



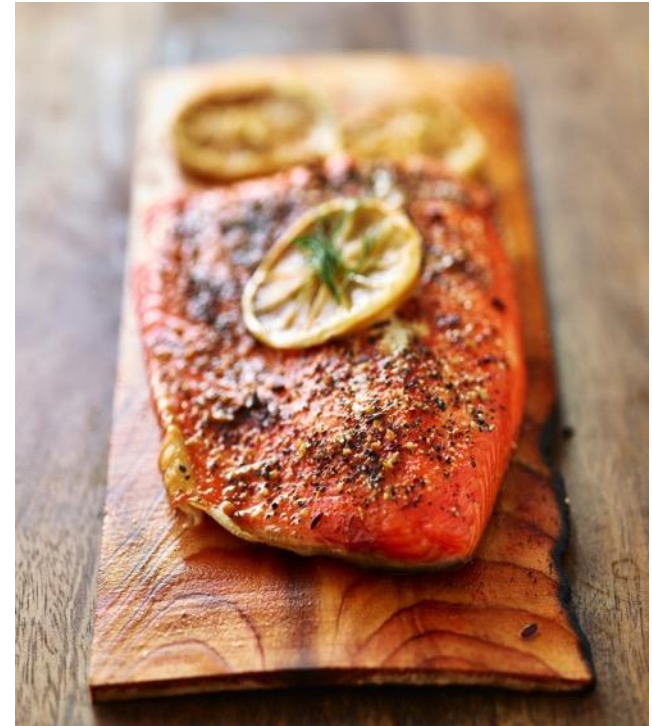
Fatty Acids: The Basics





Fatty Acids 101

- Fatty acids are necessary nutrients found in our food.
- The problem is how much we eat of each: The historical ratio of omega-6s to omega-3s may have been 1-to-1.
 - The current approximate dietary ratio of omega-3s to omega-6s falls between 15-to-1 and 16-to-1.
 - Modern foods are high in omega-6s.
- We need to restore the balance.
 - Eating an average of 2 grams of omega-3s a day will help.





Essential and Nonessential Fatty Acids

Essential Fatty Acids

- The body cannot make/manufacture the nutrient. It **must** come from the diet. The two essential fatty acids are linolenic acid and linoleic acid.

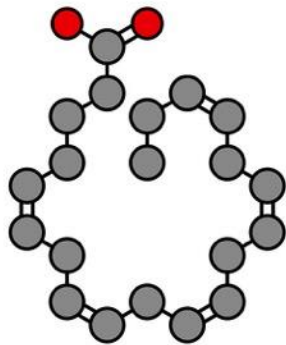
Nonessential Fatty Acids: The Building Blocks of Fats (Lipids)

- When you eat, pancreatic enzymes break dietary fat into fatty acid molecules that are absorbed into the small intestine to then be used by the body. The body can also synthesize some fatty acids from proteins and carbohydrates.

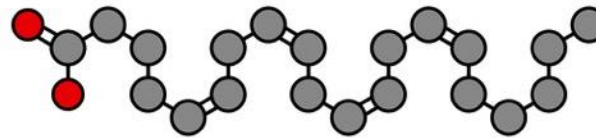


2 Main Nonessential Fatty Acids

- Both participate in immune function and the building of hormones and cell membranes.
- They are named based on their chemical structure.



Eicosapentaenoic acid (omega-3)



Arachidonic acid (omega-3)



Omega-3s

Alpha-Linolenic Acid (ALA)

- Shorter-chain form of omega-3
- Only omega-3 found in plants (seeds, legumes, walnuts)
- Building block of the longer form of omega-3 (DHA and EPA)

Docosahexaenoic Acid (DHA) and Eicosapentaenoic Acid (EPA)

- Longer-chain forms of omega-3
- Found mostly in animals (deepwater fish)
- Can be made from ALA by the body but not very well (11-18.5 percent)





Docosahexaenoic Acid (DHA)

Vital Part of Brain and Retina Structure

- The total dry weight of the adult brain is 50-60 percent lipid (fat), and more than 17 percent is in the form of DHA. In the retina, DHA makes up more than 33 percent of the total fatty acids.

Necessary for Infant Brain and Eye Development, Adult Cognitive Function

- Because of its structure, DHA may help keep the membranes of the your brain cells fluid and permeable, allowing for better signaling and better stress response.
- DHA is so important for development the placenta selectively takes up DHA for the developing baby.
- Higher DHA status from diets rich in long-chain fatty acids may be associated with decreased risk for age-related cognitive challenges.



Docosahexaenoic Acid (DHA)

In the eye:

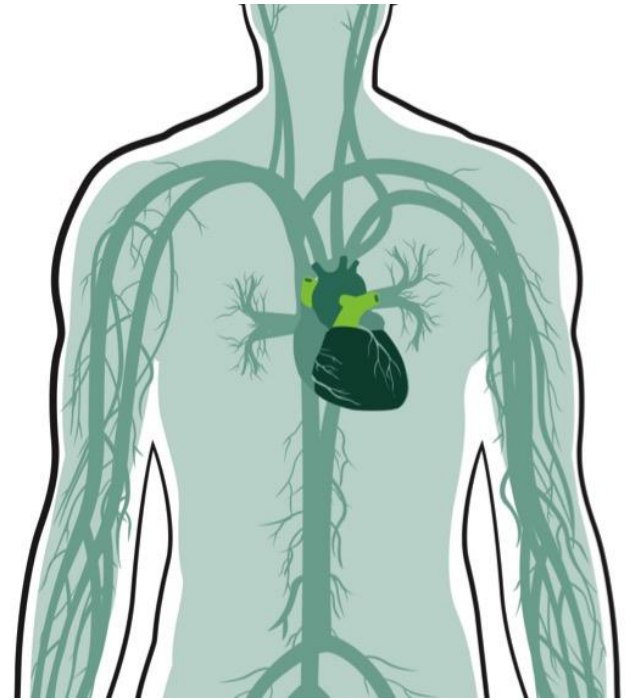
- Photoreceptors, the cells that make vision possible, have more DHA than any other cells in the body.
- DHA protects against stress-related damage and maximizes function of photoreceptors.



Eicosapentaenoic Acid (EPA)

Associated with heart health support:

- Supports healthy heart functioning
- Supports healthy triglyceride levels
- Supports the function of the lining of your blood vessels

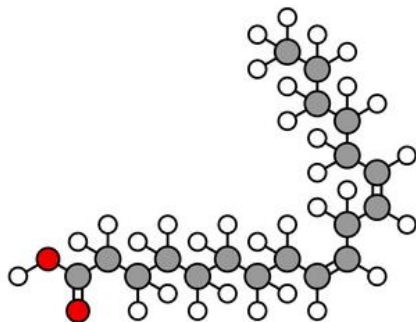




Omega-6s

Linoleic Acid (LA)

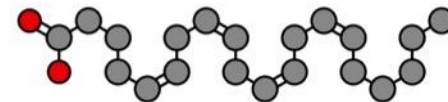
- Shorter-chain form of omega-6
- Only omega-6 found in plants (plant oils, corn, sunflower, soy)
- Building block of the longer form of omega-6 (arachidonic acid)



Linoleic acid (omega-6)

Arachidonic Acid (AA)

- Longer-chain form of omega-6
- Found mostly in animals (beef, chicken, pork)
- Can be made from LA by the body but not very well



Arachidonic acid (omega-6)



Arachidonic Acid (AA)

- Necessary for the natural repair and growth of skeletal muscle
- Used in the growth and repair of neurons
- Plays important role in the activation of the body's natural inflammatory response function





Gamma Linolenic Acid (GLA)

A slightly different omega-6:

- Longtime folk remedy but little positive research
- Decreased PMS and menopausal symptoms
- Positive effects reported
- Supports a healthy response to seasonal changes*



It is important to include omega-3s if you supplement with GLA.

Sources include: borage oil, Evening Primrose Oil (MediHerb®), and Black Currant Seed Oil (Standard Process®)



Dietary Sources of Omega-3s

Food	Serving Size	Omega-3s (DHA/EPA)	Food	Serving Size	Omega-3s
Salmon	3 oz.	1,825 mg	Flaxseed oil	1 tbsp.	7,249 mg
Tuna, canned	3 oz.	733 mg	Flaxseeds	1 tbsp.	2,350 mg
Shrimp	3 oz.	267 mg	Walnuts, English	1 tbsp.	2,574 mg
Cod	3 oz.	134 mg	Olive oil	1 tbsp.	103 mg
Flounder	3 oz.	426 mg	Pumpkin seeds	1 tbsp.	51 mg



Omega-3 Supplements



*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.



Omega-3 Supplements

How do these products compare to our other essential fatty acid products?*

Product	Cod Liver Oil	Calamari Omega-3 Liquid	Tuna Omega-3 Oil	Tuna Omega-3 Chewable	Linum B ₆ (630 mg of flaxseed oil per serving)
Serving Size and Form	3 perles	1 teaspoon	2 perles	2 perles	1 perle
Vitamin A	2,000 IU	NA	NA	NA	NA
Vitamin D	90 IU	NA	NA	100 IU	NA
Vitamin E	NA	NA	NA	5 IU	NA
EPA	210 mg	400 mg	60 mg	50 mg	NA
DHA	300 mg	800 mg	300 mg	240 mg	NA
Alpha-Linolenic Acid	NA	NA	NA	NA	~346 mg

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References

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