

# Feeling Swell: Part II

## Arming your body in the inflammation battle



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Edited by Sally Longyear

The previous “Feeling Swell” article explained what we know about the inflammation process and why chronic inflammation is harmful. In this article, we discuss what you can do to correct the balance of Omega 3s and Omega 6s to "predispose" yourself to wellness and, if you have chronic inflammation, what promising natural alternative treatments to drugs and medicines have proven effective in the battle against inflammation.

### *The Omega-3/Omega-6 balance*

Research indicates that heart disease, high cholesterol, high blood pressure, stroke, diabetes, weight loss, arthritis, osteoporosis, depression, bipolar disorder (manic/depression), schizophrenia, attention deficit/hyperactivity disorder (ADD), eating disorders, burns, skin disorders inflammatory bowel disease, asthma, lupus, macular degeneration, menstrual pain, colon cancer, breast cancer, prostate cancer, IgA nephropathy and infections may be improved by adequate intake of Omega-3 fatty acids.<sup>1,2,3</sup> They may also prove helpful in protecting against ulcers, migraine headaches, preterm labor, emphysema, psoriasis, glaucoma, Lyme disease, Raynaud's phenomenon, chronic fatigue syndrome, cystic fibrosis, osteoporosis, preventing weight loss during cancer chemotherapy, and panic attacks.<sup>1,3</sup>

The first clue that Omega-3 polyunsaturated fatty acids has a positive impact on general health was from observations of Greenland Eskimos.<sup>4</sup> Among this population, which was compared with a group of gender and age-matched people living in Denmark, there was a low incidence of autoimmune and inflammatory disorders, such as psoriasis, asthma, and type-1 diabetes, and a complete absence of multiple sclerosis.<sup>4</sup> Native Greenland Eskimos and Japanese have a high dietary intake of Omega-3s due to their diet high in seafood. They also have a low incidence of heart attacks and chronic inflammatory or auto-immune disorders compared to their Western counterparts.<sup>4</sup> The predominance of Omega-6 fatty acids in the Western diet has contributed to the increased incidence of cardiovascular disease, depression, auto-immune diseases such as rheumatoid arthritis, inflammatory bowel disease and asthma, and inflammatory disorders.<sup>1,2,4</sup> Omega-3 fatty acids have decreased in the Western diet due to agribusiness and food processing in the past 150 years.<sup>4</sup>

The best ratio of Omega-6 to Omega-3 fatty acids is in the range of 1:1 to 4:1, equal amounts to just slightly more Omega-6's than Omega-3's. The Mediterranean diet is a good example. It does not include much meat, which is high in Omega-6 fatty acids and saturated fats, that cause cell membranes to become rigid.<sup>1,2</sup> It emphasizes foods rich in Omega-3 fatty acids including whole grains, fresh fruits and vegetables, fish, garlic and monounsaturated fats (e.g., olive oil, almonds, cashews, macadamia nuts, and avocados) which have no effect on either insulin levels or eicosanoid synthesis.<sup>1,2</sup>

The current ratio of Omega-6's to Omega-3's in the Western diet is about 11:1 to 30:1.<sup>1,4</sup> We need to decrease the intake of Omega-6 fatty acids from polyunsaturated fats like soy, corn,

sunflower, and safflower oils and increase the intake of Omega-3 fatty acids by eating fatty fish 2-3 times a week or taking Omega-3 supplements.<sup>2,4</sup>

### ***Omega-3 sources***

Fish and plant oils are the primary dietary source of Omega-3 fatty acids. As discussed in the last article, Alpha-linolenic acid (ALA) is contained in plant sources and must be converted by the body to long-chain fatty acids Docosahexaenoic acid (DHA) and Eicosapentaenoic acid (EPA). 10% or less of ALA actually gets converted to DHA and EPA, so it's very difficult to obtain enough ALA to be useful to the body.<sup>5</sup> It is recommended that your primary source of DHA and EPA be consumed directly in dietary or supplement form rather than relying on ALA conversion.

### **Best dietary sources of ALA include:**<sup>1, 5, 6</sup>

flaxseed (linseed) oil  
rapeseed (canola) oil  
chia seeds  
soybeans and soybean oil  
walnuts and walnut oil  
pumpkin seeds and pumpkin seed oil  
perilla seed oil  
hemp seed oil  
black currant oil  
purslane  
dark green leafy vegetables

It should be noted that whole flax seeds must be ground to be useful to the body since the hulls of flax seeds cannot be digested.

### **Best dietary sources of EPA and DHA:**<sup>1, 6</sup>

herring  
mackerel  
sardines  
pilchards  
salmon  
trout  
fresh tuna  
krill  
New Zealand green lipped muscles

Canned tuna is not a good source of Omega-3s since the oil is lost in processing and is replaced by sunflower or soy oil high in Omega-6s.

Please eat responsibly by avoiding endangered fish. Check the Seafood Watch list from the Monterey Bay Aquarium (<http://www.mbayaq.org/cr/seafoodwatch.asp>) to learn what fish have been over fished.

In addition to over-fishing, pollution of our oceans may result in high levels of heavy metals such as mercury and lead, and other pollutants such as PCBs (polychlorinated biphenyls) and dioxin.<sup>7</sup> PCB's and dioxin are both believed to increase the risk of certain cancers and to be harmful to the developing brains of fetuses and infants of women who are pregnant or breastfeeding.<sup>7</sup> A recent study by the Pew Foundation found that the average dioxin level for farm raised salmon was 11 times higher than in wild salmon, and the average PCB levels were 36.6 ppb (parts per billion) for

farmed versus 4.57 ppb for wild salmon.<sup>7</sup> For this reason, it is advised to use refined fish oil supplements rather than relying totally on fish consumption.<sup>8</sup>

### Supplement sources

Consumer Labs tested 25 plant sources of ALA in either softgel or liquid form.<sup>5</sup> Six of the 25 were rancid or failed to pass the review due to low levels of Omega-6 fatty acids.<sup>5</sup> The brands that passed the test are included in Appendix 1 following this article.

Consumer Labs tested 41 Omega-3 fish oil supplements and found that all but three were fresh and contained their claimed amounts of EPA and DHA. In addition, none of the products contained detectable levels of mercury (over 10 parts per billion) or unsafe levels of PCBs and dioxins.<sup>3</sup> The brands that passed are listed in Appendix 2 at the end of this article.

The three brands that failed had the following problems:<sup>3</sup>

- *Health from the Sun The Total EFA*, softgel, contained only 51% of the claimed EPA and 59% of the DHA.
- *Garden of Life (Dr. Jordan S. Rubin) Olde World Icelandic Cod Liver Oil (Lemon Mint Flavor)*, a liquid, was spoiled.
- *EHP Products Salmon Oil*, a softgel, contained only 53% of the claimed EPA. This product is sold for human use but is also marketed for use by pets.

### **Omega-3 Dosages**

A recommended daily dosage of DHA and EPA is 2.5 gm (2500 mg) for the average person with no real health problems.<sup>2</sup> People with heart problems or PMS may benefit from a higher dose of 5 gm.<sup>2</sup> People with Alzheimer's disease, ADD, depression, multiple sclerosis, and Parkinson's disease require even higher doses -- from 10 to 25 grams per day.<sup>2</sup>

In all cases, *read the label* when taking supplements to understand the dosage of Omega-3 fatty acids you are taking. An example is given below:

<b>Supplement Facts</b>		
Serving Size 1 Softgel		
	Amount Per Serving	% Daily Value
Calories	10	
Calories from Fat	10	
Total Fat	1 g	1.5%
Fish Oil (18/12) (M.O.S.T. <sup>1</sup> )	1.07 g	*
Omega-3 Fatty Acids	350 mg	*
EPA (eicosapentaenoic acid)	180 mg	*
DHA (docosahexaenoic acid)	120 mg	*
Other Omega-3 fatty acids	50 mg	*
Proprietary Antioxidant Blend	3 mg	*
Rosemary extract, ascorbyl palmitate, natural tocopherols		
Percent Daily Values are based on a 2,000 calorie diet. *Daily Value not established.		

Other ingredients: Gelatin, glycerin, purified water, natural lemon flavor.

It's easy to think each softgel contains 1.07 g of Omega-3s. In reality, you are getting 350mg of Omega-3...or 0.35g. The rest is other stuff. You will need to take 7 softgels daily to have an intake of 2.5 g of Omega-3 fatty acids!

Conversion of mg to grams:

$$1000 \text{ mg} = 1 \text{ gm}$$

Divide the number of milligrams by 1000 to get the number of grams of Omega-3.

### The AA/EPA ratio

The only way to know whether you are taking a correct dose is to have a test for the ratio of arachidonic acid (AA) to EPA in your blood. (Note: AA becomes the “bad” eicosanoids when converted from Omega-6 fatty acids.)

This test may not be available through your doctor yet, but it is available from some laboratories such as Nutrasource Diagnostic, Inc. (519-824-4120 x58817).<sup>2</sup> If your doctor doesn't offer this test, contact Your Future Health (877-468-6934) to schedule testing.<sup>2</sup> It is a good idea to test once before starting Omega-3 supplementation and again a month after changing your diet; then once or twice a year after that to monitor your dosage and diet.<sup>2</sup>

If your blood ratio of AA/EPA is in the range from 1.5 to 3, you are in good shape. A ratio over 3 indicates you should increase your intake of Omega-3s to avoid chronic disease and improve your overall health.<sup>2</sup> If your ratio is 10, you have high risk of chronic disease.<sup>2</sup> A ratio of 15 or greater indicates a state of chronic disease. Conversely, if your ratio is less than 1.5, you should reduce your intake of Omega-3 fatty acids because there is an imbalance of Omega-3s and Omega-6s which can also have negative effects.<sup>2</sup>

**Adequate Sleep.** We are waiting for the full report to be released, but SRI's Molecular Neurobiology Laboratory has found that sleep deprivation activates inflammatory pathways. That is, people who don't get enough sleep have higher risk of inflammation.

### **Treating Inflammation**

Traditional medicine treats inflammation with various medications. Non-steroidal anti-inflammatories (NSAIDs) like aspirin, acetaminophen, and ibuprofen affect the prostaglandin system, but long-term use can injure the stomach and intestines, lead to ulcers, inhibit blood clotting, and have toxic side effects including kidney damage.<sup>9,10,11,12,13</sup> In addition, it has recently been found that for the first 30 days after discontinuing long-term use of NSAIDs, the risk of acute myocardial infarction (heart attack) increases from 1.5 to 3.7.<sup>14</sup> The highest risk is among people with rheumatoid arthritis and lupus.<sup>14</sup>

Interestingly, because arthritis is a problem for so many older people, millions of people take NSAIDs daily for years to alleviate their pain. Physicians have noted that these people often have a lower incidence of other aging diseases, such as Alzheimer's disease and colon cancer.<sup>11</sup> However, due to the often serious side effects of NSAIDs, physicians have not recommended their use in prevention of these other diseases.<sup>11</sup>

The introduction of COX-2 inhibitors like Vioxx and Celebrex to reduce inflammation seemed to eliminate the problems associated with the NSAIDs, but now we know they are associated with cardiovascular problems. Vioxx has been taken off the market and Celebrex may soon follow.

Corticosteroids are also used to treat inflammation, but can suppress the immune system, lead to osteoporosis, heart disease, cataracts, thinning of the skin, weight gain, and fat deposits on the face and back.<sup>9, 15, 16, 17</sup>

There are ways to alter the inflammatory process with natural substances which are safer and often equally effective as drugs. As we have outlined above, the best defense is a good offense, so make sure that you are consuming adequate Omega-3 fatty acids in your diet. This gives your body the best advantage in combating inflammation naturally.

## **Turmeric/Curcumin**

Turmeric is a flowering plant in the ginger family. It is used as a food coloring and is a principal ingredient in curry powder and Indian curry dishes.<sup>18</sup> Studies have found that elderly villagers in India have the lowest rate of Alzheimer's disease in the world; less than 1 percent of people over age 65 are affected.<sup>12, 19</sup> It is speculated that curcumin, a chemical compound in turmeric, which has powerful antioxidant and anti-inflammatory properties, may play a role because Indians eat turmeric with almost every meal.<sup>12, 19</sup>



Picture courtesy of Reference 18

Research at UCLA-Veterans Affairs Healthcare System indicates that curcumin inhibits the accumulation of destructive beta amyloids (proteins) in the brains of Alzheimer patients and also breaks up existing plaque.<sup>12, 19, 20</sup> Unlike ibuprofen, curcumin has the added benefit of reducing oxidative damage of the brain which is probably a major contributor to memory loss.<sup>12</sup> A more recent study showed that even when there was no plaque in the brain, soluble forms of amyloid created inflammation that is believed to contribute to the memory loss and dementia of Alzheimer's disease.<sup>12</sup>

Ayurvedic and Chinese medicine have used turmeric extracts for thousands of years in the treatment of inflammatory conditions such as arthritis, digestive disorders, liver problems, skin diseases, and wound healing.<sup>12</sup>

There have been hundreds of publications on the mechanisms of the anti-inflammatory and antioxidant effects of curcumin. It has proven to be quite powerful in both regards.<sup>12, 20, 18</sup> Studies at Vanderbilt University suggest that curcumin may block the progression of multiple sclerosis.<sup>19</sup> A study in the U.K. found that turmeric inhibits the production of COX-2, which may explain why people suffering arthritis pain experience relief after taking large doses of turmeric.<sup>11</sup> Studies in Japan suggest that turmeric may help prevent colitis, an inflammation of the colon.<sup>19</sup> Other research studies have found turmeric to be helpful for the following conditions:<sup>18</sup>

- digestive disorders
- osteoarthritis
- atherosclerosis
- cancer
- roundworms and intestinal worms
- liver disease
- bacterial infection
- wound healing
- mosquito repellent
- eye disorder (uveitis, inflammation of the middle layer of the eye)

Note: The full effect of turmeric as an anti-inflammatory takes two months to develop.<sup>21</sup>

In Indian cooking, as well as in Ayurvedic and Chinese medicine, the whole Turmeric root is used, which contain many other compounds other than curcumin.<sup>18, 19</sup> For this reason, it is probably wise to incorporate the whole spice into our diet when possible.<sup>19</sup>

Turmeric is commercially available in capsule, fluid extract and tincture forms. It is often formulated as curcumin with bromelain, since bromelain is an active ingredient of turmeric which aids the absorption and anti-inflammatory effects of curcumin.

Dosages. Recommended daily doses for adults are:<sup>18</sup>

- 1,500 - 3,000 mg per day of cut root
- 1,000 - 3,000 mg per day of dried, powdered root
- 400 - 600 mg of Standardized extract, 3 times daily
- 30 - 90 drops of fluid extract (1:1) per day
- 15 - 30 drops of tincture (1:2) 4 times per day

Precautions. Stomach upset may result when the recommended doses are exceeded.<sup>18</sup> Pregnant women and people with gallstones or obstruction of the bile passages should not use turmeric as a medicinal herb, however eating foods with turmeric is safe for pregnant women.<sup>18, 21</sup> Talk to your healthcare provider before taking turmeric if you are taking blood-thinning medications, NSAIDs, or reserpine.<sup>18</sup>

### **Ginger**

Ginger has been used as a medicine and in cooking in Asian, Indian, and Arabic cultures for thousands of years to aid digestion, treat stomach upset, diarrhea, nausea, arthritis, colic, and heart conditions.<sup>22</sup> The major pharmacological activity of ginger appears to be due to the constituents gingerol and shogaol.<sup>23</sup> Research has found that ginger extracts contain compounds which inhibit prostaglandin release by leucocytes (white blood cells), which may be responsible for ginger's anti-inflammatory effects.<sup>23</sup> Ginger also effects the aggregation of platelets, so as well as reducing inflammation, it can help thin the blood.<sup>23</sup>



Picture courtesy of Reference 22

Substantial research has been done to study the medicinal uses of ginger.<sup>23</sup> It has been found that patients taking daily doses of ginger experienced a significant reduction in pain and swelling from rheumatoid and osteoarthritis.<sup>23</sup> Rubbing ginger oil into the painful joint or placing a fresh root in a warm poultice on the painful areas may also provide relief.<sup>22</sup>

Gingerols, one of the active components of ginger, have a similar structure to capsaicin, the active ingredient in chili peppers and capsicum.<sup>24</sup> Capsaicin is an effective pain reliever, but only after it sets off the pain receptors; so first it causes pain, and then it eventually blocks the sensation of pain.<sup>24</sup> Ginger also acts on the pain receptors, but without causing the initial pain.<sup>24</sup> It relieves the inflammation causing the pain.<sup>24</sup> Gingerols work like NSAIDs and aspirin, inhibiting both COX-1 and COX-2, but they are quite potent against COX-2. Since ginger helps with blood thinning, it is helpful for people with heart conditions. Unlike aspirin, which is harmful to the intestines, ginger has a calming effect on the intestinal tract.<sup>24</sup> More research is needed to study the mechanisms that make ginger effective. However, enough research has shown that it can be very effective in the treatment of chronic inflammation.<sup>24</sup>

Dosage. As with turmeric, the full effect requires two months of continuous use.<sup>21</sup> Ginger intake should not exceed 2 - 4 gm/day including all dietary and supplemental sources (e.g., fresh ginger juice, extract, or tea, ginger ale, ginger snaps, and gingerbread, as well as Asian or Indian foods).<sup>22</sup> Dried ginger is a more effective anti-inflammatory agent than fresh ginger.<sup>25</sup> Powdered dry ginger is best taken twice daily in smaller doses with food.<sup>21</sup>

**Precautions.** Ginger should not be used by children under 2 years of age. For children older than this, consult the recommended adult dosages (based on a 150 lb. adult) and use an amount proportional to the child's weight.

**Green and White Tea**

Green and white teas contain polyphenols, chemicals with powerful antioxidant properties. White tea has more antioxidant properties than green tea. Both are much more powerful antioxidants than black tea.<sup>26</sup> Research suggests that green tea may be useful in preventing or treating atherosclerosis, high cholesterol, cancers of many types, inflammatory bowel disease, diabetes, liver disease, and weight loss.<sup>26</sup> Green tea does appear to help reduce inflammation.<sup>26</sup>



Picture Courtesy of Reference 26

**Zyflamend**

Zyflamend, an herbal product, is a blend of turmeric, ginger, green tea, and several other anti-inflammatory herbs. The herbs appear to be much safer than drugs such as Vioxx. Zyflamend claims to block 80% of COX-2 rather than completely blocking it.<sup>25, 27</sup> It is widely available and is an easy way to incorporate the benefits of many anti-inflammatory herbs in one softgel.

<b>Supplement Facts</b>		
Serving Size 2 Softgels		
Servings Per Container 30		
	Two Softgels Contain	%Daily Value
Rosemary, (leaf), 100 mg supercritical extract and 50 mg extract (23% total phenolic antioxidants [TPA]-34.5 mg)	150 mg	*
Turmeric, (rhizome), extract (7% curcumin-7 mg)	100 mg	*
Ginger, (rhizome), 54 mg supercritical extract (330% pungent compounds-16.2 mg, 8% zingiberene-4.3 mg) and 46 mg PSE** extract (3% pungent compounds- 1.4 mg)	100 mg	*
Holy Basil, (leaf), extract (2% ursolic acid-2 mg)	100 mg	*
Green Tea, (leaf), extract (45% polyphenols-45 mg)	100 mg	*
Hu Zhang, (Polygonum cuspidatum), (root & rhizome) extract, 8% resveratrol-6.4 mg)	80 mg	*
Chinese Goldthread, (root), extract 40 mg (6% berberine-2.4 mg)	40 mg	*
Barberry, (root), extract (6% berberine-2.4 mg)	40 mg	*
Oregano, (leaf), supercritical extract (0.8% TPA-0.32 mg)	40 mg	*
Scutellariae baicalensis, (root), extract 5:1	20 mg	*

Other ingredients: Olive oil-extra virgin, yellow beeswax.

Capsule: Gelatin, vegetable glycerine, purified water & carob.

**Suggested use:** One softgel, two times daily. Take in the middle of a larger meal with an 8 oz glass of water.

Label courtesy of Swansonvitamins.com

**Dimethyl Sulfoxide (DMSO)**

DMSO was widely available for several years when it was shown to be useful in treating arthritis, sprains, strains, bruises, and fractures, Alzheimer's disease, burns, cancer, colitis, lupus, and muscle pain.<sup>28</sup> However, according to one source, these claims have not been proven.<sup>29</sup> It doesn't

appear that these have been disproved either. Possible uses for DMSO include treatment of gallstones, herpes, pan crease infection, stroke, tuberculosis, and ulcers.<sup>28</sup> Currently, DMSO is only available by prescription for the treatment of a bladder condition called interstitial cystitis. It is also being used by veterinarians.

DMSO is a major waste product from paper mills and is produced in nature in large amounts by biological and chemical oxidation of dimethyl sulfide.<sup>30</sup> It is absorbed very quickly by the body, even through the skin, by penetrating cell membranes.<sup>31,32</sup> Applications of DMSO to the skin often bring quick relief from pain caused by arthritis and connective tissue injury.

The mechanism of DMSO is not well understood, but it has demonstrated antioxidant activity which may account for its cardiovascular protective effect and anti-inflammatory activity.<sup>31,32</sup> It has not been established that DMSO has any effect on the degenerative processes of arthritis, although there is preliminary evidence that it diminishes destructive changes in the joints in a spontaneous arthritis animal model. More research is needed to better understand this potentially powerful anti-oxidant and anti-inflammatory agent, though it appears that currently there is little interest.

Sources available on the internet should be scrutinized carefully for purity, as industrial grade is not pure enough for human use.<sup>29,31</sup>

DMSO usually causes a garlic-like taste within a few minutes after the medicine is taken or applied. It can cause warmth or stinging temporarily when applied topically.<sup>33</sup> Reported side effects include nasal congestion, shortness of breath or troubled breathing, skin rash, hives, itching, headache, and burning eyes.<sup>28,29,31</sup> Do not use DMSO if you are pregnant, are breast feeding, or you have other health problems such as high blood pressure or blood vessel disease.<sup>28</sup>

### **Celadrin/Celecain and esterified fatty acid miracles**

Another potential treatment for inflammation, shown to be effective in two behavioral tests of sufferers of knee osteoarthritis, is the use of esterified fatty acids in the form of a cream, applied topically, or as a pill.<sup>34,35</sup> This is available over the counter at health food stores or online. It may become more widely known in the future.

The fatty acids used to create this product are long-chain saturated fatty acids, including myristic, palmitic, oleic, lauric acids, and one long-chain mono-unsaturated fatty acid, palmioleic acid.<sup>36,37</sup>

No studies were found in an online search of research to explain the physiology behind the miracles claimed by this treatment. There have been no controlled studies other than those mentioned above, which were conducted in conjunction with the manufacturer. No studies have been conducted to measure the effects of these fatty acids on blood levels in humans or to determine the effects of these fatty acids in the grand scheme of the inflammatory process. Since we do not yet understand how this treatment works, it would be wise to be careful in using it until further research is available.

### **Muscle Mist, Tiger Balm, and other topical treatments**

Some people have reported relief from pain and inflammation from such topically applied treatments as Muscle Mist and Tiger Balm. Both of these formulations contain menthol, camphor, mint or peppermint, and clove oils.<sup>38</sup> Little scientific research is available on any of these herbs alone or in combination. Menthol is derived from peppermint or other mint oils. Menthol has local anesthetic and counterirritant properties.<sup>39</sup> It appears that peppermint applied directly to a painful area has a counter-irritant effect and may decrease pain and increase blood flow to the

area.<sup>39</sup> One study found that rats fed eugenol, the active ingredient in clove oil, in combination with various fats, especially Omega-3's in the form of cod liver oil, had a significant reduction in inflammation.<sup>40</sup> And clove oil has been used for many years in dental preparations to dull the pain of toothaches and dental procedures. Since preparations containing these ingredients have been around for many years and many people have reported relief, it is quite possible that the scientific basis for success of these formulations will be revealed in future research. There is little likelihood that these topically applied formulations will cause negative reactions and they may help, especially by increasing blood flow to an injured area and promoting the healing process. All of these oils have toxic effects if taken internally in sufficient dosages, so until research is conducted to determine effectiveness, please use the topical preparations as advised on the package and limit dietary intake to normal quantities used normally as spices.

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This article and all of our articles are intended for your information and education. We are not experts in the diagnosis and treatment of specific medical problems. When dealing with a severe problem, please consult with a healthcare professional and research the alternatives available for your particular diagnosis prior to embarking on a treatment plan. You are ultimately responsible for your own health and treatment!

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APPENDIX 1  
CONSUMER LAB SOURCES OF ALA SUPPLEMENTS WHICH PASSED TESTING

**Black Currant Oil Products:**

Thorne Research Black Currant Oil  
Vitamin World Naturally Inspired Black Currant Oil

**Borage Oil Products:**

Vitamin World Naturally Inspired Borage Oil

**Flaxseed Oil Products:**

Nature's Bounty Organic Flaxseed Oil  
Spring Valley Organic Flaxseed Oil  
Vitamin World Cold Pressed Organic High Lignan Flaxseed Oil  
Vitamin World Organic Flaxseed Oil  
Vitamin World Organic High Lignan Flaxseed Oil

**Evening Primrose Oil Products:**

Efamol Evening Primrose Oil  
Health From the Sun Evening Primrose Oil  
Nature's Resource Herbal Supplement Evening Primrose with Vitamin E (Standardized Extract)  
Puritan's Pride Inspired by Nature Evening Primrose Oil  
Royal Brittany Evening Primrose Oil  
Spring Valley Standardized GLA 9% Evening Primrose Oil  
TruNature Evening Primrose Oil, Standardized Concentrated Herbal Extract  
Vitamin World Naturally Inspired Evening Primrose Oil

**Combination:**

Nutrilite PrMroSe Plus (borage, evening primrose oils)

## APPENDIX 2

### CONSUMER LAB SOURCES OF EPA/DHA SUPPLEMENTS WHICH PASSED TESTING

#### **Softgels and Packets:**

Advocare Omegaplex Omega-3 Fatty Acid  
Allergy Research Group Super EPA Fish Oil Concentrate  
Berkley & Jensen Fish Oil Concentrate 1000mg with Omega-3 Fatty Acids  
Cardiovascular Research Ltd MaxEPA Marine Lipid Concentrate  
Carlson Super Omega-3 Fish Oil 1000mg  
Coromega Omega-3 Fish Oil  
CVS Pharmacy Natural Fish Oil Concentrate 1000mg  
GNC Preventive Nutrition Omega Complex  
Kirkland Signature Natural Fish Oil Concentrate 1000mg with Omega-3 Fatty Acids  
Metagenics EPA-DHA 6:1 TG 500mg Concentrated EPA, Optimal Absorption  
Natrol Omega-3 Purified Fish Oil  
Nature's Bounty Cold Water Salmon Oil 1000mg  
Nature's Bounty Natural Fish Oil 1000mg  
Nutralite Omega 3 Complex  
OLAY Vitamins Essential Balanced Omega 3/6, Enteric Coated for Better Digestion  
Omega Brite 100% Natural Advanced Omega 3 Formula  
Origin Natural Fish Oil Concentrate 1000mg  
PhytoPharmica ESKIMO-3 Naturally Stable Fish Oil  
Puritan's Pride Cholesterol Free Fish Oil  
Puritan's Pride Triple Omega 3-6-9 Flax, Fish & Rexall Flax, Fish, Borage Oil  
Sav-on Osco by Albertson's Natural Fish Oil Concentrate 1000mg with Omega-3 Fatty Acids  
Source Naturals Neuromins DHA 100mg  
Spring Valley Fish Oil 1200mg  
Sundown Fish Oil 1000mg  
Swanson EFAs Superior Essential Fatty Acids and Omega EPA/DHA  
The Vitamin Shoppe Essential Oils & Fatty Acids EPA-DHA Omega-3 Fish Oil 500  
Triomega Omega-3  
Vitamin World Cholesterol Free Fish Oil 1200mg  
Vitamin World Naturally Inspired Omega-3 Fish Oil 1000mg  
Vitamin World Naturally Inspired Super EPA Natural Fish Oil 1000mb Cholesterol-Free  
Vitamin World Triple Omega 3-6-9 Flax, Fish & Borage Oil  
Whole Foods Molecularly Distilled Fish Oil  
Zone Perfect Omega 3 Molecular Distilled Fish Oil & Vitamin E 1000mg

#### **Liquids:**

Carlson Norwegian Cod Liver Oil

#### **Pet Supplements:**

DermCare Veterinary Formulas Dietary Supplement Capsules with Omega-3 for Dogs  
Skin Formula 3V

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