# The Aging Process and How We Can Help

*Drs. Foster & Smith Educational Staff*

We expect certain changes to occur in an animal's body as the animal ages. These changes may not be the same in each animal species. In some animals (e.g.; toy breeds of dogs) changes in the heart are common, whereas in other animals (cats), the kidneys may be one of the first organs to show signs of aging. We can help older animals to adapt to these changes in a variety of ways: diagnosing problems early, use of appropriate medications and supplements, modifying the dog's environment, and changing the way in which we interact with our older friends.

**Change in nutritional needs**

As dogs age, their metabolism changes and their need for calories decreases. In general, their maintenance energy requirement decreases by about 20%. Because their activity usually decreases as well, their energy needs are decreased by another 10-20%. If we feed older dogs the same amount we fed them when they were young, they will gain weight. As the body's metabolism changes, it is more common for the body to lay down fat. This tendency can also contribute to obesity in older dogs. Obesity is one of the main health problems of older dogs. In addition to calories, there are other nutritional needs of older dogs, including an increase in fiber and a decrease in fat. Especially if an older dog is not eating as he should, or has certain medical conditions, supplements are often recommended.

**Skin and hair coat changes**

As with people, older dogs may start to show gray hair, especially on the muzzle and around the eyes. The haircoat may become thinner and duller, however, this can also be a sign of disease or nutritional deficiency. Fatty acid supplements may help restore some of the luster to the coat. If the haircoat of an older dog changes significantly, the dog should be checked by a veterinarian. Older dogs may need to be groomed more often, with special attention given to the anal area. Grooming is a great way for you to spend some enjoyable time with your older dog. He will love the attention.

The skin of the older dog may also become thinner, less elastic, and thus more subject to injury. Some older dogs develop multiple benign tumors of the skin, which are generally not removed unless easily traumatized. Cancerous tumors of the skin can also occur. Dry skin can be a problem for older dogs, and again, fatty acid supplements may be beneficial.

**Calluses**

It is common for older, large breed dogs to develop calluses on their elbows. Part of the reason for this is the tendency of older dogs to be less active and lay down more. Especially if they lay down on hard surfaces, calluses are likely to develop. Providing a dog bed, especially an orthopedic bed, can help prevent calluses.

**Brittle nails**

Just as we see changes in the haircoat, we can also see changes in the nails of older dogs. They may tend to become brittle. Care must be taken in clipping the nails of older dogs, and they may need to be clipped more often, since older inactive dogs are less likely to wear their nails down through activity.

**Decreased mobility**

Arthritis is a common occurrence in older dogs, especially large breed dogs and breeds which have a tendency to have intervertebral (IV) disc disease such as Dachshunds and Bassets. Dogs who injured joints earlier in their life also have a tendency to develop arthritis as they age. As in people, arthritis in dogs may only cause a slight stiffness, or it can become debilitating. Dogs may have difficulty going up and down stairs, jumping into the car, or walking through snow.

Chondroitin and glucosamine as found in such products as Drs. Foster and Smith Joint Care and Cosequin can be beneficial. Some anti-inflammatory pain relievers such as aspirin and Rimadyl are often recommended. (Do NOT give your cat aspirin unless prescribed by your veterinarian.)

As with muscles in people (if you do not use them, you lose them), older dogs who are inactive will lose muscle mass and tone. This may make it more difficult for them to move, so they move less, etc., and a vicious cycle starts. Exercise for an older dog is important for the health of the muscles, as well as the heart, digestive system, and attitude. Exercise routines can be adapted according to the dog's abilities. Swimming and several short walks a day may help maintain and strengthen the dog's muscles.

Elevated feeders and orthopedic beds may help a dog who has decreased mobility or pain on movement.

**Dental disease**



*Unauthorized use of any images, thumbnails, illustrations, descriptions, article content, or registered trademarks of **Foster & Smith, Inc.** is strictly prohibited under copyright law. Site content, including photography, descriptions, pricing, promotions, and availability are subject to change without notice. These restrictions are necessary in order to protect not only our copyrighted intellectual property, but also the health of pets, since articles or images that are altered or edited after download could result in misinformation that may harm companion animals, aquatic life, or native species.*

Dental disease is the most common change we see in older dogs. Studies show that even by age three, 80 percent of dogs exhibit signs of gum disease. Routine dental care including toothbrushing, can help keep dental disease to a minimum. Dogs who have not received proper dental care can develop significant dental disease as they age and may develop life-threatening complications. A dental care program should consist of toothbrushing, regular dental checkups, and professional cleaning as needed.

**Decreased gastrointestinal motility (constipation)**
As dogs age, the movement of food through their digestive tracts slows. This can result in constipation. Constipation is more common in dogs who may experience pain while defecating such as those with hip dysplasia or anal gland disease. Inactivity can also contribute to constipation. Constipation can also be a sign of some serious disease conditions, and a dog experiencing constipation should be evaluated by a veterinarian. Laxatives or diets containing increased fiber may be prescribed. It is important these dogs drink plenty of water.

**Decreased ability to fight off disease**

As a dog ages, the immune system does not function as effectively and the older dog is more prone to develop infectious diseases; and the infection in an older dog is usually more severe than a similar one in a younger dog. It is important to keep your older dog current on vaccinations.

**Decreased heart function**
As a dog's heart ages, it loses some efficiency and can not pump as much blood in a given amount of time. The valves of the heart lose some of their elasticity and also contribute to a decreased pumping efficiency. The most common valve involved is the mitral valve, especially in small breeds. Some of these heart changes are expected, however, more severe changes can occur, especially in dogs who had minor heart problems when they were young. Diagnostic tests such as radiographs (x-rays), an electrocardiogram (EKG), and an chocardiogram can be used to diagnose heart disease. Various medications are available depending upon the type and severity of disease.

**Lung capacity decreased**
Lungs also lose their elasticity during the aging process, and the ability of the lungs to oxygenate the blood may be decreased. Older dogs may be more prone to respiratory infections.

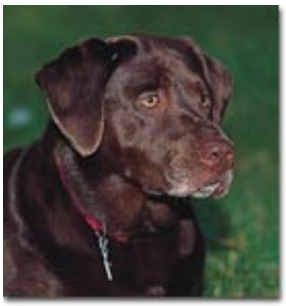
**Decrease in kidney function**
As animals age, the risk of kidney disease increases. This may be due to changes in the kidney itself or result from the dysfunction of other organs such as the heart, which if not functioning properly, will decrease blood flow to the kidneys. Kidney function can be measured through chemistry tests on the blood and a urinalysis. These tests can identify a kidney problem well before there are any physical signs of disease. The most frequent sign of kidney disease first noted by an owner would be an increase in water consumption and urination, but this generally does not occur until about 70% of the kidney function is lost.

If the kidneys are not functioning normally, the diet and dose of various medications and anesthetics may need to be changed to assist the body in getting rid of the breakdown products. Pre-anesthetic blood tests are recommended to identify any potential kidney problems before anesthesia is administered.

**Decreased liver function**
Although the liver has an incredible and unique way of regenerating itself when injured, the liver does age just like all other organs in the body. Its ability to detoxify the blood and produce numerous enzymes and proteins gradually decreases with age. Sometimes, the liver enzymes measured in a chemistry panel may be abnormally elevated in an apparently normal animal. On the other hand, some animals with liver disease have normal levels of liver enzymes circulating in their blood. This makes interpretation of these tests very difficult.

Because the liver metabolizes many medications and anesthetics, the dose of these drugs must be decreased if the liver is not functioning as it should. Pre-anesthetic blood tests are also recommended to identify any potential liver problems before anesthesia is administered.

**Changes in glandular function**



Some glands tend to produce less hormones as they age, and other glands may produce more. Hormonal problems are a common disorder in many older dogs, and the propensity to develop a problem is sometimes linked to breed. The Golden Retriever, for example, has a much greater risk of developing hypothyroidism. Blood tests help to diagnose these diseases and many of them are treatable with medications.

**Prostate enlargement**
When an unneutered male dog reaches 8 years of age, he has a greater than 80% chance of developing prostate disease, but it is rarely cancerous. In most cases, the prostate just enlarges. The prostate enlargement, however, can cause problems with urination or defecation. Older male dogs, especially those who are not neutered should have their prostate gland checked as part of the regular physical exam. The risk of prostate disease can be greatly reduced if the dog is neutered.

**Changes in mammary glands**



*Unauthorized use of any images, thumbnails, illustrations, descriptions, article content, or registered trademarks of **Foster & Smith, Inc.** is strictly prohibited under copyright law. Site content, including photography, descriptions, pricing, promotions, and availability are subject to change without notice. These restrictions are necessary in order to protect not only our copyrighted intellectual property, but also the health of pets, since articles or images that are altered or edited after download could result in misinformation that may harm companion animals, aquatic life, or native species.*

Female dogs may develop some hardening of the mammary glands due to the infiltration of fibrous tissue. Breast cancer in unspayed dogs is common, just as common as it is in humans. Mammary cancer is the single most common tumor of the female dog, and also the most common malignant one. Older female dogs should have their mammary glands checked as part of the regular physical exam.

**Bone marrow replaced by fat**
Earlier, we discussed the tendency of older dogs to lay down more fat. Fat may also infiltrate the bone marrow. The bone marrow is responsible for making red blood cells, which carry oxygen, white blood cells that fight disease, and platelets, which help the blood to clot. If the bone marrow is significantly replaced by fat, anemia can develop. This is one of the reasons it is recommended that older dogs have certain blood tests such as a complete blood count (CBC) performed as part of their annual exam.

**Nervous system and behavior changes**
As animals age, nerve cells die off and are not replaced. In some cases, certain proteins can start to surround nerve cells and cause them to malfunction. The communication between nerve cells may also be altered. For some dogs, the changes in the nervous system are severe enough to change their behavior. If certain signs are present, we call this behavior change 'cognitive dysfunction.' According to Pfizer Pharmaceutical, the manufacturer of Anipryl, a drug to treat canine cognitive dysfunction, 62% of dogs age 10 years and older will experience at least some of the symptoms of canine cognitive dysfunction. These include confusion or disorientation, restlessness at night, loss of housetraining abilities, decreased activity level, decreased attentiveness, and not recognizing friends or family members.

Older dogs have a decreased ability to cope with stress, and this can result in behavior changes. Separation anxiety, aggression, noise phobias, and increased vocalization can develop or worsen in older dogs. Various medications combined with behavior modification techniques can help solve some of these behavior problems.

Since older dogs do not handle stress well, getting a new puppy when you have an older dog who is showing signs of aging may not be the best idea. It is usualy best to get a new puppy when the older dog is still mobile (can get away from the puppy), relatively pain free, is not experiencing cognitive dysfunction, and has good hearing and vision.

**Increased sensitivity to temperature changes**
As dogs age, their ability to regulate their body temperature decreases. This means they are less adaptable to temperature changes. Dogs who could handle cold temperatures when they were young, may not be able to as they age. Monitoring the environmental temperature around your dog, and making adjustments will help your older dog be more comfortable. You may need to move his bed closer to a heat register, or keep him indoors during hot weather.

**Hearing loss**
Some dogs will experience hearing loss as they age. Slight hearing loss is hard to evaluate in dogs. Often hearing loss is severe before the owner becomes aware of the problem. The first sign noticed may look like aggression. In reality, it may be the dog was unaware of a person's approach, became startled when touched, and instinctively reacted. Owners may also report the dog is no longer obeying commands (the dog no longer hears them).

The hearing loss generally can not be reversed, but some changes in interaction with the dog can help reduce the effects. One of the reasons to teach dogs hand signals for various commands while they are young, is that these hand signals are very useful if the dog develops hearing loss. The use of lights to signal dogs (e.g.; flashing the yard light when you want the dog to come in from outside) can be useful. Dogs with hearing loss can still sense vibration, so clapping hands or stomping on the floor may alert the dog you are trying to communicate with him.

**Changes in the eye and vision loss**
Many dogs develop a condition of the eye called nuclear sclerosis. In this condition, the lens of the eye appears cloudy, however, the dog can usually see quite well. Many owners are concerned their dog has cataracts (which do affect vision) when the dog really has nuclear sclerosis. Cataracts are commmon in older dogs of certain breeds, though, as is glaucoma. Any sudden changes in vision or appearance of the eyes could signal an emergency; contact your veterinarian as soon as possible. Ophthalmic exams should be part of the physical exam in older dogs.

**Summary**
Older dogs can experience many changes in the functions of their bodies. Some dogs may have more pronounced changes than others, and in some dogs, the changes may start to occur at a younger age. Knowing what changes to expect can help you and your dog adjust to them when and if they do come. There are many ways we can help the older dog adapt to these changes.

You will need to monitor your older dog more closely. Do not disregard a change in your dog's activity or behavior as 'just being old age.' Many of the changes can also be signs of a more serious disease. If you are in doubt, consult your veterinarian and be sure to discuss with her/him any concerns you have about your older dog during his regular physical exam.



*Unauthorized use of any images, thumbnails, illustrations, descriptions, article content, or registered trademarks of **Foster & Smith, Inc.** is strictly prohibited under copyright law. Site content, including photography, descriptions, pricing, promotions, and availability are subject to change without notice. These restrictions are necessary in order to protect not only our copyrighted intellectual property, but also the health of pets, since articles or images that are altered or edited after download could result in misinformation that may harm companion animals, aquatic life, or native species.*