

NEWS FLASH

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The Schipperke Club of America Rescue and Health Foundation is sponsoring the Legg-Calve-Perthes Disease study. We are asking that donations be made to the Foundation specifically for this project. Tax free donations should be sent to the foundation addressed to:

June Moore, Treasurer SCA H&R Foundation
LCPD Research
5804 S Highway 349
Midland, TX 79706-7636
LCPD Research Project

Regarding Legg-Calve-Perthes Disease in Schipperkes and other breeds:

Schipperkes have been accepted in the **Legg-Calve-Perthes Disease (LCPD)** study supported by the Canine Health Foundation and conducted by Dr. Murphy and Dr. Starr at Clemson University. We have submitted the 5 affected dogs needed for the initial DNA study that was run in December, but will need at least 15 more Schipperkes with LCPD (confirmed by x-ray), plus 15 unrelated normal dogs (confirmed by x-ray) for the next phase. Please note we are not looking for families of affected dogs (like the epilepsy study did), but normal dogs that are not related to any LCPD dogs or each other. The LCPD dogs may be related to each other.

If you know of an LCPD dog and the owner or breeder is willing to have 3-5 ccs of blood drawn and shipped overnight to the researchers, go to the Foundation (<http://schipperkefoundation.org/index.html>) or SCA (<http://www.schipperkeclub-usa.org/>) website to get the information and forms needed and submit the blood sample directly.

Do not send samples to an SCA Board member, Foundation Trustees of Dr Shirley Quillen. If you want to volunteer a normal dog, the investigators will need to compare its pedigree with the pedigrees of the ones that have already been accepted to be sure it will be of value to the study.

Information on blood collecting and the forms for submission samples for the LCPD study are below.

INFORMATION ABOUT LEGG-CALVE-PERTHES DISEASE

Legg-Calve-Perthes Disease (LCPD) is a developmental disease characterized by avascular (lack of blood vessels) necrosis (death of tissue) of the femoral head and neck. It was first described in veterinary literature independently by Spicer, Schnelle, and Moltzen-Nielsen in the late 1930's (Ljunggren 1967). This disease primarily affects toy and miniature breeds of dogs including Schipperkes. The age of onset is usually between 4 and 11 months of age. One sex is not affected any more than the other and it is generally accepted to be an autosomal recessive condition (Demko and McLaughlin, 2005). This condition can affect either one (unilateral) or both (bilateral) of the femurs with only 10-15% of cases having bilateral involvement. There are no reports of one side being more commonly affected than the other. The exact cause of LCPD is unknown, but the disease presentation classically results in osteonecrosis (death of bone) of the femoral head secondary to ischemia or vascular insult (lack of sufficient blood). While LCPD is known to have genetic involvement, the extent to which genetics play a role in disease presentation, and what additional environmental factors contribute to the disease remain unclear.

LCPD is diagnosed by a combination of dog history (*i.e.*, age, breed, clinical signs), physical examination, histology, and radiographic evidence of structural femoral changes. The treatment and prognosis of LCPD varies. Surgical intervention, primarily femoral head ostectomy (FHO - removing the head of the femur), has a greater than 84% success rate of alleviating pain and lameness when it is present. Conservative treatments, comprised of rest, restricted exercise, proper nutrition, joint stabilization techniques and analgesics, rarely improve clinical signs.

Less than 25% of cases opting for conservative treatment result in resolution of pain and limping. (Demko and McLaughlin 2005) While surgical intervention has better odds for alleviating and resolving the clinical signs of LCPD, it also places a financial burden on owners of affected dogs. FHO procedures cost a minimum of \$1000, not including any physical therapy and recheck examination fees during the three to six month recovery period. Within the last few years, total hip replacement surgery has become available to toy breeds. This procedure reconstructs the coxofemoral joint, making it the "gold standard" in surgical LCPD repair. The cost of hip replacement surgery is estimated to be \$5000, without factoring in additional follow-up therapies and examinations.

In some cases of LCPD no lameness is observed, but on radiograph the lesions are visible. Many of these dogs appear sound at a walk or trot, but often show abnormalities in their gait when running. Often excessive running will cause these dogs to become lame. When positioned for radiographs, some will indicate there is pain when they are on their backs and the legs are pulled to position them for the best ventro-dorsal view. Some of these dogs lead a relatively pain free life without surgery.

LCPD has been researched in various studies to determine the mode of inheritance and etiological factors contributing to the disease in multiple breeds including the Manchester Terrier, Yorkshire Terrier, Miniature Poodle, and Pug. The proposed modes of inheritance for these dogs are: multi-factoral, monogenic autosomal recessive (AR), monogenic AR, and monogenic AR, respectively (Vasseur et al. 1988, Robinson 1992). Analysis of litter data from

Miniature Pincher puppies affected by LCPD found an incidence of disease suggestive of a monogenic autosomal recessive mode of inheritance (Robinson 1992). No multigenerational pedigree analyses or complex segregation analyses (CSA) have been published for the Miniature Pincher or Schipperke. The direction that future studies of LCPD in affected dogs will take will be determined based on the results of inheritance studies.

BLOOD COLLECTION INSTRUCTIONS

For veterinarian:

- Draw ~3-5 cc of blood
- Fill EDTA tube
- Pad blood tube with paper towels or bubble wrap in a Ziploc bag to prevent breaking or leaking
- Pack blood sample in an insulated box (i.e., Styrofoam) with frozen ice packs

Return shipment instructions:

- Return blood sample with signed consent form and sample submission form.

Ship out STANDARD OVERNIGHT only Monday through Thursday.

Ship to:

Dr. Alison Starr - Murphy Lab
Clemson University
Department of Genetics and Biochemistry
51 New Cherry Rd
319 BRC
Clemson, SC 29634-0318
(864) 656-0191

Do not hesitate to call me at 864.656.0191 with any questions. Thank you so much!

Sincerely,

Alison Starr, Ph.D.
Clemson University
Canine Genetics Research

Legg-Calve-Perthes (LCP) DNA Submission Form

Canine Genetics Research

FOR CGR USE ONLY

Laboratory tracking number _____

Owner Information

Owner Name: _____ Phone: _____

Address: _____

E-mail: _____

Dog Information (Please include pedigree with submission if available.)

Sex: M F (please circle) Birthdate: _____

Registered Name: _____

Call Name: _____

Sire: _____

Dam: _____

Has this dog been diagnosed with LCP? N Y

If yes, please provide the name of the diagnosing veterinarian:

If yes, is the condition unilateral (left or right) or bilateral? (Please circle)

If yes, how old was the dog when diagnosed? _____

Have any first degree relatives (parents, siblings, or offspring) of this dog been diagnosed with LCP? N Y

Unknown

If yes, please indicate those relationships:

All information obtained in this study will be kept confidential by CGR

Any questions about this study should be directed to Dr. Alison Starr (astarr@clermson.edu) at 864-656-0191 or Dr. Kate

Tsai (ktsai@cvm.tamu.edu) at 979-845-5634