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Who: 21-year-old male fracture left acetabulum in dirt biking accident. Underwent complicated ORIF and wanted to return to recreational activities including riding dirt bikes and snowmobiles.

What: Walking program started at 8 weeks post-op with goal of progressively loading lower extremity, gait training, and improving lower extremity strength.

Why: Body weight support in the AlterG Anti-Gravity Treadmill™ allowed patient to normalize gait pattern and work on mechanics with both forward and retro walking. Use of the AlterG allowed patient to demonstrate near normal gait pattern when crutches were discharged with overground walking.

Introduction

21 year-old active male fractured his left acetabulum in a dirt biking accident. He underwent a complicated ORIF surgical procedure. The patient was active, as he works in construction and enjoys activities such as riding dirt bikes and snowmobiles.

Goals

- Initiate an independent home exercise program
- Be able to get back into normal activities
- Develop a normal gait pattern without assistive devices
- Return to normal strength and range of motion
- Independent in gym program

History

Patient was 4 weeks post-op at time of initial evaluation. He had orders for touch down weight-bearing status, with use of axillary crutches. His surgeon was excited to find out that we would be incorporating the AlterG in the treatment plan and allowed for gait training sooner.

There was significant atrophy in the gluteus and thigh musculature of the involved lower extremity, and hip strength was grossly 4-/5 in all planes, 4/5 in knee flexion and extension.

Hip ROM was measured as follows:

- Flexion 130°
- Extension 40°
- Abduction 30°
- Adduction 15°
- Internal Rotation 15° (hip in 0° xn)
- External Rotation 25°(hip in 0° xn)
- Internal Rotation 15° (hip in 90° xn)
- External Rotation 15°(hip in 90° xn)

Patient's initial treatment included A/PROM, NWB PREs, and soft tissue mobilization to noted areas of restriction throughout involved lower extremity. Initial home exercise program

AlterG Case Study

included heel slides, lying knee extension, and lying hip rotation.

At 8 weeks post-op, use of the AlterG began with gait training at 20% BW, walking forwards at 1.3 MPH for 10 minutes, and walking backwards at 1.0 MPH for 5 minutes. BW progressed weekly, duration increased weekly, and speed was kept to tolerable walking pace. Walking progressed on the AlterG to 60% BW at a moderate pace for 45 minutes by 12 weeks post-op.

Patient treatment progressed to WBAT, ROM, and strengthening after his doctor appointment at 12 weeks post-op. When crutches were discharged, patient demonstrated only a very slight trendelenburg, but otherwise normal gait due to 4 weeks of gait training via AlterG while at PWB status

New home exercise program was formed, which included an increase in hip and lower extremity PReS. After improving overall strength and continued training on the AlterG, patient was able to return to work in construction without limitations in less than 4 months post-op and with three months of PT.

Progression Table

Days	Program Walking Program at % Body Weight	Speed	Speed (mph)	Frequency
<i>Week 8</i>	20-25%	Self-Selected	5-15 mins	2-3x
<i>Week 9</i>	20-25%	Self-Selected	15-30 mins	2-3x
<i>Week 10</i>	30-40%	Self-Selected	30 mins	2-3x
<i>Week 11</i>	40-50%	Self-Selected	30 mins	2-3x
<i>Week 12</i>	50-60%	Self-Selected	30-45 mins	2-3x
<i>Week 13</i>	60-70%	Self-Selected	30-45 mins	2-3x
<i>Week 14</i>	70-80%	Self-Selected	30-45 mins	2-3x
<i>Week 15</i>	80-90%	Self-Selected	30-45 mins	2-3x
<i>Week 16</i>	90-100%	Self-Selected	30-45 mins	2-3x
<i>Week 17</i>	90-100%	Self-Selected	30 mins	2-3x

Results

At the time of initial evaluation the patient presented with tissue restrictions, atrophy, gait dysfunction, and weakness. The AlterG Anti-Gravity Treadmill was used early in the program to address the gait issues. Patient began training at 20% BW, walking both forwards and backwards. BW increased gradually without pain and with normal gait.

After continuing physical therapy, including increased gait training on the AlterG, the patient was feeling great and reported no problems even after “a long day at work.” Goals were met, and patient was discharged with a home exercise program and full return to motorsports.