

NON-OPERATIVE TREATMENT OF OSTEOARTHRITIS OF THE KNEE

THE REHABILITATION PROGRAM

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
 - $\frac{1}{4}$ 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
 - $\frac{1}{2}$ squats
 - Wall squats
 - Lunges
 - Bicycles

Functional activities

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