Heavy Metals

VibrantWellness
Vibrant Wellness | 1360 Bayport Ave, San Carlos, CA 94070
1(866) 364-0963 | support@vibrant-america.com | www.vibrant-wellness.com

PATIENT

NAME:	**HEAVY METALS DEMO**		
DATE OF BIRTH:	**01-01-1111**	GENDER:	**Male**
TELEPHONE:	**000-000-0000**	AGE:	**01**

ACCESSION ID:	**2208200031**
SPECIMEN COLLECTED:	**2022-08-25**
SPECIMEN RECEIVED:	**2022-08-26**
FINAL REPORT DATE:	**2022-09-02**

FASTING:	**UNKNOWN**

PROVIDER:

PRACTICE NAME:	**DEMO CLIENT, MD**
PROVIDER NAME:	**DEMO CLIENT, MD**
PHLEBOTOMIST:	**0**

TELEPHONE:	**000-000-0000**
FAX #:	
ADDRESS:	**1360 Bayport Ave, San Carlos, CA 94070**

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Vibrant Wellness is pleased to present to you, ‘Heavy Metals panel’, to help you make healthy lifestyle, dietary and treatment choices in consultation with your healthcare provider. It is intended to be used as a tool to encourage a general state of health and well-being.

The Heavy Metals is a test to measure levels of Heavy Metals Toxins in your urine that you might be exposed to.

Reference ranges are established based on NHANES study where applicable. Other reference ranges are established based on 1000 apparently healthy urine samples.

The report begins with the summary page which lists only the heavy metal toxins whose levels are >95th percentile (Red) and 75th-95th percentile (Yellow) of reference range, normalized to Urine creatinine levels. Additionally, the previous value is also indicated for your referral (if available). Following this section is the complete list of the heavy metal toxins and their absolute levels normalized to Creatinine in a quantile format along with the reference ranges. These levels are shown with three shades of color – Green, Yellow and Red. The result in green corresponds to 0 to 75th percentile, the result in yellow corresponds to 75th to 95th percentile and the result in red corresponds to greater than 95th percentile of reference range. All content provided in the report are purely for informational purposes only and should not be considered medical advice. Any changes based on the information should made in consultation with your healthcare provider.

The Vibrant Wellness platform provides tools for you to track and analyze your general wellness profile. Testing for the Heavy Metals panel is performed by Vibrant America, a CLIA certified lab CLIA#:05D2078809. Vibrant Wellness provides and makes available this report and any related services pursuant to the Terms of Use Agreement (the "Terms") on its website at www.vibrant-wellness.com. By accessing, browsing, or otherwise using the report or website or any services, you acknowledge that you have read, understood, and agree to be bound by these terms. If you do not agree to accept these terms, you shall not access, browse, or use the report or website. The statements in this report have not been evaluated by the Food and Drug Administration and are only meant to be lifestyle choices for potential risk mitigation. Please consult your physician/dietitian for medication, treatment, or lifestyle management. This product is not intended to diagnose, treat, or cure any disease.

Pediatric ranges have not been established for this test. It is important that you discuss any modifications to your diet, exercise, and nutritional supplementation with your physician before making any changes.

Heavy Metals Summary

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	2022-08-26

High (>95th percentile)

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Aluminum	97.58		3 · 17.8 · 45.1	≤45.15 ug/g
Thorium	0.22		0.01 · 0.02 · 0.07	≤0.07 ug/g
Tungsten	3.61		0.04 · 0.12 · 0.33	≤0.33 ug/g
Uranium	0.15		0.01 · 0.02 · 0.04	≤0.04 ug/g

Moderate (75th-95th percentile)

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Arsenic	13.24		1 · 11.9 · 52	≤52 ug/g
Nickel	7.56		0.1 · 6.37 · 12.1	≤12.13 ug/g

Urine Creatinine

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Urine Creatinine	0.94		0.05 · 0.24 · 2.16	0.25-2.16 mg/mL

SPECIMEN INFORMATION		
Provoking Status: **unavailable**	Agent: **unavailable**	Dosage: **unavailable**

Results are creatinine corrected to account for urine dilution variations. Reference intervals are based upon NHANES(cdc.gov/nhanes) data if available, and are representative of a large population cohort under non-provoked conditions. Chelation (provocation) agents can increase urinary excretion of metals/elements.

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TEST NAME	PERCENTILE (75th / 95th)	REFERENCE
Aluminum	97.58	≤45.15 ug/g
Arsenic	13.24	≤52 ug/g
Beryllium	<0.1	≤0.76 ug/g
Cadmium	0.28	≤0.8 ug/g
Gadolinium	<0.05	≤0.45 ug/g
Mercury	0.22	≤1.61 ug/g
Palladium	<0.1	≤0.2 ug/g
Tellurium	0.26	≤0.89 ug/g
Thorium	0.22	≤0.07 ug/g
Tungsten	3.61	≤0.33 ug/g

TEST NAME	PERCENTILE (75th / 95th)	REFERENCE
Antimony	0.03	≤0.16 ug/g
Barium	1	≤5.59 ug/g
Bismuth	<0.1	≤2.53 ug/g
Cesium	1.99	≤10.3 ug/g
Lead	0.13	≤1.16 ug/g
Nickel	7.56	≤12.13 ug/g
Platinum	<0.05	≤0.9 ug/g
Thallium	0.1	≤0.43 ug/g
Tin	<0.2	≤3.72 ug/g
Uranium	0.15	≤0.04 ug/g

COMMENTS

Aluminum

Aluminum (atomic number 13) is the most widely distributed metal in the environment and has many consumer applications—including pots, pans, beverage cans, foil, antacids, antiperspirants, cosmetics, and food additives (e.g., baking powder, coloring agents, and anticaking agents). Therefore, aluminum intoxications may occur frequently. Exposures to aluminum may extensively occur in occupations associated with mining and processing of ore, scrap metal recycling, welding, etc. Humans living in environments contaminated by industrial wastes may also be exposed to high levels of aluminum. Intake of aluminum can occur by inhalation of aerosols or particles, ingestion of food, water, medicaments, skin contact, vaccination, dialysis, and infusions. The mechanisms of aluminum toxicity include changes in cell membrane permeability, inhibition of enzyme activity, protein denaturation/transformation, and disruption of iron homeostasis leading to iron overload-induced lipid peroxidation and increased reactive oxygen species. Aluminum poisoning can affect blood content, musculoskeletal system, kidney, liver, respiratory and nervous system. Early symptoms of aluminum toxicity include flatulence, headaches, colic, dryness of the skin and mucous membranes, and tendencies for colds. Later symptoms may include paralytic muscular conditions, loss of memory, and mental confusion.

Arsenic

Arsenic (atomic number 33) is a naturally occurring element distributed throughout the earth's crust and in groundwater. At lower levels, it is also found in the air and in food products. Ingestion and inhalation are the most common routes of exposure to arsenic. However, dermal exposure may lead to illness. Arsenic-contaminated water—used for drinking, food preparation, and irrigation of food crops—poses the greatest threat to public health. According to the American Cancer Society, the foods with the highest levels of arsenic are seafood, rice (including rice cereal), mushrooms, and poultry. Because tobacco plants can take up arsenic naturally present in the soil, people who smoke may have higher levels. The mechanisms of arsenic toxicity include inactivating enzymes involved in cellular energy pathways, DNA synthesis, and DNA repair. Acute exposure to arsenic can lead to gastroenteritis followed by hypotension. Chronic exposure can lead to the risk of developing skin lesions, cardiovascular diseases, diabetes, affected cognitive abilities, and cancer.

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COMMENTS

Nickel

Nickel (atomic number 28) is extensively distributed in the environment, air, water, and soil. Nickel is used to make jewelry, coins, batteries, spark plugs, catalysts, stainless steel (including cooking and eating utensils), machinery parts, nickel alloys, industrial plumbing, and electroplating. Lung inhalation is the major route of exposure for nickel-induced toxicity. However, food is the major source of nickel exposure. The Agency for Toxic Substances and Disease Registry (ATSDR) estimates that average intake for adults is 100 to 300 micrograms per day. It may also be absorbed through the skin. The mechanisms of nickel toxicity include depletion of glutathione levels and bonding to the sulfhydryl groups of proteins. Contact with nickel may cause a variety of side effects on human health, such as contact dermatitis (nickel allergy), cardiovascular and kidney diseases, lung fibrosis, and lung and nasal cancer. The symptoms accompanied with its intoxication include low blood pressure, malaise, muscle tremor, tetany and paralysis, nausea, vomiting, hemorrhages, heart attack, oral and/or intestinal cancer, and kidney dysfunction.

Thorium

Thorium (atomic number 90) is a naturally occurring radioactive element present in the air, water, soil, and rocks. It is found in trace amounts in most animals. Thorium is used to make welding rods, fire brick, camera and telescope lenses, gas lantern mantles, and in the ceramics industry (glazes). It is also incorporated into metals used in the aerospace industry and nuclear reactions. Until the 1950s, thorium dioxide was used as a radiology contrast agent. Thorium is currently being used as a novel alpha-therapy for the treatment of resistant tumors. Thorium is a known human carcinogen. It can enter the body through the respiratory, gastrointestinal, and dermatological systems. Occupational thorium exposure can occur to those individuals working near radioactive waste disposal sites, and/or uranium, thorium, tin, phosphate mining, and gas mantle production industries. Symptoms and side effects of thorium toxicity are most likely to manifest in the hematological, hepatic, and respiratory systems, as well as possible cancers. The most common symptoms of thorium toxicity are respiratory distress and pneumonia, pulmonary hypertension, and fibrosis. Individuals who breathe thorium dust may develop lung disease. Studies have also shown that individuals exposed to thorium may have an increased risk of bone cancer because thorium may be stored in bone.

Tungsten

Tungsten (atomic number 74) is a naturally occurring element that is typically found in the solid form in rocks and minerals. It is used in light bulb filaments, as part of X-ray tubes, as a catalyst to speed up chemical reactions, as a component of steel in high-speed tools, in turbine blades, in darts, and in golf club components. Tungsten has the highest melting point of all metals and maintains tensile strength even at very high temperatures. Replacing lead and depleted uranium, heavy metal tungsten alloys are increasingly used in military applications such as helicopter rotors, kinetic energy penetrators for defeating heavy armor, guided missiles, and fragmentation warheads. Tungsten intoxications are relatively rare. However, breathing contaminated air, drinking contaminated water, skin contact with compounds that contain tungsten, or eating food that contains tungsten are the most common ways tungsten toxicity occurs. The symptoms associated with tungsten toxicity may include breathing problems, nausea, seizures, rapid onset of clouded consciousness which may lead to coma and encephalopathy, renal conditions, and hypocalcemia. Limited evidence from animal studies suggest tungsten exposure is carcinogenic, but this may be contributed to or modified by the presence of other heavy metals like nickel and cobalt in tungsten alloys.

Uranium

Uranium (atomic number 92) is a naturally occurring radioactive element found on earth found in nearly all rocks and soils. It is used as fuel for nuclear power plants and the nuclear reactors that run naval ships and submarines. It can also be used in nuclear weapons. Depleted uranium is used in military applications, including as a shield to protect against ionizing radiation, as armor in military vehicles, in munitions to help them penetrate enemy armored vehicles, and as a counterbalance on helicopter rotors. Uranium can be ingested through the lungs, and gastrointestinal (GI) tract, and can be absorbed through the skin. Uranium can stick to plant roots so unwashed root vegetables are a primary source of uranium in the diet. However, Brazil nuts are also found to have high levels. The majority of uranium that is inhaled through the lungs or ingested through the GI tract is not absorbed and leaves the body through the feces. However, water-soluble sources of uranium being ingested may lead to kidney problems. As a result, the kidneys are the most impacted organ system by uranium exposure, both chronic and acute. The primary mechanism of uranium toxicity is direct damage to DNA from alpha particle interactions. Therefore, uranium may also cause chromosomal abnormalities. The main manifestation of uranium exposure is cellular depletion of antioxidants and the formation of reactive oxygen species (ROS), as well as increased oxidative stress. Altered genomic stability and increased oxidative stress are hallmarks of aging. As a result, uranium intoxication may disrupt many biological processes which could lead to the risk of accelerated aging and developing age-associated conditions.

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Risk and Limitations

This test has been developed and its performance characteristics determined by Vibrant America LLC., a CLIA certified lab. These assays have not been cleared or approved by the U.S. Food and Drug Administration.

Heavy Metals Toxins panel does not demonstrate absolute positive and negative predictive values for any condition. Its clinical utility has not been fully established. Clinical history and current symptoms of the individual must be considered by the healthcare provider prior to any interventions. Test results should be used as one component of a physician's clinical assessment.

Heavy Metals Panel testing is performed at Vibrant America, a CLIA certified laboratory. Vibrant America has effective procedures in place to protect against technical and operational problems. However, such problems may still occur. Examples include failure to obtain the result for a specific toxin due to circumstances beyond Vibrant's control. Vibrant may re-test a sample to obtain these results but upon re-testing the results may still not be obtained. As with all medical laboratory testing, there is a small chance that the laboratory could report incorrect results. A tested individual may wish to pursue further testing to verify any results.

The information in this report is intended for educational purposes only. While every attempt has been made to provide current and accurate information, neither the author nor the publisher can be held accountable for any errors or omissions.

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