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Who: 26-year-old female BMX cyclist elected conservative care after MD recommendation following an ACL and medial meniscus tear sustained after crash

What: Body weight support was incorporated into the rehabilitation protocol once patient cleared for Partial Weight Bearing

Why: The AlterG Anti-Gravity Treadmill was incorporated at week 1 of rehabilitation to normalize gait pattern, maintain fitness levels, and progressively increase impact on the injured lower extremity.

Introduction

26 y/o female BMX Cyclist sustained an ACL and medial meniscal tear during sport activity. BMX cycling is a dynamic sport, including explosive bouts of cycling, jumps and turns.

1. Athlete suffered knee injury, crashing after a jump. Diagnostic imaging confirmed diagnosis of an ACL tear and medial meniscal tear.
2. Athlete followed physician's recommendations for initial care and treatment and elected conservative care.

Goals

- Following release to weight-bearing, incorporate de-weighting into rehabilitation protocol
- Develop a progressive return to activity
- Maintain fitness and function during rehabilitation
- Return to participation

History

Plan

- Athlete was diagnosed with a left ACL tear, and a posterior horn meniscal tear
- Upon consultation with treating physician and review of diagnostic imaging the athlete was fitted for a custom de-rotation brace & chose nonsurgical treatment
- After physician release to partial weight-bearing, a complementary conditioning program was developed incorporating the AlterG Anti-Gravity Treadmill
- Along with traditional medical treatment: modalities, therapeutic exercise and NSAID's, the AlterG Anti-Gravity Treadmill was added to the treatment protocol

- Program duration was for 6 weeks
- AlterG Anti-Gravity Treadmill® was incorporated at week 1 of rehabilitation once athlete was cleared for weight-bearing as tolerated
- Athlete achieved desired competition goals and participated for 3 months

Considerations

- Pain/ soreness levels were considered and used to gauge weight percentage and speed. Pain level reported by athlete was not to exceed 4 on a scale of 1-10 during Phase I, and not to exceed 3 on a scale of 1-10 during Phases II-IV
- Gait training was incorporated into treatment protocol
- Athlete feedback was considered prior to each workout
- Pre and post workout pain was recorded and monitored

Results

The athlete was released for return to sport by the treating physician after 2 weeks of rehabilitation. The athlete achieved the goals of the rehabilitation plan, incorporating a progressive sport specific conditioning plan to transition the athlete to full participation. The AlterG Anti-Gravity Treadmill was incorporated into the athlete's rehabilitation plan to maintain fitness, manage gait and progressively increase impact on the extremity. The athlete resumed full activity after release from rehabilitation and continued using the AlterG Anti-Gravity Treadmill as part of the reconditioning and sport specific training program.

Progression Table 1 (weeks are post-op)

Phase I Week 1	Partial Weight-bearing
	Range of Motion
	Gait evaluation/ re education
	Neuromuscular activation
	Neuromuscular conditioning
	Pain Management
	Proprioception
Phase II Week 2-3	Weight-bearing as tolerated
	Emphasize heel to toe walk
	Pain free activity
	Proprioception
	Initiate cardiovascular training
	Increase load bearing
	Increase volume
Phase III Week 4-5	Increase strike frequency
	Increase musculoskeletal strength and endurance
	Decrease incline of surface
	Preparation
	Full foot strike
	Increase intrinsic muscular function
	Proprioception/Technique
Phase IV Week 6-8	Maintain volume
	Increase intensity/ load
	Increase musculoskeletal strength and conditioning
	Increase cardiovascular training
	Decrease angle of surface
	Return to activity
	Increase load and intensity
Challenge Proprioception	
Maintain Volume	
Maintain Conditioning	
Maintain Technique	
Maintain angle of surface	

AlterG Case Study

Progression Table 2

(The following table represents the patient's actual device settings during his rehabilitation, beginning post-op week 4, based on his individual progress and pain levels. Please consult a physician before initiating any exercise or rehabilitation program.)

Days	Time	Speed(mph)	Frequency	BodyWeight %	Incline
1	10 min	3.0	1 x daily	50%	2 degrees
3	10 min	3.0	1 x daily	50%	2 degrees
7	10 min	4.0	1 x daily	50%	2 degrees
11	12 min	4.0 - 5.0	1 x daily	65%	1 degree
13	15 min	4.0 - 6.0	1 x daily	65%	1 degree
13	5 min reverse	1.5	1 x daily	65%	0 degree
16	15 min	5.0	1 x daily	65%	1 degree
16	5 min reverse	2.0	1 x daily	65%	0 degree
19	15 min	6.0	1 x daily	70%	1 degree
19	5 min reverse	2.0	1 x daily	70%	0 degree
22	15 min	6.0	1 x daily	70%	1 degree
22	7 min reverse	2.0	1 x daily	70%	0 degrees
25	15 min	6.0	1 x daily	75%	1 degrees
25	7 min reverse	2.0	1 x daily	75%	0 degrees
30	15 min	6.0	1 x daily	80%	1 degrees
30	7 min reverse	2.0	1 x daily	80%	0 degrees
30 - 35	20 min	5.0	1 x daily	85%	1 degrees
35 - 42	25 min	5.0	1 x daily	85%	1 degrees