THE HAMSTRING PLAYBOOK

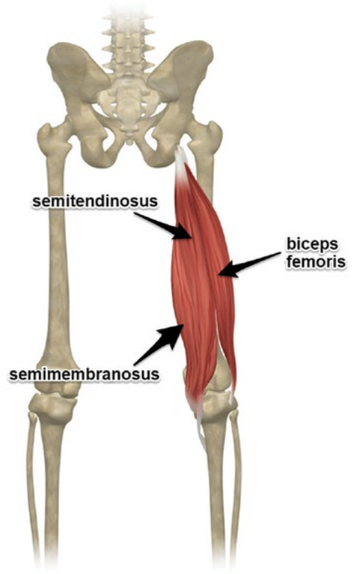
UNITED STATES OLYMPIC & PARALYMPIC COMMITTEE

There are three muscles that make up the hamstring muscle group including **Biceps Femoris**, **Semimembranosus** and **Semitendinosus**. These are considered "2 joint muscles" since they affect both the hip and knee joint. Their primary functions are to move the hip (extension, rotation) and knee (flexion) as well as dynamic stabilization.

Hamstring Muscle Group

1. **Biceps Femoris**: outer most muscle, consists of "long head" and short head." Both heads function to bend the knee and laterally rotate the lower leg when knee is bent but only the long head performs hip extension and is most often involved with strains.
2. **Semimembranosus**: inner most muscle, functions to extend the hip, bend the knee and assist with medial rotation when knee is bent.
3. **Semitendinosus**: functions to assist with hip extension, knee flexion and internal rotation of both knee (when bent) and hip.

For more information on Strains and Risks of injury please use QR code:



The Non-Negotiables: Rules of the Program

In the case of acute/chronic conditions and return-to-running, consult with Sports Medicine and Sports Performance on appropriate injury management, exercise modification, exercise technique, and programming prior to using this program. Sports Medicine clinicians can help determine appropriate soft tissue management as deep tissue massage, some physiomodalities, and certain manual therapy techniques can impede recovery of injuries and conditions.

THE LOAD-RESPONSE WINDOW

Training Load → 24–36 Hours post-loading → Training Response

- **Strength / Performance ↓** — A slight drop is a normal physiological training response
- **Strength / Performance ↓ + Localized Pain ↑** — Progression must be stopped and reviewed

References

For supporting research and a full list of references, please scan the QR code:

HAMSTRING LOAD MANAGEMENT AND EXERCISE SELECTION CONSIDERATIONS

Please meet with your clinician/sports performance provider for appropriate programming. Scan the QR codes for examples of each program.

Linear Speed Training

Strength
- Razor Curls: 3-4 sets x 4-6 reps; and Nordic Hamstrings: 3 sets x 6 reps
- Bridge Isos (Short & Long Lever): 5 x 6-sec holds; Progress to switching variations for 4 sets x 10-15 reps/side
- Drop and Catch RDLs: 3 sets x 6 reps

Mobility
- Arabesque, Hamstring Sweeps, Hamstring Scissors, Dynamic Leg Raises with Flossing: 2 sets x 10-15 reps/side; increase intensity as tolerated

Dynamic Activation
- Sprinter Curl: 2-3 sets x 8-10 reps/side
- Bosch HS Curl: 2-3 sets x 8-10 reps/side
- B-Skip, Top Tap/Ankling: 2 sets x 20 meters
- Fast Leg (incl. single-leg cycling var): 2 sets x 20 meters

Push Overspeed Training

Strength
- Safety Bar Squat (to box): 4-5 sets x 4-6 reps
- Heavy Sled Pushes: 4-5 sets x 10-15 meters
- Heavy Kettlebell Swings: 3-4 sets x 8-10 reps
- Heavy Reverse Hypers: 3 sets x 10-12 reps
- Isometric Overcoming Rack Pulls: 3 sets x 3-5-sec max holds
- Bridge Variations: 3 sets x 8-10 reps
- Nordic Hamstrings: 2 sets x 5 reps

Mobility
- Walking Lunge with Overhead Reach
- Knee-Over-Toes Ankle/Hip Mobility
- Banded Hip Mobility (Anterior Glide) and Hamstring Sweeps: 2 sets x 10-15 reps/side; increase intensity as tolerated

Dynamic Activation
- Resisted Hip Driver: 3 sets x 6-8 reps/side
- Prone 3-Step Start: 4-6 total starts
- Bosch HS Curl: 2 sets x 10 reps/side
- B-Skip, Top Tap/Ankling, Fast Leg: 2 sets x 20 meters

Multi-Directional Training

Strength
- B-Stance (Kickstand) RDL: 3 sets x 6-8 reps/side
- RDL Airplane Variation: 2-3 sets x 6-8 reps/side
- Physioball Bridge Hamstring Curls: 3 sets x 10-15 reps/side and Tempo Slide Board Curls: 3 sets x 8-11 reps
- Copenhagen Adductor Planks: 3 sets x 15-20 sec holds/side or 8-10 dynamic reps/side and Nordic Hamstrings: 3 sets x 8 reps

Mobility
- Transverse Lunge: 2 sets x 10-12 reps/side
- Leg Swings (Forward/Backward, Lateral): 2 sets x 10-15 reps per direction/side
- Hip Mobility (Anterior and Lateral): 2 sets x 2 reps per direction/side and Arabesque with Airplane: 2 sets x 8-10 reps/side

Dynamic Activation
- Lateral Shuffles/Reactive Agility: 3-4 sets x 8-10 reps
- Resisted Load & Lift/Hip Driver: 3 sets x 6-8 reps/side
- Multiplanar Hops & Bounds: 3 sets x 4-6 Contacts
- B-Skip with Trunk Rotation: 2-3 sets x 15-20 meters

EXERCISE TECHNIQUE & DEMONSTRATIONS

Hamstring Strength

Scan for Strength Exercise Videos



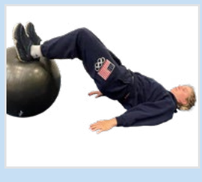
Nordic Hamstring
- Start in a kneeling position with feet fixed and stabilized behind you.
- Slowly lean forward, bringing your hips toward the ground while maintaining an upright trunk and avoiding bending at the waist.
- Return to the starting position and repeat.



Kettlebell Swings
- Hold a heavy kettlebell between your legs.
- Slowly lower your chest toward the ground by hinging at your hips.
- At the bottom position, drive your hips forward and swing the kettlebell out in front of you.
- Repeat.



Bridge Variations
- Start with heels on the ground.
- Drive through your glutes and posterior chain to lift your hips toward the ceiling.
- Maintain a flat pelvis.
- Slowly lower back to the starting position with control.



Stability Ball Curl
- Lie on your back with your heels on top of a stability ball.
- Press your heels into the ball and draw your belly button inward to stabilize your pelvis.
- Lift your hips without arching your lower back.
- Pull the ball toward you, then slowly push it away.
- Repeat.

Hamstring Mobility

Scan for Mobility Exercise Videos



Transverse Lunge
- Start in a standing position.
- Rotate your hips open 90 degrees as you step into the lunge position.
- Keep your toes pointed slightly outward.



Hamstring Sweep
- Start with one foot slightly in front of the other, heel down and toes pointed upward.
- Hinge at your hips without rounding your spine.
- Sweep your arms forward along the front leg toward your toes until you feel a slight stretch.
- Stand up and repeat while walking forward with the opposite leg.



Arabesque
- Balance on one leg with a slightly bent knee.
- Reach your arms out to the sides.
- Hinge at your hip and slowly lower your chest toward the ground while reaching your free leg back.
- Maintain your balance, then drive your standing hip forward to return to the starting position.



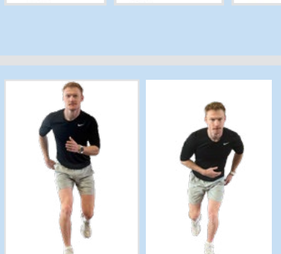
Hip Swings
- Lean against a wall while balancing on one leg.
- Swing the opposite leg out to the side, then across the front of the standing leg.
- Maintain an upright, balanced posture.

Hamstring Dynamic Activation

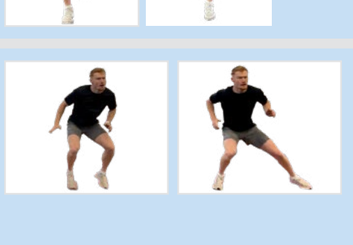
Scan for Activation Exercise Videos



B-Skip
- Stand with feet hip-width apart and your upper body upright.
- Raise one leg to hip height while skipping on the ball of the opposite foot.
- Drive the raised leg down so the ball of the foot strikes the ground beneath your body.
- Repeat with the opposite leg in one smooth, continuous movement.



Multiplanar Hops/Bounds
- Start on one side and powerfully bound onto the opposite limb.
- Maintain good stability, trunk control, and knee alignment.



Lateral Shuffles
- Start in a quarter-squat position.
- Responding to a verbal command or visual target, move quickly from side to side over a set distance.
- Return to the starting point before repeating for the specified time or number of repetitions.



Hip Drivers
- With a partner applying resistance, place a superband around your waist while leaning forward into a wall.
- Push off one foot, then drive the opposite hip and torso toward the wall.
- Maintain your balance, then slowly return to the starting position.