



Lab Interpretation, LLC  
18124 Wedge Pkwy, Ste 432  
Reno, NV 89511

(775) 851-3337  
(775) 851-3363 Fax  
www.labinterpretation.com

Date: 12/3/2012  
(Accession #Y'Y'Y'Y'Y'Y')

Next Test Due: 6/3/2013

## ***LabAssist™ Organic Acids & Environmental Pollutants Report***

### ***Practitioner***

---

The information contained in this report is for the exclusive use of addressee and contains confidential, privileged and non-disclosable information. If the recipient of this report is not the addressee or the person responsible for delivering the message to the addressee, such recipient is prohibited from reading or using this message in any way and such recipient is further notified that any dissemination, distribution or copying of this report is strictly prohibited. If you have received this report in error, please notify us immediately by telephone collect and return the original report to us at the address below via the U.S. Postal Service. We will reimburse you for postage. Thank you.

**Basic Status High/Low - Environmental Pollutants Exposure on 12/3/2012**  
**Organic Acids & Environmental Pollutants Date: 12/3/2012**

Female / Age: 23  
 Client ID: (Y'Y'Y')

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

**Low Results**

		-80	-60	-40	-20	0	% Status	Result	Low	High
							-42.36 L	<b>62.60</b>	12.90	663.16
							-38.89 L	<b>0.01</b>	0.00	0.09
							-38.00 L	<b>0.06</b>	0.00	0.50

-25%

**High Results**

		-50	0	50	100	150	% Status	Result	Low	High
							186.36 H	<b>0.26</b>	0.00	0.11
							41.30 H	<b>0.21</b>	0.00	0.23
							40.76 H	<b>5.50</b>	0.00	6.06

-25%

25%

## Basic Status High/Low - Urine Organic Acids on 12/3/2012

### Organic Acids & Environmental Pollutants Date: 12/3/2012

Female / Age: 23

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

#### Low Results

-80	-60	-40	-20	0		% Status	Result	Low	High	
						-54.78	L	1.27	1.82	13.31
						-50.87	L	0.15	0.18	3.98
						-45.59	L	4.30	3.72	16.91
						-42.36	L	62.60	12.90	663.16
						-38.81	L	1.61	1.31	4.01
						-37.97	L	0.19	0.00	1.58
						-34.32	L	0.48	0.30	1.45
						-33.14	L	2.65	2.07	5.53
						-30.00	L	0.38	0.00	1.90
						-29.59	L	0.94	0.62	2.19

-25%

#### High Results

-50	0	50	100	150		% Status	Result	Low	High	
						138.95	H	35.45	5.70	21.45
						93.48	H	0.99	0.00	0.69
						86.36	H	0.30	0.00	0.22
						85.09	H	0.77	0.00	0.57
						68.30	H	7.71	0.61	6.61
						48.01	H	6.45	1.34	6.55
						46.70	H	2.27	0.34	2.34
						45.93	H	6.75	0.15	7.03
						42.38	H	0.60	0.14	0.64
						40.76	H	5.50	0.00	6.06

-25%

25%

## Basic Status Alphabetic - Environmental Pollutants Exposure on 12/3/2012

### Organic Acids & Environmental Pollutants Date: 12/3/2012

Female / Age: 23

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

-100	-50	0	50	100	% Status	Result	Low	High
		█				2-Methylhippurate		
		█				3,4-Dimethylhippurate		
		█	█			<b>3-Methylhippurate</b>	<b>41.30 H</b>	<b>0.21</b>
	█	█	█			<b>Hippurate</b>	<b>-42.36 L</b>	<b>62.60</b>
		█				M + P		
		█				Mandelate		
	█	█				<b>Monoethyl Phthalate</b>	<b>-38.89 L</b>	<b>0.01</b>
		█				Phenylglyoxylate		
	█	█				<b>Phthalate</b>	<b>-38.00 L</b>	<b>0.06</b>
		█				p-Hydroxybenzoate		
		█	█			<b>Quinolate</b>	<b>40.76 H</b>	<b>5.50</b>
		█	█	█		<b>t,t-Muconic Acid</b>	<b>186.36 H</b>	<b>0.26</b>
	-25%		25%			<b>Total Status Deviation</b>	<b>36.68</b>	
						<b>Total Status Skew</b>	<b>13.03</b>	

# Basic Status Alphabetic - Urine Organic Acids on 12/3/2012

## Organic Acids & Environmental Pollutants Date: 12/3/2012

Female / Age: 23

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

-100	-50	0	50	100					
					<b>% Status</b>	<b>Result</b>	<b>Low</b>	<b>High</b>	
					2-Hydroxyphenylacetate	-17.20	0.58	0.35	1.04
					<b>3-Indoleacetate</b>	<b>-50.87</b>	<b>L</b>	<b>0.15</b>	0.18
					<b>5-Hydroxyindoleacetate</b>	<b>-45.59</b>	<b>L</b>	<b>4.30</b>	3.72
					Adipate	7.99	1.94	0.46	3.01
					a-Hydroxybutyrate	-8.85	1.23	0.16	2.76
					<b>a-Keto-b-methylvalerate</b>	<b>93.48</b>	<b>H</b>	<b>0.99</b>	0.00
					a-Ketoglutarate	-1.86	86.43	10.40	168.33
					<b>a-Ketoisocaproate</b>	<b>85.09</b>	<b>H</b>	<b>0.77</b>	0.00
					<b>a-Ketoisovalerate</b>	<b>86.36</b>	<b>H</b>	<b>0.30</b>	0.00
					Benzoate	8.54	0.24	0.00	0.41
					<b>b-Hydroxybutyrate</b>	<b>-30.00</b>	<b>L</b>	<b>0.38</b>	0.00
					<b>b-Hydroxyisovalerate</b>	<b>45.93</b>	<b>H</b>	<b>6.75</b>	0.15
					cis-Aconitate	-5.69	25.70	12.02	42.90
					Citrate	-14.15	173.80	37.45	417.79
					Ethylmalonate	-10.34	2.33	1.09	4.22
					Fumarate	-12.85	0.56	0.18	1.20
					<b>Hippurate</b>	<b>-42.36</b>	<b>L</b>	<b>62.60</b>	12.90
					<b>Homovanillate</b>	<b>-33.14</b>	<b>L</b>	<b>2.65</b>	2.07
					<b>Hydroxymethylglutarate</b>	<b>48.01</b>	<b>H</b>	<b>6.45</b>	1.34
					Isocitrate	17.79	33.60	7.81	45.85
					Kynurenate	-0.08	3.13	0.00	6.27
					<b>Lactate</b>	<b>-37.97</b>	<b>L</b>	<b>0.19</b>	0.00
					<b>Malate</b>	<b>-34.32</b>	<b>L</b>	<b>0.48</b>	0.30
					Methylmalonate	7.45	1.28	0.44	1.90
					<b>Methylsuccinate</b>	<b>-29.59</b>	<b>L</b>	<b>0.94</b>	0.62
					<b>Orotate</b>	<b>42.38</b>	<b>H</b>	<b>0.60</b>	0.14
					p-Hydroxybenzoate	12.35	1.83	0.45	2.66
					<b>P-Hydroxyphenylacetate</b>	<b>138.95</b>	<b>H</b>	<b>35.45</b>	5.70
					p-Hydroxyphenyllactate	12.35	0.87	0.31	1.21
					Pyroglutamate	-5.93	14.24	6.66	23.86
					<b>Pyruvate</b>	<b>68.30</b>	<b>H</b>	<b>7.71</b>	0.61
					<b>Quinolate</b>	<b>40.76</b>	<b>H</b>	<b>5.50</b>	0.00
					<b>Suberate</b>	<b>46.70</b>	<b>H</b>	<b>2.27</b>	0.34
					<b>Succinate</b>	<b>-54.78</b>	<b>L</b>	<b>1.27</b>	1.82
					Tricarballylate	20.89	0.56	0.00	0.79
					<b>Vanilmandelate</b>	<b>-38.81</b>	<b>L</b>	<b>1.61</b>	1.31
					<b>Total Status Deviation</b>	<b>36.03</b>			
					<b>Total Status Skew</b>	<b>3.83</b>			

**Client Summary Review**  
**Organic Acids & Environmental Pollutants Date: 12/3/2012**

Female / Age: 23

---

**Nutritional Support**

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

- |  |   |
|--|---|
| <input type="checkbox"/> <b>1-Amino Acid Complex</b><br>5-10 grams daily                 | <input type="checkbox"/> <b>1-B-Complex</b><br>2x daily                                   |
| <input type="checkbox"/> <b>1-BCAA's</b><br>2x daily 500 mg                              | <input type="checkbox"/> <b>1-Benzene Detoxification Protocol</b><br>See Nutrition Detail |
| <input type="checkbox"/> <b>1-Thiamine</b><br>1x daily 150 mg                            | <input type="checkbox"/> <b>1-Tyrosine</b><br>2x daily 500 mg                             |
| <input type="checkbox"/> <b>1-Xylene Detoxification Protocol</b><br>See Nutrition Detail | <input type="checkbox"/> <b>2-5-Hydroxytryptophan</b><br>2x daily 100 mg                  |

## Practitioner Summary Review

Organic Acids & Environmental Pollutants Date: 12/3/2012

Female / Age: 23

### 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
BCAA Catabolism	88.31%	88.31%
Personal Care Products	70.50%	32.06%
B-Complex Markers	63.66%	63.66%
CAC Cycle Ratios	41.63%	-20.59%
Automotive Sources	41.30%	38.29%
Phthalates	39.22%	-12.04%
Water Sources	36.69%	29.13%
Carbohydrate Metabolism	36.28%	-2.13%
Neurotransmitters	31.67%	-15.37%

### Lab Reported out-of-range Values

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

#### **t,t-Muconic Acid ( 186.36%)**

trans,trans muconic acid is a marker for benzene exposure, a component of crude and refined petroleum. Exposure can come from many sources including oil refineries, petroleum plants, tire manufacturers, paint and shoe producing plants, gas stations, cigarette smoke inhalation, and high traffic areas. Benzene has been shown to be carcinogenic and genotoxic as well as depressing red blood cells and hemoglobin. It has also been implicated in bone marrow depression as well as affecting the central nervous system.

#### **P-Hydroxyphenylacetate ( 138.95%)**

Elevated levels may be indicative of overgrowth of intestinal bacterial or protozoa especially Giardia lamblia, Clostridium difficile, Proteus vulgaris ileal resection with blind loop, and other small intestine infestations of anaerobic bacteria. Other possibilities is that these results are due to malabsorption of tyrosine due to HCL deficiency, overuse of antibiotics, or lactose intolerance.

#### **a-Keto-b-methylvalerate ( 93.48%)**

This organic acid may be elevated due to poor amino acid metabolism. Supplementation with a B complex may be necessary as well as additional intake of thiamine (B1)

#### **a-Ketoisovalerate ( 86.36%)**

This organic acid may be elevated due to poor amino acid metabolism. Supplementation with a B complex may be necessary as well as additional intake of thiamine (B1)

#### **a-Ketoisocaproate ( 85.09%)**

This organic acid may be elevated due to poor amino acid metabolism. Supplementation with a B complex may be necessary as well as additional intake of thiamine (B1)

#### **Pyruvate ( 68.30%)**

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. High results are also seen in anorexia and other undereating disorders.

#### **CA Cycle Phase 6 ( -60.22%)**

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.

#### **CA Cycle Return ( 56.04%)**

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.

#### **Succinate ( -54.78%)**

A low reading of this organic acid may be indicative of a need for BCAA's (Branched Chain Amino Acids), especially leucine and isoleucine.

**Practitioner Summary Review (continued)**  
**Organic Acids & Environmental Pollutants Date: 12/3/2012**

Female / Age: 23

---

**3-Indoleacetate ( -50.87%)**

No known health issues are related to low levels of 3-Indoleacetate.



## Nutrition - Detail

### Organic Acids & Environmental Pollutants Date: 12/3/2012

Female / Age: 23

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 your qualified health care professional.

#### 1-Amino Acid Complex 5-10 grams daily

A pattern suggesting amino acid insufficiency may be due to inadequate protein intake, chronic illness or malabsorption. Review dietary intake, assess bacterial flora for adequate balance and the presence of pathogens, and evaluate digestive/pancreatic function. Intake of an individualized free-form amino acid supplement with appropriate nutrient cofactors is advised.

Decreased

#### Rationale

Normal

Increased

CA Cycle Return

#### 1-B-Complex 2x daily

B complex vitamins are involved in a broad spectrum of cell metabolic deficiencies as well as amino acid utilization. These organic acids are the analytes of Isoleucine, Leucine and Valine. If these keto-acids are high, indications are that there is a functional deficiency of many of the B vitamins, especially B1, B2, B3, and B5.

Decreased

Normal

Increased

a-Ketoisovalerate  
a-Keto-b-methylvalerate  
a-Ketoisocaproate

#### 1-BCAA's 2x daily 500 mg

Depressed succinate levels is suggestive of a deficiency of branched chain amino acids. An addition of 500 mg of a combination of Leucine, Isoleucine and Valine, twice a day is recommended.

Decreased

Normal

Increased

Succinate

#### 1-Benzene Detoxification Protocol See Nutrition Detail

Benzene's toxicity can be accentuated by both phenol and hydroquinones so avoidance of these in your diet is critical. These include alcohol, coffee, and black tea. Cigarette smoke is a common source of both benzene and phenol compounds which makes it so carcinogenic.

Decreased

Normal

Increased

t,t-Muconic Acid

Another important issue to address is gut health when dealing with elevated benzene markers as some pathogenic gut bacteria can biotransform certain amino acids (tyrosine) into phenol compounds.

#### Recommendations

Adult:

Probiotics - Twice daily

Glutathione - 300 mg twice daily

Alpha lipoic acid - 100 mg twice daily

Selenium - 200 mcg daily

Vitamin E - 400 IU twice daily (mixed tocopherols)

Vitamin C - 500 mg twice daily

Glycine - 500 mg twice daily

After 4-6 weeks, an amino acid complex with glycine 5-10 grams daily

Sauna, increased fluids and electrolytes are also critical.

Children

Adult:

Probiotics - Twice daily

Alpha lipoic acid - 50 mg 1 time daily

Vitamin E - 200 IU twice daily (mixed tocopherols)

Vitamin C - 250 mg twice daily

Glycine - 250 mg twice daily

#### 1-Thiamine 1x daily 150 mg

Thiamine helps with nervous system function, energy production, synthesis of lipids, acetylcholine and triphosphate. Active in maintenance of cardiac, muscular, nervous and gastrointestinal systems.

Decreased

Normal

Increased

a-Keto-b-methylvalerate

**Nutrition - Detail**  
**Organic Acids & Environmental Pollutants Date: 12/3/2012**

Female / Age: 23

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 your qualified health care professional.

**1-Tyrosine** 2x daily 500 mg

Tyrosine is an amino acid which is essential to the synthesis of protein, catecholamines, melanin, and thyroid hormones. Vitamin C and folic acid are essential to its metabolism. The formation of thyroid hormone is dependent upon the absorption and sequestering of iodine which then attaches to tyrosine to form thyroxine.

Decreased  
Vanilmandelate  
Homovanillate

**Rationale**  
**Normal**

Increased

**1-Xylene Detoxification Protocol** See Nutrition Detail

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 - 3 times daily

Children

Glycine 250 mg 2 times daily

Broad Spectrum Antioxidants - 1 time daily

make sure the antioxidants include Vitamins C, E and Selenium

Decreased

Normal

2-Methylhippurate

Increased

3-Methylhippurate

**2-5-Hydroxytryptophan** 2x daily 100 mg

Serotonin is an important neurotransmitter made from the amino acid Tryptophan. 5-Hydroxyindoleacetate is a metabolite of serotonin so a low result of this organic acid may indicate a tryptophan deficiency.

Decreased  
5-Hydroxyindoleacetate

Normal

Increased

**Drug Interactions**  
**Organic Acids & Environmental Pollutants Date: 12/3/2012**

Female / Age: 23

---

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.

Clonidine  
Methyldopa(2)

Haloperidol  
Reserpine

Imipramine(2)

MAO Inhibitors(2)

**Panel/Subset Report**  
**Organic Acids & Environmental Pollutants Date: 12/3/2012**

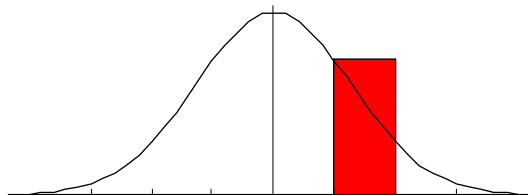
Female / Age: 23

**Automotive Sources**

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

**PSD: 41.30**  
**PSS: 38.29**

This panel ascertains the level of automotive-sourced toxins within your cells. The leading source is car exhaust. Other sources include: jogging on busy streets next to traffic, commuting in heavy traffic, and living in large urban areas. This profile may indicate a high level of intracellular toxins. Strongly consider an appropriate detoxification protocol.

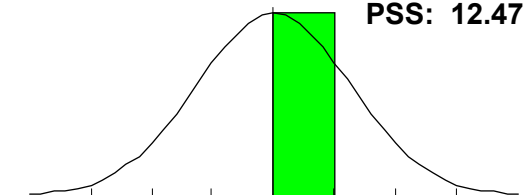


**Paint and Solvents**

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

**PSD: 13.72**  
**PSS: 12.47**

This panel ascertains the level of paint and solvent toxins within your cells. Paints and solvents are often found with styrene and xylene. Airing out a newly painted house is advisable. When using paints and solvents, always ensure the work space is well-ventilated and wear an appropriate mask. This profile shows a percent imbalance below 25%, so no abnormalities were found.

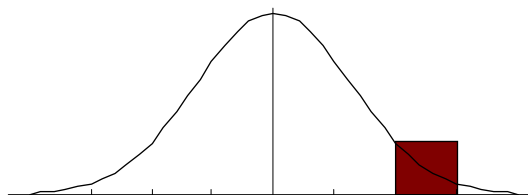


**Personal Care Products**

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

**PSD: 70.50**  
**PSS: 32.06**

This panel ascertains the intracellular toxins from cosmetic sources. Common toxins include: parabens, phthalates and benzene derivatives. To learn more about this topic, visit the Environmental Working Group, ([www.ewg.org](http://www.ewg.org)) and read their report "Skin Deep." This profile likely indicates high cosmetic toxin levels within your cells. Strongly consider appropriate detoxification protocol.

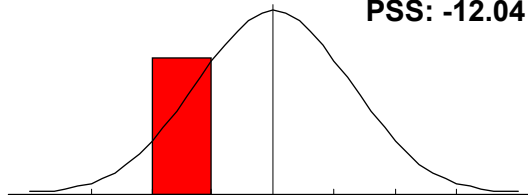


**Phthalates**

Phthalate[L], Monoethyl Phthalate[L], Quinolinate[H].

**PSD: 39.22**  
**PSS: -12.04**

Phthalates are a commonly found in everyday things including: plastic items, scented items like air fresheners & candles, and personal care products. Phthalates disrupt the endocrine system and lowers testosterone in fetuses. This profile may indicate a low exposure or poor excretion. If your hippurate is low, it's likely poor excretion. Consider an appropriate detoxification protocol.

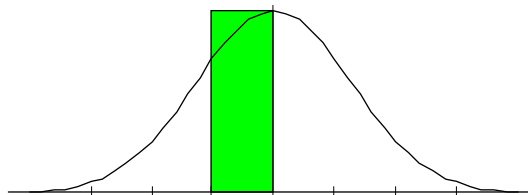


**Plastic Sources**

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

**PSD: 18.10**  
**PSS: -13.66**

Plastics are made with styrene and phthalates. This panel ascertains the level of intracellular toxins sourced from plastics. Common sources include: microwaving in plastic containers, drinking from plastic bottles, drinking hot liquids from styrofoam cups, etc. This profile shows a percent imbalance below 25%, so no abnormalities were found.



**Panel/Subset Report**  
**Organic Acids & Environmental Pollutants Date: 12/3/2012**

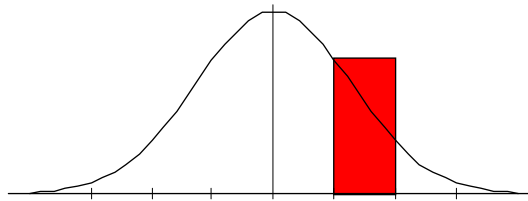
Female / Age: 23

**Water Sources**

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

**PSD: 36.69**  
**PSS: 29.13**

This panel ascertains the level of intracellular toxins sourced from water. Research shows most water supplies worldwide are tainted with a number of petrochemicals including: trimethylbenzene, toluene, styrene, and benzene. This profile likely shows a high level of intracellular toxins. Highly consider an appropriate detoxification protocol. Also consider testing your water supply - even if it is a well.

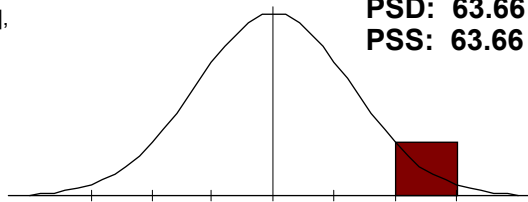


**B-Complex Markers**

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

**PSD: 63.66**  
**PSS: 63.66**

This panel assesses adequate intake of B-complex vitamins. This profile may indicate a need for certain B-complex vitamins. Review your Supplement List Explanation.

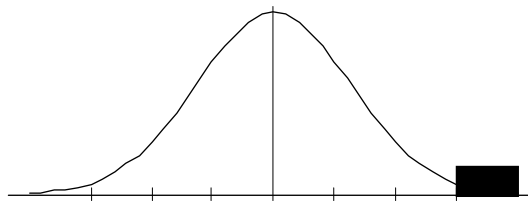


**BCAA Catabolism**

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

**PSD: 88.31**  
**PSS: 88.31**

BCAA's are essential in building muscle and you can only get them from your diet or supplements. This panel assess your BCAA levels and how they're being used. This profile may indicate a lack of B-Complex nutrients necessary to metabolize proteins properly. Review your B-complex markers panel and your Supplement List Explanation.

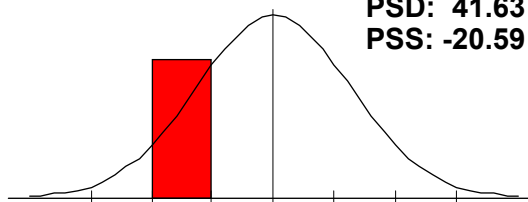


**CAC Cycle Ratios**

CA Cycle Phase 1, 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[H].

**PSD: 41.63**  
**PSS: -20.59**

This panel reviews cellular energy producing cycles to maintain health and weight. This profile may indicate poor energy production and/or vitamin, mineral and amino acid deficiencies.

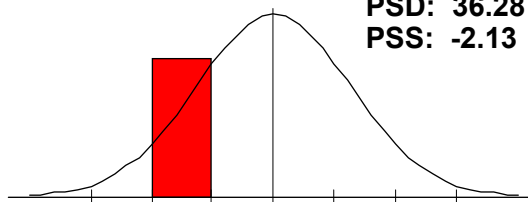


**Carbohydrate Metabolism**

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

**PSD: 36.28**  
**PSS: -2.13**

This panel assesses your body's ability to metabolize dietary carbohydrates. This profile could indicate a low carbohydrate intake. Symptoms include low energy and poor blood sugar control.



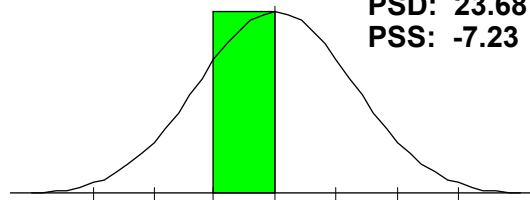
**Panel/Subset Report**  
**Organic Acids & Environmental Pollutants Date: 12/3/2012**

Female / Age: 23

**Energy Production**

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

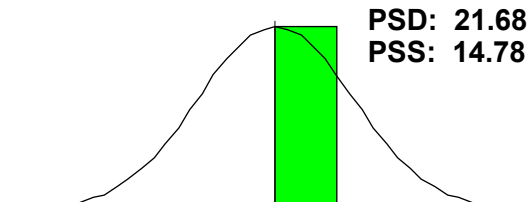
This panel reviews cellular energy producing cycles to maintain health and weight. This profile shows a percent imbalance below 25%, so no abnormalities were found.



**Fatty Acid Metabolism**

Adipate, Suberate[H], Ethylmalonate.

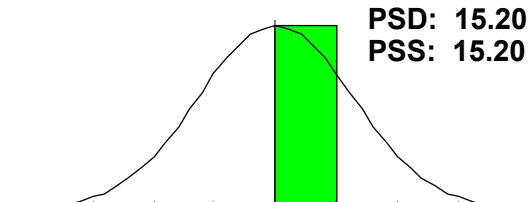
This panel assesses how fats are being broken down and utilized by the body. This profile shows a percent imbalance below 25%, so no abnormalities were found.



**Intestinal Dysbiosis**

p-Hydroxyphenyllactate, Tricarballic acid, p-Hydroxybenzoate.

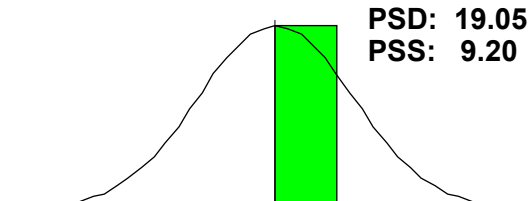
Dysbiosis is an overgrowth of bad bacteria in the gut. It is indicative of gut health. This profile shows a percent imbalance below 25%, so no abnormalities were found.



**Liver Detox Indicators**

Orotate[H], Pyroglutamate, a-Hydroxybutyrate.

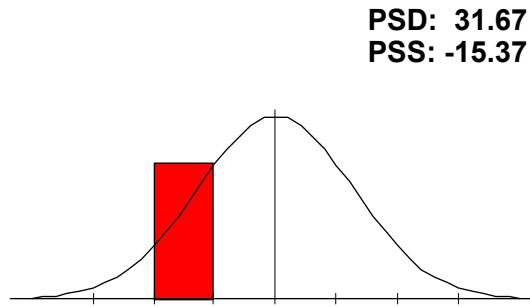
This panel assesses how well your liver removes toxins from your system. This profile shows a percent imbalance below 25%, so no abnormalities were found.



**Neurotransmitters**

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

Neurotransmitters are chemicals the brain uses to make the entire neurological system function - including all body functions. This panel assesses neurotransmitter production. This profile may indicate low levels of the neurotransmitters serotonin, epinephrine and norepinephrine. Supplementation may be helpful. Especially precursors like 5-HTP, tyrosine and phenylalanine. Review your Supplement List Explanation.



**Clinical Correlation**  
**Organic Acids & Environmental Pollutants Date: 12/3/2012**

Female / Age: 23

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.

**Potential Low B-Complex Supply ()**

**80.00% (4 of 5)**

Decreased

Normal

Increased

**86.36 a-Ketoisovalerate**  
**85.09 a-Ketoisocaproate**  
**93.48 a-Keto-b-methylvalerate**  
7.45 Methylmalonate  
**45.93 b-Hydroxyisovalerate**

These markers suggest a low supply of B-vitamins.

**Catecholamine Dysfunction ()**

**66.67% (2 of 3)**

Decreased

Normal

Increased

**-33.14 Homovanillate**  
**-38.81 Vanilmandelate**  
-12.85 Fumarate