

Out-of-bed mobilisation

Whether the patient is ventilated or not, the process of sitting a patient on the edge of the bed forms an important part of the early patient assessment and subsequent provision of a structured rehabilitation programme and seating plan. This process provides vital information with regard to patients' sitting balance and readiness for sitting out of bed and their physiological stability in response to activity and positional change, as well as many other specific physical and psychological benefits.

Once sitting balance and physiological reserve have been determined, an individualised seating programme can be devised to aid recovery. In the early stages this may require specialist equipment and a range of early mobility solutions are available to support this process at all stages.

Benefit of sitting on edge of bed

- Increased functional residual capacity³⁸
- Challenges the trunk and allows assessment of static and dynamic sitting balance³⁵
- Less supportive / more physically demanding position promotes a cardiorespiratory response⁴¹
- Provides neurological stimulus to aid waking and reorientation⁴²
- Positive psychological benefits of commencing rehabilitation for patient and family



Sitting out of bed

The change to an upright position challenges both the cardiovascular and respiratory systems. Earlier work has demonstrated that critically ill, mechanically ventilated patients show a positive response to exercise and increased activity in respiratory and cardiovascular parameters^{43,44}. This suggests that patients within critical care may benefit from the effects of training, albeit in a modified way to meet their current levels of physical capacity and reserve.

Following an extended stay on the ICU, patients are likely to experience the equivalent response to vigorous exercise (i.e. an increase in heart rate and respiratory rate) at even low levels of activity, such as moving from lying to sitting or completing activities of daily living such as washing. This is due to an overall reduction in the oxidative capacity of muscle⁴⁵. This suggests that having a robust and consistent structure for rehabilitation is equally important in the preceding days / weeks in order to support ongoing recovery.

Benefit of sitting out of bed



Increased functional residual capacity³⁸



Chair provides support to the trunk so less demanding from a respiratory point of view than edge of bed sitting⁴¹



Upright posture challenges cardiovascular system and provides orthostatic stimulus³⁵



Provides neurological stimulus to aid waking and reorientation⁴²



Positive psychological benefits of being out of bed

When sitting on edge of bed is too challenging

The process of sitting on the edge of the bed can at times be labour intensive, particularly for patients who are obese, of low arousal or with profound ICU-AW, where it may take four or even five members of staff to transfer the patient to the edge of the bed. Alternatively, factors such as a poorly tolerated airway, multiple attachments including positional femoral lines, low dose inotropic support, postural hypotension may raise concerns around the process of moving a patient to sitting on the edge of the bed.

In these instances the Sara Combilizer, a multi-position aid, can provide an ideal solution. Due to the controlled and passive nature of the transfer and the more gradual change to a sitting or standing position, the Sara Combilizer provides a controlled method of assessing or mobilising these patients. In these early stages length of sitting or standing time should be limited to prevent the patient becoming overly fatigued.

- Secure transfer of high risk patients
- Less burden to staff⁴³
- Controlled verticalisation helps to ameliorate impact of orthostatic stresses³⁴
- Tilt in space feature allows supportive and secure seating positions to be achieved, even in those patients with low arousal or profound weakness

A recent study evaluating the impact of the introduction of the Sara Combilizer demonstrated a significant reduction in time taken to mobilise for patients ventilated ≥ 5 days⁴⁶. This corresponded with significantly higher SOFA scores at the point of mobilisation in the Sara Combilizer group, suggesting patients were also mobilising at a more acute stage of their illness / in a higher degree of organ failure.

The introduction of the Sara Combilizer was associated with a significant reduction in time to first mobilise⁴⁶

The Sara Combilizer allowed mobilisation of patients at a more acute phase of their illness⁴⁶



Evidence Summary

Author	Study	Design	Key Findings
McWilliams et al, 2017 ⁴⁶	Prospective before and after study Multi specialty ICU	80 patients mechanically ventilated for ≥ 5 days Sara Combilizer introduced coupled with training for staff and protocol for use	Reduced time to first mobilise by 3 days Patients were mobilised at a more acute phase of illness with no adverse events

Sara Combilizer early and structured mobility protocol

