# Comprehensive Urine Element Profile

The **Comprehensive Urine Elements Profile** measures urinary excretion of 15 nutrient elements and 20 toxic metals. These include "classic" toxics such as lead, mercury, and arsenic, as well as newer technology toxics such as niobium. This is an ideal test for patients suspected of toxic metal exposure as well as potential nutrient mineral wasting.

***•Analytes:***

- **Toxic Elements**:

| | |
|---|---|
| aluminum | mercury |
| antimony | nickel |
| arsenic | niobium |
| barium | platinum |
| bismuth | rubidium |
| cadmium | thallium |
| cesium | thorium |
| gadolinium | tin |
| gallium | tungsten |
| lead | uranium |

- **Nutrient Elements**:

| | |
|---|---|
| calcium | molybdenum |
| chromium | potassium |
| cobalt | selenium |
| copper | strontium |
| iron | sulfur |
| lithium | vanadium |
| magnesium | zinc |
| manganese | |

***•Specimen requirements:***

2 tubes of urine

***•Before Patient Takes this Test:***

- Avoid taking creatine supplements (2 days before test)
- Check with your healthcare provider about what medications and supplements to avoid (2 days before test)
- Do not collect urine during a menstrual period
- See instructions inside test kit for details

The **Comprehensive Urine Elements Profile** offers an advanced, comprehensive assessment of toxic and potentially toxic elements excreted in urine. In addition to measuring classic elemental toxics, this profile includes elements used in the medical, aerospace, nuclear and high-tech electronics industries.

## Sources of Exposure

Accumulations of these toxics can occur in the human body in response to occupational exposures or to environmental exposures from toxic release in air, soil, or industrial waste systems. These sources include:

- Metal refining
- Alloying
- Plating and parts manufacture in aerospace and machine tool industries
- Fabrication of nuclear reactor fuel assemblies
- Electronics and computer manufacturing

According to the EPA, the U.S. has the largest electronics (including computer) workforce in the world. Exposures to the measured elements can occur in other occupations as well, including:

- Welding and metal shaping
- Plumbing
- Oil refining
- Petrochemical production
- Military or police service (with weapons use)
- Handling and disposal of wastes
- Manufacture of pigments and coatings

## Health Consequences of Exposure

Evidence suggests that chronic toxic element exposure can adversely affect:

- Energy levels
- Reproductive function
- Cancer risk
- Neurological development and function
- Respiratory, cardiac, hepatic and immune functions
- Cognitive and emotional health
- Degenerative conditions

The **Comprehensive Urine Elements Profile** assesses urinary excretion of elements acquired through chronic or acute exposure. Practitioners can effectively monitor the progress of detoxification regimens and nutrient element status during treatment. All toxic metals are reported as micrograms/g creatinine or as micrograms per 24 hours (if a 24-hour urine specimen is provided).

## "Provocative" Urine Testing

Urine can be collected following the administration of a "challenge" agent (such as EDTA, DMSA, DMPS, and D-penicillamine) targeting specific toxic elements, which can help identify tissue burden from prior exposures. Depending on the agent administered, urine collection may be spot or short-term (2-6 hours), intermediate (8-12 hours) or a complete 24-hour collection. Since many detoxification agents are element-specific, this approach is best utilized when the clinician suspects specific heavy metal toxicities.

# *Comprehensive Urine Element Profile*
*Ratio to Creatinine*

Genova Diagnostics®
*Innovative Testing for Optimal Health*

63 Zillicoa Street
Asheville, NC 28801


Patient: **SAMPLE PATIENT**
Age: 47
Sex: F
MRN:

**Order Number:**
Completed: June 11, 2007
Received: June 07, 2007
Collected: June 04, 2007

## Toxic Elements

**Results in µg/g creatinine**

| Element | Reference Range | TMPL | Reference Range |
|---|---|---|---|
| Lead | 32.5 | | <= 1.4 |
| Mercury | | 71.52 | <= 2.19 |
| Aluminum | 3.5 | | <= 22.3 |
| Antimony | 0.462 | | <= 0.149 |
| Arsenic | 22 | | <= 50 |
| Barium | 0.3 | | <= 6.7 |
| Bismuth | 4.86 | | <= 2.28 |
| Cadmium | 2.06 | | <= 0.64 |
| Cesium | 7.2 | | <= 10.5 |
| Gadolinium | 0.025 | | <= 0.019 |
| Gallium | 0.025 | | <= 0.028 |
| Nickel | 2.23 | | <= 3.88 |
| Niobium | <dl | | <= 0.084 |
| Platinum | <dl | | <= 0.033 |
| Rubidium | 2,303 | | <= 2,263 |
| Thallium | 0.160 | | <= 0.298 |
| Thorium | 2.657 | | <= 4.189 |
| Tin | 2.17 | | <= 2.04 |
| Tungsten | <dl | | <= 0.211 |
| Uranium | <dl | | <= 0.026 |

## Nutrient Elements

**Results in µg/g creatinine**

| Element | Reference Range | Reference Range |
|---|---|---|
| Chromium | 4.5 | 0.6-9.4 |
| Cobalt | 0.33 | 0.01-2.60 |
| Copper | 328.7 | 4.0-11.4 |
| Iron | <dl | 5-64 |
| Lithium | 15 | 9-129 |
| Manganese | 0.79 | 0.03-1.16 |
| Molybdenum | 15 | 15-175 |
| Selenium | 53 | 32-333 |
| Strontium | 43 | 47-346 |
| Vanadium | 1.1 | 0.1-3.2 |
| Zinc | 1,626 | 63-688 |

**Results in mg/g creatinine**

| Element | Reference Range | Reference Range |
|---|---|---|
| Calcium | 35 | 37-313 |
| Magnesium | 63 | 41-267 |
| Potassium | 3,993 | 759-4,653 |
| Sulfur | 713 | 367-1,328 |

## Creatinine Concentration

| | | |
|---|---|---|
| Urine Creatinine◆ | 59.47 | 23.00-205.00 mg/dL |

## Collection Information

Urine Total Volume (in milliliters): 278.0

Length of Collection: 6.0

Provocation Comment:
Post-provocation laboratory results.





## This test reveals important clinical information about:

- ***Urinary excretion*** *of a diverse spectrum of toxic elements and elements which are toxic at excessive levels, for a total of 20 potentially toxic elements*
- ***Notification of "Panic levels"*** *for mercury, lead, cadmium and arsenic in both children and adults*
- ***Levels of toxic elements ratioed to creatinine,*** *which provides enhanced accuracy andmore flexibility in specimen collection (spot, short-term, intermediate, or 24-hour)*

For test kits, clinical support, or more information contact:

Client Services
Genova Diagnostics
63 Zillicoa St.
Asheville, NC 28801-1074
800-522-4762 • Fax: 828-252-9303

More detailed publications with references are also available: www.GDX.net