

## Irreconcilable Differences Part 1 of 4

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### ☀ "3" > "6"

Omega-3 fatty acids first gained headline status in the mid-1990's, as conclusive or probable health benefits were confirmed through advancements in food and nutritional sciences. Heart health is one of the more studied and promising results. The omega-3's ( $\omega$ -3 or n-3) belong to a family of unsaturated fatty acids that have a carbon-carbon bond in the "n-3" position - the third bond from the methyl end of the fatty acid. Two other omega families are omega-6 and omega-9, so named due to the "n-6" and "n-9" carbon-carbon bond, respectively. Once consumed, omega-3's and omega-6's use the same metabolic pathway and "compete" for the required substrates. Accordingly, nutritionists advocate an  $\omega$ -6: $\omega$ -3 ratio of 6:1, or even 1:1. Currently, the  $\omega$ -6: $\omega$ -3 ratio among North Americans far exceeds that amount, estimated at 20:1.

### ☀ The Alpha and the Omega

The omega-3 family has three specific types of fatty acids, each bearing a unique chemical structure, molecular weight, source of food origin, and physiological metabolism.

#### Plant-Derived Omega-3

Known as alpha-linolenic acid ( $\alpha$ -Linolenic acid) or more commonly, ALA, this  $\omega$ -3 is often called "short chain omega-3", due to its 18-carbon chain. ["Long chain" is described below]. Rich ALA sources are seeds grown in cooler latitudes such as flax, hemp and chia. In the body, it is metabolized to a longer-chain  $\omega$ -3 called DHA [see below]. Some nutritionists maintain that the conversion to DHA is very inefficient – as low as 5% in men and slightly greater in women – and thus advocate consumption of marine-derived, "long chain"  $\omega$ -3.

#### Marine-Derived Omega-3

Two types, both derived from fish oils or marine algae: EPA (Eicosapentaenoic acid) and DHA (Docosahexaenoic acid) having chain lengths of 20 and 22 carbons respectively, hence referred to as "long-chain"  $\omega$ -3. EPA is a precursor to DHA, the conversion being efficient in a healthy body. Some stakeholders oppose marine-derived  $\omega$ -3's, citing oceanic pollution and mercury contamination, and advocate the plant-derived shorter-chain  $\omega$ -3.

### ☀ It's Not All About DHA

DHA is a draw on food labels these days. Manufacturers undergo several reformulations to attain a coveted "x grams of DHA!" on pack. EPA and DHA co-exist in nature. Since EPA is a precursor to DHA, regulatory authorities pay as much oversight to EPA as they do to the DHA component. In Canada, EPA:DHA of 18:12 is the only long-chain  $\omega$ -3 approved for addition to foods, but not to infant formula, due to the high proportion of EPA.

### ☀ Self-divide and Self-conquer

The relative merits between short-chain and long-chain  $\omega$ -3's has reached argumentative proportions among some stakeholders. A parting of the ways has resulted in organizations solely devoted to promoting either short or long chain  $\omega$ -3. It is unknown if such distinctions are appreciated by consumers in a knowledgeable fashion, or simply add to the degree of nutrition confusion or information overload that several consumers report. One leading Canadian  $\omega$ -3 researcher appears to be a lone voice in the wilderness. He would prefer the grumbling and "we-they" of the long-short camps be replaced with an overall objective to increase  $\omega$ -3 consumption in North America. He reasons that toxicity concerns associated with long chain  $\omega$ -3 consumption have been dealt with through regulations, and that high consumption of the short-chain  $\omega$ -3 has little to no downside, as the body will convert to EPA:DHA as required.

### ☀ Book of Revelation 22:13...

...declares: "I am Alpha and Omega, the beginning and the end, the first and the last". If it were only that simple. **FF**

### ☀ Some Web sites

<http://www.flaxcouncil.ca/>

<http://www.goedomega3.com/>

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