

# 1 Introduction

A hair tissue mineral analysis (HTMA) is a screening test that measures the levels of twenty minerals and toxic metals present in a sample of hair. Minerals are the 'spark plugs' of life and play many important health related roles within the human body. Providing a 'window into the cells', hair makes an excellent biopsy material and reveals a clear record of mineral metabolism. Hair, like all other body tissues, contains minerals that are deposited as the hair grows. Although the hair is dead, the minerals remain as the hair continues to grow. The minerals and toxic metals are locked inside the hair during the growth stage as the body uses it for the storage and elimination of minerals.

A hair tissue mineral analysis reflects long term metabolic activity as it measures an average of mineral accumulation over a three-month period of time. This is often an advantage as the test results are not influenced by day-to-day variations in body chemistry due to stress, diet or other factors. Creating a blueprint of one's individual biochemistry, a hair tissue mineral analysis can assist in identifying mineral patterns which may be associated with

- Stress,
- Metabolic rate,
- Glucose-insulin metabolism,
- Cell potential (cell permeability),
- Inflammation and immune health,
- Digestion and intestinal health,
- Liver and kidney stress,
- Biochemical energy production and
- Disturbances in adrenal and thyroid activity.

It thus provides essential information for a good total diagnosis and about tendencies that take place in the body that can lead to disease or already do so in the long term. The uniqueness of the HTMA is that the patterns from the analysis are correlated to various health parameters, creating an important part of a "system diagnosis".

It is important to understand that the test provides information about processes and trends towards what Prof. Antonovsky once mentioned the 'ease - disease continuum' (literally: ease - discomfort continuum), with which he wanted to indicate that there is not a black and white boundary between 'healthy' and 'sick' but a continuous line whose extremes are 'severe ill' and 'completely healthy'.

Somewhere along this line, the body crosses a boundary where disturbances also acquire a visible (= structural) character (= the specific field of activity of regular diagnostics). We then speak in a clinical sense of a "disease". If you are in front of this line, you are generally "not sick" in the eyes of conventional medicine. The hair analysis can only be properly interpreted by the professional therapist in relation to a complete medical history and additional laboratory or regular clinical examination where necessary.

In addition to the mineral status of the body, the report mainly provides a summary of the state of the regulatory systems, i.e. the autonomic nervous system, the glucose-insulin metabolism and the hormones (especially the adrenal glands and thyroid) and the intestinal metabolism.

An abnormal function (for example of the adrenal glands) has only three variants, it is normal, too fast or too slow. In our modern times, many complaints and disorders are stress-related, but it should be noted that stress has a much broader meaning than that which is usually associated with it (= psychological stress).

This also means that the description of the hair analyzes has only limited variation. Multiple reports from different people will show a great deal of similarity, as almost everyone has to deal with a disturbance in the stress system and metabolism. The effect of these disturbances on the metabolism, in terms of a disturbance of the mineral balance, is very different individually, although certain frequently occurring patterns are recognizable there too. How it manifests itself in complaints or disorders can be very different from person to person, depending on the constitution ("the dike breaks through where the weakest spots are"). The intervention is also geared to the results of the hair mineral analysis.

*Important:*

*What can you expect from a treatment based on this (and possibly additional) research. It is important that you understand that the treatment is at no point aimed at suppressing complaints quickly and briefly. The treatment is aimed at a sustainable restoration of a healthy balance in the total body, whereby work is done on a cure of the disease or stopping the progress of destructive disease processes. This takes time. In some cases it can take more than a year to reach a stable, healthy end situation. Of course, you must be able to observe a clear improvement in complaints and condition during that period. We repeat the hair analysis every three months in order to be able to determine the progress objectively and to adjust and adjust the therapy based on the current state of affairs.*

## **2 Laboratory Analysis**

The accuracy and reliability of the test results and interpretation is based directly upon the laboratory receiving a properly collected hair sample that is clean and free from external contaminants. It is difficult for the laboratory to decide as to whether the sample was taken properly. Accordingly, the laboratory assumes no responsibility for results from an improperly submitted hair sample.

- Test results - The ideal values for minerals are indicated by the dark gray bands, i.e. calcium 40 mgs%, magnesium 6 mgs%, sodium 25 mgs%, potassium 10 mgs%, etc. *Your mineral values are printed directly above the name of each mineral. The black rectangle blocks represent a bar graph showing where your values lie in relation to the ideal values. Significant mineral ratios and your oxidation rate are located at the bottom of the graph.*
- Reference ranges (blue shaded area) indicated on the graph of test results represent statistical 'ideal' levels. These reference ranges should not be considered as absolute in considering mineral excesses, deficiencies or toxic levels of elements.
- The results of the hair tissue mineral analysis are reported in milligrams percent (mg%) or milligrams per 100 grams of hair.
- Test results were obtained using sophisticated ICP-MS instrumentation and procedures in a clinical laboratory environment with government regulatory standards in the USA (Dept. Of Health and Human Services, Clinical Laboratory Improvement Act) and in the Netherlands.

### 3 Results

