Physical Therapy for Shoulder and Knee Pain

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Physical Therapy for Shoulder and Knee Pain

• GOALS:
  – Explain the role of physical therapy
  – Shoulder and knee injury prevention
  – Activity modification
  – Pre operative treatment
  – Post operative treatment
The Role of Physical Therapists?

• Skilled in the assessment of musculoskeletal injuries
  • Thorough examination
  • Movement analysis
  • Patient response method
  • Functional training
• Exercise, manual therapy, modalities, and patient education
Why Physical Therapy?

- Doctoral level education
- Evidence based practice
- Work closely with physicians
- Design patient specific treatment
Physical Therapy for Shoulder Pain
Physical Therapy Examination of the Shoulder

• Rule out the cervical spine
  • Referred pain
Physical Therapy Examination of the Shoulder

- The Shoulder
  - Structure/Posture
  - Range of motion (Active/Passive)
  - Strength
  - Neurologic
  - Special tests
  - Function
Common Shoulder Conditions

- Adhesive Capsulitis
- Osteoarthritis
- Instability/Dislocation
- Rotator Cuff Impingement/Tear
Adhesive Capsulitis

• A disorder in which the shoulder capsule becomes inflamed and stiff, greatly restricting motion and causing pain.
Adhesive Capsulitis: Symptoms

• Two types
  • Primary (unknown cause)
  • Secondary (i.e. following surgery, stroke, immobilization)
Adhesive Capsulitis

- Occurs in 2%-5% of the population
- More frequent in females than males
- Generally occurs in people who are 45 years in age or older
- Non-dominant arm is typically involved
- Seen more commonly in people with diabetes and thyroid disease
How can Physical Therapy help Adhesive Capsulitis?

• Education – know what to expect
  • Can last 12-24 months
• Depends on the stages of healing
• Aggressive therapy is not the best treatment (avoid inflammatory reaction)
• Mobilization/specific stretch of the capsule
• Instruction in stretching activities for home/clinic
How can Physical Therapy help Adhesive Capsulitis?

• The majority of patients respond to supervised physical therapy and home exercises

• 90% of patients have their symptoms resolve with non-operative treatment
  • Physical Therapy
  • Cortisone injection
  • Medication
  • Time
Osteoarthritis of the Shoulder

• Glenohumeral joint
Osteoarthritis of the Shoulder

- Occurs when cartilage that lines the shoulder is worn away.
- Bone spurs may develop along the joint surface causing roughness.
- The friction between the rough surfaces causes pain.
Osteoarthritis of the Shoulder: Symptoms

- Slow progression of pain and stiffness
- Starts with pain with activity and progresses to pain at rest or sleeping
- Limited range of motion especially in the morning or after sitting for a while
- Crepitus: grating and cracking
- Weakness due to avoidance of use secondary to pain
How can Physical Therapy help?

• Patient education
  • Avoid activities which cause an arthritic flare-up
  • Having a little increased discomfort during an activity is ok. However upon completion of the activity you should not have increased pain.
  • Gradually increase the activity little by little, as not to reach the “flare-up” state
• Don’t stop doing things, just change the way you do them using activity modification.
How can Physical Therapy help?

• Activity Modification
  – Minimize the frequency of lifting heavy loads and the frequency of activities above shoulder height
    • Reorganize your living area
    • Get a step stool so you do not have to reach as high
    • Move commonly used items from cupboards to countertops
    • Bring your head down to your hands to wash your hair
    • Hold heavy objects with 2 hands
    • Place your bad arm in the sleeve first
How can Physical Therapy help?

• Perform low level strengthening of the rotator cuff to take strain off of the joint and protect from further break down

• Joint mobilizations and stretching to improve motion and to take pressure off of the joint surfaces
Shoulder Instability

• The term “shoulder instability” refers to a spectrum of disorders that includes dislocation, subluxation, and laxity.

• Because of the amount of motion allowed by the shoulder joint, it is inherently unstable.
How can Physical Therapy help Shoulder Instability?

• Patient education regarding which positions to avoid

• Strengthening exercises to create stability for the joint and to prevent future injury
How can Physical Therapy help Shoulder Dislocation/Instability?

**Early Phases of Rehab**

- Early controlled range of motion
- Promote and protect healing of soft tissue
- Prevent the negative effects of immobilization
- Active assistive range of motion
- Isometric exercises

**Isometric Exercise**

![Isometric Exercise Image]
How can Physical Therapy help Shoulder Dislocation/Instability?

Mid Phases

• Advance range of motion exercises to tolerance
• Progressive strengthening of the rotator cuff with the arm at the side

Resistive exercises
How can Physical Therapy help Shoulder Dislocation/Instability?

Late Phases

- Proprioceptive exercises
- Progress to strengthening away from the body
- Aggressive strengthening
- Functional training
  - Work or sports specific tasks

Proprioceptive exercises
Rotator Cuff

• A group of 4 muscles designed to make the shoulder stable
• They connect the shoulder blade to the arm bone
• Maintains proper position of the humerus with arm elevation
• May become inflamed
• May break down over time leading to a tear
Rotator Cuff Impingement/Tendonitis

• Compression/wear and tear of the tendons or bursa between the bones of the shoulder in the subacromial space
  – Tendons connect muscle to bone
  – Bursa is a small fluid filled sac which helps the rotator cuff move smoothly
Rotator Cuff Impingement: Symptoms

• Pain over top of shoulder or down the outside of the arm
• Pain reaching overhead
• Pain reaching behind the back
• Painful arc
• Pain worse at night
Rotator Cuff Impingement

• Multiple causes
  – Repetitive overhead motion (painting, throwing)
  – Tight capsule
  – Instability
  – Trauma
  – Scapular dyskinesia
  • Abnormal position of the shoulder blade at rest or with movement
How can Physical Therapy help Rotator Cuff Impingement?

• Strengthening/Stretching
  – Rotator cuff, shoulder blade muscles
  – Target the muscle that will preserve the subacromial space
How can Physical Therapy help Rotator Cuff Impingement?

• Patient Education
  • Avoiding painful activities, i.e. overhead activities, painful arc
  • Posture
  • Do not sleep on painful side

• Mobilization
  • Improve joint mobility, stretch the capsule
How can Physical Therapy help Rotator Cuff Impingement?

- Research has shown a combination of manual therapy (mobilization) and exercise is the most efficient treatment method.
Rotator Cuff Impingement

- It is believed that chronic impingement can lead to partial thickness tears and progress to full thickness tears

- Acute tear
  - Traumatic
Rotator Cuff Tear: Symptoms

- Pain when lifting or lowering the affected arm
- Discomfort when sleeping on the affected shoulder
- Weakness when lifting or rotating the affected arm
- Loss of range of motion in the shoulder
How can Physical Therapy help a Rotator Cuff Tear?

• Restore motion
  • Correct shoulder mechanics
  • Correct the motion of the shoulder blade

• Restore strength to the muscle around the torn tendon
  • Smaller muscles that are often neglected
  • Compensate for damaged tendons
How can Physical Therapy help a Rotator Cuff Tear?

• Studies have shown that 30% of people under 70 years of age and 70% of people over the age 80 have rotator cuff tears

• These are people with no symptoms
How can Physical Therapy help a Rotator Cuff Tear?

• Full thickness rotator cuff tears treated with physical therapy
  • Studies have shown 66% of patients with symptoms less than 3 months were still asymptomatic at 7 years with PT.
  • 56% of patients who had symptoms for 6 months remained asymptomatic at 7 years with PT.
Shoulder Injury Prevention

• Avoid repeated overhead arm positions that may cause shoulder pain.

• If your job requires such movements, seek out the advice of a physical therapist to learn arm positions that may be used with less risk.
Shoulder Injury Prevention

• Apply rotator cuff muscle and scapular strengthening exercises into your normal exercise routine.

• The strength of the rotator cuff is just as important as the strength of any other muscle group.
Shoulder Injury Prevention

• Practice good posture. A forward position of the head and shoulders has been shown to alter shoulder blade position and create shoulder impingement syndrome.

• Avoid sleeping on your side with your arm stretched overhead, or lying on your shoulder.
Shoulder Injury Prevention

• Avoid carrying heavy objects at your side; this can strain the rotator cuff.

• Avoid smoking; it can decrease the blood flow to your rotator cuff.

• Consult a physical therapist at the first sign of symptoms.
Post Operative Therapy

• May be based on surgeon protocol
• Protect the repair
• Restoration of PROM
  – Avoid a frozen shoulder
• Restoration of strength
• Functional training
• Compliance
Physical Therapy for Knee Pain
Physical Therapy Examination of the Knee

- Rule out lumbar spine
  - Referred pain

- Examine contribution of the hip, ankle, and foot
Physical Therapy Examination of the Knee

• The knee
  • Range of motion (Active/Passive)
  • Strength
  • Neurologic exam
  • Gait
  • Special tests
  • Load Tolerance
  • Function
Common Knee Conditions

• Osteoarthritis
• Meniscus tear
• Patellofemoral syndrome
• Ligament injury
Physical Therapy for Osteoarthritis of the Knee
What is Knee Osteoarthritis?

• Osteoarthritis of the knee is a progressive disease causing inflammation and degeneration of the knee.

• It affects the entire joint, including bone, cartilage, ligament, and muscle.

• Pain occurs when the cartilage covering the bones of the knee joint wears down.
What is Knee Osteoarthritis?

• Worsening pain during or following activity including walking, climbing, stairs, or moving from a sitting to standing position.

• Pain or stiffness after sitting for a prolonged period of time.

• A feeling of popping, cracking, or grinding when moving the knee.
How can Physical Therapy help?

• Range of motion
  • Improving range of motion of the knee with help limit the progression of arthritic changes and allow improvements in strength
How can Physical Therapy help?

• Manual Physical Therapy
  • The addition of manual therapy techniques to exercise has been shown to decrease pain and increase function.

• Strengthening
  • Strengthening programs have been shown to provide less pain and an improved overall quality of life.
How can Physical Therapy help?

• Assistive Device
  • Cane, walker

• Activity Modification
  • Your physical therapist will prescribe an individualized exercise program to maximize the function of your knee.
Physical Therapy for Osteoarthritis of the Knee

• Deyle et. al.
  – Subjects completed a home exercise routine vs. subjects who attended physical therapy for exercise and manual therapy.
  – Subjects who attended physical therapy displayed twice as much improvement on testing including pain, walking, stairs, and completing ADL’s with less difficulty.
Advice for People with Knee Arthritis

• Do not rest too much
• Do exercise
• Falls risk
• Use assistive devices as needed
• Shoes matter
• Avoid jarring exercises
Preoperative Therapy

• If you improve your strength and motion prior to your surgery you may have more strength and motion after therapy.
Post Operative Therapy

• Restore range of motion
• Restoration of joint mechanics
• Increase strength
• Normalize gait pattern
• Functional training
Meniscus Tear
Role of the Meniscus

- Shock absorption
- Transmission of forces
- Reduce friction during movement
Symptoms of a Torn Meniscus

• A popping sensation
• Swelling or stiffness
• Difficulty straightening your knee fully
• Block to moving your knee, as if your knee were locked in place
Torn Meniscus is not always Painful

• It has been found 61% of subjects 50-90 years old with no knee pain over the previous month were found to have meniscus tears.

• What does this tell us?
Physical Therapy for a Meniscus Tear

- Strengthening
- Manual Therapy
- Activity Modification
Advice for People with a Meniscus Tear

• Control pain and swelling

• Swelling is an important "guide" during your rehabilitation and can indicate when you are doing too much.

• RICE: rest, ice, compression, and elevation
Advice for People with a Meniscus Tear

• Some exercises to avoid following knee injury to avoid excessive compression on the meniscus include the following:
  • Full-arc knee extensions
  • Lunges
  • Deep squats
Patellofemoral Syndrome
Patellofemoral Syndrome

- Patellofemoral pain syndrome refers to pain at the front of the knee, in and around the kneecap.

- Current research indicates that PFPS is an "overuse syndrome," which means that it may result from repetitive or excessive use of the knee.
Causes of Patellofemoral Syndrome

• Weakness or stiffness in the muscles around the hip, knee, or ankle.

• An abnormality in the way the lower leg lines up with the hip, knee, or ankle.
Physical Therapy for Patellofemoral Syndrome

• Strengthening exercises targeted at the hip, the knee and the ankle.

• Stretching exercises for the muscles of the hip, knee, and ankle.

• Taping or mobilization of the patella to reduce pain and retrain muscles to work efficiently.
Activity Modification for Patellofemoral Syndrome

• Limit repetitive or excessive amounts of activities that increase pain: squatting, stairs, running, and jumping

• Replace these activities with less compressive activities: biking, swimming, water aerobics, or an elliptical.
Activity Modification for Patellofemoral Syndrome

• Use a pad under your knees when kneeling

• Change your leg position often when sitting

• Take frequent breaks

• Orthotics
Ligament Injury

• Major ligaments of the knee
  – Anterior Cruciate Ligament (ACL)
  – Posterior Cruciate Ligament (PCL)
  – Medial Collateral Ligament (MCL)
  – Lateral Collateral ligament (LCL)
Role of Knee Ligaments

• Provide stability and support to the knee
• Each ligament has a unique role in providing stability to the knee
Symptoms of Ligamentous Rupture

- A feeling that your knee is unstable or perhaps giving way.
- A popping sound or feeling at the time of injury.
- Swelling of your knee due to possible bleeding in the joint.
Physical Therapy for Ligament Injuries

• Manage inflammation and swelling
• Restore range of motion
• Increase strength
• Increase balance and stability
• Proprioceptive training
  • Proprioception allows control of limbs without directly looking at them
• Restore function
Physical Therapy for Ligament Injuries

- In the early stages you may be given crutches for a short period.

- Gradually increase your activity as the pain subsides.

- Always try to walk normally – i.e. heel, toe
Physical Therapy for Ligament Injuries

• Control pain and swelling

• Swelling is an important "guide" during your rehabilitation and can indicate when you are doing too much.

• RICE: rest, ice, compression, and elevation
Preoperative Therapy

• Three big items in prehab should include:
  • Symmetrical range of motion compared to uninjured side
  • Minimal to no swelling
  • Excellent control and strength of quad.
ACL Injury Prevention

• In order to control the hip position, the Gluteals (principally Gluteus Maximus and Gluteus Medius) need to be trained initially in non weight bearing progressing to weight bearing activities
Post Operative Therapy

- May be based on surgeon protocol
- Protect the repair
- Restoration of PROM
- Normalize gait
- Restoration of strength
- Functional training
- Compliance
Exercise Advice for People with Knee Pain

• Changing the type of exercise to reduce impact on the joints – for example switch from walking to water aerobics.

• Do proper warm-up and cool-down before and after exercise.

• Make sure you have good fitting, comfortable shoes.
Exercise Advice for People with Knee Pain

Stop if:

– Pain causes you to limp.
– Pain is sharp, stabbing, and constant.
– Pain that lasts more than 2 hours after exercise or gets worse at night.
– Large increases in swelling
Knee Injury Prevention

• Range-of-motion exercises
• Strengthening exercises
• Aerobic exercises (such as walking or swimming) to improve function of the heart and circulation and to help control weight.
• Weight control can be important to people who have knee pain because of extra pressure on the knee.
Thank You!