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Who: 54-year-old female 12 weeks s/p pelvic ring fracture after falling off horse and subsequent ORIF

What: The AlterG Anti-Gravity Treadmill was used to help patient with safe, controlled progression towards Full WB'ing

Why: Body weight support allows for precise progressive loading for patient's needing to progress back to Full Weight Bearing status. Use of the Visual Monitoring Systems provides the patient verbal cues to allow them to correct/normalize gait pattern.

Introduction

PT Initial Evaluation: 12 weeks post-injury- 54 y/o female riding a horse when the horse got frightened reared up, she fell off the horse backwards and then the horse bounced off on her in May 2014. The patient was referred for physical therapy after open reduction and internal fixation of her pelvic fracture, following specific weight bearing protection from the physician's protocol.

Goals

- Patient education: current baseline, fall risk without AFO, pressure areas-skin inspection and modification of AFO
- Progress patient from 25% weight-bearing on week 12 to 100% on week 15.
- Open chain isometrics and progress to open chain LE PREs through week 15.
- Begin AlterG Anti-Gravity Treadmill at week 15 at 50% weight bearing, initiate CORE exercises Level I.
- Progress to 100% weight bearing on AlterG in order to continue on home treadmill.
- Progress to closed chain PREs for BLE and progress to CORE exercises Level II.
- HEP: RPE, flexibility, core strength, closed chain PREs, stationary bike/treadmill
- Instruct in HEP, return to driving and work (office work with some carrying)

History

Problem List-Hospital (Reviewed 10/01/14)

- Small bowel obstruction due to postoperative adhesions
- Multiple trauma
- Acute blood loss anemia
- Hypokalemia
- Red blood cell antibody positive
- Diaphragm injury with hematoma of stomach into the left hemothorax
- Multiple pelvic fractures- L iliac/inferior pubic

rami/superior pubic rami/ R sacrum

- Pelvic hematoma
- Left hemothorax
- Vertigophysical therapy.

Initial stabilization with external fixator then followed by pins and screws posterior R sacrum-AP Crush Injury II

AlterG Case Study

Problem List-Week 12: Gbhcc For Pt

- Trauma patient- Life threatening accident, anxiety, Possible PTSD
- Hospital Rehab- Focused on functional tasks in order to go home with her husband wheelchair level.
- Atypical AFO on LLE-drop foot since injury (atypical AFO-wraps around ankle more giving medial and lateral stability in addition to ankle at neutral rather than SLB with metal uprights)
- Muscle Weakness through Sciatic Nerve Distribution on LLE (Superior and Inferior Gluteal N)
- Sensation Loss through Sciatic Nerve Distribution on LLE (Lateral Femoral Cutaneous Nerve)
- Fall risk
- Pressure Areas wearing AFO-unable to feel on LLE
- Pt reported that by end of day her foot turns a dark color and is cold to the touch-a possible vascular component to the injury.

Progression Table

| Week | Program | Speed (mph) | Incline | Time | Comments |
|----------------|--------------------|----------------------------|--|--------|---|
| Week 18 | Walking at 60% BW | .5-1.0 | 0 | 5m | New order: 10/01/14 continue with AFO, begin anti-gravity treadmill, walking for endurance OK, out of work until Nov. 1, f/u 6 wks. |
| Week 19 | Walking at 70% BW | .8-1.0 | 0 | 10-13m | 6/10 pain L medial ankle, pt stopped at 13 min-felt she was favoring LLE, instructed no treadmill at home yet. |
| Week 20 | Walking at 100% BW | 1.0 | 0 | 10-15m | 6/10 pain, pt requested to do 100% BW-has treadmill at home, instructed to continue with stationary bike at home, felt pelvis wobbling as fatigued. |
| Week 21 | Walking at 100% BW | 1.2-1.5 Pt chose speeds | 0 | 20m | 5/10 pain, pins and needles L ankle laterally, pt stated she was using treadmill at home. |
| Week 22 | Walking at 100% BW | 1.2-1.6 Pt chose speeds | Incline 2/ Incline 0 alternate every 5 min | 25 min | 0/10 pain pre/post |
| Week 22 | Walking at 100% BW | 1.2-1.8 | Incline 2/ 0 Alternate every 8 min | 30m | |

Results

AlterG Anti-Gravity Treadmill training was initiated at week 18 when physician's orders were received. I actually wanted to begin using the Anti-Gravity Treadmill earlier (at week 15) to allow for safe, controlled progression towards FWB for this patient. Treatment was delayed due to patients neurological Sx and completion of EMG testing.

The patient returned to driving (no restrictions were given by orthopedic physician per patient) helping the patient regain more control/independence and the feeling of going back to "normal life." She returned 10/27/14 to her job for four hours/ day, M-F. She used a Single Point Cane for community walking at Modified Independent

level (FIM 6). In her home and in physical therapy, we are focusing on gait without an assistive device wearing her AFO.

The AlterG Anti-Gravity Treadmill was a very valuable tool in my therapeutic options because weight-bearing could be gradually introduced to the patient's tolerance and response to sessions. We began on a level surface, then gradually increased the incline. The Anti-Gravity Treadmill also allowed me to closely monitor and improve the activity of the gluteus maximus by modulating the weight support on the AlterG as appropriate.