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
  - ¼ squats
  - Wall squats
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- 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