

Acute Phase – Days 1-3:

The goals of this phase are decreasing effusion and pain, protecting from further injury and allowing protected gait as tolerated. Early mobilization can lead to earlier return to work/sport and improved patient comfort

Early mobilization of joints following ligamentous injury actually stimulates collagen bundle orientation and promotes healing although full ligamentous strength is not re-established for several months.

Pain and Swelling Management: RICE (rest, ice, compression, elevation)

Evidence found for elevation and cold therapy in minimizing swelling/edema. Can also consider electrical stimulation (high volt or interferential). No strong evidence for ace wrap, compression pneumatic device, ultrasound, or elastoplast.

Protection of injured ligaments from further injury: (taping, splints, pneumatic walking boot, semi-rigid ankle stirrup orthotic, lace up brace, cast for severe injuries).

Walking boot may be needed for severe injuries or fracture. Crutch assistance should be utilized if the patient is unable to walk in the boot without a limp. The walking boot is used early on because it restricts motion but has enough support to protect the healing ligamentous tissues.

Taping does not provide the same degree of protection as rehabbing to ensure the patient has strong evertor muscles, but early on before the muscles recover, they may fail to protect against inversion injury due to muscle onset latency therefore external devices may provide protection by doubling resistance to inversion.

Gait : weight-bearing as tolerated

Sub-Acute Phase - 2-4 days to 2 weeks:

The subacute phase focuses on decreasing and eliminating pain, increasing pain free ROM, protecting from re-injury with bracing or splints, limiting loss of strength and using modalities to decrease effusion.

Pain and Swelling Management: Modalities can be used to decrease pain and swelling: ice, electrical stimulation (Interferential, HVGS). There is limited evidence for ultrasound. *Refer also to acute phase above.*

Joint mobilization: Talocrural and subtalar joints

Adding talocrural joint mobilization to RICE protocol to treat ankle inversion injuries can lead to fewer treatments to regain pain free dorsiflexion and improve stride speed. The patient may have a restricted posterior glide of the talocrural joint even with restoration of dorsiflexion. If restricted, patient may have residual joint dysfunction.

ROM within pain-free range:

- Start with dorsiflexion and plantarflexion
- Add inversion and eversion as pain and tenderness over ligaments decrease
- Stretch gastroc/soleus complex – start with non-weight bearing and then progress to weight bearing positions
- Toe curls
- Ankle alphabet
- Stationary bike

Progress gait training: increase weight bearing and decrease need for assistive device as tolerated (as pain decreases and balance allows)

- Strengthening: isometrics to limit loss of strength
- Protection: wean from splints or braces as tolerated and as pain and swelling decrease or provide external support if needed for support or protection (refer to section on protection under Acute Stage).

Rehabilitative Phase – 2-6 weeks post-injury:

The focus of this phase is on regaining ROM and strength, increasing endurance and neuromuscular performance.

As patient is able to tolerate full weight-bearing:

- Joint Mobilization: continue as needed
- Stretching: Achilles tendon, gastrocnemius, soleus (may also need to stretch into plantarflexion, eversion and inversion)
- Strengthening Exercises: Progression of dorsiflexion, plantarflexion, eversion and inversion from active range of motion exercises to resistive exercises (concentric and eccentric) as pain decreases and ROM increases. Use free weights and exercise bands. Progress to closed chain as ability to weight-bear increases, such as bilateral toe raises progressing to single leg, bilateral squats progressing to single leg squats, step-ups and step-down exercises (preparation for stairs if necessary)

- Proprioception Training: Progress from sitting to standing on both and then single leg, eyes open to eyes closed, and reaching with dynamic challenge on level and progressing to uneven surfaces
- Wobble Board
- BAPS
- Foam pad
- Pillow
- Star Excursion Balance Activities
- Gait Training: wean from assistive devices as tolerated
- Endurance Activities: swimming, biking, walking, etc.

Functional Phase – 6 weeks post-injury:

The goal of this phase is preparing the patient for return to full activity and function; adding sports specific exercises with goal of returning to sports and recreational activity. Return to sports should be based on patient's ability to perform sports-specific activities when patient has full ankle ROM, normal ankle strength especially of peroneals and dorsiflexors, and no pain or tenderness.

- Progressive strengthening
- Coordination and Agility training - Activities to consider depending on patient's ability, recovery and type of vocational/and/or recreational activity the patient will return to:
- Lunges
- Hopping (progress bilateral, to injured leg only, whole foot to toes only)
- Step exercises – forward, side to side
- Running should be progressed when the patient can walk at a fast pace without pain, starting on smooth surfaces and progressing to uneven surfaces
- Cutting exercises
- Figure 8's, zig-zags
- Jump rope
- Stairmaster, treadmill, exercise biking

Prophylactic Phase - Prevention of Re-Injury:

- Strengthening including dorsiflexion and peroneals
- Functional proprioceptive drills – speed, balance, coordination and agility
- Cardiovascular endurance training

- Proper footwear
- Prophylactic External Support – determine if there is a need (chronic instability and/or decreased proprioception) for brace, splint, orthotics³⁷ or taping and obtain physician order as needed. Consider lace-up ankle brace or ankle taping especially for sports with high incidence of ankle injuries (basketball, volleyball, soccer, tennis, and other sports which involve high frequency of stopping, starting and twisting).

Frequency & Duration: 2x/week for 4-8 weeks (3x/week for first 2 weeks may be indicated for severe pain, swelling or functional impairment)