

# VOLUMINOUS

THE ART OF  
**BEING WELL**

*Dr. Will Cole*

## Clinical Applications

- Reduces Fine Lines and Wrinkles\*
- Thickens and Strengthens Hair\*
- Strengthens Nails\*
- Supports Healthy Bone Mineral Density\*
- Supports Bone Flexibility\*
- Promotes Connective Tissue Formation for Healthy Joints\*

*Voluminous features clinically tested ch-OSA® (choline-stabilized orthosilicic acid) complemented with biotin. ch-OSA naturally helps nourish your body's beauty proteins by supporting and activating enzymes used by collagen-generating cells to make collagen. Regular orthosilicic acid (OSA) has to be stabilized to avoid polymerization, a process that decreases bioavailability. ch-OSA's patented choline-stabilization technology prevents polymers from forming and ensures OSA's optimal absorption. By combining ch-OSA with biotin, Voluminous offers an even greater level of beauty support.\**

All Dr. Will Cole Formulas Meet or Exceed cGMP Quality Standards

## Discussion

### Silicon and Choline-Stabilized Orthosilicic Acid

Silicon is a ubiquitous element present in various tissues of the human body. It performs an important role in connective tissue health, especially in the formation of the organic matrix (e.g., collagen and glycosaminoglycan formation).<sup>[1]</sup> Cereal/grain-based products and vegetables are the main dietary sources of silicon, but modern processing is likely to reduce intake from these sources. Soluble silicon is found as orthosilicic acid (OSA) in beverages and water.<sup>[2]</sup> Because regular orthosilicic acid is highly unstable, leading it to form polymers, and because the polymers are too large for the human body to absorb, Voluminous features patented "choline stabilization" technology. This stabilization prevents polymers from forming, ensuring optimal absorption of orthosilicic acid. Choline-stabilized orthosilicic acid (ch-OSA®) is a bioavailable form of silicon that has been found to increase the hydroxyproline concentration in the dermis of animals.<sup>[2]</sup> Furthermore, the ch-OSA in Voluminous is clinically proven for your assurance.\*<sup>[2-4]</sup>

### "Beauty Proteins" and Orthosilicic Acid

ch-OSA helps naturally nourish the body's beauty proteins: collagen, elastin, and keratin. Collagen is the body's main structural protein. It makes up 70% of skin and gives skin its strength and elasticity. It forms 30% of bone to give bones the flexibility they need to withstand impact. Additionally, the collagen fibers in bone are the binding sites for calcium and other bone minerals.<sup>[5]</sup> Collagen is also the major component of fascia, cartilage, ligaments, and tendons. Unfortunately, collagen production begins decreasing at age 18. By the age of 40, the decrease is about 1% per year.<sup>[6]</sup> For women, the decline equates to a loss of 7% of skin thickness every 10 years. Following menopause, the decline in thickness accelerates to as much as 1.13% annually, while skin elasticity degrades 0.55% per year.<sup>[7]</sup> Adequate collagen production correlates with healthy bones and strong hair and nails.\*<sup>[6-8]</sup>

For years, OSA was the focus of intense research because it was viewed as a potential collagen generator. As a result of that research, the molecular complex known ch-OSA was created. Choline not only has the positively charged nitrogen atom that forms the vital bond with OSA, but according to leading collagen researchers, choline transports the orthosilicic acid into target cells where it activates the pathways involved in collagen production. Clinical trials also suggest that beyond its ability to generate collagen, ch-OSA promotes keratin and elastin formation—two proteins that assist in skin elasticity and hair tensile strength.\*<sup>[2-4]</sup>

### ch-OSA Clinical Studies

In a 20-week, randomized, double-blind, placebo-controlled study of 50 women with photo-damaged facial skin, oral intake of 10 mg/d silicon as ch-OSA resulted in significantly improved skin visco-elastic properties and a 19% reduction in roughness with a 30% reduction in micro-wrinkle depth (measured as maximum roughness) compared to placebo.<sup>[2]</sup> In the same clinical trial, the women's hair and nails showed significant improvements in strength. Furthermore, serum silicon was significantly higher (+72%) in subjects after 20 weeks of supplementation with ch-OSA compared to the placebo group. In a nine-month, randomized, double-blind, placebo-controlled trial with 48 healthy Caucasian women with fine hair (average age 43.3 years), 10 mg/d of silicon as ch-OSA for nine months improved hair tensile strength including elasticity and break load and resulted in thicker hair.\*<sup>[3]</sup>

In a 12-month clinical trial conducted at St. Thomas' Hospital in London, women already taking 1000 mg of calcium and 800 IU of vitamin D, to which they added ch-OSA, saw thighbone mineral density at the hip (i.e., femoral neck) increase by 2.00% compared to placebo. This was as a result of an increase in actual bone formation, not just a decrease in loss.<sup>[4]</sup> Furthermore, the procollagen marker P1NP (procollagen type-1 N-terminal propeptide) increased significantly after 12 months in women who took ch-OSA compared to women in the placebo group. P1NP is known as the most sensitive marker for bone collagen formation and an early marker of bone formation.<sup>[4]</sup> Animal studies support the human clinical findings for ch-OSA with respect to collagen formation and bone mineral density.\*<sup>[9-11]</sup>

In an open clinical study, 18 subjects were given five drops of ch-OSA twice daily for six months. Hair growth and hair loss assessments were performed using a semi-quantitative rating scale, and scores were analyzed using the Friedman test. At the end of the six months, 94% of respondents had improved hair growth with 58% in the categories of moderate to marked hair growth. All respondents noted improvement in the body and texture of their hair.\*<sup>[12]</sup>

### Biotin

Biotin, as an essential component of carboxylase enzymes, has diverse roles in maintaining health. While overt biotin deficiency is known to result in skin irritation and hair loss, anecdotal evidence suggests that biotin supplementation supports healthy hair growth, and supplementing with biotin is a common method for enhancing skin health and hair and nail strength. Studies testing the effects of biotin on nail health suggest that biotin supplementation improves nail thickness and reduces splitting.<sup>[13-15]</sup> In one study, 91% of subjects showed definite improvement with firmer and harder finger nails after 5.5+/-2.3 months of 2.5 mg/d biotin.<sup>[16]</sup> Higher doses of biotin (9 mg to 16 mg/d) are used to support healthy lipid and glucose metabolism; and more recently, doses up to 300 mg/d have been used to support muscle function related to neurologic health.\*<sup>[17,18]</sup>

**\*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.**

## Voluminous

# Supplement Facts

Serving Size: 1 Capsule  
 Servings Per Container: 60

	Amount Per Serving	%Daily Value
Biotin	5000 mcg	16,667%
Choline (as choline-stabilized orthosilicic acid)	100 mg	18%
Silicon (as choline-stabilized orthosilicic acid)	5 mg	**

\*\* Daily Value not established.

**Other Ingredients:** Capsule (hypromellose and water), microcrystalline cellulose, and purified water.

**Produced under U.S. Patents**

**5,922,360; 7,968,528; and 8,771,757.**

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## Directions

Take one capsule two times per day, or as directed by your healthcare professional.

Consult your healthcare professional prior to use. Individuals taking medication should discuss potential interactions with their healthcare professional. Do not use if tamper seal is damaged.

## Formulated To Exclude

Wheat, gluten, corn, yeast, soy, animal and dairy products, fish, shellfish, peanuts, tree nuts, egg, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, and preservatives.

## References

1. Carlisle EM. Silicon as a trace nutrient. *Sci Total Environ*. 1988 Jul1;73(1-2):95-106. [PMID: 3212453]
2. Barel A, Calomme M, Timchenko A, et al. Effect of oral intake of choline-stabilized orthosilicic acid on skin, nails and hair in women with photodamaged skin. *Arch Dermatol Res*. 2005 Oct;297(4):147-153. [PMID: 16205932]
3. Wickett RR, Kossmann E, Barel A, et al. Effect of oral intake of choline-stabilized orthosilicic acid on hair tensile strength and morphology in women with fine hair. *Arch Dermatol Res*. 2007 Dec;299(10):499-505. [PMID: 17960402]
4. Spector TD, Calomme MR, Anderson SH, et al. Choline-stabilized orthosilicic acid supplementation as an adjunct to calcium/vitamin D3 stimulates markers of bone formation in osteopenic females: a randomized, placebo-controlled trial. *BMC Musculoskelet Disord*. 2008 Jun 11;9:85. [PMID: 18547426]
5. Viguier-Carrin S, Garnero P, Delmas PD. The role of collagen in bone strength. *Osteoporos Int*. 2006;17:319-336. [PMID: 16341622]
6. Shuster S. Osteoporosis, a unitary hypothesis of collagen loss in skin and bone. *Med Hypotheses*. 2005;65(3):426-432. [PMID: 15951132]
7. Calleja-Agius J, Muscat-Baron Y, Brincat MP. Skin ageing. *Menopause Int*. 2007 June;13(2):60-4. [PMID: 17540135]
8. Sumino H, Ichikawa S, Abe M, et al. (2004). Effects of aging and postmenopausal hypoestrogenism on skin elasticity and bone mineral density in Japanese women. *Endocr J*. 2004 Apr;51(2):159-164. [PMID: 15118265]
9. Calomme MR, Vanden Berghe DA. Supplementation of calves with stabilized orthosilicic acid. Effect on the Si, Ca, Mg, and P concentrations in serum and the collagen concentration in skin and cartilage. *Biol Trace Elem Res*. 1997 Feb;56(2):153-165. [PMID: 9164661]
10. Calomme MR, Wijnen P, Sindambiwe JB, et al. Effect of choline-stabilized orthosilicic acid on bone density in chicks. *Calcif Tissue Int*. 2002, 70:292. Poster presented at: 29th European Symposium on Calcified Tissues; May 25-29, 2002; Zagreb, Croatia. <http://www.ectsoc.org/zagreb2002/poster3.htm>. Abstract P-139. Accessed December 16, 2015.
11. Calomme MR, Geusens P, Demeester N, et al. Partial prevention of long-term femoral bone loss in aged ovariectomized rats supplemented with choline-stabilized orthosilicic acid. *Calcif Tissue Int*. 2006, Apr;78(4): 227-232. [PMID: 16604283]
12. Chan G. An open clinical study of the efficacy of choline-stabilized orthosilicic acid in the management of hair loss. A pilot study. Paper presented at: 17th Regional Conference of Dermatology; September 13-16, 2006; Bali, Indonesia.
13. Colombo VE, Gerber F, Bronhofer M, et al. Treatment of brittle fingernails and onychoschizia with biotin: scanning electron microscopy. *J Am Acad Dermatol*. 1990 Dec;23(6 Pt 1):1127-32. [PMID: 2273113]
14. Hochman LG, Scher RK, Meyerson MS. Brittle nails: response to daily biotin supplementation. *Cutis*. 1993 Apr;51(4):303-5. [PMID: 8477615]
15. Scheinfeld N, Dahdah MJ, Scher R. Vitamins and minerals: their role in nail health and disease. *J Drugs Dermatol*. 2007 Aug;6(8):782-7. Review. [PMID: 17763607]
16. Floersheim GL. Treatment of brittle fingernails with biotin [in German]. *Z Hautkr*. 1989 Jan 15;64(1):41-8. [PMID: 2648686]
17. Sedel F, Bernard D, Mock DM, et al. Targeting demyelination and virtual hypoxia with high-dose biotin as a treatment for progressive multiple sclerosis. *Neuropharmacology*. 2015 Sep 5. [Epub ahead of print] [PMID: 26327679]
18. Biotin: Monograph. *Alt Med Rev*. 2007;12(1):73-78. [on file]

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