High Ankle Sprain

A **high ankle sprain** is an injury to the ligaments connecting the tibia and fibula above the ankle, often caused by twisting or external rotation of the foot.

The **syndesmosis** is a fibrous joint connecting the tibia and fibula. The major ligaments involved in a high ankle sprain are:

- **Anterior syndesmotic ligament** (ATL)
- **Posterior syndesmotic ligament** (PTL)
- **Interosseous membrane**, a fibrous structure between the tibia and fibula.

It's categorized into three grades:

- **Grade 1**: Mild injury, minimal swelling.
- **Grade 2**: Moderate injury, partial ligament tear.
- **Grade 3**: Severe injury, complete ligament rupture.

Treatment involves rest, ice, compression, elevation (R.I.C.E.), and immobilization (boot or cast). Rehab focuses on restoring strength, flexibility, and balance. Severe cases may require surgery. Recovery varies: mild sprains take 2-4 weeks, while severe ones can take 6-12 weeks.

Proper treatment and rehabilitation are important to avoid chronic instability or reinjury.

Exercises are most effective when guided by a qualified professional, such as a physiotherapist, athletic therapist, or strength and conditioning coach. If you have any concerns, it's always a good idea to consult with an expert.

Phase 1: Acute Phase

Goals:

- Protect the injured ligaments
- Control pain and swelling
- Maintain non-injured limb strength

Interventions:

- **Immobilization:** If severe, a walking boot or crutches may be needed (NWB or PWB as tolerated).
- **Rest & Ice:** Ice 15-20 minutes every 2-3 hours, elevation, and compression to reduce swelling.
- **Pain-Free ROM:** Begin gentle, non-weight-bearing dorsiflexion/plantarflexion exercises.
- **Isometric Strengthening:** Light isometric contraction of foot and lower leg muscles.
- **Core & Hip Strengthening:** Avoid stressing the ankle but maintain overall lower-body strength.

Criteria to Progress to Phase 2:

- Minimal pain and swelling
- Tolerance to weight-bearing without significant pain
- At least 50% pain-free dorsiflexion ROM

1. Ankle Alphabet

Frequency: 3x day

Preparation:

- Sit in a chair with good posture
- Rest the edge of your heel on the floor as shown

Execution:

- Write the letters of the alphabet A to Z with your big toe

Alphabet A B C, etc

2. Toe Extension + Dorsiflexion AROM

Preparation:

- Sit with foot out in front of you

Execution:

- Bend your ankle to bring your toes towards your nose
- Now extend all of your toes as much as you can

Extend toes and bend ankle at the same time

3. Ankle Plantarflexion

Sets: 3 | **Reps:** 10 | **Hold:** 5 sec | **Frequency:** Daily

Execution:

- Bend your ankles downward

Bend ankles up

Bend ankles down

4. Ankle Inversion Isometric (Towel)

Sets: 3 | **Reps:** 10 | **Hold:** 5 sec | **Frequency:** daily

Preparation:

- Sitting with a towel between feet
- Rest the inside borders of your feet against the towel

Execution:

- Squeeze your feet against each other
- There should be no movement

Squeeze feet against each other

5. Ankle Eversion Isometric

Sets: 3 | **Reps:** 10 | **Hold:** 5 sec | **Frequency:** daily

Preparation:

- Cross legs

Execution:

- Bend your ankle to the side, pushing the outside of your foot against the opposite foot
- There should be no movement

Push outside of foot against opposite foot

6. Ankle Dorsiflexion Isometric

Sets: 3 | **Reps:** 10 | **Hold:** 5 sec | **Frequency:** daily

Preparation:

- Put one foot on top of the other

Execution:

- Pull your bottom foot up against your top foot
- The should be no movement

Push bottom foot against top foot

7. Ankle Plantar Flexion Isometric (Belt)

Preparation:

- Sit on chair with leg straight
- Belt around foot

Execution:

- Push your foot into the belt, pull back on the belt so your foot does not move

Push into belt. Foot does not move

8. Clamshell

Sets: 3 | **Reps:** 10-15 | **Frequency:** daily

Preparation:

- Lie on your side with your hips at 45 degrees and your knees at 90 degrees
- Position your hand on your front hip and buttock muscles

Execution:

- Lift your top knee keeping your feet together
- Keep your pelvis stable while you lift your leg

Start position

Contract buttock muscle

Lift top knee up (open like a clam) keeping your pelvis stable

9. Knee Extension AROM

Sets: 3 | **Reps:** 10 | **Hold:** 5 sec | **Frequency:** daily

Preparation:

- Sit in a chair with good posture

Execution:

- Straighten one knee

Sit in a chair with good posture

Straighten one knee

10. Bridge | Arms Flat

Sets: 3 | **Reps:** 10-15 | **Hold:** 5 sec | **Frequency:** daily

Preparation:

- Lie flat on your back with your arms straight beside you
- Bend knees with your feet flat on the floor

Execution:

- Lift your hips up in the air to make a bridge
- Lower down in a controlled manner

Start Position

Lift hips up

11. Gastrocs Stretch (Belt)

Reps: 3 | **Hold:** 30-60sec | **Frequency:** daily

Preparation:

- Sit with your legs out in front
- Loop a belt or towel around the underside of your foot as shown

Execution:

- Pull on the belt, lifting your heel slightly off the ground and drawing your toes towards your nose

Loop belt around foot

Pull on belt, bending ankle - do not bend knee

12. Calf Release (Foam Roller)

Duration: 3-5 minutes | **Frequency:** daily

Preparation:

- Sit with your calf on a foam roll.

Execution:

- Roll your calf up and down on the roll.
- Stop on tight portions of the calf muscle to allow them to release.

Sit with calf on foam roll

Roll calf up and down roll

Phase 2: Subacute Phase

Goals:

- Restore normal walking mechanics
- Improve ROM and strength
- Begin light balance training

Interventions:

- **Weight-Bearing Progression:** Gradually transition to full weight-bearing (if in a boot, start weaning).
- **Active ROM & Stretching:** Improve dorsiflexion, plantarflexion, and gentle inversion/eversion.
- **Theraband Exercises:** Light resistance for dorsiflexion, plantarflexion, inversion, and eversion.
- **Balance Training:** Double-leg stance → single-leg stance → unstable surfaces.
- **Pain-Free Strengthening:** Bodyweight calf raises, leg presses, and resisted ankle movements.

Criteria to Progress to Phase 3:

- Full weight-bearing with minimal pain
- Nearly full ankle ROM
- Able to perform 10+ pain-free single-leg heel raises

1. Walking | Heel-Toe

Frequency: Daily

Execution:

- Stand in stride stance as shown
- Rock back and forth, transferring weight from heel to toe

Stride stance

Transfer weight from heel to toe

2. Cycling Stationary Bike

Duration: 30 min | **Frequency:** 2-3x week

Cycling Stationary Bike

Cycling Stationary Bike

3. Ankle Dorsiflexion Concentric (Band)

Sets: 3 | **Reps:** 10 | **Frequency:** Daily

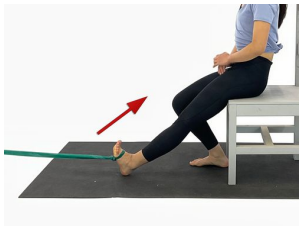
Preparation:

- Sit with your leg straight in front of you

Execution:

- Pull your toes towards your nose, bending at the ankle

Attach band over the top of your foot



Toes to nose

4. Ankle Plantar Flexion Concentric (Band)

Sets: 3 | **Reps:** 10 | **Frequency:** Daily

Preparation:

- Sit with your leg straight in front of you, elastic band around your foot

Execution:

- Point your toes away from you against the resistance

Start position, band around foot

Point toes against resistance and smile!

5. Ankle Inversion Concentric (Band)

Sets: 3 | **Reps:** 10 | **Frequency:** Daily

Preparation:

- Sit with your leg straight in front of you
- Attach a band around your top foot pulling from the side as shown

Execution:

- Bend your foot in against the resistance
- Do not move your leg while you are bending your ankle
- Relax your foot back to the start position in a controlled manner

Start position, band around foot

Turn foot inward without rolling your leg

6. Ankle Eversion Concentric (Band)

Sets: 3 | **Reps:** 10 | **Frequency:** Daily

Preparation:

- Sit with your leg straight in front of you
- Attach a band around your top foot pulling from the other side as shown

Execution:

- Bend your foot to the side against the resistance
- Do not move your leg while you are bending your ankle
- Relax your foot back to the start position in a controlled manner

Start position, band around foot

Turn foot outward without rolling your leg

7. Seated Calf Raise

Sets: 3 | **Reps:** 10-15 | **Frequency:** daily

Preparation:

- Sit with good posture

Execution:

- Raise heels up
- Lower down with control

Start Position

Raise heels up

8. Chair Squat (Chair)

Sets: 3 | **Reps:** 10 | **Frequency:** Daily

Preparation:

- Stand in front of a chair or bench, feet shoulder width apart

Execution:

- Perform a squat by bending at the hip
- Stop when your bum touches the chair or bench
- Rise up by straightening at the hip

Start Position

Squat - Bend at the hip, back flat

Touch hips to chair

Rise back up using your hips

Front view

Knees over toes

9. Standing Unsupported | Eyes Closed

Reps: 3 | **Duration:** 30-60 sec | **Frequency:** daily

Execution:

- Stand and balance unsupported
- Now close your eyes

Stand and balance

10. Single Leg Balance

Reps: 3 | **Duration:** 15-30sec | **Frequency:** daily

Preparation:

- Stand next to a wall, counter or chair if needed

Execution:

- Stand on one leg

Balance on one leg

Phase 3: Strength Dynamic Control

Goals:

- Improve ankle stability and control
- Begin light impact activities
- Restore functional strength

Interventions:

- **Strengthening:** Continue progressive loading (calf raises, step-ups, banded resistance).
- **Proprioception Training:** Balance board, single-leg stance with perturbations.
- **Low-Impact Plyometrics:** Begin gentle hops, progressing to controlled jumps.
- **Sport-Specific Drills:** Light agility work (e.g., lateral shuffles, controlled cutting drills).

Criteria to Progress to Phase 4:

- No pain during daily activities or exercise
- Normal gait pattern without compensation
- Can perform single-leg hops with good control

1. Calf Raise Concentric | Bilateral

Sets: 3 | **Reps:** 10-20 | **Frequency:** daily

Preparation:

- Stand next to a chair, counter or wall

Execution:

- Stand on your tip toes, lifting your heels as high as you can
- Relax your heels back down to the ground

Start position

Stand on tip toes

2. Calf Raise | 2 Up - 1 Down

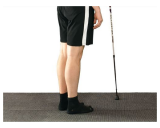
Sets: 3 | **Reps:** 10-15 | **Frequency:** 3-4x week

Preparation:

- Stand next to a chair, counter or wall

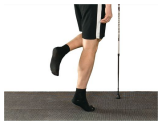
Execution:

- Stand on your tip toes, lifting your heels as high as you can
- Shift weight to one side and lower down to the ground on one leg



Start Position

Raise both heels up



Shift weight onto one foot

Lower down on one

3. Step Up

Sets: 3 | **Reps:** 10 | **Frequency:** 3-4xweek

Preparation:

- Stand in front of a box or step
- Hands resting at sides, pull belly button in

Execution:

- Step up with one leg, follow with the other
- Step down with the first leg
- Complete the repetition by stepping both feet down

Eyes forward, hands resting at sides, pull belly button in, knees slightly bent

Step up with one leg...

...follow with the other

Step down with the first leg

Complete the repetition by stepping both feet down

4. Forward Lunge

Sets: 3 | **Reps:** 10 | **Frequency:** 3-4x per week

Preparation:

- Stand with good posture

Execution:

- Lunge forward
- Keep back shoulder, hip and knee in line
- Rise up and return to the start position
- Repeat

Stand with good posture

Lunge forward

Return to standing and repeat

5. Lateral Lunge

Sets: 3 | **Reps:** 10 | **Frequency:** 3-4x week

Preparation:

- Stand with good posture

Execution:

- Lunge to the side
- Keep back straight and your hip, knee and ankle aligned
- Return to the start position

Tall

Lunge to side - Hip, knee and ankle aligned

6. Graduated Return to Jogging

Graduated return to running suggested program: Week 1:
(start and finish with 5 min walk)

- 4x (1' run / 1' walk)
- 5x (1' run / 1' walk)
- 6x (1' run / 1' walk)
- 8x (1' run / 1' walk)

Week 2: (start and finish with 5 min walk)

- 10x (1' run / 1' walk)
- 11x (1' run / 1' walk)
- 13x (1' run / 1' walk)
- 4x (2' run / 1' walk)

Week 3: (start and finish with 5 min walk)

- 4x (2' run / 1' walk)
- 5x (2' run / 1' walk)
- 6x (2' run / 1' walk)
- 7x (2' run / 1' walk)

Graduated Return to Jogging

Phase 4: Return to Sport

Goals:

- Achieve full ankle power and agility
- Prevent reinjury

Interventions:

- **High-Load Strength Training:** Weighted calf raises, explosive jumps.
- **Advanced Plyometrics:** Bounding, lateral hops, agility ladder drills.
- **Sport-Specific Training:** Sprinting, cutting, and reactive drills at full speed.

Criteria for Return to Play:

- Full strength and endurance in the ankle
- No pain with sprinting, jumping, or cutting
- Symmetrical balance and stability between legs

Before returning to sport after a high ankle sprain, it's crucial to get clearance from your healthcare team, including a sports medicine physician. Returning too soon can increase the risk of re-injury. Your healthcare provider will guide you through a safe rehabilitation process and determine when you're ready to safely return to sport, based on your progress and recovery.