

## Physical therapy and bracing for **tibial lengthening/deformity correction using an external device**

1. Immediately after surgery
  - a. Use of a dorsiflexion strap to keep the ankle in neutral. This strap may be removed for physical therapy.
  - b. In some cases, the ankle is included in the external fixation construct, and therefore, not mobile. A construct will be mounted to the frame to allow weight bearing (WB) within the specified instructions. In these cases, range of motion (ROM) exercises will focus on the knee and hip.
  - c. Gait training, (non-weight bearing) NWB on the affected extremity. The patient may rest the leg on the floor for balance, if necessary, in order to prevent falls
  - d. Patient should practice ankle pumps, gentle passive and active knee ROM, hip extension, quad strengthening (straight leg raises) and abductor strengthening (abduction leg raises).
2. 3 weeks after surgery PT 2-3 times per week
  - a. Unless otherwise instructed, the patient may begin weight bearing on the affected extremity (WBAT) with a walker.
  - b. Resistance bands may be used for ankle strengthening.
  - c. Continue to build strength and achieve flexibility in all muscle groups.
  - d. Patient should be performing a home program outside of PT
  - e. The patient should use the dorsiflexion strap or a brace outside of PT to prevent a plantarflexion contracture.
  - f. Once the patient is full weight bearing without without an assistive device, the patient may discontinue the use of the strap or brace during daytime hours if their dorsiflexion is AT LEAST to neutral. They should continue to use it at night.
  - g. The patient must maintain ankle passive dorsiflexion to neutral and passive knee extension with a deficit no greater than 20 degrees, and full hip extension.  
\*\*\*If the patient starts to demonstrate any knee flexion contracture, then a knee extension brace/device may be provided for use.  
\*\*\*stomach lying is very helpful to prevent hip flexion contractures and should be encouraged.
3. After total lengthening and correction achieved, but before device removal
  - a. If the patient has achieved goals, then a reduction in PT frequency can be discussed with input from the PT and the physician. This is only considered if the patient has demonstrated an understanding of the home program and achieved goals.
4. After device removal
  - a. NWB for 4 weeks
  - b. Continue all NWB strengthening and stretching
5. After clearance to resume WB post device removal
  - a. Advance to (weight bearing as tolerated) WBAT
  - b. Resume PT as indicated to achieve full activity goals

\*\*\*Each patient's specific instructions and clinical course will vary according to their particular condition and clinical/therapy needs.