

Did Lou Gehrig Die Because of Low Omega-3s?

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✓ Fact Checked

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STORY AT-A-GLANCE

- › A lack of omega-3 fats may have been involved in Lou Gehrig's death from the disease, as research shows these healthy fats offer protection for ALS patients
- › Higher levels of omega-3 fats, particularly the plant-based omega-3 fat alpha-linolenic acid (ALA), were linked to slowed decline and reduced risk of death in ALA patients
- › The balance of omega-3s you consume is key; since processed foods are loaded with omega-6 fats, it radically skews the omega-3 to omega-6 ratio and inhibits your body's innate ability to synthesize beneficial EPA and DHA
- › It was 1939 when Gehrig bid farewell to baseball, as his ALS symptoms left his body unable to perform; history shows that our lopsided consumption of ALAs began in the early 1900s, when people were discouraged from eating natural animal fats, leading to increased intake of vegetable oils
- › There are likely a number of contributing factors to ALS, but it's quite possible that low omega-3 fats were among those that contributed to Gehrig's case

Amyotrophic lateral sclerosis (ALS) is better known as Lou Gehrig's disease, named for the beloved New York Yankees baseball player who died of the condition. A number of factors may have played a role in Gehrig's health decline, including repeated head trauma,¹ which is associated with ALS.

A lack of omega-3 fats may have also been involved, however, as research shows these healthy fats offer protection for ALS patients.² The study, by Harvard researchers, found

higher levels of omega-3s led to longer survival and slower functional decline in those with ALS.

However, what this study fails to point out, and that I discuss in my interview with Nils Hoem above, is the fact that reducing seed oil omega-6 in the form of linoleic acid is likely equally important. This is because when your body is loaded with omega-6, the enzymes that convert the omega-3 fat, ALA, are largely used up by the omega-6 fat, LA, and used to make arachidonic acid rather than the important EPA and DHA fats.

Eating Foods High in Omega-3s May Benefit ALS

Omega-3 fats are well-known for their neuroprotective effects, and research published in *Neurology*³ supports their favorable role in ALS. The study involved 449 people with ALS, whose symptom severity and disease progression were scored and tracked for 18 months. Blood levels of omega-3 fats were also measured, with participants divided into four groups, from lowest to highest.⁴

Higher levels of omega-3 fats, particularly the plant-based omega-3 fat alpha-linolenic acid (ALA), were linked to slowed decline and reduced risk of death.⁵ Among those who died during the study, 33% belonged to the group with the lowest levels of ALA, compared to 19% in the highest ALA group.

Even after adjusting for family history, age and other factors, people with the highest ALA levels had a 50% lower risk of death than those with the lowest.⁶ Eicosapentaenoic acid (EPA), another omega-3 fat that's found in fatty fish and krill oil, was also associated with lower death risk in the study.⁷

Lead study author Kjetil Bjornevik, assistant professor of epidemiology and nutrition with Harvard T.H. Chan School of Public Health, explained:⁸

"Prior findings from our research group have shown that a diet high in ALA and increased blood levels of this fatty acid may decrease the risk of developing ALS. In this study, we found that among people living with ALS, higher blood

levels of ALA were also associated with a slower disease progression and a lower risk of death within the study period.

These findings, along with our previous research, suggest that this fatty acid may have neuroprotective effects that could benefit people with ALS.”

The Correct Balance of Omega-3s Is Essential

It's interesting that this study highlighted ALA, and even stated **linoleic acid (LA)**, a type of omega-6 found in industrially processed seed oils, had a protective effect.⁹ As explained by Hoem – a research scientist with Aker BioMarine, the largest krill oil company in the world – in the video above, there are two polyunsaturated fats (PUFAs) that are considered essential in conventional medicine.

One of them is LA, which is an 18-carbon molecule. The other is ALA, which also has 18 carbons. Since your body cannot make these fats, you must get them from your diet. That said, since LA is found in nearly every food, and you only need very small amounts, it's virtually impossible to become deficient in LA. In fact, most people consume far too much LA, as it's abundantly present in most ultraprocessed foods.

Others, such as the omega-3s EPA and DHA, which have 20 and 22 carbons respectively, can be synthesized in your body, provided you have enough available delta-6-desaturase, an enzyme responsible for their production from ALA.

The problem is that there's competitive inhibition for that enzyme, so when you have 10-fold (1,000%) more omega-6 in your system, as many people do, then the delta-6-desaturase will be used to convert the omega-6 into arachidonic acid, instead of converting the ALA into EPA.

Since processed foods are loaded with omega-6 fats, it radically skews the omega-3 to omega-6 ratio and inhibits your body's innate ability to synthesize beneficial EPA and DHA.

Increasing Omega-3 Is Necessary for Most People

Again, when you have large quantities of LA in your diet, it inhibits the enzyme, delta-6 desaturase, that converts ALA into EPA and then DHA. So, it's important to lower your LA intake as much as possible so your body can more easily convert any plant-based omega-3, found in flax, hemp and chia seeds, into the animal-based omega-3 fats EPA and DHA.

This competition for delta-6 becomes a moot point if you reduce your LA intake to only 1% to 2% of daily calories. But most people consume 20% to 25% of their calories in the form of LA, which means they have stored up this fat in their cells and it will take up to seven years to get it out.

Restricting LA intake will automatically balance out your omega-3s naturally. But the other alternative is to increase your intake of animal-based omega-3s, which can essentially push the omega-6 out of your membranes. Ideally, you'd do both. According to Hoem:

"The amount of omega-6 is so huge compared with the omega-3s that the only feasible way of increasing your omega-3s in the membranes is through taking omega-3s. Then there is a 1-to-1 exchange of EPA and DHA for omega-6s in the membrane.

So, if you increase one molar amount of EPA and DHA in the membrane, then you kick out exactly the same amount of omega-6. And it's important to realize that the membrane will be a reflection of your intake of omega-6s versus omega-3s. You can't really do much with the omega-6s because they're everywhere, but you can fix it by increasing your intake of long chain omega-3s."

It was 1939 when Gehrig bid a fond farewell to baseball, as his ALS symptoms left his body unable to perform.¹⁰ History shows that our lopsided consumption of ALAs began in the early 1900s, when people were discouraged from eating natural animal fats such as butter and lard.¹¹

This led to a significant increase – more than twofold – in the intake of LA, largely from vegetable oils.¹² So, while there are likely a number of contributing factors to ALS,¹³ it's quite possible that low omega-3 fats were among those that contributed to Gehrig's case.

Sports-Related Head Injuries Also Have an Omega-3, ALS Link

Another interesting connection is the many head injuries that Gehrig suffered – and this, too, has an omega-3 connection. Repetitive head injuries can lead to chronic traumatic encephalopathy (CTE),¹⁴ which may be associated with development of motor neuron disease.

CTE doesn't typically occur after one or two concussions. Most individuals affected have had hundreds or thousands of blows to the head, including not only concussions but also many lesser sub-concussive impacts, the latter often being the biggest factor.¹⁵ This seems to describe Gehrig. As reported by PBS:¹⁶

“Lou Gehrig was called the Iron Horse not only for his incredible strength and speed, but also because he was always in the line-up, no matter what injury he incurred the day before.

On numerous occasions, he was ‘beaned’ by an errant pitch or hit in the face by ground balls, suffered repeated concussions, episodes of loss of consciousness, and other forms of head trauma, without the slightest protection, beyond wearing a woolen baseball cap.

Gehrig collided with rapidly moving objects unrelated to the batter's box or first base, as well. In 1924, for example, during a post-game fight with the Detroit Tigers, Gehrig took a swing at Ty Cobb, missed, fell, and hit his head on concrete pavement, only to lose consciousness for a brief period of time.”

The omega-3 fat DHA may help for brain trauma, specifically helping the brain resist oxidative stress while preserving membrane homeostasis and function after injury. University of California at Los Angeles researchers suggested that dietary DHA may

“counteract broad and fundamental aspects of TBI [traumatic brain injury] pathology that may translate into preserved cognitive capacity.”¹⁷

Brain Benefits of Omega-3s Are Well-Established

Omega-3 fats are vital to your brain. A study in the journal *Neurology* found “older women with the highest levels of omega-3 fats ... had better preservation of their brain as they aged than those with the lowest levels, which might mean they would maintain better brain function for an extra year or two.”¹⁸

In addition, older adults with memory complaints who consumed DHA, alone or in combination with EPA, had improved memory.¹⁹ Low DHA levels have been linked to memory loss and Alzheimer’s disease, and some studies suggest degenerative brain diseases may potentially be reversible with sufficient DHA.^{20,21}

This makes sense, since DHA is an essential structural component of your brain, found in high levels in your neurons, the cells of your central nervous system. When your omega-3 intake is inadequate, your nerve cells become stiff and more prone to inflammation as the missing omega-3 fats are substituted with omega-6 instead.

Once your nerve cells become rigid and inflamed, proper neurotransmission from cell to cell and within cells becomes compromised. You can read more about this in my book, “[Superfuel](#),” cowritten with James DiNicolantonio, Pharm.D. DHA also stimulates the Nrf2 pathway, one of the most important transcription factors that regulates cellular oxidation and reduction, and aids in detoxification.²²

Additionally, DHA increases heme oxygenase 1,²³ a protein produced in response to oxidative stress, and upregulates antioxidant enzymes — all of which are important for brain health.

Best Sources of Omega-3s

While fish oil is often what comes to mind when considering omega-3 supplementation, it's not the best option. This is because, in most commercial fish oil supplements, the DHA and EPA are delivered in the form of ethyl esters.

Ethyl esters are essentially a synthetic substrate, created through the micro distillation process of crude fish oil. Most corporations produce ethyl ester fish oil because it's far less expensive to produce than the triglyceride form. Ethyl esters are also easier to work with during processing, as they have a higher boiling point, which becomes important when the oils are heated and purified of environmental pollutants.

The problem with ethyl esters is they're the least bioavailable form of omega-3. Free acids of fish oil have an absorption rate of at least 95%. EPA in its natural triglyceride form had a 69% absorption rate in one study, while ethyl ester forms absorbed only about 20% as well as the free acids.²⁴

Importantly, unstable molecules are also more prone to oxidative damage and thus rancidity, which means consuming synthetic fish oil could potentially cause more harm than good.²⁵ Ideally, consume omega-3 fats in whole-food form by eating fatty, cold-water fish.

This includes wild-caught Alaskan salmon, sardines, anchovies, mackerel and herring. If you choose to use a supplement, krill oil provides a superior alternative to fish oil. To ensure you're getting enough beneficial omega-3 fats, whether you're getting them from cold-water fish or krill oil, measure your omega-3 index, a measure of the amount of EPA and DHA in the membranes of your red blood cells.

And remember, for optimal health and brain benefits, in addition to increasing EPA and DHA, you'll absolutely want to radically reduce your intake of LA as low as possible to ensure your omega-3 intake is properly balanced.

You can use Cronometer.com to carefully measure and enter your foods and it will tell you just how much LA you are eating. The goal is under 5 grams, but the lower the better. Mine is about 2.5 grams or about 0.8% of total daily calories. The goal is to get below 2% of daily calories.

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