Unraveling the Mystery of Knee Pain #6: Other Culprits in Knee Dysfunction

Webinar Goals

- Explore the assessment and treatment of other culprits in knee dysfunction.

Logistics

- Time: 60 minutes
- Schedule:
  - Presentation 30-40 minutes
  - Questions 15–20 minutes
- Ongoing questions: Use Question box. If I don’t get to your question, ask me on my Dr Ben Benjamin Facebook page after the webinar.
- Get a pen and paper please
Injuries/Conditions to be Covered

- Bursitis
- Cruciate Ligament Sprains
- Torn Meniscus
- Chondromalacia
- Osgood Schlatter’s Disease
- Loose Body
- Dislocating Patella
- Traumatic Arthritis

Pretest

1. Pain when kneeling on the knee usually means that the patella tendon is injured. True or False?
2. The draw sign refer to an assessment test that stresses the meniscus. True or False?
3. A loose body in the knee joint causes the knee to get stuck in flexion. True or False?
4. Chondromalacia causes knee pain primarily when going upstairs or uphill. True or False?
5. A torn cartilage causes the elderly to be fearful when walking down stairs – the fear is that their leg will lock while straight and they will fall. True or False?
6. You can have a traumatic arthritis in the knee with swelling without a ligament or cartilage injury. True or False?

Bursas of the Knee
Anatomy
Bursas of the Knee

- Cushion to reduce friction and allow soft tissue to slide easily
- Lined with synovial cells that secrete fluid to lubricate high friction areas
- **4 important bursas** in the knee:
  - Prepatellar bursa
  - Suprapatellar bursa
  - Deep infrapatellar bursa
  - Pes anserine bursa

Function and Location: Knee Bursas

- Prepatellar bursa – very thin, cushions between patella and skin “B”

Function and Location: Knee Bursas

- Suprapatellar bursa – lies between anterior surface of lower femur and deep surface of quadriceps femoris. “3”
Function and Location: Knee Bursas

• Deep infrapatellar bursa – lies beneath patella ligament and tendon body “A”.

Function and Location: Knee Bursas

Pes anserinus – Where the tendons of the Gracilas, Sartorius and Semitendinosus muscles come together to form a common attachment.

• The bursa lies beneath common tendon attachment, cushions between the medial collateral ligament and the Pes anserinus

How to Touch Bursas of the Knee
Assessment Tests:
Knee Bursas

Assessment Tests
Deep Infrapatellar Bursa Test 1

Assessment Tests
Deep Infrapatellar Bursa Test 2
Kneeling is Painful
Assessment Tests
Prepatellar Bursa Test 1

Assessment Tests
Prepatellar Bursa Test 2

Assessment Tests
Prepatellar Bursa Test 2

Touch the patella spongy bubble of fluid evident
Assessment Tests
Suprapatellar Bursa Test 1

Apply mild pressure to the Pes anserine – it will be warm and painful.

Assessment Tests
Suprapatellar Bursa Test 2

Assessment Tests
Pes anserine Bursa Test 1
How it Happens

- Lack of or improper warm-up
- Repetitive bending of the knee
- Fatigue
- Lack of flexibility
- Biomechanical alignment
- Poor technique in a sport
- Overuse or traumatic injury during athletics
- Repetitive kneeling

Theory: Knee Bursas

Irritation of the Bursa
  - Cause unknown
Speculation is:
  - Infection
  - Trauma to the area
  - Misalignment causing stress
  - Lack of flexibility and movement

Treatment: Knee Bursas

- Rest
- Ice
- Injection Therapy

Massage is contraindicated
Cruciate Ligament Sprains

Anatomy:
Cruciate Ligament Sprains

- Hold the knee together
- Limit anterior and posterior movement of the tibia, in relation to the femur

Anatomy:
Anterior Cruciate Ligament

- One of the most common knee ligament injuries in athletes
- Abbreviated ACL
- Common in women
- Forceful lateral rotational movements are primary cause
Anatomy:
Posterior Cruciate Ligament

- Abbreviated PCL
- The knee’s most important stabilizer
- Common causes are sports, car accidents, or industrial accidents

Assessment Tests:
Cruciate Ligament Sprains

Assessment Tests:
Draw Sign
Assessment Tests:
Anterior Pull

Assessment Tests:
Posterior Push

Assessment Tests:
Push Pull Laxity Test
Assessment Tests:
Resisted Flexion of the Knee

Assessment Test
Resisted Extension of the Knee

Theory: Cruciate Ligaments

- Anterior Cruciate Ligament MI: anterior pull test
- Resisted Extension of the knee (very weak and/or causing pain deep within the knee)
- Posterior Cruciate Ligament MI: posterior push test
- Resisted flexion of the knee (very weak and/or causing pain deep within the knee)
Treatment: Cruciate Ligaments

- Ice and Exercise
- Anti-Inflammatory and Proliferants Injection therapy

Meniscal Tear

Anatomy:
Meniscal Tear (Torn Cartilage)

- From Greek *meniskos*, "crescent"
- Cartilaginous discs in the knee
- Two menisci of the knee joint: lateral and medial
- Lateral meniscus is attached to the ACL
Function: Meniscal Tear

- Disperse weight of the body
- Reduce friction of femur on the tibia
- Act as shock absorbers

How and Why

- Minor Tears: weakness, clicking when you bend, sometimes knee collapses
- Major Tears: consistent weakness, frequent and unpredictable collapses

How and Why

- Torn cartilage moves to a part of the knee with no space for it
- Joint movement stops
- Thigh muscles contract to protect
Assessment Tests: Meniscal Tear

Mostly in the History:
- Giving way and collapsing
- Locking in flexion
- Swelling after a locking or collapsing incident for several weeks
- 30 degree clicking
- Pain is deep

Theory:
Meniscal Tear

Treatment: Meniscal Tear

Surgery, or live with it.
Chondromalacia

Anatomy: Chondromalacia

- Under surface of the patella
- Gliding surface on the femur

The Patella:
- Protects the knee joint
- Increases the functional strength of the quadriceps by 40%

Assessment Tests: Chondromalacia
**Assessment Tests:**
- Deep Knee Bend
- Patella Press

**Theory: Chondromalacia**
- Downstairs or downhill
- High barometric pressure makes it worse
Treatment: Chondromalacia

- Synvisc injections
- Surgery

Osgood Schlatter’s Disease

Anatomy: Osgood Schlatter’s Disease

Rupture of the growth plate at the tibial tuberosity with strain of the tendon attachment

- Injury and pain is at the junction of the patella ligament and the bone
Assessment Tests:
Osgood Schlatter’s Disease

Assessment Tests:
Resisted Extension of the Knee

Assessment Tests:
Palpation
Theory: Osgood Schlatter’s Disease

- Proliferant injection – growth plate
- Friction therapy – tendon strain

Treatment: Osgood Schlatter’s Disease

Loose Body
Anatomy: Loose Body

- Loose floating fragment of cartilage or bone
- Pain is felt deep in the knee
- Pain usually when the knee is straight

Anatomy: Loose Body

- Knee locks
- Shake leg to dislodge

How it Happens

Direct cause is often unknown
- A fall
- Arthritis

Smaller chips are sometimes created through bone rubbing
Diagnostic Verification

X-rays can only pick up bone, not cartilage

Assessment Tests:
Loose Body

• In the history

Treatment:
Loose Body

1. Manipulation
Treatment: Loose Body

2. Knee Wash

Dislocating Patella
Anatomy: Dislocating Patella

- Kneecap moves laterally to outside of knee
- Pain concentrated at the front and outside of knee

How it Happens

- Running
- Sharp turn while walking
- Patella too small or not firmly anchored

Diagnostic Verification

Sometimes confused with torn cartilage
Assessment Test: Dislocating Patella

• Gently push kneecap laterally

Treatment: Dislocating Patella

• Forceful straightening
• Passage of time
• Quadriceps exercises

Traumatic Arthritis
Anatomy: Traumatic Arthritis

- Usually accompanies other injuries
- Also called “Water on the Knee”
- Irritates lining of knee joint
- Lining overproduces fluid

How it Happens

- A fall or jolt

Diagnostic Verification

- Compare both knees
- If pain is general, arthritis is primary
- If pain is specific, check for ligament injuries
Assessment Tests: Traumatic Arthritis

Assessment Tests: Heat

Assessment Tests: Knee Flexion
Assessment Tests:
Knee Extension

Questions
Facebook.com/DrBenBenjamin

Treatment:
Traumatic Arthritis

- Self-Treatment
- Medical Treatment
Post-test

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