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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

- 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

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 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.

Phase	Progression	
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 ▪ Phase II Week 2-3 Initiate cardiovascular training	▪ Increase load bearing ▪ Increase volume ▪ Increase strike frequency ▪ Increase musculoskeletal strength and endurance ▪ Decrease incline of surface
Phase III Week 4-5	▪ Preparation ▪ Full foot strike ▪ Increase intrinsic muscular function ▪ Proprioception/Technique ▪ Maintain volume	▪ Increase intensity/ load ▪ Increase musculoskeletal strength and conditioning ▪ Increase cardiovascular training ▪ Decrease angle of surface
Phase IV Week 6-8	▪ Return to activity ▪ Increase load and intensity ▪ Challenge Proprioception ▪ Maintain Volume	▪ Maintain Conditioning ▪ Maintain Technique ▪ Maintain angle of surface

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