

Maximum Wellness 4.22.2020
The Micronutrient Zinc Is a Key Player in Our Immune Defense

As the second most abundant micronutrient in the human body behind iron, zinc is critical for multiple cellular biological processes – differentiation (the process where cells become more specialized), apoptosis (targeted cell death), and proliferation (multiplication of similar cells), according to A Guide to Human Zinc Absorption: General Overview and Recent Advances of In Vitro Intestinal Models, which was published in the March 2020 issue of the online journal Nutrients.

In vitro refers to studies performed outside the living body, while in vivo means within the body.

The German reviewers comment that, “the micronutrient (zinc) has to be supplied with food on a daily basis.” And, its balance (homeostasis) is predominately determined by intestinal absorption – its bio-accessibility and bioavailability in the intestine.

Zinc binds to roughly 2800 proteins, which means that zinc is critical to growth and development of an organism – requiring distribution in all compartments of the human body.

The adult human has approximately 2.6 grams of zinc - with 86% is located in bone and skeletal muscle, skin 4.2%, and liver 3.4%. Here's where the immune modulation effect comes in. Zinc-containing entities also include the thymus gland and mucous membranes.

The thymus is a tiny gland that shrinks with age – supporting immunity through the maturation of T cells, which are part of the body's defense network, and autoimmunity – protecting the body, when the immune system turns against itself.

Mucous membranes are a strong component of the immune system – which cover the digestive and urogenital tracts, the respiratory canal, the eye conjunctiva, inner ear, and most exocrine glands, which secrete substances on the body's surfaces, like saliva glands.

The German researchers point out that the small intestine, pancreas, and liver play key roles in zinc's maintenance in the body.

The National Institutes of Health (NIH) says that the spread of the daily zinc requirement – 2 milligrams to 13mg. – is age specific – with most multivitamin / mineral formulas providing 15mg. The World Health Organization (WHO) reports that one-third of the world's population are at risk for zinc deficiency.

Zinc food sources includes, oysters, which contain more zinc per serving than any other food. Red meat and poultry provide the majority of zinc in the American diet. Other good food sources include beans, nuts, certain types of seafood (such as crab and lobster), whole grains, fortified breakfast cereals, and dairy products.

The NIH notes that, phytates—which are present in whole-grain breads, cereals, legumes, and other foods—bind zinc and inhibit its absorption. Thus, the bioavailability of zinc from grains and plant foods is lower than that from animal foods, although many grain and plant-based foods are still good sources of zinc.

From a dietary supplement standpoint, the NIH says, supplements contain several forms of zinc, including zinc gluconate, sulfate, and acetate. The percentage of elemental zinc varies by form. For example, approximately 23% of zinc sulfate consists of elemental zinc; thus, 220 mg of zinc sulfate contains 50 mg of elemental zinc.

Let me add zinc picolinate and chelate, which is bound to amino acids to improve absorption. Zinc citrate can help to prevent the potential aromatization of testosterone to estrogen in men on testosterone replacement therapy.

Too much zinc, in certain cases, can bind with the mineral copper, and reduce its bioavailability. Ask your physician, as to how much zinc is too much.

Zinc is a key driver of many human body processes, including maintaining a strong immune defense. It's said in sports that sometimes the best offence is a great defense.

My 5 locally operated GNC franchise locations – designated, as others, by the US Homeland Security Department as essential businesses – are open, offering online ordering for grab and go, along with full access to our sanitized stores. For those who desire product to be shipped, please email spencer@mackienutrition.com with your requests. Check mackieshilstone.com for store locations and hours of operation.

You'll also find videos of my Fitness in Small Spaces exercises. Be well.

