THINKING LIKE A PHYSICAL THERAPIST:

IDENTIFICATION OF SOFT TISSUE INJURIES: (Muscles and Tendons Sprains)

What is the likely history?

- Trauma, following a work episode, repetitive strain
- Acute lameness, or a change in movement pattern or ability
- Problems with certain or various activities

What will be observed with gait?

- Usually some degree of lameness at some gait pattern, possible problems with other movements as well.

What will be observed on examination?

- Acute, Subacute or Chronic?
- Acute: heat and swelling (depending on the degree of injury), may be hypotonic / inhibited in the affected limb, or spasm but not general atrophy if seen immediately.
- Subacute: Atrophy likely present in affected limb, may or may not have swelling
- Chronic: May or may not detect any problem on palpation. Atrophy may be detected.

What will ROM show?

- Normal ROM if you can isolate joint range without stretching the impaired structure (as in with a two joint muscle)
- Limited or Painful if the structure in questions is a one joint muscle

Will joint compressions show anything?

- No, if the compression is isolated to the joint only, and the joint does not have an involvement

Will there be positive neurological tests?

- Not unless there are multiple problems

What will specific palpation reveal?

- Tenderness will most likely be present for acute and subacute injuries, chronic injuries may be mildly tender.
- The affected muscle/ tendon may be low tone or in spasm
- You may find a deficit (divot) or swelling

Can the muscle be isolated?

- Yes, with specific stretches, if you are familiar with the origin, insertion and action of the suspected muscle.

Will the spine be affected?

- Yes, if affected by the trauma or by the lameness
- Otherwise no.

IDENTIFICATION OF SOFT TISSUE INJURIES: Ligament Sprains:

What is the likely history?

- Trauma, age or pathological disease process

What would be observed?

- Likely some degree of lameness

What will muscle or joint palpation reveal?

- No atrophy if acute injury, but yes, if subacute or chronic
- Surrounding musculature may be hypotonic / inhibited
- Pain / Tenderness if the ligament in question is superficial
- Swelling or joint thickening of the affected joint

Will ROM be affected?

- Yes, the joint will likely be restricted in end range flexion if the injury is acute or subacute (when the ligament is on stretch)
- If the injury is Chronic, there may be excessive ROM, normal or restricted.

Can I elicit a positive stress test?

- Yes, the stress tests are the same as in humans.
- Assess for pain, endfeel and movement
- Partial tears will be painful and may not show laxity and complete tears will have minimal pain but extreme laxity.

Will muscle stretching confuse my findings?

- Adjacent muscles may show positive on stretch, if the joint is being moved into a painful direction or if the ligamentous structure is also being stressed
- You will need to rely on your stress testing and palpation techniques to differentiate.

Will the spine have any positive findings?

- Only if the trauma caused an injury to the spine, or if persistent lameness has caused secondary spinal dysfunctions or muscle strain.

IDENTIFICATION OF EXTREMITY JOINT DERANGEMENTS (cartilage or meniscal)

What is the likely history?

- Could be trauma, pathological or age related

What will be observed with gait?

- Lameness may vary from severe if acute injury to Mild or 'just off' if a minor chronic injury.
- May wax or wane (as with shoulder OCD)

What will muscle or joint palpation reveal?

- Smaller extremity joints (elbow, carpus, stifle, hock and digits) will likely have some swelling
- Atrophy of adjacent musculature if the lameness is greater than one or two weeks old
- Poorer muscle tone might be better observed due to favoring the leg.
- Discomfort to palpate the joint may be non-specific or diffuse or unremarkable depending upon the degree of inflammation

Will Range of Motion be affected?

- The animal will likely hold the joint in a mid range position (loose packed position)
- Discomfort may be noticed at end ranges (in the closed packed positions)

Can I elicit a positive stress test:

- Ligament stress tests may be uncomfortable due to joint irritation – so be very aware of end feel and comparative reactions.
- Compression of the joint while putting it passively through its ROM will often elicit a painful response.

What about specific muscle stretching?

- If joint swelling and tenderness are present, you may not want to perform individual muscle stretches until a later date.
- Muscle stretching will likely be okay as long as you are able to isolate a muscle stretch without getting to an end range within a joint

Will the spine be affected?

- A spinal dysfunction may be pre-existing or associated with mechanics of injury.

Vertebral Dysfunction? Spondylosis? Disc Herniation?

How do you make an educated guess as to what you are treating without or prior to diagnostic test:

Vertebral Dysfunction?	**Spondylosis?**	**Disc Herniation**
Moderate – Mild Tenderness of Palpation	Not tender	Very tender to palpate
No neurological signs & Symptoms (S & S)	+/- Neuro S & S	Depending upon the severity +/- Neuro S & S
Mild spasm over affected Facet joints	+/- Spasm (depending on Nerve root Impingement	Marked paraspinal spasm
Vertebral joint mobility Restriction	Extremely stiff or immobile vertebral Mobility	Spasms too strong and too painful to properly assess. However, when in Early stages spasm is Present but joint Mobility feels equal From side to side
Correction of dysfunction Alleviates tenderness	Cannot alter the mobility	Spasm too strong and too painful to Ax & Rx

Degenerative Disc Disease:

Tender to palpate

+/- neurological S + S, perhaps Nerve root impingement signs (nerve root signature stance, chewing of a limb, hypersensitive areas on a limb or the back)

Spasm over or adjacent to te affected joint / vertebral segment

+/- Vertebral dysfunctions (not generally significant enough to be causing the degree of tenderness or other signs)

Traction can help alleviate S & S