Can Fish Oil Help Heal Concussions?

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All athletes should strive to maximize their health and performance through nutrition.

But when your body takes a beating, what you put inside of it matters even more.

In contact sports where both minor injuries (through which athletes are expected to compete) and major injuries (which prevent athletes from competing) are expected, coaches and athletes should be diligent about what they ingest and how it can facilitate the healing process.

There's no area we're more interested in protecting than our head. More specifically, our brain.

In recent years some interesting research has emerged regarding fish oil and its relation to brain health.

Why Fish Oil?

I am not a medical doctor.

What I am is a strength and conditioning and athletic performance coach who's always searching for ways to help my athletes and clients.

I first came across this concept of omega-3 fish oil being both a preventive and reactive tool for traumatic brain injury via the book *When Brains Collide: What Every Athlete and Parent Should Know About The Prevention and Treatment of Concussions and Head Injuries* by Dr. Michael Lewis.

It's an incredible book that I highly recommend. Although there's a lot of stigma surrounding the prescription of nutrition protocols for the preservation of brain health, many neurologists are embracing the idea that omega-3 fish oil can be a valuable tool in combating/rehabilitating traumatic brain injuries, as can be seen in the endorsements section Dr. Lewis's book.

In my eyes, taking omega-3 fish oil isn't supplementation—it's just good nutrition. My perhaps oversimplified explanation of why it's so crucial for brain health is this:

Inflammation occurs to all cells in the body in response to any sort of damage (e.g., bruising, etc.), and is an essential component of the healing process. It initiates said process by getting bad stuff *out* of the injury area and good stuff *in* to the injury area. It is like a trigger for the immune system. However, inflamed tissue is susceptible to irritation and re-injury because new tissue/cells have not yet replaced old tissue/cells. If the process of inflammation doesn't cease in time for the subsequent phases of healing to occur, we get stuck in this constant state of inflammation that never ends. This is when inflammation becomes a problem.

This cyclical state of inflammation is particularly troublesome when it comes to the brain. There have been a couple recent deaths in boxing,

and a heck of a lot has been written about the CT conditions of former football players. The brain is an organ composed of tissues of different masses. This means that when there's contact to the head, not only does the brain move within the cranium and smack against the walls, but its tissue does so at different speeds. Some parts of the brain move quickly, while others move slowly. The result of this is a shearing effect in which the brain tissue briefly splits apart, severing neurons. Add this to the myriad of impacts against the cranium walls, and you can see why combat and contact athletes can live in a state where their brains may be constantly inflamed.

Now, where does fish oil come in? The work and research of Dr. Lewis (and Dr. Julian Bales) center around the need to balance the omega-6 fatty acids responsible for catalyzing the necessary inflammatory response with the omega-3 fatty acids responsible for quelling the inflammatory response so that the subsequent healing stages can occur and the tissue can repair itself.

We are bombarded with omega-6 fatty acids in our diets, as not only are they found in foods like poultry, eggs, cereals, nuts and many vegetable oils, but they're frequently used as a preservative to extend shelf life.

The comparative ratio of omega-3s in the typical diet is woefully low. Where it should be a 1:1 or perhaps a 2:1 ratio of omega-6s to omegas, it's often more like 15:1 or even 20:1 or *higher*. Dr. Lewis hypothesizes that in military personnel, the ratio may be as high as 25:1.

Furthermore, a large part of our brain tissue is composed of DHA, one of the omega-3 acids found in fish oil. Bathing the brain in omega-3s

with high dosages tapered over a period of weeks helps to ensure that the brain will be better-equipped to handle injury as soon as it takes place; and recover more quickly from past, present and future trauma.

Dr. Lewis's Recommended Protocols

This article is in no way intended to be medical advice, but rather an exploration of the concepts discussed in Dr. Lewis's work. It is also a discussion I have with the parents of my young athletes to get them to understand the importance of maintaining their brain health from a young age.

For athletes who have a present concussion or a history of concussion, here is an example of the types of protocols Dr. Lewis discusses in his work:

1. One-Three weeks on 9000mg of combined EPA + DHA per day, divided evenly throughout the day at each meal. If symptoms do not decrease, then increase the dosage and try again.
2. One-Three weeks on 7000mg of combined EPA + DHA per day, divided evenly throughout the day at each meal.
3. One-Three weeks on 5000mg of combined EPA + DHA per day, divided evenly throughout the day at each meal.
4. A maintenance dose of 3000mg of combined EPA + DHA per day, divided evenly throughout the day at each meal.

Let's also remember that although the focus of Lewis's work is on the brain, the omega-6-to-omega-3 ratio is not *just* about the brain, but about our soft and connective tissue in general, as they are all subject to the same healing processes and require balance between the

omegas.

Fish Oil Contraindications

There are a couple concerns regarding contraindications to be aware of regarding omega-3 fish oil.

The first is blood thinning. Some doctors claim that higher-than-recommended doses of fish oil (the FDA recommends 3g/day) can make it difficult for blood clots to form because fish oil (particularly the omega-3 acid known as EPA) has a similar blood-thinning effect to vitamin E.

However, the current research does not appear to demonstrate this. The work cited by Lewis and Bales illustrates that high doses of fish oil below the 30,000mg to 40,000mg range have no greater effect on blood thinning and/or clot forming than taking an aspirin a day, a common practice recommended by many physicians.

The second is children. Regarding this, which Dr. Lewis considers as those whose bodies are 100 pounds or lighter, the recommended fish oil dosages are 40mg of EPA+DHA per kg of body weight.

Fish Oil for a Healthier Brain

I believe that contact sport athletes should keep a maintenance dose of at least 5000mg of fish oil per day to improve their day-to-day and/or game-to-game ability to recover from the tissue damage sustained in practice and competition. This includes athletes in combat sport.

It is not supplementation; it is simply nutrition, and it should be treated and prescribed as such for the well-being of our athletes to keep them safe while playing the sports we all love!

References:

Lewis, Michael, Phd. *When Brains Collide*.

Carbuhn, Aaron, PhD. et al., "The Omega-3 index in National Collegiate Athletic Association Division 1 Collegiate Football Athletes," *Journal of Athletic Training*

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