Non-Operative Treatment of Osteoarthritis of the Knee

THE REHABILITATION PROGRAM

I. 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
  - 1/2 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)

II. 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
III. 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