Immobility

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10 Days in Bed

- 10-15% loss skeletal muscle
  - Difficulty in standing, transfers and ambulation
- Stiffness and pain in joints
- Reduced intravascular volume
  - Postural hypotension
  - Reduced cardiac output
- Reduced pulmonary capacity
- Reduced appetite
- Constipation/Incontinence
- Skin breakdown
- Anxiety / Depression
Musculoskeletal Effects of Immobility

+ Loss of contractile force of muscle
  - Daily loss of 1.3% to 3% of muscle strength occurs.
  - A daily loss of 1.5% in leg strength means an overall loss of 10% in 1 week of bed rest.

+ Shortening of muscle fibers and total muscle length

+ Contractures can begin to develop after 8 hours of immobility.

+ Increase in calcium loss in the bone

+ Decline in muscle mass and strength has been linked to falls, functional decline and increased frailty
Cardiovascular Effects of Immobility

- Progressive loss of fluid, primarily from the extracellular space
- Intravascular volume preferentially distributed in the upper body
- Loss of orthostatic competence
- Decrease in cardiac output
Pulmonary Effects of Immobility

- Effectiveness of cilia decreased
- Pooling of mucous occurs
- In a supine position chest movement is restricted
- In a supine position, the vital capacity of the lungs are decreased by about 4%.
- Atelectasis occur during supine position at end expiration
Gastrointestinal Effects of Immobility

- Loss of appetite
- Decreased peristalsis
- Decreased ability to eat in a supine position
- Constipation
- Weight loss
Urinary Tract Effects of Immobility

- Stagnation in calyces
- Incomplete bladder emptying
- Incontinence
Skin Effects of Immobility

Pressure ulcers

In just 3 hours of immobility, the vulnerable older patient on an emergency room stretcher can show signs of skin breakdown. (Fletcher)
Psychological Effects of Immobility

- Anxiety
- Depression
- Disorientation
- Fostered dependency/learned helplessness
- Delirium

Bed rest itself also appears to be a subtle form of sensory deprivation. Studies at NASA have shown that normal, healthy young men kept in bed for several weeks experienced significant increases in anxiety, hostility, and depression, together with altered sleep pattern. (Fletcher)
Solutions to immobility

- Numerous studies have proven that the elderly can benefit from exercise. Tasks should be chosen on the basis of the person’s normal lifestyle.
- Benefits include increased muscle mass, cardiovascular endurance, increased bone density, greater mobility and safety, and improved mood.
- ‘Therefore, it becomes critically important to implement strategies early in the hospital stay to maintain and improve functioning in elderly clients.’ (Gillis & MacDonald)
Metabolic Equivalent of Task (METS)

Anything is better than doing nothing!!

- 0.9 MET = sleeping (daily loss of 1.3% to 3% of muscle strength occurs).
- 1.0 MET = quite sitting
- 1.8 MET = writing, typing, desk work
- 2.3 MET = walking, strolling, (slowly)
- 3.5 MET = light moderate exercise
- 8 MET = jogging
- 10 MET = jumping rope
Challenges to Mobilizing

How many times have you heard?…

- “I need to rest to get stronger first”
- “I’m not going to kitchen group because I need to save myself for physio.”
- “At home the PSW doesn’t do anything for me.”
- “If I can’t go back to my home, there is no point in doing anything. This is all a waste of time.”
Challenges to Mobilizing

- Pain
- Decreased motivation
- Decreased problem solving
- Learned non-use
- Staffing
- Delirium
- Cognitive issues – impulsivity, poor judgment
- Fear
Task

Discuss the challenges and possible solutions to avoiding a decline in mobility in first week of admission?
Solutions?

Could include:
- Appropriate mattress/seating assessment
- Use of a bedside commode
- Assess stand/balance/transfers/ambulation
- Education patient/family/staff
- Out of bed for meals/toileting
- Mobility aid
- Early mobilization
- Consistent expectation for mobilization (communication)
- ROM activities
- Participation in ADL’s
- Participation in Recreation Therapy
- Others?
References


