

**Alison E. Barker, PT**  
PT Works, Los Altos, CA

**Who:** 16-year-old male cross country runner diagnosed with a fibular stress fracture

**What:** Physical therapy program included use of the AlterG Anti-Gravity Treadmill 2x/week, in addition to PT sessions for manual therapy and therapeutic exercises.

**Why:** Body weight support was used because this patient had a history positive for overuse injuries in the past. The AlterG was used to establish confidence, maintain fitness, and manage symptoms/swelling, while progressively increasing weight bearing while running.

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## Introduction

16 year old male, cross country runner sustained a fibular stress fracture 4 weeks ago. He runs 55 miles/week. Has a past history of avulsion fracture to distal right tibia 2 years ago and stress fracture of 4th metatarsal last year. Was in a boot and instructed to be WBAT with crutches for 4 weeks.

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## Goals

- Decrease pain from 6/10 to 0/10
  - Improve ankle ROM through increased ankle joint mobility and flexibility
  - Increase strength of both hips and ankles to 5/5
  - Reduce swelling
  - Develop a progressive return to activity
  - Maintain fitness and function
  - Return to running
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## History

Patient twisted his ankle 5 weeks ago and when he tried to return to running experienced lateral shin pain. Had diagnostic imaging which revealed a stress fracture in his fibula. He was put into a walking boot for 4 weeks, WBAT. Referred to physical therapy 5 weeks post injury.

### Treatment Provided

His physical therapy treatment plan consisted of manual therapy interventions (soft tissue mobilization, joint mobilization, facilitated stretching) and therapeutic

exercises. Exercises included stabilization exercises for core and lateral hips, closed chain functional exercises, and the AlterG for reduced weight bearing running. Patient attended physical therapy sessions 1x/wk over the course of 6 weeks and used the AlterG an additional 2x/wk. At discharge, he was back to running cross country.

### Considerations

This young patient has had multiple overuse injuries to his right lower extremity. His ankle

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mobility had not been normal since his injury 2 years ago. Although his stress fracture was healed, it was important to work to increase his ankle mobility through mobilization techniques to provide for improved weight bearing and progressive loading while running in the AlterG.

## Progression Table

Weeks Post-Injury	Program (%)	Speed (mph)	Incline	Time (min.)	Frequency /week
5	55%	5 min warm up at 2-3.5 20 min at 10 5 min cool down at 3.5	0	30	3
6	60%	10 min	0	30	3
7	65%	10 min	0	60	3
8	70%	10 min	0	60	3
9	75%	10 min	0	60	3
10	85%	10 min	0	60	3
11	85%	10 min	0	60	3

## Results

The patient was seen in physical therapy for 6 weeks. He progressed well and was released to return to distance running. He achieved all of the goals of his rehabilitation plan. The AlterG was incorporated into his rehabilitation plan for: establishing confidence, maintaining fitness, and managing his symptoms and swelling, while progressively increasing his weightbearing while running.

