

Trace Mineral Supplementation and the Effect on Total Nutrient Serum Levels

The Institute Of Nutritional Science
Department Of Research & Product Evaluation
June 1993

The action of trace minerals as catalysts in a plethora of biochemical bodily functions has long been known. Our goal was to determine the effect of a rapidly absorbed trace mineral source on the serum levels of the full spectrum of known nutrients. Our testing program employed the use of 96 volunteers ranging in age from 23 to 81 years. Some of these individuals were of general good health while others indicated physical problems which ranged from minor to major chronic disease conditions. The only common criteria were that all participants had to have been taking some form of vitamin / mineral supplementation on a regular basis prior to beginning this study. Samples of nutrient serum levels were taken at the outset as well as several times throughout the day, each day of the program. We found that even though all Participants had been taking nutrients, the addition of trace mineral supplementation provided a marked increase in nutrient retention and availability. This was determined by observing a measurable increase in nutrient levels in the blood for a greater period of time. Overall, an 86% increase in nutrient availability was demonstrated with the use of trace mineral supplementation as opposed to when the same nutrients were given without the trace minerals.

The role of trace minerals in human biochemistry is well documented. The trace minerals germanium, chromium, iron, iodine, selenium, zinc and even lithium, have received much public attention through the works of leading nutritionists and medical researchers. The trace mineral spectrum however, is much wider than these better known minerals. In fact it encompasses over 50 individual minerals.

It is established that these trace minerals mentioned above act as catalysts for a wide variety of biochemical activities necessary in the sustaining of human life. Protein metabolism, glucose metabolism, oxygen uptake, immune function, sexual functions, growth and even metabolic rate are all governed by the proper amounts of trace minerals.

Nutrient dependency, the concept that vitamins and minerals do not work in isolation but rather are dependent upon each other for their actions, lead us to question if the presence of certain nutrients could enhance the retention of some or all of the others. Since trace minerals provide the foundation for countless biochemical functions and hence are the basis of human nutrition, upon which all other nutrients are based, we elected to determine the effects of adequate, broad spectrum trace mineral supplementation on the serum levels of all nutrients.

For testing we used a liquid trace mineral formula derived exclusively from colloidal sources. To this we supplemented a customized vitamin/mineral formula best suited to the needs of each individual participant.

No dietary restrictions were imposed; rather each participant was instructed to continue with the same eating habits as they were accustomed.

The test program consisted of 96 participants. Age of participants ranged from 23 to 81 years of age with the mean age being 42. A broad cross section of individuals participated in this testing; some had no physical complaints whatsoever, while others suffered from minor complaints. Still others indicated that they are or had been suffering from a variety of chronic conditions.

After a physical and dietary profile was taken on each participant they were instructed to make no changes in their dietary intake and that they were to cease taking any and all nutrient supplementation for three days prior to the testing. Further, they were to make no changes in their physical activities.

Each participant was given a customized vitamin mineral formula in tablet form and instructed to take two tablets with each of three meals daily. Blood samples were drawn and serum nutrient levels for 43 nutrients were measured at varying times throughout the day to determine the serum nutrient levels from the vitamin mineral source. These levels were measured for 10 consecutive days to establish a mean level for each of 7 specific times during the 24 hour day.

With this pattern established for each participant, we added one ounce of a liquid colloidal trace mineral supplement to the nutrient supplement program of each participant. Again we measured the levels of serum nutrients at the same times during the 24 hour day.

Every 10 days we added another ounce of the concentrated colloidal mineral supplement and continued to measure the serum levels of the 43 individual nutrients. This pattern was continued until we reached the level of 6 ounces of the trace mineral supplement.

The results of this controlled study clearly indicated that the presence of broad spectrum trace minerals together with proper nutrient supplementation provides a marked increase in the overall nutrient retention of ALL nutrients tested.

The most dramatic increase in retention was observed in the B-complex group and in Ascorbic Acid, water soluble nutrients that are typically lost rather rapidly via the urine. As we increased the level of trace mineral supplement, the time between ingestion and dissipation of these water soluble nutrients increased proportionately. This was observed up to the level of 4 ounces a day of the colloidal mineral base, after which higher doses did not seem to make any marked difference.

While further testing is necessary it would seem that trace mineral supplementation not only provides the human biochemistry with the catalysts of life but somehow assists the body in regulating the nutrient levels of all essential vitamins and minerals.

Further we feel that by using specialized nutrient formulas for each of the individual participants, we were able to increase the initial availability of those nutrients specifically needed by the participant.

Physiological effects observed by a majority of the participants included increased energy, lack of fatigue at typical hours during the day, sharper cognitive response later in the day than typical, and in some cases, an improvement or cessation of some or ALL of their physical complaints.

REFERENCES

Duang P; Wu W; Lang S: Trace elements & ischemic cerebral vascular disease. Ann NY Acad Sci. 1993 Mar 15; 676:340-1

Burkholder WJ; Swecker WS Jr.: Nutritional influences on immunity. Review Article Semin Vet Med surg 1990 Aug; 5 (3) 154-66

Malone WF: Studies evaluation antioxidants & beta-carotene as chemopreventives. Am J Clin Nutr. 1991 Jan, 53:3053-313S

Abraham AS; Brooks BA; Eylath U: The effects of chromium supplementation on serum glucose & lipids in patients with & without non-insulin-dependent diabetes. Metabolism 1992 Jul; 41 (7):768-71

Journal of Micronutrient Analysis, Barking, Essex 1985

Metabolism of Minerals & Trace Elements in Human Disease proceedings of the international symposium, New Delhi, India September 1987

Disorders of Mineral Metabolism Edited by Felix Bronner & Jack W. Coburn New York 1981

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