

Heavy Metal Toxicity, Specific Physiological Effects

Psychiatric Disturbances	Contributing Metals
Social deficits, social withdrawal	Mercury
Repetitive stereotyped behaviors, odd-typical behaviors	Mercury
Depression, mood swings, flat affect, impaired facial recognition	Arsenic, copper, lead, mercury
Schizoid tendencies, hallucinations, delirium	Mercury
Irritability, aggressive behavior, temper tantrums	Lead, mercury
Suicidal behavior	Copper, mercury
Sleep difficulties/disturbances	Lead, mercury, thallium
Chronic fatigue (CFS), weakness, malaise	Aluminum, arsenic, cadmium, copper, lead
Anorexia, loss of appetite/weight, eating disorder symptoms	Arsenic, lead, mercury
Anxiety, nervous tendencies	Thallium
Attention problems (ADHD), lack of eye contact, impaired visual fixation	Lead, mercury
Speech & Language Deficits	Contributing Metals
Speech disorders	Aluminum, mercury
Loss of speech, developmental language deficits	Mercury
Speech comprehension deficits	Mercury
Dysarthria, articulation problems, slurred or unintelligible speech	Mercury
Mental retardation, borderline intelligence	Arsenic, lead, mercury
Uneven or low IQ performance	Copper, lead
Poor concentration, attention deficit (ADHD), response inhibition	Aluminum, lead

Sensory Abnormalities	Contributing Metals
Abnormal sensation in mouth, extremities	Arsenic
Hearing loss or difficulty	Arsenic, lead, mercury
Abnormal/diminished touch sensations, aversion to touch	Arsenic
Blurred vision, sensitivity to light	Arsenic, mercury
Motor Disorders	Contributing Metals
Choreiform movements, myoclonic jerks, unusual postures	Copper, mercury
Difficulty walking, swallowing, talking	Copper, mercury
Flapping, circling, rocking, toe walking	Mercury
Problems with intentional movements or limitation	Mercury
Abnormal gait/posture, lack of coordination, loss of balance, problems sitting, lying, crawling, walking	Mercury
Decreased locomotor activity	Aluminum, arsenic
Convulsions, seizure	Aluminum, arsenic, copper, lead, mercury, thallium
Brain & Central Nervous System	Contributing Metals
Neurofibrillary tangles	Aluminum
Neuritis, retro bulbar neuritis, neuropathy	Aluminum, arsenic, thallium
Encephalopathy	Aluminum, arsenic, thallium
Alterations in nerve conduction, Velocity	Lead
Alterations in the spinal cord	Thallium
Accumulates in CNS structures	Aluminum, mercury

Poor memory (short term verbal & auditory)	Aluminum, lead
Dementia (including pre-senile and senile)	Aluminum
stupor	Aluminum, lead
Impaired reaction time, lower performance on timed test	Lead
Gastrointestinal Tract	Contributing Metals
Nausea, vomiting, diarrhea, loss of appetite	Arsenic, copper, mercury, thallium
Abdominal pain, stomach cramps, burning of the throat and mouth	Arsenic, copper, lead, mercury, thallium
Esophagitis, gastroenteritis, colitis	Arsenic, mercury, thallium
Cancers (colon, pancreatic, stomach, rectal)	Arsenic
Renal and Hepatic Impairment	Contributing Metals
Hepatotoxicity, liver dysfunction damage	Arsenic, copper, thallium
Cirrhosis of the liver, hepatitis	Copper
Kidney disease, kidney failure	Arsenic, lead, mercury
Renal toxicity, Tubular proteinases	arsenic, copper, lead
Kidney damage, histological alterations	Arsenic, lead
Cardiovascular System	Contributing Metals
Blood vessel damage	Arsenic
Anemia, Decreased red blood cell count	Arsenic, copper, lead
Hypertension, increased heart rate (tachycardia)	Arsenic, copper, lead, thallium
Electro cardiac Disorders	Contributing Metals
Peripheral vascular disease, cardiovascular disease, vascular collapse	Arsenic, lead
Respiratory System	Contributing Metals
Pulmonary fibrosis	Aluminum, arsenic, mercury
Pneumonia, laryngitis, Pharyngitis, bronchitis	Aluminum, arsenic, mercury
Restrictive airways, disorders, asthmatic conditions, pneumoconiosis	Aluminum, arsenic
Respiratory tract cancers	arsenic

Abnormal EEG's	Arsenic, lead
Autonomic disturbances	Copper, lead, mercury, thallium
Peripheral Nervous System	Contributing Metals
Peripheral neuropath	Arsenic, mercury
Alterations in peripheral nerves	Arsenic
Loss of feeling/numbness in extremities, Parasthesia	Arsenic, mercury, thallium
Immune System	Contributing Metals
Immunosuppression	Lead
Decreased white blood cell count	Arsenic, thallium
Reproductive System	Contributing Metals
Genital abnormalities	Aluminum, thallium
Disturbances in menstrual cycle, menstrual pains	Copper, mercury
Birth defects, premature births, spontaneous absorption	Arsenic, lead, mercury
Reproductive dysfunction	Aluminum, arsenic, cadmium, lead
Other physical disturbances	Contributing Metals
Rash, contact dermatitis, eczema, itchy/irritated skin	Aluminum, arsenic, copper, mercury
Muscle pain, headache, acrodynia, colic	Arsenic, copper, lead, thallium
Alopecia (hair loss)	thallium