Full time job after joint replacement
Problems after total joint replacement

"It's my knee, Doctor. It's still giving me problems."
Same problem different joint?

<table>
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<tr>
<th>Total Knee</th>
<th>Total Hip</th>
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<tbody>
<tr>
<td>• Strength-Quads</td>
<td>• Strength-Hip abductors</td>
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<tr>
<td>• Biomechanics/STS</td>
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<tr>
<td>• Muscle Contracture/ROM</td>
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Problems after total knee

- Impaired quad strength has been associated with: decreased walking speed, impaired balance, diminished sit-to-stand ability, and increased risk of falling. ²

- Strength rarely reaches age-matched norms. ¹
  - >20% deficit in short term
  - >30-48% deficit in long term
    - These are due to a combination of atrophy and neuromuscular activation.
Problems after total hip

• Three months post THA patients rely on non-operative hip during STS vs control.\textsuperscript{12}

• Decrements of strength in THR of 10-21% and postural stability of the involved hip relative to the non-operative hip 1 year post THR with these deficits still evident two years after surgery.\textsuperscript{11}
• To achieve gains in strength, the muscle contraction must occur at a minimum of 40% of a Max Voluntary Contraction (MVC), but gains are better if contracted at 60-90% of MVC.
Healthy subjects lost 1.06% of overall strength each day in the first week of non-use and 0.68% each day the second week\textsuperscript{13}
• One month after TKA there is about a 17% reduction in muscle activation. If we train patients at 70% of their one rep max they may actually only be using about 58% of their max contraction which may not be enough to cause true strength gains. ²
PT Day of surgery

• Goals
  – Up Ambulating
    • Mechanics
    • Speed if applicable
  – Increase muscle activation/strength, ROM, and activity
    • HEP
    • Educate!!!
  – Decrease swelling
    • Polar Care and Elevation
Exercises to Recruit Quad Muscles

• Quad Set\textsuperscript{7,8}
  – Activates the single joint muscles-because these makes up the majority of the quad group some argue that it is better at regaining quad strength in the fully extended position compared to a SLR.
    • About 85% EMG activity

• Straight Leg Raise\textsuperscript{7,8}
  – Activates the Rectus Femoris better.
    • About 100% EMG activity
63 y.o. male L TKA day of surgery
81 y.o. female day of surgery R TKA
66 y.o. male L TKA day of surgery R TKA post op 7 days
Goals for Discharge after Joint Replacement

- Ambulating a minimum of 150 feet
- Ascend/Descend stairs as applicable
- ROM 0-90 (Total Knee)
- Educate patient on the importance of continued mobility, strengthening, ROM, elevation,....
Full Time Job
Questions???
References


