

ENDOCRINOLOGY URINE

URINE, 24 HOUR

Total Volume **Result** **Range** **mL**

3550 693 - 3741



INTEGRATIVE MEDICINE

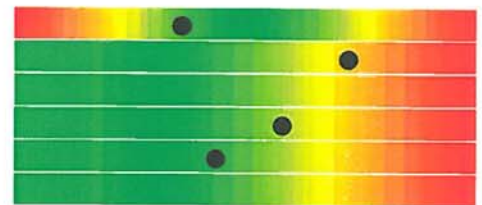
URINE, SPOT

Result **Range**

ORGANIC ACIDS

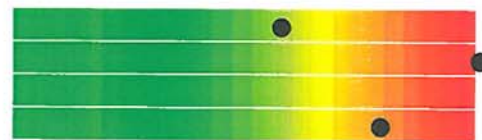
BACTERIAL DYSBIOSIS MARKERS.

Creatinine, Urine Spot.	11.4	8.0 - 19.0	mmol/L
Indoleacetic Acid	8.2	0.0 - 9.0	mmol/molCr
Phenylacetic Acid.	0.0	0.0 - 0.0	mmol/molCr
Dihydroxyphenylpropionic Acid	1.5	0.0 - 2.2	mmol/molCr
Succinic Acid	7.9	0.0 - 20.0	mmol/molCr
Benzoic/Hippuric Acids Ratio	0.0	0.0 - 0.0	RATIO



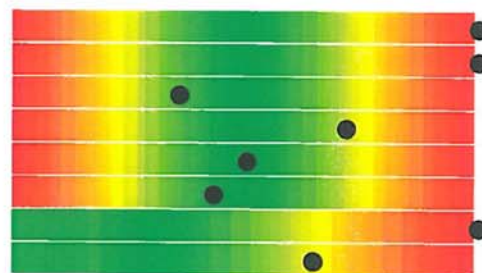
YEAST/FUNGAL DYSBIOSIS MARKERS.

Citramalic Acid	4.4	0.0 - 7.0	mmol/molCr
Arabinose.	61.8 *H	0.0 - 42.3	mmol/molCr
b-Ketoglutaric Acid.	0.0	0.0 - 0.0	mmol/molCr
Tartaric Acid.	14.3 *H	0.0 - 14.1	mmol/molCr



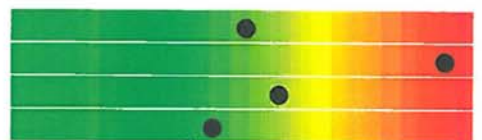
CITRIC ACID CYCLE Metabolites.

Lactic Acid.	45.9 *H	6.3 - 36.4	mmol/molCr
Pyruvic Acid.	22.5 *H	1.1 - 15.4	mmol/molCr
Citric Acid.	133.7	21.9 - 475.1	mmol/molCr
cis-Aconitic Acid.	65.3	1.4 - 76.8	mmol/molCr
Isocitric Acid.	45.3	3.7 - 87.4	mmol/molCr
a-Ketoglutaric Acid.	7.0	0.5 - 16.0	mmol/molCr
Fumaric Acid.	2.1 *H	0.0 - 1.4	mmol/molCr
Malic Acid.	1.8	0.0 - 2.4	mmol/molCr



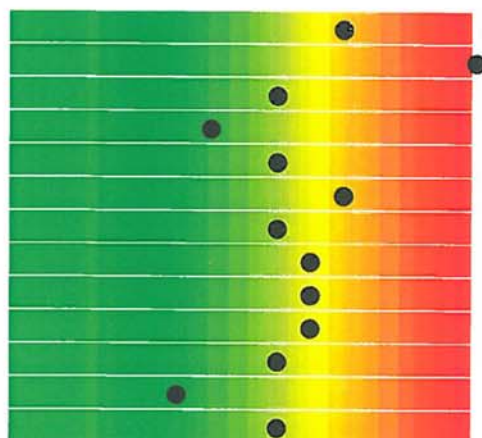
KETONE/FATTY ACID Metabolites

Adipic Acid.	2.4	0.0 - 5.2	mmol/molCr
Suberic Acid.	3.8 *H	0.0 - 3.0	mmol/molCr
b-OH-b-Methylglutaric Acid	3.8	0.0 - 6.7	mmol/molCr
b-OH-Butyrate	2.6	0.0 - 6.4	mmol/molCr








ORG. Acids for COFACTOR NEED.

a-Ketoisovaleric Acid	1.8	0.0 - 2.0	mmol/molCr
a-Ketoisocaproic Acid	2.9 *H	0.0 - 2.0	mmol/molCr
a-Keto-b-Methylvaleric Acid	1.2	0.0 - 2.0	mmol/molCr
Kynurenic Acid.	3.6	0.0 - 10.0	mmol/molCr
Formiminoglutamic Acid	5.5	0.0 - 9.0	mmol/molCr
3-OH-Propionic Acid	24.4	0.0 - 27.5	mmol/molCr
Methylmalonic Acid.	11.0	0.0 - 19.0	mmol/molCr
2-OH-Phenylacetic Acid	0.9	0.0 - 1.2	mmol/molCr
4-OH-Phenylpyruvic Acid	19.7	0.0 - 24.7	mmol/molCr
Homogentisic Acid.	1.5	0.0 - 2.0	mmol/molCr
a-Ketoadipic Acid	0.5	0.0 - 0.8	mmol/molCr
Glucaric Acid.	0.7	0.0 - 2.5	mmol/molCr
Orotic Acid.	13.1	0.0 - 20.7	mmol/molCr



(*) Result outside normal reference range

(H) Result is above upper limit of reference rang

Pyroglutamic Acid.	93.7	21.7 - 105.3	mmol/molCr	
NEUROTRANSMITTER METABS.				
HVA	3.1	2.5 - 3.5	mmol/molCr	
MHPG	0.6	0.5 - 0.9	mmol/molCr	
VMA	2.5	2.5 - 3.5	mmol/molCr	
5HIAA	3.4	3.0 - 4.5	mmol/molCr	

Bacterial Dysbiosis Comment

Succinate Elevated:

This is a citric acid cycle (CAC) intermediate in the body's metabolic pathway that generates cellular energy. The Krebs or CAC is the source of basic structural or anabolic molecules that feed and support organ maintenance and neurological cofactors and minerals maintenance and neurological cofactors and minerals for their function. Higher levels of CAC intermediates in urine indicate inefficiencies in energy production in the cells.

High values may also be due to bacterial conversion of glutamine to succinic acid in the gastrointestinal tract.

This result is suggestive of mitochondrial dysfunction, poor functioning of the citric acid cycle, gentamicin toxicity or, if citrate, cis-aconitate and orotate are elevated, an ammonia clearance disorder and possibly arginine deficiency.

Drugs which may have an adverse affect: Methotrexate.

SUPPLEMENTATION RECOMMENDATIONS:

B-complex (B2), CoQ10, Iron, manganese, and magnesium.

Yeast/Fungal Dysbiosis Comment

Tartaric Acid Elevated:

Elevated levels have often been associated with elevated yeast infestations. It is more likely that elevated levels of tartaric acid are found because of dietary sources such as grapes and grape by-products such as wine and juice. Research has also suggested that tartaric acid may be an antagonist to yeast which may be why elevated levels are seen in people with fungal infections.

Tartaric (hydroxymalic) acid - Tartaric acid is a toxic metabolite of Saccharomyces yeast species, the same species of yeast that is used in baking and brewing industries. Saccharomyces species may be important organisms in the immuno-compromised person. The fungal origin of this compound may be confirmed by showing that this compound decreased dramatically in the urine after the use of antifungal drugs. Also found in grapes, grape products, and as a food additive. Cream of tartar, used in baking, is basically tartaric acid.

Arabinose - Arabinose (a five carbon sugar or pentose) is not produced by yeast directly. A closely related sugar derivative called arabitol is produced by Candida species including Candida albicans, Candida tropicalis, and Candida parapsilosis. Arabitol produced in the gastrointestinal tract is absorbed into the portal circulation, converted to arabinose by the liver, and then released into the circulation. Since arabinose is also a major sugar in apples, apple juice, and all apple products must be avoided 24 hour prior to urine collection to prevent test interference.

Cit Acid Cycle Metabs Comment

Pyruvate is the anaerobic breakdown product of glucose. Its further conversion to acetyl-CoA requires the pyruvate dehydrogenase enzyme complex. Pyruvate dehydrogenase requires cofactors derived from thiamin, riboflavin, niacin, lipoic acid, and pantothenic acid for optimal function.

Levels of pyruvate in the tissues are further controlled by the biotin-containing protein, pyruvate carboxylase, which controls the first step in the reformation of glucose from pyruvate. Multiple forms of pyruvate carboxylase deficiency, some of which are biotin responsive, have been reported.

Elevated levels of pyruvate may reflect failure of the enzyme due to a functional need for increased B vitamins, particularly thiamin and pantothenic acid.

SUGGESTED SUPPLEMENTATION:

B Vitamins (B1, B2, B3, B5), Biotin, CoQ10, alpha Lipoic Acid, Magnesium, Manganese.

FUMURATE COMMENT:

These components are citric acid cycle (CAC) intermediates in the body's metabolic pathway that generate cellular energy. The Krebs or CAC is the source of basic structural or anabolic molecules that feed and support organ maintenance and neurological cofactors and minerals maintenance and neurological cofactors and minerals for their function.

Higher levels of CAC intermediates in urine indicate inefficiencies in energy production in the cells. This is suggestive of mitochondrial dysfunction, poor functioning of the citric acid cycle, gentamicin toxicity or, if citrate, cis-aconitate and orotate are elevated, an ammonia clearance disorder and possibly arginine deficiency. Supplement with arginine, a B-complex, manganese, and magnesium. Drugs which may have an adverse affect: Methotrexate.

Fumarate Elevated:

Elevated fumarate may be indicative of a Coenzyme Q10 deficiency.

SUPPLEMENTATION RECOMMENDATIONS:

CoQ10, Arginine, a B-complex (B2, B3), manganese, and magnesium.

Lactate Elevated:

This metabolic precursor to the Citric Acid Cycle, may indicate a block in the production of energy. Can also be indicative of an on-going infectious state, use of some recreational and/or pharmaceutical drugs, alcohol over consumption, poor blood sugar control (especially with diabetics), and a number of inborn errors of metabolism.

SUPPLEMENTATION RECOMMENDATIONS:

CoQ10, thiamin (Vit B1), riboflavin, niacin, lipoic acid, and pantothenic acid.

cis-Aconitate Elevated:

An intermediate of the citric acid cycle, an elevated level of this organic acid may be an indication of poor supplies or metabolism of amino acids. A clinical sign is fatigue.

If elevated with orotate, isocitrate and citrate, suspect hyperammonia.

SUPPLEMENTATION RECOMMENDATIONS:

alpha Lipoic Acid, Vitamin B Complex, Cysteine, Iron, Magnesium, Manganese.



TEST PATIENT
Date of Birth : 01-Jan-1962
Sex : F
Collected : 26-Aug-2010

PCNZ

Lab id : 3290672

Ketone/FA Metabolites Comment

Suberate Elevated:

Adipate and suberate are short chain dicarboxylic fatty acids. Low levels of carnitine cause inadequate transfer of fatty acids into the cell's energy production processes in the mitochondria, producing excess amounts of adipate, suberate, and ethylmalonate. A deficiency of B2 (riboflavin) and to a lesser extent B5 (pantothenic acid) may also be found with elevations of Suberate.

SUPPLEMENTATION RECOMMENDATIONS:

CoQ10, Carnitine and other supportive nutrients (B2 & B5) are indicated.

OA Cofactor Need Comment

a-Ketoisocaproate Elevated:

This organic acid may be elevated due to poor amino acid metabolism.

SUPPLEMENTATION RECOMMENDATIONS:

Supplementation with a B complex (B1, B2, B3, B5, B6), alpha Lipoic Acid, Magnesium.

Noradrenergic Activity Comment

Noradrenalin (Norepinephrine) is made from the breakdown of Dopamine.

Noradrenalin is the primary excitatory neurotransmitter needed for motivation, alertness, concentration, vigilance, signal-detection abilities, and attention related processes. Noradrenalin can alter (tune) the signal to noise ratio improving attention to relevant stimulation.

The brain requires noradrenalin to form new memories and to transfer them to long-term storage. This neurotransmitter also influences your metabolic rate.

Noradrenalin breakdown (catabolism) occurs following postsynaptic uptake of the neurotransmitter, when the transmitter remains unused in the synapse, or after presynaptic reuptake when not stored in vesicles.

Both noradrenalin and dopamine are manufactured from the amino acids tyrosine or phenylalanine in the presence of adequate oxygen, vitamins B3, B6, and C, folic acid, iron, and copper. Food sources of tyrosine include almonds, avocados, bananas, dairy products, lima beans, pumpkin seeds, and sesame seeds.

Adrenergic Activity Comment

Vanilmandelate is a metabolite of both epinephrine and norepinephrine.

Serotonergic Activity Comment

[5HIAA] is within range. This is the major metabolite of Serotonin.