

Urine Amino Acids

* Low Amino Acid levels indicate frank deficiencies of these crucial substrates and further supply needs to be achieved in order for many cellular/body processes to be optimised.

24-HOUR URINE AMINO ACIDS



LAB#: U000000-0000-0
 PATIENT: Sample Patient
 SEX: Female
 AGE: 20

CLIENT#: 12345
 DOCTOR:
 Doctor's Data, Inc.
 3755 Illinois Ave.
 St. Charles, IL 60174

SPECIMEN VALIDITY						
SPECIMEN MARKERS	RESULT PER 24 HOURS	REFERENCE RANGE	2.5 th	16 th	PERCENTILE 50 th	84 th 97.5 th
Creatinine	1380	600- 1900mg				
24 Hour Volume	4600	600- 2500mL				
Glutamine/Glutamate	7.2	5- 160				
Ammonia Level	34600	12000- 56000µM				
SPECIMEN VALIDITY INDEX						

This index summarises the markers above, (to indicate that the rest of the results are accurate and reflective of a valid urine sample)

ESSENTIAL / CONDITIONALLY INDISPENSABLE AMINO ACIDS						
ESSENTIAL AMINO ACIDS	RESULT µMOLE/24 HRS	REFERENCE RANGE	2.5 th	16 th	PERCENTILE 50 th	84 th 97.5 th
Methionine	9.9	8- 50				
Lysine	28	40- 640				
Threonine	64	75- 375				
Leucine	20	24- 120				
Isoleucine	5	10- 60				
Valine	23	15- 80				
Phenylalanine	19	25- 120				
Tryptophan	15	20- 120				
Taurine	230	220- 1420				
Cysteine	23	25- 84				
Arginine	15	8- 60				
Histidine	130	350- 1900				

Primary AA assessment = all ESSENTIAL amino acids.

* In this case, such frank deficiencies will affect all other amino acid (protein) systems in the entire body!

NONESSENTIAL AMINO ACIDS						
NONESSENTIAL AMINO ACIDS	RESULT µMOLE/24 HRS	REFERENCE RANGE	2.5 th	16 th	PERCENTILE 50 th	84 th 97.5 th
Alanine	150	130- 650				
Aspartate	11	8- 33				
Asparagine	66	35- 225				
Glutamine	260	200- 900				
Glutamate	36	6- 55				
Cystine	22	30- 120				
Glycine	210	500- 4200				
Tyrosine	31	29- 143				
Serine	180	180- 700				
Proline	9.4	1- 60				

* Note: Even ONE deficiency in any of these would be a 'rate limiting' factor in NUMEROUS other biochemical pathways / functions in the body and should therefore be treated as priority Number ONE.

Assessment of the NON-ESSENTIAL AA's completes the picture of overall amino acid sufficiency and often helps highlight any metabolic anomalies / bottlenecks / deficiencies stemming from the ESSENTIAL amino acids above. (Note: The same principals of the ONE rate limiting amino acid apply to these, too).

Urine Amino Acids (continued)



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GASTROINTESTINAL MARKERS

GI MARKERS	RESULT μMOLE/24 HRS	REFERENCE RANGE	PERCENTILE				
			2.5 th	16 th	50 th	84 th	97.5 th
Ammonia	34600	12000- 56000	[Bar chart showing 84th percentile]				
Ethanolamine	260	120- 550	[Bar chart showing 50th percentile]				
Alpha-Aminoadipate	22	5- 80	[Bar chart showing 50th percentile]				
Threonine	64	75- 375	[Bar chart showing 50th percentile]				
Tryptophan	15	20- 120	[Bar chart showing 50th percentile]				
Taurine	230	220- 1420	[Bar chart showing 50th percentile]				
			68 th		95 th		
Beta-alanine	36	< 20	[Bar chart showing 84th percentile]				
Beta-aminoisobutyrate	98	< 400	[Bar chart showing 16th percentile]				
Anserine	74	< 95	[Bar chart showing 50th percentile]				
Carnosine	20	< 50	[Bar chart showing 16th percentile]				
Gamma-aminobutyrate	0.92	< 35	[Bar chart showing 16th percentile]				
Hydroxyproline	1.8	< 48	[Bar chart showing 2.5th percentile]				

Sometimes a by-product of microbial origin (gut)

Key serotonin substrate (of which vast majority found in the gut)

By-products of microbial origin (the less the better). If elevated, perform CSA stool testing to elucidate any dysbiosis.

MAGNESIUM DEPENDANT MARKERS

MAGNESIUM MARKERS	RESULT μMOLE/24 HRS	REFERENCE RANGE	PERCENTILE				
			2.5 th	16 th	50 th	84 th	97.5 th
Citrulline	2.4	1- 35	[Bar chart showing 16th percentile]				
Ethanolamine	260	120- 550	[Bar chart showing 50th percentile]				
Phosphoethanolamine	8.8	20- 95	[Bar chart showing 2.5th percentile]				
Phosphoserine	1.2	0.06- 0.8	[Bar chart showing 50th percentile]				
Serine	180	180- 700	[Bar chart showing 2.5th percentile]				
Taurine	230	220- 1420	[Bar chart showing 50th percentile]				
			68 th		95 th		
Methionine Sulfoxide	1.5	< 10	[Bar chart showing 16th percentile]				

FUNCTIONAL indicators of further Mg need. (Any being extremely low OR extremely high)

B6, B12, & FOLATE DEPENDANT MARKERS

B-VITAMIN MARKERS	RESULT μMOLE/24 HRS	REFERENCE RANGE	PERCENTILE				
			2.5 th	16 th	50 th	84 th	97.5 th
Serine	180	180- 700	[Bar chart showing 50th percentile] B6				
Alpha-aminoadipate	22	5- 80	[Bar chart showing 50th percentile] B6				
Cysteine	23	25- 84	[Bar chart showing 50th percentile] B6				
Cystathionine	4.5	8- 60	[Bar chart showing 50th percentile] B6				
1-Methylhistidine	190	70- 350	[Bar chart showing 50th percentile] Folate, B12				
3-Methylhistidine	1530	55- 1200	[Bar chart showing 50th percentile] Muscle catabolism				
Alpha-aminoNbutyrate	5.8	5- 80	[Bar chart showing 50th percentile] B6				
			68 th		95 th		
Beta-aminoisobutyrate	98	< 400	[Bar chart showing 16th percentile] B6				
Beta-alanine	36	< 20	[Bar chart showing 84th percentile] B6				
Homocystine	0.23	< 8	[Bar chart showing 2.5th percentile] B12, Folate				
Sarcosine	4.9	< 50	[Bar chart showing 2.5th percentile] B12, Folate				

These indicate the BALANCE and sufficiency of the methylation / sulfation pathway substrates and cofactors.

For these, the lower the better, otherwise the indicated B vitamin is required.

PROVIDES A COMPREHENSIVE FUNCTIONAL METHYLATION ASSESSMENT!
 ('Current needs', regardless of genetics and existing supplementation)



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DETOXIFICATION MARKERS

DETOX MARKERS	RESULT μMOLE/24 HRS	REFERENCE RANGE	PERCENTILE						
			2.5 th	16 th	50 th	84 th	97.5 th		
Methionine	9.9	8 - 50							Methylation /sulfation capacity
Cysteine	23	25 - 84							Sulfation capacity
Taurine	230	220 - 1420							Sulfation, conjugation, and bile production capacity
Glutamine	260	200 - 900							Amino Acid conjugation capacity
Glycine	210	500 - 4200							
Aspartate	11	8 - 33							

NEUROLOGICAL MARKERS

NEUROLOGICAL MARKERS	RESULT μMOLE/24 HRS	REFERENCE RANGE	PERCENTILE						
			2.5 th	16 th	50 th	84 th	97.5 th		
Ammonia	34600	12000 - 56000							Neurotoxic when excessive
Glutamine	260	200 - 900							Required for balance of GABA / Glutamate
Phenylalanine	19	25 - 120							Key dopamine pathway substrate. (Converting efficiently?)
Tyrosine	31	29 - 143							
Tryptophan	15	20 - 120							Key serotonin pathway substrate
Taurine	230	220 - 1420							Neuro-inhibitor / osmoregulator
Cystathionine	4.5	8 - 60							B6 need (key NS cofactor indicator)
Beta-alanine	36	< 20			68 th		95 th		

UREA CYCLE METABOLITES

UREA CYCLE METABOLITES	RESULT μMOLE/24 HRS	REFERENCE RANGE	PERCENTILE						
			2.5 th	16 th	50 th	84 th	97.5 th		
Arginine	15	8 - 60							Induces cycle
Aspartate	11	8 - 33							Intermediate metabolites show the activity / sufficiency of the cycle
Citrulline	2.4	1 - 35							
Ornithine	6.2	3 - 45							
Urea	350	150 - 650							• Finish (needs to be excreted)
Ammonia	34600	12000 - 56000							Start (Toxic until converted)
Glutamine	260	200 - 900							Induces cycle
Asparagine	66	35 - 225							

SPECIMEN DATA

Comments:	Date Collected: 8/11/2007	Date Received: 8/16/2007	Date Completed: 8/30/2007
Methodology: HPLC	Collection Period: 24 Hr/Co11	Volume: 4600 ml	V07.02

Urine Amino Acids (continued)

* Summary of indicated treatment priorities by category (plus suggestions)

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SUPPLEMENTATION SCHEDULE	PRESUMPTIVE NEEDS / IMPLIED CONDITIONS																												
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">L-configured Amino Acids</th> <th style="width: 40%;">Total Daily Oral Dose</th> </tr> </thead> <tbody> <tr><td>Tryptophan</td><td>330 mg</td></tr> <tr><td>Arginine</td><td>680 mg</td></tr> <tr><td>Histidine</td><td>945 mg</td></tr> <tr><td>Isoleucine</td><td>1085 mg</td></tr> <tr><td>Leucine</td><td>1330 mg</td></tr> <tr><td>Lysine</td><td>1080 mg</td></tr> <tr><td>Methionine</td><td>725 mg</td></tr> <tr><td>Phenylalanine</td><td>1110 mg</td></tr> <tr><td>Threonine</td><td>760 mg</td></tr> <tr><td>Valine</td><td>940 mg</td></tr> <tr><td>Pyridoxal-5-phosphate</td><td>30 mg</td></tr> <tr><td>Alpha-ketoglutarate</td><td>650 mg</td></tr> <tr><td>Taurine</td><td>225 mg</td></tr> </tbody> </table> <p>The supplement schedule is not intended for use by pregnant females and is strictly contraindicated for individuals with suspected or known renal insufficiency or renal failure.</p>	L-configured Amino Acids	Total Daily Oral Dose	Tryptophan	330 mg	Arginine	680 mg	Histidine	945 mg	Isoleucine	1085 mg	Leucine	1330 mg	Lysine	1080 mg	Methionine	725 mg	Phenylalanine	1110 mg	Threonine	760 mg	Valine	940 mg	Pyridoxal-5-phosphate	30 mg	Alpha-ketoglutarate	650 mg	Taurine	225 mg	<div style="margin-bottom: 10px;"> <p>NEED FOR VITAMIN B6</p> </div> <div style="margin-bottom: 10px;"> <p>NEED FOR FOLATE, VITAMIN B12</p> </div> <div style="margin-bottom: 10px;"> <p>NEED FOR MAGNESIUM</p> </div> <div style="margin-bottom: 10px;"> <p>SUSCEPTIBILITY TO VASCULAR DISEASE</p> </div> <div style="margin-bottom: 10px;"> <p>ABNORMAL INTESTINAL MICROFLORA</p> </div> <div style="margin-bottom: 10px;"> <p>MALDIGESTION / MALABSORPTION</p> </div> <div style="margin-bottom: 10px;"> <p>IMPAIRED DETOXIFICATION</p> </div> <div style="margin-bottom: 10px;"> <p>NEUROLOGICAL DISORDERS</p> </div> <div style="margin-bottom: 10px;"> <p>NITROGEN INSUFFICIENCY</p> </div> <div style="margin-bottom: 10px;"> <p>EXCESSIVE PROTEIN</p> </div> <div style="margin-bottom: 10px;"> <p>OXIDATIVE STRESS</p> </div>
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(Protein malnutrition, / AA deficient)

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