Clinical Applications

- Reduce Inflammation (Pain, Stiffness, Joint Tenderness)
- Support Normal Fatty Acid Metabolism (Important for Healthy Skin)
- Support Nerve Membrane Structure, Nerve Blood Flow and Nerve Conduction
- Support for Healthy Blood Pressure and Heart Rate
- Support Healthy Menstrual Cycle

**Borage CP-240™** softgels contain cold-pressed borage seed oil extracted from Borago officinalis, a blue flowering plant. The natural extraction process does not use any chemicals or refining, thus providing the purest source of this essential oil. Maximum freshness is assured with the addition of vitamin E as an antioxidant. Borage oil provides the highest percentage (24%) Gamma-Linolenic Acid (GLA) of any plant source.

Discussion

GLA, like linoleic acid (LA) and arachidonic acid (AA), is an “Omega 6” fat because the double-bond is in the sixth space from the end of the carbon chain. Elongase, an enzyme, catalyzes a reaction that adds two more carbons to GLA’s chain (“elongated”) to form dihomo-gamma linolenic acid (DGLA). Then DGLA is “desaturated” by another enzyme (5-delta desaturase) to form AA. Various cellular sites have different enzymes that can metabolize GLA, DGLA and AA. In addition there are fatty acid pools containing GLA and its metabolites.

The conversion process cited above is inadequate in diabetic patients. Theoretically, impairment of GLA conversion could lead to diabetic neuropathy because the metabolites of GLA are important in nerve membrane structure, nerve blood flow and nerve conduction. Two multi-center, randomized, placebo-controlled trials in humans with diabetic neuropathy demonstrated significant benefits of GLA.

In a study series serum levels of GLA, DGLA and AA increased within two weeks of supplementation and significantly increased GLA in phospholipids and cholesterol esters. Ex vivo, GLA supplementation did not increase AA in neutrophils (inflammatory cells) and it inhibited the capacity of neutrophils to generate lipid pro-inflammatory mediators such as 4-series leukotrienes, 2-series prostaglandins and platelet aggregation factor (PAF).

Inflammatory cells convert DGLA (from GLA) to 15-(s)-hydroxy-8,11,13-eicosatrienoic acid (15-HETe) and prostaglandin E1, compounds with anti-inflammatory and anti-proliferative properties. GLA (and its product 15-HETe) may suppress COX 2 and 5 LOX enzymes. GLA modulates interleukin-1beta production and inhibits tumor-necrosis factor-alpha.

- In thirty subjects, compared to fish oil or olive oil, only borage oil attenuated blood pressure and heart-rate response.
- Women with premenstrual syndrome-related problems may have significant imbalances in the omega-6 fats, making tissues very sensitive to sex hormone changes in the premenstrual phase.
- Skin disorders, alcoholism, atrophic gastritis, asthma, dry eye syndrome, and periodontal disease are among the other conditions for which borage oil may be helpful.
- Borage oil, rich in essential fatty acids has been recommended for healthy nails and hair.
<table>
<thead>
<tr>
<th>Supplement Facts</th>
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<tbody>
<tr>
<td>Serving Size: 1 Softgel</td>
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<tr>
<td>Servings Per Container: 90</td>
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<tr>
<td>Amount per serving</td>
</tr>
<tr>
<td>Calories</td>
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<td>Calories from Fat</td>
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<td>Total Fat</td>
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<td>Saturated Fat</td>
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<tr>
<td>Vitamin E (as d-Alpha Tocopherol Acetate)</td>
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<tr>
<td>Borage Seed Oil (borage officinalis) Providing:</td>
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<tr>
<td>Gamma-Linolenic Acid (GLA)</td>
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*Percent Daily Values are based on a 2,000 calorie diet. **Daily Value not established.

Other Ingredients: Gelatin, Glycerin and Purified Water.

Dosing

Recommended doses of borage oil range from 1,000 to 3,000 mg/day. However, the typical dose is 1000 milligrams once or twice a day with meals. Take with food to minimize any unpleasant side effects such as loose stools and minor stomach problems. One gram (1000 mgs) provides 240 mgs GLA. (It would take about three times as much Primrose oil to yield the equivalent GLA content.) If high doses or prolonged use of borage is in your best health interest, then periodic liver function tests may be in order.

References

11. Natural Medicines Comprehensive Database. Stockton, CA: Therapeutic Research Faculty, 2000

Contraindications

Pregnant and nursing women should probably avoid this oil since the risks may be still unknown. May be contraindicated for pts on an anticoagulant or using other supplements that thin blood. There are not any other known drug interactions specifically involving borage oil. However, in the medical literature there is one report on Primrose oil increasing seizures in people with schizophrenia treated with phenothiazides and one report on the increase of seizures if borage is combined with anesthesia.16

*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.