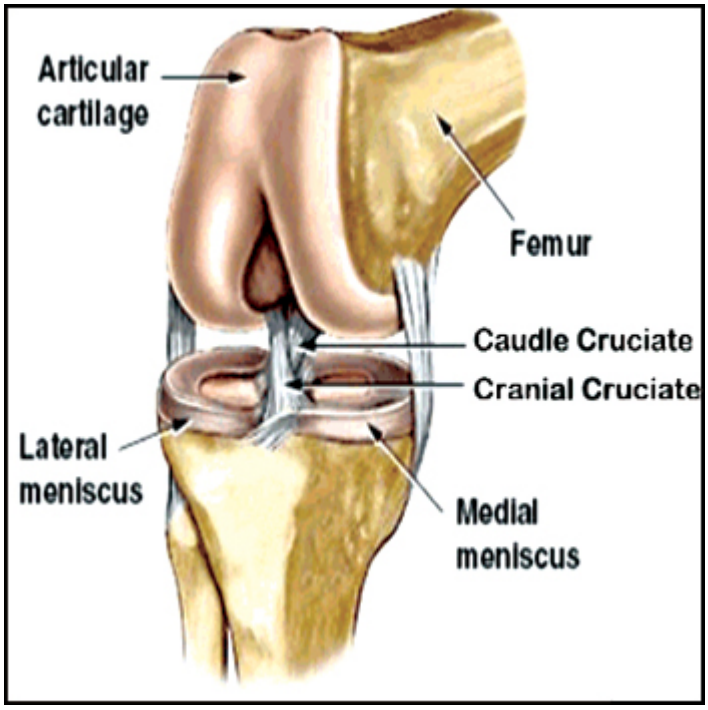
My pet has sprained or ruptured a cruciate ligament – what is a cruciate ligament?



In the knee, dogs and cats have two very important ligaments – called the cranial and caudal cruciate ligaments. The Cranial cruciate ligament is most often damaged, it is damaged in dogs more than cats, and more in certain breeds such as Labradors than others; there is often an associated injury of the medial meniscus.

The picture opposite shows, from the front, a bent knee with the important structures labelled (the knee cap has been removed from the picture for clarity).

What do these structures do, and why must we deal with any damage?

The Cranial Cruciate ligament anchors the bone above the knee (Femur) to the front of the bone below the knee (Tibia). Without this anchor there is instability of the knee and the femur slides back, and forth. This abnormal movement causes pain, damage and eventually arthritis.

The Medial Meniscus along with its partner, the lateral meniscus, provides an essential cushion within the knee and prevents the Femur banging against the Tibia.

What will Gatehouse Vets do to diagnose the problem?

Initially, we administer a general anaesthetic and this allows us to achieve two primary tests. To **manipulate** the knee while it is as relaxed as possible to judge if there is any instability in the knee which would imply the cruciate ligament is damaged. And, to **xray** the knee, to check for any arthritic development or other signs of boney damage. Note that neither test will be able to assess damage to the meniscus (this is done later if surgery is performed). On rare occasions samples of the fluid from the knee may be taken for further tests.

What are my choices, at Gatehouse vets, to repair the damage?

- Strict rest and Anti-inflammatory drugs
- Surgery to assess the meniscus and stabilise the knee using a Lateral fabellotibial suture technique
- Surgery to assess the meniscus and stabilise the knee using a type of TTA (Modified Maquet's procedure)

Each of these options will now be briefly discussed but can be gone over in greater detail with the vet dealing with your case, or indeed the surgeon carrying out the procedure. In common to all the surgical procedures we will provide a high level of surgical asepsis to minimise the risk of infection to your pet; along with a high level of pain relief, including possibly an epidural, to minimise your pet's discomfort.

Rest and Anti-inflammatories

This is an option available really only to dogs less than 15kg in body weight. In essence, your pet must be restricted to one room for 2 months and only allowed brief lead exercise to go to the toilet. Non-steroidal anti-inflammatory

drugs will be prescribed to minimise the pain and inflammation while the knee tries to repair itself. **Free access to a garden is NOT advised during the first 2 months.**

Thereafter exercise on the lead can be introduced and increased gradually **till at 4 months after the initial injury** your pet has returned to normal exercise levels. During this whole process we would suggest a monthly check up (which would be free of charge if no other procedure or examination is carried out). Please note it is likely ill-advised exercise will only undo any repair your pet's knee has achieved and this damage would likely then be permanent as the knee is unlikely to attempt to repeat that repair work.

Advantages:

- Minimal cost
- No surgery required and no associated risks or complications

Disadvantages:

- Unsuitable if dog weighs over 15kg or if a very bad tear of ligaments has occurred
- As no surgery then no assessment of meniscus is carried out. However, it is known damage to the meniscus is less likely in small dogs.
- Lot of time and supervision required
- If the strict regime of rest is not adhered to then the outcome is likely to be less than favourable

Likely outcome:

- In dogs below 15kg the outcome is as good as any of the surgical techniques currently available

Surgery to assess the meniscus and stabilise the knee using a Lateral fabellotibial suture technique

This time, as surgery is involved, we can open the knee to assess the state of the meniscus and remove any badly damaged parts which otherwise would continue to cause discomfort and interfere with the good function of the knee.

Then, from the diagram opposite you will see that two holes are drilled in the bone below the knee (Tibia) and a double strand of nylon is threaded through this tunnel and looped around a small bone above the outer side of the knee (fabella) and then this suture is secured with metal clips.

This suture is designed to stabilise the knee for 8 weeks to allow it time to stabilise. It is not a problem if the suture then breaks after 6 weeks – indeed this is to be expected and requires no intervention as it will have done its job by then.

Advantages:

- Less expensive than TTA
- As surgery involved will allow removal of any damaged part of meniscus
- In cases when there is total rupture of the ligament the outcome is as good as with the TTA's

Disadvantages:

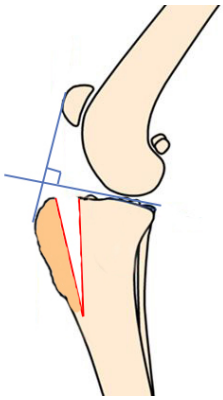
- Restricted exercise for 2 months is still required but it is less strict and important than in first method as suture is in place to help **but again unrestricted exercise could lead to early rupture of the suture and thus must be avoided.**

- As with all surgery infection remains a risk – we estimate this to occur in 3% of cases
- Despite a lack of evidence perceived wisdom is this technique may not be the best option in ypoung; large or exuberant dogs.

Likely outcome:

- The majority of dogs, with no significant meniscus damage, will regain 95% of their normal function
- In dogs with meniscus damage the end result is reduced in line with the severity of the damage.

Surgery to assess the meniscus and stabilise the knee using a TTA (Modified Maquet's procedure)



Again, as surgery is involved, we can open the knee to assess the state of the meniscus and remove any badly damaged parts which otherwise would continue to cause discomfort and interfere with the good function of the knee.

Then, a form of TTA (Tibial Tuberosity Advancement) named after the surgeon who first developed it (Maquet) is carried out. This involves making a cut in the bone (tibia) just below the knee (as in first diagram). Then a wedge is driven into the gap and held in place by a combination of wires and pin (see xray below).

The knee should not be put under too much pressure for the next 8 weeks to allow it time to stabilise.

Advantages:

- As surgery involved will allow removal of any damaged part of meniscus
- In cases when there is only partial rupture of the ligament the outcome may be better than the lateral fabellotibial suture

Disadvantages:

- Most expensive option
- Restricted exercise for 2 months is still required but it is less strict and important than in first method as wedge is in place to help **but again unrestricted exercise could lead to damage to the fixation and thus must be avoided.**
- As with all surgery infection remains a risk – we estimate this to occur in 3% of cases
- Because we are using a lot of implants rejection by the body is a risk – we estimate this to occur in 3% of cases
- There is a weak point at the bottom of the cut and the bone could break so weakening the effect of the surgery – we estimate this to occur in 25% of cases

Likely outcome:

- The majority of dogs, with no significant meniscus damage, will regain 95% of their normal function
- In dogs with meniscus damage the end result is reduced in line with the severity of the damage.

So what procedure is suggested at Gatehouse Vet Centre

Ideally in:	Suggested procedure	Likely cost	Alternatives?
A partial or complete tear in dogs less than 15kg body wt	**2 months strict rest and painkillers, followed by 2 months of controlled exercise**	**£60**	**Only consider if failure to respond**
A complete tear in dogs less than 2 years of age	**TTA**	**£2,500**	**Lateral suture**
Dogs over 2 years of age but not overly athletic and less than 35kg body wt	**Lateral suture**	**£1,000**	**TTA**
Dogs **over 2 years** of age which are **very athletic** OR **over 35 kg** in body wt	**TTA**	**£2,500**	**Lateral suture**
Dogs over 15 kg body wt with a PARTIAL tear	**TTA**	**£2,500**	**Lateral suture**

As always if you have any questions then please contact us on 01244 570364