



# Hair and Nail Support



## CLINICAL APPLICATIONS

- Provides Key Nutrients for Skin, Hair and Nails
- Enhances Collagen Formation
- Thickens and Strengthens Hair and Nails
- Promotes Hormone Balance

This product provides several essential vitamins, minerals and phytonutrients needed to support healthy skin, hair and nails. This product provides betaine HCl, which helps to promote efficient digestion and assimilation of proteins and minerals necessary for hair and nail health. It includes MSM, which provides a bioavailable source of sulfur, for connective tissue integrity. Saw palmetto is added to support normal levels of DHT, known to play a role in the thickness and health of hair. In addition, silica (from horsetail grass extract) is included for its collagen-enhancing properties. Each serving (2 capsules) of this product contains 100 mg betaine HCl, 320 mg of saw palmetto and 325 mg MSM. Added support from vitamin A, vitamin D3, folic acid, vitamin B12, biotin and selenium provide a full spectrum of skin, hair and nail support.

## Overview

Healthy skin, hair and nails result from a variety of biological factors, including balanced nutrition and a healthy lifestyle. Collagen, the body's main structural protein, makes up 70% of the skin and is vital in helping to maintain the skin's firmness, suppleness and elasticity, as well as the constant renewal of skin cells.<sup>1-3</sup> Research has shown collagen production begins to decrease around the age of 18 and continues to decline at a rate of about 1% per year after age 40.<sup>1</sup> After menopause, skin thickness may decrease at a rate of about 1-2% annually.<sup>2</sup>

Betaine HCl supports optimal protein breakdown, which allows for more efficient manufacturing of collagen, particularly during years of decreased collagen production. MSM provides a source of bioavailable sulfur, an integral nutrient in healthy skin and hair, which plays a key role in collagen regeneration. Together with saw palmetto, which promotes a healthy balance of hormones for optimal hair thickness and health, and key nutrients such as silica, biotin and vitamin A, this product provides a complete spectrum of support for healthy skin, hair and nails.

## Betaine HCl<sup>†</sup>

Betaine is a natural substance found in foods such as beets, spinach and grains. Hydrochloric acid combined with betaine (betaine HCl) has been used for years to support digestion and absorption due to its ability to prime the acidity of the stomach and enhance digestion.<sup>4</sup> Maintaining optimal acidity in the digestive tract is essential for the complete breakdown of proteins into amino acids which is a crucial step in the building of skin and hair proteins, such as collagen. Research also suggests that betaine supports cellular health. Betaine acts as a methyl donor, which supports healthy methionine, homocysteine and hepatic fat metabolism. Betaine also functions as an osmolyte, supporting cellular integrity and protein balance during fluctuations in hydration and temperature.<sup>5</sup>

## Saw Palmetto<sup>†</sup>

Saw palmetto (*Serenoa repens* or *Sabal serrulata*) has been used historically to support hormone health, as it provides essential fatty acids and phytosterols. Studies have shown saw palmetto promotes hormonal balance via several mechanisms. An *in vitro* study found saw palmetto inhibits 5- $\alpha$ -reductase, an enzyme that converts testosterone to 5 $\alpha$ -dihydrotestosterone (DHT).<sup>6</sup> Excessive levels of DHT have been implicated in hair loss issues. A randomized, double-blind, placebo-controlled trial in adult men with mild to moderate androgenic alopecia (N = 26, 23 -64 years), found oral supplementation with 200 mg saw palmetto plus an extra 50 mg  $\beta$ -sitosterol (a constituent fatty acid of saw palmetto), twice daily, over 25 weeks improved investigator assessed hair density in 60% of subjects versus 11% with placebo.<sup>7</sup> Saw palmetto also helps maintain hormonal balance by inhibiting the binding of androgens to receptors<sup>8</sup> and promotes inflammatory balance by antagonizing the cyclooxygenase and lipoxigenase inflammatory pathways *in vitro*.<sup>9,10</sup> Both of these factors are crucial for maintaining healthy skin.



## MSM<sup>†</sup>

Methylsulfonylmethane (MSM) is a sulfur-containing compound that occurs naturally in many foods. Sulfur, the main component in MSM, is the third most abundant element by weight in the body and is important for maintaining joint and soft tissue health. Sulfur is important for the generation of connective tissues, including hair, cartilage and collagen. Sulfur is crucial for the production of amino acids, the building blocks of protein. MSM is an important sulfur donor for several sulfur containing compounds, especially cysteine, which is crucial for the synthesis of glutathione, an important antioxidant in the body.<sup>11</sup> Adequate intracellular glutathione concentrations have been shown to mitigate damage caused by excessive free radical formation.<sup>12</sup> Free radicals are molecules thought to be the major cause of cellular aging. *In vitro* studies have demonstrated that MSM is a potent antioxidant and helps modulate cytokine production to support a healthy cycle of inflammation.<sup>13, 14</sup>

## Directions

2 capsules per day or as recommended by your health care professional.

## Does Not Contain

Gluten, yeast, artificial colors or flavors.

## Cautions

Do not consume this product if you are pregnant or nursing. Consult your physician for further information.

## Supplement Facts<sup>v3</sup>

Serving Size 2 Capsules  
Servings Per Container 30

	Amount Per Serving	% Daily Value
Vitamin A (from 5,000 IU as Palmitate)	1,500 mcg	167%
Vitamin D (D3 as Cholecalciferol)	1.2 mcg (50 IU)	6%
Folate	680 mcg DFE (400 mcg Folic Acid)	170%
Vitamin B12 (as Methylcobalamin)	100 mcg	4,167%
Biotin	500 mcg	1,667%
Selenium (as Selenium Glycinate Complex)	25 mcg	45%
Methylsulfonylmethane (MSM) (OptiMSM®)	325 mg	*
Saw Palmetto Berry Extract (Standardized to contain 45% Fatty Acids)	320 mg	*
Horsetail ( <i>Equisetum arvense</i> ) (Aerial Parts)	250 mg	*
Stinging Nettle (Leaves)	240 mg	*
para-Aminobenzoic Acid (PABA)	150 mg	*
Betaine Hydrochloride USP	100 mg	*

\* Daily Value not established.

Other Ingredients: Hypromellose (Natural Vegetable Capsules), Microcrystalline Cellulose, Magnesium Stearate and Silicon Dioxide.

## References

1. Shuster S. Osteoporosis, a unitary hypothesis of collagen loss in skin and bone. *Med Hypotheses*. 2005;65(3):426-432.
2. Calleja-Agius J, Muscat-Baron Y, Brincat MP. Skin ageing *Menopause Int*. 2007 June;13(2):60-4.
3. 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.
4. Yago MR, Frymoyer AR, Smelick GS, et al. Gastric reacidification with betaine HCl in healthy volunteers with rabeprazole-induced hypochlorhydria. *Mol Pharm*. 2013;10(11):4032-4037.
5. Lever M, Slow S. The clinical significance of betaine, an osmolyte with a key role in methyl group metabolism. *Clin Biochem*. 2010;43(9):732-744.



6. Sultan C, Terraza A, Devillier C, et al. Inhibition of androgen metabolism and binding by a liposterolic extract of "Serenoa repens B" in human foreskin fibroblasts. *J Steroid Biochem*. 1984;20(1):515-519.
7. Prager N, Bickett K, French N, Marcovici G. A randomized, double-blind, placebo-controlled trial to determine the effectiveness of botanically derived inhibitors of 5-alpha-reductase in the treatment of androgenetic alopecia. *J Altern Complement Med*. 2002 Apr;8(2):143-52.
8. Carilla E et al. Binding of Permixon, a new treatment for prostatic benign hyperplasia, to the cytosolic androgen receptor in rat prostate. *J Steroid Biochem* 1984; 20(1):521-3.
9. Goldmann WH, Sharma AL, Currier SJ, Johnston PD, Rana A, Sharma CP. Saw palmetto berry extract inhibits cell growth and Cox-2 expression in prostatic cancer cells. *Cell Biol Int*. 2001;25(11):1117-1124.
10. Paubert-Braquet M, Mencia Huerta JM, Cousse H, Braquet P. Effect of the lipidic liposterolic extract of *Serenoa repens* (Permixon) on the ionophore A23187-stimulated production of leukotriene B4 (LTB4) from human polymorphonuclear neutrophils. *Prostaglandins Leukot Essent Fatty Acids*. 1997;57(3):299-304.
11. Butawan M, Benjamin RL, Bloomer RJ. Methylsulfonylmethane: Applications and Safety of a Novel Dietary Supplement. *Nutrients*. 2017;9(3).
12. Townsend DM, Tew KD, Tapiero H. The importance of glutathione in human disease. *Biomed Pharmacother*. 2003;57(3-4):145-155.
13. Kim YH, Kim DH, Lim H, Baek DY, Shin HK, Kim JK. The anti-inflammatory effects of methylsulfonylmethane on lipopolysaccharide-induced inflammatory responses in murine macrophages. *Biol Pharm Bull*. 2009;32(4):651-656.
14. Ahn H, Kim J, Lee MJ, Kim YJ, Cho YW, Lee GS. Methylsulfonylmethane inhibits NLRP3 inflammasome activation. *Cytokine*. 2015;71(2):223-231.

