Acnutrol™

Long-term support for acne control

designs for health®

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Acnutrol™ has been formulated to provide comprehensive support for healthy acne control by focusing on the internal healing process and overall skin health.* The National Institutes of Health reports that nearly 80 percent of people between ages 11-30 will develop some form of acne outbreak, an inflammatory skin condition that can affect people of all ages.[1] There are various factors that contribute to acne, one of the most common dermatological conditions worldwide, with its main culprits being disturbed sebum production and sebum fatty acid composition, hormone dysregulation, hyperkeratinization of follicles, immune dysfunction, and inflammation.[2] Going hand in hand with these are systemic oxidative stress, insulin resistance, hormonal imbalances and an altered intestinal microflora.[3] The nutrients in Acnutrol™ work synergistically to target these factors, addressing the root causes of this skin condition that afflicts millions of people.*

Pantothenic acid, carnitine and healthy lipid metabolism

Acnutrol™ contains a generous 2500 mg of pantothenic acid (vitamin B5) per serving. The development of acne appears to be in some way correlated with insufficiency of this vitamin.[4] Pantothenic acid plays a significant role in the maintenance of keratinocytes, the predominant cell type in the epidermis, the outermost layer of the skin. Research shows that when this vitamin is depleted, keratinocyte proliferation is suppressed.[5] In addition, with pantothenic acid insufficiency a decrease is seen in the synthesis of keratinocyte growth factor and procollagen in fibroblasts, the cells in connective tissue that produce collagen and other fibers.[5] A 2018 study demonstrates how a novel pantothenic acid derivative (EDCEP) reduces the cellular damage triggered by environmental pollutants through the activation of Nrf2 transcription factors that protect against oxidative damage caused by inflammation and injury.[6]

Pantothenic acid sufficiency has also been shown to reverse this process and therefore decrease the severity of acne. Results from a double-blind RCT in 2014 shows that dietary supplementation of pantothenic acid with facial acne is tolerated, safe and effective, reducing acne lesions, area-specific, and inflammatory facial blemishes.[7] It also works in the transport of fats across cell membranes, assisting in the regulation and efficiency of lipid metabolism, which gets disrupted during acne breakouts. When acne occurs, bacteria cause inflammation in skin pores which are blocked with sebum, the fluid secreted from the sebaceous glands. With proper lipid metabolism, there is a decrease in the excretion of sebum. This reduction in sebum production results in normalization of pore size and reduced tendency towards acne.

The inclusion of carnitine in Acnutrol™ is highly advantageous, as it is a critical nutrient for efficient lipid metabolism. Carnitine is an indispensable nutrient which supports the transport of fatty acids into the mitochondria where they can be oxidized and used for the production of cellular energy. Carnitine is also a potent anti-inflammatory and immune-supportive nutrient, and is a key factor in decreasing oxidative stress. It is found in cells throughout the body including skin fibroblasts, and is neccessary for cellular repair, preventing cellular damage by fighting against free radicals. The 500 mg of carnitine in each serving of Acnutrol™ also allows for pantothenic acid to work more efficiently in regards to lipid metabolism.

Additional Highlights

Zinc is an essential mineral required for many cellular processes, including wound healing, protecting against free radicals, and the proper functioning of the immune system. A deficiency in this mineral may impair the immune response and promote systemic inflammation. Substantially high levels of zinc are found in the skin, especially in the epidermis. Zinc plays a role in maintenance of skin integrity, with many dermatologic conditions (including acne) being associated with zinc insufficiency. Thus, combining this mineral with other skin-supportive nutrients appears to be beneficial in addressing skin conditions.

Zinc's effect on inflammatory cells, in particular granulocytes (white blood cells such as eosinophils and basophils) is the most significant mechanism with respect to acne. It has been shown to decrease the number of inflammatory lesions associated with acne such as papules and cysts by enhancing the production of antioxidant proteins and enzymes like SOD and GPx.[8] Zinc has also been proven to inhibit chemotaxis and lessen production of the proinflammatory cytokine, TNF-alpha.[9]

Copper is included in Acnutrol™ for maintenance of the copper to zinc ratio. Copper is also involved in the maturation of collagen where it is a cofactor in the formation of cross-links, which increase collagen's stability and tissue strength. Selenium's presence is due to its role as a cofactor for glutathione peroxidase, a strong antioxidant and detoxifying enzyme which is significantly decreased in patients with severe acne.[9]

Chromium is involved in glucose metabolism, as it helps balance blood sugar by enhancing the effects of insulin. Thus, chromium may help to prevent insulin resistance, which has been linked to many health problems including acne. Improper sugar metabolism and insulin resistance is often seen with acne patients, whose skin cells do not uptake glucose because of insulin resistance, similar to what is seen in diabetics.

The Fat Soluble Vitamins: A, D, & E

Generous doses of vitamins A and D are present in Acnutrol™. Vitamin A is a powerful antioxidant that helps support the immune system and prevents oxidative stress from free radicals.* It is essential for the maintenance and repair of tissue, such as skin and mucous membranes. Vitamin A helps to strengthen the skin and reduces the production of sebum.

Vitamin D's inclusion is three-fold: for proper balance with vitamin A (necessary anytime higher levels of vitamin A are present), for immune system support and for skin health.* The skin is an important target tissue for vitamin D, where it regulates growth and differentiation in keratinocytes. Research shows that vitamin D deficiency is associated with increased acne severity, and that after 8 weeks of vitamin D supplementation, a statistically significant decrease of inflammatory acne lesions was the outcome in the vitamin D group compared to placebo, making them sensitive to this vitamin.[10]

Supplement Facts

Serving Size 6 capsules
Servings Per Container 30

Amount Per Serving		% Daily Value
Vitamin A (as Retinyl Palmitate)	15,000 mcg RAE	1667%
Vitamin D (as Cholecalciferol)	50 mcg (2000 IU)	250%
Niacin (Vitamin B-3)(as Niacinamide)	500 mg NE	3125%
Vitamin B-6 (as Pyridoxine HCl and Pyridoxal-5-Phosphate)	50 mg	2941%
Biotin	500 mcg	1667%
Pantothenic Acid (as d-Calcium Pantothenate)	2500 mg	500,000%
Zinc (as Zinc Bisglycinate Chelate)	50 mg	455%
Selenium (as Selenium Glycinate Complex)	100 mcg	182%
Copper (as TRAACS® Copper Bisglycinate Chelate)	2 mg	222%
Chromium (as TRAACS® Chromium Nicotinate Glycinate Chelate)	400 mcg	1143%
L-Carnitine (from L-Carnitine Tartrate)	500 mg	*
Vitamin E Isomers (as DeltaGold® delta and gamma tocotrienols)	15 mg	*

*Daily Value not established.

Other Ingredients: Cellulose (capsule), stearates (vegetable source), silicon dioxide.

Vitamin E is an antioxidant with anti-inflammatory properties that enhances tissue repair and prevents cell damage by inhibiting the oxidation of lipids and the formation of free radicals. The highest levels of vitamin E in the body are found in the sebum and in sebum-rich areas. Supplementation of tocopherols leads to significant increases of vitamin E levels in skin sites such as the face, where there is a high density of sebaceous glands. Research shows that blood levels of both vitamins E and A are significantly lower in those with acne, and that administration of these two fat soluble vitamins was shown to improve acne conditions due to vitamin E's ability to prevent "lipid peroxidation of sebum from bacterial-induced leakage through follicles and sebaceous glands, thus preventing inflammation due to peroxide irritation."[11]

Additional B Vitamins

In addition to pantothenic acid, Acnutrol™ contains niacin (vitamin B3, non-flushing niacinamide), vitamin B6, and biotin. Research shows that specific combinations of B vitamins promote fibroblast and keratinocyte proliferation, making it effective in fighting inflammatory skin conditions such as acne.[12] Vitamin B6 is required for the proper growth and development of tissues in the body, including the skin. It plays a role in glucose tolerance and hormonal balance, and its inclusion in Acnutrol™ capsules may be of benefit in women with premenstrual acne.* While the main functions of biotin lie in its participation in glucose and lipid metabolism, this B vitamin is best known for its role in skin (along with hair and nail) health, where it facilitates the growth of skin tissue and helps to regulate the secretion of sebum.

Recommended Use:

- As a dietary supplement, take six capsules per day, or as directed by your health care practitioner.

Dosing Suggestions:

- Maintenance dose – 3 capsules per day
- Clincally relevant dose – 6 capsules per day with meals for 3-6 months (ages 13 and up)

For a list of references cited in this document, please visit:
http://catalog.designsforhealth.com/assets/itemresources/Acnutrol_References.pdf

*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.