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**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

14 year old active teenager was playing basketball in February and injured his left hip. Initially it was treated as a groin strain, but later it was determined that he had a slipped capital femoral epiphysis. Patient underwent surgery to fixate in May and was referred to physical therapy 3 months later. Patient wants to return to high school sports of basketball, football, and baseball.

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## Goals

- Increase strength of lower extremities and core stabilizers.
- Restore full pain free hip ROM
- Restore normal gait mechanics
- Improve tolerance to long duration walking and loading while running
- Develop cardiovascular conditioning for return to sport
- Return to football, basketball, and baseball

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## History

Patient first felt hip pain while playing basketball in February. He thought it was a groin strain and continued to play on it. After further assessment, it was determined that he had a slipped capital femoral epiphysis (SCFE) and he underwent surgical fixation. Patient presented in therapy with minimal pain, but had an antalgic gait with decreased stance time, step length, and speed on the involved lower extremity. In addition, he had decreased hip and core strength, decreased hip ROM, decreased hip joint mobility, and poor balance. Treatment provided consisted of: manual therapy (soft tissue mobilization, joint mobilization, and facilitated stretching), therapeutic exercises for increasing lower

extremity strength, especially for left hip abduction and extension, core strengthening, proprioceptive work and AlterG gait training.

## Considerations

Complications of SCFE are avascular necrosis and chondrolysis, therefore, strict monitoring of symptoms was necessary. Patient started physical therapy 3 months post-op, presenting with poor gait patterns. Patient was instructed to be WBAT per MD. Pain and latent soreness were considered when progressing on the AlterG.

## Progression Table

Weeks Post-Op	Program (% WB)	Speed	Incline (%)	Time	Frequency /week
12	50% walking	2.4 mph	0	15 min	2
13	60%	2.7 mph	3	20 min	2
14	75%	Jog	2	5 min	2
	70%	Run	2	5 min	
	70%	Sprint	2	5 min	
15	85%	Jog	3	6 min	2
	85%	Jump	3	3 min	
	70%	Jog	3	10 min	
16	85%	Warm up	3	50min	2
		Hop	0	30 sec. x 5	
		Sprint	0	3 min	
		Cool	0	5 min	
		Down			
17	85%	jog	5	15 min	2
18	70%	Sprints	0	30 sec. x 5	2
	80%	Sprints	0	30 sec. x 5	
	80%	Sprints	0	30 sec. x 5	

## Results

The patient was seen in physical therapy for a total of 17 sessions for 9 weeks approximately 2x/wk. He had very few pain complaints throughout the rehab process, though he did complain of “stiffness.” His rehabilitation focused on functional training and ROM. The AlterG was introduced on the first visit because patient was walking with an impaired gait in Full Weight Bearing. In consideration that he is a big, but young athlete, the weight bearing % was low initially, but progressed as appropriate based on patient tolerance and improvements in his gait pattern. Patient was able to progress into running/jogging by week 3. By week 7 he was running sprints at 85% weight bearing. At the time of discharge, 2 weeks later, his doctor released him to all his sport activities.