

NON-OPERATIVE TREATMENT OF OSTEOARTHRITIS OF THE KNEE

THE ACUTE PHASE

Goals

- Decrease pain and inflammation
- Improve ROM and flexibility
- Enhance lower extremity muscular strength
- Modification of activities
- Alter applied joint forces

DECREASE PAIN AND INFLAMMATION

- NSAIDS
- ROM exercises
- Cryotherapy

IMPROVE ROM AND FLEXIBILITY

- Restore full passive knee extension
 - Overpressure into extension
 - Hamstring stretches
 - Gastrocnemius stretches
- Gradually increase knee flexion
 - AAROM knee flexion
 - Quadriceps stretches
 - PROM flexion

ENHANCE LOWER EXTREMITY MUSCULAR STRENGTH

- Quads, hamstrings, hip and calf
- Gradual program (moderate intensity exercise)
 - Quad sets
 - SLR flexion (use ankle weights when able)
 - Initiate leg extensions 0-90° (if painful, implement patellar protection program)
 - Hip abd/adduction
 - Knee extension
 - ¼ squats
 - Bicycle (high seat and low resistance)

MODIFICATION OF ACTIVITIES

- No excessive joint compression forces
- No excessive joint shear forces
- No repetitive pounding activities (running)
- Use of pool for exercise

ALTER APPLIED JOINT FORCES

- Assess varus deformity
 - Lateral heel wedges
 - Osteoarthritis knee braces
 - Shoe insoles to control ground reaction forces
 - Shoe modifications walking shoe/jogging shoe

NUTRITIONAL SUPPLEMENTS

- Proper nutrition
- Multi-vitamin
- Increase water consumption
- Supplements
- Glucosamine with chondroitin sulfate (may be beneficial)

THE SUBACUTE PHASE

Goals

Improve ROM and flexibility

Enhance lower extremity muscular strength

Improve muscular endurance

Gradual return to functional activities

IMPROVE FLEXIBILITY

- Continue stretching exercises
 - Hamstrings
 - Hip flexors, IT band
 - Quadriceps
 - Calf

ENHANCE MUSCULAR STRENGTH

- Gradually increase program
 - Quad sets
 - ¼ squats
 - Wall squats

- Front lunges
- Lateral steps-ups (low step)
- Bicycle (gradually increase time)
- Enhance endurance
 - Bicycle (longer duration)
 - Increase repetitions
 - Pool program
 - Gradual return to functional activities
 - Walking program
 - NO RUNNING
 - Golf, tennis

THE CHRONIC PHASE

Goals

Maintain/improve flexibility

Gradually improve muscular strength

Gradually return to functional activities

FLEXIBILITY EXERCISES

- Continue stretches before/after exercise program
- Improve muscular strength
- Strengthening program without symptoms
 - Quad sets
 - ½ squats
 - Wall squats
 - Lunges
 - Bicycles

FUNCTIONAL ACTIVITIES

- Continue activities which are pain-free and asymptomatic
- Watch for swelling, morning stiffness
- Continue exercise program 3-4 times per week