Relationship between tibial plateau angle and tibial tuberosity advancement requirement in 175 dogs with cruciate deficient stifles

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Tibial plateau leveling osteotomy (TPLO) and tibial tuberosity advancement (TTA) are both well established techniques for managing dogs with lameness resulting from failure of the cranial cruciate ligament. As the tibial plateau angle (TPA) increases the required rotation of the tibial plateau segment also increases, subjectively becoming more difficult to achieve. As the TTA required increases this too makes the procedure subjectively more difficult. This study examined the relationship between these two features to establish whether one technique might be more appropriate than the other for treating a particular patient. Measurements were taken from the stifles of 175 dogs being treated for cranial cruciate ligament insufficiency for which bodyweight, tibial plateau angle (TPA),

tibial tuberosity advancement requirement (TTAR) and the tibial width were recorded (either from the radiograph of the better positioned stifle or by averaging measurements from the two stifles). In order to account for some of the effect of skeletal size, tibial tuberosity advancement required was also calculated as a percentage of the tibial width (TTAR%).

The data collected were not normally distributed and were analysed by calculation of Spearman's rank correlation coefficient. A strong negative correlation was found for both TTAR and TTAR% with TPA (-0.73 and -0.86 respectively). TTAR showed a positive correlation with bodyweight (0.77), whilst TTAR% showed only a weak positive correlation with bodyweight (0.40), presumably because its calculation is influenced by bodysize. TPA showed a weak negative correlation (-0.37) with bodyweight. In all cases the relationships were found to be statistically significant ($P < 0.001$).

Clinical experience of the first author suggests that performance of TPLO surgery becomes increasingly difficult once the TPA exceeds 27 degrees and that of TTA surgery becomes so once the TTAR% exceeds 25%.

These results indicate that in dogs being treated for cruciate insufficiency, as the TPA increases (making the TPLO procedure theoretically more difficult) the TTAR% decreases (making the TTA procedure theoretically less difficult). Thus there may be grounds for considering which of these procedures to use on a patient by patient basis rather than adopting a "one size fits all" philosophy.

A rapid review of outcomes instruments used to assess canine osteoarthritis

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Osteoarthritis is reported to be a prevalent disease in dogs. Many treatments are available for canine osteoarthritis, with different combinations recommended by key opinion leaders. Evidence-based treatment guidelines are not currently available for this disease. Such guidelines are ideally derived from a synthesis of the available evidence, e.g. systematic review. Evidence synthesis requires multiple publications which assess sufficiently similar outcomes to allow for comparison of their results. Systematic reviews in medicine and veterinary medicine have been hampered by a lack of consensus as to which outcomes should be assessed.

An outcomes instrument is a specific tool used to categorise data about a specific outcome, e.g. lameness or pain. The aim of this review was to find, categorise and report the use of outcomes instruments described in the published literature on canine osteoarthritis. The objective was to systematically review the peer-reviewed publications on canine osteoarthritis to record all the outcomes instruments used in dogs with naturally occurring osteoarthritis.

A computer based bibliographic search was performed on PubMed and CAB Abstracts in August 2013 to find peer-reviewed publications relevant to canine osteoarthritis. Inclusion and exclusion criteria were applied. The outcome instruments reported within each publication were recorded and classified into categories for comparison. The methodologies of fully described outcome instruments were assessed for uniqueness.

Manuscripts ($n=3697$) were identified and reviewed; 117 were eligible for inclusion. Outcomes instruments were used 618 times, with a median of 4 instruments per publication but a mode of 1 per publication. The instruments populated 65 categories. The most frequently reported outcome categories were: lameness assessment with no stated gait/mixed gaits ($n=66$); radiography ($n=58$); lameness single gait/lateral motion ($n=55$); and pain ($n=54$). Of the 618 outcome instruments reported, 491 were assessed for methodological uniqueness, and 71% ($n=348$) were found to be unique to a single publication. Few instruments were reported to have been validated.

A huge number of different outcome instruments are reported for the assessment of canine osteoarthritis, and many instruments appear to be unvalidated. Many authors develop novel instruments rather than using pre-existing ones. At present, evidence synthesis in canine osteoarthritis is challenging due to the lack of consensus on which outcomes should be reported. Evidence-based management guidelines therefore cannot be produced. There is an urgent need for consensus on outcomes instruments for reporting canine osteoarthritis interventions.

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