTP
3x daily 100 mg | <input type="checkbox"/> 1-Carnitine + Biotin
See Nutrition Detail |
| <input type="checkbox"/> 1-CoEnzyme Q10
2 x daily 50 mg (2x daily 100mg if HMG over 250% elevated) | <input type="checkbox"/> 1-Oral Electrolytes
2x daily |
| <input type="checkbox"/> 1-Phthalate Reduction Protocol
See Nutrition Detail | <input type="checkbox"/> 1-Probiotics
3x daily |
| <input type="checkbox"/> 1-Styrene Detoxification Protocol
See Nutrition Detail | <input type="checkbox"/> 1-Xylene Detoxification Protocol
See Nutrition Detail |

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
Energy Production	151.98%	151.98%
Intestinal Dysbiosis	119.00%	119.00%
Neurotransmitters	67.79%	67.79%
CAC Cycle Ratios	40.86%	-24.86%
Water Sources	30.02%	13.35%
Phthalates	29.07%	24.41%
Fatty Acid Metabolism	28.01%	20.32%
Paint and Solvents	26.45%	16.63%
Plastic Sources	26.23%	23.43%

Lab Reported out-of-range Values

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

a-Ketoglutarate (540.83%)

High levels of this organic acid may be indicative of poor amino acid metabolism or a need for both B-complex and lipoic acid.

Hydroxymethylglutarate (470.00%)

This organic acid, when high, may be indicative of a low level of Coenzyme Q10, statin drug use or mitochondrial dysfunction.

p-Hydroxyphenyllactate (170.00%)

High levels of this organic acid are indicative of an ongoing pro-oxidative response. Increased tissue growth, oxidative challenges due to toxicity, inborn errors of metabolism and low levels of vitamin C may be reasons for high results.

Kynurenate (157.14%)

A high reading of this by-product of the breakdown of the amino acid tryptophan is consistent with a vitamin B6 deficiency, possible inflammatory processes, interferon-gamma stimulated macrophages or excessive tryptophan supplementation (not 5-HTP). Abnormally high levels can cause and increase in pain sensations and may, in multiple sclerosis patients, be a marker for an exacerbation period.

Tricarballic acid (150.00%)

Elevated levels may be due to an overgrowth of intestinal bacteria. This organic acid binds very tightly to magnesium, possibly zinc and calcium and may induce a deficiency in these important minerals. The bacterium that produces this element is also very fast growing and may cause numerous vitamin and mineral deficiencies. As it may interfere with carbohydrate absorption, a diet low in carbohydrates is suggested.

Malate (84.99%)

A high level of this organic acid may be indicative of a need for certain nutrients such as niacin and Coenzyme Q10. If citrate, fumarate, and a-ketoglutarate are high as well, it may be due to a cytochrome C oxidase deficiency. Elevations of malate are also seen in individuals with Syndrome X. Tartaric acid has also been implicated, although theoretically, to block malate within the citric acid cycle.

Drugs which may have an adverse affect:

Lithium Carbonate

Hippurate (-68.39%)

Low hippurate is not typically indicative of any problems except when benzoate is elevated which would suggest poor conjugation with glycine and possibly impaired Phase II detoxification capacity.

Hippurate (-68.39%)

Low hippurate is not typically indicative of any problems except when benzoate is elevated which would suggest poor conjugation with glycine and possibly impaired Phase II detoxification capacity.

Vanilmandelate (63.33%)

This result is seen with chronic stress, increased catecholamine synthesis, elevated caffeine ingestion, as well as the use of ephedra, and pseudoephedrine found in decongestants. 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, Reserpine

CA Cycle Phase 6 (-60.02%)

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.

5-Hydroxyindoleacetate (53.39%)

An elevation of this metabolite of the breakdown of serotonin may be due to the use of serotonin-specific re-uptake inhibitor (SSRI) drugs or the release of serotonin from the central nervous system, intestinal argentaffin cells or platelets.

Drugs which may have an adverse affect:

Acetaminophen, Prozac, Reserpine

CA Cycle Phase 1 (51.23%)

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 arginase enzyme deficiency.

3,4-Dimethylhippurate (-50.00%)

A low reading such as this is desirable for this marker although it may indicate an inability to excrete the solvent trimethylbenzene.

Nutrition - Detail

Female Patient

Organic Acids & Environmental Pollutants Date: 4/29/2009

Female / Age: 55

US BioTek Laboratories (7045)

Nutritional and herbal information contained in this report is based upon research related to imbalances in your chemistry. The recommendations are based upon the information provided, without interpretation. This must be done with the help of a qualified health care professional.

1-5-HTP 3x daily 100 mg

5-HTP

5-Hydroxytryptophan is indicated due to the high level of 5-HIAA in urine which suggests serotonin catabolism and a possible loss of tryptophan reserves.

Decreased

Rationale

Normal

Increased

5-Hydroxyindoleacetate

1-Carnitine + Biotin See Nutrition Detail

L-CARNITINE + BIOTIN

Carnitine is sometimes considered a non-essential amino acid which is synthesized in the liver and kidneys from lysine, methionine and other nutrients. It is critical in the metabolism of fat and transport of long-chain essential fatty acids as well as being cardiac protective. Biotin is an important addition anytime you take carnitine to avoid stimulating gluconeogenesis. You need to take 1 mg of biotin for every 500 mg of carnitine.

Adults should take 1-2 grams of carnitine with 2-4 milligrams of biotin daily

Children should take 500 mg to 1 gram of carnitine with 1-2 milligrams of biotin daily

Decreased

Normal

Increased

Suberate

Adipate
Ethylmalonate

1-CoEnzyme Q10 2 x daily 50 mg 2x daily 100mg if HMG over 250% elevated

COENZYME Q10

CoEnzyme Q10 is an essential component of the mitochondria of the energy producing unit of the cell. Its beneficial effects include increased energy, as well as prevention of cardiovascular disease and cancer.

Clinical responses may take up to 8 weeks according to some research so patience is necessary during supplementation.

Decreased

Normal

Increased

Hydroxymethylglutarate

1-Oral Electrolytes 2x daily

ORAL ELECTROLYTES

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. In many cases of intestinal dysbiosis, alkalizing the system with electrolytes may aid in dislodging the microbiota from the gut wall.

Decreased

Normal

Increased

Tricarballylate

Nutrition - Detail

Female Patient

Organic Acids & Environmental Pollutants Date: 4/29/2009

Female / Age: 55

US BioTek Laboratories (7045)

Nutritional and herbal information contained in this report is based upon research related to imbalances in your chemistry. The recommendations are based upon the information provided, without interpretation. This must be done with the help of a qualified health care professional.

1-Phthalate Reduction Protocol See Nutrition Detail

PHTHALATE REDUCTION PROTOCOL

Phthalates are ubiquitous chemicals found wherever plastics are found. They are powerful endocrine disruptors as well as potentially damaging to developing fetuses. Avoidance of plastics while very difficult is an important first step in lowering body burden. Never microwave or heat food in a plastic container. Improving both phase I and phase II detoxification is also critical.

Recommendations:

Adults

Amino Acids - 5-10 grams of a broad spectrum supplement with glycine

Broad Spectrum Antioxidants - 2x daily

Increased Fluid Intake preferably with an electrolyte added

Avoid Salicylates

Vitamin E - 400 IU 2x daily (mixed tocopherols)

Magnesium - 200 mg daily

Zinc - 25 mg daily

Children

Amino Acids - 2 grams of a broad spectrum supplement with glycine

Broad Spectrum Antioxidants - 1x daily

Increased Fluid Intake preferably with an electrolyte added

Avoid Salicylates

Vitamin E - 400 IU 1x daily (mixed tocopherols)

Magnesium - 125 mg daily

Zinc - 15 mg daily

Decreased

Rationale

Normal

Monoethyl Phthalate

Increased

Phthalate

1-Probiotics 3x daily

PROBIOTICS

A comprehensive probiotic protocol has shown promise in relieving intestinal bacteria and parasitic infections. It is important to use a broad spectrum of probiotic organisms with a high concentration, preferably 20-25 billion of live organisms per capsule.

Decreased

Normal

Increased

Tricarballylate

1-Styrene Detoxification Protocol See Nutrition Detail

STYRENE DETOXIFICATION PROTOCOL

Styrene detoxification requires an increased level of glutathione. In order to effectively increase glutathione levels it is necessary to supply both the necessary amino acids (cysteine, glutamic acid and glycine) as well as the nutrients (pyridoxine, riboflavin and folic acid) to make the conversion.

Adult

Broad Spectrum Amino Acid - 5-10 grams daily

Glycine - 500 mg twice daily

N-acetyl-cysteine - 500 mg twice daily

B-complex - twice daily

Vitamin E - 400 IU once daily (mixed tocopherols)

Vitamin C - 500 mg twice daily

Selenium - 200 mcg once daily

Children

Broad Spectrum Amino Acid - 2 grams daily

Glycine - 250 mg twice daily

N-acetyl-cysteine - 250 mg once daily

B-complex - 1 time daily

Vitamin E - 200 IU once daily (mixed tocopherols)

Vitamin C - 500 mg 1 time daily

Decreased

Normal

Mandelate

Increased

M + P

Phenylglyoxylate

Nutrition - Detail

Female Patient

Organic Acids & Environmental Pollutants Date: 4/29/2009

Female / Age: 55

US BioTek Laboratories (7045)

Nutritional and herbal information contained in this report is based upon research related to imbalances in your chemistry. The recommendations are based upon the information provided, without interpretation. This must be done with the help of a qualified health care professional.

1-Xylene Detoxification Protocol See Nutrition Detail

XYLENE DETOXIFICATION PROTOCOL

Xylene, a ubiquitous petrochemical solvent, is first oxidized via p450 enzymes then conjugated with glycine to form 2- and 3-methylhippurate.

The following nutritional support is recommended to help with the excretion of this toxin.

Adults

Glycine - 500 mg 2 - 3 times daily

Increased fluid intake, preferably with added electrolytes

Broad Spectrum Antioxidants - 2 times daily

make sure the antioxidants include Vitamins C, E and Selenium

Children

Glycine 250 mg 2 times daily

Broad Spectrum Antioxidants - 1 time daily

Rationale

Decreased

Normal

3-Methylhippurate

Increased

2-Methylhippurate

Drug Interactions

Female Patient

Organic Acids & Environmental Pollutants Date: 4/29/2009

Female / Age: 55

US BioTek Laboratories (7045)

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.

Acetaminophen
Prozac

Insulin
Reserpine(2)

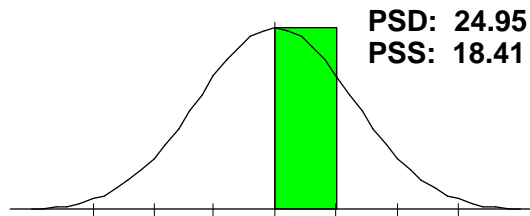
Lithium Carbonate(2)
Time-Released Meds

Methotrexate

Automotive Sources

2-Methylhippurate[H], 3-Methylhippurate, Mandelate,
Phenylglyoxylate[H], M + P[H], t,t-Muconic Acid.

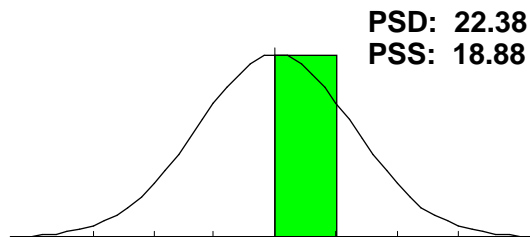
Car exhaust is a leading source of environmental solvent exposure. Running on busy streets next to traffic, commuting in heavy traffic, and living in large urban areas are sources of exposure.



Cosmetic Sources

Phthalate[H], Monoethyl Phthalate, p-Hydroxybenzoate[H],
t,t-Muconic Acid.

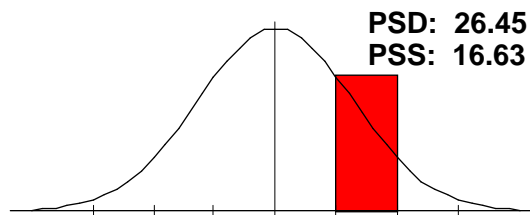
A number of cosmetics are made using parabens, phthalates and benzene derivatives. Careful avoidance of those cosmetics is warranted if this panel is elevated. A resource to find out more about this topic is the website run by the Environmental Working Group, www.ewg.org and their report Skin Deep.



Paint and Solvents

3-Methylhippurate, Mandelate, Phenylglyoxylate[H], M + P[H].

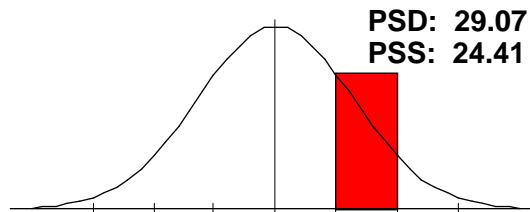
Paints and solvents are often found with styrene and xylene. Airing out a newly painted house is advisable. Also, for anyone using paints and solvents, make sure the place they are using them is well-ventilated.



Phthalates

Phthalate[H], Monoethyl Phthalate, Quinolate[H].

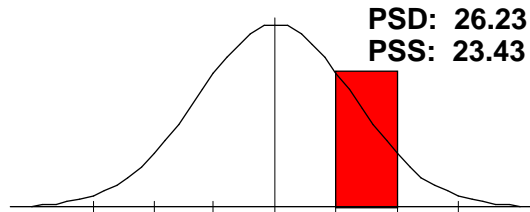
High levels of phthalates have been connected to a number of health issues. Avoidance is critical and detoxification may be necessary.



Plastic Sources

Phthalate[H], Monoethyl Phthalate, Mandelate, Phenylglyoxylate[H],
M + P[H].

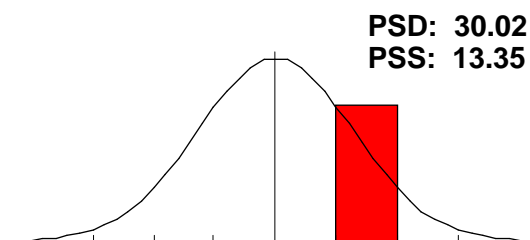
Plastics are often made with styrene and phthalates. If this panel is elevated, it is suggested that the patient should avoid heating plastics in the microwave, leaving plastic water bottles in the car, and drinking hot liquids out of styrofoam cups.



Water Sources

t,t-Muconic Acid, Mandelate, Phenylglyoxylate[H], M + P[H],
2-Methylhippurate[H], 3,4-Dimethylhippurate[L].

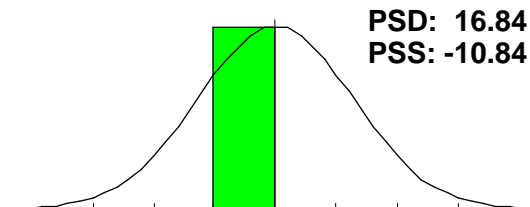
According to research, many water supplies worldwide are tainted with a number of petrochemicals including, but not limited to trimethylbenzene, toluene, styrene, and benzene. A high reading of this panel may warrant testing of the patient's water supply.



B-Complex Markers

b-Hydroxyisovalerate, a-Ketoisovalerate, a-Ketoisocaproate,
a-Keto-b-methylvalerate, Methylmalonate.

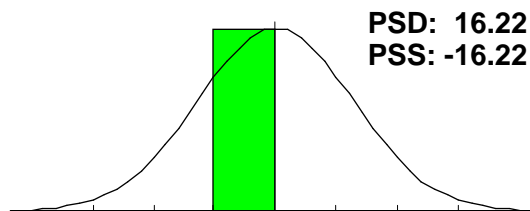
A normal panel profile such as this is an indicator of adequate intake of B-complex vitamins.



BCAA Catabolism

a-Ketoisovalerate, a-Ketoisocaproate, a-Keto-b-methylvalerate.

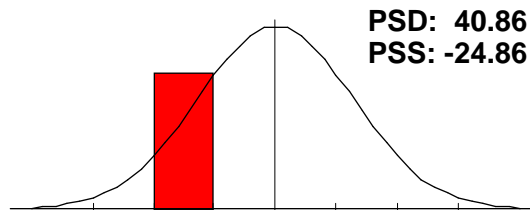
A normal reading in this panel suggest proper amino acid stores.



CAC Cycle Ratios

CA Cycle Phase 1[H], CA Cycle Phase 2, CA Cycle Phase 3[L], CA
Cycle Phase 4[L], CA Cycle Phase 5[L], CA Cycle Phase 6[L], CA
Cycle Return[L].

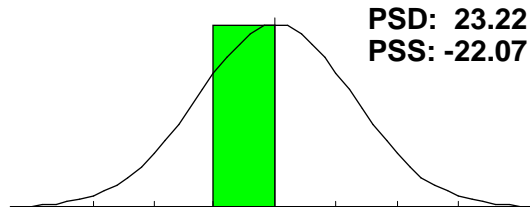
This panel reflects steps of the citric acid cycle. A low reading may be indicative of poor energy production and/or vitamin, mineral and amino acid deficiencies.



Carbohydrate Metabolism

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

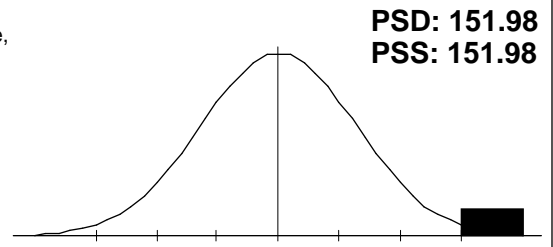
A normal reading is consistent with the proper metabolism of dietary carbohydrates.



Energy Production

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

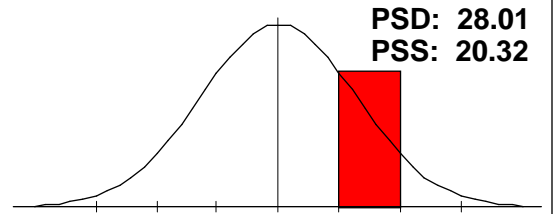
This panel profile result may be due to a breakdown in the Citric Acid Cycle. Supplementation with specific amino acid combinations and precursor vitamins and minerals may help to reverse this imbalance. Review the Nutritional Support section for further details.



Fatty Acid Metabolism

Adipate[H], Suberate, Ethylmalonate[H].

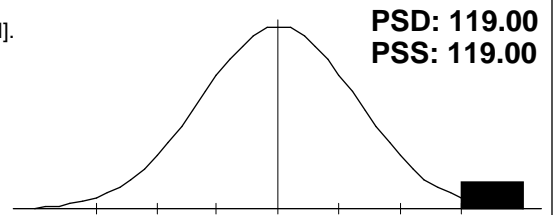
These urinary markers give us a picture into the metabolism of fatty acids. Elevated results are indicative of an abnormal metabolism of fatty acids and may indicate the need for additional carnitine and riboflavin. Careful review of fatty acid supplementation may be helpful as well.



Intestinal Dysbiosis

p-Hydroxyphenyllactate[H], Tricarballylate[H], p-Hydroxybenzoate[H].

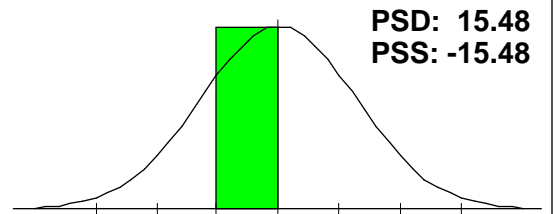
This panel profile may be indicative of intestinal dysbiosis. Poor absorption and metabolism of proteins, fats and carbohydrates may occur. A review of potential bacteria, protozoa, Clostridial spp., yeast or fungus may be necessary.



Liver Detox Indicators

Orotate, Pyroglutamate, a-Hydroxybutyrate.

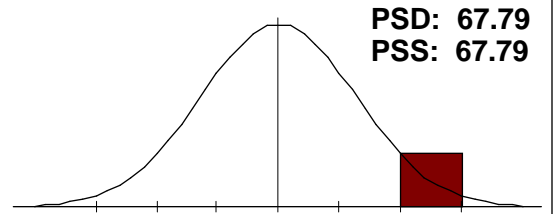
A normal liver detox panel is consistent with good liver detoxification processes.



Neurotransmitters

Vanilmandelate[H], Homovanillate, 5-Hydroxyindoleacetate[H], Kynurenate[H], Quinolate[H].

The panel profile seen here may be due to the use of serotonin re-uptake inhibitors such as Prozac or poor catecholamine catabolism.



Clinical Correlation

Female Patient

Organic Acids & Environmental Pollutants Date: 4/29/2009

Female / Age: 55

US BioTek Laboratories (7045)

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.

Chronic Stress Disorder ()

66.67% (2 of 3)

Decreased

Normal

Increased

63.33 Vanilmandelate

22.86 Homovanillate

53.39 5-Hydroxyindoleacetate

Mitochondrial Inefficiencies ()

66.67% (2 of 3)

Decreased

Normal

Increased

35.83 Isocitrate

15.64 Citrate

48.55 cis-Aconitate

When this pattern shows up, suspect mitochondrial inefficiencies which may be due to toxicity issues.