



RESEARCH PROGRESS REPORT SUMMARY

Grant 02682-A: The Effect of a Modified Approach on Early Weight Bearing in Dogs Following a Tibial Plateau Leveling Osteotomy for Cranial Cruciate Ligament Rupture

Principal Investigator: Dominique Sawyere Hansford, BVSc, MS

Research Institution: Virginia-Maryland Regional College of Veterinary Medicine

Grant Amount: \$14,939

Start Date: 1/1/2020 **End Date:** 12/31/2022

Progress Report: End-Year 2

Report Due: 12/31/2021 **Report Received:** 12/30/2021

(The content of this report is not confidential and may be used in communications with your organization.)

Original Project Description:

A tibial plateau leveling osteotomy (TPLO) is a common procedure performed to address stifle (knee) instability secondary to cranial cruciate ligament rupture in dogs. During the surgical approach for a TPLO, some of the tendons of muscles attaching to the inside of the tibia are cut. These tendons are referred to as the medial crural fascia. The medial crural fascia is important for the normal function of the dog's stifle. As opposed to the rapid gain in wound strength displayed in skin and the GI tract, restoration of fascia integrity is relatively prolonged. In the first week of healing, fascia incisions have no inherent strength; therefore, the repair is entirely dependent on the suture material, making it prone to inadequate healing. The clinical implication of this on early weight bearing and limb use following TPLO surgery is unknown. Additionally, tendons only reach 50-80% of their original strength at one year following reconstruction. In humans, deficiency in the repair of the medial crural fascia has been associated with decreased rotational stability, increased meniscal injury, and continued knee instability following surgery for cranial cruciate ligament rupture. If these findings are consistent in dogs, lack of attention to medial crural reconstruction and its inability to return to the original strength may contribute to continued subluxation of tibia and latent meniscal injury. In this study, dogs who undergo a modified approach to a TPLO will be evaluated to determine normalization of gait parameters and thigh circumference as compared to dogs who undergo a standard approach to a TPLO. Results from this study may change the approach to TPLO surgery in the future and provide canine patients with improved short- and long-term outcomes.

Publications: None at this time.



Presentations:

Sawyer, DM. Don't skip leg day: Improving outcomes in dogs recovering from TPLO for cranial cruciate ligament repair. VetVine Presentation. December 2021. (current 4.93/5 star rating based on 67 reviews) <https://www.akcchf.org/educational-resources/chf-and-vetvine-webinars.html>

Report to Grant Sponsor from Investigator:

To update you on the current status of the project, we currently have a total of 10 dogs enrolled in the study of which 8 have completed all rechecks. Based on this we have run preliminary statistics. We are already seeing a significant improvement in lameness and a return to symmetry in all dogs at the end of the study compared to pre-operative. There is a trend towards a significant difference between groups at the endpoint of the study, however, it has not yet made significance, therefore more cases are needed to confirm or deny if the difference is truly significant. We are not having any complications with the protocol and we have no proposed changes.