

# Canine Cranial Cruciate Ligament

## Physiotherapy Treatment and Rehabilitation

Cranial cruciate ligament (CCL) injuries to the dogs' knee (stifle) is one of the most common causes of canine hindlimb lameness. Typically this disease is degenerative, however, injuries can also be caused by traumatic incidents.

CCL problems are frequently reported in medium to large breeds with an average age between 6 – 8 years old. However breeds of any size and age can also be affected.

Loss of the CCL support eventually leads to osteoarthritis. In many cases surgical intervention is recommended to help overcome this, although conservative management may also be possible. Following surgery, studies show that *“post-operative rehabilitation, improves range-of-movement and that long-term these exercises should be continued”*.



Physiotherapy aims are to improve the muscle strength of the primary stance group, namely the quadriceps and hamstrings muscles. Improving the tone of these muscles reduces the potential for osteoarthritis.

These aims are achieved by a mixture of electrotherapy, treadmill walking, massage, stretching and targeted 'weight-bearing' exercises. The continuing assessment of treatment programs are achieved by a combination of reviewing the joint movement, muscle tone, weight bearing, sitting / lying positions and the dog's ability to move into the stand position.

### Benefits of Physiotherapy Treatments:

- Improve range-of-motion, especially in the stifle (knee) joint
- Reverse the potential of muscle wastage and rebuild muscle tone
- Improve the evenness of rear-end weight bearing
- Reduce the potential and progression of osteoarthritis

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## Treatment<sup>1</sup> Options

Treatment stage and Aims:	Conservative	Stabilisation	TPLO <sup>2</sup>
<b>1) Reducing pain / atrophy and improving stifle range-of-movement (ROM)</b>	Long wave therapeutic ultrasound, passive ROM and short treadmill sessions. Owner exercises to complement.	ROM, massage and stretching to relax muscles and reduce edema. NMES and TENS to prevent atrophy and pain.	ROM, massage and stretching to relax muscles and reduce edema. Slow lead walking, supported if necessary.
<b>2) Restore ROM to a more normal / natural state</b>	Long wave therapeutic ultrasound, passive ROM and medium length treadmill sessions. Home exercises including moderate on-lead, slow walking.	Lead walking and simple balance to encourage affected limb use. Begin treadmill work and continue with NMES.	LASER treatment and ROM to encourage affected limb use. Short lead walking followed by PEMF.
<b>3) Improve weight bearing, muscle tone and proprioception</b>	NMES to help build muscle tone. Treadmill walking including incline and decline work.	Improve weight bearing at the walk and trot. Incline walking, exercises to improve muscle tone <sup>3</sup> .	Progressively increase walking time. Exercises to improve muscle tone and balance. Additional LASER treatment including the patella tendon.
<b>4) Improve endurance, stamina and strength</b>	Continue treadmill work, including incline and decline to build strength in hindlimb and groin muscle groups.	Increase limb use and strength by using treadmill, light play and proprioception exercises. Finish sessions with PEMF treatment	Longer lead walking with directional changes and trotting. Increase limb use and strength by using treadmill <sup>3</sup> .
<b>Maintenance programs</b>	Exercises including sit-to-stand, light jumping, hill walking, advanced proprioception.	Daily exercise at a consistent pace. Weight management to help prevent undue pressure on joint on progression of osteoarthritis.	

1. No running, jumping, leaping etc. means just that. Cage rest is specified by many practitioners to avoid destructive situations such as 'jumping on the couch, running to the doorbell'. Comfort breaks and any walking programs recommended here should be on a lead and under the strictest control.
2. Tibial Plateau Levelling Osteotomy.
3. At this stage aquatic therapy is an option.

## Hiring Units

NMES and PEMF are suitable for home use and it is possible to hire these machines. For more details and pricing please visit <http://goo.gl/JuiMdZ>.

*Note: Symptoms may worsen slightly after initial treatments due to the initiation of the healing process and is perfectly normal. Each dog and case will be different and information is outlined for reference purposes and is not indicative of any particular treatment or outcome. Before any advice, treatment or consultation is entered into, you must agree to our terms and conditions of practice. Hiring an electrotherapy unit will require a refundable deposit.*