Elemental Analysis, Hair

sample type: **HAIR**

Elemental Analysis, Hair provides a convenient and accurate means of screening patients for chronic toxic exposure and nutrient element deficiencies. Using this test, the clinician can determine imbalances that may trigger conditions such as chronic fatigue, depression, ADHD, cardiovascular disease, and thyroid problems.

Analytes:

- **15 Toxic Elements**:
aluminum
antimony
arsenic
barium
bismuth
cadmium
gadolinium
lead
mercury
nickel, rhodium
rubidium
thallium
tin
uranium

- **12 Nutritional Elements**:
calcium
chromium
cobalt
copper
lithium
magnesium
manganese
molybdenum
selenium
strontium
sulfur
vanadium

- **5 Additional Elements**:
iron
phosphorus
potassium
sodium

Specimen requirements:

25g of hair (1 heaping tablespoon)

Before Taking this Test:

- Use only Johnson & Johnson® baby shampoo for 2 weeks (if possible)
- See instructions inside test kit for details

Element insufficiencies or excesses have been proven to significantly impact health. With increasing amounts of toxic metals in the environment and widespread nutrient insufficiencies, screening patients for element imbalances and excesses provides heightened clinical value.

Chronic Exposure to Toxic Elements

Studies confirm that chronic exposure to toxic elements can progressively impair various enzymatic and neurologic processes, leading to a variety of health conditions. Systems affected by toxic element accumulation include:

- Gastrointestinal
- Neurological
- Cardiovascular
- Urological

The Role of Nutrient Elements

Nutrient elements serve a variety of diverse functions. They act as:

- Structural components, as seen in the skeletal system, as well as compounds such as vitamin B12, hemoglobin, and thyroid hormone
- Cellular regulators and cofactors in a wide array of enzymatic reactions

Various factors may trigger deficiencies of nutrient elements, including poor diet, maldigestion, malabsorption, and competitive inhibition by toxic elements.

Utilizing Hair Analysis

Hair analysis is a useful tool for screening mineral imbalances and toxicities. Unlike blood and urine, hair acts as a storage depot for elements. The growing hair follicle is richly supplied with blood vessels. The blood that bathes the follicle is the transport medium for both essential and potentially toxic elements. These elements are then incorporated into the growing hair protein during keratinization. In this way element concentrations in the hair reflect concentrations in other body tissues.

Numerous papers discuss the accuracy and efficacy of hair testing, particularly for toxic metals such as mercury. An E.P.A. study concluded that hair is a “meaningful and representative tissue for biological monitoring of most of the toxic metals.” At the same time, hair testing should be regarded as a “screen”, since levels may also reflect external contamination.

Hair analysis is noninvasive, inexpensive, and allows for investigation of nutrient/toxic interactions.

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Innovative Testing for Optimal Health

Elemental Analysis Hair

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Asheville, NC 28801
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Patient: **SAMPLE PATIENT**
Age: 85
Sex: M
MRN:

Order Number:
Completed: February 25, 2008
Received: February 21, 2008
Collected: February 15, 2008

Toxic Elements

Element	Reference Range	Reference Range in µg/g
Aluminum	2.9	<= 17.3
Antimony	0.089	<= 0.016
Arsenic	0.144	<= 0.080
Barium	0.10	<= 1.70
Bismuth	<dl	<= 0.178
Cadmium	0.005	<= 0.022
Gadolinium	0.0008	<= 0.0005
Lead	0.183	<= 0.700
Mercury	2.38	<= 1.32
Nickel	0.05	<= 0.55
Rhodium	<dl	<= 0.0005
Rubidium	0.004	<= 0.040
Thallium	<dl	<= 0.0004
Tin	0.018	<= 0.149
Uranium	<dl	<= 0.0057

Nutrient Elements

Element	Reference Range	Reference Range in µg/g
Calcium	338	192-1,588
Chromium	0.31	0.01-1.58
Cobalt	0.003	0.001-0.129
Copper	8	8-136
Iron	9.1	5.2-24.4
Magnesium	25	11-122
Manganese	0.09	0.04-1.93
Molybdenum	0.02	0.01-1.24
Phosphorous	136	104-206
Selenium	0.75	0.58-1.13
Sodium	2	14-426
Strontium	0.27	0.01-4.40
Sulfur	48,402	41,781-60,894
Vanadium	0.031	0.003-0.108
Zinc	193	119-245

	Reference Range	
Lithium	<dl	<= 0.302
Potassium	<dl	<= 174

Ratios

	Inside Range	Outside Range	Reference Range
Ca/Mg	14		5-29
Ca/P	2		1-9

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This test reveals important clinical information about:

- ***Accumulated exposure to 15 toxic metals,*** *which can be associated, even at relatively low levels, with impaired neurological development, as well as cardiac, gastrointestinal, immune, or cognitive dysfunction*
- ***Long-term status of 17 nutritional elements,*** *which are key to healthy metabolism and protection from toxic burden*
- ***Ratios of key elements,*** *which can be useful in screening for psychoneurological and systemic pathology*

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

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

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