MEDICAL TAPING CONCEPT

KINESIOLOGY TAPING FOR DOGS

Canine Rehabilitation - Optimise movement

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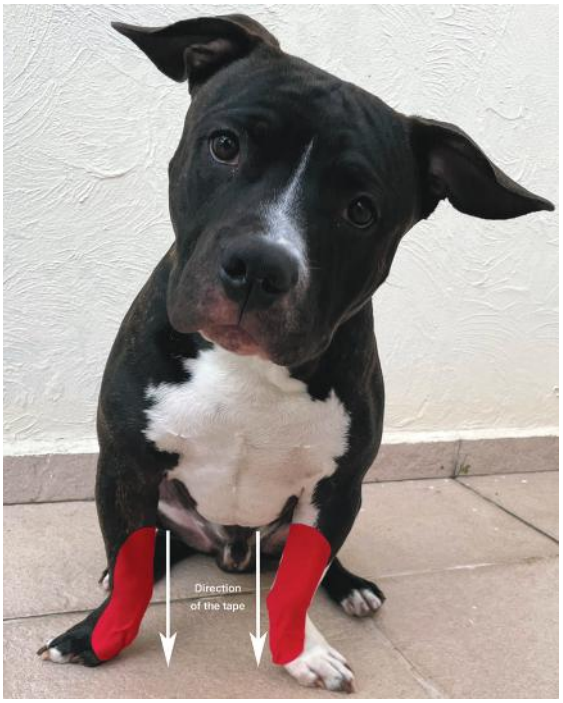
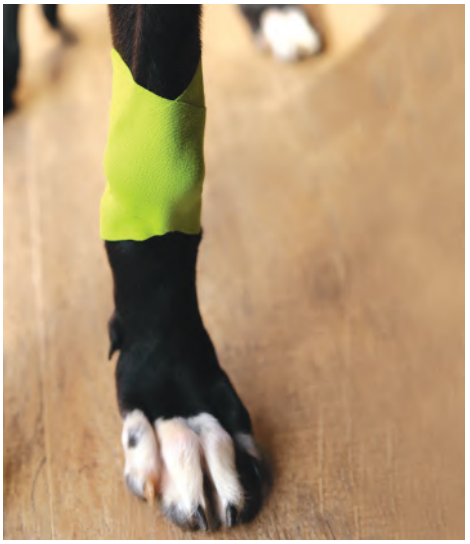
► **Figure 3.5J** Kinesiology taping in *Biceps brachii* tendinopathy



► **Figure 3.5L** Kinesiology taping can be used over the convex side of joints to correct angular limb deformities. For a *Carpus valgus* or *Tarsus valgus*, it should be placed on the medial side of the joint. For a *Carpus varus* or *Tarsus varus*, it should be placed in the lateral side of the joint. The central part of the tape should be applied with a 30% stretch.



► **Figure 3.5K** In this case, the dog presented ephiphisitis at the age of 5 months and the carpal joints were taped for pain relief. In the case of a joint efusion, this kind of application can be also used with a light stretch to provide a gentle compression which will help to reduce the effusion. The presence of the tape over the joint will promote pain relief (explained by the Gate Control Theory) and increase the proprioception.

► **Figure 3.5M** Kinesiology taping can be used to support the palmar side of the limb which would be useful in a case of a carpal hyperextension. Notice that this application was done in a dog with a normal posture for a demonstration purpose, and after the application, the right limb (with kinesiology taping) presented a more upright position at the Metacarpal area in comparison to the left limb (without kinesiology taping). This application is useful to unload the stress over the palmar side of the limb.

Photo credit: Johnny Duarte

► **Figure 3.5N** Kinesiology taping can be used to cover a dermatome area. In this case, it can help with pain related to internal organs (segmantal application).

Photo credit: Johnny Duarte

► **Figure 3.5O** Kinesiology taping can be used in combination with exercises to help facilitate muscle contraction of a specific chain of muscles

Photo credit: Johnny Duarte

► **Figure 3.5P** If the animal presents a painful condition, the application of kinesiology taping over the painful area will promote pain relief and allow the animal to perform exercises with more comfort.

5.2. Medial patellar luxation

Medial Patellar Luxation is a common developmental orthopaedic condition that occurs more frequently than the lateral patellar luxation. It is more common in small breeds. However, large breeds, like Labradors, can also be affected.

When the patella is luxated medially and as the patella rubs back and forward in the abnormal location, against the medial side of the femur, it will wear away the cartilage leading to chronic pain and arthritis.

Patellar luxation can be divided in four grades based on severity of luxation (► **Table 5.2**)

The grades I and II can be treated conservativelly and kinesiology taping can be helpful to crate a lines of tension on the sides of the trochlear ridge and help to keep a path for the patella.

Grading of patellar luxation	
Grade I	The patella is located in the trochlea and can be manually luxated. A spontaneous luxation during normal movement rarely occurs. If the patella is manually luxated, it quickly returns to its anatomical correct position once released.
Grade II	The patella is located in the trochlea and can be manually luxated. The patella luxates when the limb is manipulated (extended, flexed or with rotation of the tibia).
Grade III	The patella is located outside the trochlear groove but it can manually be reduced back into the trochlear groove.
Grade IV	The patella is located outside the trochlear groove and can neither be reduced by manipulation of the limb nor by manual pressure.

► **Table 5.2**

5.2.1 **Taping for medial patellar luxation stabilisation**

Apply an "I" shape on each side of the groove to support the path for the patella. Since the medial luxation is more common, two pieces of tape can be applied on the medial side to give even more support. Finish the application using a transverse "I" applied with medium tension over the patellar tendon (this tape will promote pain relief as this tendon might be painful due to the elongation when the patella is out of its anatomical position).

The *Quadriceps m* has an important role in mantaining the patella in the right position and kinesiology taping placed for muscle facilitation (**Chapter 2** ► **Fig. 2.3A**), proximal to distal, can be beneficial.

► **Figure 5.2.1** Lateral view.

► **Figure 5.2.2A and B** Cranial view.

► **Figure 5.2.3** Medial Patellar Luxation with facilitation of the Quadriceps muscle: cut an "Y" shape and place the tape proximal to distal at the Quadriceps muscle and end both tails around the trochlear groove.

► **Figure 5.2.4** The facilitation of the *Quadriceps m* can also be done separately.

5.3. Patellar ligament desmopathy

It can be categorized in traumatic and non traumatic. The non traumatic most commonly occurs in patients with a history of corrective osteotomies for CCLD and the incidence can be up to 80% of the cases.

The diagnostic can be made by palpation (thickening of the ligament and pain), ultrassonography, radiography and MRI[5]. Kinesiology taping can promote pain relief by placing a tape over the patellar tendon.

► **Figure 5.3.1 A and Figure 5.3.1B and Figure 5.3.1C** Tape for patellar desmopathy: position of the tape in the skeleton and in the dog.

5.4. Cranial Cruciate Ligament Disease (CCLD)

5.4.1 **The CCLD rupture**

Cranial Cruciate Ligament Disease (CCLD) is the leading cause of hindlimb lameness and stifle osteoarthritis in dogs[1].

The Cranial Cruciate Ligament (CCL) is composed of two bands, the smaller craniomedial band that is taut in all phases of flexion and extension and the caudolateral band that is taut in extension but lax in flexion. Together, these bands limits hyperextension, cranial tibial translation relative to the femur and internal rotation of the Tibia. The cranial cruciate ligament can rupture as a result of a traumatic event typically caused by hyperextension and excessive internal rotation. However, it is most commonly caused by long term degeneration whereby the fibres within the ligament weaken over time[11].

Usually a combination of risk factors (overweight dogs, straight limb conformation, breed, etc) results in abnormal

biomechanics (malalignment, conformational changes, altered kinematics, instability, muscle dysfunction, etc) and abnormal biology (cell/matrix disorders, degradation, inflammation, genetic, metabolic, etc.) can lead to CCLD. Because the CCLD is generally degenerative, a dog with a ruptured CCL has a great chance of rupturing the opposite CCL.The reported incidence of rupture of CCL in the contralateral limb is as high as 60%[4].

The instability caused by the CCL rupture may also result in lesion of the medial meniscus, once it is attached at the tibia at the back of the joint it can be injured by the femur. As the lateral meniscus is attached to the femur, it moves with the femur, rather than being injured.

In the case of ruptured CCL, the joint becomes unstable resulting in osteoarthritis.The instability of the joint can be manually detected by two tests: the palpable cranial draw movement and the tibial compression test[5,8].

The treatment plan would be promoting stabilisation of the joint which can be achieved surgically (the best option, specially for large breeds and dogs that are overweight) or with the use of orthotics, and reduce inflammation and delay the osteoarthritic process. Partial tears can be treated conservatively.

Non surgical treatment will involve non-steroidal antiinflammatory drugs to control pain and inflammation, reduction in weight, joint supplements, physical therapy, injections, and the use of orthotics (stifle joint device to support and align the injured limb).

Note

Kinesiology tape can help to promote some joint stabilisation but it is not comparable to the surgery or the orthotics neither in the degree of the stabilisation nor in its duration (it lasts for a few days, while the surgery promotes a permanent stabilisation). But it can be a useful procedure before the surgery is performed or while the ortothic device hasn't yet arrived (usually custom made and takes some time to be made and shipped) or to help stabilisation in conservative treatments.

5.4.2 The contralateral limb

As a high incidence of CCLD in the contralateral limb is reported, it is important to give the contralateral limb some support. A study that evaluates the progression of the osteoarthrosis in the contralateral stifle joint in dogs with rupture of the cranial cruciate ligament have reported that, the earliest radiographic changes are the changes in the periarticular soft tissues and the proximal displacement of the infrapatellar fat pad along with caudal displacement of the joint capsule, changes that are indicative of joint effusion. Periarticular osteophytes develop early after the rupture of the CCL and can be observed macroscopically as early as three days after experimental transection and, radiographically, as early as two or three weeks. Periarticular osteophytes usually appear first on the medial and lateral femoral trochlear ridges and the distal edge of the patella. Later in the disease process, the osteophytes form at the proximal edge of the patella, the fabella, the attachment sites of the ligament and the caudal tibial plateau. Osteophytes formation is more extensive in large breeds than in smaller ones. Sclerosis of the tibial plateau and of the long digital extensor muscle groove was also reported, specially between 6 and 12 months. Dogs with unilateral rupture of the CCL , shift their body weight away from the unstable and painful joint by increasing the loads on the forelimbs and contralateral hindlimb, leading to osteoarthritic changes[3].

As the contralateral limb experience more load and a certain degree of inflammation according to these radiographically findings, kinesiology taping can be used on the contralateral limb for pain as in ► **Fig. 5.4.3B**, to promote more confort for the dog and also for support (► **Fig. 5.4.4M** and ► **Fig. 5.4.4N)**, once the chances of having ruptured the CCL in the contralateral limb are high.

5.4.3 The surgical repair

The surgery is the best method to achieve stabilisation in the joint and it is usually the best option for large dog breeds, overweight dogs, etc. The most common surgical procedures, in these cases, are:

Tibial Plateau Levelling Osteotomy (TPLO), Tibial Tuberosity Advancement (TTA) and the LFS Lateral Fabellotibial Suture. Once the surgical procedure is performed, kinesiology taping can be used to reduce pain

MEDICAL TAPING CONCEPT

Kinesiology Taping is a technique widely used in humans and with great potential to be used in small animals. Several problems can be treated such as: pain, swelling, scars, facilitating muscle contraction or relaxation, correcting abnormal movement or posture and many others.

This book will give you the foundation to understand the technique and how to apply it to the main problems in dogs. Due to the technical terms this book is aimed at veterinarians, veterinary physiotherapists and therapists. The richly illustrated step by step guidance sections make it easy to put each application into practice.

Dr Solange Mikail, who is a Diplomate at the American College of Veterinary Sports Medicine and Rehabilitation, combined her knowledge of orthopedics with this useful technique and the result was a very complete book that brings innovative applications.

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