

PQQ and the Little Engine that Could

Whenever I talk to my clients about different products and their benefits, I tend to get all excited and launch into conversations with words like mitochondrial biogenesis, adenosine triphosphate, and coenzyme / cofactors and I watch their eyes glaze over as they search for the door. I realize, at that point, I better dial it back a bit, otherwise, I'll never get them as excited, as I hope they would get about a product.

One product Dr. Kendall Stewart, MD and I are excited about is PQQ or Pyrroloquinoline quinone, I know, that's a mouthful, so let's stick to PQQ. Although it is not currently viewed as a vitamin, it is a vitamin-like compound likely to be considered an essential nutrient in the future with a wide range of benefits to brain and body function.

Before I launch into one of my exciting discourses on mitochondrial biogenesis and such, let's first get down to the basics, the mitochondria your cell's power-plant.

Think of it this way: there are hundreds of muscles in our body. In each muscle there are thousands of fibers, in each fiber there are millions of microscopic sections. Every time we move a muscle, each section reflexes or contracts independently. ATP is the blast of metabolic energy that makes that happen.

It takes one molecule of ATP in order to make one of those sections have the energy to either reflex or contract just once. 36 ATP are produced from 1 glucose molecule. WOW! So obviously we need glucose but we also need all the cofactors and coenzymes, (vitamins and minerals) such as, many of our B vitamins, to make just 36 molecule of ATP. Like the engine in a locomotive, this is all done in the mitochondria.

In order to increase mitochondrial output, there must be adequate fuel supply for combustion and abundant antioxidants to scavenge *free radical* by-products. Think of *free-radicals* as the rust on your car when the paint is oxidized. That can actually happen to your tissue cells, otherwise known as oxidative stress or rust☺ Anti-oxidants keep us from--rusting. PQQ is also an extremely powerful antioxidant compared to other antioxidants. For example, PQQ is able to carry out 20,000 catalytic conversions compared to only 4 for vitamin C.

Preserving our energy reserves and increasing energy output is a critical part of maintaining optimal health. There are many things that can drain energy reserves. Lack of sleep, too much stress, poor nutrition, and prescription medications can draw on our energy reserves using them up faster than they can be replenished.

PQQ not only protects mitochondria from oxidative stress—it also promotes the spontaneous generation of new mitochondria within aging cells, a process known as mitochondrial biogenesis. There I go again! Suffice to say, this effect is a “fountain of youth” for mitochondrial function.

Here is an interesting factoid: PQQ has recently been tentatively identified as a component of interstellar dust. Thus, PQQ may have been present throughout early biological conception and evolution.

Current research has primarily focused on its ability to protect memory and cognition in both aging animals and humans. Here are just some of the effects noted in these studies:

- PQQ reverses cognitive impairment caused by chronic oxidative stress and improve performance on memory tests.
- PQQ supplementation stimulates the production and release of nerve growth factor.
- PQQ protects brain cells against oxidative damage in models of strokes.
- PQQ protects the brain against neurotoxicity induced by other powerful toxins, including mercury, and glutamate.
- PQQ prevents development of a protein associated with Parkinson's disease.

- PQQ also protects nerve cells from the damaging effects of the beta-amyloid-protein linked with Alzheimer's disease.

The product that I like is CogniQ by Neuro Biologix. The great thing about CogniQ is that it is PQQ and CoQ10 combined. Why is that great? Because now that we know what PQQ is, CoQ10 in the ignition of the cell, like the ignition in your car, it turns on the engine. Brilliant product!!

Best of Health!

Radhia Gleis, Wellness Director,

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