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Chelator-specific Reference Ranges

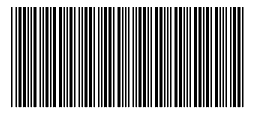
CHELATOR SPECIFIC ORIENTATION RANGES:

The following chelator-specific ranges have been developed based on the fact that each chelator has a specific binding capacity. The ranges were developed based on statistical calculations of a population challenged with one ampoule DMPS or 300mg DMPS.

A urine excretion value/result higher than the Orientation Ranges below, indicates a moderate to high toxic burden.

A test result higher than the normal (pre-chelation) reference range and lower than the Orientation Range indicates a low to moderate toxic burden.

ELEMENT	DMSA (ug/gCR)	EDTA (ug/gCR)	DMPS (ug/gCR)
Toxic Metals			
Aluminium (Al)	< 50	< 100	< 50
Antimony (Sb)	< 10	< 10	< 15
Arsenic (As)	< 100	< 100	< 100
Barium (Ba)	< 10	< 20	< 10
Beryllium (Be)	< 2.0	< 2.0	< 2.0
Bismuth (Bis)	< 10	< 10	< 10
Cadmium (Cd)	< 5.0	< 5.0	< 5.0
Cesium (Cs)	< 30	< 30	< 30
Cobalt (Co)	< 15	< 15	< 15
Gadolinium (Gd)	< 5.0	< 5.0	< 5.0
Lead (Pb)	< 30	< 80	<20
Mercury (Hg)	< 20	< 10	< 40
Nickel (Ni)	< 20	< 30	< 20
Palladium (Pd)	< 15	< 15	< 15
Platinum (Pt)	< 5.0	< 5.0	< 5.0
Silver (Ag)	< 5.0	< 5.0	< 5.0
Thallium (Tl)	< 10	< 10	< 10
Tin (Sn)	< 15	< 20	< 15
Titanium (Ti)	< 50	< 50	< 50
Uranium (U)	< 1.0	< 1.0	< 1.0
Essential Elements			
Manganese (Mn)	< 5.0	< 10	< 5.0
Strontium (Sr)	< 310	< 310	< 310
Tungsten (W)	< 10	< 10	< 10
Vanadium (V)	< 8.0	< 10	< 8.0
Zinc (Zn)	< 1500	< 2000	< 1500



26115-0005

Lab ID
Patient ID P000060
Ext ID 26115-0005

Sex: Female • 56yrs • 01-Jan-70
123 Home Street, Test Suburb VIC 3125

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ALUMINUM ELEVATED (URINE):

Clinically, elevated aluminum exposure may be associated with fatigue or neurological symptoms at higher or sustained levels, particularly in individuals with impaired renal function.

Treatment: Avoid exposure, support detox with silica-rich water, malic acid, NAC, and glutathione. Consider chelation with EDTA in high exposures

Arsenic exposure may be organic (dietary, e.g. seafood) or inorganic (toxic). Urinary elevation reflects recent exposure and detoxification efficiency.

From a functional medicine perspective, management focuses on differentiating organic vs inorganic sources, improving methylation capacity, ensuring folate and selenium sufficiency, and reducing exposure.

Treatment: Distinguish between organic and inorganic forms; support methylation (folate, B12, SAMe), and use chelation agents like DMSA or NAC if applicable.

Elevated urinary mercury suggests increased mercury exposure and renal excretion. Urinary mercury primarily reflects inorganic or elemental mercury exposure rather than methylmercury from seafood.

Clinically, elevated urinary mercury may be associated with neurocognitive symptoms, tremor, fatigue, or renal effects, depending on exposure magnitude and chronicity.

From a functional medicine perspective, this finding should be interpreted in the context of exposure sources (occupational, dental, environmental), renal function, and antioxidant capacity. Correlation with exposure history and, where clinically indicated, mercury speciation or blood testing may assist contextual interpretation.

Treatment: Eliminate exposure (e.g., amalgam removal by trained providers), use selenium, NAC, ALA, and chelation agents as appropriate.

Elevated urinary cadmium suggests increased cadmium exposure and/or mobilisation with renal excretion. Urinary cadmium is considered a marker of chronic body burden rather than acute exposure.

Clinically, elevated cadmium exposure may be associated with renal tubular stress and bone mineral effects at higher or sustained levels. Smoking remains a common non-occupational source.

From a functional medicine perspective, this finding should prompt assessment of exposure sources (smoking, diet, occupation) and consideration of renal health and antioxidant status, with emphasis on exposure reduction rather than intervention unless clinically indicated.

Treatment: Remove exposure, support zinc and selenium (compete with cadmium), and consider chelation (e.g., EDTA or DMSA).

Inductively Coupled Plasma Mass Spectrometry (ICP-MS), Automated Chemistry/Immunochemistry