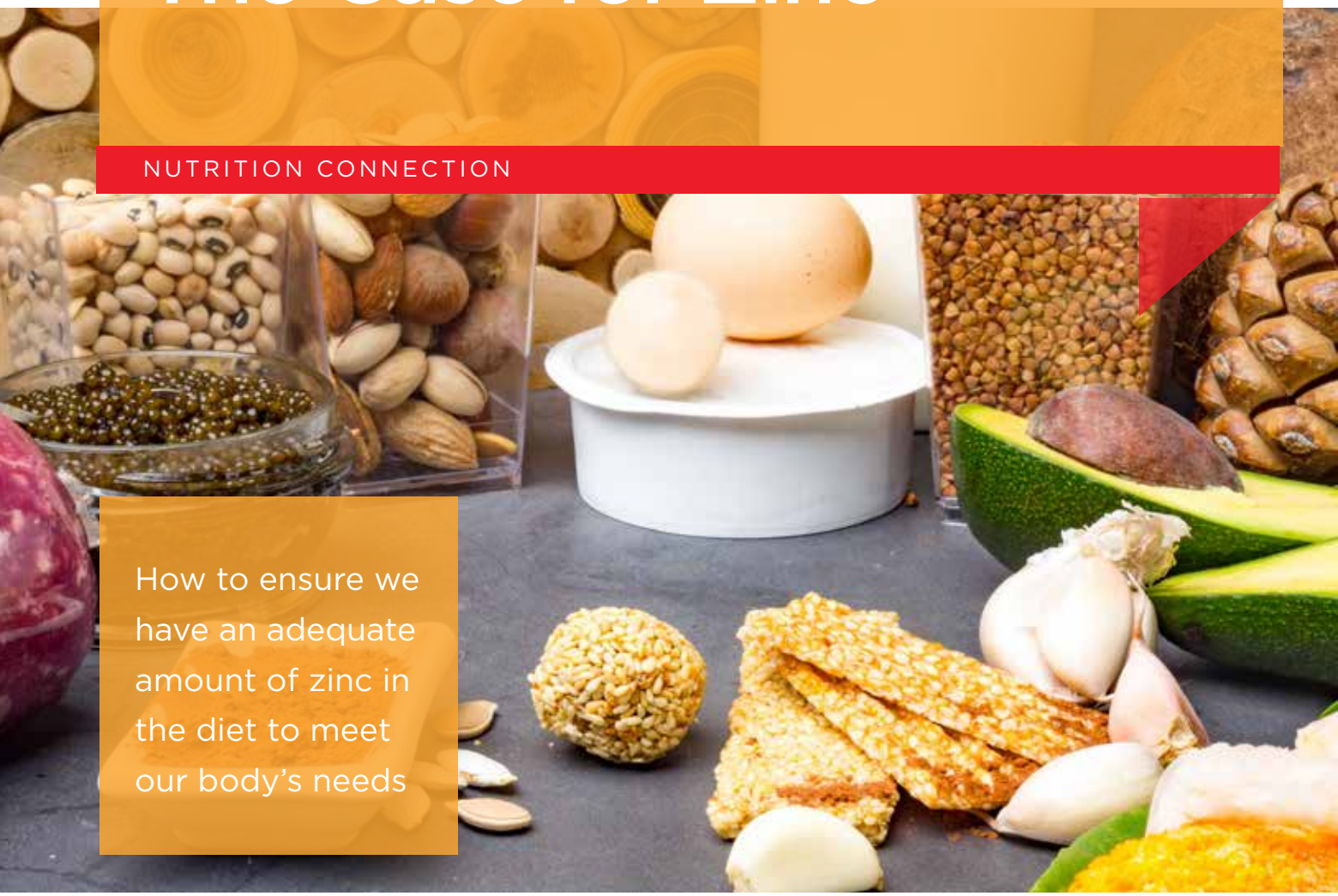


The Case for Zinc

NUTRITION CONNECTION



How to ensure we have an adequate amount of zinc in the diet to meet our body's needs

Zinc is everywhere. It is the 24th most abundant element in the earth's crust, and it makes up about .0003 percent of the atoms in your body. It plays an important role in our biology as an essential trace mineral. We must include zinc in our diets in small amounts because we cannot produce it.

Zinc affects many of our critical processes on a cellular level, and there are more than 300 known enzymatic processes in the human body that cannot occur without zinc. The elderly have a much greater risk for zinc deficiency than younger people, and many of the symptoms associated with this can easily be mistaken for the detrimental effects of normal aging. Yet zinc is not a magic bullet. Too much zinc can have disastrous consequences. While it may not be possible for us as nutrition and foodservice professionals to make sure each resident that

we serve has the perfect amount of zinc, we can ensure that we provide an adequate amount to meet their needs.

WHAT IS ZINC?

Zinc (Zn) is element number 30 on the periodic table, and it is the second most common trace element in the human body (after iron). The pure element was not isolated until 1738 by an Englishman named William Champion. The earth is composed of roughly .004 percent zinc. Apart from its importance to biology, it is also used in many industrial processes. The U.S. uses over a million metric tons a year in everything from tires to sunblock. Even the humble penny is 98 percent zinc with a thin coating of copper. Steel is often coated with zinc—called galvanization—to protect it from oxidation. Steel galvanized with a zinc coating can last 100 years without rusting. It is



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considered “self-healing” because the galvanic action draws it slowly over the surface of the iron wherever it wears thin. (Facts about Zinc, 2021)

WHY ZINC IS IMPORTANT FOR THE ELDERLY

Seniors face significant nutritional challenges as a natural consequence of aging. As we age, our ability to process and absorb nutrients from the foods we eat declines progressively. This leads to higher nutrient intake requirements to maintain optimal health. As this is occurring, we are also subject to less activity and slowing metabolisms. The result is that we need fewer and fewer calories to maintain a healthy weight. (N Meunier, 2005)

So, we need more nutrients but fewer overall calories?! The solution is to provide nutrient-dense foods that maximize the good stuff and minimize the “empty” calories.

One study that sampled a large number of people found that the average intake of zinc in adults over 75 was only 9mg/day, versus the recommended daily intake of 15mg. Approximately 30 percent of the elderly population is currently deficient, and a much higher percentage is at risk for becoming deficient. Most will not even realize it without

blood tests, but the following are some of the potential health risks that can result. (Prasad AS1, 5-01-1993)

- **Sensory and psychological impairment.** Low serum zinc is correlated with impaired cognition, depression, and mood disorders. Low levels can impair your sense of taste and smell, making food less palatable. Counterintuitively, too much zinc can cause these problems as well.
- **Nutrient balance.** Too much or too little zinc in the human body will throw off the balance of other essential trace elements like iron and copper. Zinc is also necessary to absorb folate in the digestive tract.
- **Bone metabolism.** Zinc is vital to bone formation. Low levels are associated with abnormalities in bone growth, bone formation, and mineralization. Deficiency can worsen conditions like osteoporosis.



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- **Immune system and wound healing.** Low zinc impairs virtually every aspect of your immune system and reduces your ability to fight infections and diseases. Supplementing zinc can possibly shorten the duration of the common cold. Zinc also plays a role in our body’s healing process, and wounds heal more slowly when deficient.
- **Antioxidant.** Zinc helps protect the body from free radicals. Too much zinc can have the opposite effect.

ZINC ON THE MENU

Concerned about your own zinc intake yet? Don’t worry, zinc is fairly common and easily obtained through a proper diet. The following is a list of foods high in zinc.

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CERTAIN VITAMINS CAN BE HARMFUL AT HIGH DOSES, like Vitamin A, D, E, and K. These can have life-threatening consequences. Taking too much zinc can cause problems too.



- **Red meat.** If you want zinc, beef is “what’s for dinner.” While other meats also contain it, none can match the 44 percent of the RDA contained in a 3.5 ounce serving of beef. However, beef isn’t the healthiest food for your heart. Many operations will use ground beef to control costs, so use lean when you can, and use it sparingly.
- **Shellfish.** These sea critters will most likely be just out of reach for most operations in terms of cost, but crab cakes, oysters, and Alaskan crab legs are great sources of zinc.
- **Beans.** Affordable and versatile, beans are great by themselves and can easily be added to soups, vegetable blends, and salads. They also contain protein and fiber, making them ideal additions to any menu. Unfortunately, they also contain phytates that can prevent you from absorbing their zinc, so make sure you don’t undercook them. Hummus anyone?

- **Nuts and seeds.** Even with nut allergies becoming common enough to frighten many culinarians away from using them routinely, nuts—especially cashews—are a good source of zinc. Nut butters can easily be added to desserts and snacks and contain high amounts of protein. Seeds are gaining popularity as a health food as well and can be added to a surprising variety of things to increase the nutrition.
- **Dairy products.** Dairy products are a great source of zinc. Natural cheddar cheese contains about 50 percent more zinc than processed American cheese.
- **Eggs.** While not as good as meat, this breakfast staple does contain some zinc. Also, since there are eggs in cake, brownies and custards, this gives us another valid reason to eat desserts. (As if we needed one.)
- **Dark chocolate.** Yes, that’s right! Dark chocolate contains antioxidants and zinc.

TOO MUCH OF A GOOD THING?

Zinc is vital, and fairly easy to obtain. However, there is a dark side to this element, as mentioned above. Certain vitamins can be harmful at high doses, like vitamin A,

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D, E, and K. These can have life-threatening consequences. Taking too much zinc can cause problems too. With consumption of 50mg or more per day of zinc, you may begin to see negative side effects, and even zinc toxicity. That is why doctors caution us not to over supplement with over-the-counter vitamins.

CDM, CFPPs should work with their facility's registered dietitian nutritionist and other members of the interdisciplinary team to ensure that older clients have enough—but not too much—zinc in their diet.

SUMMATION

We have learned about the importance of getting enough zinc for overall health

and well-being. The senior population has the highest risk of being deficient because of lower absorption and lifestyle factors. Zinc is easily obtained through proper nutrition, but doctors may need to perform tests to see if supplements are required to keep seniors at their optimum levels. Taking zinc supplements when you are not deficient could have negative side effects, so

consult your doctor if you have concerns or recognize some of the conditions listed above, although it is generally recognized as safe to take supplements for a short time, especially when fighting a cold or flu. If you are interested in the science behind it, or just want more detailed information, some useful links are provided. ■

CE Questions | NUTRITION CONNECTION



This Level II article assumes that the reader has a foundation of basic concepts of the topic. The desired outcome is to enhance knowledge and facilitate application of knowledge to practice.

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- Approximately how many enzymatic reactions in the human body require zinc?
 - Less than 50
 - Less than 100
 - More than 300
- The intake of zinc among senior citizens is, on average:
 - The same as other age groups
 - Below the recommended daily allowance
 - Much higher than the recommended amount
- Zinc is vital to many important functions in the human body, including:
 - Immune function and wound-healing
 - Bone health
 - A and B
- Some foods high in zinc include:
 - Red meat, shellfish, and beans
 - Green vegetables, white chocolate, and lettuce
 - Mushrooms, onions, and tortilla chips
- Some disorders associated with zinc deficiency include:
 - Impaired cognition, depression, and anxiety
 - Restless leg syndrome
 - Euphoria
- You cannot get enough zinc no matter how many supplements you take:
 - True
 - False
 - Nobody knows
- Seniors may have difficulty obtaining enough nutrition from the foods they eat because:
 - Their metabolism is too fast to digest the food properly
 - They do not absorb nutrition as well during the digestive processes
 - They sometimes cannot see the labels on food packaging as well