

REHABILITATION PROTOCOL UPPER LEG - QUADRICEPS, HAMSTRING, HIP SPRAINS

The lower extremity muscular strain protocol is designed for all lower extremity muscular strains. The condition must be known to customize the program for the individual.

1. Severity of the strain.
 - Severe strain with hemorrhage
 - Simple mild to moderate strain without complications
2. Location of strain, rehab different areas differently.
3. Age of the injury.
 - Recent, acute
 - Old, chronic

Goals and techniques of early rehab:

Three phases of muscular strain rehab protocol:

1. Starting
2. Intermediate
3. Advanced

The next phase is started when the goals are reached for the proceeding phase.

1. Usually 1-2 weeks per phase for less severe strains.
2. 2-3 weeks for more severe strains.
3. Goals are reached when all exercises can be performed without pain.

Frequency of exercise:

1. Starting phase, every day is optimum.
2. As healing progresses and intensity of exercise increases, change to 4 times per week.

INITIAL PHASE

WARMUP

- Whirlpool, or hot water bath on the affected area. Hot pack, or hot-cold alternating. Stretching and range of motion of the injured muscle and its related muscle groups.

HIP EXERCISES

1. Hip flexion: 10 reps, 3 sets
 - Begin with sitting on edge of table flexion and progress to weighted standing hip flexion.
2. Hip abduction (away from body, to the side): 10 reps, 3 sets
 - Knee and hip fully extended and abduct to comfort level. Hold for 2 seconds and relax for 5 seconds.
3. Hip extension: 10 reps, 3 sets
 - Leg is raised keeping the knee extended.
4. Hip adduction: 10 reps, 3 sets
 - Standing braced against wall or table. Adduct leg and hold at the top for 2 seconds, release slowly.

KNEE EXERCISES WITH FULL RANGE OF MOTION

1. Quadriceps extensions (edge of table): 10 reps, 3 sets
 - With or without weights at first.
2. Hamstring curls: 10 reps, 3 sets
 - On a table with or without weights.

CALF EXERCISES

1. Gastroc-soleus group: 10 reps, 3 sets
 - With weights or theraband.
2. Ankle extensions (flexing foot towards your knee): 10 reps, 3 sets
 - With weights or theraband.

INTERMEDIATE PHASE

WARM UP

1. Stationary bike, little or no resistance at first, speed to pain tolerance.
2. Swimming, gentle kicking on back, and freestyle.
3. Stretching and range of motion.
 - Start with gentle stretching of all surrounding muscle groups.
 - Progress to gentle stretching of injured groups.
 1. Scar tissue alignment
 2. Encourage re-vascularization and elasticity of scar tissue by decreasing fibrosis of repair.

ISOTONIC WEIGHT EXERCISE

1. Hip ab/adduction: 10 reps, 3 sets
 - Need to use machines for any serious rehabilitation of a groin injury.
 - Use ankle weights and table or wall.
 - Start gentle and work up in intensity.
2. Hip extension/flexion: 10 reps, 3 sets
 - Machines are best but you can use ankle weights or Theraband at home.
 - Leg sled
 - Nautilus "squat" machine
 - Kaiser squat/lunge machine
3. Quadriceps extensions: 10 reps, 3 sets
 - Theraband
 - Ankle boot, or strap on a free weight
 - Most quad extension machines are good
Cybex Eagle, Nautilus, etc.
4. Hamstring curls: 10 reps, 3 sets
 - Theraband
 - Ankle boot, or strap on a free weight
 - Leg curl machines, remember isolate hamstrings-don't use gastrocnemius.

FUNCTIONAL ACTIVITY

1. Dance:
 - Beginning to intermediate classes, do not push the injured area to the limit. Approx. 70 to 80%
 - Increasing range of motion and stretching of injured muscle group.
2. Stairmaster:
 - 10 to 15 minutes at first, slow.
 - For building proprioceptive input channels again and endurance/strength. Coordination.
3. Stationary bike:
 - 10 to 15 minutes, light to medium resistance.
4. Swimming:
 - Kicking on back 10 to 15 minutes.

ADVANCED PHASE

WARM UP

1. Bicycle:
 - Stationary or Real. Concentrate on a 15 to 20 minute warm up.
2. Stairmaster: 15 minutes
3. Jogging: 5 minutes

ISOTONIC WEIGHT EXERCISE

1. Quadriceps extensions:
 - Concentrate on fatigue of muscles to build up strength.
2. Hamstring curls: 10 reps, 3 sets
3. Thigh abduction/adduction: 10 reps, 3 sets
4. Lunges: 10 reps, 3 sets
 - Dumbbell weights held in hands. Concentrate on coordination.
5. Nautilus or other lunge/squat machine. 10 reps, 3 sets
6. Incline leg press: 10 reps, 3 sets

FUNCTIONAL ACTIVITY / AGILITY / AEROBIC ACTIVITY

1. Dance:
 - Full advanced classes, not quite 100%, concentrate on placement, and technique.
2. Stairmaster: 20 minutes
3. Basketball, or racquetball, or other court sport: 20 minutes
 - Gain agility, coordination, endurance.