



Senior Dog Rehabilitation with Laurie McCauley, DVM, DACVSMR, CCRT, CVA, CVC

The following interview was originally released by the AKC Canine Health Foundation as a podcast. If you prefer to listen to the interview, the podcast is available here: www.akcchf.org/news-events/multimedia/podcasts/the-benefits-of-rehab-for-older-dogs.html.

In this interview, Dr. McCauley discusses the benefits of using rehabilitation medicine as a way to keep senior and geriatric dogs healthy and active.

AKC Canine Health Foundation (CHF): Let's start off by discussing the benefits of physical rehabilitation for senior dogs. Is this similar to the benefits of human senior citizens doing targeted physical therapy?

Dr. Laurie McCauley (McCauley): Well, I can't tell you exactly about humans, but I would assume it's very similar. Dogs, just like humans, have deficiencies in proprioception, balance, and weakness that can lead to less than the best quality of life. The beautiful thing about that is we can help them significantly.

Rehab veterinarians can help strengthen their back end, enhance their balance, and decrease soreness in their muscles. Our older patients actually have a thinning of the cartilage in their joints. Dogs don't get osteoporosis like humans do, but they do get a condition where fat goes into the bone marrow and makes the bones more fragile. Then if they do break a bone, it's a lot slower to heal.

There are wonderful things we can do for dogs. They can suffer from canine cognitive dysfunction syndrome. You may see dogs that vocalize, that are anxious, they may be restless, or become irritable. Simple things like adding supplements—of course, this has to be guided by your veterinarian, but things like vitamin E, B vitamins, vitamin C, Cholesterol, some omega-3 fatty acids, carnitine, CoQ10, and one of my favorite words, phosphatidylserine, can all help our older dogs with cognitive dysfunction syndrome to be more aware of their situation and have a better quality of life.

CHF: Should dog owners with older dogs start these programs at home or under the care of a veterinary rehabilitation specialist?

McCauley: Oh, they definitely need to work with a canine rehabilitation specialist, or their regular veterinarian if they are trained for some of the cognitive dysfunction signs. We also see in our older patients that they can have problems with their vision or hearing. Simple things for our dogs that have changes in hearing like teaching them sign language can help us communicate with them. If they have problems with vision, using touch, like stroking down and putting gentle pressure on their butt when we're asking them to sit, or the shoulders when we're asking them to lay down can improve communication. Blind



dogs are also benefited by us bringing food to them and not changing furniture around so that they maintain a better idea of where they are in their environment.

Other things we see with dogs as they age is that their brain actually gets smaller and there's more fluid in their brain. I think this is similar to humans. We have to understand that they have a decreased immune system and have less cardiac output, meaning their heart doesn't function as well, so they may have decreased endurance. When we are working with exercises with these guys, we want to make sure that we're not pushing them too hard because they just can't do as much as when they were younger.

We may see them panting heavier as they age as they can have lung fibrosis. This is similar to humans that have emphysema or other things that cause them not to have as much oxygen get into their bloodstream and into their muscles. Again, it just means that we have to watch as we progress their exercises, that we're within their comfort zone.

There are other things we can do when working with older dogs. We can aid with their quality of life issues, their incontinence issues, making sure they have clean bedding, making sure they have more access to going out, and that they always have plenty of clean water. These are all really important things with our geriatric patients.

CHF: What are age-related muscle and proprioceptive loss? And why do they occur?

McCauley: Actually, as dogs get older, we see that they have less muscle spindle cells, which are the little cells inside the muscle that tell the body where they are in space and what the body is doing. Geriatric patients have less control of their muscles and less awareness of where they are. They also have degeneration of the nerves, so the sensory nerves coming up to the brain that tells them what they are touching, what they are feeling—whether it's hot, cold—those diminish. The motor nerves that control the muscle contractions diminish.

We also see what they call sarcopenia—again, a really cool word— as we age, and this is for humans as well as animals. As we age, muscle cells turn to fat and then to fibrous tissue. So when it turns to fat, they still have the same muscle mass, so we may think, "Oh, they should still be strong. They still have lots of muscle." But they have a decreased ability to contract, or have strength, because there are less muscle fibers there. Then the muscle fibers turn into fibrous tissue and that's when they get really skinny and scrawny. The muscle then cannot stretch because fibrous tissue doesn't stretch.

The cool thing about this is, though we can't stop sarcopenia, we can slow it down. Things like using an underwater treadmill, balance board exercises, and weight exercises have been shown in dogs to actually slow down the process of sarcopenia.



CHF: Can you take us through some simple exercise that can be of benefit to older dogs?

McCauley: Absolutely. Every exercise should be based on the strength and ability of the dog. We don't want to do something that's so simple that they're not going to benefit from it, but we also don't want to set them up to fail.

Something as simple as standing the dog for five minutes, might be something that a really weak dog may have difficulty doing, and you may have to stimulate them and encourage them to do it. Sit-to-stands exercises, using their back legs to get rise, can be very beneficial. If the dog is having trouble getting up, something as simple as kneeling behind them and having them sit on your leg, and then encouraging them to push up that small amount, can be an effective exercise in a very weak dog. Comparing it to humans would be similar to if I asked you to sit on a desk and then stand up as compared to sitting on a chair and then standing up or doing a full squat and then standing up.

Another exercise for geriatric patients would be leg lifts. It would be similar to you standing on a balance beam three feet in the air. It's just a little bit harder than standing on the ground, but it's not super hard. With our geriatric patients we have them stand nice and square and we pick up one leg and hold it until we start to see them sway. They sway because their trunk is weak. And then we put that leg down and go to the next leg and we go around all the limbs.

When that is too easy, we pick up two limbs. So it could be two limbs on the same side, or it could be diagonal limbs. We don't pick up just front or just the rear limbs because that puts abnormal stress on their back and usually scares them.

Another wonderful exercise for our geriatric patients is called rhythmic stabilization. That's where we stand them square and we ask them to stay, and then we gently push them, continuing to ask them to stay. It would be like if I was pushing you and telling you to stay; you'd have to contract your chest and abdominal muscles so that you could stay in one place. And then we praise them, so that they know that is what we're asking them to do.

After pushing them in one direction we stop and then we switch directions. We can push them in all different directions which is going to work on stabilizing their whole body—their limbs as well as their trunk. Sometimes that's all they can handle.

CHF: Next can you tell us about balance and proprioception exercises, and how they help in senior dogs?

McCauley: Absolutely. Balance and proprioception exercises are wonderful. One of the simple things we do would be like doggie yoga. We call them cookie stretches; they are done with horses and dogs. You take something that is tasty and easily crumbles or that they can nibble on, so that we can continue to have their attention. And we take the cookie to their shoulder so that they bend their neck, and then we take it following right



next to the body, we take it back to their hip, so we can actually flex their whole spine. Then we go down the rear limb, once we get past the hip, to their back toes so we get rotation in their back. We repeat on the other side. The whole time, they're getting to gently nibble on the cookie. Some people use string cheese, meatballs, cookies that crumble easy, or frozen peanut butter so that they can continue to lick on it.

Once we've done both sides, we take it straight to their chest, down to the floor, and then between their legs. And believe it or not, as long as the dog's legs are long enough, every dog should be able to go into headstand position, so the top of the head is actually parallel to the ground. The head should be right next to the ground, not under their body. This gives the ability for the whole spine to flex.

The last thing we do with this exercise is cookies to the sky. If we just put the cookie above the dog's head, all they're going to extend is their neck. If we put their front feet up on a surface, and then take the cookie straight up, we should get extension of the neck and the whole thoracolumbar spine. The whole back should be a nice concave surface.

The nice thing about the cookie stretch is, is not only is it a wonderful stretch that clients can do at home with their dog, but it's also a diagnostic tool. If the dog goes, "Cookie, cookie, cookie," and then stops, telling us the motion is not worth the cookie, it tells us one, there's pain, and two, where it is, right where he stopped flexing is where he hurts.

Cookie stretches are a great way to work with the dogs, get them up in the morning, rub them down, do some cookie stretches, and help them get ready for the day.

CHF: Finally, can you tell us about some targeted strengthening exercises?

McCauley: Absolutely. For our stronger dogs, one of the most important exercises we recommend is sit-to-stands, where they're sitting and then asked to stand. This is something owners can ask their dog to do on a walk. For example, every time you get to a street, the dog would sit, stand up, and then walk across the street. If we need to strengthen the back end even more than that, it could be, every third driveway the dog is going to do a sit-to-stand. Another approach would be that every time they cross the street, they do five sit-to-stands.

Walking backwards is another great exercise for dogs. We use that for not only our geriatric patients, but our athletes, as well. It works on strengthening the muscles of propulsion, the muscles around the hip, and down the back of the leg. So many of our geriatric patients get weak in the rear, and unfortunately, some of them get euthanized because of that. The nice thing about doing some of these exercises is we can keep them strong so we don't have that problem. We see some of our patients lived to be 15, 16, or even 17 years of age.

Sometimes you have to have a hand under their belly to let them know that we don't really want them to sit as we guide them to back up. And if they can't focus or try to spin



out, we'll put them next to a wall. We're on one side, the wall is on the other, and we have a hand on their collar. Never use a pinch collar or choke collar when you're asking them to do an exercise; you want your collar to be a method of communication, not correction.

By having just a regular collar, you're putting gentle pressure on the front of the dog, and that's telling them, "Hey, I want you to move backwards." As soon as they step back, you're going to praise them. The other hand can be on their belly, just basically saying, "Please don't sit." Once they learn those words, a lot of our patients can walk across the backyards backwards.

Another wonderful exercise for our geriatric patients that also helps strengthen the muscles of the hips and the shoulder, as well as working with balance, is sidestepping. You have probably seen football players run sideways. That actually works specifically on the muscles that helps support the hip and so is also great for our dogs with hip issues.

And the easiest way to do sidestepping is to place the dog in front of you, facing them perpendicularly, and then just very slowly walking into them. We usually have a cookie in the hand that's closest to their head so that they can be nibbling. As we walk into them and tell them to sidestep, they start to step away from the pressure of our legs, and then we congratulate or praise them.

A very important concept is that as much as we ask them to walk to the right, we have to ask them to walk to the left. We want to keep them as balanced as possible. The biggest thing I see that people do wrong is they have the cookie in their right hand, and they walk the dog 10 to 20 feet, they turn around, they still have the cookie in their right hand, and both them and the dog are still facing the same direction. They've just turned 180 degrees.

The easiest way to remember how to do this is have the cookie in your right hand for half of the amount of exercise and then have the cookie in your left hand for the other half of the amount of exercise. This can progress up to walking across the football field or, on a walk, every tenth house that you're going past, you walk sideways. The first set may be going to be to the right and the next set is going to be to the left.

CHF: Another area of concern for owners of senior dogs involves nerve degeneration. Can you explain some of the signs of nerve degeneration and what can be beneficial to help these symptoms?

McCauley: Absolutely, a common thing we see with nerve degeneration in our geriatric patients is hypothyroidism, which may lead to laryngeal paralysis. Any dog that's passed middle age should be checked for hypothyroidism. We're seeing it so much more commonly and there are great tests through Hemopet or Michigan State.



It can actually be an autoimmune disease and potentially cause laryngeal paralysis, so you might hear a dog with stridor, or heavy breathing. The larynx is actually paralyzed and they have trouble breathing.

The reason I even bring this up is because there's been several studies that have looked at laryngeal paralysis being associated with hind-end weakness. In a study done a couple years ago, a hundred percent of the dogs that had laryngeal paralysis when tested had neurological deficits or decreased function in their back end a year later. So that's kind of scary.

Other things that we see with these dogs is that they have decreased muscle spindle cells and a decreased number of large myelinated nerve fibers. The nerve conduction velocity slows down so the messages going to the muscle and to the brain don't get there as fast. They lose their tactile sensation, so they might walk next to the tree and bump into it; they seem a little bit clumsier.

By working with balance and proprioceptive exercises, we can actually slow down the progression of the neurological changes. We can also strengthen them to allow them to compensate for the neurological changes we can't change, to increase their quality of life.

CHF: Do you recommend using exercise balls or equipment in senior dog rehabilitation programs?

McCauley: I do. We use exercise balls, discs, and mats—all kinds of equipment. You can do something as simple as take the cushions off your couch and either put your dog on the cushions and move the cushions around, by putting pressures from top to bottom, or put the dog on the couch without the cushions, and have one of the kids walk around them and see how it changes their balance.

As they get stronger, we can have them stand on the balls. We can put their front feet on the balls and walk them forwards and backwards. I use peanut balls almost exclusively. With our small dogs, we could do something as simple as taking a coffee can and wrapping a towel around it, and then hold it on with a couple rubber bands and have the dogs walk it forward and backwards. We can use pool noodles for dogs like Dachshunds, and have them walk it forward and backwards.

Another topic I'd like to talk about with our older patients is joint care. All of our older dogs should be on some form of chondro-protectant, usually glucosamine and chondroitin. Glucosamine increases the body's ability to make cartilage. Chondroitin not only does that, but it also helps decrease the degenerative enzymes inside the joint. There's polyglycosaminoglycans, injectable substances that can help prevent the degrading enzymes from destroying the cartilage, but also stimulate the cells to produce more cells to make cartilage, which is really nice.



A great study that was done within the last couple of years, used omega-3 fatty acids, or fish oils, looking at dogs with osteoarthritis. The only change was adding fish oil to their diet and 82% of them did significantly better on force plate analysis. So many of our geriatric patients have arthritis, and I think that's a big part of helping them.

CHF: Finally, should plain old walking be a part of a senior dog's routine?

McCauley: Absolutely. Walking should be part of any dog's routine. It can be walking down the street or even just to the mailbox and back because that's all that the dog can handle. People get excited when the dog can progress to waling to the neighbor's mailbox or to the end of the block. As they get stronger and stronger, it can progress to walking to the park.

Understand if your dog can't walk a long way, that doesn't mean they shouldn't have the ability to be out and exploring. Some of our patients will go to the park, and if they are not strong enough, their owners will put them in a carriage, stroller, or wagon.

For our patients that can barely walk at all, I'll have the clients take some of the leaves and tree branches and stuff, and just put it in the wagon with the dog so that they still have that excitement of, "Who's been around? Oh, wow, this is cool." Playing ball with them, even if they can only go a few feet or rolling the ball to them can also be great fun at the park.

Stimulating the brain is such an important thing. It's more than just stimulating the body. All of this can help with our geriatric canines. They deserve to have a wonderful life.

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