

Facts on Micronutrients for Health

Dr. John G. Schoenenberger

Micronutrients and electrolytes are exactly what human cell membranes need to carry out correct metabolism. While sub-optimal nutrition may be adequate for a period of time, a diet constantly lacking in these micronutrients will adversely affect every function and structure of human cells. Our metabolism will suffer, allowing for disease to enter the body. In fact, the causes of diseases have been simplified to very specific mechanisms, all of which center on cell membrane function and structure. Inflammation, oxidation, toxicity and mitochondrial dysfunction keep cell membranes from doing their job effectively.

Good nutrition will enhance the structure and function of all organs in our bodies. Each area of our bodies-the brain, muscles, heart, arteries, joints, bones, skin, hair, hormones, immune system, vision, digestion, kidneys and liver-will carry out their jobs much better. Metabolically, fats and sugars can be optimized, thus providing more overall energy, minimizing weight problems and improving sleep. These nutrients improve mental function and memory. They reduce depression, harmful effects of stress, and mood swings.

Despite the evidence to favor a more nutrient-based approach to health care, our health care system is excessively dependent on pharmaceutical approaches. This is why many people refer to the health care system as a “disease care” model, which has often been slow-moving towards prevention, nutrition and non-pharmaceutical approaches.

The article “Health Industry Practices That Create Conflicts of Interest: a Policy Proposal for Academic Medical Centers,” JAMA 2006; 295:429) is one of many recent reports calling for a change in this over-reliance on prescription drugs. This article states that such change will likely result in physicians returning to more non-pharmaceutical modes to treat patients.

These are exciting days, when everything we have discovered about health, disease and nutrition is being confirmed by sound science. This is causing a major shift in the way physicians and patients address chronic issues of health and disease. Of course, naturopaths, chiropractors, herbologists and other caregivers have known for a number of years that food is the best medicine.

The new science of Metabolomics (American J. Clinical Nutrition 2005; 82:497) is revolutionizing the way we think about health and disease. Its simplicity is astounding, especially when we realize that we have always intuitively known the principles that

Metabolomics is founded upon: energy produced by our cells is crucial for them to carry out their assigned duties. For our cells to metabolize, they need air, food and the ability to get rid of the “metabolites,” or toxins of combustion generated by our production of energy, or metabolism.

Just like an ordinary machine, our own cell metabolism needs air, fuel and a mechanism to dispose of fumes and waste products. It does not matter where the cells are in our bodies; they all require the same nutrients.

They have different outputs and functions, but they essentially work the same way. In essence, they all require energy and also need a way to take out the garbage.

Cell communication takes place mostly at the outer level, the cell membrane, which is equipped with antennae, or radar-like glycoproteins. These “receptors” are literally shaped into “lock-like” structures by the energy produced within the cells themselves. Messages turn out to be “key-like” glycoproteins, or molecules that will need to match the lock. The mitochondria are specialized organelles in charge of producing the energy necessary to fuel all activity within the cell. Mitochondria function takes place primarily in the cell membranes.

While the nuclei are very important to all cells, they are only a blueprint to guide the production of each cell. The messages produced in the nuclei, are sent from the cell membrane, and received by other cells’ membranes throughout the body (J. Science, May 31st, 2002 & 2003; 300:1461-1604).

The structure and function of cell membranes is extremely important for our receptors to successfully receive the messages generated from other cells, thus coordinating our cells’ metabolism and function. And, what are our cell membranes made up of? Sugars, proteins and fats! In other words, nutrition provides not only fuel needed for our cells to function, but also the very molecules our cells need for proper structure. A failure to eat properly will result in the ability for disease to infiltrate the body. No wonder it is said that food is the best medicine (“Life’s Complexity Pyramid,” J. Science 2002; 298:763)!

A classic example of “**failure to communicate**” at the cellular level is insulin resistance, the scourge of modern man. Simply put, cell membranes throughout the body are becoming rigid and inflexible because of poor dietary intake, environmental pollution and stressful lifestyles, thus compromising response to the most important metabolic messenger: insulin. Insulin finds the receptors and the cell membrane somewhat unresponsive, which can trigger an assortment of disease (“Second world congress on the insulin resistance syndrome,” J. Diabetes Care 2005; 28:2073).

It is simple: due to our diet, environmental pollution and stressful lifestyle, cell membranes can become rigid and unresponsive, thus compromising metabolism by interfering with cell communicating messages (“The puzzle of complex diseases,” J. Science 2002; 296:698). Cell membranes are then oxidized, toxic, inflamed, and lacking in mitochondrial metabolism. This fulfills the prediction by a physicist, David Deutsch, who stated that the day would come when medicine would figure out that very simple concepts are at the root of all health issues, much the same as physics is based on very simple and all-encompassing principles (“The Fabric of Reality,” 1997).

Micronutrients are needed by cells to maintain cell membrane integrity and function. Micronutrients create good cell communication and fuel the cells’ mitochondria to make energy. Also, these micronutrients are needed to fuel detoxification, which is necessary in any organism or machine creating energy (compared to engine combustion). Since energy absorption requires good intestinal function, micronutrients heal the intestinal lining and increase the availability of these molecules. The intestinal lining is made up of cells that may become “leaky,” thus compromising energy/nutrient absorption, the elimination of toxins from the environment, and our own metabolism.

- Supplements need for cell strengthening **CoQ10, alpha lipoic acid, magnesium, copper, Vitamins C, E, B1, B12, creatine, glutathione, carnitine, Omega-3 (with a high DHA- 1-2 gm daily) Premium Red.**