NUTRIPATH · PATIENT REPORT
16 Harker St, Burwood VIC, 3125 • info@nutripath.com.au • 1300 688 522

NATA Accreditation: #20770

25286-0005

Dr Test Doctor Test Clinic. 123 Test Street, Test Suburb Victoria 3125

Lab ID
Patient ID PAT-100009
Ext ID 25286-0005

Test Patient

Sex: Female • 45yrs • 01-Jan-80
123 Home Street, Test Suburb Vic 3125

RECEIVED
13-Oct-25

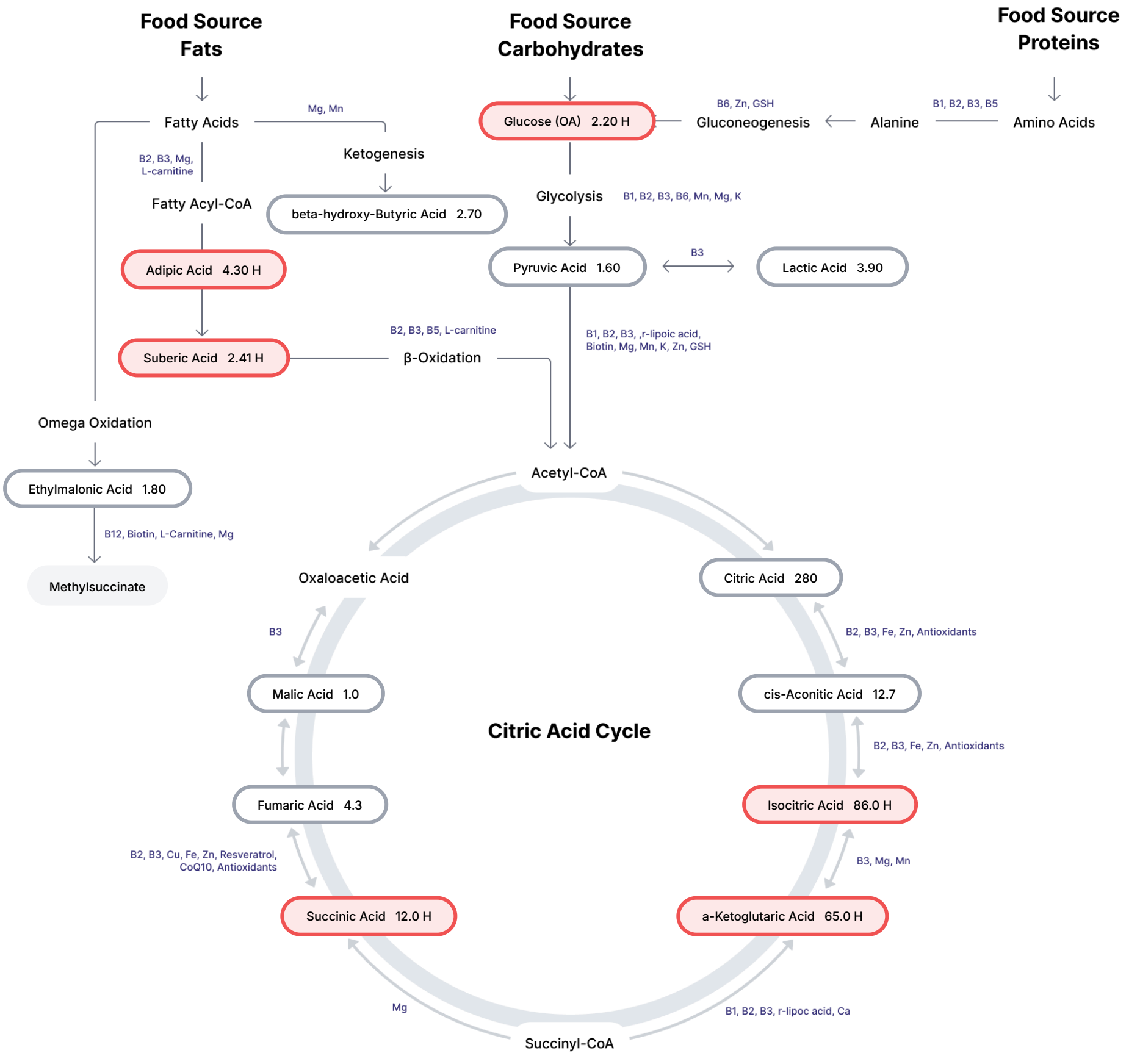
ORGANIC ACIDS

Specimen type - Urine, Spot

Collected
05-Oct-25

Legend Not Tested | Within Range | Out of Range | L = Low, LL = Critically Low | H = High, HH = Critically High | Regulator

Organic Acids Pathway



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CARBOHYDRATES METABOLISM/Glycolysis

(B1, B3, Cr, Lipoic Acid, CoQ10)

	TEST	RESULT	H/L	REFERENCE	UNITS
1	Pyruvic Acid	1.60		(0.50-8.70)	mmol/molCR
2	Lactic Acid	3.90		(<48.00)	mmol/molCR
3	Glucose (OA)	2.20	H	(<1.10)	ug/mgCR

KETONE/FATTY ACIDS METABOLISM

(Carnitine & B2)

	TEST	RESULT	H/L	REFERENCE	UNITS
4	Adipic Acid	4.30	H	(<3.80)	mmol/molCR
5	Suberic Acid	2.41	H	(<2.20)	mmol/molCR
6	Ethylmalonic Acid	1.80		(<5.80)	mmol/molCR
7	Methyl-Succinic Acid	1.60		(<10.80)	mmol/molCR
8	Pimelic Acid	2.30		(<4.00)	mmol/molCR
9	alpha-hydroxy-Butyric Acid	2.80		(<6.90)	mmol/molCR
10	beta-hydroxy-Butyric Acid	2.70		(<3.10)	mmol/molCR

B-COMPLEX VITAMINS/AMINO ACID MARKERS

(B1, B2, B3, B5, B6, B12, Folate, Biotin)

	TEST	RESULT	H/L	REFERENCE	UNITS
11	alpha-Ketoisovaleric Acid	2.3		(<4.1)	mmol/molCR
12	alpha-Ketoisocaproic Acid	0.4		(<0.7)	mmol/molCR
13	alpha-keto-beta-Methylvaleric Acid	0.8		(<2.0)	mmol/molCR
14	Xanthurenic Acid	3.30	H	(<0.96)	mmol/molCR
15	beta-Hydroxyisovaleric Acid	7.2		(<29.0)	mmol/molCR
16	Methylmalonic Acid	3.9	H	(<1.9)	mmol/molCR
17	Formiminoglutamic Acid	1.7	H	(<1.5)	mmol/molCR

CITRIC ACID CYCLE METABOLISM

(B Comp, CoQ10, Amino Acids, Mg)

	TEST	RESULT	H/L	REFERENCE	UNITS
18	Citric Acid	280		(40-507)	mmol/molCR
19	cis-Aconitic Acid	12.7		(3.5-36.0)	mmol/molCR
20	Isocitric Acid	86.0	H	(5.0-65.0)	mmol/molCR
21	a-Ketoglutaric Acid	65.0	H	(4.0-52.0)	mmol/molCR
22	Succinic Acid	12.0	H	(1.0-9.7)	mmol/molCR
23	Fumaric Acid	4.3		(<8.6)	mmol/molCR
24	Malic Acid	1.0		(<1.8)	mmol/molCR

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TEST	RESULT	H/L	REFERENCE	UNITS
25 3-Methylglutaric Acid	3.6		(<8.5)	mmol/molCR

NEUROTRANSMITTER METABOLISM

(Tyrosine, Tryptophan, B6, Antioxidants)

TEST	RESULT	H/L	REFERENCE	UNITS
26 Homovanillic Acid (HVA)	2.9		(0.1-5.3)	mmol/molCR
27 Vanillylmandelic Acid (VMA)	3.7	H	(0.4-3.6)	mmol/molCR
28 5-Hydroxyindoleacetic Acid (5HIAA)	3.0		(<4.3)	mmol/molCR
29 Kynurenic Acid	2.7	H	(<2.2)	mmol/molCR
30 Quinolinic Acid	7.4		(<9.1)	mmol/molCR
31 Picolinic Acid	3.5		(<10.3)	mmol/molCR
32 Cortisol (OA)	44.0		(5.0-65.0)	ug/mgCR

OXIDATIVE DAMAGE/ANTIOXIDANT MARKERS

(Vitamin C, Other Antioxidants)

TEST	RESULT	H/L	REFERENCE	UNITS
33 Parahydroxyphenyllactic Acid	4.60	H	(<3.90)	mmol/molCR
34 8-hydroxy-deoxyguanosine	2.90	H	(<2.70)	mmol/molCR

DETOXIFICATION INDICATORS

(Arg, NAC, Meth, Mg, Antioxidants)

TEST	RESULT	H/L	REFERENCE	UNITS
35 2-Methylhippuric Acid	0.02		(<0.04)	mmol/molCR
36 Orotic Acid	2.55		(0.00-3.20)	mmol/molCR
37 Glucaric Acid	4.60		(<11.00)	mmol/molCR
38 Pyroglutamic Acid	15.90		(4.50-33.00)	mmol/molCR

BACTERIAL DYSBIOSIS MARKERS

TEST	RESULT	H/L	REFERENCE	UNITS
39 Benzoic Acid	29.00	H	(<9.30)	mmol/molCR
40 Hippuric Acid	330.0		(<603.0)	mmol/molCR
41 Phenylacetic Acid	2.40		(0.00-4.16)	mmol/molCR
42 Phenylpropionic Acid	0.60	H	(0.00-0.40)	mmol/molCR
43 ParahydroxyBenzoic Acid	0.00		(<0.57)	mmol/molCR
44 p-HydroxyPhenylacetic Acid	3.90		(0.00-14.60)	mmol/molCR
45 Indoleacetic Acid	6.80		(<11.00)	mmol/molCR
46 Tricarballylic Acid	0.38		(<0.44)	mmol/molCR

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CLOSTRIDIAL SPECIES

TEST	RESULT	H/L	REFERENCE	UNITS
47 DiHydroxyPhenylPropionic Acid	2.98		(<5.30)	mmol/molCR
48 4-Cresol	0.55		(0.00-1.70)	ug/mgCR
49 3-hydroxy-Propionic Acid	3.98		(<17.00)	mmol/molCR

YEAST/FUNGAL DYSBIOSIS MARKERS

TEST	RESULT	H/L	REFERENCE	UNITS
50 Arabinitol	33.0		(<36.0)	mmol/molCR
51 Citramalic Acid	3.1		(<3.6)	mmol/molCR
52 Tartaric Acid	4.9		(<15.0)	mmol/molCR

OXALATE METABOLITES

TEST	RESULT	H/L	REFERENCE	UNITS
53 Oxalic Acid	13.8		(<78.0)	mmol/molCR
54 Glyceric Acid	4.1		(<6.0)	mmol/molCR
55 Glycolic Acid	20.3		(<67.0)	mmol/molCR

NUTRITIONAL MARKERS

TEST	RESULT	H/L	REFERENCE	UNITS
56 Pyridoxic Acid (Vit B6)	5.7		(0.7-34.0)	mmol/molCR
57 Pantothenic Acid (Vit B5)	0.8		(0.1-10.0)	mmol/molCR
58 Glutaric Acid (Vit B2)	0.13		(0.02-0.36)	mmol/molCR
59 Ascorbic Acid (Vit C)	28.00		(0.50-200.00)	mmol/molCR
60 CoEnzyme Q10 (CoQ10)	1.10		(0.10-5.00)	mmol/molCR
61 N-Acetylcysteine (NAC)	0.08		(0.02-0.28)	mmol/molCR
62 Biotin (Vit H)	2.20		(0.10-15.00)	mmol/molCR

TEST	RESULT	H/L	REFERENCE	UNITS
Creatinine, Urine	8.00		(2.47-19.20)	mmol/L

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NUTRITIONAL GUIDE

TEST	RESULT	UNITS	Clinical Notes
Vitamin-E	200.0	U	
Vitamin-B1	15.0	mg	
Vitamin-B2	17.0	mg	
Vitamin-B3	13.0	mg	
Vitamin-B5	10.0	mg	
Vitamin-B6	5.0	mg	
Glycine	5.0	mg	
Glutamine	0.0	mg	
Glutathione	50.0	mg	
Taurine	6.0	mg	
Tyrosine	0.0	mg	
Tryptophan	8.0	mg	
L-Arginine	0.0	mg	
Aspartic Acid	0.0	mg	
Acetyl-L-Carnitine	20.0	mg	
Biotin	0.0	ug	
Chromium	3.0	ug	
Coenzyme Q10	400.0	mg	
Calcium-D-glucurate	0.0	mg	
EPA/DHA	0.0	mg	
Iron	0.0	mg	
Folinic Acid	0.0	ug	
D-Lactate-free probiotics	1.0	billion CFU	
Magnesium	140.0	mg	
Manganese	0.0	mg	
Malic Acid	0.0	ug	
Methionine	6.0	mg	
N-Acetylcysteine	100.0	mg	
Ornithine	10.0	mg	
Vanadium	0.0	ug	
alpha-Lipoic Acid	200.0	mg	
Lysine	0.0	mg	
Lactobacillus	1.0	billion CFU	
5-hydroxy-Tryptophan (5-HTP)	0.0	mg	
Serine	5.0	mg	
Probiotics (Multistrain)	100.0	billion CFU	

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TEST	RESULT	UNITS	Clinical Notes
Phenylalanine	**0.0**	mg	
Vitamin-C	**400.0**	mg	

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Ketone/Fatty Acids Comment

ADIPIC ACID ELEVATED:

Adipate is a functional marker for carnitine deficiency, as carnitine is needed to move fatty acids into the mitochondria where they are converted to energy using Vitamin B2. Elevated adipate may indicate abnormal fatty acid metabolism, but can also indicate a large intake of gelling or flavouring agents in which adipate is an ingredient.

Consider: Reduce foods rich in gelatine or processed foods which contain Adipic acid. Carnitine, Acetyl-l-carnitine, Lysine and Riboflavin may also assist with reducing levels.

SUBERIC ACID (SUBERATE) ELEVATED:

Suberate is a dicarboxylic acid which is present in the urine of patients with fatty acid oxidation disorders. Suberate is often found at high levels with overnight fasting; alternitavely of this organic acid may indicate metabolic blocks, presenting as hypoglycemia and lethargy.

Consider: Supplementation of Carnitine and Vitamin B2 may be needed when Suberate is too high; reduce PUFA intake.

Carbohydrate Metabolism Comment

GLUCOSE ELEVATED:

Oxidation of glucose is the major source of cellular energy in the body. Glucose derived from dietary sources is converted to glycogen for storage in the liver or to fatty acids for storage in adipose tissue. Glucose measurement in urine is used as a diabetes screening procedure and to aid in the evaluation of glycosuria, to detect renal tubular defects, and in the management of diabetes mellitus. Elevated levels should be confirmed with a fasting glucose blood test.

Supplementation Recommendations: Chromium, Vanadium, Insulin, Diabetic medication.

Citric Acid Cycle Comment

ISOCITRATE HIGH:

Isocitrate is the precursor to alpha-ketoglutarate in the Krebs Cycle. A high level is suggestive of inhibition to the enzyme by Aluminum. Supplementation Recommendations: Cofactors needed to increase the breakdown of isocitrate to alpha-ketoglutarate are: Vit B3, (NAD), Mg, Mn.

a-KETOGLUTARIC ACID ELEVATED:

a-Ketoglutarate is a key molecule in the TCA cycle, playing a fundamental role in determining the overall rate of this important metabolic process. In the TCA cycle, a-Ketoglutarate is decarboxylated to succinyl-CoA and carbon dioxide by a-Ketoglutarate dehydrogenase, which functions as a key control point of the TCA cycle. a-Ketoglutaric acid changes in direct proportion to urinary pH suggesting it may be a marker of pH imbalance.

Elevations can be seen with nutrient cofactor deficiencies needed for the enzymatic conversion of α ketoglutarate such as vitamin B3, zinc, magnesium, manganese.

SUCCINIC ACID ELEVATED:

Succinate has multiple biological roles including roles as a metabolic intermediate and roles as a cell signalling molecule. It links cellular metabolism, especially ATP formation, to the regulation of cellular function, and can be broken down or metabolized into fumarate by the enzyme succinate dehydrogenase, which is part of the electron transport chain involved in making ATP.

Elevated succinate may indicate a deficiency of Riboflavin and CoQ10. Succinate has also recently been identified as a possible endogenous, cancer causing metabolite at higher levels.

B-Complex Vitamins/Amino Acids Comment

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XANTHURENIC ACID ELEVATED:

Xanthurenate is a metabolite in the kynurenine pathway of tryptophan degradation.

Elevations in urinary xanthurenate are seen with increased intake of tryptophan, and in high estrogen states. Pregnancy, oral contraceptive use and possibly diabetes, renal failure - are associated with elevated levels of urinary xanthurenic acid where a functional nutrient need for B-vitamins is pronounced.

Consider: Supplementation with B6.

Methylation Cofactors Comment

METHYLMALONIC ACID (MMA) ELEVATED:

Methylmalonate is formed from propionyl-CoA via methylmalonyl-CoA. Major dietary sources of propionyl-CoA include valine, isoleucine, methionine, threonine, and odd chain fatty acids. methylmalonyl-CoA is converted into succinate via a B12 dependent enzyme Methylmalonyl-Co-A mutase.

Chronically high levels of methylmalonate are associated with at least 5 inborn errors of metabolism; but the most common cause is a B12 deficiency.

Consider: Supplementation with B12.

FORMIMINOGLUTAMIC ACID (FIGLU) ELEVATED:

Formiminoglutamate is an intermediate in the deamination of amino acid, histidine.Folate is the cofactor required to convert for formiminoglutamate to glutamate.

A deficiency of Folate can lead to

inhibition of DNA synthesis, impaired methylation, cell division and alterations in protein synthesis. Elevations in urine have been used to measure folate deficiency for many years.

Oxidative Damage/Detoxification Comment

p-HYDROXYPHENYL-LACTATE (PHPA) ELEVATED:

4-Hydroxyphenyllactate is a tyrosine metabolite. Microbial hydroxyphenyllactate is likely derived from phenolic or polyphenolic compounds in the diet. Bifidobacteria and lactobacilli produce considerable amounts of phenyllactic and p-hydroxyphenyllactic acids. 4-hydroxyphenyllactic acid is often used to help diagnose rare genetic metabolic disorders.

4-Hydroxyphenyllactic acid can sometimes be also slightly elevated in other conditions or due to intake of tyrosine-rich foods.

Bacterial Dysbiosis Comment

BENZOATE ELEVATED:

Benzoate was one of the compounds first found to be elevated in urine from patients with intestinal bacterial overgrowth and a metabolic product of free intestinal phenylalanine. Benzoates are found in jams and foods containing paraben preservatives.

Imbalanced gut flora may increase levels, as well as a high dietary intake of polyphenols or food preservatives.

Consider: treatment for dysbiosis and diet changes, mucosal support, pre and probiotics

PHENYLPROPIONATE ELEVATED:

Mild elevations in phenylpropionate, parahydroxybenzoate, and p-hydroxyphenylacetate may serve as indicators of potential microbial overgrowth. Consider implementing treatment for dysbiosis, dietary modifications, mucosal support, and the use of prebiotics and probiotics.

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Nutritional Markers Comment

8-HYDROXY-2-DEOXYGUANOSINE (8OHdG) ELEVATED:

8-Hydroxy-2-deoxyguanosine is a marker of oxidative damage to guanine of DNA.8-Hydroxy-2-deoxyguanosine is associated with increased oxidative stress and may indicate a strong need for antioxidants.

Higher levels of 8-hydroxy-2-deoxyguanosine could idicate possible oxidative damage.

Consider: Supplementation with antioxidants such as vitamin C, E, N-acetyl cysteine, lipoate.

Methodology

Liquid Chromatography-Mass Spectrometry (LC-MS/MS/MS), Gas Chromatography-MS (GC/MS), Automated Chemistry/Immunochemistry