

The Contoura® 560 Bed

Unique Features for Improved Patient Management

Summary

The Contoura® 560 electric profiling bed from Huntleigh Healthcare has several exclusive features that can significantly improve patient positioning and clinical management. The bed profiles into an excellent chair position using a single button. Uniquely, this is achieved at the bed's lowest height (40cm), and doesn't require foot-down tilt. It allows earlier upright positioning and easier mobilisation of patients, helping to improve clinical outcomes, increase patient independence and reduce moving and handling risks. Additionally, the patented profiling surface, which is the result of over three years research, has been carefully designed to closely follow the way in which the human body moves. It helps to reduce pressure, tissue shear and skin friction, and also to sustain the performance of pressure reducing mattresses over a large range of postures. These factors help to significantly reduce the risk of pressure ulcer development.

Background

Many hospital patients in the acute phase of their illness have restricted levels of mobility, and often remain in bed for long periods of time.



Serious complications can develop as a result of this physical inactivity including pressure ulcers, respiratory infections and muscle wastage. Prevention of these complications is a major clinical challenge. It is well recognised that upright positioning, with the torso raised and the feet down helps to reduce the risk of these complications, and that the risk is reduced further if upright

positioning can be combined with mobilisation (Table 1).

Despite the numerous benefits of upright positioning and mobilisation, many acute hospital patients spend long periods of time virtually immobile in a recumbent or semi-recumbent position.

There are a number of key reasons for this:

- Shortage of nursing staff

Table 1
Benefits of upright positioning and mobilisation
(adapted from Dean 1999 & Olson 1967)

Body System	Benefits of upright positioning/mobilisation	
Cardiopulmonary	▲ Lung Capacity	▲ PaO ₂
	▲ Lung Volumes	▲ Mobilisation of Secretions
	▲ Flow Rates	▼ Airway Resistance
	▲ Lung Expansion	▼ Work of Breathing
Cardiovascular	▲ Total Blood Volume	▼ Central Venous Pressure
	▼ Work of the Heart	▲ Blood Supply to Lower Limbs
	▼ Central Blood Volume	▼ Pulmonary Vascular Congestion
Musculoskeletal	▼ Muscle Atrophy	▼ Osteoporosis
	▼ Joint Contractures	
Skin	▲ Peripheral Circulation	▼ Risk of Pressure Ulcer Formation
Gastrointestinal	▲ Gut Motility	▲ Appetite
	▲ Absorption of Nutrients	▼ Risk of Malnutrition
Urinary	▼ Stagnation of Urine	▲ Gravitational Drainage of Urine
	▼ Risk of Infection	▼ Risk of Renal Calculus Formation

- Hospital patients becoming more acutely ill, dependent and elderly
- Lack of equipment - for example:
 - Beds designed to sit patients upright
 - Beds and chairs designed to improve patient positioning
 - Moving and handling aids
- Lack of space
- Risk of injury to staff
- Risk of injury to patients

Beds are central to hospital life. Electric profiling beds can help overcome many of the difficulties associated with positioning and mobilisation of patients. Well-designed electric profiling beds can offer many advantages, including reduced risk of injury to staff and patients, increased patient independence, faster recovery from illness and improved cost-effectiveness (Mitchell et al 1998).

Upright Positioning

A number of electric profiling beds are now available that achieve a cardiac chair position, which gives good upright positioning. However, accomplishing this usually involves using two or three different buttons; the backrest and knee-break must be raised, and the carer must move the bed into a foot-down tilt position. Foot-down tilt limits how low the bed can go, and the better the chair position, the more compromised the low height of the bed becomes. This results in the patient sitting a long way off the ground, and relies on the carer to take the bed out of tilt in order to lower the height. Transfer on and off this type of bed when in a chair position may prove difficult or

impossible for patients with restricted mobility.

To overcome this problem, the CONTOURA 560 electric profiling bed uniquely achieves a chair position at an exceptionally low height. This is done by a single Auto-Chair™ button, without using foot-down tilt, and may be carried out by the carer or the patient. It offers key benefits over conventional profiling beds:

- Patient transfers to and from the CONTOURA 560 bed in a chair position are potentially much easier than with a standard profiling bed in the same position (Figure 1).
- Foot-down tilt isn't needed to achieve the chair position on the CONTOURA 560 bed, so nurse intervention isn't required to take the bed in and out of



Figure 1. The unique low chair position of the CONTOURA 560 bed allows easier, safer patient transfer than a standard electric profiling bed in a chair position.

the chair position. This should help to increase patient independence and free up nursing time.

- The single-button chair position will, in many instances, allow earlier, more frequent upright positioning, helping to reduce clinical risks and improve outcomes.

Pressure Ulcer Prevention

Pressure ulcer prevention is a major aspect of patient care. Serious pressure ulcers can add weeks or even months onto a patient's stay, and the cost implications for treatment and prevention are huge (Table 2).

The profiling surface of the CONTOURA 560 bed has been specifically designed to reduce pressure, shear and friction. Many profiling beds have a simple hinged backrest (Figure 2a), but this

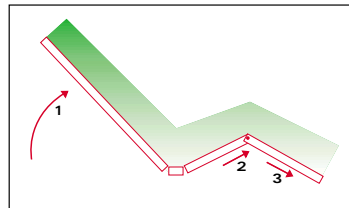


Figure 2a. Hinged Backrest

Resource Description	Estimate	Reference
UK Pressure Ulcer Treatment Cost per Year	£60M	Fernie 1973
UK Pressure Ulcer Treatment Cost per Year	£300M	Waterlow 1988
District Hospital Annual Pressure Ulcer Treatment & Prevention	£408,311	University of Surrey 1992
Cost of Treatment in English Hospitals (excluding staff costs)	£128M - £198M	Touche Ross 1993
Treatment Cost of Single Grade 4 Pressure Ulcer	£39,068	Collier 1994
Range of Cost of Skin Ulcers in NHS Trusts (Median Duration = 15 days)	£119 - £33,158	Department of Health 2000
NHS Purchasing Costs for Pressure Ulcer Management Equipment (excluding labour, dressings and litigation)	£45M	Forrest 2001

pushes the patient down the bed as it raises, exerting pressure and shear on the sacrum and heels. Some profiling beds have a retracting backrest, which moves backwards at the same time as it rises (Figure 2b). This overcomes

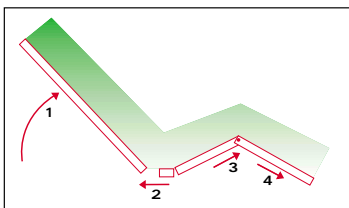


Figure 2b. Retracting backrest

the problem to an extent, but retraction is limited and the patient is still pushed down the bed. If either of these types of beds are profiled into a chair position, the downward push increases pressure, shear and friction.

Additionally, because the knee-break is also rising, the person can become squashed between the backrest and thigh section of the bed, which can create excessive abdominal strain and cause the head to become unsupported (Figure 2c). To overcome these

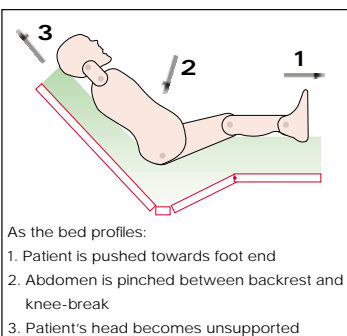


Figure 2c. Problems caused by hinged and retracting backrests

problems, the patented Pro-Contour™ Plus profiling system has been developed on the CONTOURA 560 bed. It consists of a unique combination of six simultaneous movements, and is achieved by pressing the AUTO-CHAIR button on the patient

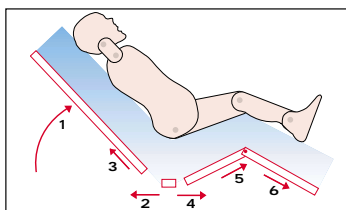


Figure 3. Pro-Contour™ Plus - six simultaneous mattress platform movements

handset. As the bed is profiled into a chair position, the backrest retracts as it rises, but it also moves in an upward direction. Simultaneously, the thigh section moves towards the foot end of the bed as it rises (Figure 3).

This combination of movements mimics the way a person's skin and tissues stretch when they move from a supine to a sitting position, and it offers several key benefits over other profiling beds:

- Enhanced pressure, shear and friction reduction
- Reduced abdominal strain
- Increased comfort
- Improved head support

Pressure mapping clearly demonstrates the differences between a standard profiling bed surface and the CONTOURA 560 bed surface (Figure 4a-b).

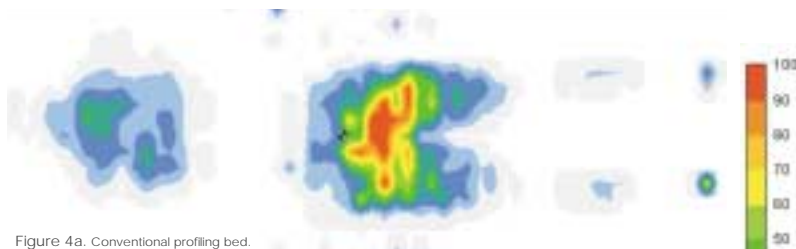


Figure 4a. Conventional profiling bed.



Figure 4b. CONTOURA 560 bed.

Figure 4. Interface pressure mapping showing a male subject, BMI 25.0, sitting in a chair position on a conventional profiling bed and the CONTOURA 560 bed with Pro-Contour™ Plus profiling.

Conclusions

The single-button, low height chair position on the CONTOURA 560 bed allows earlier, more frequent upright positioning and mobilisation. It can offer key advantages over standard electric profiling beds that rely on the nurse to operate tilt in order to achieve a chair position:

- Easier patient transfer
- Increased patient independence
- Less nurse intervention
- Reduced moving and handling risks
- Improved clinical outcomes
- Improved risk management
- Increased cost-effectiveness

Of equal significance, the unique profiling system of the CONTOURA 560 bed can help to reduce pressure, shear and friction. It can therefore help to reduce pressure ulcer incidence and the associated costs.

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HUNTLEIGH HEALTHCARE LIMITED

Nesbit Evans Products Division

310-312 Dallow Road, Luton,
Bedfordshire, LU1 1TD, United Kingdom
T: +44 (0)1582 413104 **F:** +44 (0)1582 459100
E: sales.admin@huntleigh-healthcare.com
Rental 24hr Helpline Lo-call **T:** 08457 342000
W: www.huntleigh-healthcare.com

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