



NUTRITIONAL LAB
SERVICES

PO BOX 4233
BURWOOD EAST VIC

Lab id : **12345678**

Test Hair

Date of Birth : November 26, 1969

Sex : F

Collected : May 28, 2008

www.nlabs.com.au

Ph: (03) 9803 5335 Fax: (03) 9888 5811

INTEGRATIVE MEDICINE

HAIR	Result	Range		
Hair Mineral Analysis			ppm	
Hair Description	Auburn			
Calcium (Hair)	1376.46	146.00 - 3190	ppm	
Chromium (hair)	0.11 *l	0.13 - 1.00	ppm	
Copper (hair)	29.22	11.00 - 34.00	ppm	
Iron (Hair)	25.51	5.00 - 44.70	ppm	
Magnesium (hair)	22.26 *l	30.00 - 122.0	ppm	
Manganese (hair)	0.06 *l	0.25 - 0.75	ppm	
Selenium (hair)	0.38 *l	0.48 - 1.45	ppm	
Zinc (hair)	69.12 *l	99.00 - 450.0	ppm	
Calcium/Magnesium Ratio	61.8 *h	4.9 - 26.1	RATIO	
Zinc/Copper Ratio	2.4 *l	8.2 - 13.2	RATIO	
Toxic Mineral Levels			ppm	
Arsenic (hair)	2.38	0.00 - 3.70	ppm	
Cadmium (hair)	2.43	0.00 - 2.70	ppm	
Lead (hair)	10.23	0.00 - 51.00	ppm	
Mercury (Hair)	4.57	0.00 - 7.60	ppm	

(*) Outside reference range.

(h) Above reference range.

(l) Below reference range.



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Hair Minerals Analysis Comments

The measured hair analysis results never reveal exactly how much to supplement when a level is abnormal. What we are measuring is the tissue (hair) saturation of each particular mineral.

When nutritionally essential elements are low or deficient, the Reference Daily Intake (RDI) levels provide guidance for supplementation. The RDI's for elements or minerals are the daily intakes recommended for essential body functions.

ELEMENT	RDI**
Calcium	1000 milligrams***
Chromium	120 micrograms
Copper	2 milligrams
Magnesium	400 milligrams
Manganese	2 milligrams
Selenium	70 micrograms
Zinc	15 Milligrams

LOW Chromium (Hair) Comment:

Chromium is the key element in glucose utilisation potentiating normal insulin response via GTF form. Adult onset diabetics have significantly lower hair chromium levels. Has influence on lipoprotein lipase. Therefore, it can raise HDL cholesterol. Hypo and hyper glycaemia improve with chromium supplementation. May be deficient in cardiovascular disease and prolonged stress.

Recommended Daily Intake: 120mcg. Jejunum is site of absorption, which is some 2% of dietary intake. The GTF form may be better absorbed. Amino Acids, oxalate and nicotinic acid act to improve absorption. Chromium lowers insulin need.

Dietary Sources: Organ meat, Brewer's Yeast, whole grains, cheese, mushrooms, prunes, nuts, asparagus.

LOW Magnesium (Hair) Comment:

Low hair magnesium has been linked with hypoglycemia, and in certain circumstances schizophrenia, depression, hypertension and increased cardiac risk.

Deficiency results in muscle weakness/spasm.

Magnesium - is necessary for RNA/DNA synthesis, protein synthesis, ATP synthesis via both glycolysis and Krebs Cycle, muscle contraction and nerve conduction, and cAMP production.

Because it has a fixed outer electron valence of +2 it can inhibit many iron based free radical generating reactions by displacing iron from its binding site. Magnesium has been shown to be helpful in preventing heart disease.

Recommended Daily Intake: 400mg. About 30-60% of dietary forms are absorbed via small intestine. Stool fats decrease absorption, as do phytate and fibre. Vitamin D mildly increases absorption. Taurine deficiency causes urinary wasting.

LOW Manganese (Hair) Comment:

Depressed manganese levels in hair have commonly been associated with allergies.

It is key in mitochondrial SOD. cAMP and intracellular calcium levels are modified with manganese.

Deficiency results in abnormal arginase and Krebs Cycle conversion of pyruvate to oxaloacetate.

Also crucial for bone and connective tissue. Impaired glucose tolerance and lipid metabolism may occur.

Skin dryness, hair changes, allergies and behavioural problems have also been seen.

Recommended Daily Intake: 2.0mg. Iron competes with Manganese for absorption. Variable

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absorption rates, participation in urea formation with phytate, oxalate, calcium and phosphorus, perhaps complexing and impairing absorption.

Citrate and histidine enhance the absorption of manganese.

Dietary Sources: Whole Grains, nuts, dark green leafy vegetables, liver and kidney.

Low Selenium:

Increased susceptibility to cardiovascular disease and diminished thyroid function are possible results of deficiency. Impaired resistance to oxidative stress also occurs. Extremely low levels are associated with increased cancer risk and cardiomyopathy. Unbound selenium is known to be a strong prooxidant with similar valences as oxygen. It is toxic at high levels. Small amounts are required for glutathione peroxidase. Protects against hydrogen peroxides and lipid peroxides in the cytosol and mitochondria. Selenium is also involved in deiodination of T4 (thyroxine) to T3, whereas reverse T3 does not require Selenium (Wilson's Syndrome).

Recommended Daily Intake: 70mcg. Available in a number of forms and generally well absorbed from the duodenum. Vitamins C, E Retinal and Reduced glutathione improve absorption. Heavy metals and phytates inhibit absorption.

Dietary Sources: Grains (soil dependent), seafood, organ meats, garlic, mushrooms.

Vegetable sources may be better absorbed.

LOW Zinc (Hair) Comment:

Low levels of Zinc in hair have been reported in lung cancer. They have also been reported in children with Pica, anorexia, and poor growth.

Deficiency may result in poor wound healing, poor sense of smell and taste, hypochlorhydria, night blindness, and immune dysfunction.

Zinc - is necessary for spermatogenesis, protein synthesis and degradation, haeme synthesis, CO2 transport, metabolism, RNA polymerases and the cytosol component of SOD. Because it has a fixed outer electron valence of +2 it can inhibit many iron based free radical reactions by displacing iron from its binding site. Zinc can be toxic at high levels.

Recommended Daily Intake: 15mg, however keep in mind that only 20-30% of zinc ingested is absorbed, therefore suggest doses of 50mg/day. Competition with Calcium, Iron and Copper can significantly impair absorption, as can high phytate foods and folic acid supplementation.

Dietary Sources include: Meats, crustaceans, nuts, seeds, leafy and root vegetables.