RETURN TO SPORT
TOTAL JOINT ARTHROPLASTY

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Return to Sport Considerations

- Very little research supporting return to sport decision making following TJA[1]
  - Better strength is related to better functional performance
  - For other orthopedic procedures ~ 90% Limb Symmetry for return to sport
  - Higher level goals may extend plan of care

- Falls are a risk with Winter Sports
  - Balance Tests
    - BESTest and Mini BESTest more sensitive to changes for TKA[2]
      - Long
    - Star Balance Excursion Test or Y balance screen[3]
      - Not as long
      - Reliable, valid as part of injury prediction screen

Y-Balance-Test.png (1280×720). Source. https://orthofixar.com/wp-content/uploads/Y-Balance-Test.png

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Rehab of THA

AAOS Recommendations[4]

- Moderate Recommendation
  - Formal PT or Unsupervised Home Exercise Program
- No Comment
  - NMES
    - Research Lacking
  - BFR
    - Research Lacking

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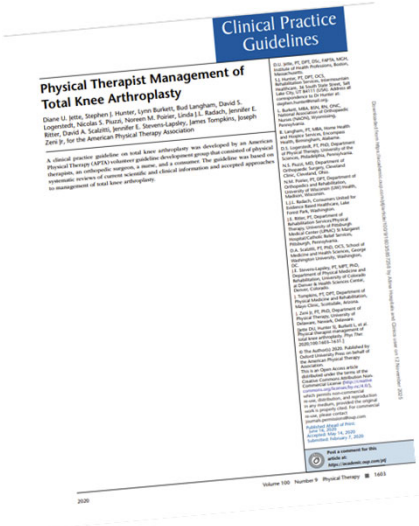
Rehab of TKA



APTA recommendations for TKA[5]

- Best Practice
  - Knee AROM
- Strong recommendation
  - Balance and Motor Control
- Moderate recommendation
  - Resistance Training
  - NMES
- No Commentary
  - BFR

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Rehab of TKA

- Knee AROM
  - Initiate within 24 hours post-operatively (standard of care, no comparator)
  - Restore AROM, 0-120 within 3 months
    - ROM gains slow following 3-6 month time frame, plateau around 12 months
    - Earlier MUA led to greater improvements in knee flexion (< 3 months)
- Balance and Motor Control
  - Balance interventions improved
    - Gait speed
    - Stair-climbing time
    - TUG
    - Six-Minute Walk Test

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Rehab of TKA

- Resistance Training
  - Recommendation of initiation of resistance training within first 7 days
    - Early (within 72 hours) of high intensity strength training is safe but does not outperform lower intensity
      - Perhaps due to quadriceps AMI
    - Avoiding excessive swelling, pain, or prolonged soreness following intervention
  - Resistance training results in higher levels of functional mobility and better knee extension ROM
  - 3 days per week of progressive resistance training results in better strength and better balance on star balance as Berg Balance scales

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Rehab of TKA

- NMES
  - Addresses AMI
  - Improved quadriceps and hamstring HS
  - Greater improvement in walking, stair-climbing performance, and patient-reported outcomes with NMES use compared with no NMES
  - Improved Outcomes with
    - Earlier NMES (as early as postoperative day 2)
    - More frequent (5–7 times daily)
    - Longer application

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Rehab of TKA

- BFR
  - Emerging area of research
  - BFR is safe [6]
  - BFR may prevent atrophy (ischemic pre-conditioning)[6]
  - In patients dissatisfied with TKA 6 weeks of BFR Improved[7]
    - Patient reported outcome measures
    - Reduced Pain
    - Reduced catastrophizing
    - 6 MWT
    - 30 second sit to stand

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Phases of Resistance Training THA and TKA

0 – 4ish weeks

- Muscle Re-ed/Work Capacity
  - Improve tolerance/endurance
  - Higher Reps (15-30)
  - Shorter Rest periods (30-60")
  - < 70% 1 RM
  - > 3 Reps in Reserve
  - Consider NMES for TKA

2ish weeks – 80-90% Limb Symmetry

- Strength
  - Improve force output
  - Low to Medium Reps (1-12)
  - Medium volume
  - Moderate rest intervals (90-120 sec)
  - > 70% 1 RM
  - < = 3 Reps in Reserve
  - Continue NMES for TKA
  - Consider BFR for TKA

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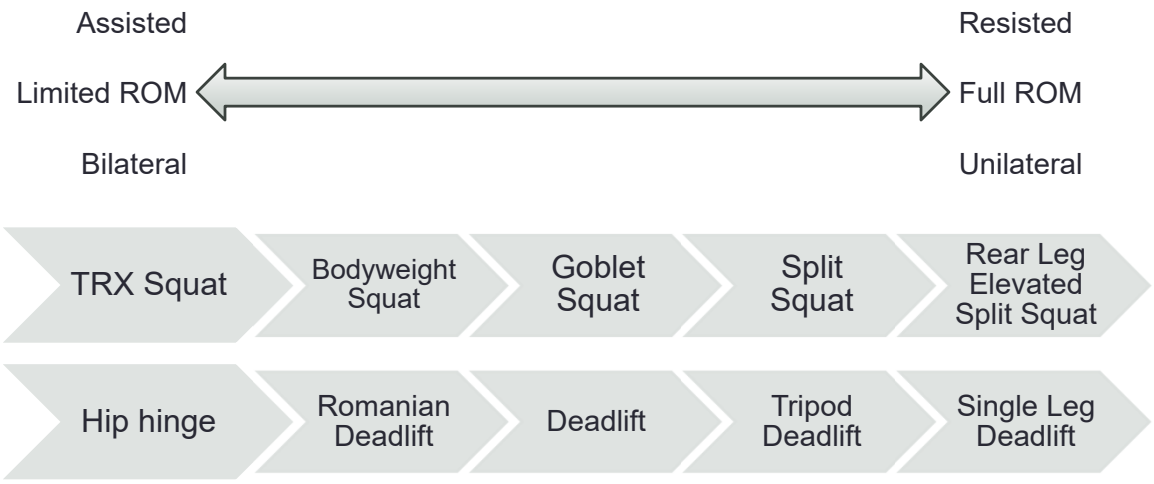
Sample Strength Progression



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TKA Rehab Takeaways

- Immediate ROM
- Resistance Training within 7 days (Higher Intensity Strengthening is safe)
- NMES may be underutilized
- BFR may be appropriate for some
- For RTS Goal of as close to 90% Strength Symmetry as possible
- Screen balance – (Consider Y-balance screen or Mini BESTest)

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THA Rehab Takeaways

- Formal PT may not be necessary
- Supplementary role of NMES and BFR is not clear
- For RTS Goal of as close to 90% Strength symmetry as possible
- Screen balance – (Consider Y-balance screen or Mini BESTest)

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Rehab of TSA

ASES, APTA, AAOS Recommendations TSA[8,9,10]

- Strong Recommendation
  - Sling
  - Progressive ROM
  - Progressive Strengthening
- Moderate recommendation
  - Delayed ROM until 4 weeks
- No Commentary
  - NMES
  - BFR

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Rehab of TSA

- Sling
  - 4-6 weeks
- Progressive ROM
  - PROM → AAROM → AROM
- Progressive strengthening
  - Specific dosage, timing, and type of exercise not well researched
- Delayed ROM
  - 4 weeks
  - Protects Subscapularis
  - Early stress may impair healing rates and compromise long term functional outcomes
- Delay IR loading
  - Protects Subscapularis
- Delayed abduction
  - Protects Subscapularis

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Phases of Resistance Training TSA

4-6ish weeks – 12ish weeks

- Muscle Re-ed/Work Capacity
  - Improve tolerance/endurance
  - Improve endurance
  - Higher Reps (15-30)
  - Shorter Rest periods (30-60")
  - < 70% 1 RM
  - > 3 Reps in Reserve

10ish weeks – 80-90% Limb Symmetry

- Strength
  - Improve force production
  - Low to Medium Reps (1-12)
  - Moderate rest intervals (90-120 sec)
  - > 70% 1 RM
  - <= 3 Reps in Reserve
  - Consider NMES to improve deltoid function

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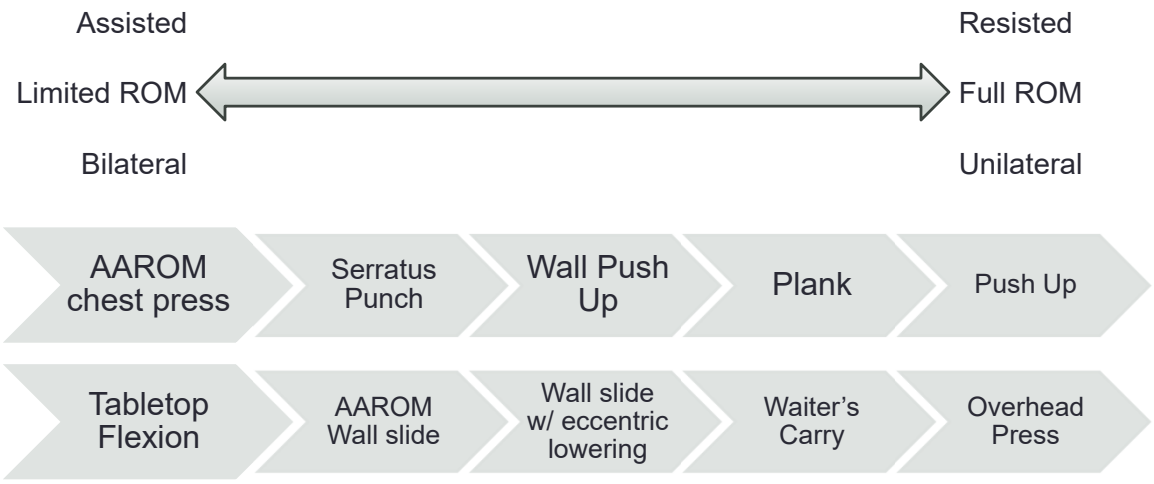
Sample Strength Progression



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TSA Rehab Takeaways

- Protect Subscapularis repair
- Delayed ROM (as long as 4 weeks)
- Resistance Training delayed until 8-12 weeks
- NMES may improve deltoid function
- Screen balance – (Consider BESTest or Y-balance screen)

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