

Could This Be a Fountain of Youth for Your Aging Pet?

This Ph.D. believes it may be and it certainly is getting a lot of attention lately for its ability to help maintain mental sharpness in middle age and older pets. Find out what this latest study with Beagles shows and find out how this unique combination of nutrients might benefit your pet, too.

Reviewed by Dr. Becker

STORY AT-A-GLANCE

- Many nutrients and compounds are now being studied for their ability to improve cognitive decline and mental alertness in aging pets
- Alpha-lipoic acid (ALA) has received a lot of attention in recent years for its enhanced abilities as a potent antioxidant capable of crossing the blood-brain barrier
- In a study of senior beagles, a combination of alpha-lipoic acid and acetyl-l-carnitine (ALC) supplements significantly increased the dogs' ability to learn new tasks
- Supplementation with ALA in any pet should be attempted only under the guidance of a knowledgeable professional like a holistic veterinarian
- In addition to an antioxidant-rich diet, there are many other things owners of older dogs can do to help preserve their pet's mental and physical health

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As your canine companion heads into middle age and her senior years, it's important to do what you can to keep her body in good condition, including her aging brain.

Fortunately, in recent years, nutrients known to affect the brain have been identified and are being studied to evaluate their ability to forestall or improve cognitive decline in both animals and humans.

One nutrient getting a lot of attention lately is alpha-lipoic acid. Based on the sheer volume of articles written about it in the last few years, "... this compound could be a veritable fountain of youth for our aging pets," writes PetfoodIndustry.com contributor Greg Aldrich, Ph.D.¹

There are processed pet foods already on the market that contain alpha-lipoic acid. Marketing claims for these products are aimed at pet parents who want to maintain mental sharpness in their older dogs.

"The idea is that α -lipoic acid may play a part in extending the mental-emotional bond between man and pet farther into advanced age," says Aldrich.

Alpha-Lipoic Acid, the Overachiever of Antioxidants

Alpha-lipoic acid (ALA), also known as α -lipoic acid, lipoic acid (LA) and thioctic acid, is an organosulfur compound derived from octanoic acid.² It's important not to confuse alpha-lipoic acid with the **omega-3 essential fatty acid** alpha-linolenic acid, especially since both are often abbreviated as ALA.

Alpha-lipoic acid is a naturally occurring antioxidant found in every cell of the body, where its job is to turn glucose into energy. Antioxidants attack the waste products (free radicals) created as the body turns food into energy. Free radicals damage the cells, organs and tissues of the body.

While other antioxidants work only in water (e.g., vitamin C) or only in fatty tissue (e.g., vitamin E), alpha-lipoic acid is considered a "universal" antioxidant because it's both water and fat-soluble.

This means it works throughout the body to provide protection to all the cells and organ systems, including the brain, because it also crosses the blood-brain barrier.

Antioxidants are used up as they attack free radicals, but there is evidence that ALA may actually help regenerate other antioxidants and make them active again. According to Aldrich:

"Much of the centralized theory of aging focuses on the mitochondria, and the idea that if this organelle of the cell can be spared or supported, it will continue to supply adenosine triphosphate (ATP) to the various cells that depend on it for this purpose (e.g., the brain, which has an insatiable appetite for ATP) — a function α -lipoic acid appears to be ideally suited for."³

Study Tests ALA and Acetyl-L-Carnitine in Senior Beagles

In 2007, researchers from the Linus Pauling Institute at Oregon State University (OSU) and several other institutions studied the influence of alpha-lipoic acid and acetyl-L-carnitine (ALC) supplementation in a group of related, very similar beagles between 7 and 9 years of age.⁴

The research team concluded that the antioxidant combination, which may help slow mitochondrial decay in cells, significantly increased the ability of the beagles to learn a new task.

According to study co-author Tory Hagen, Ph.D., associate professor at OSU's Linus Pauling Institute, and a recognized expert on the biological processes of aging:

"This is the first time these two compounds, by themselves, have been tested in canines, which have brains that are more biologically similar to humans than some other animal models. The results should be relevant to what we could expect with humans, and are very encouraging."⁵

Supplement Combo Works Quickly to Improve Dog Cognition

For the study, some of the Beagles received supplementation with ALC and ALA and some did not. Dogs in both groups were trained to find treats by identifying certain objects, for example, a yellow wooden peg.

On one task, 4 of 6 dogs in the supplement group quickly learned to find the treat by identifying the correct object, while only 2 of the 6 dogs not receiving supplements did.

At the end of an additional 15 weeks of training, over 80 percent of supplemented dogs were able to complete the task successfully, while only 50 percent of those not receiving supplements could learn the new task.

*"We've shown in some previous animal work that these supplements could improve memory and energy level," Hagen said. "Now we're seeing that animals receiving supplements are much more readily able to learn new things as well, even at an advanced age."*⁶

The researchers also noted that supplementation with the two compounds appeared to work fairly quickly in the beagles, in a matter of days to weeks depending on the dog. Studies of other antioxidant supplements have shown they require much more time to take effect.

The supplements improved loss of "object and spatial discrimination," in the dogs — a loss older humans also experience, often as one of the early signs of dementia. According to an OSU news release:

"An increasing body of research suggests that mitochondria may be an 'Achilles heel' for absorbing age-related damage, as part of the natural process of oxidation in the body and the related 'free radicals' that are produced and can cause cellular damage.

*As the power plant of cells, mitochondria perform many of the roles critical to cell function, use up to 90 percent of the oxygen humans breathe, but are also among the first cellular components to be damaged by reactive radical oxygen species."*⁷

Studies of the supplement combination in humans are also underway.

Adding ALA to Your Dog's Diet Can Be Tricky

The research team concluded that long-term supplementation of alpha-lipoic acid and acetyl-L-carnitine "... may be effective in attenuating age-associated cognitive decline by slowing the rate of mitochondrial decay and cellular aging."⁸

As you might guess, even though ALA and ALC are now included in a few commercially available pet foods, it's not recommended to feed **processed diets** to your pet, regardless of how many special ingredients are added.

It's much healthier for your animal companion to eat a balanced diet of fresh food, supplemented with additional nutrients depending on her individual needs. Foods containing the highest amounts of alpha-lipoic acid include spinach, cow kidneys and hearts and broccoli. Unfortunately, these aren't foods most dogs eat a lot of.

Acetyl-L-carnitine is most abundant in red meat and dairy products. Both substances are available in supplement form, but it's very important to work with a holistic veterinarian or other knowledgeable source on proper dosing. Alpha-lipoic acid can be toxic to cats at very low doses, and it's also possible to create toxicity in dogs if too much is given, so again, it's very important to consult with a knowledgeable professional about safe dosages.⁹

Additional Tips for Helping Your Older Dog Stay Mentally Sharp

It's important to keep in mind that while antioxidants and brain-protective supplements can be beneficial, they don't "cure" aging. Fortunately, there are many other things you can do to help your older dog maintain good mental function for as long as possible, including the following:

- Feed a nutritionally balanced, meat-based diet made from whole, fresh, organic and non-GMO ingredients. Your pet's diet should also include an abundance of omega-3 essential fats, such as krill oil, which are critical for cognitive health.
- Keep your dog's body and mind active with regular age-appropriate physical activity and mental stimulation. Senior and geriatric dogs need daily exercise to maintain good health and a resilient frame. They also need opportunities to socialize with other pets and people.
- Keep your dog at a healthy size — overweight pets are at significant increased risk for disease as they age. Massage, chiropractic care, acupuncture and activities like water exercise can help maintain muscle tone and balance, and alleviate joint pain.
- Maintain your pet's **dental health**.
- A SAME (S-adenosylmethionine) supplement is a safe and effective way to stall or improve mental decline. Consult your holistic or integrative veterinarian about dosing.
- Medium-chain triglycerides (MCTs) have been shown to improve brain energy metabolism and decrease the amyloid protein buildup that results in brain lesions in older pets. Coconut oil is a rich source of MCTs. Give 1/4 teaspoon for every 10 pounds of body weight twice daily for basic MCT support.
- Other supplements to consider are jellyfish extracts, resveratrol (Japanese knotweed), ginkgo biloba, gotu kola and phosphatidylserine — a nutritional supplement that can inhibit age-related cognitive deficits. Again, you should consult your holistic veterinarian for dosing guidance.

Sources and References

[University of Maryland Medical Center](#)

^{1, 3} [PetfoodIndustry.com, May 11, 2016](#)

² [Wikipedia](#)

^{4, 8} [FASEB J. 2007 Nov;21\(13\):3756-62](#)

^{5, 6, 7} [OSU News and Research Communications, 09/06/2007](#)

⁹ [Pet Poison Control](#)
