IVC JOURNAL

Integrative VETERINARY CARE
PEER REVIEWED

SPECIAL NUTRITION ISSUE

NUTRITION AND CANCER

HOW DIET AND SUPPLEMENTATION PLAY A ROLE IN PREVENTION AND TREATMENT

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WINTER ISSUE 2013
www.IVCJournal.com

WINTER LAMENESS

BY KIM HENNEMAN, DVM, DIPLOMATE ABT, FAAVA, CVA, CVC

INJURIES SUSTAINED BY ACTIVE DOGS THAT PLAY, RUN OR WORK IN SNOWY OR SLIPPERY CONDITIONS CAN BE DIAGNOSTICALLY CHALLENGING. A THOROUGH EXAM IS ESSENTIAL IN DEALING WITH THESE CASES.

For clients with active dogs, the change of season from summer to winter only means a change in the type of activity, not a change in its quantity. Winter means recreational activities such as snowshoeing, cross-country skiing, bounding after family members on toboggans and sleds or simply changing the daily walk from sidewalks and grass to icy roads and snow. Veterinarians are also called upon to examine competitive sled or skijoring dogs, winter search-and-rescue (SAR) dogs, or avalanche dogs. Constant activity on uneven or slippery surfaces of snow and ice, as well as contact with the sand and salt often used to treat roadways, can lead to lameness diagnostic challenges not typically found in other seasons.

There is a joke in the sled dog world that if a leg falls off of a dog, he will look at it for a moment and just decide to pick it up on the way back. A highly driven dog's desire to continue active cannot be used as a measuring stick of pain or injury. Veterinarians must

How a dog gets ski tip cuts – an avalanche/SAR dog runs between the handler's skis.

understand how the mind of a high-drive dog combined with a high-drive owner with competition or management pressures can contribute to injury and affect rehabilitation success. High-drive individuals will continue working through minor to moderate discomfort or dysfunction, often as if nothing has happened. When both athletic canines and caretakers ignore early warning signs, more serious injuries occur.

Thorough diagnosis is imperative

While managing pain and inflammation is a critical part of lameness treatment, a thorough diagnosis of the injured tissue can allow for the development of a specific recovery treatment plan. Alleviating pain and inflammation is not the same as returning to full biomechanical function. Integrative veterinarians, especially those trained in manipulative, rehabilitative or massage techniques, are in a unique position to greatly influence the outcome of these types of injury, and guide injured patients back to full soundness (or as close as the dog's age and previous structural status allow). A good diagnosis is just as imperative for the seemingly minor injury as it is for any other disease process.

Sources of mild to severe unsoundness in dogs working or playing on snow or ice can include:

- Exacerbation of existing osteoarthritis
- Tendonitis (especially of the biceps brachii, foot flexors, Achilles)
- Collateral ligament desmitis (especially of the carpus, medial elbow, digits, medial stifle
- Carpitis
- Muscle strains (biceps, hamstrings, lumbar epaxials, iliopsoas)
- Cervical whiplash (from a front leg punching through hard snow surfaces)
- Interdigital or pad dermatitis from snowballs, sand or salt abrasions
- Interdigital or pad lacerations from snow balls, sub-snow foreign objects such as tree branches, or interactions with ski tips or snowshoes worn by a human companion
- Dewclaw inflammation from booties worn by working or racing dogs
- Frostbite

Common winter injuries

If it is a muscle, tendon or ligament, it can be injured or torn – in any body region. Normal movement on dry surfaces tends to favor injuries of certain body regions, but slipping on or punching through snow or ice can injure just about anything. Keep an open mind when performing a physical exam. If swelling and pain are palpated in a quadriceps muscle, don't think it can't happen because there hasn't been a published paper on it. Your hands and the dog's reaction will tell you more than anything else. Don't talk yourself out of what you find.

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Photos courtesy of Kim Henneman

Clockwise from top left: Interdigital snowballs/ice crystals on an avalanche dog; dewclaw rub with bootie; frostbite and bootie rub; foot cut in sled dog.

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2 Foot problems are probably one of the most common and easily overlooked causes of winter lameness. Snow buildup on the interdigital hairs can be prevented by spraying cooking oil or applying musher's wax to paws and pads. Irritation from sand or salt can be avoided by rinsing feet upon returning home. Irritation from excessive exercise on abrasive snow or ice can be prevented with the use of booties, although caution must be exercised with fitting the bootie around the dewclaw. Non-infected pad cuts, cracking or worn areas can be treated by attaching moleskin with superglue to the affected area and the use of musher's wax or calendula cream.

3 Frostbite in the average canine winter weekend warrior is somewhat rare, though it's common in the sled dog. Any dog that spends a great deal of time out in the cold should be carefully checked. Commonly affected areas are usually non-weight-bearing ones such as the prepuce, scrotum, vulva and ear tips. The interdigital areas of the feet also need examining; an Australian shepherd avalanche dog had an old, healed ski tip injury on the metatarsus. That foot was more prone to cold compromise. The author's preferred homeopathic remedies for frostbite include Agaricus, Nitric acidum or Rhus toxicodendron.

4 Muscle strains can happen any time a dog runs, plays or works on slippery surfaces of variable hardness. A weekend warrior pug or elderly but enthusiastic cattle dog playing on a berm of freshly shoveled snow will have the same stresses to soft tissue as an avalanche dog searching on the toe of a slide. In dogs without core strength, slipping on ice and snow can lead to moderate strains of propulsion and support muscles such as the quads, hamstrings, biceps (both brachialis and femoris), gracilis and triceps. Older dogs with arthritis, osteoarthritis of

Abba the avalanche dog

Abba was a five-year old German shepherd actively working as an avalanche search-and-rescue dog at a major ski resort when she first presented for a history of slowing down, with stiffness and hindquarter weakness that became especially prominent when working on uneven snow. She had recently been displaying occasional limping on her right foreleg, which had responded well to aspirin.

Initial physical exam revealed:

- Difficulty resisting and maintaining a standing posture when pressure was exerted on the caudal lumbar/sacroiliac area of the spine.
- Postural asymmetry (goat on a rock stance) and lumbar kyphosis both standing and sitting.
- Significant shortening of hind leg range of motion, especially on a hard surface, at both walk and trot.
- Rapid fatigue on soft surfaces to the point of refusing to work.
- Both coxofemoral joints exhibited mild loss of total range of motion both in flexion and extension with no crepitus.
- Both pectineal ligaments on the ventral acetabular surface were painful on palpation when in weight-bearing, standing position.
- Atrophy of both quadriceps and superficial gluteal muscles.
- No overt lameness observed in the right front and no pain could be elicited.
- Slight tenderness palpable behind the right scapula at the latissimus dorsi synsarcoses, which was exacerbated by sliding of the scapula cranially.
- Her tongue was slightly pale and her pulses slightly thin, weaker on the right.

Radiographs revealed slight thinning of the joint space in the hip joints and some roughness and enthesiophytes developing on the cranial acetabulum. There was slight flattening of both femoral heads in the areas of the capital ligaments, but both still were seated well within the acetabular sockets. A previous diagnosis of coxofemoral osteoarthritis had been made and the recommended treatment regimen involved only a non-steroidal inflammatory medication. The handler wanted to pursue other treatment options more oriented to the canine athlete.

The diagnosis for Abba was coxofemoral osteoarthritis leading to compensatory biomechanical compromise of the lumbar spine and front limb soft tissue girdle (leading to stress of the latissimus dorsi synsarcoses attachments to rib periosteum). A Traditional Oriental Medical diagnosis was Kidney Qi Deficiency with Bony Bi Syndrome. Since Abba was a valuable (and talented) working dog, a long term plan to manage both the coxofemoral osteoarthritis and compensatory stresses was developed with the handler. The goal was to "head things off at the pass" in order to extend working life and increase comfort.

The handler elected to initially manage Abba with diet, supplements, acupuncture and chiropractic. A rehab exercise program for core strengthening and joint range of motion maintenance was developed for summer use. Inflammation and biomechanical stress were monitored with periodic thermal imaging.

Abba was started on an oral joint supplement of glucosamine, chondroitin, hyaluronic acid, vitamin C, MSM and boswellia (Chondrocare™). More raw and whole foods were added to the diet. Omega-3 fatty acids (oils from salmon, sardine and anchovie sources) and multiple strain human probiotics were added.

Abba continued to train and work as an avalanche dog for four years. As her hips worsened and compensatory structural changes started to occur in other areas of her body (including suspected CCL strains), Traditional Oriental Medicine herbs (Adequan™ and Legend™) were added to her treatment. The need for NSAID use did not occur until five years after the initial visit. Abba was retired as a working dog at that time. The use of integrative therapies with appropriate diagnoses from thorough examination was critical in allowing this valuable working dog to continue effectively functioning several years past her anticipated retirement age.

Photo courtesy of Kim Henneman

Above: Thermal imaging of flexor tendonitis and carpitis.

limb joints, or changes in spinal architecture will be particularly susceptible to muscle injury due to an inability to respond to sudden balance loss. An appropriate diagnosis can be done with gait analysis, digital palpation, joint range of motion and stress testing. Radiographs will be unremarkable with soft tissue injuries. Thermal imaging is an excellent tool for localizing the inflammatory or painful area; then the type of injury can be verified with ultrasonography.

Ligament and tendon injuries are common in the active winter canine athlete. Dogs can strain medial and lateral collateral ligaments of any joint with the sudden, twisting and shearing that can happen with slips and falls. The repetitive stress of walking or running on uneven snow or constantly tripping on the heels of cross-country skis or snowshoes can cause injuries to the collateral ligaments and flexor tendons of digits and carpi. A single hind foot punching through crusty snow can injure an Achilles tendon. Again, older animals with previously existing joint or spinal compromises will be more susceptible to injury. It is critical that the veterinarian examining an animal with known pre-existing conditions be able to separate the old from the new and treat the fresh injury while supporting the existing weakness. A common clinical fallacy is to assume every rear leg lameness is a cranial cruciate ligament injury – remember there are many structures in the hind leg that can be injured.

Walking or running on ice or leaping on uneven snow piles can also lead to one-time or repetitive stress to joints, especially those of the lower limbs. Carpitis, tarsitis and phalangitis are common causes of vague and minor lameness in the winter. A healthy, normal canine carpus should flex to the point where the pads can touch the caudal (posterior) ulna. Sensitivity on flexion or

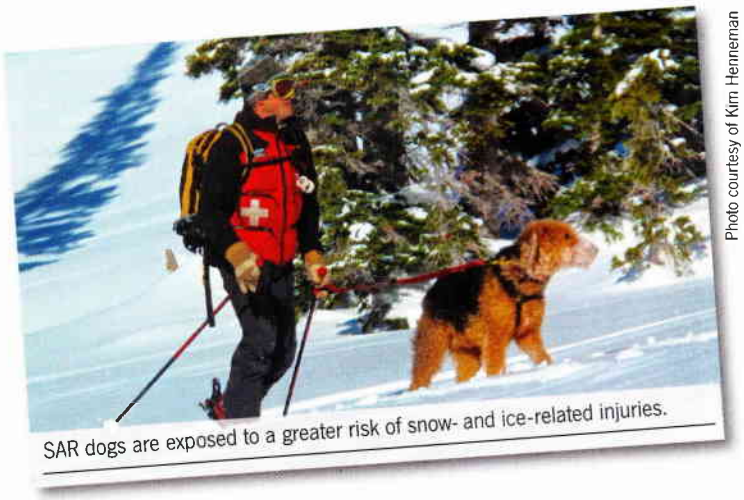

Photo courtesy of Kim Henneman

SAR dogs are exposed to a greater risk of snow- and ice-related injuries.

loss of range of motion are indications to evaluate for joint effusion. Keeping toenails short is critical for preventing digital and lower limb sprains. In dogs with previous injuries and repetitive weaknesses, use of flyball carpal supports can be very effective in avoiding carpal sprains. Often, repetitive carpal and digital sprains (as well as biceps brachii strains) can come from compensatory overuse of the front limb in response to stiffness, weakness or mild soreness of the caudal spine, sacroiliac or hips joints.

Treatment options

- The basic human sports medicine treatments of Rest, Ice and Compression may be all that is needed to successfully help the active lame canine, if they're used swiftly.
- Cold laser, homeopathic remedies, topical liniments (if they can't be licked off), acupuncture and oral herbal formulas can also speed up recovery times.
- Early in injury, soft tissue therapies such as massage, Shiatsu and Tui Na can be very beneficial.
- Other manipulative therapies need to be approached with caution in a very fresh injury as aggressive therapy can dislodge fresh clots, thereby increasing hemorrhage and edema. The general rule of thumb with chiropractic and osteopathic therapies is to be cautious as long as there is less than full weight-bearing on a limb, since structural "straightening" can often relieve compensations and put weight back on a limb that is not quite ready.

A veterinarian does not have to be a sports medicine or rehabilitation specialist in order to properly handle a limping dog that may come into his or her clinic over the next few months. Making sure a thorough exam and good diagnosis is made, whether at a first visit or through a referral, is critical to a successful resolution of winter lameness, both in the short term and long term. IVC

Preventing "bad hair" days

BY HEIDI LOBPROSE, DVM

About 95% of a dog's body is covered with hair. Besides making the dog soft and huggable, this coat helps protect the skin and keep it healthy. In both dogs and people, the skin is the largest and one of the most complex organs of the body. It's a natural barrier that prevents dehydration and provides protection from the environment.

In an attempt to keep the hair coat clean and fresh, many pet owners bathe their dogs with their favorite made-for-people shampoo, cream rinse or body wash. Unfortunately, the pH levels of human skin and canine skin are quite different. Products made to protect more acidic human skin can be troublesome for a dog's more alkaline skin. If a shampoo formulated for human skin is used on a dog, it may disrupt the dog's skin pH. This can create conditions for bacteria, fungi and parasites to get out of control. Furthermore, the shampoo may dry out the skin, which then becomes itchy. As the dog scratches, he can nick or cut his skin, allowing microorganisms to enter and start a cycle of skin problems.

Everyone in your clinic can play a part in educating pet owners that maintaining a dog's coat starts with an awareness of skin care. To avoid bad hair days, recommend only a pH-balanced, moisturizing shampoo formulated specifically for dogs and made to help maintain the pet's natural skin oils.