



Baby It's Cold Outside... and Slippery!

Statistic's Canada released a report in 2004 that stated that 41% of preventable injuries to Canadians are due to slips and falls. A large proportion of non-work related slips and falls are related to ice and snow conditions in the winter.

We took a brief look at new patients to the Canine Fitness Centre between the dates of November 1, 2014 to April 1, 2015 that attended their first appointment with us due to a traumatic injury. We found that approximately 28% of them were caused by the dog slipping. This number may actually be an under-representation due to the fact that not all pet owners are sure what the dog did to trigger the injury. However, it does appear that slipping is a significant risk to dogs and people alike. Surfaces on which dogs were reported to have slipped were grass, smooth hard floors, stairs, ice, and outdoor decks.



Booties and ToeGrips and Socks! Oh my!

There are a variety of options available to help prevent and reduce slipping and sliding for dogs. From grippy socks to traction boots. See page 4 for information on available traction increasing options for both indoor and outdoor use!

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Soft Tissue Injuries of the Shoulder

Soft tissue injuries of the shoulder (muscle strains and tendon injuries), an often under diagnosed source of front limb lameness in the dog, can occur in both heavily conditioned performance dogs and in the average family pet as the mode of injury varies greatly. Common causes of soft tissue shoulder injuries are over-use, repetitive loading/micro-trauma, poor flexibility, inadequate warm up, over stretching, fatigue, infrequent high intensity activity by a less conditioned animal, sudden bursts of speed or hard turns, overtraining, and inadequate rest and recovery periods. They can occur in performance dogs being trained to perfect certain movements, skill sets, and sequences, and they can occur in pet dogs asked to perform weekend warrior activities such as intense sessions of fetch, longer or harder runs than they are conditioned to perform, or other types of activity they are not exposed to, and therefore not physically prepared for on a regular basis.



Fetch? Ouch!

Running at speed to pick a ball up off the ground subjects your dog's shoulders to forces that can be compared to hitting only your front brakes while riding a fast bicycle. When the front brakes are engaged the momentum of the rear carries forward and shifts all the weight of the bicycle up and over the handle bars. At high speeds this can throw the rider over the front of the bike or cause the front fork of the bicycle to break off the frame. Likewise, your dog's momentum shifts all their weight onto their front end, their handlebars, which puts excessive strain on wrists, elbows, shoulders, and neck. Repetitive loading of the front end like this can lead to long term injury.

Muscles that cross two or more joints are at greater risk of repetitive strain injuries as they are affected by the multidirectional movements of more than one joint therefore increasing the stress they experience. The canine shoulder may be particularly vulnerable joint as it is the most multidirectional mobile major limb joint in the body. Unless it is a direct trauma muscle strain, soft tissue injury is more likely a tendinosis lesion.

Presentation

Clients generally complain that their pet has started to limp on a front leg. The limp might not be constant, but usually appears after exercise and worsens over time. They may or may not be able to pinpoint an exact mode of injury as injury could be caused by an obvious traumatic event such as a slip or fall. Anti-inflammatory medication may not be effective in relieving symptoms because the inflammatory process of the injury may have already passed before chronic tendon pain develops. As observed in human athletes by the time tendon pain is noticed damage to tissue may already be advanced. Common injuries are medial shoulder instability (MSI), biceps tendonosis, teres major strains, and supraspinatus calcification.



Diagnoses

Soft tissue injuries to the shoulder are best diagnosed via palpation and examination of the ROM of the shoulder joint. This includes flexion, extension, abduction and internal rotation of the shoulder joint, extension of the elbow with the shoulder joint flexed, palpation of the bicipital tendon (often very tender in cases of MSI) and supraspinatus, and examination for craniocaudal and mediolateral drawer sign. Asymmetry of ROM from side to side comparison, pain on palpation of the suspected tissue, and pain during specific ROM and an abnormal end feel, with targeted motions are indicators of soft tissue damage.

Treatments & Prognosis

The most convincing evidence for effective treatment is for eccentric strength training, the slow and controlled lengthening of the targeted muscle. This can be achieved through a prescribed home exercise program. Other treatments can include stretching, which increases collagen synthesis and improves collagen fibre alignment; manual therapies such as deep transverse frictions to reduce pain, and massage to increase blood flow to the area; and modalities including ultrasound, laser, shockwave, and pulsed electromagnetic field therapy. Hobbles have been used to immobilize joints, however these have been shown to have a detrimental effect on tendon strength and healing. Surgery to remove calcification of the supraspinatus has also been applied, however studies show that calcification returns within five years, and that calcification can occur without symptoms and so may not itself contribute to the lameness. Following treatment most dogs can return to full function and pre-injury activity levels. All dogs benefit from neuromuscular re-training at the end stages of recovery in order to resume full and correct use of the limb. Prevention of re-injury is important, so owners will need to be educated on warm up and cool down, proper conditioning, and avoidance of activities that may contribute to the reoccurrence of an overuse injury.

Edge-Hughes, L.; *Musculoskeletal Welfare Aspects of Sporting Dog Activities*. (2010).

Marcellin-Little, D.J.; et al. *The Canine Shoulder: Selected disorders and their management with physical therapy Clinical Techniques in Small Animal Practice*. 22:171-182 (2007).

Case Study: Recovery from medial shoulder instability

Clancy, a medium sized family dog was an average active family pet. Daily activities included walks, off leash running, free play with other dogs, and fetch with a ball.

Mode of Injury:

The owner reported that Clancy first appeared lame following a run outside through deep snow. Clancy came into the house limping on his left front leg.

Initial Care:

Clancy was treated at home and improved over the course of a couple of days resting with minimal activity. However, the symptoms returned and worsened when Clancy was allowed to resume normal activity. After two weeks symptoms had worsened and even short leash walks caused limping.

Diagnostics:

Radiographs were taken two weeks post onset of symptoms. There were no significant findings. Clancy was placed on crate rest and a course of NSAIDs. Symptoms persisted, and continued to be aggravated by physical activity of any kind.

Did you know?

There is a clinically large correlation between biceps tendon pain and MSI.

Six weeks following the onset of symptoms range of motion (ROM) of both front limbs was examined. The right front limb was within normal ROM, and no pain response was noted on manipulation or palpation of the joint and muscles. The left front limb showed an increased ROM in abduction and tenderness at end range

biceps extensibility testing. Palpation of supraspinatus tendon and teres major/latissimus dorsi were tender.

Objective for treatment:

The owners' goal was to return to normal family activities with their previously active dog.

Treatments:

Manual therapy included stretches for the biceps and supraspinatus and trigger point release for teres and lats. Shockwave and laser therapy were also used. Treatments were recommended at two week intervals.

Owner education and home program:

Clancy's owners were advised to control activity by taking on leash walks, preventing rough housing with other dogs, and to not play fetch (which can be very hard on the front end). They were given a home exercise program and a joint supplement was recommended.

Initial outcome:

Clancy's condition improved following the first treatment, however any indiscretion in management at home would aggravate the injury. Slipping on low traction surfaces, off leash running, play with other dogs, and steep stair cases caused the front leg lameness to return.

After three treatments and six weeks of home exercises the owners decided to add the joint supplement Cetyl M to the home program with positive results. They reported continued improvement and a decrease in aggravation of the injury by the eight-week mark. Clancy could now walk on and off leash without a limp. Wrestling with another dog would still cause limping, but recovery from this aggravation was faster.

After ten weeks, a game of fetch, the first since before the initial injury, caused a return of the limping that lasted for 24 hours before improving again.

By twelve weeks Clancy could walk for over 25 minutes without aggravating his injury. The owners were happy with the outcome of the treatment with the only activity that aggravated the injury being fetch with a ball throwing toy, a part of the dog's lifestyle that his owners were not willing to give up. Follow-up communication with the owners reported a full return to normal activities including daily walks and play, as well as full participation in family camping and hiking trips.

Home Exercises for MSI

The CFC recommends a variety of home exercises to address MSI.

• Tensor Bandage Wrap

A tensor bandage is draped over the dog's shoulder, crossed beneath, wrapped around the upper front legs and then tied at the back. The resistance of the bandage holds the dog into adduction of the shoulder joint in order to protect against slips into abduction. This can be worn on a short leash walk.



• Resistance Band Tug

A light resistance band is wrapped around the upper leg of the affected limb and pulled out to the side. In response the dog pulls the shoulder in against the resistance of the band, strengthening the adductor muscles.



Shockwave Therapy

Extracorporeal shockwave therapy (ESWT) was developed as a result of observations made during the use of lithotripsy, a kidney stone treatment where sound waves are used to break the stones up so they can be passed from the body without the need of surgical intervention. Over the 35 years that this treatment has been in use patients have been reporting a reduction in other pain, unrelated to the kidney stones.

Shockwaves are non-linear pressure waves that can travel through solids, liquids or gases. They have a peak pressure amplitude of 500 bar (1000 times that of an ultrasound).

There are two types of shockwave therapy.

Focused shockwave therapy (FSWT) uses a targeted pressure field with the ability to adjust the focus and the depth of the shockwave. The maximum pressure of the shockwave is reached at the set depth into the tissue away from the applicator. These waves are generated in

water (inside the applicator) and transferred into the tissue. FSWT produces a true shockwave that can penetrate into deep tissue but it needs to be precisely directed.

Radial shockwave therapy (RSWT) creates a diverging pressure field at the source of the application, like a jack hammer. Compressed air forces a projectile to move inside the applicator. It hits the terminal end of the applicator which then transfers the wave into the tissue.

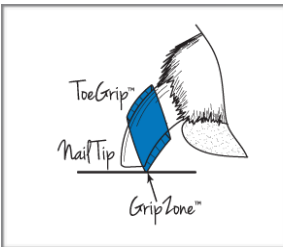
In application there is no significant difference in treatment efficacy between RSWT and FSWT.

SWT is used for pain relief, tissue regeneration, and the destruction of calcification. It achieves this through enhancing neovascularity, accelerating growth factor release, selective neural inhibition, osteogenetic stem cell recruitment, and the inhibition of the inflammation process.

Fourleg News, Vol. 4, Issue 1A, pp. 2-6, January - February 2015.

Prevent Accidental Slips with Traction Aides

Available at the Canine Fitness Centre



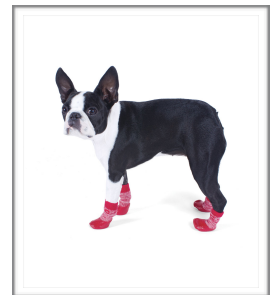
Dr. Buzby's Toe Grips

When dogs feel uneasy on a surface, are struggling to get up, or feel themselves start to slip, they react by engaging their toenails to dig into the ground for traction. Unfortunately on smooth hard surfaces found in homes this instinct to increase traction can actually decrease it. Toe Grips are rubber rings that slide up on the toenail itself. When the dog's nails contact the slippery surface, such as hardwood floors, the rubber grip provides a non-slip point of contact to prevent slipping and sliding. Toe Grips can be worn for an extended period of time, usually lasting several weeks to a few months before needing to be replaced. The advantage is that, unlike with boots or socks, dogs don't seem to

notice they're wearing their Toe Grips at all. Available in sizes XS - XXXL

Sport PAWks

A variation on the grippy bottom toddler socks Sport PAWks have a silicone sole that wraps around the entire foot, so even if the sock rotates the grip contact has not been lost. They are breathable and comfortable for wear indoors and out. Because they are soft soled the dog can feel the ground beneath the foot so they tend not to mind wearing them for extended periods of time. PAWks can protect against chemical irritants like ice melter, but are not recommended for wear in icy or freezing conditions as the silicone becomes stiffer and loses grip at colder temperatures. They are excellent for indoor daily wear on slippery floors. Available in sizes XS - XL



Ultimate Trail Boots

Excellent for traction, rough terrain, chemicals, cold and heat, and for dogs with neurological deficits that cause them to drag their feet. The rubber sole is thick but flexible, allowing for excellent movement without compromising protection or traction. They are unique in that the front boots are made slightly larger than the back boots to better fit the anatomy of a dog's feet! They are sold in sets of four, or as singles, and can be worn inside or outside in all weather conditions. Available in sizes XS - XL.