



# Phospholipids

*Nordic Naturals Education*

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# What is a Phospholipid?

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# Phospholipid Structure

- Phospholipids are the main building blocks of cell membranes.
- Phospholipid =  
a phosphate group with a glycerol backbone and two fatty acid chains

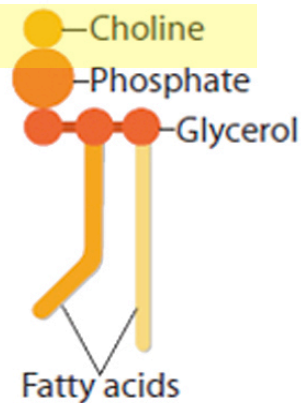
Phosphate group + glycerol + SFA + EFA/HUFA = Phospholipid



# Phospholipid Types and Sources

- 6 Common Types or “species” in the body
  - **Phosphatidic acid** —
  - Phosphatidyl-choline ●
  - **Phosphatidyl-inositol** ▲
  - Phosphatidyl-serine ▼
  - **Phosphatidyl-ethanolamine** ▭
  - Phosphatidyl-glycerol ◆

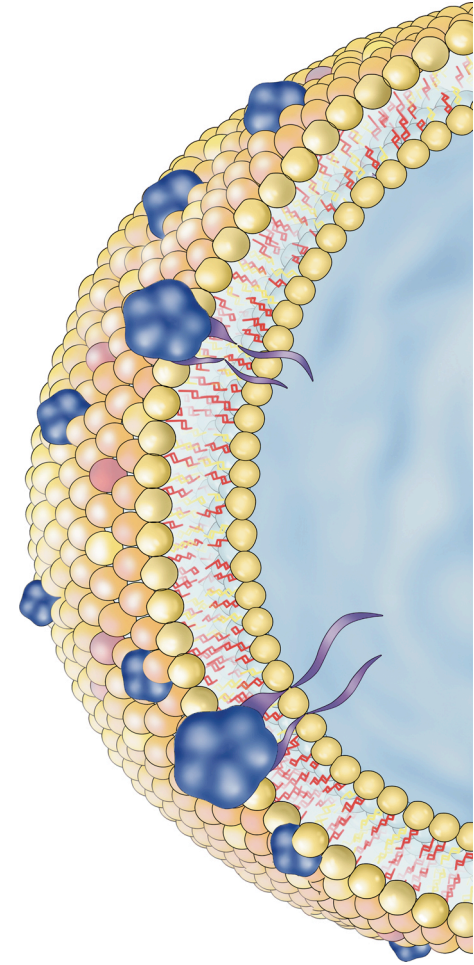
Difference between species is mostly HERE!





# Importance of Phospholipids

- Makes up most of EVERY cell membrane in body
  - Thus, they exert enormous influence on the **maintenance and health** of every cell in every organ
  - Especially important for **brain development and neurotransmission**
- Important component of fats in the blood
  - Make up fat particles (LDL, HDL, VLDL, etc)
  - Important component of the membranes that make up **red blood cells, white blood cells, and platelets**





Why Omega-3 Phospholipids?

**OMEGA-3<sup>TM</sup>**  
**PHOSPHOLIPIDS**

The Potent Alternative to Krill

**NORDIC NATURALS<sup>®</sup>**

# Omega-3 Phospholipids: Key Differentiators

## *The Potent Alternative to Krill*

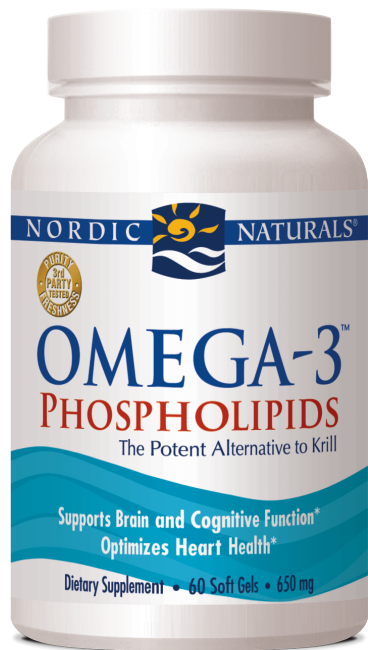
- More phospholipids (PL)!
- More PL-bound DHA than all leading krill products!
- More EPA+DHA: 2 to 3x the amount of krill
  - Meets a dose commonly recommended by medical practitioners of 500 mg per day
- BEST value per 100mg



# Omega-3 Phospholipids™

## The Potent Alternative to Krill

Omega-3 Phospholipids combines Nordic Naturals' **top-selling fish oil concentrate** with **phospholipid-bound** EPA and DHA from roe - to deliver a potent alternative to krill oil.



- **520 mg EPA+DHA**—double the average krill supplement
- **448 mg phospholipids**
- Small, easy-to-swallow soft gels
- From **sustainably sourced** - fish and herring roe
- Supports heart & brain health\*
- Promotes healthy cell development and maintenance\*

<b>Supplement Facts</b>		
Serving Size: <b>2 Soft Gels</b>		
Amount Per Serving	% Daily Value*	
Calories	10	
Calories from fat	10	
Total Fat	1.3 g	2%
Saturated Fat	0 g	0%
Trans Fat	0 g	†
Cholesterol	40 mg	13%
Total Omega-3s	595 mg	†
EPA (Eicosapentaenoic Acid)	245 mg	†
DHA (Docosahexaenoic Acid)	275 mg	†
Other Omega-3s	75 mg	†
Total Phospholipids	448 mg	†
Phosphatidyl Choline	384 mg	†
Other Phospholipids	64 mg	†

\* Percent Daily Values are based on a 2,000 calorie diet.  
† Daily Value not established.

**Ingredients:** herring roe extract, purified deep sea fish oil (from anchovies and sardines), soft gel capsule (gelatin, water, glycerin, carob), d-alpha tocopherol, rosemary extract (a natural preservative).

No gluten, milk derivatives, or artificial colors or flavors. Non-GMO.

# Absorption of Fish and Krill Oils are Similar



[Display Settings:](#)  Abstract

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[Lipids](#). 2010 Nov 2. [Epub ahead of print]

## Metabolic Effects of Krill Oil are Essentially Similar to Those of Fish Oil

**CONCLUSION:** No statistically significant differences in changes in any of the serum lipids or the markers of oxidative stress and inflammation between the study groups were observed. Krill oil and fish oil thus represent comparable dietary sources of n-3 PUFAs.

and/or triglyceride levels were randomized into three groups and given either six capsules of krill oil (N = 36; 3.0 g/day, EPA + DHA = 543 mg) or three capsules of fish oil (N = 40; 1.8 g/day, EPA + DHA = 864 mg) daily for 7 weeks. A third group did not receive any supplementation and served as controls (N = 37). A significant increase in plasma EPA, DHA, and DPA was observed in the subjects supplemented with n-3 PUFAs as compared with the controls, but there were no significant differences in



Why Nordic Naturals ?

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# Family-Owned Forever

Founder and CEO Joar Opheim deeply committed to:

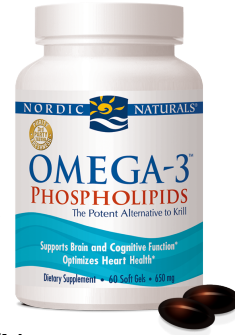
- Doing what's right at every cost
- Social Responsibility & Core Values
- Research & Innovation



# Sustainability of Norwegian Herring

## *Claupea harengus L.*

- Sustainably sourced phospholipids from herring roe
  - The roe is a by-product of herring already caught for human consumption (fillets)
  - From MSC-certified, well-managed wild-catch fishery in Norway
- Norwegian Spring Spawning herring stock is at a sustainable level.
  - For 2013 – the quota was set to 619, 000 million tons
- Herring is caught throughout the year along its migration path along the Norwegian coast and in the Norwegian Sea.



***The roe is a by product of the herring caught for human consumption (fillets)***



# Nordic Naturals Newest, Greenest Fish Oil Facility

- **Revolutionary Technology**
  - Ensures no taste, highest freshness level and quality
- **Reduce**
  - Reduction in raw material
- **Reuse**
  - Unused portions of fish oils serve as clean renewable fuel to meet 100% of Nordic Pharma's manufacturing energy needs
- **Recycle**
  - Produce biodiesel and hydropower for heating, vacuum, and steam
- **Repurpose**
  - Provide surplus energy to neighbors
  - Norwegian Institute of Food, Fisheries, and Aquaculture Research



*Thank You!*

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