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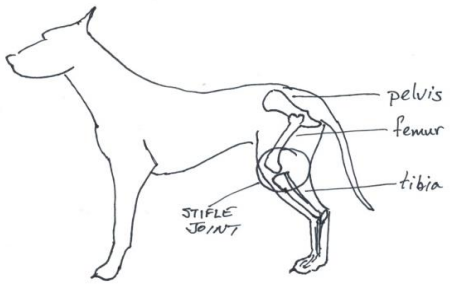
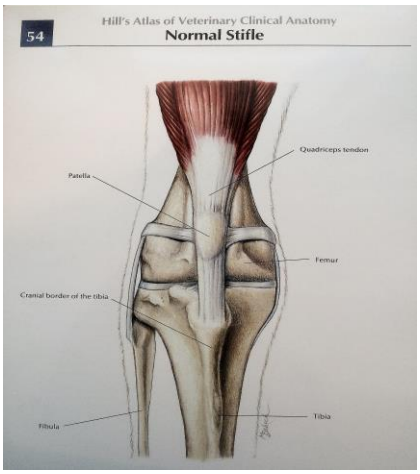
Patellar Luxation

The Patella

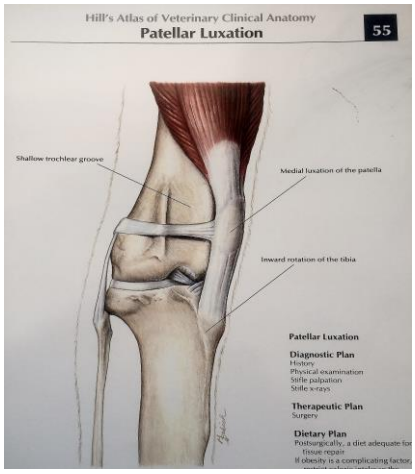
The patella (the "knee cap") is one of several structures in the stifle (equivalent to our knee) that provide joint stability and allow normal function. The stifle is the joint formed by the femur, tibia and patella and is a basic pulley system that allows the lower leg to swing in a backward and forward direction like a pendulum.





A large group of muscles at the front of the upper leg known as the quadriceps originate from the femur and insert on the tibia. The tendon of insertion is called the patellar tendon and contains the patella within it. The patella rides in a groove at the end of the femur called the trochlea. When the quadriceps muscles contract, the tendon pulls on the tibia and the lower leg swings forward in extension. The pulley formed by the patella riding in the trochlea substantially multiplies the force applied by the muscle contraction and keeps the mechanism aligned so that the force is translated through a straight line.

Patellar luxation occurs when the patella becomes dislodged from the trochlea - "dislocates" or luxates – and rides along the side of the trochlea instead. The patella can luxate either medially (towards the middle of the body) or laterally (away from the middle of the body).



Medial patellar luxation is by far the most common and occurs as a result of one of either a deformity to the limb, severe hip dysplasia or rupture of the cranial cruciate ligament. It is most

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commonly seen in miniature and toy breed dogs but can be seen in any breed and is usually bilateral (both hind legs affected). The most commonly affected breeds include Jack Russell Terriers, Toy Poodles, Yorkshire Terriers and Pomeranians. Cats are also occasionally affected.

How Do I Know If My Dog Has Patellar Luxation?

Patellar luxation is diagnosed by performing a physical examination and obtaining x-rays. It can be diagnosed as an "incidental finding" during a routine check-up or as part of an orthopaedic exam to determine the cause of a lameness issue. Signs associated with patellar luxation can range from absent (ie – dog shows no lameness or indication of problems), to non-weight-bearing lameness. Dogs affected with severe bilateral disease usually have a very bizarre gait and posture where their back is arched, both stifles are externally rotated and the feet are carried far forward under their body. They may also attempt to walk only on their front legs – ie. perform a "hand-stand".

Most dogs with clinical signs have a gait that is described as "hopping" or "skipping", where their gait is mostly normal but the dog will occasionally lift the affected leg for several strides and hop on three legs. This occurs as the patella dislocates and then pops back into proper position. Clinical signs are a manifestation of the mechanical problem caused by luxation and a response to pain.

Patellar luxation is graded on diagnosis which is both an indication of severity and what is physically happening to the patella during gaiting. Grade 1 occurs when the patella can be luxated with finger pressure but returns immediately to its normal position when released. Grade 2 occurs as above but does not return to normal position when released. Grade 3 occurs when the patella is always luxated but can be pushed back into the grove with finger pressure. However it will immediately re-luxate when released. Grade 4 occurs when the patella is luxated and cannot be replaced into normal position.

When you present your dog to your veterinarian for a lameness problem, a complete orthopedic examination is usually appropriate to obtain a proper diagnosis. The lameness exam should include a gait evaluation, a complete physical examination including a detailed examination of all 4 legs with the dog awake, and a proper orthopedic examination. The orthopedic examination itself is a very detailed examination of all 4 limbs and all of the joints of those limbs. This examination must be performed under sedation and includes a number of manipulations and physical tests to determine the full extent of any existing orthopedic problems. Good quality,

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properly positioned radiographs of any affected limbs and joints are then obtained to assist diagnosis and plan appropriate treatment.

Patellar Luxation, Progression and Arthritis

Clinical signs and secondary problems associated with patellar luxation can be highly variable. As a result, treatment recommendations are dependant on the particulars of the individual problem(s). Patellar luxation is usually chronic but can occur acutely due to trauma or be associated with rupture of the cranial cruciate ligament. All cases of patellar luxation require surgical correction regardless of grade. Grades can change with time (for the worse), and dogs that were previously not showing clinical signs can suddenly become clinical. Untreated patellar luxation puts patients at high risk of cartilage loss and later rupture of the cranial cruciate ligament.

Medical Management

All grades of patellar luxation require surgical correction of the underlying condition as well as any secondary problems. However, medical management is necessary pending surgery, in the perioperative period (during recovery) and after surgery to manage joint disease. It is important to understand that surgery is a very important event, but management of degenerative joint disease is life-long. No matter how good a job the surgeon does, it is important to understand that some arthritis will develop over time.

It is also important to understand that arthritis is not a disease. Hip dysplasia, cruciate ligament disease, patellar luxation, etc, are diseases. These diseases cause inflammation; arthritis is simply inflammation with the addition of time. As such, the goal of **all** of our therapies is to prevent or suppress inflammation, thereby preventing the development of arthritis, and protect the cartilage from damage. Once cartilage damage occurs it is permanent; damaged cartilage cannot be restored.

Weight, Diet and Degenerative Joint Disease

In any patient with any orthopedic disease, the most important factor impacting the development of disease, prognosis and treatment, is the weight of the patient. This is true with respect to the relative weight of the dog (St. Bernard v. Chihuahua) but especially with respect to obesity. **Regardless of the orthopedic condition, failure to recognize and address issues of diet and obesity will result in treatment failure, no matter how much is invested in treatment and surgery.** Some surgeons have a policy of declining to perform surgery until obesity issues are resolved due to the higher complication rate, increased difficulty in performing procedures and sometimes demonstrated failure of compliance on behalf of the client. Your veterinarian should provide specific dietary recommendations including not only a specific diet(s), but strict feeding guidelines also that include specific measuring instructions and complete diet counselling. Any complicating medical conditions such as hypothyroidism need to be diagnosed and treated.

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Joint Diets – Therapeutic diets are very commonly employed in the treatment of many diseases in veterinary medicine. These diets are intended to produce a clinically measurable impact, just like any other treatment that we prescribe to treat disease. These diets are designed not only to deal with inflammation associated with joint disease but are excellent at addressing weight issues that will have the most impact on patient outcomes. The product that we use in our hospital is j/D®, produced by Hills. There is a companion diet, Metabolic plus Mobility® that we use to manage dogs with significant weight problems. We use these diets for specific reasons that are discussed in detail during our orthopedic consults. This is an essential component of the long-term care for these patients and will determine their outcome.

Therapeutics

Chondroprotectants – Recent large-scale studies have shown that glucosamine and chondroitin have no therapeutic value unfortunately. However, since it is important that patients be on an effective long-term joint supplement to protect cartilage, many surgeons now recommend a product called Flexadin, which has good evidence to support its use. This is usually prescribed and supplied by our hospital during the initial consult and can be obtained from your regular veterinarian thereafter.

NSAID's - All dogs presented for severe luxation/ degenerative joint disease initially start on NSAIDs as this is our primary means of immediately addressing pain and inflammation. Dogs with less severe clinical signs mayyy or may not be prescribed NSAIDs depending on the situation. While our other therapies are just as good at addressing these issues they all take a significant amount of time to start having an effect – drug therapy is immediate. Often we will withdraw the NSAID's if possible when other therapies have had time to take effect. A number of options are available, including some newer products that have a reduced incidence of adverse effects.

Surgical Management of Patellar Luxation

There is always one of three underlying problems present that leads to patellar luxation: angular limb deformity, cranial cruciate ligament disease or significant hip laxity (dysplasia). Additionally there are often secondary problems

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that develop as the animal grows or over time, such as a trochlear groove that is too shallow or contracted soft-tissues among others. Patellar luxation represents a complex issue or issues in our patients. Unfortunately, our profession has done a poor job historically at educating both veterinarians and pet owners on the nature of these problems.

Previously, a "cookie-cutter" approach has been advocated for addressing this problem, with often poor results and relatively high complication rates. Fortunately, in recent years this approach has been abandoned in favour of understanding and identifying the underlying cause of the individual patient's problem and specifically correcting the underlying issue – with much better success.

It is beyond the scope of a client handout to attempt to list and review all of the possible under-lying causes and their individual treatments. During your pet's pre-operative work-up and consult, the surgeon will review the specific diagnosis and treatment plan with you in detail.

Post-Operative Care

Client compliance with post-operative care is extremely important – **failure to meticulously follow instructions can, and usually does result in severe complications and treatment failure.** It is our preference whenever possible to provide complete and comprehensive case management for the entire post-op period. Pain management such as NSAIDs, opioids (codeine), bandaging, etc, will be provided as is a short course of antibiotics. Physiotherapy is a crucial component of post-op management and instructions are given at discharge. Physiotherapy includes icing, passive range-of-motion exercises, massage and controlled leash walks. Other than prescribed physiotherapy, absolute exercise restriction is necessary and off-leash activity is strictly forbidden. Unrestricted access to flights of stairs in the house is to be avoided, however going up and down exterior stairs to get in or out of the house is permissible (on-leash only!).

Sutures and island dressings are removed after 14 days and a post-op recheck and x-rays are performed at 8 weeks. Final instructions for return to normal activity will be provided at the conclusion of this reassessment. For dogs with bilateral patellar luxation, the second surgery can be booked at 8 weeks post-op if the recheck and x-rays show sufficient function and healing.

Cost

Orthopedic exam: $850 + HST

- includes consult, sedation and whatever xrays are necessary

Surgeries:

- cost of surgery is dependent on the procedures required but typically ranges between $4000-4500 + HST. An exact quote will be provided prior to surgery
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****A non-refundable deposit of $500.00 is due at the time of booking any orthopedic work-up. Deposits for Patella Luxation surgery are $1500.00 due at time of booking and are 100% non-refundable.**

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****Financing options are available. Please contact reception for further details.**

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<u>NOTE:</u> Surgical discharge with Dr. Rocheleau is scheduled for 8:30am the morning following surgery (unless otherwise stated). It is imperative that a patient's owner(s) be present at the hospital at this time. <u>Failure to do so will result in a missed surgical discharge and may lead to post-operative complications which will be at the expense of the owner(s).</u>