

# **A Proposed Voluntary Patella Scoring Scheme**

**Andre Hess MRCVS**

## **Introduction**

It is not uncommon, amongst small dogs of all breeds and none, to present with a condition called 'slipping patellas' or 'luxating patellas'. Typically, these dogs will be running or walking perfectly normally, then suddenly carry one hind leg for a short distance, then carry on normally. These dogs are not necessarily in pain, and it is sometimes even seen as an endearing feature. At worst, that dog will not put that foot back down on the ground for much of the time or at all, and it eventually becomes painful.

## **What is the Patella?**

It sounds like a musical instrument, but the Patella is, in fact, the knee-cap - a flat, roughly disc-shaped bone sitting on the front of the knee joint. The large muscles on the front of the thigh are attached to the top of the knee-cap by means of strong ligaments, and at the bottom it is attached to the Tibia bone by means of a short, even stronger, fibrous ligament. The patella rests in a groove at the bottom end of the femur (the thigh bone), called the trochlea.

Normal anatomy, including 'turn of stifle, allows the Patella to move only up and down, but never sideways.

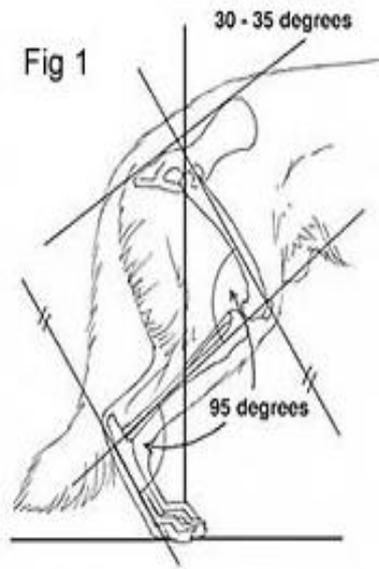
## **Why does it go wrong?**

It goes wrong for one or both of the following reasons:

- ≡ The groove in the end of the thigh bone is too shallow and the Patella is allowed to slip out of it and come to land on the 'body-side or the 'outside' of it. Some of us will remember when we were young and could move our knee-caps from side to side.
- ≡ The knee joint is too upright, and, for mechanical reasons, the Patella is able to slip out of its groove (shallow or not) too easily. One of the reasons this happens is because the hock (that sharp point at the back of the leg) is too 'low'. In other words, the distance between the hock and the ground is small. This forces the knee joint into extension (the stretched position), making the joint vulnerable to partial or even complete patella-luxation.

Both features can contribute to hind 'movement problems', without producing actual lameness.

The illustration below, Figure 1 (thank you to [www.lobocinza.blogspot.com](http://www.lobocinza.blogspot.com)) shows the correct conformation for the hind legs of any dog, large or small.



It is fairly easy to see that any feature that increases the angle of the knee joint (95 degrees as shown) – in other words, ‘straightening’ it – will make that knee joint appear more upright. This, alone, might lead to a Patella that slips out of its groove more easily.

### What happens to the leg when the angulation goes wrong?

- ≡ When, as a consequence, the Patella dislocates sideways, that leg is unable to carry weight normally. That is, the mechanics of the leg has failed. The dog has a ‘Luxating Patella’.
- ≡ If this happens often enough, and for long enough, and the condition is untreated, the knee joint can become ‘arthritic’. This happens when the joint becomes inflamed, the joint surfaces are worn down, and ‘extra’ bone is deposited in the inflamed tissue in the body’s attempt to stabilise matters.
- ≡ The Cruciate Ligament becomes prone to damage because it is exposed to abnormal mechanical stresses.
- ≡ It will eventually become painful.

### How does it affect the show dog?

The healthy and successful show dog is required to show the correct ‘movement’ and travel in a balanced and ‘driving’ way, and appear ‘light on its feet’ as it goes. This drive and power should come entirely from the hindquarters when on level ground.

When stacked on the show table, and the handler places the back feet, there must still be a discernible angulation of the knee joint. This is referred to as ‘turn of stifle’. When pressure is exerted downward on the hindquarters in this position, there must still be ‘springiness’ in the knee joint. The knee that is too ‘upright’ will lock, and any springiness will come from the hock joint and/or the hip joint instead. The leg with a too-upright knee will lack muscle at the

front of the thigh especially when in the extended position. The sharp judge will notice this immediately.

A show dog can be made to look like it has a good stifle joint by judicious grooming.

When stacked on the table, a dog with a low hock joint will produce a lovely shape when viewed from the side, but that same dog might have a knee angulation that is too large (a knee joint that is too upright). It will have less muscle in its upper leg. It may depend too much on its forelegs for forward motion. It may sometime move in an 'unsound' way, on one side or both. This fault may vary from subtle to obvious. These dogs sometimes throw their forelegs too high and too far forward in their keenness to cover the ground. In a working dog this might be seen as wasting energy.

There is a conformational feature called 'overangulation of the stifle'. This dog will be noticeably higher on its hocks and produce an exaggerated 'turn of stifle'. This is very unlikely to produce lameness, or make a dog go 'unsound'.

### **What do you do when your dog is diagnosed with a Luxating Patella?**

- ≡ A mild form of the condition may not require any treatment or management at all.
- ≡ When a dog carries its leg only very rarely, this can be left untreated. These may sometimes even stabilise and the knee-cap 'pops' out less and less frequently.
- ≡ In slightly more severe cases, owners learn to 'pop' the knee-cap back, and the dog runs/walks normally thereafter.
- ≡ If the dog carries its leg noticeably more, or even all the time, then surgery should be considered. This may be deepening the patella-groove (the trochlea), relocating the patella, and 'embrocating' the joint sheath so that the knee-cap stays in the correct position. In dogs that are also 'bandy', however, the tibial crest (that pointy bone just below the knee-cap) might need transplanting sideways by a short distance additionally.

### **The Proposal**

Many will remember the Club's voluntary Cardiac Auscultation program we ran over several years. In it, Norfolk Terrier owners were invited to bring their dogs along to me to have their hearts checked for murmurs. This included pet owners and several large and small kennels. The results produced were remarkably consistent with the results from the Norfolk Terrier Breed Health Survey of 2014/15, as well as those produced by respected international results for dogs in general. That initiative was, therefore, deemed a success.

We would like to repeat that success with the knee.

(The Breed Health Survey did not ask specifically about the knee because luxating patellas don't actually pose a 'health problem' in most cases, and almost none were reported to the Health Snapshot or to the Breed Health Survey itself).

You are invited to offer your dog(s) for the new survey whether they have been diagnosed with knee problems or not. We would like a variety of ages to be represented in the results, but only dogs older than one year will be entered on the survey.

We therefore invite owners of Norfolk Terriers to approach me at any convenient time to ask that their dog's knees be 'scored'. You will be given the results at the time, and advice offered where necessary. The results will be logged only with a number and the score.

These scores are not required by the Kennel Club.

### **How is the knee scoring done?**

You will be asked a couple of questions regarding your dogs hind quarter movement and history of lameness/limping/carrying the leg/pain/etc. The vet will view your dog in its normal standing position, as well as walking. Then the vet will feel the patella and the knee joint.

The system we will use to classify the results of the examination will be the *Putnam Patellar Luxation Grading System for Dogs*.

### **Putnam Patellar Luxation Grading System for Dogs**

The system grades dogs from **Grade 0**- no luxation present- normal, to increasing severity from **Grade 1-4**.

- **Grade 0:** Normal
- **Grade 1:** The patella can be manually luxated/dislocated only with the knee in full extension, but when pressure is released without manipulation of the limb the patella regains its original position. Spontaneous luxation of the patella during normal joint motion rarely occurs in these dogs. These dogs present as 'normal' (in that they are almost never obviously lame), but might move 'oddly' at times.
- **Grade 2:** The patella can be completely luxated/dislocated, but manipulation of the hind limb (flexion of the stifle) causes the patella to regain its original position immediately. On physical examination, the patella luxates/dislocates easily, especially when the paw is rotated inward.
- **Grade 3:** The patella is found (on one occasion at least) spontaneously luxated/dislocated with the animal in a standing position. Or it is 'permanently' luxated/dislocated but can be repositioned manually (after which the dog moves as it did before that particular luxation). In these dogs the patella groove is too shallow – this can be palpated at the time. These dogs sometimes carry the affected limb some of the time.
- **Grade 4:** the patella is permanently luxated/dislocated and cannot be repositioned manually. These dogs are not be able to walk normally, or might move in a crouched position with both limbs partially flexed. Some carry the affected limb all or some of the time. The patella groove is shallow, absent, or even convex.

### **Conclusion**

So, as with the Cardiac Auscultation Survey, all you have to do is to get in touch me at shows and Fun Days, or organise that I visit your kennel. The results will be relevant to your dog, but will also contribute towards the health data base for the Norfolk Terrier. This survey will add to an increasing body of work done by the Health Subcommittee of the Norfolk Terrier Club of Great Britain, and of which we can be proud.

Copyright Andre Hess MRCVS and the NTCGB