

Suggested Regenerative Therapy Rehabilitation Protocols for Veterinarians



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Due to the unique nature of each case, a standardized protocol for rehabilitation following injection of adipose-derived regenerative cell therapy is not applicable in each situation. Instead, there are some simple principles that can be applied to a protocol that is personalized by you for every patient. There are a few things that should be kept in mind when designing a rehabilitation program for each pet; including severity of the condition, the number of joints that were involved in the surgery, age of the animal, and other current medical conditions of the pet. Patients can be classified as mildly to moderately affected or severely affected.

Animals suffering from mild to moderate osteoarthritis:

- Participate in small amounts of playing activity
- Can go up stairs
- Have moderate lameness
- May have some difficulty ambulating
- May be willing to exercise but at a reduced rate
- Can go from sitting to standing with little difficulty

Animals suffering from severe osteoarthritis:

- Typically overweight
- May have multiple affected joints
- Severe lameness
- Struggle to rise from sitting and lying down
- Difficulty with stairs
- Limited ROM
- Rarely to never participates in playing activity

Passive Range of Motion: Beginning the day after regenerative cell injection, the affected joint(s) should be exercised through a comfortable range of motion. It is important that the bones both above and below the affected joint are supported so not to add unwanted stress and strain to the joint. The joint is carefully flexed until only mild discomfort is felt by the animal. This discomfort may be exhibited as tensing of the limb, slight resistance, or turning of the head in recognition of movement. This flexing movement should NOT cause pain so that the animal sounds out or struggles to pull away. The joint is then carefully extended until the point of mild discomfort. Passive range of motion (PROM) needs to be performed 2-3 times per day for 5-10 repetitions. It may also be helpful to add stretching to the range of motion exercises. The joint should be held in either flexion or extension for 5-10 seconds. As days go on, a greater range should be achieved during stretching. The most important thing to remember is not to cause pain in the joint by placing too much stress on it.

Standing Exercises: Animals that suffer from severe osteoarthritis are usually very weak and have difficulty standing for longer than a couple of minutes. It is common to see shaking and weakness in the limbs while standing. The goal is to increase both the strength and endurance of the postural muscles. This can be done by offering support to the animal with a sling while they are in a standing position. The feet should be placed in a square standing position. The animal should stand for as long as it is able to, when weakness becomes evident or the animal starts to sit, using the sling as a support tool, gently pull the animal back to a standing position. These exercises should be done for 5 minutes, 2 – 3 times per day until the animal is able to stand on its own for 5 minutes.

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Leash Walks: Slow, confined leash walks may begin the day after regenerative cell injections. During the first week, leash walks should be no longer than 5 minutes, 2 – 3 times per day. For the animals suffering from severe osteoarthritis, 2 – 5 minutes is appropriate while those suffering from mild to moderate should aim for 3 – 5 minutes. If pain, lameness, and swelling are starting to improve at the end of the first week, then leash walks can be increased to 10 minutes for mild to moderate and 5 – 10 for severe. At the end of the week, if improvement is continued, walks can be increased by 5 minutes each week. If the animal exhibits pain or lameness, then adjust the walks so that the animal is comfortable. Other treatments can be used, such as NSAIDs and other analgesic medications, to improve comfort level. Please note that running, jumping, or playing is not recommended for four weeks following regenerative cell therapy.

Ice Therapy: After any exercises or stretching, an ice pack may be applied to the affected joint(s) for up to 20 – 30 minutes. A piece of cloth should be applied between the ice pack and the animal's skin to increase comfort.

Heat Therapy: Once the acute phase of healing has occurred, heat may be applied to the affected joints for 15 – 20 minutes, 2 – 3 times per day. Heat provides hemodynamic, neuromuscular, metabolic, and connective tissue healing effects. By using heat in conjunction with stretching, the collagen will show an increase in extensibility.

Aquatic Therapy: At the end of the fourth week, if an underwater treadmill is available and the dog is comfortable in water, walking may be added to the rehabilitation protocol. The water level should be at the hip joint to provide both buoyancy and slow joint motion. The speed of the treadmill should be set so that the animal is walking at a slow, steady walk. Starting out, animals should walk for 2-3-minute increments, with 1-minute rest periods, adding up to 10-15 minutes, once or twice daily. The time on the treadmill can be gradually increased as tolerated. Please note that swimming is not recommended in the first 30 days following regenerative cell therapy since it requires swift joint movement.

Physiotherapy: This is recommended for those animals who do not return to optimal physical function following the operation. These are usually those animals who were suffering from severe osteoarthritis. The goals of physiotherapy are to improve comfort, mobility, activity level, cardiovascular fitness and muscle tone and strength to support joints. These activities are strongly encouraged within the first 2 -4 weeks. These activities include:

- Walking on a treadmill or soft soils/sand for 5 minutes, 2 times a day
- Walking up incline or decline ramps for 5 repetitions, 2 times a day
- Performing Sit-to-Stand exercise, 5 repetitions, 2 times per day
- Raising food bowls to shoulder level
- Carpeting slippery floors

Exercise Restrictions: It is important that exercise be restricted during the first four weeks following regenerative cell therapy as described above. There should absolutely be no running, playing, or jumping. After the first four weeks, the length of the leash used for walks may be increased as tolerated. If the animal continues to show positive improvement 4 weeks after, light jogging may be started for 3 – 5 minutes, twice a day. If the animal is not showing any pain or lameness, swimming is also acceptable. After 6 – 8 weeks, light playing activity and running in a small enclosed area is acceptable.

Acceptable Concurrent Therapies:

- Non-Steroidal Anti-Inflammatories (NSAIDs)
- Hyaluronic Acid (HA)
- Glucosamine and/or chondroitin sulfate, avocado – soybean unsaponifiable, omega-3 fatty acids
- Acupuncture
- Systemic antibiotics
- TENS (Transcutaneous Electrical Nerve Stimulation)
- PSGAG (Polysulfated glycosaminoglycans) Adequan

Contraindicated Concurrent Therapies:

- Intra-articular Steroids- 45 days before and after
- Systemic corticosteroid use- unless needed for other diseases
- Shockwave therapy- 4-6 weeks after
- Power plate- 4 to 6 weeks after
- Therapy Laser (any brand) 4-6 weeks after regenerative cell therapy

Suggested Regenerative Therapy Rehabilitation Protocols for Pet Owners



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We want to take the time to thank you for trusting Ardent Animal Health to help ease the pain and suffering of your pet. It is imperative that you take the time to follow a good rehabilitation program to ensure that your pet fully heals.

Please refrain from allowing your pet to run, jump or play during the first FOUR weeks following treatment.

Passive Range of Motion (PROM)

- **Hip:** Lay one hand across the back, right above the hip joint. With the other hand, grasp just above the knee. Gently and slowly flex the leg forward, towards their head, until you feel slight resistance. Hold this for 5 – 10 seconds. Gently and slowly flex the leg in the other direction, towards their tail, until you feel some slight resistance. Hold this for 5 – 10 seconds.
- **Knee:** Grasp the leg by placing one hand slightly above and one below the knee. Slowly start bending the knee outward, making the leg as straight as possible, until you feel slight resistance. Hold this position for 5 – 10 seconds. Bring the knee back, towards to body, until you feel resistance. Again, hold this pose for 5 – 10 seconds.
- **Elbow:** Grasp the leg by placing one hand slight above and one below the elbow. Flex the elbow forward, toward the head, until you feel resistance. Hold this for 5 – 10 seconds. Start extending the elbow backwards, with one hand located above the elbow on the back of the leg and the other hand located below the elbow on the front of the leg, until you feel slight resistance. Hold this position for 5 – 10 seconds.

Assisted Sit-to-Stand

- Place your pet in a proper sitting position—this means with your pet sitting squarely with the rear legs evenly tucked underneath their body.
- Slowly start to bring the rear end up using a sling and/or using one hand to lift up from the pelvis.
- Start off by holding your pet in this position for 15-30 seconds as tolerated. Allow your pet to support a portion of their body weight, increasing the amount daily.
- Help your pet return to the proper sitting position once again.
- The time that this exercise is held will be increased over the recovery period up to 3 minutes, depending on how well it is tolerated.

Your pet is our utmost priority. These exercises, especially in the beginning, will be very tiring. Always perform these exercises with your pet's tolerance level in mind- pushing too hard can do more harm than good. The main goal is to increase the number of repetitions of each exercise as well as the amount of time exercises are held and to decrease the amount of assistance provided by you. After every rehabilitation session, be sure to place an ice pack on the affected joints, using a small cloth or towel to increase comfort, for 15 – 20 minutes.

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Week 1:

- Perform 5- 10 repetitions of the PROM exercises, from the front of this page, for the affected joints 2-3 times per day.
- Go on short, confined leash walks for up to 5 minutes 2-3 times per day.
- Apply an ice pack after any rehabilitation exercises to the affected joint(s) for 20-30 minutes.

Additional Comments/Instructions: _____

Weeks 2-3:

- If you notice swelling, increased pain or changes in use and tenderness of the affected area, contact your veterinarian immediately.
- Perform Assisted Sit-to-Stand exercises, from the front of this page, for 5 minutes 2-3 times per day.
- Stop performing PROM exercises.
- Apply heat for 15-20 minutes 2-3 times per day. Do not apply heat if there is swelling present. Be sure to always check the temperature before applying to your pet.
- Increase the short, confined leash walks to 5-10 minutes 2-3 times per day as tolerated.

Additional Comments/Instructions: _____

Week 4+:

- Increase slow leash walks to 20-30 minutes 3 times per day as tolerated.
- Perform 10 repetitions of Assisted Sit-to-Stand exercises, from the front of this page, 3 times per day.
- Aquatic Therapy
- Physiotherapy

Additional Comments/Instructions: _____

