

Customized Supplementation Based Upon Your Special Needs. Is It Possible?

by J. Alexander Bralley, Ph.D.

Would you buy a suit of clothes without first trying it on for size? Similarly, why would you buy a nutritional supplement where one-size-fits-all? People are as unique in their nutritional requirements as they are in their physical appearance. There are male/female, age, weight, genetic background and ongoing environmental influences which can greatly affect the need for different nutrients or amounts which would be best for an individual.

With the growing recognition of the benefits to good health and longevity afforded by a good nutritional supplement program, the question arises as to what would be most appropriate for you to take to best match your individual needs. Are you taking the right nutrients? Are you taking the proper amounts, not making expensive urine but getting optimal amounts into the blood stream? Are you absorbing your nutrients properly? Or, are those antacids adversely affecting absorption? These are all questions which need to be addressed to most effectively design a supplement program for you.

Fortunately, modern technology can help answer these questions. There are ways to measure various nutrients in your system or their effects. However, this type of complex testing can be quite expensive. Although it is increasingly employed to custom design supplement programs, the expense of testing puts it out of reach to most people.

Therefore a more practical approach can be to look at major category differences which can distinguish a person's principal needs for specific functional nutrients. There are well documented differences in individual requirements regarding age and gender. Older people have increased needs as compared to younger ones. Women have different nutrient needs than men.

In addition, evaluation of three areas of human physiological function where nutrition has a profound influence can provide effective guidelines in designing a supplement product geared to individual requirements. These three areas of assessment would be:

1. Antioxidant protection against oxidant stress
2. Detoxification ability
3. Inflammatory processes regulated by Nitric Oxide activity

A program which involves evaluation of gender, age and these three categories of assessment could provide a cost effective solution to the problems discussed above.

These three areas can be assessed by measuring certain compounds in an overnight urine sample. The following is a brief synopsis of how this is done and what it means for individual nutrient requirements.

Assessment of these three functional parameters along with basic personal information can provide a cost-effective means to determine an individual's essential supplementary requirements. This approach is a major step towards bringing testing and supplement customization close to an affordable level for most people.

If a business entity can find a means to offer these tests and a scientifically formulated product at a reasonable price, they will have a distinct, first-to-market advantage. Individualization of nutrient needs based upon direct evaluation is the wave of the future in the supplement industry. People will no longer have to guess what they should be taking among the bewildering variety of nutritional products. Testing for specific needs is the best way to get value in the nutritional market.

1. Oxidant Stress

Antioxidants in the body have become well known in recent years because of their recognized ability to protect the body from cellular damage caused by chemicals generated in the body called "free radicals." Antioxidants are thought to be critical for the prevention of many degenerative diseases including cancer and cardiovascular disease. A well documented measure of overall antioxidant protection is called lipid peroxides. These molecules are generated in response to lack of adequate antioxidant protection in the tissues. The damaging effects of free radicals normally controlled by antioxidant systems can lead to an elevation of lipid peroxides, which can be measured in a urine sample. High levels of lipid peroxides indicate inadequate antioxidant protection in tissues. Normal levels indicate adequate protection. Appropriate amounts of these important nutrients can be indicated by this test result. If you are under "oxidant stress," additional amounts of antioxidants would be required. If lipid peroxide levels are in an acceptable range, appropriate amounts of antioxidants could be recommended to assure your protection, since it's been demonstrated that adequate quantities of antioxidants cannot be provided by diet alone.

2. Detoxification Ability

The body is constantly having to eliminate toxic material from its system. These chemicals come both from inside and outside the body. Foods we eat and chemical pollution we are exposed to need to be converted to harmless by-products to →

be excreted. Intestinal bacteria and other micro-organisms are little chemical factories which can make many toxic compounds that need to be safely removed from the system.

The major organs which prevent the body from accumulating dangerous chemicals are the liver, kidneys and lungs. These organs, primarily the liver, use two categories of chemical reactions to neutralize potentially toxic compounds. Inadequate detoxification ability can lead to numerous health problems.

A major process in detoxification uses small naturally occurring molecules in the body which the liver connects to potentially toxic compounds changing their chemical nature. This changed chemical structure reduces the toxicity of the compound and allows for easier removal from the system. This critical detox process relies on an adequate supply of naturally occurring amino acids and other dietary compounds. Under conditions of prolonged toxic stress, poor diet, or other health problems, these detoxification chemicals can become depleted from the system. This lack of proper detox ability can lead to many health problems that are just now being documented.

Sulfate is a critical component of detoxification and is used by the liver to combine with many compounds as part of this detox process. Adequate amounts of sulfate coming primarily from amino acids are required for optimal detoxification. Urinary sulfate levels can indicate if a dangerous depletion of this detox ability is occurring. If so, this can be remedied by proper supplementation. It is important for a good supplement program to take this critical function of the body into account and at the very least provide adequate amino acid nutrients to bolster this detoxification system.

3. Nitric Oxide Regulation

Nitric oxide has recently become widely recognized as a critical molecule involved in the functions and dysfunctions of practically all systems in the body. The American Association for the Advancement of Science in 1992 named nitric oxide "The Molecule of the Year" as a result of the growing recognition of its widespread role in regulation of:

1. Nervous system
2. Blood pressure and clotting
3. Immune system
4. Gastrointestinal tract
5. Liver detoxification
6. Musculoskeletal system

Nitric oxide (NO) is produced from the natural amino acid arginine. It is generated by an enzyme called nitric oxide synthetase (NOS) in response to tissue demands. For example, when an infection occurs NO is produced at the sight of infection and stimulates white blood cells to attack the invading organisms. The immune response is in direct proportion to the ability of the body to generate adequate amounts of NO at the appropriate time. Research has shown that NOS activity can be significantly affected by nutrient insufficiencies and/or manipulations via supplementation. Therefore, nutrition can have a powerful influence on modulating NO activity in the body.

As with everything in life, balance is important. Either inadequate or excessive production of NO can result in physiological imbalances leading to a wide variety of disease states. Overproduction of NO can result in undue oxidant stress and deplete antioxidant systems. Too little NO can cause immune suppression, high blood pressure and G.I. dysfunction (to name a few).

NO is highly toxic to tissues and is present for only a few seconds before it is converted to less toxic forms of nitrite and nitrate which are excreted in the urine. Consequently, a measure of nitrate in urine is a good way to assess NO activity in the body. An appropriate supplement program can then be designed to best optimize nitric oxide activity in the body and not leave to chance the modulation of this critical regulatory process.

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