

the appearance of nails, as shown in Table 4, and the visual nail evaluation has long been used as an early test, followed by testing the actual nail mineral concentration.

Table 4:



However, no test can tell all, and a positive thallium or arsenic concentration in nail would have to be followed up by a blood or urine test to evaluate if immediate intoxication presents a problem. Checking of additional human specimen can rule out or substantiate if the patient is at risk for immediate and acute intoxication, or if the exposure happened in the past.

Each mineral test reflects on only *one* specific metal pathway within the human system, herewith a short refresher:

1. Blood

After exposure, toxic and nutritional metals circulate in the blood stream for approximately 72 hrs, after which they are excreted or deposited in body organ and tissue. Hence, blood values represent a rather short period of intake or exposure.

2. Urine

Test values are excretion values. The amount of metal not deposited after exposure or intake will be excreted through the various excretory mechanisms within the human system. The renal system is only one pathway through which metals are eliminated from the body. Thus, the urine metal concentration of a baseline urine is another reflection of immediate intake or exposure.

3. Saliva

The metal concentration of saliva is a direct reflection of the amount of metals released from dental metals. No more, and no less. Since dental metals released into saliva will find its way into the digestive tract and most likely, the blood stream, the importance of this simple test cannot be underestimated.

4. Feces

The metal concentration of fecal matter is a direct reflection of metal intake through food, medication, nutritional supplements and amalgam metals (see saliva). It only reflects the oral intake within the last day or more, depending on the individual's digestive ability.

5. Hair

This misunderstood and misrepresented test reflects the body's metal concentration in tissue. Hair is tissue and closely represents bone tissue. Thomas stated in Labor and Diagnosis (Med.Publication Marburg 1992, pg430) that distribution of aluminum and cadmium in hair closely resembles the metal concentration in bone. Metals such as Thallium or lead are more readily distributed in hair than in bone and other tissue. Hence, hair analysis allows early monitoring of toxic exposure.

6. Nails

Hair and nails are similar tissues with similar structures. Along with hair and teeth they are an appendage of the skin. These tissues accumulate metals that circulate in the blood stream. Whatever is not excreted remains to be deposited in tissue. Due to the growth pattern both hair and nail reflect past or chronic exposure.

In the 1980s, the author (then laboratory director of Trace Minerals International of Boulder, Colorado) established reference ranges for nail as compared to hair. Since then, the laboratory, now called Micro Trace Minerals, has re-evaluated and researched nail analysis as a useful indicator for nutrient mineral and toxic metal evaluation. The following research summaries support the validity of nail analysis.

For more information; www.microtraceminerals.com or contact the author at ebb@microtrace.de, or service@microtrace.de.

MICRO TRACE MINERALS

Labor für Umweltmedizinische Untersuchungen/

(Continued on next page)