

Excerpt from Trace Elements Inc.

The Clinician's Choice for over 24 years.

Trace Elements is an independent testing laboratory specializing in hair tissue mineral analysis (HTMA) for health-care professionals worldwide. With continued growth since its inception in 1984, Trace Elements serves thousands of health professionals of all specialties in over 46 countries, including exclusive franchise agreements in 23 countries. Trace Elements and its employees are dedicated to providing timely, accurate and precise laboratory services, high-quality nutritional products and clinically relevant information and consultations.

Frequently Asked Questions

Q. What is hair mineral analysis?

A. Hair tissue mineral analysis (HTMA), is an analytical test which measures the mineral content of the hair. The sampled hair, obtained by cutting the first inch and one-half of growth closest to the scalp at the nape of the neck, is prepared in a licensed clinical laboratory through a series of chemical and high temperature digestive procedures. Testing is then performed using highly sophisticated detection equipment and methods to achieve the most accurate and precise results.

Q. Why use the hair? Why not use the blood?

A. Hair is ideal tissue for sampling and testing. First, it can be cut easily and painlessly and can be sent to the lab without special handling requirements. Second, clinical results have shown that a properly obtained sample can give an indication of mineral status and toxic metal accumulation following long term or even acute exposure.

A HTMA reveals a unique metabolic world: intracellular activity, which cannot be seen through most other tests. This provides a blueprint of the biochemistry occurring during the period of hair growth and development.

Examples:

- Thirty to 40 days following an acute exposure, elevated serum levels of lead may be undetectable. This is due to the body removing the lead from the serum as a protective measure and depositing the metal into such tissues as the liver, bones, teeth and hair.
- Nutrient loss from the body can become so advanced that severe health conditions can develop without any appreciable changes noted in those same nutrient levels in a blood test.
- Symptoms of elemental deficiency can be present long before low levels can be detected in the serum.

Hair is used as one of the tissues of choice by the Environmental Protection Agency in determining toxic metal exposure. A 1980 report from the E.P.A. stated that human hair can be effectively used for biological monitoring of the highest priority toxic metals. This report confirmed the findings of other studies in the U.S. and abroad, which concluded that human hair may be a more appropriate tissue than blood or urine for studying community exposure to some trace elements.

Q. Why test for minerals?

A. Trace minerals are essential in countless metabolic functions in all phases of the life process.

- Zinc is involved in the production, storage and secretion of insulin and is necessary for growth hormones.
- Magnesium is required for normal muscular function, especially the heart. A deficiency has been associated with an increased incidence of abnormal heart conditions, anxiety and nervousness.
- Potassium is critical for normal nutrient transport into the cell. A deficiency can result in muscular weakness, mild depression and lethargy.
- Excess sodium is associated with hypertension, but adequate amounts are required for normal health.

In the words of the late author and noted researcher, Dr. Henry Schroeder, trace elements (minerals) are "...more important factors in human nutrition than vitamins. The body can manufacture many vitamins, but it cannot produce necessary trace minerals or get rid of many possible excesses."

Q. What can cause a mineral imbalance?

A. There are many factors to take into consideration, such as:

Diet - Improper diet through high intake of refined and processed foods, alcohol and fad diets can all lead to a chemical imbalance. Even the nutrient content of a "healthy" diet can be inadequate, depending upon the soil in which the food was grown or the method in which it was prepared.

Stress - Physical or emotional stress can deplete the body of many nutrients while also reducing the capability to absorb and utilize many nutrients.

Medications - Both prescription and over-the-counter medications can deplete the body stores of nutrient minerals and/or increase the levels of toxic metals. These medications include diuretics, antacids, aspirin and oral contraceptives.

Pollution - From adolescence through adulthood the average person is continually exposed to a variety of toxic metal sources such as cigarette smoke (cadmium), hair dyes (lead), hydrogenated oils (nickel), anti-perspirants (aluminum), dental amalgams (mercury and cadmium), copper and aluminum cookware and lead-based cosmetics. These are just a few of the hundreds of sources which can contribute to nutrient imbalances and adverse metabolic effects.

Nutritional Supplements - Taking incorrect supplements or improper amounts of supplements can produce many vitamin and mineral excesses and/or deficiencies, contributing to an overall biochemical imbalance.

Inherited Patterns - A predisposition toward certain mineral imbalances, deficiencies and excesses can be inherited from parents.

Q. Can vitamin requirements be determined from a mineral test?

A. Minerals interact not only with each other but also with vitamins, proteins, carbohydrates and fats. Minerals influence each of these factors, and they, in turn, influence mineral status. Minerals act as enzyme activators, and vitamins are synergistic to minerals as coenzymes. It is extremely rare that a mineral disturbance develops without a corresponding disturbance in the synergistic vitamin(s). It is also rare for a disturbance in the utilization or activity of a vitamin to occur without affecting a synergistic mineral(s). For example, vitamin C affects iron absorption and reduces copper retention. Boron and iron influence the status of vitamin B2. Vitamin B2 affects the relationship between calcium and magnesium. Vitamin B1 enhances sodium retention, B12 enhances iron and cobalt absorption, and vitamin A enhances the utilization of zinc, while antagonizing vitamins D and E. Protein intake will affect zinc status, etc. Therefore, evaluating mineral status provides good clues of vitamin status and requirements. Continuing research at Trace Elements involves the recognition of many synergistic and antagonistic interrelationships between minerals and vitamins.

Q. What do I receive when I order a complete hair analysis profile?

A. After hundreds of thousands of hair analysis, Trace Elements has created a unique system of interpreting hair mineral analysis results. Each test report will provide you with the most complete and comprehensive evaluation and discussion of significant mineral levels, ratios and toxic metals as tested in the hair. Included is a listing of individual foods and food groups that are recommended that you eat or avoid in accordance with food allergy indicators and individualized metabolic requirements.

Q. Is Hair Tissue Mineral Analysis supported by research?

A. Hair tissue mineral analysis is supported by an impressive body of literature in a variety of respected national and international scientific publications. Over the past fifteen years, hair mineral testing has been extensive. Each year in the United States alone, federally licensed clinical laboratories perform over 150,000 hair mineral assays for health care professionals interested in an additional screening aid for a comprehensive patient evaluation. This does not take into consideration the thousands of subjects used in numerous continuing research studies

conducted by private and government research agencies.

Hair specimens can be collected more quickly and easily than blood, urine, or any other tissue, using a non-invasive method.

Hair analysis is more cost-effective than mineral testing through other means.

Unlike blood, hair is less susceptible to the homeostatic mechanisms that quickly affect trace element levels.

Long-term deviations of mineral retention or losses are more easily detected in hair than blood.

Concentrations of most elements in the hair are significantly higher than found in the blood and other tissues.

Hair provides a record of past as well as present trace element levels, i.e. biological activity.

Hair provides information of substances entering the hair from the blood serum as well as from external sources.

Hair is invaluable in the assessment of toxic metal levels.