

# Zinc Supreme™



Zinc, B2, B6 + Molybdenum

By David M. Brady, ND, DACBN, IFMCP, FACN, Danielle Moyer Male, MS, CNS, LDN, and Caitlin Higgins, MS, CNS

This information is provided as a medical and scientific educational resource for the use of physicians and other licensed health-care practitioners ("Practitioners"). This information is intended for Practitioners to use as a basis for determining whether to recommend these products to their patients. All recommendations regarding protocols, dosing, prescribing, and/or usage instructions should be tailored to the individual needs of the patient considering their medical history and concomitant therapies. This information is not intended for use by consumers.

Zinc Supreme™ is a unique chelated zinc bisglycinate enhanced with vitamins B2 and B6, molybdenum, and malic acid to support optimal zinc and micronutrient status.\* These nutrients work with zinc to facilitate vital functions and enzymatic reactions.\* Zinc is essential for the proper function of many bodily systems, including immune, skin, reproductive, and brain health, along with promoting healthy glucose and insulin metabolism and normal vision, taste, and smell.\* Each one-capsule serving provides 30 mg of zinc and clinically relevant amounts of these accessory nutrients.

## Formula Highlights

- Zinc Supreme™ offers chelated minerals by Albion® Minerals, the leader in mineral technology
- Features zinc bisglycinate chelate, a highly absorbable and bioavailable form of zinc\*
- Combines zinc with other key nutrients, such as vitamin B6 and malic acid, to provide superior results\*
- Gluten-free, dairy-free, and soy-free; non-GMO

Adequate zinc status is essential for the healthy functioning of virtually every bodily cell. The roles of zinc are extensive as it is one of the most abundant trace elements in the body, and at least 300 zinc-dependent enzymes have been identified.<sup>26,27</sup> Zinc is required for gene expression and synthesizing carbohydrates, fats, proteins, and nucleic acids.<sup>28</sup> It is essential for normal wound repair, growth, physical development, and reproductive health for both men and women. This mineral plays a crucial role in the immune system, as it helps to maintain the normal function of macrophages, neutrophils, natural killer cells, and complement activity.<sup>26</sup> Zinc is also needed to support brain health and the development and function of the central nervous system.<sup>29</sup>

Zinc cannot be stored in significant amounts in the body; thus, regular intake or supplementation is needed to maintain optimal status. Some individuals may have trouble absorbing dietary zinc caused by gastrointestinal conditions or certain medications, leading to poor or suboptimal zinc status.<sup>26</sup> Zinc deficiency can be caused by poor diet, chronic stress, vegetarianism, or excessive alcohol intake.<sup>26,28</sup> Some deficiencies result from exposure to toxic metals, such as cadmium from cigarettes or excess copper from copper-lined tap water pipes.<sup>30,31</sup> Zinc deficiency affects many tissues and organs. It is associated with growth impairment, sexual dysfunction, immune dysfunctions, unhealthy inflammatory responses, mental disturbances, impaired taste and smell, thinning hair, and gastrointestinal complaints, such as diarrhea.<sup>26</sup>

## Blood Glucose and Insulin Metabolism

Zinc promotes healthy glucose and insulin metabolism.<sup>1</sup> Zinc is needed for the proper release and action of insulin to maintain glucose homeostasis, as zinc demonstrates insulin-mimetic activity, regulates insulin receptor signal transduction, and maintains insulin storage and secretion.<sup>1</sup> Clinical studies show that groups supplemented with zinc displayed clinically beneficial effects on glycemic control markers, lipid profiles, and C-reactive protein levels in individuals with type 2 diabetes mellitus.<sup>2</sup> Zinc is also relevant for healthy glucose metabolism during pregnancy.<sup>3,4</sup> A meta-analysis (n = 1,549) concluded that compared to normal controls, women with gestational diabetes mellitus (GDM) had decreased circulating zinc levels.<sup>3</sup> Women with GDM (n = 58) who received 30 mg/day of zinc for six weeks showed greater metabolic profile improvements compared to placebo (lower fasting glucose, insulin, and HOMA-IR, and less of an increase in triglycerides).<sup>4</sup>

## Normal Vision, Taste, and Smell\*

Zinc is essential for the maintenance of vision, taste, and smell.<sup>26</sup> Abnormal dark adaptation, night blindness, and other ophthalmic problems such as photophobia are associated with zinc deficiency.<sup>5,6,26</sup> Zinc is highly concentrated in neurons of the olfactory bulb, which may explain its vital role in the senses of taste and smell.<sup>7</sup> A systematic review and meta-analysis of 12 randomized controlled trials and 938 subjects concluded that zinc supplementation may support patients with zinc deficiency and idiopathic taste disorders.<sup>8</sup> Poor zinc status is prevalent among the elderly, and a decline or loss of these olfactory senses is a common problem for this age group.<sup>9</sup> Zinc deficiency may also contribute to the loss of smell or taste in the setting of and during recovery from coronaviruses.<sup>32-34</sup>

## Supports\*

- Normal glucose and insulin metabolism<sup>1-4</sup>
- Normal vision, taste, and smell<sup>5-9</sup>
- Immune health<sup>10-13</sup>
- Normal reproductive and sexual functioning<sup>14-18</sup>
- Normal stress responses and balanced mood<sup>2,19-21</sup>
- Skin health<sup>22-25</sup>

## Supplement Facts

Serving Size 1 capsule

Amount Per Serving		% Daily Value
Riboflavin (Vitamin B-2)	2.8 mg	215%
Vitamin B-6 (as Pyridoxal-5-Phosphate)	5.2 mg	306%
Zinc (as Zinc Bisglycinate Chelate)	30 mg	273%
Molybdenum (as TRAACS® Molybdenum Glycinate Chelate)	50 mcg	111%
Malic Acid	200 mg	*

\*Daily Value not established.

**Other Ingredients:** Microcrystalline cellulose, cellulose (capsule), vegetable stearate, silicon dioxide.

### **Immune Health\***

Zinc is involved in virtually every aspect of the immune response.<sup>10</sup> Zinc status and homeostasis are critical factors in both innate and humoral antiviral immunity, including in the setting of several viruses that cause the common cold, influenza, and coronaviruses.<sup>11</sup> Zinc targets the NF- $\kappa$ B transcription factor, thus modulating proinflammatory responses. Zinc also plays a critical role in regulating oxidative stress and inflammatory cytokines.<sup>12</sup> Supplementing with zinc has been shown to stimulate the synthesis of white blood cells and support the activity of other immune system components, such as neutrophils, T-lymphocytes, and tumor-fighting natural killer cells.<sup>35</sup>

Zinc supports a healthy number of T cells, especially in the elderly, as this population is often deficient in this mineral.<sup>35</sup> Zinc is also required to produce thymulin, the major thymus hormone. A reduction of thymulin may lead to impaired immune function.<sup>36</sup> Inadequate zinc levels weaken the host's defense, as it disrupts lymphocyte formation and maturation, and intracellular cytokine communication.<sup>13</sup> Zinc-deficient populations are most at risk of acquiring viral infections; deficiencies were shown to increase respiratory and diarrheal morbidity, especially in children, as zinc greatly influences immune health.<sup>11,13</sup> Both human and animal in vivo studies have shown zinc administration to play a critical role in a normal immune response to viral infections, such as coronaviruses, influenza, the common cold, and rhinoviruses.<sup>11</sup>

### **Skin Health\***

Substantially high zinc levels are found in the skin, especially in the epidermis.<sup>22</sup> Zinc plays a crucial role in maintaining skin integrity, and many dermatologic conditions (including acne) are associated with zinc insufficiency.<sup>22,23</sup> Patients with acne have been shown to have significantly lower serum zinc levels compared to controls, and those with acne who were administered zinc significantly improved in mean inflammatory papule count compared to those not receiving zinc.<sup>24,25</sup> The role of zinc in promoting clear skin is due to its ability to promote healthy inflammatory responses.<sup>35</sup> Zinc has been shown to decrease the number of inflammatory lesions associated with acne, such as inflammatory papules, by enhancing the production of antioxidant proteins and enzymes like superoxide dismutase and glutathione peroxidase.<sup>24,37</sup> Moreover, zinc has also been shown in vitro to inhibit chemotaxis and lessen the production of the proinflammatory cytokine tumor necrosis factor-alpha.<sup>38</sup>

### **Prostate Health\***

Adequate zinc status is associated with prostate health and function primarily due to its role in apoptosis and ability to retain sufficient citrate levels, which explains why prostate cells accumulate high levels of zinc.<sup>14,15</sup> It has been shown in various clinical studies that men over 50 years old frequently have low zinc status (approximately 35% to 41%) due to reduced zinc absorption capacity, certain conditions that affect zinc utilization, and certain medications.<sup>14</sup> Low zinc status is associated with benign prostatic hyperplasia (BPH), making zinc supplementation clinically relevant for maintaining normal prostate volume.<sup>14,39</sup> Dysregulated insulin metabolism and chronically elevated glucose status are also associated with BPH, so the role of zinc in supporting healthy blood sugar regulation may also underlie its supportive role in the setting of BPH.<sup>1,2,40</sup>

### **Reproductive and Sexual Health\***

In men, zinc is required for fertility, reproductive health, and sexual function, as it is necessary for healthy hormone metabolism (including testosterone) and sperm formation, maturation, and motility.<sup>16</sup> Several studies have shown that seminal zinc concentration is associated with sperm count, and low zinc intake is associated with low sperm quality and idiopathic male infertility.<sup>16</sup>

In women, zinc is necessary for healthy ovarian function, menstruation, fertility, and pregnancy, as it is required for the development and maturation of oocyte germ cell growth.<sup>17</sup> Promoting optimal zinc status may be clinically relevant to women with imbalanced hormones or unhealthy glucose/insulin metabolism, such as women with polycystic ovary syndrome (PCOS), dysmenorrhea, or endometriosis.<sup>18</sup> During pregnancy, a zinc deficiency is associated with irreversible effects on newborns, such as growth impairments, spontaneous abortion, low birth weight, preeclampsia, delayed immune system development, or delivery problems.<sup>41</sup>

### **Balanced Mood\***

Zinc may promote a more balanced mood and may be clinically relevant to those with occasional complaints of anxiety.<sup>19,20,42</sup> A cross-sectional study of 100 high school students observed that serum zinc levels were inversely correlated with mood disorders, including depression and anxiety.<sup>21</sup> A systematic review of nine clinical studies had similar results, where patients with anxiety had lower serum zinc levels compared to healthy individuals, and zinc consumption was inversely associated with anxiety.<sup>42</sup> Zinc may be supportive in the setting of anxiety by promoting the healthy functioning of GABAergic, serotonergic, and glutamatergic signaling pathways, neurogenesis, and immune systems.<sup>42</sup>

**Recommended Use:** Take 1 capsule per day with a meal or as directed by your health-care practitioner.

For a list of references cited in this document, please visit:

<https://www.designsforhealth.com/api/library-assets/literature-reference---zinc-supreme-tech-sheet-references>

Dosing recommendations are given for typical use based on an average 150 pound healthy adult. Health-care practitioners are encouraged to use clinical judgement with case-specific dosing based on intended goals, subject body weight, medical history, and concomitant medication and supplement usage.

TRAACS® is a registered trademark of Albion Laboratories, Inc.

**\*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.**

To contact Designs for Health, please call us at (860) 623-6314 or visit us on the web at [www.designsforhealth.com](http://www.designsforhealth.com).