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Designs for Health's GLA provides 240 mg gamma-linolenic acid derived from borage seed oil (*Borago officinalis*) per 1 softgel serving. GLA is an omega-6 (n-6) polyunsaturated fatty acid (PUFA) and the active ingredient found in the oil of borage seeds, evening primrose, and black currant seeds. GLA constitutes 15-25% of borage seed oil; two to three times more than evening primrose oil.^{1,2} Unlike the omega-6-heavy oils (such as corn, soy, peanut, and cottonseed oils) that predominate in processed foods and in excess can contribute to inflammation, GLA from borage oil has powerful health-promoting effects, as it is shown to be beneficial with various pathologies.² Research shows GLA from borage seed oil helps decrease inflammation seen in rheumatoid arthritis (RA) and atopic dermatitis, improves female hormonal balance and premenstrual syndrome symptoms, helps regulate lipid metabolism, has cardioprotective and hepatoprotective properties, and contributes to healthy skin and nails.^{2,3}

GLA benefits*:

- Supports healthy inflammatory responses
- Supports healthy lipid profiles
- Supports hormonal balance
- Reduces PMS symptoms
- Supports healthy joint function
- Reduces symptoms associated with atopic dermatitis and supports healthy skin and nails

Maintaining a balanced omega-3 (n-3) to an omega-6 fatty acid ratio in the body is important for a host of biochemical processes. Owing to changes in the modern food supply and industrial farming practices, the modern diet is very high in n-6 and low in n-3. However, omega-6 fats, in and of themselves, are not harmful. In fact, GLA's precursor, linoleic acid, is an essential fatty acid that must be obtained from the diet, as the human body cannot synthesize it. It is not the omega-6, per se, but rather that too much of it is being consumed in the Western diet, especially in relation to a deficit of omega-3s. Even so, there are specialized types of omega-6 fats that have specific benefits, GLA being one of them.

Both n-3 and n-6 fats can contribute to or help resolve the inflammatory response, depending on the overall metabolic state of the body. Several factors can interfere with the body's ability to efficiently convert linolenic acid to GLA, such as insufficiencies of vitamin B6, zinc, magnesium, and biotin, which are required cofactors for the enzymes involved.⁴ Suboptimal thyroid function and elevated insulin or blood glucose may also impair this conversion, so some patients may benefit from getting this special fatty acid directly rather than depending on unpredictable and inefficient metabolic pathways. The amount of GLA provided by each softgel of this product would be difficult to get from food sources alone and may be greater than some individuals are capable of synthesizing from linoleic acid.

GLA is metabolized to dihomo-gamma-linolenic acid (DGLA), which is the immediate precursor of prostaglandin E1 (PGE1), an eicosanoid signaling molecule with immunoregulatory and anti-inflammatory properties.⁵ Elevating PGE1 levels leads to enhanced cyclic adenosine monophosphate (cAMP) activity, which suppresses the inflammatory cytokine, TNF- α .¹ GLA controls the body's production of prostaglandins, which are chemical messengers that regulate processes such as the reproductive cycle as well as female hormonal balance.² Research suggests that symptoms of premenstrual syndrome (PMS) may be the consequence of dysfunctional prostaglandin regulation and that women with PMS may have abnormal sensitivities to normal prolactin levels, a phenomenon related to low PGE1 levels.⁴ In a double-blind, randomized controlled trial, both 1 and 2 g doses of GLA for 6 months significantly decreased symptoms in women experiencing PMS, but the higher dose resulted in a larger reduction of symptoms, while essential fatty acid intake had no effect on total cholesterol levels.⁴

When GLA is supplied exogenously, DGLA, which possesses potent anti-inflammatory properties, can be synthesized in the skin.⁶ In 5 clinical trials, *Borago officinalis* supplementation demonstrated anti-inflammatory effects in patients with atopic dermatitis, suggesting it could be useful for patients seeking alternative therapies.¹ Animal studies reveal that along with fish oil, borage seed oil supplementation significantly altered both the levels and composition of fatty acid derivatives in the skin, suggesting that supplementation with fish oil and GLA-rich oils may help with inflammatory skin disorders such as eczema, psoriasis, and atopic dermatitis.⁶ In an RCT of women with clinical presentations of dry and sensitive skin, 12 weeks of borage oil attenuated the inflammatory response to a skin irritant, decreased transepidermal water loss, and significantly reduced roughness and scaling of the skin.⁶

In patients with RA, daily supplementation of borage seed oil containing 1.4 g of GLA for 24 weeks showed a 36.8% amelioration among the treatment group, significantly reducing swelling and tenderness in their joints compared with the placebo group.^{1,7,8} Another study showed that 2.8 g per day of borage seed oil for 6 months ameliorated 64% RA manifestation compared to 21% in the placebo group.¹

Supplement Facts

Serving Size 1 softgel

Amount Per Serving	% Daily Value	
Calories	10	
Total Fat	1 g	2%*
GLA (Gamma-Linolenic Acid) (from Borage Oil)(<i>Borago officinalis</i>)(seed)	240 mg	†

*Percent Daily Values are based on a 2,000 calorie diet.

†Daily Value not established.

Other Ingredients: Bovine gelatin, purified water, glycerine, annatto (color).

Recommended Use:

- As a dietary supplement, take one softgel per day with a meal, or as directed by your health care practitioner.
- For enhanced results, consider supplementing with Designs for Health's omega-3 fatty acid products such as OmegAvail™ Hi-Po, OmegAvail™ Liquid, OmegAvail™ TG1000, or OmegAvail™ Ultra.

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

<https://www.designsforhealth.com/techsheet-references/gla-references.pdf>

Dosing recommendations are given for typical use based on an average 150 pound healthy adult. Healthcare 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.

*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.