**Levels**

All mineral levels are reported in milligrams per cent (milligrams per one-hundred grams of hair). One milligram per cent (mg%) is equal to ten parts per million (ppm).

**Nutritional Elements**

Extensively studied, the nutrient elements have been well defined and are considered essential for many biological functions in the human body. They play key roles in such metabolic processes as muscular activity, endocrine function, reproduction, skeletal integrity, and overall development.

**Toxic Elements**

The toxic elements or "heavy metals" are well-known for their interference upon normal biochemical functions. They are commonly found in the environment and therefore are present to some degree in all biological systems. However, these metals clearly pose a concern for toxicity when accumulation occurs to excess.

**Additional Elements**

These elements are considered as possibly essential by the human body. Additional studies are being conducted to better define their requirements and amounts needed.

**Ratios**

A calculated comparison of two elements to each other is called a ratio. To calculate a ratio value, the first mineral level is divided by the second mineral level.

**Example:** A sodium (Na) test level of 124 mg% divided by a potassium (K) level of 10 mg% equals a Na/K ratio of 2.4 to 1

**Significant Ratios**

If the synergistic relationship (or ratio) between certain minerals in the body is disturbed, studies show that normal biological functions and metabolic activity can be adversely affected. Even at extremely low concentrations, the synergistic and/or antagonistic relationships between minerals still exist, which can indirectly affect metabolism.

**Toxic Ratios**

It is important to note that individuals with elevated toxic levels may not always exhibit clinical symptoms associated with these particular toxic minerals. However, research has shown that toxic minerals can also produce an antagonistic effect on various essential minerals, eventually leading to disturbances in their metabolic utilization.

**Additional Ratios**

These ratios are being reported solely for the purpose of gathering research data. This information will then be used to help the attending health-care professional in evaluating their impact upon health.

**Reference Ranges**

Generally, reference ranges should be considered as guidelines for comparison with the reportor test values. These reference ranges have been statistically established from studying an international population of "healthy" individuals. Important note: The reference range should not be considered as absolute limits for determining deficiency, toxicity or acceptance.