REHABILITATION PROTOCOL – ACUTE ANKLE SPRAIN (MODIFIED JACKSON PT PROTOCOL)

Phase I

Day 1

- Implement RICE regimen.
- Prescribe NSAIDs
- Use crutches if needed; allow weight bearing within limits of pain.
- Grade 1 & 2 injury receive an aircast ankle brace
- Grade 3 injury receives a removable walking boot and see Modified Lane Protocol

RICE regimen

Rest
- Avoid activities that cause sharp pain
- Ensure the availability of crutches if the patient cannot walk without a limp
- Continue relative rest until the pain and swelling are negligible on weight bearing.

Ice
- Ice provides local contraction of blood vessels so that blood flow is reduced to the injured area. Reduction of swelling enhances healing.
- Ice provides some pain relief.

Compression
- Various compressive dressings combined with ice decrease swelling in the acute inflammatory phase

Elevation
- Sims demonstrated with volumetric testing that elevated limbs have a significant decrease in volumetric displacement because the lymphatics have to work against decreased pressure to return excess fluid.
- Guyton and Ganong demonstrated that as interstitial fluid and pressure increase past certain levels, a critical point is reached that causes collapse of lymphatic vessels.

Phase II: Restoration of Motion

Average time for phase 2 is as follow: grade 1 (3 days), grade 2 (4 days), grade 3 (5 to 9 days). Expect longer time frames in patients older than 21 years.

Day 2 to 12

- Begin ankle dorsiflexion and plantar flexion at patient’s own pace, preceded by cool whirlpool and an intermittent Jobst pressure stocking (75 mmHg)
- Use active ROM initially with no resistance to reestablish full ankle flexion and extension at the patient’s own pace
- Later, add rubber tubing resistance as tolerated
- Begin heel cord stretches
- Minimize dependent position of leg
- Allow progressive weight bearing within the limits of pain
- Initiate the following daily treatments for 1 hour each: 20 minutes cold whirlpool, 20 minutes intermittent pressure stocking, 20 minutes ROM exercises, plus ROM exercises at home
- Decrease the pressure stocking time as swelling diminishes
• When patient is walking without a limp, has full painless ankle ROM, and is able to perform toe rise supporting body weight through the injured ankle, progress to phase 3
• May begin swimming before weight bearing
• Plantar flexion may be uncomfortable in water for grade 2 or grade 3 sprains with free-style because of resistance created by water.

Phase III: Agility and Endurance
• Total body conditioning incorporated in each phase, but increased in phase 3
• Perform strengthening exercises with emphasis on peroneal tendons and ankle dorsiflexors, the muscles responsible for actively resisting an inversion-plantar flexion injury
• Isometric exercises:
  o Isometric strengthening against an immobile object or manual resistance
  o Eversion (peroneals)- 3 sets of 10
  o Dorsiflexion (dorsiflexors)- 3 sets of 10
• Perform concentric and eccentric exercises with elastic band:
  o Concentric muscle contraction (muscle shortens) against the elastic band
  o Eccentric contraction (muscle lengthens) during the slow relaxation of the muscle as the elastic band overpowers the deliberately slowly relaxing muscle. This slow muscle relaxation is emphasized to maximize the conditioning benefit of the eccentric contraction
    ▪ Eversion: 3 sets of 10
    ▪ Dorsiflexion: 3 sets of 10
• Other exercises:
  o Toe raises
  o Step-ups: patient approaches step from the side, lifts self using the injured extremity, and lands on the uninjured extremity. Patient then attempts to exercise facing the step, moving up and down in a forward/backward position.
  o Skipping rope
  o Running on level ground
• Use proprioception board (balance board)
• Initiate BAPS (Biomechanical Ankle Proprioceptive System)

Activity Progression
The sequence for progression of activities is as follow:
  1. Swimming, aquatic exercises
  2. Walking; forward, retro
  3. Jogging
  4. Running
  5. Figure eights
  6. Sport specific agility drills
While resuming running, the patient should be instructed to run for 5 minutes and walk for several minutes, gradually increasing running time by 5 minute increments. If ankle pain occurs after 20 minutes, instruct the patient to drop back to 15 minutes until comfortable once more. Running should be done on a flat surface.

Orthotics
• Occasionally we use an orthotic with a lateral heel wedge to place the hindfoot in hindfoot valgus in an effort to decrease the incidence of recurrent inversion injury and spraining
• Patients with a pronated foot (pes planus) have been shown to have a reduced incidence of ankle sprains compared with those with a cavus foot. This fact also supports the use of a lateral heel wedge.

Symptom Persistence
Mild pain and swelling with prolonged activity may persist up to 3-4 months for a grade I sprain, 4-6 months for a grade II sprain, and up to a year for grade III sprain.
This physical therapy protocol is designed to be implemented by a licensed physical therapist and is not intended to be used for home based therapy. The protocol is the result of careful consideration of a variety of important issues related to maximize the surgical recovery process. Modifications may be made by Dr Higgs during the rehabilitation process, and modalities may be introduced at the therapist’s discretion.