

Therapeutic use of GLA (borage oil) + EPA and DHA (fish oil) + Omega-7 (seabuckthorn oil)

Typical indications for GLA+EPA:

- Premenstrual syndrome
- Winter hands and feet / Raynaud's phenomenon
- Diabetic foot prevention
- Rheumatoid arthritis
- Acne vulgaris (mild-to-moderate form)

Typical indications for GLA+EPA and seabuckthorn oil:

Atopic eczema/dermatitis
General skin care (e.g. dry skin)

Typical indications for seabuckthorn oil:

Dry eyes (e.g. contact lens wearers)
Supportive management of gastric ulcers
Supportive care in chronic vaginal inflammation

Interactions and precautions

No side effects are known when is used correctly.

Scientific information

Skin care and flexible joints

Seabuckthorn pulp oil (*Hippophae rhamnoides*) is rich in both the omega-7 fatty acid palmitoleic acid (22-33%) and the omega-9 fatty acid oleic acid (10-28%). Aged skin contains less of these monounsaturated fatty acids as compared to young skin, which is the reason why an extra supply might be beneficial for the elderly.¹ Free fatty acids such as palmitoleic acid are vital components of the skin's lipid barrier, and contribute to pH level, moisture regulation and suppleness.^{2,3} Seabuckthorn oil's beneficial effects on the skin are also partly due to its content of carotenoids (e.g. beta-carotene) and phytosterols (e.g. sitosterol with anti-inflammatory potential). Patients with atopic dermatitis experienced symptom improvements after 4 months of oral application of seabuckthorn oil.⁴ In this respect seabuckthorn oil may enhance the effect of borage oil, which is rich in gamma-linolenic acid (GLA).

Gamma-linolenic acid (GLA) is the precursor of the **anti-inflammatory prostaglandin E1 (PGE1)**, i.e. through its prior conversion to dihomogamma-linolenic acid (DGLA). Amongst other research, a meta-analysis of 26 clinical trials in a total of 1207 patients with **atopic eczema** demonstrated that GLA could reduce symptoms such as skin rash, dry skin, itching, redness and swelling, from 4 to 8 weeks after the start of the supplementation. With concomitant use of corticosteroids the magnitude of GLA's effect was reduced.⁵⁻⁸ In preliminary research, the anti-inflammatory effect of GLA also improved the clinical symptoms of **acne vulgaris**, while sebum secretion fell by 15% (320 mg GLA per day for 12 weeks).⁹

In a pilot trial, skin dryness induced by isotretinoin treatment of acne was less pronounced when combined with GLA.¹⁰

An association between GLA and skin condition also became clear in research with **elderly** individuals: oral use of borage oil **improved skin barrier function** (less itching, less dry skin).¹⁰ The anti-inflammatory effect of GLA (at least 500 mg/day) resulted in a significant alleviation of symptoms in **rheumatoid arthritis** after 3-4 months of supplementation.¹²

Cardiovascular benefits

Long-term use of GLA is better when combined with the omega-3 fatty acid EPA. In neutrophils and skin cells the conversion of GLA (through DGLA) into the anti-inflammatory PGE1 occurs to a maximal degree, which explains the beneficial impact of GLA in rheumatic diseases and skin problems. Neutrophils and skin cells lack the δ -5-desaturase enzyme that is necessary for the conversion of DGLA to arachidonic acid (AA).

Since other body cells (e.g. liver cells) do have the δ -5-desaturase enzyme, blood AA concentration will nonetheless increase upon ingestion of "GLA as a single supplement". This is not desirable for a GLA supplement that is used chronically, since AA is the precursor of the pro-inflammatory PGE2 that may facilitate thrombus formation. The good news is that the **omega-3 fatty acid EPA** skews the **conversion cascade of GLA towards PGE1**, which avoids an elevated blood AA concentration.¹⁻⁴ In the field of cardiovascular health, GLA shows great promise since it is therapeutically useful in the treatment of typical circulation problems. Disorders such as **Raynaud's phenomenon**¹² (vascular spasms in the limbs as a result of an exaggerated response to cold) and **diabetic neuropathy**¹³ (pain and a tingling sensation in the limbs due to poor blood sugar regulation) improved upon supplementation with 500 mg GLA per day.

How does seabuckthorn contribute to cardiovascular health? In a placebo-controlled trial isolated **palmitoleic acid (the omega-7 fatty acid from seabuckthorn oil)** at 220 mg/day had a positive effect on the lipid profile of adults with dyslipidaemia. CRP, triglyceride and LDL cholesterol levels reduced with 44%, 15% and 8% respectively in the treatment group as compared to the control group.¹⁴

Dry, irritated mucous membranes

Seabuckthorn pulp oil has the potential to support the integrity of mucous membranes. Preclinical research and preliminary human studies showed beneficial effects in the relieve of gastric ulcers (supporting the gastric mucosa)^{15,16}, in chronic vaginal inflammation (support for dryness of the vaginal mucosa)¹⁵ and in the treatment of dry eyes (supporting the eye mucosa)^{17,18}.

Premenstrual syndrome

If women with **premenstrual syndrome** (PMS) consume GLA, they experience less irritability and less painful breasts.¹⁹⁻²¹ Supplementation with 240 mg GLA per day induced a significant pain reduction after 6 months of use in 97% of 34 women with cyclic mastalgia.¹⁹

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