



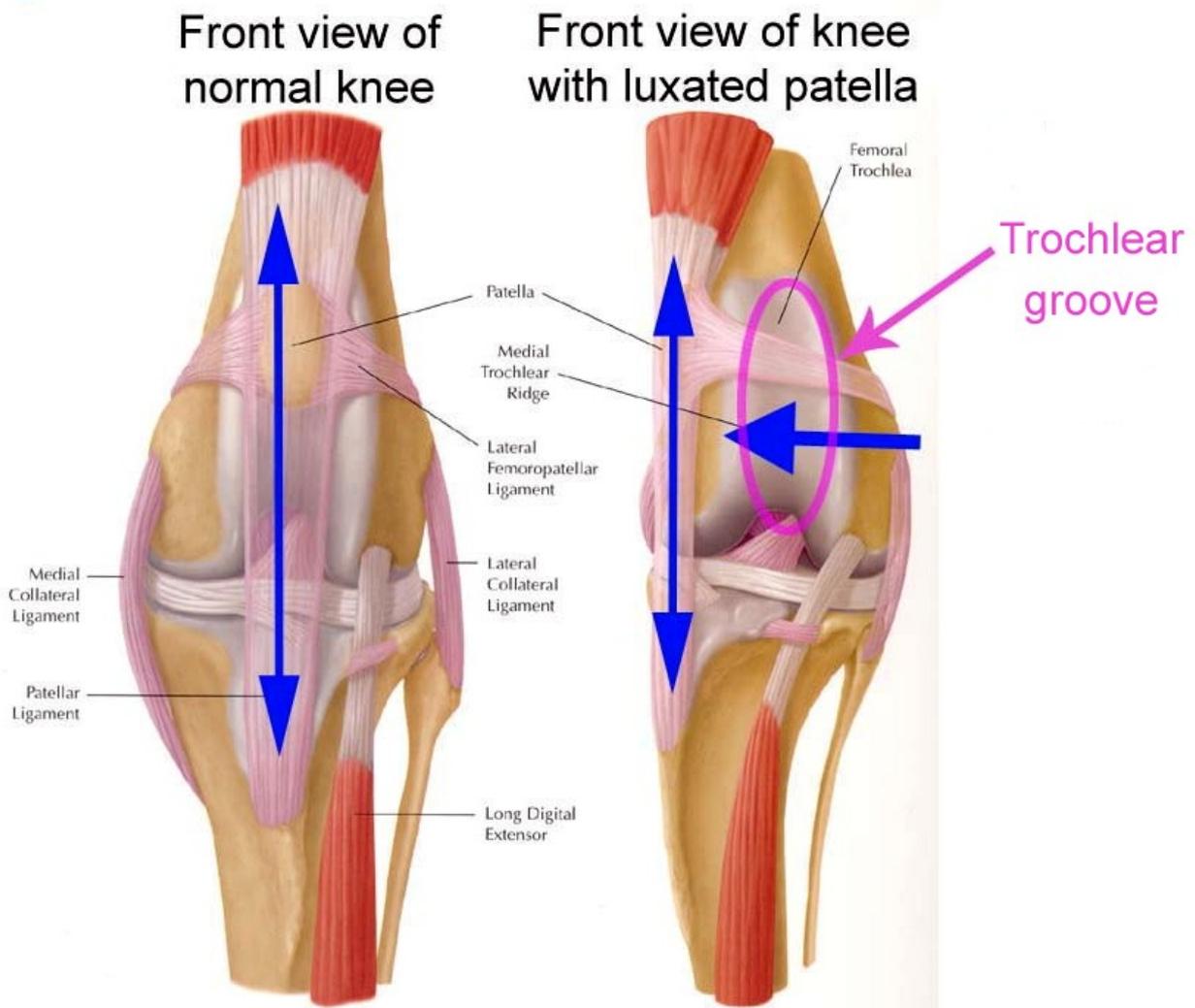
The United Kingdom Miniature American Shepherd Club

Patella Luxation testing & the Putnam 1968 scoring scheme in the Miniature American Shepherd

Patella luxation ('PL') in dogs is a condition where the patella or 'knee-cap' can move from its normal central position in the trochlear groove at the front of the knee or 'stifle joint', to one side or the other. This condition is more common in the smaller breeds of dog, however it does sometimes occur in large breeds and also cats. PL occasionally occurs in the MAS and UKMASC advises all breeders to have their potential breeding stock tested as part of their routine pre-breeding health tests.

In dog breeds the most frequent direction of abnormal movement or 'subluxation' is towards the midline of the dog - 'medial patellar luxation'. Medial luxations account for 75% to 80% of cases in all breeds. In some cases the subluxation can be away from the midline of the dog and is called 'lateral patellar luxation'.

Trochlea (Latin for pulley) is an anatomical term which refers to a grooved structure reminiscent of a pulley's wheel.



What are Patella Luxation testing & scoring schemes?

PL testing & scoring schemes in dogs are organised by many responsible breed associations or societies in breeds which have an increased frequency of the problem.

The dog breeder or owners take the dogs which they plan to breed from for an examination by a veterinary surgeon who is familiar with the Putnam Patellar Luxation Grading System. The assessment is normally performed during an orthopaedic examination without sedation. X-rays are not required but may be arranged if requested.

In the UK & Ireland there is no official Kennel Club testing scheme for PL as there are for Hip & elbow dysplasia and eye screening. However some breed Clubs, including UKMASC, hold a database of those dogs which have been checked for PL using the Putnam (1968) testing and grading system.

What do the scores mean in the Putnam Grading system?

The Putnam grading system grades dogs from Grade 0 (no luxation present - normal) to increasing severity from Grade 1 - 4.

The following description is used by some breed societies as guidance although slight variations in the wording and description exists between breed societies.

Grade 0	Normal
Grade 1	The patella can be manually luxated with the stifle in full extension, but when pressure is released without manipulation of the limb the patella regains its original position in the trochlea. Spontaneous luxation of the patella during normal joint motion rarely occurs. Typically stifle and hock in a straight line with no deviation of the hock.
Grade 2	The patella can be completely luxated, but manipulation of the hind limb (flexion of the stifle) causes the patella to regain its original position in the trochlear. On physical examination, the patella luxates easily, especially when the foot is rotated.
Grade 3	The patella is found (at least once) spontaneously luxated with the animal in a standing position or it is permanently luxated but can be repositioned manually or by manipulating the limb. Very shallow or flattened trochlear.
Grade 4	The patella is permanently luxated and cannot be repositioned. May scarcely be able to walk or may move in a crouched position with both limbs partially flexed, and/or they may carry the affected limb. Trochlea is shallow, absent or even convex.

Excessive force should not be used when manipulating the patella.

Grades 1 and 2 are considered as intermittent PL.

Grades 3 and 4 are considered as permanent PL.

Why should dogs be tested before breeding?

The overwhelming majority of patellar luxation are congenital and certainly hereditary, although a mode of inheritance has not been described*.

As the patella moves in and out of the trochlear groove, it can wear holes in the cartilage of the patella itself and in the ridge that it rides over when it luxates. This causes pain and triggers a cascade of progressive osteoarthritis. Also, the abnormal pull of the quadriceps muscles causes internal rotation of the tibia relative to the femur that can stress other structures within the knee, including the cranial cruciate ligament (CCL). The longer the patella spends outside its normal groove, the shallower the groove becomes.

PL can cause distorted conformation, restricted locomotion, long-term lameness and osteoarthritis. It is additionally estimated that at least 15% to 20% of dogs with PL will eventually rupture their cranial cruciate ligament. This is not what any breeder should choose to pass on to their puppies.

UKMASC Breeding Guidelines in relation to PL

Breeders are strongly urged to:

1. Exclude from their breeding plans any dog which
 - suffers from the clinical condition of PL
 - has been operated upon for PL
 - has a PL score of Grades 2, 3 or 4
2. Only breed a dog with a PL score of Grade 1, to a partner with a PL score of Grade 0.
3. Not repeat the combination of parent dogs who have produced direct offspring (F1) that
 - suffer from the clinical condition of PL
 - have a PL score of Grades 2, 3, or 4.

Where can I obtain the PL assessment form for my vet to complete?

UKMASC maintains a voluntary database of results for the Miniature American Shepherd. A link to the downloadable assessment form is on the links page of the main website www.ukmasc.com/links.html

Alternatively a printed version can be posted to you if you contact our Secretary, email info@ukmasc.com

If you are printing the assessment form yourself, ensure that the two pages are printed back to back on a single sheet of paper. When submitting an assessment form for the database, a photocopy or digital image of the first page only, is sufficient.

What is the cost of PL scoring by a veterinary surgeon?

The cost for performing this test will vary depending on the clinic you attend. Not all veterinary clinics will perform the test or be aware of the Putnam system so it is advisable to check availability and cost ahead of time. Ideally the test should be conducted by an orthopaedic surgeon who is experienced in the surgical corrective treatment of this condition.

UKMASC do not charge members for inclusion of their data on the database.

* *The Canadian Veterinary Journal* 08-2006 www.ncbi.nlm.nih.gov/pmc/articles/PMC1524842/