

A comparison between a Softform Pressure Reducing Mattress manufactured by MSS and a Transfoam Wave Mattress manufactured by Karomed.

Five volunteer subjects were used to test the interface pressure between the skin surface of the subject and the two mattresses in turn. The tests were carried out using a twelve-cell sensor pad connected to an Oxford Pressure Monitor System. Readings of interface pressure, in mmHg, were initially printed out by the Oxford Monitor equipment. The calibration of the equipment was checked both before and after the tests. Each mattress was new and placed flat on the solid base of a Hoskins Hospital bed. The back rest was adjusted to give a semi-recumbent angle of 45 degrees.

Each subject was seated on each mattress in turn, with one pillow against the back rest. Care was taken to ensure repetition of the seated position for each mattress. Legs were outstretched and the feet kept upright. The Oxford sensor pad was placed under the right buttock of the subject, directly in contact with the skin surface and with the mattress surface. Care was taken to ensure that the sensor pad was placed exactly in the same position on the buttock for each mattress to ensure uniformity of tests. On each test 60 seconds' delay was allowed for the mattress and the system to stabilise.

Using the same seated position a single cell of the sensor pad was placed centrally under the right heel of the subject and readings taken. The heel was kept upright with the leg outstretched.

Two subjects were also used to compare the two mattresses utilising Tekscan Pressure Mapping Equipment. The subjects were positioned as for the above the tests but with the Tekscan Sensor Mat between the subject and the mattress. In each case the mat was directly in contact with the skin surface and with the mattress surface. On each test the Tekscan system was allowed to stabilise for 90 seconds before the results were recorded.

The readings obtained from the Oxford Monitor equipment are listed below and summarised with subject Height and Weight.

The colour print-outs from the Tekscan equipment follow the conclusions.

TABLE OF RESULTS

Oxford Monitor Tests – Softform v Transfoam Wave

Subject sitting at 45 degrees on level mattress placed on the firm surface of a hospital bed. Twelve cell Oxford Pressure Monitor sensor pad placed below the right buttock in direct contact with the skin. The readings taken in mmHg and recorded below in ascending order. The lowest and highest readings have been ignored and the remaining 10 readings averaged. This was a to allow for potentially faulty or spurious high or low readings occurring.

DETAILS OF SUBJECTS		
Subject	Height	Weight
J.C.	5'7"	10.1
C.H.	5'6"	10.0
P.G.	5'10"	10.12
N.U.	5'10"	13.1
G.R.	5'8"	13.0

		Readings 2-10		
		Totals	Average	Better by %
J.C.				
Softform:		434	43.4	
Transfoam Wave:		337	33.7	28.8%
C.H.				
Softform:		484	48.4	
Transfoam Wave:		398	39.8	21.6%
P.G.				
Softform:		391	39.1	
Transfoam Wave:		359	35.9	8.9%
N.U.				
Softform:		454	45.4	
Transfoam Wave:		421	42.1	7.8%
G.R.				
Softfoam:		504	50.4	
Transfoam Wave:		475	47.5	6.1%

The readings taken below the heel on a single Oxford Monitor Cell are detailed below.

Subject	Softform	Transfoam Wave
J.C.	125	122
C.H.	133	84
P.G.	116	122
N.U.	142	140
G.R.	130	129
Totals	646	597
Average	129.2	119.4

TOTAL OF HEEL READINGS			
Product	Total Reading	Average reading	Better by %
Softform	646	129.2	
Transfoam Wave	597	119.4	8.2%



CONCLUSIONS

Oxford Monitor Tests – Softform v Transfoam Wave

It has been suggested that cross cutting foam, whilst making a mattress comfortable, has a potential for weakening the structure (1,2) and this is how the Softform product is presented. The Transfoam Wave is configured differently and does not resort to the need for the foam to be cut. The Transfoam Wave is contoured in a wave form and so the patient experiences a different interface with the mattress along its length. Therefore comfort, when considered in the light of the interface pressure measurements recorded, is improved and it is our opinion that longevity will be enhanced.

1. Medical Devices Directorate Report PS1 1994
2. Journal of Tissue Viability Vol. 6 Number 4. October 1996 Page 115

EQUIPMENT USED

Oxford Pressure Monitor Mk 11 with 12 cell sensor pad, Cat. Ref. X01 by Talley Group.

Tekscan Advanced Clinical Pressure Measuring System Ver.3.800S

Commissioned by Karomed and executed by GN Systems