Teaching Functional skills in Early Rehabilitation Phase

Consideration should be given to individual factors to determine goals and techniques taught for retraining of functional skills. This may include but is not limited to, level of spinal cord injury, degree of neurological impairment, age, comorbidities, or other injuries. Frequent reassessment is required to determine if the goal is to teach compensation strategies versus normal movement patterns.

Sitting balance

- This skill is usually taught first in the early rehabilitation phase
- Sitting balance is important for performing everyday tasks
- Ensure the patient has a large base of support to start
- Sitting balance retraining should commence on a firm surface, such as a treatment plinth before progressing to softer surfaces such as hospital beds and mattresses

Long sitting

Position

- Patient leans forward in order to bring their centre of mass (COM) in front of their hips
- The ability to achieve the long sitting position may be limited by lack of flexibility in the hamstrings
- Caution should be used in the first six weeks post injury and modified positions utilised to minimise neural tension

Modified positions:

- Feet off the edge of the bed
- Knees slightly bent
- Frog leg positioning

Therapist position

- Behind the patient to facilitate the movement

Progression

- Propping with upper limbs
- Being able to move hands behind quickly to prevent falling backwards
- Internal perturbations – head movements
- Working within the base of support (BOS)

- Static and dynamic balance
- Short sitting
- Change the surface to something softer

Rolling

- This is an important skill to give a patient independence and allow them to perform their own turns overnight
- Rolling with use of upper limbs and no or minimal active trunk or lower limb muscle power involves coordinating head and arm movements to create momentum
- The arms start above one ear and move downwards in a rapid diagonal towards the opposite hip, to create a twisting effect towards the side they wish to roll

Position

- Start in a supine position

Modified position:

- Start with the patient in a quarter turn position with pillows or a wedge behind their back
- Cross the ankles
- Cuff weights can be held or used on wrists to increase the force behind the momentum
- Air splints on upper limbs can be used for patients with impaired upper limb function to maintain elbow extension

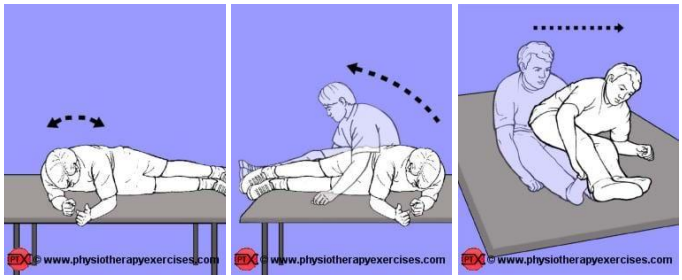
Progression

- Work on a softer surface

Supine to sitting

Through sidelying (without use or with minimal use of trunk/lower limbs)

- Patient uses their momentum from the roll to be able to prop up on their elbow
- Head position is important in this skill, the head needs to stay down in order for the COG to stay within the BOS
- The patient then moves/shuffles/walks their elbows/hands towards their feet, along an arc-shaped path



Therapist position:

- Behind the patient
- Hands under the axilla to facilitate weight shift and forward movement

Progression

- Moving directly from lying supine to sitting by propping on both elbows then moving directly forwards rather than via sidelying
- This skill can be taught in reverse to practice the weight shift, moving from sitting to lying
- Rapid weight shift and forwards movement to create momentum
- Therapist position: behind the patient with hands on shoulders to facilitate weight shift and forwards movement

Modifying the skill

- When moving through sidelying, patients without active elbow extension may hook one hand behind their knee to assist with the weight shift
- Bed ladders can be positioned to assist with rolling or moving from lying to sitting

Moving around the bed

- Vertical lifts are used to move around the bed in a sitting position
- Poor technique or the inability to perform a vertical lift can compromise skin integrity due to the shearing forces
- Lifts should be practiced in long siting first and then progressed to short sitting as the patient will be more stable
- Shoulder strength and technique is important for performing an adequate lift

Performing a vertical lift:

Reasonable muscle strength in the following groups is particularly important:

- External rotators
- Anterior deltoid for shoulder stabilisation
- Latissimus dorsi, which assists in the 'lift' stage of the transfer
- Scapula stabilisers for shoulder stabilisation

How to move around the bed

- Vertical lifts are performed and the body weight is shifted in the desired direction to create rotation of the trunk and movement of the hips
- The leading hand is placed forwards and away from the hip whereas the trailing hand is behind the hip and close to the body
- The lower limbs are then moved across the bed passively or with assistance

Progression

- Softer surface
- Hands on a higher surface (i.e. hand on a block)
- Unstable surface (i.e. hand on a ball)

Lifting legs onto the bed

- Some patients will be able to lift one leg at a time onto the bed from a short sitting position
- Other patients will be able to lift both legs at the same time onto the bed from a short sitting position
- Those with impaired upper limb function may need to prop on one elbow to be able to hook a hand behind their knee to be able to lift their leg onto the bed. This technique can be completed using elbow flexion and wrist extension

References and Resources

Reznik, J., Simmons, J. (2020). Rehabilitation in spinal cord injuries (1st ed.). Elsevier Health Sciences.

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