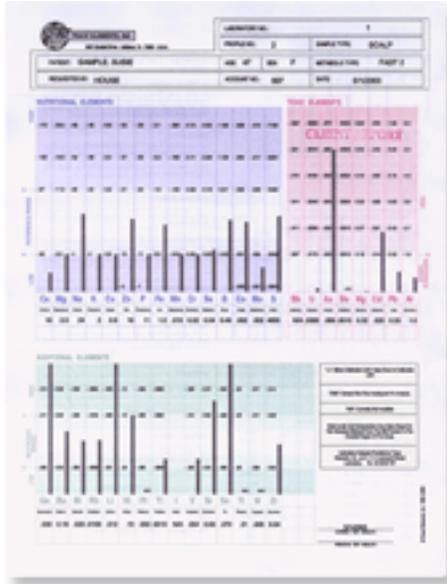


## Questions and Answers About Trace Mineral Hair Analysis

*Q. What is hair mineral analysis?*

A. Hair tissue mineral analysis is an laboratory-evaluated certified test that is designed to measure mineral levels present in hair. Through a series of very specific laboratory procedures, a hair sample taken from the first inch of hair growth closest to the scalp, is used to prepare a detailed report of not only mineral levels, but heavy metal content and metabolic rate.

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



A. Blood can only show levels of minerals and heavy metals at that moment that the blood is drawn. It does not show a pattern, nor provide the opportunity for an evaluation over time, unless more samples are taken separately. Also, the body's physiology provides for maintaining your blood mineral levels at the detriment of tissue. So your blood levels may be fine, but in the tissues, the mineral levels may be very high or very low, creating symptoms. Toxic metal exposure will only be present in the blood for a short period of time, unless the exposure is continual and at high levels. In fact, 30-40 days after acute exposure, your blood levels of lead may be undetectable, as it will have moved into tissue. This does not prevent symptoms from developing due to the high levels stored in your body's tissues. Nutrient loss from the body due to things like lead or mercury, can continue for such a long period of time that severe health conditions can develop without any change in the nutrient levels in the blood.

In fact, autopsies as a standard will take tissue samples including hair, as opposed to blood samples, in order to determine mineral and toxic element levels. 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. And excessive amounts stored in tissue can actually inhibit the normal and natural function of that tissue. For instance, a blood test may indicate high liver enzymes, which would mean that the liver is heavily involved in processing a toxic material or that the liver is not functioning at an optimal level. But the blood test does not indicate the reason for this liver reaction, which can be heavy metal exposure, a cause that would be detected in a Trace Mineral Hair Analysis.

*Q. What can cause a mineral imbalance?*

A. There can be many factors that will affect mineral balance.

**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), antiperspirants (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. 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.

"The result of research studies indicate that hair mineral analysis can be useful as a diagnostic tool in the examination of trace metal exposure, including abnormal nutritional intake, and may assist in the study of certain mental states. They (hair mineral analysis) may suggest mineral imbalances present in the body that perhaps could be rectified by a mineral supplemented diet."

"Hair metal testing is a fascinating new diagnostic tool and often gives unexpected clues to mineral imbalances in the body. The authors would support this statement from the results that they have accumulated to date."

Barlow, P. J.; Kapel, M.: Metal and Sulfur Contents of Hair in Relation to Certain Mental States. Hair, Trace Elements, and Human Illness Brown, A.C.; Crouse, R. G., eds. Praeger Publications, 1980.