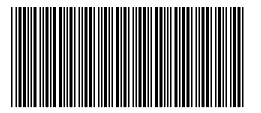


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26114-0418

Lab ID
Patient ID P000060
Ext ID 26114-0418

Test Patient

Sex: Female • 56yrs • 01-Jan-70
123 Home Street, Test Suburb VIC 3125

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Hair mineral analysis is a non-invasive test that provides an assessment of longer-term mineral status and environmental exposure. As hair grows, minerals and trace elements are incorporated into the hair shaft, allowing for retrospective evaluation of nutrient patterns and exposure to toxic elements over time.

Hair analysis differs from blood or urine testing in that it reflects tissue deposition and cumulative exposure, rather than acute circulating levels. This makes it particularly useful for identifying chronic exposure to heavy metals and longer-term trends in essential mineral balance.

Essential minerals such as calcium, magnesium, zinc, and selenium play critical roles in metabolic processes, enzyme function, and cellular regulation. Imbalances may reflect changes in dietary intake, absorption, metabolic demand, or broader physiological stress. In addition, the presence of toxic elements such as lead, mercury, or arsenic may indicate environmental or occupational exposure, which may contribute to physiological burden.

Findings should be interpreted in conjunction with clinical history, exposure assessment, and other laboratory investigations where appropriate.

This report provides an overview of mineral patterns and potential exposures to assist in guiding further clinical evaluation. Interpretation should focus on overall trends and patterns, rather than individual markers alone.

COPPER ELEVATED:

About the element:

Copper is an essential trace element involved in iron metabolism, antioxidant enzyme systems, connective tissue formation, energy production, and nervous system function.

Clinical significance of hair:

Hair copper reflects longer-term tissue deposition and exposure rather than acute serum status. Elevated hair copper may be associated with increased intake, supplementation, altered biliary clearance, or broader trace element imbalance. Hair copper should not be interpreted as a direct surrogate for serum copper or caeruloplasmin.

Suggested treatment considerations:

Review supplementation, dietary intake, and possible environmental exposure. Consider assessment of copper balance in conjunction with zinc and, where clinically indicated, conventional copper studies. Management should be directed at the underlying cause rather than the hair result in isolation.

ARSENIC ELEVATED:

About the element:

Arsenic is a toxic metalloid with no known physiological role in humans. Exposure is most commonly derived from contaminated water, certain foods, supplements, and occupational or environmental sources.

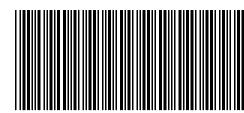
Clinical significance of hair:

Hair arsenic reflects exposure over the period of hair growth and may be useful as an indicator of repeated or longer-term exposure rather than acute exposure. Elevated hair arsenic suggests ongoing, recent repeated, or past exposure, but interpretation should take into account possible external contamination and should not be used in isolation to define toxicity.

Suggested treatment considerations:

Investigate likely exposure sources, including drinking water, rice and seafood intake, supplements, traditional remedies, and occupational contact. Reduction or removal of the exposure source is the primary intervention. Where levels are significantly elevated or symptoms are present, confirmatory testing with an appropriate matrix such as urine speciation and further clinical assessment should be considered.

MERCURY ELEVATED:



Dr Test Doctor (Test Doctor) Test Clinic. 123 Test Street, Test Suburb Victoria 3125

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About the element:

Mercury is a toxic metal with no physiological role. In clinical practice, the most relevant chronic exposure form is often methylmercury, commonly derived from seafood, although elemental and inorganic sources may also contribute depending on the exposure history.

Clinical significance of hair:

Hair mercury is one of the more established hair biomarkers and is particularly useful for assessing longer-term methylmercury exposure. Elevated hair mercury suggests increased chronic exposure, most commonly dietary, and should be interpreted with consideration of fish intake, occupational exposure, and external contamination.

Suggested treatment considerations:

Review seafood intake, especially large predatory fish, as well as occupational exposure and other possible mercury sources. Management should focus first on exposure reduction. Where levels are substantially elevated or there are compatible neurological or systemic symptoms, further clinical evaluation and confirmatory testing should be undertaken.

Methodology

Inductively Coupled Plasma Mass Spectrometry (ICP-MS)