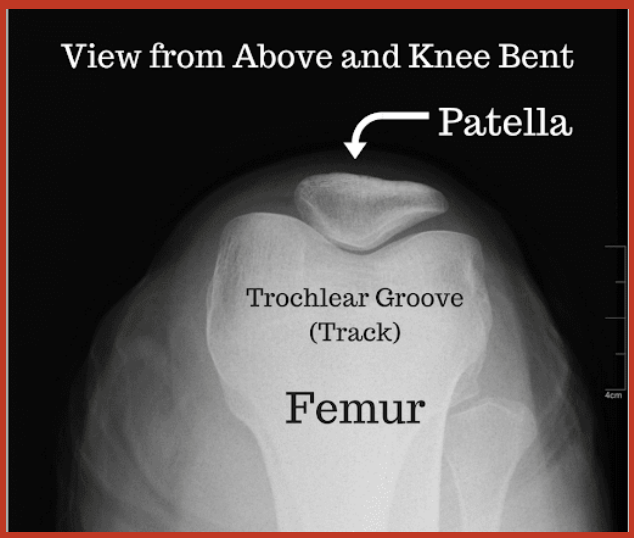
PATELLOFEMORAL PAIN SYNDROME "CHEAT SHEET"

DEFINITION

Patellofemoral Pain Syndrome (13)

- Known as "Runner's Knee or "Anterior Knee Pain"
- Pain around or behind the patella aggravated by activities that loads the PF joint (weightbearing knee flexion)
  - Squats, stairs, lunges, running, jumping

ANATOMY



- "Train" (Femur) on "train track" (trochlear groove)
- Passive Stabilizers
  - Boney alignment of the patella and trochlear groove (a more shallow groove increases the risk of patellar subluxation) (4).
  - Patellar tendon, Joint Capsule, Medial meniscopatellar ligament, Medial retinaculum, Medial PF ligament, Lateral PF ligament, IT Band, Lateral retinaculum
- Active Stabilizers
  - Quadriceps, semitendinosus, gracilis, sartorius)
  - Biceps femoris
  - Trunk, hip, ankle and foot

PAIN "GENERATOR" OR "SOURCE"

- True source unknown - potential sources:
  - Infrapatellar fat pad (1,13)
  - Synovial plicae
  - Retinaculae (medial or lateral)
  - Joint capsule
  - Patellofemoral ligaments
  - Subchondral bone (bone underneath of the cartilage)

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PREVALENCE

- Most common knee condition treated in outpatient clinics (1).
- 25% of all knee disorders in an orthopedic setting (1)
- Common in runners, tennis, military (1,5), young adults and during periods of rapid growth (1)
- 3.8% of males and 6.5% of females get it annually (1)

CLINICAL PRESENTATION

- Gradual onset of anterior knee pain (1) usually present around or underneath the knee cap (1)
- Recalcitrant condition that can persist for many years without intervention (13).
- Hurts with movements that load the PF joint
  - Squatting, stair climbing, hiking, running, prolonged sitting) (1)
- 75% of patients - tenderness along the patella (1)
- Tenderness on patellar facet palpation (13)
- Pain on sitting, rising on sitting, or straightening the knee following sitting. (13)

RISK FACTORS FOR DEVELOPING PFPS

Predisposing factors

- Quadriceps weakness (47)
- In adolescents increased hip abduction strength WAS a risk factor for future PFP

NOT risk factors:

- Age, height, weight, body mass index (BMI),
- Body fat and Q angle
- Hip weakness

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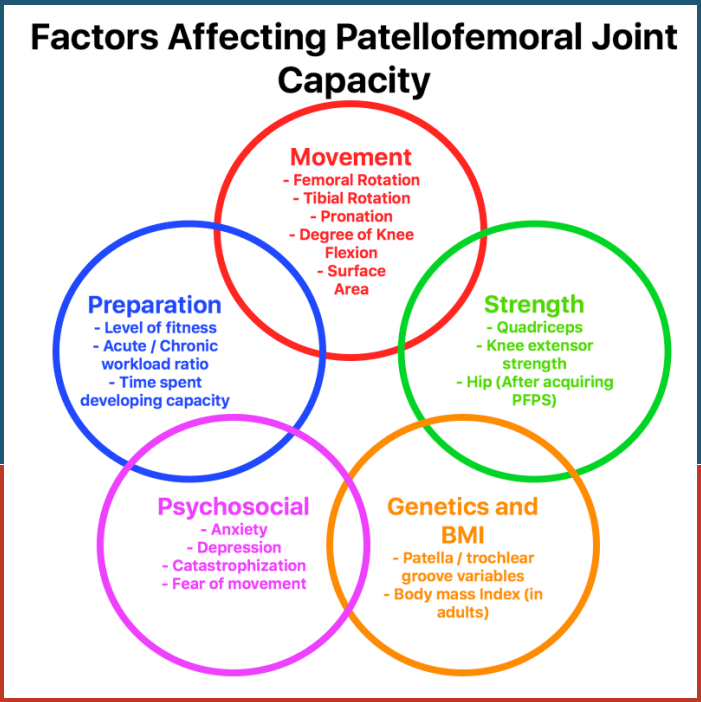
POTENTIAL MECHANISMS OF INJURY

- Total training volume (17,18,19,20)
- Spikes in training volume
- Lack of recovery (49,50)
  - Stress, sleep
- Psychological profiles (51)
- Prior injury (49)
  - Lesser injury
- Biomechanics:
  - "Valgus" - lateralized stress to PF joint (1)

DIFFERENTIAL DIAGNOSIS (52)

- Patellofemoral Osteoarthritis
  - Age over 40
  - Radiographic evidence
- Sinding-Larsen-Johansson disease
- Osgood-Schlatter disease
- Patellar / Quad tendinopathy
- Trauma
- Tibiofemoral joint pathology



DIAGNOSIS

- History:
  - "Overuse"
    - Start new activity "running"
    - Spike in volume
    - Gradual onset - not traumatic "usually"
  - Additional criteria:
    - Crepitus or grinding sensation during knee flexion movements
    - Pain on sitting, rising on sitting, or straightening the knee following sitting. (13)
      - Movie theatre sign
- Subjective:
  - Aggravated by activities that load the patellofemoral joint
    - Squatting, stairs, jogging, running, hopping and jumping (1,5)

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DIAGNOSIS

- Objective:
  - Tenderness on patellar facet palpation,
  - Small to no effusion (joint swelling)
    - Larger effusion indicates something else
  - Normal range of motion (passive)
  - Manual Muscle Testing:
    - Hip abduction weakness (Extension, ER, ABduction)
      - After injury
    - Knee extension weakness (painful)
      - People with PFPS have been shown to have a 6-12% deficit in strength compared to healthy controls without PFPS (2)

- Special Tests
  - Femoral grind test (Clarke Sign) - positive
  - Patellar gliding - excessive
- Palpation - tenderness around patella
- Imaging
  - Not generally needed
  - Indicated if not progressing
- Psychosocial factors (53)
  - Kinesiophobia, anxiety, depression, catastrophizing
  - Worse with severe cases

EVIDENCE BASED TREATMENT OF PATELLOFEMORAL PAIN (54)

- Education:
  - Why does your knee hurt
  - Pain management strategies
  - How to modify physical activity using pacing and load management strategies
  - Information on optimal knee alignment during daily tasks
- Exercise Therapy:
  - Targeting the knee, hip, foot and trunk
  - Blood flow restriction training (BFR)
  - Aerobic exercise
- Foot Orthosis (with education)
  - Prefabricated
- Patellar taping / mobilization
  - Combined with exercise, orthotics, education
- All treatments similar outcomes
  - 12 months compared to “wait and see”
- At 3 months
  - exercise + education was superior
- “Wait and see” approach
  - Not recommended

WANT TO LEARN MORE ABOUT HOW TO GET YOUR PATIENTS OUT OF PAIN AND BACK IN THE GYM WHERE THEY BELONG?

Sign up to receive the FREE Fitness Pain Free Mini Course

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