

## The Popular Sources of Omega-3s That Fall Short on Benefits

These sources of omega-3 fatty acids are what's usually included in commercial pet food, but they don't provide the many benefits you expect from DHA and EPA. In one study, tests showed dogs supplemented with another source of omega-3s had much higher levels after only three weeks.

**Analysis by Dr. Karen Shaw Becker**

### STORY AT-A-GLANCE

- Omega-3 fatty acids include alpha-linolenic acid (ALA), docosahexaenoic acid (DHA) and eicosapentanoic acid (EPA)
- My preferred source of omega-3s for pets is krill oil; krill are a thriving, sustainable food source, and there are many reasons why it is the best source of DHA and EPA for your dog
- A recent study shows that supplementation with krill oil, which is a direct source of long-chain fatty acids DHA and EPA, increases the omega-3 index in dogs, whereas supplementation with flaxseed oil, a source of short-chain fatty acid ALA, does the opposite
- Multiple clinical studies in dogs show that DHA and EPA are helpful in the prevention and treatment of several conditions involving the cardiovascular system, cognitive function, neurological health, inflammatory skin disease, kidney disease, and osteoarthritis

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One of the fastest growing categories of pet supplements is fish oil a/k/a fish body oil, a rich source of essential fatty acids (EFAs), more commonly known as omega-6 and omega-3 fats. While dogs (and cats) need a balance of both for good health, omega-3s are the superstars in terms of the significant health benefits they offer.

Omega-3 fatty acids include the short-chain fatty acid alpha-linolenic acid (ALA) that come from plant sources, and long-chain fatty acids docosahexaenoic acid (DHA), and eicosapentanoic acid (EPA) that primarily come from marine sources, which play a role in your dog's overall health in many ways, including:

- Regulating blood-clotting activity
- Aiding proper development of the retina and visual cortex
- Alleviating the harmful effects of allergies and other conditions that result from an over-reactive immune system response
- Slowing the growth of common yeast infections
- Slowing the development and spread of certain types of cancer

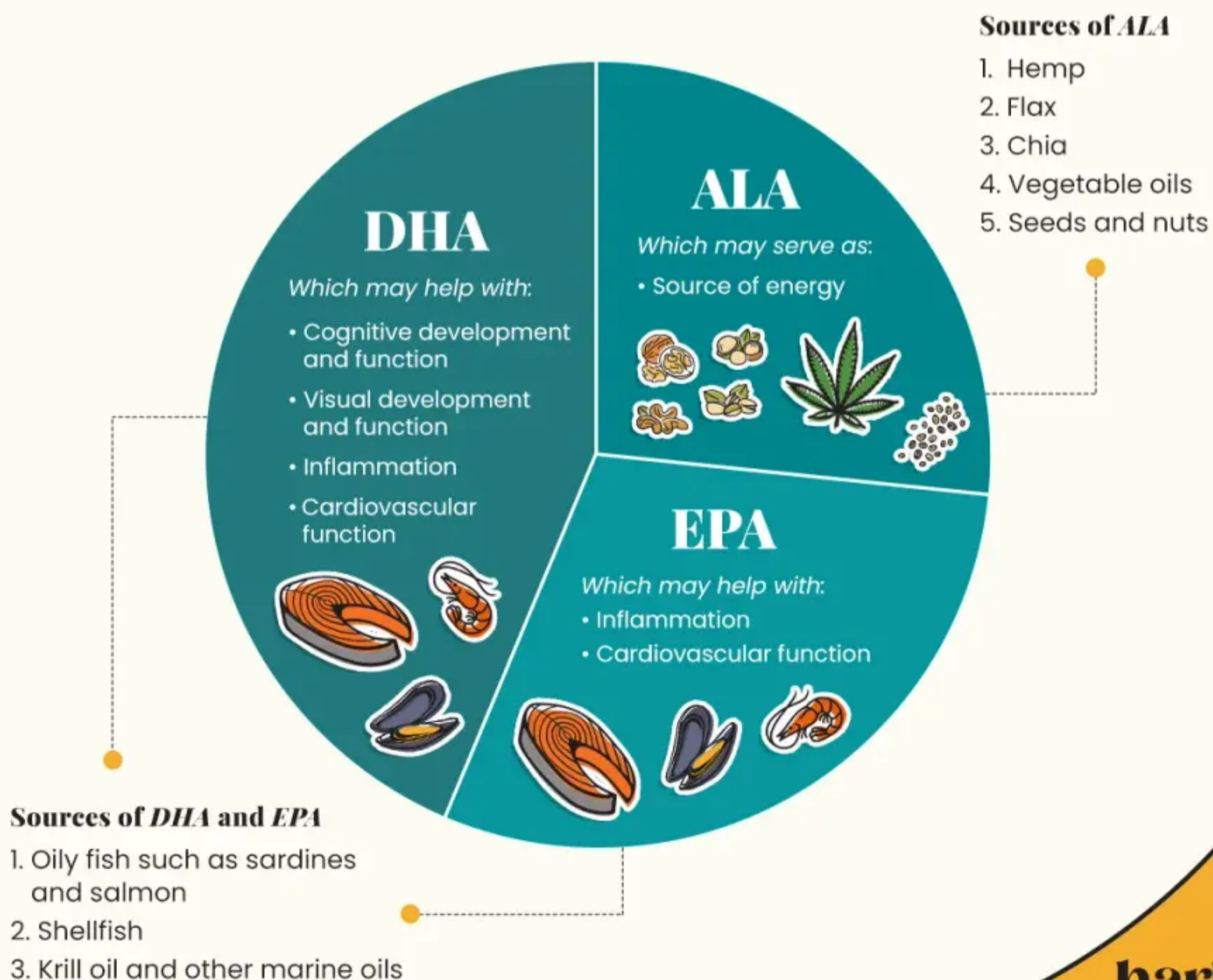
Many dog parents aren't aware that it's primarily the long-chain fatty acids (DHA and EPA) that provide the most health benefits. The richest food source of DHA and EPA is oily fish (e.g., mackerel, salmon and sardines).

Plant sources, such as nuts and seeds (including hemp, flax and chia) are rich in ALA, but your pet's body can't efficiently convert ALA to DHA and EPA. For this reason, it's important pets are supplied all three types of omega-3's in their diet, and in appropriate amounts.

Unfortunately, the short-chain plant-based omega-3 fatty acid ALA (typically in the form of flaxseed oil) is often included in commercial pet feed/food and marketed as a rich source of omega-3s, indirectly implying it is an effective precursor of EPA and DHA. It is not.

There are also many hempseed pet products being touted as rich sources of omega-3s. However, since the conversion of ALA conversion into EPA and DHA is very low, hempseed is also not an adequate source of DHA or EPA for pets. EPA and DHA must be consumed directly through dietary sources including cold-water fatty fish.

# Your Pet Needs All 3 Types of Omega-3s From Their Diet



## My Recommended Source for EPA and DHA: Krill Oil

As most of my regular visitors here at Bark & Whiskers know, my favorite source of omega-3s for pets is krill oil. In case you're unfamiliar with krill, you may find the following information from the Discover Wildlife krill guide helpful:<sup>1</sup>

- Krill includes any member of the crustacean order Euphausiacea, and are in the same animal class as crabs, lobsters, crayfish, shrimp and woodlice. Currently there are 82 known species of krill.
- Krill grow to about 6cm (2.36 inches) in length and can live for up to 5 years. They are pelagic, meaning they live in the open sea and in dense swarms of more than 10,000 individuals per cubic meters of water.
- Krill are plankton (but not all plankton are krill); plankton are any small freshwater or marine organism that due to its size, immobility, or weakness cannot swim against the current, and exists in a state of drift. There are two types of plankton, characterized by how they feed. Phytoplankton (e.g., algae and bacteria) are autotrophic or "self-feeding" — they make their own food by photosynthesis or chemosynthesis.

Zooplankton are heterotrophic — they must consume other organisms to gain energy. These include small animals and some single-celled organisms. Krill are amongst the largest and most ecologically important zooplankton and they feed on phytoplankton.

- Krill means 'whale food' in Norwegian; they are the main prey of many penguin, whale, and fish species. Krill are also eaten by humans and are fed to aquaculture, livestock and pets.

Aside from the fact that krill are a thriving, highly sustainable food source, there are specific reasons why they're an optimal source of omega-3s for your dog:

- Krill is very well-absorbed, so your pet only needs about a fifth the dose of regular fish oil to receive the same benefits
- Krill contains more EPA than fish oil — 240 mg/g in krill vs. 180 mg/g in fish oil
- Krill delivers its abundant EPA and DHA as phospholipids directly into your pet's cells
- Krill provides natural antioxidant protection including vitamins A and E, plus astaxanthin and canthaxanthin
- Krill do not accumulate heavy metals and can be sustainably sourced

## Omega-3s From Krill Oil Versus Flaxseed Oil

Recently, a company that produces krill oil for both humans and pets published the results of a 6-week study that compared the effect of supplementation with a plant-based short-chain omega-3 fatty acid (flaxseed oil) with a marine long-chain omega-3 source (krill oil) to increase the omega-3 index in dogs.<sup>2</sup>

The omega-3 index measures the amount of health-promoting EPA and DHA in red blood cell membranes.

The study involved 20 adult Alaskan Huskies of both genders, ranging in age from 1 to 6 years. Half the dogs were supplemented daily with krill oil; the other half received flaxseed oil. Fatty acid and omega-3 index measurements of both groups were taken at the start of the study and again at 3 weeks and 6 weeks.

- At the start of the 6 weeks, the 20 dogs possessed similar baseline levels of omega-3 index

- At 3 weeks, the 10 Huskies consuming krill oil in their food had significantly higher omega-3 index levels compared to the baseline; the 10 dogs consuming flaxseed oil showed a significant decline compared to the baseline
- At 6 weeks, the omega-3 index levels remained significantly elevated in the krill oil-supplemented dogs, and the flaxseed oil-supplemented dogs' levels continued to decline from the 3-week mark

Ultimately, the group that received krill oil increased their omega-3 index by 62% from the baseline and the flaxseed oil group's index decreased by 40%. This highlights the difference between plant-based omega-3s and omega-3s from ocean sources.

## Proven Health Benefits of EPA and DHA in Dogs

Along with the health benefits of EPA and DHA I listed earlier, multiple clinical studies show that omega-3s are helpful in the prevention and treatment of several conditions involving the cardiovascular system, cognitive function, neurological health, inflammatory skin disease, kidney disease, and osteoarthritis.

- A study published in 2012 indicates that feeding newly weaned puppies foods high in DHA has wide-ranging health benefits.<sup>3</sup> The puppies fed diets containing the highest levels of DHA had significantly better results than the other groups in reversal learning tasks, visual contrast discrimination and early psychomotor performance.

They also had significantly higher rabies antibody titers 1 and 2 weeks after vaccination, and an improved ability to see in low-light or dark conditions.

- Dogs who suffer from anxiety may benefit from supplementation with a high-quality source of omega-3 fats, due to their ability to modulate neurotransmitters and neuroplasticity in the brain. In 2008, researchers compared the omega-3 fat EPA against the antidepressant drug fluoxetine (Prozac) and discovered EPA was just as effective as the drug in relieving symptoms of depression in humans, and the same may be true for dogs.<sup>4</sup>
- A Canadian study published in 2012 indicates that omega-3s are beneficial for dogs with naturally occurring osteoarthritis.<sup>5</sup> The dogs were fed a diet containing high levels of omega-3 fatty acids from fish and showed significant improvement in locomotor disability and performance of daily activities.
- In a 1998 study of dogs with dilated cardiomyopathy (DCM), omega-3 supplementation reduced production of inflammatory cytokines (interleukin-1 and prostaglandin-E2), and also reduced muscle loss compared with a placebo.<sup>6</sup> The decreased production of inflammatory cytokines is also thought to improve appetites in animals with heart failure.
- In a retrospective study of 108 dogs with DCM or chronic valvular disease, results showed improved survival rates with omega-3 fatty acid supplementation.<sup>7</sup> In addition to improved heart function (including reduced heart rate and blood pressure), omega-3 supplementation also reduced inflammation and improved the dogs' appetite and maintenance of lean body mass.
- In a 1994 study of 16 dogs given omega-3 fatty acids that included high levels of EPA showed improvement in itchiness, self-trauma, coat character, and hair loss compared with administration of ALA alone.<sup>8</sup> The dogs in the study had symptoms of idiopathic pruritus (unexplained itchy skin), confirmed atopy (inflamed skin due to allergies) and/or flea allergy.

- In 2014, a study evaluated a spot-on formulation of essential fatty acids and essential oils on 48 dogs with canine atopic dermatitis.<sup>9</sup> The results showed that individual improvements in lesion and itchiness scores were significantly higher for dogs that received the EFAs and essential oils vs. the control group, and more of those dogs also showed a 50% or greater improvement in itchiness.

## Ensuring Your Dog's Diet Is Rich in Long-Chain Fatty Acids

Ultraprocessed pet food is manufactured at very high temperatures, and since omega-3 fatty acids are sensitive to heat and light, they're inert by the time they're packaged. For this reason, some companies spray the fatty acids back on the food after processing, but then rancidity and stability become a significant problems. I recommend adding all EFAs at the time of feeding.

Even if you feed your dog homemade raw meals, if you're not following a balanced recipe that calls for extra essential fatty acids (omega-3s from seafood) or contains an abundance of free-range or wild/pastured meats or seafood, the diet is probably unbalanced for fatty acids.

Not only are types of omega-3s important, so is the dietary ratio of omega-3s to omega-6s. Because the average pet diet is heavy in omega-6s, supplementing with additional omega-6s in the form of corn, canola, safflower or even flax oil (which contains some vegetable sources of omega-3s, but also omega-6s) can create an imbalance that can lead to health problems.

**Krill oil** is the supplement I recommend to ensure your dog is getting enough DHA and EPA in his diet. Dogs (and cats) cannot efficiently convert plant sources of omega-3 fatty acids (including hemp, chia and flax) into appropriate amounts of DHA and EPA, so the best option is to provide one in its already-bioavailable form from marine oils.

As I mentioned, omega-3s are very sensitive to oxygen and can become rancid quickly, so I prefer oils either dispensed from an airless pump or in capsules that can be cut and squeezed onto food just prior to feeding. With "pour on" oils there is a far greater risk of oxidation over time, so if you do purchase a bottle, make sure to refrigerate it after opening and try to use it up within 30 days.

Always make sure your fish and krill oil is sustainably harvested, or **MSC approved**, and comes from nontoxic fish (the smaller the better, hence my recommendation of krill oil).

Cod liver oil and other fish liver oils supply some omega-3 fatty acids, but can also be high in vitamins A and D. Since pets eating commercial diets are already getting adequate amounts of these fat-soluble vitamins, too much can result in toxicosis or abnormal calcium and phosphorus levels that can cause mineralization and calcification of vital tissues and organs, as well as urinary stones. That's why fish body oils without vitamin D are preferred for pets.

It's important to seek the advice of an integrative veterinarian to determine how to best supplement your dog's diet with the fatty acids he needs for good health and to treat any specific health conditions he may have.

## Sources and References

[Krill Pet News Release](#)

<sup>1</sup> [Discover Wildlife Krill Guide](#)

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<sup>5</sup> [Moreau, M. et al. J Anim Physiol Anim Nutr \(Berl\) 2013 Oct;97\(5\):830-7](#)

<sup>6</sup> [Freeman, L.M. et al. J Vet Intern Med Nov-Dec 1998;12\(6\):440-8](#)

<sup>7</sup> [Slupe, J.L. et al. J Vet Intern Med May-Jun 2008;22\(3\):561-5](#)

<sup>8</sup> [Logas, D. et al. Veterinary Dermatology, September 1994, Vol. 5, Iss. 3, pp 99-104](#)

<sup>9</sup> [Blaskovic, M. et al. Vet J 2014 Jan;199\(1\):39-43](#)

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