



REHABILITATION PROGRAM FOLLOWING HYALURONIC ACID INJECTIONS

****Note: Do not perform exercises other than stretching and ice until 24-hours following each injection***

PHASE I: INJECTION ONE

- Goals:
- Reduce swelling and inflammation
 - Protection of healing articular cartilage
 - Restoration of full knee motion
 - Re-establish voluntary quadriceps control
- Inflammation Control:
- Use of ice and compression 15-20 min. (4 times daily)
 - Use elastic wrap or sleeve for swelling
- Flexibility: (2x a day)
- Immediate motion
 - Full motion as tolerated
 - Flexibility exercises: stretch hips, hamstrings, calf and quads
- Strengthening Exercises: (2x a day)
- Isometric quadriceps setting 2-3 x 10
 - Straight leg raises (Flex, abd, add) 2-3 x 10, weight as tolerated
 - Electrical muscle stimulation to quads during above exercises
 - Bicycle with low resistance and high seat
 - Begin with ~10-15 minutes and progress up to 20-30 minutes by end of week 1
 - Ride bike 1x a day
 - Proprioception and balance training (weight shifts, mini-squats)

PHASE II: INJECTION TWO

- Goals:
- Continue to reduce swelling and inflammation
 - Protection of healing articular cartilage
 - Increase flexibility
 - Gradual increase strengthening exercises (emphasis on quad and hip strength)
- Inflammation Control:
- Use of ice and compression 15-20 minutes as needed
 - Use elastic wrap or sleeve for swelling
- Flexibility: (2x a day)
- Flexibility exercises: stretch hips, hamstrings, calf and quads
- Strengthening Exercises: (4x a week)
- Bicycles (1-2 times daily) for 30-40 minutes
 - Quads setting & straight leg raises with ESTIM daily
 - Mini-squats
 - Front lunges onto box
 - Weight machines:
 - Leg press (weight as tolerated)
 - Hamstrings
 - Calf

- Hip abd/add/flex/ext
- If access to pool, may perform exercises and light jogging

PHASE III: INJECTION THREE

- Goals:
- Protect and promote articular cartilage healing
 - Gradually increase joint stresses and loading
 - Improve lower extremity strength and endurance

- Flexibility Exercises:
- Continue stretching hip, hamstrings, quadriceps, and calf 2x a day

- Strengthening Exercises:
(4x a week)
- Continue quad sets & straight leg raises with ESTIM daily
 - Mini-squats
 - Mini-squats on tilt board or unstable surface
 - Front lunges onto box – begin to add dumbbells
 - Front lunge onto unstable surface (foam, bosu ball, etc)
 - Wall squats
 - Lateral step-ups
 - Bicycle or elliptical – work up tolerance to 45-60 minutes
 - Continue previous machine exercises – gradually increase weight
 - Progress pool running program

*Progression based on monitoring swelling & pain

PHASE IV: POST-INJECTIONS (Week 4+)

- Goals:
- Improve muscular strength/endurance
 - Increase functional activities
 - Gradually increase loads applied to joint
 - Gradual return to full unrestricted activities

- Exercises:
(3x a week)
- Continue progressive resistance exercises
 - Continue bike and/or elliptical progression
 - Continue exercise progression
 - Gradually add dumbbells to lateral step-ups
 - Lateral step-ups on foam or unstable surface
 - Running and jumping exercises in pool
 - Initiate light jogging program as tolerated
 - Progression of time and intensity based on symptoms of pain and/or swelling
 - Continue all stretches to lower extremity daily