Bridging the Gap Between Physical Therapy and Personal Training

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Conflict of Interest Statement

• I have no actual or potential conflict of interest in relation to this presentation.
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Agenda

• Discuss the Importance of the Role of Personal Training Post Injury/Surgery
• Discuss Various Orthopedic Injuries
  • Pathophysiology
  • Surgery
  • Rehab
  • Clinical Pearls: Implications for the Personal Trainer
• Discussion/Q&A
Role of Personal Trainers

• Play a vital role as a key member of the rehab team
• Health insurances cap PT visits
• Many orthopedic surgeries require months and months of rehab
• Can take up to 2 years for full strength to return after some orthopedic surgeries
• Help take patients to the next level in their recovery process
Shoulder-Rotator Cuff Pathophysiology

• 4 muscles: Supraspinatus, infraspinatus, subscapularis, teres minor
• Role
  • Abduct the arm, internally/externally rotate the arm
  • Compress the “ball” into the socket
  • Stabilize the shoulder during all tasks/movements
• Injury due to:
  • Trauma-FOOSH, fall, traction
  • Repetitive microtrauma-overuse
    • Poor posture/impingement
Impingement Syndrome

Impingement syndrome is one of the most common shoulder problems. When the arm is abducted past 90°, the greater tuberosity of the humerus compresses the rotator cuff against the acromion causing pain and decreased motion in the shoulder.
Rotator Cuff-Surgery

• Sew the tear
• Use suture anchors to reattach the tendon
• Arthroscopic or mini open
Rotator Cuff-Rehab

• Depends on size of tear
• 3-6 months of PT
• Recovery takes 12-18 months
• No muscle movement for first 6 weeks
  • Very weak
• PT-restores ROM, and re-educates muscles
Rotator Cuff-Rehab

• Focus is on restoring strength and stability

• Key muscles we target:
  • Lower traps
  • Serratus anterior
  • External rotators
Rotator Cuff - Clinical Pearls

• Target those key muscle groups
• Weight bearing/closed chain exercise
  • Planks, push ups
• Dumbbell Raises with Thumb up...Always
• Avoid Shrugs
• Never do a Military Press
Weightlifter’s Shoulder

Normal outlet view x-ray.

Abnormal outlet view showing a large bone spur causing impingement on the rotator cuff.
Shoulder Instability/Labrum-Pathophysiology

- Labrum is a small gasket that lines the socket
- Biceps anchors to superior labrum
- Capsule surrounds the Joint
- Both provide stability
Shoulder Instability-Pathophysiology

- Vulnerable position is 90 degrees abduction and ER
- Injured with trauma, traction
- Under the age of 20-almost guaranteed to re-dislocate
- >90% anterior dislocation
Shoulder Instability-Surgery

- Repair labrum/biceps
  - SLAP
- Repair capsule
  - Bankart
- Limited ER for 4-6 weeks
Shoulder Instability-Rehab

- Same key muscle groups as RC
- Avoid position of vulnerability
- No excessive horizontal abduction
- Rehab is 3 months
- 4-6 months return to sport
Shoulder Instability Clinical Pearls

• Monitor horizontal abduction with chest and bench press
• Keep elbow in line with shoulders
• 6 inches from chest
• Avoid loading abduction and ER combined
Little League Elbow - Pathophysiology

- Term for medial elbow pain in youth athletes
  - Strain, fracture/avulsion, tommy john
- “biggest epidemic in youth sports”
  - 1996-3% of youth and high school pitchers had tommy john
  - 2011-24% had tommy john
- 100% preventable
- Develops with all throwers, not just pitchers
- Overuse
- Progressive microtrauma
- Weak core/shoulder; decreased velocity and accuracy
Little League Elbow-Pathophysiology

• Weak core and shoulder leads to excessive force/strain on the medial elbow; compression on lateral elbow
• Seen at end of cocking phase and at ball release
• Growth plates at the elbow have not fused, thus can pull away from the bone
• Once puberty is over and all growth plates fused, it stretches and can tear the ulnar collateral ligament
Rehab/Clinical Pearls

• Education: USA Baseball Guidelines
  • Pitch count, pitch type
• Emphasize ER, scapular strength
• Core power and stability important
• Forearm strength-flexors/pronators
• Pitching coaches are NOT trainers
Pitch Counts

- Age 7-8...No more than 50/day
- 9-10.....75/day
- 11-12....85/day
- 13-16....95/day
- 17-18....105/day
Rest days

- 21-40 pitches........1 day rest
- 41-60 pitches..........2 days rest
- 61-65 pitches.........3 days rest
- 66+ pitches..............4 days rest
Age for pitching various pitches

- Fastball.....8 years old
- Change Up .....10 years old
- Curveball.....14 years old
- Knuckleball....15 years old
- Forkball.....16 years old
- Slider......16 years old
- Screwball.......17 years old
ACL - Pathophysiology

- Main stabilizing ligament of the knee
- Controls anterior translation of the tibia on femur
- Prevents hyperextension
- Assists in rotary stability
- Over 200,000 cases last year
- Caused by trauma or noncontact
- Higher rate in females
ACL- Surgery

• 3 main options
  • Patella tendon
  • Hamstring
  • Cadaver
• Patella uses the central 1/3 of patella tendon
• Hamstring uses medial hamstring tendon
• Drill tunnels-fixate graft with screws/buttons
• Patella graft also takes part of the patella
  • Risk of fracture
ACL-Rehab

• PT 3-4 months, up to 6 months
• No jogging for 12 weeks
• No running/jumping/pivoting 6 months
• Restore ROM
• Strength/strength/strength
• Quad strength
ACL-Clinical Pearls

- QUADS
- Glutes-abduction!
- Avoid seated knee extension
- Core
- Stability exercises
- Dynamic strength
  - walking lunges
ACL-Clinical Pearls

• If patella graft-eccentric quads
  • Leg press: out with two, in with one

• If hamstring graft-hamstring strength
  • Dead lifts, knee curls

• Work power to gain strength
  • Low reps, high weight
Achilles - Pathophysiology

- Common tendon for three muscles
  - Gastrocnemius
  - Soleus
  - Plantaris
- Attaches to heel bone
- Tendonitis common
- Can progress to tear
  - Mid tendon or off bone
Achilles-Surgery

- Sew it
- Reattach to bone
Achilles- Rehab

• Can be treated non operatively. If so... cast for 12 weeks then start PT
• If surgical, cast 6 weeks, walking boot 6 weeks. PT starts at 6 weeks
• Restore rom and flexibility
• No running or jumping for up to 6 months
• Return to sport 8 months
Achilles-Clinical Pearls

- Strength, strength and strength
- Eccentric strength – “negatives”
- Muscle bulk could take 18 months to return, if ever
Total Hip Replacement-Pathophysiology

• Done for arthritis, fractures, avascular necrosis
• Replace the ball and socket of the hip joint
• Posterior or posterolateral approach is most common
THR: Surgery
THR: Rehab/Clinical Pearls

• If posterior approach-most common-avoid flexion past 90, IR past neutral, and adduction past midline. Especially all three combined

• Emphasize hip abduction/extension.....GLUTES!

• No running or jumping
Total Knee Replacement - Pathophysiology

- Done for trauma, arthritis
- Replace part of femur, tibia and sometimes patella
TKR-Surgery
TKR-Clinical Pearls

• Ok to do seated knee extensions
• Quads, glutes
• No running or jumping
• Avoid twisting the knee
• Low impact cardio
Communication

• Communication is key with the patient/client, therapist
• Never be afraid to call a PT with a question
• PT/Trainer collaboration can be extremely rewarding
• Trainers are equally important in the rehab process
• Create a partnership with a PT clinic
  • We partner with the ymca trainers
  • Discount for patients leaving PT
• Great opportunity to create a niche
Questions???????????