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Who: 39- year-old male with history of chronic B hip dysplasia and progressive OA, elected to undergo B hip resurfacing.

What: 2 weeks post-op a walking program was initiated on the AlterG Anti-Gravity Treadmill™.

Why: Body weight support was used to help normalize gait mechanics and wean patient from B axillary crutches. There was carryover in gait mechanics learned in the AlterG to overground situations.

Introduction

The patient is a 39 year-old male with a life long history of bilateral hip dysplasia, with progressive osteoarthritis (OA) bilateral hips. The patient underwent elective bilateral hip resurfacing utilising a posterior approach. Prior to surgery, the patient was unable to walk more than 200 yards without a significant increase in pain. The patient is active in walking, biking, swimming, and surfing.

Goals

- Restore normal gait mechanics
- Restore normal mechanics with ascending/descending stairs
- Increase hip/core strengthening and hip ROM with respect to post-operative precautions
- Return to previous level of exercise including walking, biking, swimming, and surfing

History

Plan

- The patient has a life long history of bilateral hip dysplasia, which resulted in OA of bilateral hips
- After multiple surgical consultations, the patient decided to undergo elective bilateral hip resurfacing utilising a posterior approach
- X-rays showed significant arthritic and degenerative changes in bilateral hips
- The patient spent two days in inpatient care following the surgery. In acute care, he was seen three times daily for 10-15 minutes by a physical therapist with focus on gait and stair training with bilateral axillary crutches. Patient self-administered anticoagulation therapy via injection for 3 weeks post-op. Outpatient physical therapy began six days post-op
- Patient initially had significant soreness at bilateral Bilateral Hip Resurfacing incisions and bilateral hip flexors
- Patient initially demonstrated an antalgic four-point gait pattern with stiff knees and circumduction of hips. Patient ambulated with decreased stance time, step length, step width, and speed
- Patient initiated a walking program on the AlterG Anti-Gravity Treadmill at 50% of his body weight at 1.5 mph and no incline 2 weeks post-op
- The rehabilitation protocol included gait training on the AlterG Anti-Gravity Treadmill and level ground, hip/core strengthening, hip ROM and flexibility, aquatic based strength/endurance training, and balance training
- The patient will be progressed with return to sport drills as tolerated

Considerations

Pain, soreness, and gait deviations were considered when progressing ambulation on the AlterG. Speed, incline and body weight percentage were increased to patient tolerance.



Results

The patient was seen 3 times a week for 3 weeks, then 2 times a week for 6 weeks. The patient will continue therapy twice a week with AlterG Anti-Gravity Treadmill training until gait mechanics have normalised. During training with the AlterG, a warm up and cool down involving walking in reverse was incorporated, secondary to hip flexor tightness and pain. The AlterG was utilised in the rehabilitation program in order to restore normal gait mechanics and wean patient from bilateral axillary crutches. While in the AlterG, the patient was able to ambulate with normal gait pattern with carry over to level ground ambulation. Speed and body weight percentage were increased over the course of the rehabilitation program to patient tolerance, with respect to gait mechanics. The patient continues to make progress towards functional goals and will continue to increase speed, body weight percentage, and incline on AlterG Anti-Gravity Treadmill as tolerated.

Weeks (post op)	Program	Speed (mph)	Incline %	Time (mins.)	Frequency
3	Walking at 50% BW	1.5	0	20	3 times a week
3 (day 3)	Walking at 50-55% BW	1.5	0	20 (10 reverse)	
4	Walking at 60-65% BW	2.0-2.5 (reverse)	0	20 (10 reverse)	3 times a week
4 (day 3)	Walking at 70% BW	2.0-2.5 (reverse)	0	25 (10 reverse)	
6	Walking at 70% BW	2.0-2.5 (reverse)	0	25 (10 reverse)	Once a week
8-11	Walking at 70% BW	3	0	25 (10 reverse)	Twice a week

