

Omega-3 Fatty Acids and Performance

Proposed Health & Performance Benefits

- Reduce systemic inflammation and oxidative stress
- Support health and development of the brain and eyes
- Reduce delayed onset muscle soreness
- Support cardiovascular, immune and mental health



ALA

alpha-Linolenic Acid

- Primarily found in plants such as flax, chia, nuts, seeds & vegetable oils
- ALA can be converted to EPA and DHA in the body but the process is very inefficient



EPA

Eicosapentaenoic Acid

- Primarily found in fatty fish and shellfish
- Important for overall health and inflammation management
- Can be converted into DHA



DHA

Docosahexaenoic Acid

- Primarily found in fatty fish and shellfish
- Critical component for the health and development of the eyes and brain
- Inflammation management

Omega-3 Food Sources

Cooked Seafood (3 oz portion)	Milligrams per serving	
	DHA	EPA
Atlantic Salmon, farm-raised	1240	590
Atlantic Salmon, wild	1220	350
Atlantic Herring	940	770
Rainbow Trout, wild	440	400
Canned Tuna	170	20
Oysters	230	30
Shrimp	120	120
Scallops	90	60

*Taken from the USDA's FoodData Central

EPA and DHA should be the omega-3 fats prioritized in a nutrition intervention, especially in terms of overall brain health and neuroprotection.

Fueling Considerations

- According to the American Heart Association, adults should aim for at least 2 fatty fish meals per week.
- The Academy of Nutrition & Dietetics recommends at least 500 mg of EPA + DHA daily for adults.
- As established by the National Academy of Medicine, the Adequate Intake (AI) for ALA is 1.1 g and 1.6 g for adult females and males respectively.
- Note: While specific guidelines have not yet been established, at least 2-4 grams of Omega-3's daily is a common recommendation for athletes.

Measuring Omega-3 Fatty Acids

Omega-3 Index (O3I) is a common tool used to assess the abundance of omega-3 fatty acid in the blood.

- A value of lower than 4% has been associated with adverse cardiovascular events
- A value of 8% has been suggested as the desired level in terms of cardiovascular health

0-4%
Associated w/ higher
risk of CVD events

4-8%
Intermediate
CVD risk

8-12%
Lowest
CVD risk

Typical Athlete Intake



- A 2018-2019 study of nearly 1500 NCAA Division I student athletes from across the US showed an average consumption of less than 150 mg of EPA + DHA/ day, far below most recommendations.
- A few studies have examined athletes' O3 status via blood testing. Virtually no athletes studied achieved goal O3I of >8%.
- The average DI student athlete appears to have levels between 4.0-4.5%

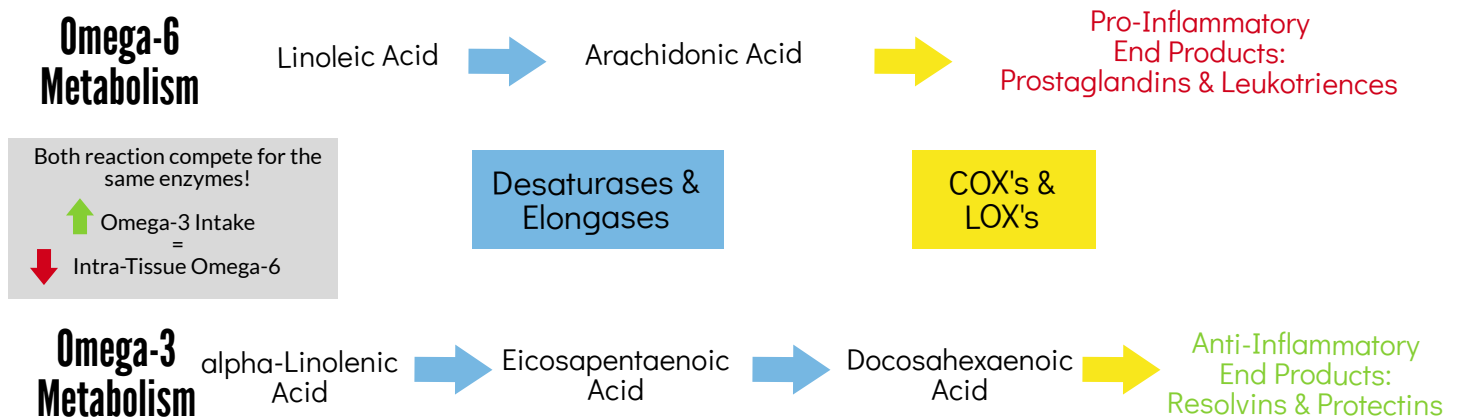
The NCAA amended Nutritional Supplements Bylaw 16.5.2.7 in January 2019 to include omega-3 fatty acid supplements as permissible, allowing Division I institutions to provide these supplements to their athletes.

Note: Division II and III institutions should consult with their respective compliance department before providing supplementation.

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The O6:O3 Ratio & Inflammation

Omega-3 and Omega-6 fats are both essential nutrients that must be obtained as part of a healthy diet. Over the last century, there has been a significant increase in omega-6 consumption, however many Americans are deficient in omega-3 because of the limited food sources available. These two classes of fats compete for the same enzymes, suggesting that consuming adequate amounts of both is important for inflammation management, especially for athletes undergoing intensive training.



Omega-3 Supplement Considerations

While clear recommendations have not been established for supplementation, current evidence suggests:

- A baseline dosage of 1 g combined DHA + EPA is appropriate for most athletes
- A dose of 2 g DHA + 1 EPA may be appropriate for athletes looking to optimize brain health
- Adverse outcomes have not been seen with long-term EPA + DHA supplemental intakes of up to 5 grams
- *As with all supplements, only use 3rd party tested products to ensure purity and label accuracy

Who Might Benefit from a Supplement?

- Athletes with generally low fish/ seafood intake
- Athletes with historically high omega-6 intake
- High-impact athletes/ history of concussions
- Athlete undergoing surgery/ injury requiring immobilization

Supplement Forms

- Triglycerides-form naturally found in fish, superior absorption to ethyl ester
 - Plant-based algae oil are a bio-equivalent option for vegetarian/vegan athletes and those with fish/ shellfish allergies
- Ethyl ester- most common, reduced absorption especially taken without dietary fat
- Phospholipid- often available as krill oil, similar absorption to triglycerides but typically packaged in very small dosages

Some companies may provide bio-availability information directly on the supplement facts and/or ingredients list. If not available check the company website or even contact the vendor directly if needed

References

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