

# How to Perform Range-of-Motion Exercises

## BACKGROUND

Recovery from muscular, bony, or joint injury or surgery in animals often includes a gradual return to movement, just as it does in people. Doing very gentle, full range flexion and extension of the limbs several times daily is a form of physical rehabilitation that can keep the muscles limber and the joints flexible. It is an opportunity for you to help speed the recovery in a hands-on way with your pet.

While some veterinary facilities can offer some forms of physical rehabilitation, such as walking on an underwater treadmill, the hands-on approach of gently and repetitively moving a pet's limbs through their normal movements can be done at home. These are *range-of-motion exercises* and are appropriate for both cats and dogs.

## GETTING STARTED

It is best to choose a place in the home where a pet can stand or lie down on his/her side comfortably. There should be traction for exercises requiring a pet to stand. Carpeted areas are well suited so long as they can be kept clean. A rubberized, padded mat that is at least twice as long and twice as wide as the length of the pet can also work well. For pets with thin or fragile skin, a large foam cushion or foam rubber sheet can be helpful as padding.

Usually the exercises should take between 5 and 10 minutes to do each time, and in most cases it is recommended to do them 3 times a day (about every 6-10 hours). Overall duration can be a few days or several weeks, depending on the extent of the original surgery/injury. Some disorders (e.g., polymyositis) can require very frequent and very gentle exercises for many weeks, whereas others (e.g., fracture with complete surgical correction) only require a brief course of exercises. Your veterinarian can make this determination.

Going slow, especially at first, is important. One full extension or one full flexion of any joint in any leg will likely take from 10 to 30 seconds the first time. With practice (and the patient's flexibility), 5-10 seconds should eventually be typical for each exercise, keeping in mind that the end of each motion is slower when resistance is met, watching for signs of discomfort (raising the head, shaking the leg away, or vocalizing).

## TROUBLESHOOTING BEFOREHAND

Range-of-motion exercises usually are started within 1-3 days of injury/surgery: soon enough to start to help, but after severe swelling has had a chance to stabilize and start to resolve, and healing has started. Be sure that your pet is comfortable enough to start. If severe pain is present, do not attempt these exercises, and contact a veterinarian to discuss alternatives as well as pain control.

Each exercise usually is performed 15-20 times each session. If there are signs of pain or resentment, stop and allow your pet to rest for several seconds before trying again. Some pets learn to object in order to get more attention, whereas others are in real pain. If you are having difficulty with the exercises, be sure to contact your veterinarian to decide how to proceed.

## PROCEDURE: HOW TO PERFORM THE EXERCISES

### Forelimbs (Front Legs)

Like us, dogs and cats have shoulders and elbows. The shoulder can be felt as a bump on the front of the animal, to the outside surface of the chest and base of the neck. The elbow is slightly farther down the forelimb and is the part of the forelimb that points the farthest backward. Forelimb exercises focus on movement at the shoulder joint and elbow.

- The goal will be to gently flex and extend the front leg that is on top (not the one against the ground). The left leg is used as an example here, with the pet lying on his or her right side, and the same process, reversing all left and right, can be used for the right leg when your pet is lying left-side down.
- With your pet lying down on his/her right side, kneel or sit between the forelimbs and hindlimbs (beside the belly, between front and back legs) facing forward, in the same direction as the pet is facing.
- Shoulder flexion/extension: Lay your right hand over the left shoulder, with the pointed part of the shoulder in the palm of your right hand. Cup the left elbow in the palm of your left hand. Push the left front leg forward gently with your left hand while holding back the shoulder in one place with your right hand. Extend the leg this way until you meet mild resistance. At correct full extension, the front leg will appear as if the pet is in full stride with that leg (pointing straight ahead). Then release gently (1-2 seconds).
- Next, grasp the same leg between the shoulder and elbow, using your left hand wrapped around the entire diameter of the leg. Flex the shoulder simply by gently drawing the leg backward and up toward the back. There is no need to lift the leg outward (toward you or toward the ceiling); the correct motion is a rotation of the leg toward you, in the opposite direction from the extension exercise described above. Only your left hand should be needed, although you may place your right hand on the pet's back to help your left hand bring the leg up to a flexed position. At full flexion, the elbow should be pointing to the tail or the back. Release gently (1-2 seconds), and repeat flexion and extension, alternating from one to the other, 15-20 times for 1 session.
- Elbow flexion/extension: With your pet lying on his/her right side, use your right hand to hold the leg between the shoulder and elbow (firm grasp, like holding a flashlight) and your left hand to hold the same leg but on the other side of the elbow (farther down the leg). Flex the elbow joint by bringing your hands close to each other until you meet mild resistance. At full flexion, there should be no discomfort for your pet, but the knuckles of your hands should be touching or almost touching each other. Then perform the opposite movement (with hands still in the same position) by opening the angle of the elbow completely and extending the leg until you meet resistance. At full extension of the elbow, the whole front leg will form a straight line (180 degrees). Repeat from full flexion to full extension 15-20 times.
- To perform these exercises on the other front leg, allow your pet to right him/herself onto the chest, and then roll him/her carefully onto the other side, left-side down. You can then follow the instructions as described above, reversing all rights for lefts and lefts for rights.

### Hindlimbs (Hind Legs, Back Legs)

Dogs and cats have one hip joint and one knee (referred to as a *stifle*) in each hind leg. The hip is concealed by muscles and skin but can be felt in most dogs and cats as a bump on the outside upper surface of the right and left thigh. The knee is the joint in the back leg that is located below the hip and points forward; the knee is above the hock (the joint in the back leg that points backward). Hindlimb exercises focus on movement at the hip and the knee.

- The goal will be to gently flex and extend the back leg that is on top (not the one against the ground). The left leg is used as

an example here, and the same process, reversing all left and right, can be used for the right leg when your pet is lying on the other side.

- With your pet lying on his/her right side, kneel or sit between the forelimbs and hindlimbs (beside the belly, between front and back legs) facing backward, away from your pet's head.
- Hip flexion/extension: Gently grasp the left hind leg below the knee, which will be a slender and bony part of the leg (the tibia), using your right hand and with the same grasp as when holding a flashlight. Push the leg forward—toward you and up in the direction toward your pet's back—using your right hand. This should cause the knee to come toward you and the thigh to move upward toward your pet's back (hip flexion) until you meet resistance. At full flexion of the hip, the thigh should be parallel to the spine. Then release gently over 1-2 seconds.
- Next, maintaining the same grasp, draw the hind leg away from you, possibly helping with some pressure applied on the thigh (pushing backward, away from the head) with your left hand until you meet resistance. This is extension of the hip, and at full extension, the hind leg will appear to be pointing straight back, parallel to a straight tail. Release gently over 1-2 seconds, and repeat the sequence of flexion and extension 15-20 times for 1 session.

- Knee flexion/extension: With the pet lying on his or her right side, grasp the thigh with your right hand and the lower hind leg with your left hand. Without moving the hip, flex the knee by pulling the lower hindlimb toward the upper hindlimb. At full flexion, the thigh (femur) will touch the lower hindlimb (tibia). Next, extend the knee by pulling the lower hindlimb away from the thigh. At full extension of the knee, the thigh and the lower hindlimb will form a straight line (180 degrees). Repeat 15-20 times.
- To perform these exercises on the other hind leg, allow your pet to right him/herself onto the chest, and then roll him/her carefully onto the other side, left-side down. You can then follow the instructions as described above, reversing all rights for lefts and lefts for rights.

## AFTERWARDS

These exercises work best when a dog or cat enjoys them. Offering a special treat after each session or spending additional time with the pet to give attention as a form of reward can make the experience more pleasant and easier to do.

These exercises help keep the major muscle groups and main joints of the legs limber. They should not be painful, and any sign of discomfort (or any inability to complete them) warrants a discussion with your veterinarian about alternatives.

## FREQUENTLY ASKED QUESTIONS

*I'm not sure my dog/cat likes me doing this. Should I continue?*

Initially, any dog or cat may feel unsure about a new activity like these exercises, as do most people. By following the described procedure, both you and your pet can become more comfortable and get more out of doing this after a few days. Consultation with your veterinarian is absolutely appropriate if any uncertainty persists. If you find that limping is worse rather than unchanged, or there are obvious signs of pain when you and your veterinarian do these range-of-motion exercises together during a recheck appointment, then it may be necessary to stop.

*I can't do it three times a day. Is some better than none?*

Yes, even once a day is better than none. Once a day, or less than once a day, risks allowing some muscle atrophy, so the result will be less optimal. Still, every session helps, and going slow is even more important when the exercises have not been done for a day or more.



900 Pine Ave  
Long Beach, CA 90813  
Text/Call: (562) 912-7463  
Email: [info@PineAnimalHospital.com](mailto:info@PineAnimalHospital.com)  
Website: [www.PineAnimalHospital.com](http://www.PineAnimalHospital.com)

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