

COMPLETE HEAVY METALS PANEL

DESCRIPTION

Metals are natural elements from our Earth, but are extremely toxic (even in low concentrations) and can have damaging effects on your body (especially your lungs and kidneys.) You can be exposed to certain types of metals from the air, household products, contaminated foods and drinks, and possibly at your place of employment (manufacturing facilities) or at home.

Lithium affects the flow of sodium through the nerves and muscle cells in the body. Sodium affects excitation or mania. Lithium is most used to treat manic depression.

Beryllium is a steel gray and hard metal that is brittle at room temperature and has a close-packed hexagon crystal structure. The inhalation of beryllium containing dusts can cause a chronic life-threatening allergic disease. The toxicity of beryllium depends upon the duration, intensity and frequency of exposure.

Aluminum is a silvery white, soft, ductile metal. It is also the most widely used non-ferrous metal. Some of its many uses include packaging (foil, soda cans) and transportation (cars, planes, bikes). Aluminum salts are considered nontoxic. However, some toxicity can be traced to deposition in bone and central nervous system. In very high toxicity, aluminum can cause neurotoxicity.

Chromium is a steely-gray, lustrous brittle metal. Chromium, although required in small amounts to help regulate sugar and lipid metabolism, it can be toxic in greater amounts and can be recognized as a human carcinogen.

Manganese is a metal with important industrial metal alloy uses, particularly in stainless steel. Excessive exposure can cause manganism or a neurodegenerative disorder that causes Parkinsons-like symptoms.

Cobalt, a component of Vitamin B12, is a hard, lustrous, silver-gray metal. Chronic cobalt ingestion has caused serious health problems. Ingestion of large amounts at one time can cause nausea and vomiting. However, absorbing a large amount over a longer period of time can lead to thyroid problems.

Nickel is a silvery white metal that can be found in things such as batteries that power the television remotes to the stainless steel found in kitchens and jewelry. It occurs in the environment in very low levels and can be exposed by drinking water, food or smoking cigarettes. Sensitivity to nickel can pose skin allergies and irritations. Chronic exposure to nickel can pose issues such as respiratory failure, heart disorders, asthma and chronic bronchitis, increased risk of lung cancer, nose cancer and larynx and prostate cancers.

Copper is a light red in color and serve many purposes from architecture, jewelry to pipes. Copper is also an element vital to humans aiding in the proper functioning of organs and metabolic processes. Excess of copper can lead to liver damage and acute or severe exposure can lead to abdominal pain, respiratory difficulty, massive gastrointestinal bleeding, kidney and liver failure and possibly death.

Zinc is found in cells throughout the body and is essential to a healthy life. It helps the immune system fight off bacteria and viruses. However, excessive amounts of zinc can cause nausea, vomiting, loss of appetite,

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stomach cramps, diarrhea, and headaches. Zinc deficiency can cause hair loss, diarrhea, eye and skin sores and loss of appetite.

Arsenic is a natural element found in soil and minerals. Its compounds are usually used to preserve wood. You can become exposed to Arsenic in small amounts through air, water, food and working in areas where arsenic is made or used. Chronic exposure to arsenic can cause many health problems including death.

Selenium is a mineral found in soil. It is naturally appears in water and some foods. Selenium plays a key role in the metabolism. Too much selenium can cause selenosis which is a garlic- like odor on the breath, gastrointestinal problems, loss of hair and fingernails, fatigue, irritability and nerve damage.

Silver is a very ductile, univalent coinage metal and is used for money (coinage), jewelry and silverware, solar energy, dentistry and many more usages. Silver itself is not toxic to humans, but silver salts are toxic. In large doses, it can be absorbed into the circulatory system to various body tissues leading to argyria resulting in blue-grayish pigmentation of the skin, eyes, and mucous membranes.

Cadmium is a soft, bluish-white metal and is similar to mercury and zinc. Short term inhalation exposure to cadmium affects the lungs. Chronic oral or inhalation exposure to cadmium leads to a buildup of cadmium in the kidneys and can cause kidney disease.

Tin is a naturally occurring metal of a silver color used for coating for other metals such as steel. Exposure to tin can irritate the skin and delicate skin tissues as well as affect the hematological system (blood).

Antimony is a silvery, lustrous gray metal naturally present in the earth's crust. Elements of antimony can be used for producing semiconductors, manufacture of storage batteries and other industrial applications. Exposure to antimony is through windblown dust, forest fire, volcanic eruptions, sea spray etc. Chronic exposure may cause respiratory irritation, pneumoconiosis, gastrointestinal symptoms.

Barium is a silvery-white earth metal. Typically not found in its pure form and usually combined with other elements to form barium compounds. Industries such as mining, gas, refining, and coal use barium. Chronic barium exposure can cause great health risk such as paralysis, gastrointestinal dysfunction, muscle twitching, elevated blood pressure, kidney damage, respiratory failure and sometimes death.

Platinum is a dense, highly-unreactive gray chemical element and occurs naturally in various rivers. Platinum is used in catalytic converters, laboratory equipment, jewelry, dentistry equipment, thermometers and others. Not as toxic as some other metals, it still can lead to health issues. Short term exposure leads to irritation of the eyes, nose and throat. Long-term exposure leads to both respiratory and skin allergies.

Mercury is a shiny, silver gray metal that is a liquid at room temperature. It can be found in thermometers, barometers, batteries, fluorescent lights and electrical switches. It may be in household paints in older houses. If inhaled, it can lead to severe nausea, vomiting, diarrhea, fever and several other symptoms.

Lead is dangerous and can be found in batteries, old houses (paint), cigarettes (and second hand smoke), and other places. Chronic exposure can cause cerebral edema, coma and convulsions.

Thorium is a radioactive soft silvery white actinide metal and occurs in very low levels in virtually all rock, soil and water. This metal is typically used for ceramic glazes. We are exposed to thorium tiny amounts in air, food

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and water since it is naturally present in the environment. Since so small of an exposure there are usually no health risk. However, those we chronic exposure increase risk of cancer.

Uranium a very dense and heavy metal usually present in virtually all soil, rock and water. It is exposed by inhaling dust in air or ingesting water and food. Small amounts of uranium will leave the body through feces and urine. Chronic exposure can lead to increased cancer risk, liver damage, or both and can lead to internal irradiation and/or chemical toxicity.

WHY DO I NEED THIS TEST?

Exposure to metals can have very serious consequences for your body, especially children. The problem is you may not even know you've been exposed. If you and your family live in an old home (with old paint) or in a location with a lot of industry and manufacturing, you should strongly consider this panel. Employers also monitor their employees for specific heavy metals exposure, depending on the industry.

HOW LONG WILL IT TAKE TO GET MY LAB TEST RESULTS?

Test results are generally available within five (5) business days after your specimen is collected.

**WRITTEN BY:
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Ekan Essien, MD, MPH, a native Georgian, received his BA from Duke University. Dr. Essien continued his education at Florida A&M University where he received his Masters of Public Health in Epidemiology; received his medical degree from Meharry Medical College in Nashville, Tennessee; and obtained training in general and trauma surgery at Grady Memorial Hospital at Morehouse School of Medicine. He is a candidate in the post graduate fellowship in anti-aging and regenerative medicine from the American Academy of Anti-Aging Medicine.

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