Body Mechanics & Transfer Techniques

Body Mechanics

- Efficient use of body to produce motion that is safe, energy conserving, anatomically and physiologically efficient and leads to maintenance of a person's body balance and control used to avoid injury to patient and therapist
- Gravity & friction add resistance to activities i.e. lifting, reaching, pushing, pulling, and carrying objects

Transfer Techniques

- Position patient close to you
- Position your COG as close to the patient's COG as possible (S2)
- Increase your BOS (lower your COG and maintain your vertical gravity line (VGL) within your BOS; BOS is dependent on position of your feet
- Plan the activity and make room arrangements if necessary (obtain eq. Or assistance as needed)
- Avoid trunk flexion and rotation
Lifting Models
- Traditional model: lift any object that is below the waist by squatting & avoid posterior tilt; keep lumbar and thoracic spine relatively straight
- Lumbar Lordosis Model
  - Deep squat lift: full squat, wide BOS with feet straddling object; lumbar lordosis (ant tilt)
  - Power lift: half squat (hips above knees); feet parallel and behind object; lumbar lordosis
  - Straight leg lift: knees only slightly bend; lumbar lordosis
- One leg stance (golfer’s lift) for light objects

Pushing, Pulling, Reaching
- Pushing, Pulling, reaching, and carrying:
  - lower COG (semi squat;
  - push or pull parallel to surface of object

Transfers
- PT Goal
  - Safe & independent transfer
- PT POC
  - Transfer training to pt., caregiver
**Transfer Training**

- Transfer from one surface to another
  - Bed to chair
  - Commode to wheelchair
  - Commode to standing
  - Car transfer
  - Bed to gurney
  - Bed to wheelchair
  - *lots of types of transfers*

**Transfers**

- Safe movement of a person from one surface to another or from one position to another
  - Independently
  - Verbal cues/instructions
  - SBA
  - Minimum Assistance
  - Moderate assistance
  - Maximum assistance of 1
  - Maximum assistance of 2 or 3
  - Or special equipment i.e. sliding board, hoyer lift

**Terminology**

- Independent:
  - Pt can perform transfer w/o any type of asst. (verbal or manual)

- Assisted:
  - Pt requires asst from another person
    - (verbal or manual)

- Dependent:
  - Pt requires total physical asst from 1 or more people to transfer
Terminology

- Minimal Assistance
  - Pt performs 75% or more

- Moderate Assistance
  - Pt performs 50-75%

- Maximal Assistance
  - Pt performs 25-50%

Terminology

- Stand by Asst
  - Pt requires verbal or tactile cues

- Contact Guarding

Organization of Patient Transfers

- Plan & organize transfer BEFORE moving patient
- Instruct patient in technique/procedure
- Demonstrate technique/procedure
- Be alert to safety factors
- Review chart to determine amt of asst, cognitive status, strength, type transfers already performed etc
- Utilize safety belt
- NEVER leave pt. unattended
Organization of Patient Transfers cont’d

- Proper shoes on patient
- Appropriate equipment
- Alert to IV lines, catheters, weight bearing status etc
- Use proper body mechanics
- Position yourself to guard, protect and assist
- Break transfer into component parts
- Only assist as needed at each component

Types of Transfers

- All transfers start with bed mobility
- Types
  - Bend knees up, roll to side, let legs off bed, push to sitting with UE’s
  - Raise up on arms, slide one leg out at a time while scooting bottom toward edge of bed used for THA (total hip arthroplasty) to avoid hip flexion greater than 90

Pointers

- Avoid use of trapeze bar if performing transfer training if at all possible
- Trapeze bar is useful for scooting in bed but not for transfer
- Plus, pt won’t have trapeze at home
- Train for home
- Use good body mechanics & mechanical advantage
Types of transfers

- Pivot
- Sliding Board
- Hoyer Lift
- 2-3 person lift
- Floor to chair
- Bath tub with transfer chair
- Bath tub with transfer bench
- Car transfer

Transfer training

- For all pivot transfers the pt should:
  - Scoot to edge of chair/bed/w/c
  - Position feet
  - Lean forward
  - Pt should have on shoes that will provide traction
  - NEVER transfer patient with patient just wearing socks
- Therapist
  - Always use gait belt
  - Remove armrest on wheelchair if possible
  - Lock brakes of wheelchair

Pivot Transfer Standing

- Standing Pivot:
  - Partial stand if possible (keeps COG lower)
  - Position w/c or chair parallel or at 45-60 degree angle
  - Easier to transfer to strongest side
  - Transfer training involves teaching the pt to transfer to both sides
  - Pt may push from w/c or hold around therapist shoulder girdle
  - Never let pt hold around therapist’s neck
  - May choose to block stronger leg or weaker leg
Standing Pivot Transfer

Sitting Pivot Transfer
- Position w/c close to plinth
- Pt scoots forward in chair
- Position feet
- Sliding board or pillow b/n plinth & W/c
- Pt lifts & scoots their bottom by pushing with UE’s (and LE’s as appropriate)

Pivot Transfer Sitting
Conditions Requiring Special PRECAUTIONS during Transfers

- Total Hip Replacement
- Low back trauma or LBP
- SCI = spinal cord injury
- Burns
- Hemiplegia

Total Hip Replacement transfer precautions

- Avoid hip flexion > 90
- Avoid hip abduction
- Avoid hip rotation

Total Hip Replacement transfer precautions

- Utilize reclining wheelchair to transfer pt or for sitting
- Do NOT have pt sit in upright position
- Do NOT have pt roll onto side to go from bed to sitting
- DO educate pt regarding precautions & utilize precautions during transfers
Low back pain or trauma
- Have pt log roll onto their side
- Allow feet to come off bed
- Have pt rise to sitting
- Avoid
  - Lumbar rotation
  - Lumbar lateral flexion
  - Lumbar flexion

Burns
- Avoid shear forces across burn or graft site
- Avoid sliding

Hemiplegia
- Do NOT pull on affected UE or LE
  - Pulling on the affected UE or LE can dislocate the shoulder or overstretch the joint capsule
Bed to Gurney transfers

- Insert draw sheet