



The most pure, efficacious, and stable Omega Oils available

# TruTG™ Fish Oils

from Designs for Health



taking DFH TruTG fish oils is like... getting more fish on the dish!



## The TruTG™ Advantage

### Converting Ethyl Esters to Triglycerides - Why DFH Chose a Path Less Followed

The vast majority of fish oil concentrate products available on the market today are ethyl esters (EE). Not surprisingly, the reason is cost; an additional step is required to convert EEs back into their natural triglyceride (TG) state. This added process removes the ethanol backbone and re-esterifies the omega-3 fatty acids to a glycerol backbone. Interestingly, most of the companies that choose to take this extra step and expense convert just 60 – 65% of the oil to TG...leaving a mixture of EE, and mono and diglyceride oil in the remainder.

Only Designs for Health fish oil products carry the TruTG™ seal – your assurance that our fish oils are delivered in **the form found in nature**, consistent with Paleolithic nutritional philosophy, and are of unmatched TG potency. Fish oil blends and concentrates bearing the TruTG™ seal are 90 to 100% triglyceride (TG) bound omega-3 fish oils, **which are 40%-50% higher than the industry standard for TG fish oil concentrate products!**

### Why the Triglyceride (TG) form of fish oils?

- The naturally occurring form in foods and in the body
- Research indicates that it is up to 100% more bioavailable than the ethyl ester (EE) form
- Easier to assimilate for patients with impaired digestion and absorption
- Less prone to oxidation and production of free radicals
- No post digestion production of alcohol in the gut or blood stream as in the EE form
- Less susceptible to increasing free fatty acids in the blood, which may increase blood glucose

At Designs for Health, we have always placed quality, efficacy and safety above cost. This is precisely why we convert to TG the maximum amount possible, between 90% and 100%. TruTG™ defines this process, resulting in higher expense, but also in a finished product with the highest stability and bioavailability in the form closest to what is found in nature.

### Superior Absorption and Bioavailability

Numerous studies have assessed the absorption and bioavailability of EE fish oils by measuring the amount of EPA and DHA in blood plasma after ingestion of fatty acids as either TGs or EEs.

One of the causative factors for the poor bioavailability of EE fish oil is a much greater resistance to digestive enzymes. During the digestive process, pancreatic lipase enzymes hydrolyze (cleave) the oils to liberate the fatty acids, and EE fish oil is much more resistant to this enzymatic process than the natural TG form.<sup>1</sup>

A recent study assessed the specificity of 5 lipases towards EPA and DHA in TG and EE forms of fish oil. All of the investigated lipases hydrolyzed EPA and DHA more easily from a TG than from an EE fish oil substrate. It follows that EPA and DHA hydrolysis would be further compromised in individuals suffering from a digestive disorder, such as pancreatic insufficiency. Supplying EE fish oils to such populations would likely result in poor clinical outcome.

A review of the existing literature provides evidence suggesting that omega-3 fatty acids in the natural TG form are more efficiently digested and significantly better incorporated into plasma lipids when compared to the EE form.

### More Stable, Less Prone to Oxidation

Omega-3 fish oils in the form of EEs or monoglycerides are much less stable than those in the natural TG form, making them more prone to oxidation. The oxidation kinetics of DHA as an EE or as a TG were assessed by measuring the concentration of oxygen found in the head space of a reaction vessel with both TG and EE forms<sup>2</sup>. The EE form of DHA was more reactive, and quickly oxidized, demonstrating that EE fish oils are far less stable and more readily produce harmful oxidation by-products<sup>2</sup>. In addition, the stability of DHA-containing oil in phospholipid, triacylglycerol and the EE form has been assessed<sup>3</sup>. After a 10-week oxidation period, the EE DHA oil decayed 33% more rapidly than other forms<sup>3</sup>. In a separate study, monoglycerides were shown to be more readily oxidized when compared to triglycerides.<sup>4</sup>

This suggests that individuals with health conditions associated with excessive oxidative stress should ideally consume only a 90+% TG form of fish oil.

### Related Research

- Natural TG fish oil results in 100% more plasma EPA and DHA after absorption in comparison to EE oils<sup>5</sup>
- TG forms of EPA and DHA were shown to be 240% and 171%, respectively, better absorbed than EE forms<sup>6</sup>
- EPA incorporation into plasma lipids was found to be considerably smaller and took longer when administered as an EE<sup>7</sup>
- Plasma lipid concentrations of EPA and DHA were significantly higher with daily portions of salmon in comparison to 3 capsules of EE fish oil<sup>8</sup>
- In rats, DHA TG supplementation led to higher plasma and erythrocyte (red blood cell) DHA content than did DHA EE<sup>9</sup> and a higher lymphatic recovery of EPA and DHA<sup>10</sup>.

### References

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8. Dietary intake of fish vs. formulations leads to higher plasma concentrations of n-3 fatty acids. Visioli F, Risé P, Barassi MC, Marangoni F, Galli C. Lipids. 2003 Apr;38(4):415-8.
9. Effect of supplementation with docosahexaenoic acid ethyl ester and sn-2 docosahexaenyl monoglyceride on plasma and erythrocyte fatty acids in rats. Valenzuela A, Valenzuela V, Sanhueza J, Nieto S. Ann Nutr Metab. 2005 Jan-Feb;49(1):49-53. Epub 2005 Feb 25.
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## OmegAvail™ Marine TG with Lipase



### two softgels contain:

Calories	20
Calories from Fat	18
Total Fat	2 g
Saturated Fat	0.4g
Trans Fat	0 g
Cholesterol	2 mg
Sodium	0 mg
Total Carbohydrate	0.2 g
Protein	0.6 g
Fish Oil (triglyceride form)	2060 mg
EPA (as area %)	360 mg-380 mg
(as mg/g)	320 mg-340 mg
DHA (as area %)	240 mg-260 mg
(as mg/g)	200 mg-215 mg
Other Omega-3 Fatty Acids	100 mg
Lipase	30 mg

**Other Ingredients:** Fish oil, gelatin, natural lemon flavor, water, and vitamin E (mixed tocopherols).

## OmegAvail™ Marine TG Liquid



### one teaspoon (5 mL) contains:

Calories	40
Calories from Fat	40
Total Fat	5 g
Cholesterol	32 mg
Omega-3 Fatty Acids	1355 mg
EPA (Eicosapentaenoic Acid)	725 mg
DHA (Docosahexaenoic Acid)	450 mg
Other Omega-3 fatty acids	180 mg

**Other Ingredients:** Natural lemon flavor, vitamin E (mixed tocopherols).

## OmegAvail™ Synergy TG



### two softgels contain:

Calories	22
Calories from Fat	22
Total Fat	2.4 g
Vitamin E (mixed tocopherols)	14 IU
ALA	400 mg
EPA (from deep sea fish oil)	270 mg
DHA (from deep sea fish oil)	185 mg
GLA	160 mg

**Other Ingredients:** Gelatin, glycerin, and purified water.

## OmegAvail™ Ultra TG



### two softgels contain:

Calories	18
Calories from Fat	18
Total Fat	2 g
Cholesterol	less than 10 mg
Omega-3 Fatty Acids	1070 mg-1170 mg
EPA (Eicosapentaenoic Acid)	540 mg-600 mg
DHA (Docosahexaenoic Acid)	370 mg-400 mg
Other Omega-3 fatty acids	160 mg-170 mg

**Other Ingredients:** Gelatin, glycerin, purified water, vitamin E (mixed tocopherols).

## OmegAvail™ Ultra TG Liquid

### with D3, K1, K2

#### one teaspoon (5 mL) contains:

Calories	45
Calories from Fat	45
Total Fat	5 g
Cholesterol	25 mg
Vitamin D3 (As Cholecalciferol)	1000 IU
Vitamin K	525 mcg
(as Vitamin K1 Phytonadione 500 mcg; Vitamin K2 Menaquinone-7: 25 mcg)	
Omega-3 Fatty Acids	2665 mg-2915 mg
EPA (Eicosapentaenoic Acid)	1345-1495 mg
DHA (Docosahexaenoic Acid)	925-995 mg
Other Omega-3 fatty acids	395-425 mg

**Other Ingredients:** Natural lemon flavor, vitamin E (mixed tocopherols).

## OmegAvail™ Ultra TG

### with D3, K1, K2, and Lipase

#### two softgels contain:

Calories	18
Calories from Fat	18
Total Fat	2 g
Cholesterol	less than 10 mg
Vitamin D3 (As Cholecalciferol)	1000 IU
Vitamin K	525 mcg
(as Vitamin K1 Phytonadione 500 mcg; Vitamin K2 Menaquinone-7: 25 mcg)	
Omega-3 Fatty Acids	1070 mg-1170 mg
EPA (Eicosapentaenoic Acid)	540-600 mg
DHA (Docosahexaenoic Acid)	370-400 mg
Other Omega-3 fatty acids	160-170 mg
Lipase	30 mg

**Other Ingredients:** Natural antioxidants, vitamin E (mixed tocopherols), silicon dioxide, bees wax, lecithin, and natural lemon flavor.

# OmegAvail™ Product Comparison Chart

Ingredients	OmegAvail™ Marine TG softgels with Lipase	OmegAvail™ Marine TG Liquid	OmegAvail™ Ultra TG softgels	OmegAvail™ Synergy TG softgels	OmegAvail™ Ultra TG Liquid with D3, K1, and K2 (MK-7)*	OmegAvail™ Ultra TG Softgels with D3, K1, K2, and Lipase*
<b>Serving Size</b>	Two Softgels	5ml (1 tsp.)	Two softgels	Two Softgels	5ml (1 tsp.)	Two softgels
<b>EPA</b>	320-340 mg	725 mg	540 mg-600 mg	270 mg	1345 mg - 1495 mg	540 mg - 600 mg
<b>DHA</b>	200-215 mg	450 mg	370 mg-400 mg	185 mg	925 mg - 995 mg	370 mg - 400 mg
<b>ALA</b>	—	—	—	400 mg	—	—
<b>GLA</b>	—	—	—	160 mg	—	—
<b>Vitamin E</b>	—	—	—	14 IU	—	—
<b>Other Omega-3's</b>	100 mg	180 mg	160 mg-170 mg	—	395 mg - 425 mg	160 mg - 170 mg
<b>Vitamin D3</b>	—	—	—	—	1000 IU	1000 IU
<b>Vitamin K1</b>	—	—	—	—	500 mcg	500 mcg
<b>Vitamin K2</b>	—	—	—	—	25 mcg	25 mcg
<b>Lipase</b>	30 mg	—	—	—	—	30 mg
<b>Application</b>	<ul style="list-style-type: none"> <li>Lipase addition makes this ideal for older patients and those with poor GI/digestive health</li> <li>Maintenance and general Omega-3 dosing</li> </ul>	<ul style="list-style-type: none"> <li>Great for kids and the elderly who prefer not to take pills</li> <li>Higher dosing is easy with liquids</li> <li>Add to shakes</li> </ul>	<ul style="list-style-type: none"> <li>High potency EPA/DHA for more aggressive applications</li> </ul>	<ul style="list-style-type: none"> <li>Combination omega-3-6 fatty acid product</li> <li>Balanced doses of EPA, DHA, ALA, and GLA</li> </ul>	<ul style="list-style-type: none"> <li>Liquid allows unparalleled dosing flexibility</li> <li>Added D, K1, K2 for cardiovascular, atherosclerotic, bone and immune support</li> </ul>	<ul style="list-style-type: none"> <li>Lipase addition makes this ideal for older patients and those with poor GI/digestive health</li> <li>Added D, K1, K2 for cardiovascular, atherosclerotic, bone and immune support</li> </ul>

\* Patients taking blood thinners should have coagulation levels checked while taking products containing Vitamin K.



Please call us at (800) 847-8302,  
or visit us on the web at [www.designsforhealth.com](http://www.designsforhealth.com).

\* Ultra refers to higher potency