

Prevention of pressure and work injuries

AN INTERDISCIPLINARY COOPERATION BETWEEN

MASTER CARE
WINCARE NORDIC
PERMOBIL

WITH ASSISTANCE FROM

 CARPENTER

Pressure damage is most often caused by shear & friction¹. Pressure as such is minimized by using a good and pressure-distributing mattress, because the larger the area the body is distributed on, the less the pressure². But at the same time, the large rental area also provides the most difficult transfers. The risk of both pressure and work injuries is greatest when we handle a patient or if the bed's functions are used incorrectly. We must always work purposefully to prevent both pressure and work injuries, but unfortunately there are still many myths that speak against e.g. the use of transfer aids together with pressure-relieving mattresses. Therefore, in our interdisciplinary collaboration, we have looked at what exactly happens to the pressure distribution when we use Master Turner™ and different wedges as well as the bed's setting options and micro movements.

Method

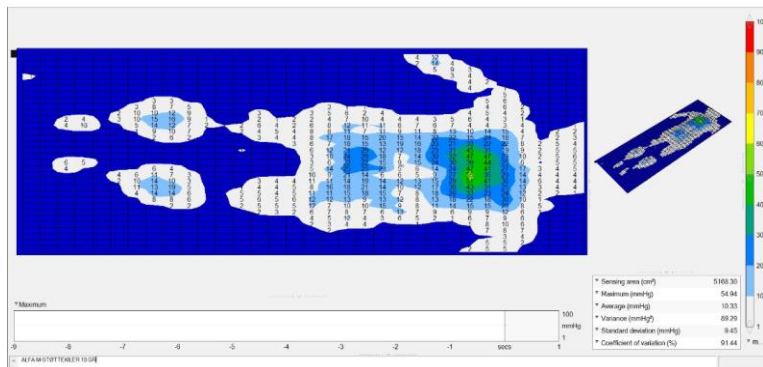
We have chosen to use pressure measurement with system FSA™ as well as the test person's comments on the individual positionings for our conclusions. Pressure measurements were made with the same person (male, 95 kg. 183 cm)

The measurements were performed on 3 different mattresses (Alfa,® Delta® & ROHO™) with and without slides and wedges and at different angles, to get an overview of what happens when we use both the bed's functions and different aids.



ALFA							
	Total areal	Maksimum mmHG	Average mmHG	Variation	Standard deviation mmHG	Coefficient variation %	
Rygleje	4865,8	34,2	9,2	49,0	7,0	76,2	Capture ALFA RYGLEJE.JPG
Rygleje 10%	5130,5	39,3	10,3	67,8	8,2	80,1	Capture ALFA 10 GR.JPG
Rygleje 45%	5155,7	35,3	10,3	61,7	7,9	76,2	Capture ALFA 45 GR.JPG
Sidde poss.	5433,0	59,8	10,8	85,6	9,3	85,7	Capture ALFA SIDDE POSS.JPG
Master turner							
Rygleje	5017,0	39,3	9,3	63,0	7,9	85,2	Capture ALFA MASTER TURNER RYGLEJE.JPG
Rygleje 10%	5231,3	44,8	9,7	71,2	8,4	87,0	Capture ALFA MASTER TURNER 10 GR.JPG
Rygleje 45%	5483,4	41,6	10,1	56,9	7,6	74,7	Capture ALFA MASTER TURNER 45 GR.JPG
Sidde poss.	5647,3	59,6	10,0	74,4	8,6	85,9	Capture ALFA MASTER TURNER SIDDE POSS.JPG
M/Vaskekile							
Rygleje	5130,5	44,6	9,9	68,4	8,3	83,4	Capture ALFA M-VASKEKILE RYGLEJE.JPG
Rygleje 10%	4916,2	50,5	11,0	87,3	9,3	85,3	Capture ALFA M-VASKEKILE 10 GR.JPG
Rygleje 45%	5357,4	42,6	10,6	73,1	8,6	80,4	Capture ALFA M-VASKEKILE 45 GR.JPG
Sidde poss.	5357,4	68,9	11,9	133,1	11,5	97,3	Capture ALFA M-VASKEKILE SIDDE POSS.JPG
M/støttekiler							
Rygleje	5017,0	52,2	10,9	103,3	10,2	93,1	Capture ALFA M-STØTTEKILER RYGLEJE.JPG
Rygleje 10%	5168,3	54,9	10,3	89,3	9,5	91,4	Capture ALFA M-STØTTEKILER 10 GR.JPG
Rygleje 45%	5496,0	51,1	10,8	75,9	8,7	80,6	Capture ALFA M-STØTTEKILER 45 GR.JPG
Sidde poss.	5584,3	44,7	10,8	81,4	9,0	83,7	Capture ALFA M-STØTTEKILER SIDDE POSS.JPG
Delta							
	Total areal	Maksimum mmHG	Average mmHG	Variation	Standard deviation mmHG	Coefficient variation %	
Rygleje	4714,5	37,8	11,0	68,8	8,3	75,6	Capture DELTA RYGLEJE.JPG
Rygleje 10%	5130,5	39,5	10,9	72,7	8,5	78,2	Capture DELTA 10 GR.JPG
Rygleje 45%	5180,9	41,3	11,6	78,3	8,9	76,2	Capture DELTA 45 GR.JPG
Sidde poss.	5823,8	57,0	11,4	76,5	8,8	76,7	Capture DELTA SIDDE POSS.JPG
Master turner							
Rygleje	4790,1	39,6	10,9	71,3	8,4	78,0	Capture DELTA MASTER TURNER RYGLEJE.JPG
Rygleje 10%	5155,7	47,8	10,4	72,0	8,5	82,0	Capture DELTA MASTER TURNER 10 GR.JPG
Rygleje 45%	5180,9	48,7	10,8	74,9	8,7	80,1	Capture DELTA MASTER TURNER 45 GR.JPG
Sidde poss.	5269,1	66,4	12,0	90,3	9,5	79,0	Capture DELTA MASTER TURNER SIDDE POSS.JPG
M/Vaskekile							
Rygleje	5067,5	54,9	10,2	83,2	9,1	89,5	Capture DELTA M-VASKEKILE RYGLEJE.JPG
Rygleje 10%	4991,8	55,4	11,4	91,2	9,6	83,8	Capture DELTA M-VASKEKILE 10 GR.JPG
Rygleje 45%	5281,8	53,1	10,8	92,9	9,6	89,6	Capture DELTA M-VASKEKILE 45 GR.JPG
Sidde poss.	5319,6	71,7	12,1	136,2	11,7	96,8	Capture DELTA M-VASKEKILE SIDDE POSS.JPG
M/støttekiler							
Rygleje	5180,9	46,5	10,6	76,3	8,7	82,3	Capture DELTA M-STØTTEKILER RYGLEJE.JPG
Rygleje 10%	5307,0	48,3	11,1	81,6	9,0	81,7	Capture DELTA M-STØTTEKILER 10 GR.JPG
Rygleje 45%	5332,2	54,2	11,6	101,4	10,1	86,5	Capture DELTA M-STØTTEKILER 45 GR.JPG
Sidde poss.	5685,1	69,0	12,0	124,5	11,2	92,7	Capture DELTA M-STØTTEKILER SIDDE POSS.JPG
Roho							
	Total areal	Maksimum mmHG	Average mmHG	Variation	Standard deviation mmHG	Coefficient variation %	
Rygleje	5445,6	30,9	9,6	44,5	6,7	69,8	Capture ROHO RYGLEJE.JPG
Rygleje 10%	5924,6	28,6	9,5	37,6	6,1	64,7	Capture ROHO 10 GR.JPG
Rygleje 45%	6277,6	27,5	9,3	33,3	5,8	61,7	Capture ROHO 45 GR.JPG
Sidde poss.	6504,5	36,4	10,0	46,0	6,8	67,6	Capture ROHO SIDDE POSS.JPG
Master turner							
Rygleje	5130,5	42,7	9,3	40,4	6,4	68,2	Capture ROHO MASTER TURNER RYGLEJE.JPG
Rygleje 10%	5685,1	33,7	10,5	44,3	6,7	63,2	Capture ROHO MASTER TURNER 10 GR.JPG
Rygleje 45%	5748,2	32,8	9,2	30,4	5,5	60,2	Capture ROHO MASTER TURNER 45 GR.JPG
Sidde poss.	5786,0	39,1	10,6	52,9	7,3	69,0	Capture ROHO MASTER TURNER SIDDE POSS.JPG
M/Vaskekile							
Rygleje	5521,3	28,2	9,4	40,2	6,3	67,2	Capture ROHO M-VASKEKILE RYGLEJE.JPG
Rygleje 10%	5735,6	31,2	9,0	41,7	6,5	71,8	Capture ROHO M-VASKEKILE 10 GR.JPG
Rygleje 45%	5458,2	32,5	10,3	50,4	7,1	68,7	Capture ROHO M-VASKEKILE 45 GR.JPG
Sidde poss.	5420,4	42,0	11,7	81,7	9,0	77,4	Capture ROHO M-VASKEKILE SIDDE POSS.JPG
M/støttekiler							
Rygleje	5521,3	39,5	10,7	52,3	7,2	67,4	Capture ROHO M-STØTTEKILER RYGLEJE.JPG
Rygleje 10%	5748,2	30,6	9,7	38,8	6,23	64,4	Capture ROHO M-STØTTEKILER 10 GR.JPG
Rygleje 45%	5622,1	32,6	11,4	54,5	7,4	64,9	Capture ROHO M-STØTTEKILER 45 GR.JPG
Sidde poss.	5596,9	38,49	13,1	81,7	9,0	69,0	Capture ROHO M-STØTTEKILER SIDDE POSS.JPG

Results and comments



Pressure distribution:

As mentioned, an increased area means a better pressure distribution. In a good pressure-distributing mattress, the use of Master Turner means so little that it does not affect the mattress' ability to distribute the pressure. The use of different support or washing wedges gives an increased area and thus a better distribution of the pressure. Together with the use of the bed's functions, it can help to provide a much improved pressure distribution and a significantly increased well-being for the patient. We pay particular attention to the fact that correct use of the bed's functions so significantly increases the supporting area and reduces the maximum pressure. Master Turner relieves shear and reduces friction.

Work environment:

Using anti decubitus mattress increases the difficulty of handling the patient. None of the tests performed was it possible to handle our test person without exposing him to shear & friction, and not least exposing ourselves to both shoulder and back pain. Master Turner made it possible to handle the test person without pain and without exposing him to shear. The wedges were easy to place and although they helped to increase the bearing surface, they were no load to work with.

Bed features and micro movements:

The functions of the bed and the incorrect use of these are a frequent cause of pressure injuries. Using Master Turner minimizes this risk. Our measurements show that if the patient is correctly placed centered and the bed is used, with the correct use of the knee-bend, etc. to prevent sliding downwards, the support increases and pressure decreases.

Source references:

¹Hansen AF et al. Forflytning af patienter, Arbejds miljøinstituttet, 2001

¹Cullum N et al. Beds, mattresses and cushions for pressure sore prevention and treatment, Cochrane Library, Systematic Review, 2000

¹ ²European Pressure Ulcer Advisory Panel (EPUAP). Pressure Ulcer Treatment Guidelines, EPUAP Business Office, Wound Healing Unit Department of Dermatology, Churchill Hospital, UK, 1999

¹ ²Schoonhoven L et al. Prospective cohort study of routine use of risk assessment scales for prediction of pressure ulcers. British Medical Journal 325: 1-5, 200

²Pressure ulcers : predicting factors, prevention and costs

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