

ODS Talk October 23, 2010

Introduction

Dressage is one of the more demanding disciplines as it combines balance, suppleness, and power. A good dressage horse can take years to train. During training, a number of issues may be encountered. The following is a list of common lameness issues seen in the dressage horse. It is important to note that in the dressage horse, these problems may be more subtle resulting only in a decrease in performance and not overt lameness. This list is by no means all inclusive; rather, it consists of the five common, representative conditions in the dressage horse.

The Five Most Common Lameness Issues in Dressage Horses

1. **High Suspensory Ligament Injury**
2. **Suspensory Branch Injury**
3. **Distal Hock Arthritis**
4. **Coffin Joint Inflammation of the Forelimb**
5. **Lower Back Pain**

As the dressage horse moves up the levels of training, the center of gravity of the horse and rider is placed further back which allows the front end of the horse more freedom to perform more advanced movements. This can only be accomplished by loading and strengthening the hindlimbs and back. This makes the hindlimb and back more prone to injury.

1. **High Suspensory Ligament Injury**

This is the most common cause of lameness in the dressage horse.

Anatomy

The suspensory ligament originates on the back of the cannon bone just below the knee and the hock. Injuries at the origin of the ligament are referred to as high or proximal injuries.

Why it Occurs in the Hindlimb

Hindlimb injury is more common in the medium and advanced levels. Again, as the horse moves up the levels of dressage, movements such as piaffe, passage, and canter pirouettes place increased load on the hindlimbs and, in particular, the suspensory apparatus.

Why it Occurs in the Forelimb

Forelimb injuries are more common in the young horse not yet fit for work at the extended trot.

Description of the Injury

Ligaments are like rubber bands, they will stretch a certain length and then they tear. Ligaments are composed of hundreds of tiny fibrils and these are what tear in an injury.

- a. Core Lesions - The space left by torn fibers will fill with blood or serum which shows up as a dark spot on an ultrasound.
- b. Diffuse Lesions – No dark spots on ultrasonography but diffuse enlargement of the ligament.

Lameness may be acute or chronic.

Swelling is not often clinically present and response to pressure is not always painful, particularly in the chronic, high suspensory injury of the hindlimb.

Treatment

Level and intensity of treatment depends on the severity of the lesion. This is a list of treatments and not all therapies will be utilized in the same horse, although, many are used concurrently.

- a. Exercise Activity Ladder (Physical Therapy):

Level 1 – Stall confinement with hand walking.

Level 2 – Stall confinement/Small paddock confinement (depending on the temperament of the horse) with exercise limited to ten minutes at the walk, 5 minutes at the trot, then 10 more minutes at the walk(10/5/10).

Level 3 – Small paddock confinement with work at 10/10/10.

Level 4 – Small paddock confinement with work at 10/15/10.

Level 5 – Small paddock confinement with work at 10/20/10.

Interval between levels is typically 4-6 weeks depending on if the horse is improving clinically and on the ultrasound examination. Magic number is 10/20/10, once the horse is working well at this level for 4-6 weeks; they seem to do very well. As you can see, minimum recovery time in most cases is between 6-12 months.

- b. Shock Wave Therapy – Stimulates healing and improves fiber alignment. A strong, propulsive wave is generated and focused on the site of injury. Think of it as an intense deep tissue, therapeutic ultrasound. At least two treatments are performed, two weeks apart.
- c. Platelet Rich Plasma (PRP) – Platelets are the foundation upon which healing occurs. Blood is harvested from the horse in special collecting tubes and centrifuged. The platelet rich plasma section is harvested and injected into the lesion. This is often combined with shock wave therapy.

- d. Stem Cell Therapy – Mesenchymal (bone marrow) or adipose (fat) derived. Bone marrow is harvested from the pelvis or the sternum, or fat cells are procured from the tail head, and sent to a laboratory for processing and culturing. The stem cells are returned to the clinic then injected into the lesion. Stem cells are cells that can develop into any cell type. In this case, they will turn into ligament cells resulting in stronger healing with less scar tissue.
- e. Surgery (Hindlimb) – Neurectomy and fasciotomy (release) for compartment syndrome. The high suspensory region in the hindlimb is encapsulated by dense fascia. When the ligament is injured, it swells and becomes impinged by the fascia. At surgery, this fascia is cut, thereby releasing pressure on the ligament.
- f. Topical Therapy - Cold Water Hydrotherapy (Game Ready, Ice Horse) Surpass, DMSO, Ice is Nice!
- g. Systemic Anti-Inflammatories – Bute, Banamine, Equioxx
- h. Corrective Shoeing - Squaring and rolling the toe, correcting medial/lateral and hoof wall/pastern imbalances.

2. **Suspensory Branch Injury**

Has a worse prognosis than high suspensory injury due to recurrence.

Anatomy

Two thirds of the way down the cannon bone, the suspensory ligament branches into two branches. One branch is sent medially and one courses laterally. The branches attach to the sesamoid bone then course forward and attach to the extensor tendon.

Why it Occurs

The suspensory ligament is called the suspensory ligament because it suspends the fetlock. The branches are under strain with excessive loading and rotation of the fetlock which may occur with improper footing or imbalance of the foot. A single branch is likely to be involved in the forelimb while both branches may be involved in the hindlimb.

Description of the Injury

Again, this is an overstretching type of injury and something has to give. Lesions can be of the core or diffuse type and show up readily on ultrasonography. The branches are often clinically enlarged and painful to pressure. Recovery time is in the 6-12 month range.

Treatment

Again, like the proximal suspensory injury, it depends on the severity.

- a. Exercise Activity Ladder (PT)
- b. Shock Wave Therapy
- c. PRP

- d. Stem Cell Therapy
- e. Topical Therapy
- f. Systemic Anti-Inflammatories
- g. Corrective Shoeing

3. Distal Hock Arthritis

Not a unique feature of dressage horse as it is one of the most commonly diagnosed conditions in all horses of all disciplines. Typically, it is not if it will occur, it is when it will occur. Also called bone spavin, it commonly starts to become relevant at seven, eight, and nine years of age but can be diagnosed earlier and later than this.

Anatomy

The hock is made up of four joints. The upper two joints are large, hinge type joints responsible for over ninety percent of the total range of motion of the hock. The lower two joints slip and slide over each other and these two joints are collectively called the distal hock joints. It is these lower joints where bone spavin occurs.

Why it Occurs

Horses have evolved to run away from predators in straight lines relying on speed to survive. Distal hock arthritis is thought to occur due to the lateral work that we ask horses to perform in all disciplines.

Description of the Condition

Stages of arthritis:

1. Inflammation of the joint fluid. This inflammation left untreated results in step number two.
2. Cartilage degradation – White blood cells, drawn into the joint from the inflammation, release enzymes that are harmful to the cartilage lining the joint surfaces.
3. Remodeling of the bone observed on x-rays as bone spurs.

Commonly results in difficulty performing the piaffe or passage and difficulty in holding the correct canter lead.

It is most often bilateral (affecting both hindlimbs) with one hindlimb slightly more affected than the other.

Left untreated, this condition can result in the horse compensating by overloading the soft tissue supporting structures of the hindlimb, suspensory ligament and the deep and superficial flexor tendons, resulting in secondary soft tissue injury. It is also the most common reason why horses have lower back pain.

Not a problem that can be cured but can usually be managed successfully.

Treatment

- a. Intra-articular Medication – Hyaluronic acid (HA), Glucosamine, Steroids.
- b. Systemic Medication – Legend, Adequan, Polyglycan, Tildren.
- c. Systemic Anti-inflammatories – Bute, Banamine, Equioxx.
- d. Topical Medications – Surpass.
- e. Nutraceuticals – Cosequin-ASU, Equithrive, etc.
- f. Corrective Shoeing – Correct imbalances and ease breakover by shortening, squaring and rolling the toe of the shoe.

4. Coffin Joint Inflammation of the Forelimb

This is another condition that is commonly diagnosed in dressage horses and in many other horses in other disciplines.

Anatomy

The coffin joint is the last, large joint in the foot. It is the joint between the short pastern bone (P2) and the coffin bone (P3) and bordered by the navicular bone.

Why it Occurs

Increased stress and strain by rotational forces, hoof imbalances from suboptimal conformation or improper trimming and shoeing, a small hoof size, and poor training surfaces may all play a role in the development of this condition.

Description of the condition

The result is inflammation of the coffin joint fluid (synovitis). This is similar to inflammation of other joints with the same progression if left untreated. As with distal hock pain, it usually occurs bilaterally and is a condition that can be managed effectively.

Stages of Arthritis.

Treatment

- a. Intra-articular Medication – HA, Glucosamine, Steroids
- b. Intra-articular Therapy – IRAP II, Stem Cell Therapy
 1. High Motion Joints (coffin, stifle, upper hock, fetlock) vs. Low Motion Joints (lower hock, pastern)
 2. Disease Modifying Agents vs. Symptom Modifying Agents

3. IRAP II and Stem Cells as DMA's
- c. Systemic Medication – Legend, Adequan, Polyglycan, Tildren
- d. Systemic Anti-inflammatories – Bute, Banamine, Equioxx
- e. Nutraceuticals – Cosequin-ASU, Equithrive, etc.
- f. Corrective Shoeing – Correct imbalances and ease breakover by shortening, squaring, and rolling the toe of the shoe.

5. Pain

By far and away, the most common reason a horse develops back pain is from compensating for subtle lameness issues. This type of back pain is called secondary as it occurs secondarily to another issue.

Anatomy

Thoracolumbar spine and Sacroiliac joints (SI joint).

Why it Occurs

Secondary causes of back pain:

1. Lameness issues with the horse compensating with back musculature resulting in pain. The back is the bridge between the front and hindlimbs and the horse will use the back to protect the limb(s). Lumbar and SI joint most common sources of pain. Any person that has suffered from knee or hip pain will empathize with this.
2. Hyperflexion of the neck results in rounding or hollowing of the back putting undue strain and, eventually, chronic back pain.
3. Poor dentition and care.

Primary causes of back pain:

1. Improper saddle fit
2. Unbalanced rider
3. Sacroiliac injury

Description of the Condition

Pain is from inflammation of the muscles, tendons and ligaments of the back from working out of balance. It can be unilateral or bilateral. A normal response to palpation of the back is one to two inches of ventroflexion. More or less (splinting) than this can be indicative of back pain.

Treatment

- a. Acupuncture/Aquapuncture – Needles are placed in specific locations that release endorphins. Endorphin release results in muscle relaxation and healing. Aquapuncture is injecting these sites with medication, often B12, to stimulate a more prolonged effect.
- b. Mesotherapy-stimulates the mesoderm, which relieves ailments and stops pain and spasm
- c. Chiropractic Manipulation
- d. Massage Therapy
- e. Shockwave Therapy – Very effective for sore backs.
- f. Injections into the SI joint – Use long needles. Injection of steroid or other combinations. important to note that, for secondary back pain, these can all be transiently effective but none will be completely effective on their own without treating the primary, underlying cause of the back pain.
- g. Dental Care

Conclusion (Take Home Messages)

1. High Suspensory Ligament injuries are common in dressage horses and can result in poor performance. Pain and swelling are often not present on palpation of this structure in the hindlimb.
2. Suspensory branch injuries are less common but have a worse prognosis due to a higher rate of recurrence.
3. Distal hock arthritis is one of the most commonly diagnosed conditions in all horses of all disciplines. In most cases, it is a manageable condition. Left untreated, it can result in secondary soft tissue injury and lower back pain.
4. Coffin joint synovitis is another common condition in all breeds of horses. Quality trimming and shoeing and good footing are important in preventing this condition.
5. Lower back pain is most often secondary to subtle lameness issues that the horse has been compensating for.
6. There exists a wide variety of traditional and leading edge therapies to treat and manage these conditions.