New Beginnings NUTRITIONALS

Helping Children, Adults, and Families Make a Difference

The Importance of Zinc

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Zinc is a mineral that is crucial to the human body, being involved in hundreds of different reactions and functions. However, it is among the minerals that are most likely to be deficient. The implications for this can be far-reaching.

Functions of zinc

Zinc plays a role in neurological and behavioral development in young children. Low maternal zinc status has been associated with diminished attention in newborn infants and poorer motor function at six months of age. Studies showed that zinc supplementation improved motor development in very low birth weight infants, and promoted attention and functional activity in infants and toddlers. Another study showed zinc supplementation was associated with better neuropsychological functioning in first-grade students.

Zinc plays a central role in the immune system, and people who are zinc deficient have increased susceptibility to pathogens. It is needed for proper development and function of the cells that provide non-specific immunity such as lymphocytes and natural killer cells. It also impacts antibodies, also known as B cells, which provide immunological reactions to specific invaders, and provide memory cells to pathogens it has encountered in the past. Zinc is also important to promote intracellular killing, healthy cytokine mediation and phagocytosis (the “eating up” of unwanted cells and immune complexes).

Furthermore, zinc plays a role in DNA replication, RNA transcription, cell division and cell activation, which means that it truly does impact our bodies at the cellular, genetic level.

Zinc also plays a structural role in the body, being a part of proteins and of cell membranes. Deficiency of zinc in biological membranes increases their susceptibility to oxidative damage and impairs their function. Zinc is present in many enzymes that act as catalysts for biochemical reactions – enzymes such as copper-zinc superoxide dismutase which is an antioxidant enzyme. In some enzymes it provides structural support, while in others it actually catalyses the reaction (makes reactions go faster and better!). Zinc’s role as an antioxidant in the body is one of its significant properties.

Symptoms of zinc deficiency

The symptoms of severe zinc deficiency include the slowing or cessation of growth and development, delayed sexual maturation, characteristic skin rashes, chronic and severe diarrhea, immune system deficiencies, impaired wound healing, diminished appetite, impaired taste sensation, night blindness, swelling and clouding of the cornea of the eye, and behavioral disturbances.

There is a serious genetic disorder resulting from impaired uptake and transport of zinc, called acrodermatitis enteropathica, which can be adequately managed with lifelong zinc supplementation.

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However, there are also milder zinc deficiencies that can still contribute to impaired physical and neuropsychological development and increased susceptibility to infections.

Foods that contain zinc

Shellfish, beef and other red meats are good sources of zinc. Legumes and nuts are relatively good plant sources, however availability and absorption from plant sources is somewhat more limited. Meat, eggs and seafood have better bioavailability due to the lack of compounds that inhibit zinc absorption, and the presence of amino acids that promote absorption.

Testing for zinc deficiency

You can certainly get a lab test done to show serum zinc levels. Some labs do red blood cell zinc levels, which is slightly more useful as it shows how much zinc is actually getting into the cells. But there is a much easier way to assess for zinc deficiency, and that is through a zinc challenge taste test. It is inexpensive and easy to do yourself at home. I suggest you test your whole family, as zinc deficiency is common in children and adults alike.

The basis of this test is that one of the symptoms of zinc deficiency is lack of taste sensation. Therefore, if you take the **ZincSync** liquid and it does not taste of anything, this indicates a signficant zinc deficiency. If the ZincSync has a slight taste (similar to hydrogen peroxide), it indicates a milder deficiency, while a strong metallic taste indicates adequate zinc levels. When giving this to a child with autism, you will be able to gauge their reaction to tell how strong the taste it.

It is a simple test – just take 2 teaspoons of ZincSync, hold it in your mouth or have your child hold it in their mouth for 10 to 30 seconds before swallowing. Then assess the level of taste that it has. If you find that you or your child are deficient, indicated by not tasting much in the zinc liquid, take a tablespoon of ZincSync one to three times a day until a metallic taste is noticed. Once you have the metallic taste, inculcating that zinc stores are replenished, you can either continue on ZincSync or switch to one of the other forms of liquid or capsule zinc products, such as New Beginnings' **Zinc Picolinate** or **Ionic Liquid Zinc**.

Zinc supplementation

A typical dose of zinc supplementation is 25-50mg daily, depending on age and weight of the individual, and the level of deficiency. There are a few different forms of zinc available. **Zinc Picolinate** is a well-absorbed form that is easy to obtain and is quite inexpensive even at higher doses. **Chelated zinc** is bonded with amino acids to promote its absorption, while the **Ionic Zinc** has a smaller molecular size and comes in liquid form, which in some cases is easier to give children and the best absorbed as well. **ZincSync** is the liquid which is used both for the challenge test, and can be used as a supplement as well.

While zinc is typically very well tolerated, one must exercise some caution with high doses used long term as too much zinc can interfere with copper bioavailability. High intake of zinc induces the intestinal synthesis of a copper-binding protein called metallothionein, which traps copper within intestinal cells and prevents systemic absorption. Doses over 50mg daily on a prolonged basis should be monitored by your DAN Doctor or pediatrician to prevent nutrient imbalances.

Conclusion

Zinc is a key mineral, and is essential for life. It plays a significant role in immune function, wound healing, physical and neuropsychological development, and enzyme processes within the body. I recommend that you use the ZincSync as an assessment tool to see if you and your family have a zinc deficiency, as levels can be easily rebalanced with zinc supplementation to promote better health and well-being.

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