

Joint Disease in the Horse

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Joint disease is the most common cause of lameness in the horse and has a large financial impact within the equine industry.

Joints are very complex structures that are composed of bone, cartilage and soft tissues. Function, metabolism and disease of joints is also highly complex. Joint cartilage is generally the most important component of joint structure with regards to joint disease. When joint cartilage is damaged it leads to abnormalities in all other joint tissues, ultimately resulting in abnormal metabolism and function. Damage to bone and soft tissues within a joint may lead to secondary cartilage damage and a vicious cycle thus begins.

Virtually all joints related to lameness and joint disease are classified as *synovial joints*, which in a normal state function in an almost frictionless fashion. Synovial joints are composed of bone covered with cartilage, a joint space containing joint fluid and a joint capsule with associated ligaments. The joint capsule has a strong, fibrous, outer layer and a thin inner layer called the *synovial membrane*. The synovial membrane is responsible for producing the joint fluid termed *synovial fluid*. Synovial fluid provides lubrication and nutrition to the joint cartilage. Joint cartilage contains no blood vessels and depends upon the underlying bone and synovial fluid for nutrients. Joint cartilage also contains no nerves and therefore joint pain is due to stimulation of nerve endings in the joint capsule, ligaments, muscle, and underlying bone.

Terminology used in description of joint disease is often confusing. Many of the terms used in the horse industry regarding joint problems are old, nondescript, confusing labels. *Bone spavin*, *bog spavin*, *windpuffs*, *osslets*, and *ringbone* are examples of this old terminology relating to joint issues in horses.

Modern medical terminology is much more descriptive and less confusing. The following terminology is preferred when discussing equine joint function and disease.

Arthritis – inflammation of a joint.

Osteoarthritis (OA), also referred to as **Degenerative Joint Disease** (DJD) – arthritis with erosion of joint cartilage.

Capsulitis – inflammation of the joint capsule.

Synovitis – inflammation of the synovial membrane.

Effusion – excessive joint fluid causing joint capsule swelling and distention.

Osteoarthritis or Degenerative Joint Disease can be further defined and described as progressive joint cartilage damage accompanied by changes of the joint's bone and soft tissues which leads to joint pain and loss of function.



Left x-ray: Normal tarsal joints / hock
Right x-ray : Normal carpal joints in a foal / knee

The cause of joint disease is multi-factorial, but can be simplified by categorizing into one of two scenarios;

- 1) Abnormal stress on normal joint cartilage, and
- 2) Normal stress on abnormal joint cartilage.

Unfortunately for the equine industry, joint disease can progress prior to the horse showing lameness.

In the next edition of this article we will discuss monitoring, prevention, diagnosis and therapy of equine joint disease.



Subchondral bone cyst in femorotibial joint / stifle