Sternal Precautions: Time for a Change?

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Clinical Coordinator
Rehab Services HVI
List of Sternal Precautions

• 1. No lifting/pushing/pulling > 5-10lbs
• 2. No shoulder flexion >90
• 3. No reaching behind back with B UE
• 4. Use pillow for coughing/sneezing
Sternal Precautions

• In general, sternal precautions are very restrictive.
• Beyond imposing arbitrary load restrictions, they often prohibit common shoulder joint and shoulder girdle movements.
• Healing and remodeling of connective tissue, including bone, requires appropriate loading.
• Because of the implementation of these restrictions, patients often require assistance from the nursing staff, the therapy team, or family members to complete basic bed mobility, transfers and ADLs.
Forces with ADLs

- Adams and colleagues measured the force required to complete 32 activities of daily living and found that a majority of them elicited forces greater than the 10 lbs.
  - Lifting a gallon of milk from refrigerator (10 lbs)
  - Pushing a glass door to exit hospital (22 lbs)
  - Coughing 60-lbs (>lifting two 20-lb weights simultaneously)
  - Sneeze exerted force of 90-lbs
Evidence?

- There is **no direct evidence** linking postoperative activity level or arm movement to increased risk for sternal complications. (3)
- Most of what is currently done in clinical practice is based on anecdotal/indirect evidence and expert opinion. (3)
- Which has led to a **plethora of protocols**.
- Most with conflicting advice. **Vary widely** from among hospitals and rehab centers.
Keep Your Move in the Tube is based on the ergonomics that shorten the length of the outstretched arm (lever arm reduction).

Enables patients to perform previously contraindicated movements.
Tube Theory

- By keeping their upper arms close to their body, as if they were inside an imaginary truncal tube, patients can modify load-bearing movements and thus avoid excessive stress to the sternum.

- More specifically, limiting the movement of the humerus minimizes the lateral pull on the sternum and decreases the leverage of the hand and forearm during load-bearing actions such as rolling a wheelchair, opening a heavy door, or lifting a toolbox.

- However, for non-load-bearing activities such as personal hygiene, patients are allowed to reach “out of the tube” (above the head, out to the side, or behind the back).
“Move in the Tube”

- *Keep Your Move in the Tube*, enables patients to use their arms and thus perform bed mobility and transfers more efficiently, which may increase the likelihood that they will be discharged to their home.

- Patients allowed to resume their normal load-bearing activities at their own pace, within pain-free limits, as long as they stay “in the tube.”
“Move in the Tube”

Credit: Baylor University Medical Center
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**Note:**

1. Average Length of Stay during Therapy periods
2. Average Length of Stay between admit and first therapy date
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**Note:**
1. Average Length of Stay during Therapy periods
2. Average Length of Stay between admit and first therapy date
3. Average Length of Stay between last therapy date and discharge date
Conclusion:

- Traditional SP that are currently provided to patients after a median sternotomy are more restrictive than precautionary.
- A precautionary approach rather than restrictive approach is likely to better facilitate optimal sternal healing and functional recovery after a median sternotomy.
- Current restrictive SP may be related to the poorer outcomes that have been observed in patients after median sternotomy.
- Therefore, SP that focus on function and patient characteristics may be more likely to facilitate recovery after median sternotomy and less likely to impede it.
Questions?
References


