

# Sports Retraining for Agility Athletes

By Chris Zink, DVM, PhD and Debra Canapp, DVM, CCRT



## **What is canine sports retraining?**

Essentially, sports retraining is the process of training the canine athlete to go from being functional to being competitive. A human athlete might have a physical therapist help him recover after an injury or surgery, but will need the help of a sports medicine specialist to decide which exercises, how many, and completion in what order should be used to get back into condition for competition. Likewise, for example, an agility dog that has had surgery for a ruptured cranial cruciate ligament, will engage in a period of rehabilitation to strengthen the leg muscles and regain full flexion and extension of the knee joint. At that point, a sports retrainer can provide at-home exercises and sport-specific training advice to help the dog regain his competitive physical condition and train on the appropriate obstacles in the appropriate order to continue the strengthening process and prevent re-injury.

## **What does a canine sports retrainer need to know?**

It is essential that a canine sports retrainer be knowledgeable about and have significant experience with:

- Exercise physiology and nutrition for the canine athlete
- Developmental conditions that affect a dog's performance, such as hip or elbow dysplasia, osteochondrosis, and so on

- Injuries that can occur in the canine athlete, such as cranial cruciate ligament insufficiency, iliopsoas strain, medial shoulder instability, and so on
- Various surgical techniques that are used for repair, such as the comparative risks and benefits of TPLO, TTA, and extracapsular techniques for repair of cranial cruciate ligament insufficiency
- Principles of canine rehabilitation for developmental conditions, injuries and surgical repair in the canine athlete
- Drugs that can affect a dog's performance
- The sports in which dogs compete: It is particularly important that the sports retrainer be actively competing in canine sports and be familiar with current training techniques since they can affect your dog's return to competition or the potential for later re-injury. In addition, the sports retrainer should be very familiar with the muscles that are used for different aspects of the various canine sports.

## **Which dogs need sports retraining?**

Any dog that has recovered from an injury/surgery/illness that has resulted in deterioration of his physical condition will benefit from a sports retrainer's assistance. This will help move the dog to the next level of fitness in preparation for training for his sport(s).

## **How long is the sports retraining period?**

This depends on many factors, including:

**The dog's age:** Older dogs take a little longer to regain their competition condition.

**The dog's level of fitness when first entering rehabilitation:** Canine athletes have an edge over the average pet dog because they usually are in better muscular condition. This is a significant advantage in rehabilitation and this advantage generally shortens the sports retraining period.

## **The nature of the injury/surgery/illness:**

For example, a dog that has just been diagnosed with Addison's disease might see a canine sports retrainer to get a plan for training and competing in agility that will help minimize stress while maximizing muscle strength and overall fitness. This dog may be able to compete within a few weeks of diagnosis. In contrast, a dog that has had surgery for medial shoulder instability will require very specific, progressive exercises to gradually increase weight-bearing and loading of the shoulder joint in the context of the specific sport(s) in which the dog competes to protect the shoulder from re-injury. The sports retraining period for this dog would be two to three months (in addition to a three-month post surgical recovery period) or longer depending on progress.

**The length of time the dog has been unable to exercise:** The longer the muscle has been allowed to atrophy (weaken), the longer retraining will take.

### **What additional information do you consider when you establish an appropriate sports retraining regimen?**

- The age of the dog
- Whether the dog is spayed/neutered and if so, at what age
- What sports the dog competes in and at what levels (what titles the dog has)
- The person's goals in each sport
- The dog's structure, including angulation front and rear, length of loin, length of body relative to height at the withers, amount of bone, and so on
- The dog's current level of fitness (muscle size and tone)
- What kinds of exercise the dog and his handler enjoyed when the dog was healthy
- Previous injuries or illnesses the dog has experienced, including stresses on other parts of the body due to compensation for the current condition
- What food, supplements, and medications the dog is getting
- Types of footing on which the dog will be retraining

### **What are some examples of sports retraining exercises?**

These can be divided into four broad categories. Dogs undergoing sports retraining should be provided with an appropriate combination of:

**Proprioception exercises:** Proprioception is the knowledge of where our body parts are in space. There are special nerves for proprioception and, as with other nerves, they can be trained. As you can imagine, strong proprioceptive abilities are critical for agility dogs that need to

clear jumps without overjumping or hitting the bar, do two-on/two-off contacts, and weave accurately. Exercises that improve proprioception include having the dog walk over 15 to 20 jump poles randomly scattered on the ground, and having the dog step very slowly through the agility ladder. Most dogs undergoing sports retraining can do as much proprioception training as there is time for or a wish to do, as long as your dog doesn't get bored.

**Strength exercises:** The classical form of strength training for humans is weight lifting. Dogs strength train by moving their bodies over short distances, particularly when they push against something that provides resistance. Examples of strength training include playing tug, walking, then trotting, then cantering up hills, pulling weights, wrestling with other dogs, and performing stationary strength exercises such as begging or two-legged standing. Stationary exercises are particularly helpful in the early stages of sports retraining because they strengthen targeted muscles without the disadvantage of impact. For example, begging can be used as a stationary exercise to strengthen the abdominal and paraspinal muscles to support the spine, the control center for all your dog's agility movements. Getting a dog to stand after begging without putting the front feet on the ground strengthens the rear leg muscles that are so important for speed and jumping. Waving is a stationary exercise that strengthens the front limbs. Performance events that require predominantly strength include flyball, obedience, agility, and terrier earth trials.

**Endurance exercises:** This kind of exercise gets the heart beating faster and the lungs breathing harder to supply more oxygen to the muscles to help produce energy for contraction. Examples of aerobic training for humans include running, step exercises, or riding an exercise bicycle. The most common aerobic exercises for dogs are trotting long distances (for longer than 20

minutes) and swimming long distances (as opposed to the in and out your dog does when retrieving in water, which provides more of a strength workout). Performance events that require significant endurance include mushing, herding, field trials, and hunt tests. Performance events that have both endurance and strength components include tracking and lure coursing.

**Skill training:** This, of course, involves retraining each of the skills and obstacles that are a part of the canine sport. It is not that a dog that does two-on/two-off contacts needs to be retrained how to do them, but that the dog needs to be eased into performing that particular technique at the right time during the retraining period to have the best chance of preventing re-injury.

### **What additional information should a sports retrainer provide?**

The sports retrainer should look at your dog "whole-istically." In addition to providing information on fitness exercises and sports-specific training, the sports retrainer should advise you on the following:

**Diet:** Your dog's diet and any changes that might be made to improve healing and promote muscle strength. For example, the sports retrainer may advise you on levels and digestibility of proteins and fats in your dog's diet to help provide the building blocks for healing and energy for exercise.

**Supplements:** Nutritional or other supplements that might aid in healing or prevent additional injury. A sports retrainer might provide advice on whether your dog should be taking joint-protective nutraceuticals, for example, as well as which ones are best and what dose is appropriate for your dog.

**Body work:** What body work, such as massage, heat/ice treatments, and so on you should provide to promote healing and prevent re-injury.

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*M. Christine Zink, DVM, PhD is veterinary sports retrainer and consultant on canine fitness. She is author of numerous books and DVDs on the care and training of the canine athlete. Her newest book, The Agility Advantage, published by Clean Run was released in January 2008. Dr. Zink runs a Border Collie and a Norwich Terrier in agility; contact her via [www.caninesports.com](http://www.caninesports.com).*

*Believing in the necessity of incorporating rehabilitation into veterinary practice, Debra Canapp, DVM, has completed the veterinary rehabilitation course in Florida and is a certified canine rehabilitation therapist (CCRT). She is currently certified in small animal acupuncture and practices Chinese medicine as well. After having recently completed her veterinary orthopedic manipulation course, she is working on this certification as well. Dr. Canapp plans to become certified in chiropractic later in 2008 to expand the services offered in aiding rehabilitation in the practice of small animal medicine.*

## What kind of sports retraining is appropriate for agility?

The components of agility that produce the most stress on an injured canine body are:

- Sudden stops, such as fast two-on/two-off contacts, particularly on the A-frame
- Sharp turns such as threadles, serpentines, tight pinwheels, 180° and 270° turns
- Twisting the spine, which happens with dogs that do fast, one-footed (also called single tracking) weave poles
- It is important to also be aware of the potential for obstacle-associated re-injury, such as falling off the dogwalk, having one foot slip off the teeter or dogwalk, and so on

## Can a consultation with a sports retrainer help a healthy dog or a dog that has completely recovered from a previous injury and is competing again?

Services a sports retrainer can provide for a healthy dog can include:

- Helping you to evaluate your dog's structure and discuss his structural strengths and weaknesses to give you an idea of what sports injuries your dog is at risk for and how you might work to avoid them.
- Designing a healthy dog conditioning program based on your dog's structure and current level of fitness, the sports in which you and your dog compete, your dog's health history, the activities you and your dog like to share in your spare time, and the amount of time (and energy) you have to exercise your dog.
- Consulting on current and developing training techniques, such as the pros and cons of two-on/two-off, four-on-the-floor, and running contacts; discussing ways to train to help prevent injury; discussing things to watch for at different training sites with different kinds of footing; talking about training problems that arise and whether they might be a sign of a sub-clinical injury or health problem. 🐾

## Sports Retraining in Action

Let's look at a case study of a 35-lb Border Collie that suffered from medial shoulder instability as a result of damage to the ligaments that hold the humerus (upper arm) to the scapula (shoulder blade) at the shoulder joints. The dog has had surgery in which radiofrequency therapy was applied to the ligaments in the medial shoulder area to tighten them arthroscopically. The dog has undergone three months of rehabilitation three times a week. The rehabilitation practitioner feels that it is time for the dog to do more exercises at home and start working toward getting back into agility competition. Here's the sports retrainer's plan:

**Proprioception exercises:** These exercises would focus on retraining proprioception of the front legs. The dog should do ladder exercises, first walking slowly forward through the ladder. Once the dog is doing that without any touching of the ladder, the dog can go forward then backward through the ladder. Having mastered this, the dog will then side-step through the ladder with the front feet between the rungs.

**Strength exercises:** Three stationary exercises will be assigned. The dog will start with sit-stand-sit exercises, progressing to down (sphinx down)-stand-down exercises. The ultimate goal is to get the dog to sit-stand-sit without moving the position of his feet on the ground. Another strength exercise is to teach the dog to wave, holding his affected leg in the air for increasing lengths of time. A third strength exercise will be to lift up the dog's rear legs and have the dog walk on his front legs (wheelbarrow). Gradually the dog's rear legs will be lifted higher to place more weight on the front. Retrieving as a form of exercise will be avoided initially due to the pressure on the shoulder of abrupt turning.

**Endurance exercises:** The dog will start by going for a 10-minute trot every other day at a moderate speed. These will be increased to 15 and then 20 minutes. Swimming would be encouraged, particularly swimming in which the dog stays in the water and swims continuously. The dog should start with just two or three minutes of swimming and increase to 10 minutes a session.

**Skill training:** The dog will start agility training, introducing the obstacles in the following order:

- Straight lines of widely spaced tunnels and chutes ending at a low table that the dog just jumps onto
- Straight line of jumps at 8" plus the above.
- Wide circle of jump, tunnels, chutes, tables, and the teeter
- Large figure eights using the above obstacles with inside diameter of the loops at least 20'. Increase the jump height to 12".
- Sequences with 90° turns on the flat, but not right after landing from an obstacle. Increase the jump height to 16". Add the dogwalk and two-on/two-off contacts only if the dog does them gently.
- Add the A-frame if the dog has running contacts. Increase jump heights to 20".
- Add weave poles if the dog does them with two front feet on the ground. Add the A-frame if the dog tends to stop abruptly on two-on/two-off contacts.
- Add weaves if the dog performs them "one-footed" (also called single tracking).

**Additional notes:** The dog's shoulder should be iced for 20 minutes after exercise. At-home heat and massage treatments followed by passive range of motion exercises daily, not within two hours of exercise and icing, should be encouraged. Make sure the dog is getting appropriate levels of protein (for tissue repair), fat (for energy), and calcium (frequently out of balance in home-prepared diets). The dog should be taking high quality joint-protective nutraceuticals and perhaps antioxidants, including vitamins C and E. Discuss the potential use of chiropractic adjustments, acupuncture, and so on. Discuss ways to monitor the dog's progress including time to fatigue, muscle size and tone, evidence of favoring the leg. Remember, the above case is just an example. The specific exercises and their progression should be individualized for each dog depending on the many factors listed above.