



SIMPLE SOLUTIONS FOR KNEE PAIN

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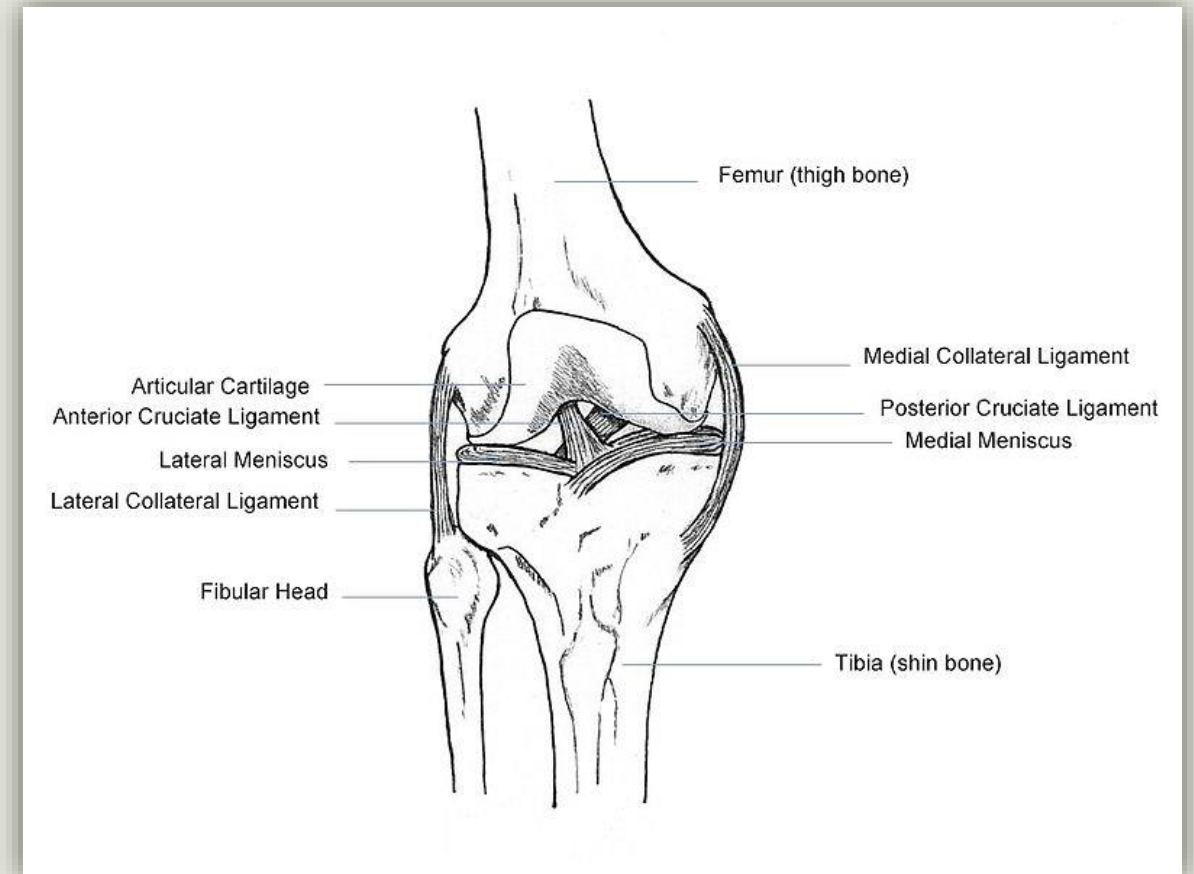
INTRODUCTION OF SPEAKER

- BSEE, successful career in aerospace
- Fitness fanatic
- History of personal injury
- MSPT from UCF 2006
- Private practice

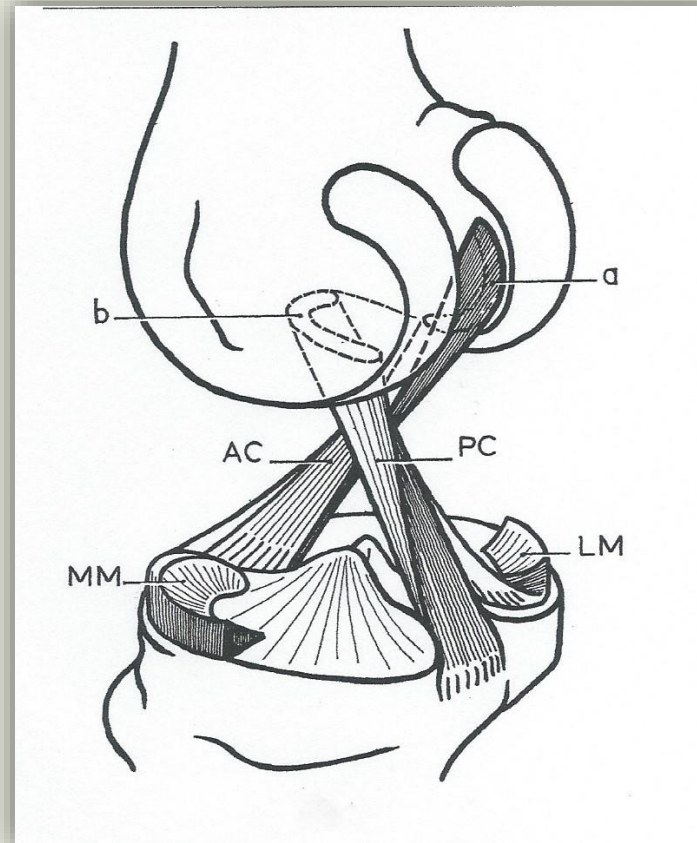


KNEE JOINT ANATOMY

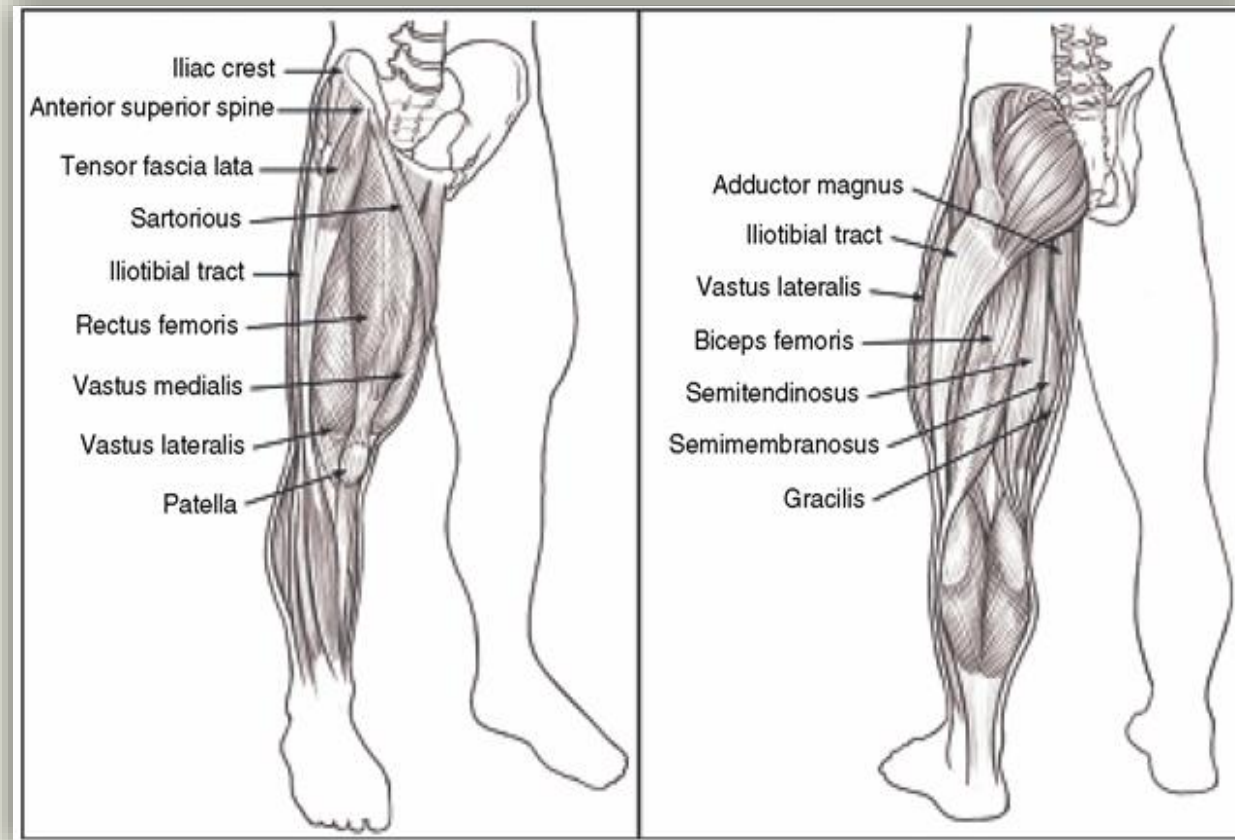
- Knee is the largest joint in the body
- Hinge joint consisting of bones, cartilage, ligaments and tendons
- Normal AROM needed for every day activities:
 - Walking: 0 – 67 degrees
 - Stairs: 0 – 90 degrees
 - Sitting: 0 – 93 degrees
 - Tying a shoe: 0 – 106 degrees
 - Lifting an object: 0 – 117 degrees



LIGAMENTS AND CARTILAGE OF THE KNEE



MUSCLES OF THE KNEE JOINT



BASIC PRINCIPLES FOR MANAGING KNEE PAIN¹

- Seek medical attention immediately if you . . .
 - Feel a pop or knee giving way at time of injury⁴
 - Cannot move knee
 - Experience significant immediate swelling
 - Suffer a direct blow to knee



- RICE initially: Rest, Ice, Compression, and Elevation to reduce swelling and pain
- Restore voluntary muscle control (quad sets)
- Restore normal ROM
- Increase muscle strength (quads and hips usually need it most)
- Improve proprioception and neuromuscular control
- Normalize gait

PREVENTION OF KNEE INJURIES²

- **Begin exercise with warm up and/or gentle stretching**
- **Wear appropriate footwear, not worn out or poorly fitting**
- **Keep legs strong with regular exercise**
- **Avoid large/sudden changes in exercise intensity**
- **Maintain a healthy body weight**
- **Use seat belt**
- **Use knee guards in sports**



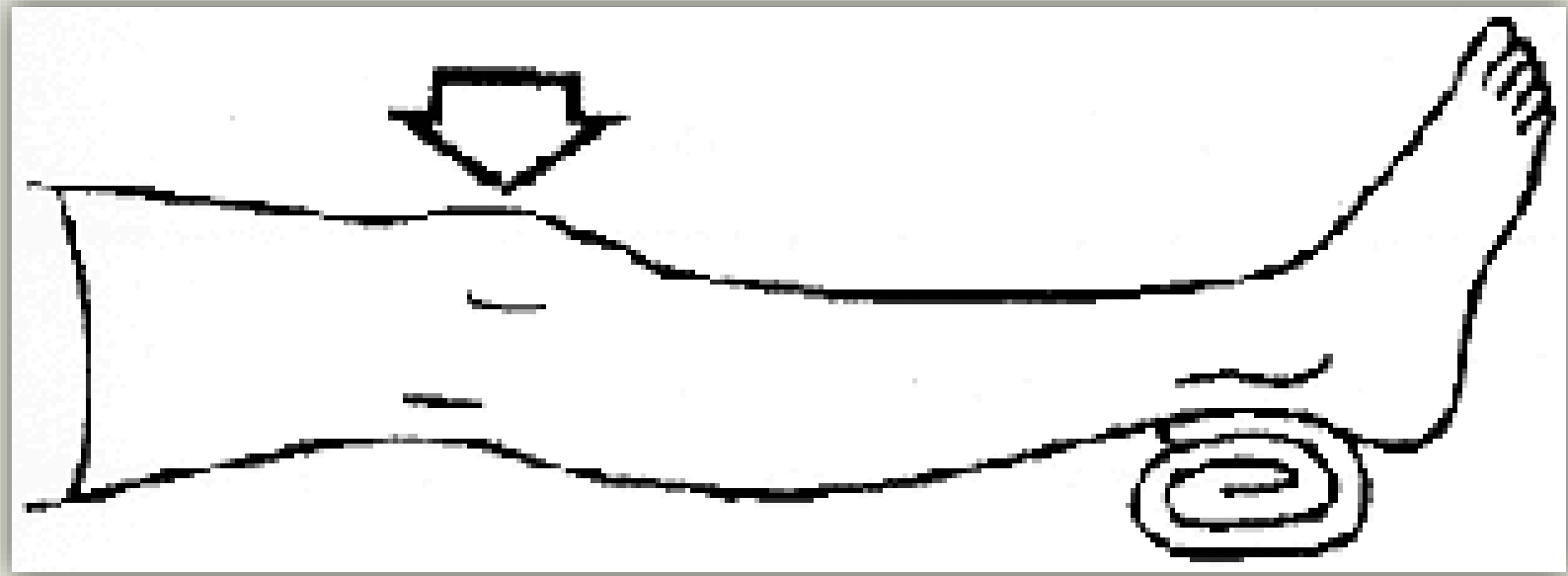
MOST COMMON CAUSES OF KNEE PAIN

- **Trauma/direct injury** – as in a fall, direct blow, or sudden jerk/twist
 - Fracture of bones around knee or dislocation of knee cap – requires immobilization
 - Torn or strained ligament (s)
 - Cartilage damage
 - Bruising
- **Overuse injuries**
 - Runner's knee
 - Iliotibial Band Syndrome (ITBS)
 - Plica Syndrome
 - Bursitis
- **Aging or “wear and tear”- arthritis**



QUAD SETS

- With heel supported by rolled towel, tighten muscles on front of thigh by pressing back of knee down.
- Other knee should be bent.
- Hold for 5 sec, gradually increasing to 15 sec.
- Perform 10-15 reps 3-4 x / day.



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HEEL SLIDES

- Lie on your back in a comfortable position
- Gently slide involved heel towards buttocks as far as comfortable, hold 5 sec
- Gently slide heel away from buttocks until knee is flat on surface
- Perform 10 – 20 reps several times per day



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KNEE STRETCHES

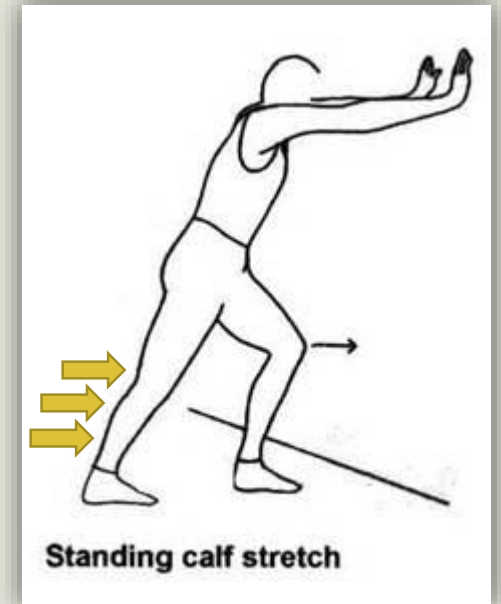


HAM STRETCH

(Lean forward to feel stretch on back of thigh of straight leg)

For stretches:

- **Be Gentle!!**
- Hold 20-30 sec
- Repeat 2-3 times



CALF STRETCH

(Lean forward to feel stretch on back of straight leg)

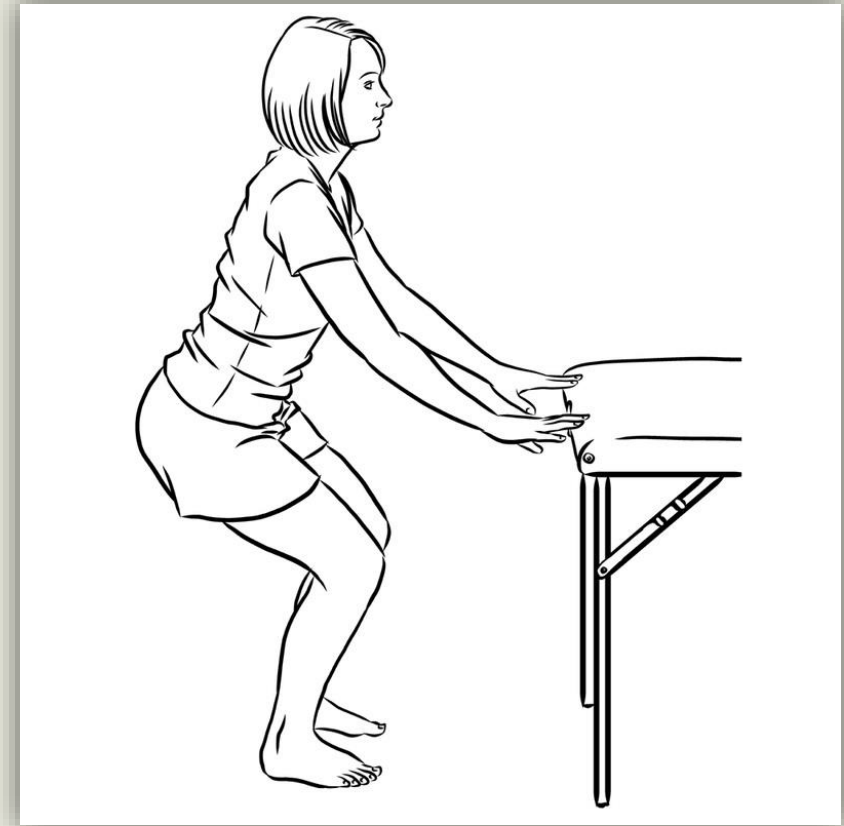
STRAIGHT LEG RAISE

- Lying on back with abdominals engaged and good knee bent, perform quad set and while keeping involved leg straight, raise leg to height of other knee
- Lower slowly with good control
- Perform 8 to 12 repetitions
- Work up to a 5 second hold and 2-3 sets



MINI-SQUATS

- Stand in front of a stationary object with feet hip width apart
- Bend at hips and knees to about 45 degrees keeping buttocks behind you and back straight, hold briefly
- Do not allow knees to go past toes
- Straighten knees and return to upright start position
- Perform 8 – 12 reps x 2 to 3 sets
- Work up to 5 sec hold



<http://foodtalk4you.com/2014/07/>

SUMMARY OF OPTIONS FOR ADDRESSING KNEE PAIN

- **Self treatment**
- **Injections**
- **Surgery**
- **Physical therapy**
 - **Assessment for muscle weakness, poor neuromuscular control, hip/ankle issues, root cause**
 - **Pain relief modalities (US, ES, ETPS, MHP, CP)**
 - **Manual therapy (STM, DTM, S-CS, joint mobs)**
 - **Supervised therapeutic exercise and neuromuscular re-education**
 - **Patient education**