Goals
The audience will understand the diagnosis and treatment of patellofemoral dysfunction (PFD) in adolescents in a pediatric practice.
Objectives

The audience will be able to describe, in the context of PFD:

1. What is PFD?
2. History and PE findings
3. When to obtain imaging
4. Treatment
5. When to refer

PFD

• Overuse injury of the extensor mechanism of the knee, involving the patella as it tracks in the femoral groove, and its retinaculum excluding other intraarticular and extraarticular processes

• “Runner’s knee”; “chondromalacia patella”; patellofemoral pain syndrome

• Most common cause of knee pain, SM
History

• Usually weeks to months
• Usually dull, sometimes sharp
• Knee may give way
  – Internal derangement vs. PFD
• Often no specific trauma to knee
• Other injuries to leg?
History (cont’d)

• Worse with stairs
• Theatre sign
• No mechanical complaints: locking
• No constitutional complaints
• Does not occur at night
PE

• Where does it hurt?
  – One finger
PE (cont’d)

• Biomechanical issues
  – Pronation
  – Weak hip rotators – “Bad balance”
  – Weak quads
  – Tight hamstrings, and quads
Differential Diagnoses

- Infection/Arthritis
- Tumor
- Referred from hip
- Internal derangement of knee
  - OCD; meniscal tear; ligament tear

Radiography?

- Author’s opinion:
  get plain x-rays (AP, lateral) if:
  - You are not comfortable with the diagnosis
  - You cannot reproduce the pain that brought them to the clinic: the chief complaint
  - If there are constitutional complaints
  - If the PE findings are worrisome
Treatment

• Rest – relative rest
• Must include a PT consult for
  – Flexibility
    • Hamstrings
    • Quads
    • Calves
  – Strength and endurance: quads, core
  – May require 1-2 visits or 2x/week for 8 weeks

Treatment (cont’d)

• Ice – 20 minutes
• Analgesic meds – prn
• Neoprene sleeve may help
Returning After an Injury

- Premature return increases risk of reinjury
- Goal is 100% of baseline strength, flexibility, endurance and proprioception
- Once these goals are achieved (~90%) then start functional rehabilitation
- Best example, in general, is the walk-jog program
Returning After an Injury (cont’d)

• Start slow
  – Walk 5-20 minutes over 8 days
  – Walk > jog 5-20 minutes over 8 days
  – Walk > jog > sprint increasing over 2-3 days

• If pain, swelling > stop

<table>
<thead>
<tr>
<th>Day Number</th>
<th>Walk</th>
<th>Jog</th>
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<tbody>
<tr>
<td>1, 2</td>
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<td>13, 14</td>
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<td>15</td>
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<td>&gt; 15</td>
<td>5</td>
<td>&gt;10% per week</td>
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Summary

• PFD – most common cause of gradual onset knee pain in adolescents

• PFD diagnosis can be made on history
  – Gradual onset of dull knee pain, no systemic complaints, usually no direct trauma, worse with stairs, theatre sign

• Corroborated with PE
  – Tenderness in peripatellar region, no swelling
  – Limited flexibility, poor core strength: “corkscrew”

Summary (cont’d)

• X-ray if concerned about diagnosis (initially), mechanical complaints, constitutional complaints, if you cannot reproduce the pain on knee exam (hip) or if no improvement on follow-up

• Refer to sports medicine or orthopedic surgery:
  – Mechanical complaints
  – Swelling
  – Failure to improve with treatment
  – Uncertain diagnosis
Summary (cont’d)

• Treatment
  – Relative rest, ice
  – PT referral
  – Return to exercise gradually before returning to sports
• Walk-jog program

Thank you!

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