Gait Training and Progression:
Parallel Bar Activities, Functional Gait Assessment, Assistive Devices for Ambulation

Rehab 537 – Week 5
July 21, 2008

Mat/bed mobility for non-ambulatory patients
- Rolling without LE assistance
- Supine → prone
- Prone on elbows
- Supine → long sitting
- Long sitting with and without UE support
- Long sitting push-ups and scooting
- Short sitting (edge of mat or EOB)

When last we met…
- Pre-ambulation mat program/progression
- Took a quiz and performed a skill check
- Any questions about the w/c reflection paper or quiz?
- Time to move on to….

Objectives
- Be able to identify the goals of gait training

Goals: Gait training
- Increase endurance
- Increase postural stability
- Increase control during transitional movements
- Increase dynamic balance
Parallel Bar Activities
- Sit ↔ stand
- Static standing balance
- Weight shifting activities – limits of stability
- Hip hiking
- Standing push-ups
- One leg forward/backward step (prep for swing phase)

Goals: Indoor Progression with Assistive Device
- Optimal fit of appropriate assistive device
- Increase distance able to walk
- Increase balance, ↓ LOB
- Independent and safe ambulation on indoor surfaces
- Review of guarding techniques
  ALWAYS use a safety belt!!!!!!

Indoor activities
- Ambulation on level surfaces
  - hard surfaces (wood, linoleum)
  - carpet (different piles), rugs
  - transitions between surfaces
- Progression of distance
- Elevation activities
  - Stairs
  - Ramps
  - Curbs

Indoor activities (cont.)
- Opening doors
- Over thresholds
- Elevators
- Walking in a busy environment
- Falling techniques
- What to do in case of a fall
- How to get up from a fall

Goals: Outdoor Progression with Assistive Devices
- Increase distance able to walk
- Increase balance, ↓ LOB
- Independent and safe ambulation on outdoor surfaces
- Achieve functional speed for crossing streets
- Independent car transfers and/or public transportation (Metro/Access vans)
Outdoor Activities
- Opening doors and passing through thresholds to the outdoors
- Ambulation on uneven terrain
- Elevation activities: stairs, ramps, curbs, curb cuts
- Crossing the street within time allocated by a traffic light
- Walking in a busy or crowded environment
- Car transfer and/or public transportation

Weight Bearing Status
- Describes the amount of weight a person is allowed to place on their involved limb
- It is a precaution designated by the MD after a LE injury/medical condition and/or surgery
- Become very familiar with these terms and abbreviations!!!

Examples of Weight Bearing Status
- Non-weight bearing (NWB)
- Partial weight bearing (PWB)
- Toe touch weight bearing (TTWB)
- The cracker test
- 50% weight bearing
- Weight of leg weight bearing (WOLWB)
- Weight bearing as tolerated (WBAT)
- Full weight bearing (FWB)

Gait Patterns
- 2-point gait
- 3-point gait
- 4-point gait
- Swing-to gait
- Swing-through gait
- Full weight bearing gait
- Partial weight bearing gait
- Non-weight bearing gait

Assistive devices: Canes
- Adjustable canes
- Quad canes
- Folding cane
- Wood cane

Crutches
- Axillary crutches
- Adult, youth, Pediatric sizes
- Shepherd’s crutches
- Forearm or Lofstran’d’s crutches
Remember…

- The cane is held in the hand opposite the affected extremity. There are exceptions...
- The function of the cane is to broaden the BOS
- A cane should not be used for PWB or NWB status

Crutches and measuring crutch height

- Please turn to page 22 in your course syllabus

Walkers

- Pick up walker
- Four-wheeled walker (with seat and basket)
- Front wheeled walker (FWW)

Measuring walker height and gait patterns

- Please turn to page 24 of your syllabus

Roll-abouts (knee scooters, leg caddy, leg up)
Functional Gait Assessment
- Terminology is key

Types of Gait Analyses
- **Kinematic**
  used to describe the movement patterns
  without describing the forces involved
- **Kinetic**
  Used to determine the forces involved in gait

Observational Gait Analysis (OGA)
- Is the most commonly used clinical method of performing a **kinematic** qualitative analysis. Doesn’t take much equipment
- Takes practice
- Videography is helpful
- Let’s take a look at some examples of gait...

Quantitative Gait Analysis

Case studies
- THR/TKA
- BKA (Below Knee Amputation)

Total Hip Replacements (THR)
- Traditional hip replacement
- Minimally invasive hip surgery (MIHS)
- Most common reason for surgery?
- Hip precautions
  - Flexion greater than 90 deg
  - Hip adduction
  - Internal rotation
  - No twisting
Exercises
- Isometrics and ankle movements
- Bridging
- Hip abduction
- TKEs
- Hip/knee flexion (heel slides)
- Ambulation goal 60-70 m on level surface, 1 flight of stairs

Total Knee Replacements (TKR)
- Most common reason for surgery?
- Also have minimally invasive knee surgery
- Goal: 85 to 90 degrees of knee flexion
  - Isometrics and ankle exercises
  - Hip/knee flexion
  - SLR (with assist)
  - TKEs
  - Seated knee ext/flexion

Other considerations
- Home set up
- Pre-op training?
- Ambulation goal: 60-70m with SBA using assistive device, up/down 1 flight of stairs

Below knee amputation (BKA)
- Isometrics
- UE/LE strengthening
- Pronelying (2x/day)
- Gait progression
Next week:

- Skill Check #2, on gait training.
- No quiz as you have your take-home finals!
- Don’t forget, finals are due on Friday, August 1st at 5 pm!
- Wrap-up and evaluation second half of class!

Have a great week!