

Dried Urine Reference Ranges – Neurotransmitters

Dried Urine Test*	Ages 15 & Older		Ages 10-14	Ages <10
INHIBITORY				
Serotonin (5-HT) – $\mu\text{g/g Cr}$	47.6 - 140.3 Optimum 61.0 - 103.2 <i>If supplementing with 5-HTP 75-2137</i>		137.7 - 215.8	182.2 - 366.8
5-HIAA – $\mu\text{g/g Cr}$	2205 - 11816 Optimum 2988 - 5850 <i>If supplementing with 5-HTP 4008-114,204</i>		3802 - 9879	6331 - 18834
GABA – $\mu\text{g/g Cr}$	167 - 463 Optimum 193 - 367		197 - 311	270 - 633
Glycine (Gly) – mg/g Cr	41 - 295 Optimum 61 - 159		97 - 267	99 - 330
EXCITATORY				
Glutamate (Glu) – $\mu\text{g/g Cr}$	1213 - 4246 Optimum 1515 - 2710		1669 - 2651	2157 - 4735
Histamine (HIST) – $\mu\text{g/g Cr}$	3.6 - 44.3 Optimum 5.2 - 15.3		12.4 - 20.5	14.5 - 38.4
Phenethylamine (PEA) – $\mu\text{g/g Cr}$	3.6 - 38.8 Optimum 5.3 - 16.1		3.7 - 10.8	6.8 - 32.3
Dopamine (DA) – $\mu\text{g/g Cr}$	103 - 282 Optimum 144 - 240		257 - 395	382 - 770
DOPAC – $\mu\text{g/g Cr}$	495 - 2456 Optimum 658 - 1449		700 - 1428	1090 - 5203
Homovanillic Acid (HVA) – $\mu\text{g/g Cr}$	3025 - 9654 Optimum 3737 - 7048		5382 - 9753	7295 - 21939
Normetanephrine (NMN) – $\mu\text{g/g Cr}$	13.4 - 44.8 Optimum 17.9 - 31.7		27.0 - 50.1	24.9 - 70.1
Vanillylmandelic Acid (VMA) – $\mu\text{g/g Cr}$	1996 - 5939 Optimum 2580 - 4766		3570 - 5373	4310 - 9207
Pooled Norepinephrine (NE) – $\mu\text{g/g Cr}$	10.0 - 35.7 Optimum 15.0 - 28.1		16.7 - 30.6	23.9 - 61.1
Diurnal Norepinephrine – $\mu\text{g/g Cr}$	1st Morning	2nd Morning	Evening	Night
	9.4 - 22.0	12.6 - 38.2	21.1 - 42.9	16.9 - 38.8
Pooled Epinephrine (Epi) – $\mu\text{g/g Cr}$	0.8 - 6.2 Optimum 1.4 - 4.2		2.3 - 5.4	2.8 - 13.0
Diurnal Epinephrine – $\mu\text{g/g Cr}$	1st Morning	2nd Morning	Evening	Night
	0.5 - 1.5	0.7 - 6.1	2.3 - 8.1	1.2 - 4.2
Ratio: Norepinephrine / Epinephrine	2.9 - 25.2 Optimum 5.2 - 13.7		2.4 - 10.9	2.4 - 10.9
Creatinine – mg/mL	0.3 - 2.0		0.3 - 2.0	0.3 - 2.0

*Results are expressed per gram of creatinine to correct for urine dilution.

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