

Vinny Comiskey MA,
ATC, CSCS

Who: 19-year-old female snowboarder s/p ACL reconstruction and microfracture surgery after crashing during boarder cross race.

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 into the athlete's rehabilitation plan to normalize gait pattern, progressively load lower extremity safely, establish athletic confidence, and maintain fitness level.

Introduction

19 y/o female Snowboard athlete sustained an ACL tear and medial and lateral meniscal tear during sport activity. Boarder Cross snowboard is a dynamic sport, including explosive bouts of snowboarding, jumps and turns.

1. Athlete crashed during a race. Diagnostic imaging confirmed diagnosis of an ACL tear and medial and lateral meniscal tear.
2. Upon diagnosis the athlete elected for surgical intervention.

Goals

- Following release to partial 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 an ACL tear and medial and lateral meniscus tear
- Upon consultation with treating physician and review of diagnostic imaging, the athlete elected to undergo surgery to reconstruct the ruptured ligament and to address the torn meniscus. A microfracture procedure of the femoral condyle was also performed
- 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 20 weeks ACL Reconstruction & Microfracture
- AlterG Anti-Gravity Treadmill was incorporated after post-op week 12, athlete was cleared for partial weight-bearing
- Athlete achieved desired competition goals and returned to full 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 scale of 1-10 during Phases II-IV

- Gait training was incorporated into treatment protocol
- Athlete feedback was considered prior to each workout

Results

The athlete was released for return to sport by the treating physician after 20 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 establish athletic confidence, 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..



AlterG Case Study

Phase	Progression	
Phase I Week 13-18	▪ Partial Weight-bearing ▪ Range of Motion ▪ Gait evaluation/ re education ▪ Neuromuscular activation	▪ Neuromuscular conditioning ▪ Pain Management ▪ Proprioception
Phase II Week 19- 24	▪ Weight-bearing as tolerated ▪ Emphasize heel to toe walk ▪ Pain free activity ▪ Proprioception ▪ Initiate cardiovascular training	▪ Increase load bearing ▪ Increase volume ▪ Increase strike frequency ▪ Increase musculoskeletal strength and endurance ▪ Decrease incline of surface
Phase III Week 25- 28	▪ 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 29- 32	▪ 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
1-6	8	1.5	1 x daily	40	2 degree
7-13	12	2.5	1 x daily	45	2 degree
14-20	15	3.0	1 x daily	50	2 degree
21	10	4.0	1 x daily	60	2 degree
23	15	5.0	1 x daily	65	2 degree
25	20	5.0	1 x daily	65	2 degree
28	25	5.0	1 x daily	70	1 degree
31	25	5.5	1 x daily	70	1 degree
34	2 min .intervals (2x10 sets)	5.5	1 x daily	70	1 degree
36	25	6.0	1 x daily	75	1 degree
40	34	6.0	1 x daily	80	1 degree
46	2 min .intervals (2x10 sets)	6.5	1 x daily	80	1 degree
51	30	6.5	1 x daily	85	1 degree
55	2 min .intervals (2x10 sets)	6.5	1 x daily	85	1 degree
60	30	3.5	1 x daily	85	1 degree
65	30	3.5	1 x daily	85-90	1 degree
70	30	4.0	1 x daily	85-90	1 degree
75	30	4.0	1 x daily	85-90	1 degree
80	30	4.0	1 x daily	85-90	2 degree
85	30	4.0	1 x daily	85-90	0 degree
90	30	4.5	1 x daily	85-90	0 degree
95	30	4.5	1 x daily	85-90	0 degree
100	30	4.5	1 x daily	85-90	0 degree
100-119	30	4.5	1 x daily	85-90	0 degree
120-140	30	5.0	1 x daily	85-90	0 degree

This 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.

