

# Lipochol



**PC**

*Be Well Stay Well Age Well*

*Lipochol is a medical food that provides the conditionally essential omega-3 fatty acids EPA (eicosapentaenoic) and DHA (docosahexaenoic) from Antarctic krill (Euphausia superba); phospholipids (80% as phosphatidylcholine); and the carotenoid astaxanthin, which provides antioxidant support and has a characteristic red color. Lipochol is formulated to provide clinical dietary management of omega-3 phospholipid deficiency which may be associated with mild-to-moderate hypertriglyceridemia; and to support cell membrane fluidity, normal homocysteine metabolism, and cardiometabolic health.*

All Phillips Clinic Formulas Meet or Exceed cGMP Quality Standards

**Clinical Applications**

- Provides a Highly Absorbable, Phospholipid Form of Omega-3 EPA and DHA
- Manages Omega-3 Phospholipid Deficiency
- Helps Maintain a Healthy Omega-3 Index
- Supports Healthy Blood Lipids and Cell Membrane Fluidity
- May Support Cardiometabolic Health

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## Discussion

**Lipochol**, also known as Onemia™, is a patented medical food formulated for the clinical dietary management of omega-3 phospholipid deficiency, a condition which can lead to an increase in cardiovascular risk factors and unfavorable metabolic changes. As a medical food, Lipochol is to be used under the supervision of a licensed health care practitioner and requires a prescription.

**Omega-3 Fatty Acids** Healthy omega-3 phospholipid status affects cell membrane function and cardiometabolic health. EPA and DHA have been extensively studied for their positive effects on cardiovascular health, cognitive integrity, immune function, and the natural response to inflammation.<sup>[1,2]</sup> Research suggests that serum EPA and DHA, which reflect dietary intake, are inversely associated with mortality, cardiovascular risk, and sudden cardiac death.<sup>[3,4]</sup> The omega-3 index, a measurement of erythrocyte EPA plus DHA, has become recognized as a biomarker of cardiovascular health.<sup>[4]</sup> Clinical trials suggest that Lipochol promotes an improvement in omega-3 index.<sup>[5]</sup>

Adequate serum and cell-membrane levels of EPA/DHA are crucial to cell function. Many individuals have a limited ability to convert the parent omega-3 alpha-linolenic acid to EPA and DHA; therefore, adequate intake of preformed EPA and DHA is necessary.<sup>[6]</sup> Lipochol provides EPA and DHA in a concentrated, bioavailable, phospholipid form found to positively affect blood lipids, including triglycerides, to a greater extent than the triglyceride or ethyl-ester form of fish oil does.<sup>[5,6]</sup> Some studies suggest that fish oil may increase low density lipoprotein (LDL) levels,<sup>[1,7,8]</sup> while krill oil may decrease LDL.<sup>[9]</sup>

**Phospholipids** Considered the building blocks of healthy cells, phospholipids are water- and fat-soluble and help maintain cell membrane fluidity and function. The phospholipid form (versus triglyceride form) of omega-3 EPA and DHA is easily recognized, integrated, and utilized by the body's cells. Healthy phospholipid levels are important to maintaining normal levels of high density lipoprotein (HDL), serum triglycerides, and cardiovascular health as well. Phosphatidylcholine (PC)—the major phospholipid found in Lipochol—is highly concentrated in the brain, heart, liver, and kidneys.<sup>[10]</sup> PC is a source of choline for acetylcholine production and may directly support cardiovascular health by participating in the metabolism of homocysteine.<sup>[11,12]</sup> Lipochol's marine phospholipids are a concentrated 53-58% purified phospholipid (PPL), 80% of which occurs as phosphatidylcholine.

**Antarctic Krill (*Euphausia superba*)** Krill, a coldwater marine crustacean, is a rich source of omega-3 EPA and DHA. Krill oil has been used in several human clinical trials, and research consistently suggests that krill omega-3 phospholipids support antioxidant activity, healthy cell membranes, healthy blood lipids, and the normal response to inflammation.<sup>[13-15]</sup> Krill is low on the food chain and is considered a sustainable source of nutrients. Precautionary catch limits are established by the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).<sup>[16]</sup>

**Astaxanthin** As a red-orange member of the carotenoid family, astaxanthin provides antioxidant activity. Both animal and clinical research suggest that astaxanthin supports antioxidant mechanisms as well as a healthy response to inflammation.<sup>[17]</sup> Krill is recognized as a rich source of astaxanthin and a potentially valuable contributor to cardiovascular health.<sup>[14]</sup>

Lipochol



### Serving Size: 2 Capsules

<b>Marine Phospholipids</b>	<b>540 mg</b>
<b>Omega-3 Fatty Acids</b>	<b>300 mg</b>
<b>Eicosapentaenoic Acid (EPA)</b>	<b>155 mg</b>
<b>Docosahexaenoic Acid (DHA)</b>	<b>105 mg</b>
<b>Astaxanthin</b>	<b>2,000 ppm</b>

**INGREDIENTS:** Krill oil, fish gelatin capsule (tilapia), water.

**CONTAINS:** Crustacean shellfish (krill) and fish.

**U.S. patent No. 8,030,348 and 8,057,825**

**Acasti Pharma Inc.**



**Research** The chemical form of omega-3 fatty acids can determine their bioavailability. A double-blind crossover trial compared uptake of EPA/DHA from krill (mainly phospholipid form) to uptake from two forms of fish oil—re-esterified triacylglycerides (rTAG) and ethyl-esters (EE). Results suggested that krill oil had superior bioavailability and promoted the highest incorporation of EPA and DHA into plasma phospholipids.<sup>[18]</sup> A multi-center, three-month, prospective, randomized, double-blind, placebo-controlled study compared the effects of krill oil versus fish oil on serum lipids. Results suggested krill oil reduced total cholesterol, LDL, and triglycerides, while it increased HDL, improving each of these parameters to a greater extent than 3 g of fish oil did. Results were even more dramatic with higher doses of krill oil. Doses of 1-1.5 g krill oil per day appeared to support healthy blood glucose metabolism as well.<sup>[9]</sup>

A randomized double-blind parallel arm trial of 76 subjects indicated that 2 g krill oil per day significantly increased plasma EPA and DHA levels and was well tolerated.<sup>[19]</sup> Highly concentrated krill oil, Lipochol's main component, was administered to a total of 203 subjects in six clinical trials with no serious side effects observed at a dose up to 6g/day.<sup>[12]</sup> This concentrated form of krill oil was found to decrease serum triglycerides to levels similar to prescribed fish oil found in the market place.<sup>[5]</sup> Clinical trials also noted a better and faster improvement of the omega-3 index using concentrated krill oil in comparison to fish oil.<sup>[5]</sup>

## Directions

Take two capsules in the morning, preferably after breakfast, or as recommended by your healthcare practitioner. Swallow whole. Do not crush or chew capsules.

## References

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## Cautions

Consult your healthcare practitioner before use. Keep out of reach of children. People with seafood or shellfish allergy, coagulopathy or taking anticoagulant or other medications should be tested prior to taking Lipochol. May contain traces of seafood/fish protein. Do not take if the seal is broken or missing.

