Diabetes mellitus (DM) is a common endocrinopathy in dogs. Breed susceptibilities (eg, overrepresentation in Samoyeds, relative absence in boxers) suggest genetic factors. This report compared genes linked with DM susceptibility in humans with genes (some of which are breed specific) linked with susceptibility in dogs.

A deficiency of endogenous insulin causes DM in dogs to resemble type 1 diabetes (T1D) in humans; however, because exocrine pancreatic diseases of immune-mediated mechanisms are implicated, it may be similar to latent autoimmune diabetes for adults (LADA). In humans, T1D and LADA are linked to a region of chromosome 6 containing human leukocyte antigen (HLA) genes, with differences in amino acid sequences around the major histocompatibility complex (MHC) class II molecules. Increased DM risk in dogs was associated with MCH class II genes (dog leukocyte antigen), with similar haplotypes and genotypes seen in most susceptible breeds. A region containing a variable number of tandem repeats and several single nucleotide polymorphisms has been identified. Some alleles are associated with susceptibility or resistance to DM in a breed-specific manner; thus, an underlying genetic basis may vary between breeds. It is hoped that genome-wide association studies will shed light on the pathophysiology and genetic basis of DM, possibly guiding interventional genetic therapy.

**Source**

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**Radiographic Technique for Cranial Tibial Subluxation**

Osteoarthritis (OA) is thought to develop and progress secondary to rotational and translational instability within the stifle joint after cranial cruciate ligament (CCL) rupture. Cranial tibial subluxation (CTS) is typically detected during physical examination with the tibial compression test. The development of a repeatable radiographic technique for assessing CTS in vivo was investigated to determine radiographic landmarks present in dogs with OA and test their repeatability for assessing CTS in a cadaver. The effects of radiopaque markers and digital radiographic magnification on the repeatability of CTS measurement were also assessed.

Radiographs of CCL rupture and degrees of OA were used to determine landmarks for CTS measurement. CTS was then induced in cadaver and mediolateral radiographs taken. Measurements were made to determine repeatable landmarks for CTS. Twenty cadaver stifles were used and 8 anatomic CTS measurements evaluated. Accounting for inter- and intraobserver variability, CTS in the normal nonosteoarthritic stifle can be quantified most reliably by measuring from the caudal aspect of the intercondylar fossa on the femur to the intercondylar eminence on the tibia. CTS is secondarily most reliable when measuring from the caudal aspect of the intercondylar fossa to the cranial tibial or caudal tibial plateau. Apparently, magnification does not affect measurement reliability.

**Commentary**
This experiment evaluated normal cadaver stifles to determine the most reliable landmarks for measuring the length of cranial translation or drawer after CCL transection. On radiographs, measuring the distance between the caudalmost extension of the fabellae on a lateral image of the femur and the intercondylar eminence of the tibia was the most reliable.

These results are useful for future in vitro studies evaluating the amount of drawer with varying CCL surgical repair procedures. The next logical step is determining reliability of these landmarks in stifles with OA changes for use in clinical cases. — Jonathan Miller, DVM, MS, DACVS

**Source**

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**RESEARCH NOTE: Diabetes Mellitus & Genetics**

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**Source**

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