

# Clinical Evaluation of a New Hybrid Mattress Within a Rehabilitation Setting

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## Introduction and Aim

A hybrid mattress is a combination of both foam and air. These types of mattresses are becoming more popular within clinical practice, as they can be used as either static foam or an alternating (dynamic) system.

They simplify choice, as one piece of equipment is suitable across a much broader range of patients. <sup>1</sup>

As the patient’s mobility improves during the rehabilitation process, it is important that their support surface is also reassessed to ensure it meets their pressure area care needs. A hybrid mattress is an ideal solution, as the patient can be easily stepped down from an alternating to a foam surface, or stepped up, in response to their changing pressure area care needs.

The aim of this evaluation was to capture both user acceptance and clinical progress of patients whilst on the new hybrid mattress. Patient demographics were recorded, including pressure ulcer risk status. Any existing pressure damage was documented and monitored throughout the evaluation. The evaluation process captured the ongoing status of the skin to ensure all patients remained free from any new pressure related tissue damage.

## Methods

The evaluation took place over a four month period at Mansfield Community Hospital, using the Talley FUSION Mattress Replacement System (Hybrid) (Figure 1). The mattress has high specification foam within the air cells and foam side formers which help reduce the risk of falls when mobilising the patient in and out of bed.

Initially, three rehabilitation wards took part in the evaluation, each ward having two FUSION systems, however for the last six weeks all of the FUSION mattresses

were placed on one ward.

This new mattress, which works either as a static foam or dynamic (powered) support surface was used in line with local Trust guidelines (Figure 2).

FIGURE 1. Talley FUSION™ mattress system



With the potential advantages of using a hybrid mattress, for example, ease of use, patient comfort, and minimal disruption for both staff and patients, an evaluation of this new mattress was undertaken to confirm that it met the necessary clinical needs of a rehabilitation setting.

MATTRESS SELECTION GUIDE – NB Use clinical judgement				
Waterlow	Skin Integrity (Do not include heels)*	Reposition score	Normal BMI 18.5 - 25 Underweight BMI <18.5	Overweight BMI >25
At Risk 10-14	Normal	1		
		2		
		3		
At Risk 10-14	Red / mauve - blanching Grade 1-2	1-2		
		3		
		1-3		
At Risk 10-14	Purple / navy-non blanching Grade 3-4	1-3		
		1		
		2		
High Risk 15-19	Normal	1		
		2		
		3		
High Risk 15-19	Red / mauve- blanching Grade 1-2	1		
		2		
		3		
High Risk 15-19	Purple / navy- non blanching Grade 3-4	1-3		
		1		
		2		
Very High Risk 20+	Normal	1		
		2		
		3		
Very High Risk 20+	Red / mauve- blanching Grade 1-2	1		
		2-3		
		1-3		
Very High Risk 20+	Purple / navy - non blanching Grade 3-4	1-3		
		1		
		2-3		
<b>Static Mattresses</b>		<b>Dynamic mattresses</b>		
Cut Foam	Memaflex	Basic	Standard	Therapy
		Quattro Fusion or Hybrid Mattress	Quattro Plus	Quattro Acute
<b>Reposition Score in Bed</b>				<b>Seek TVS advice as necessary</b>
1 - Independent				
2 - Dependant with unrestricted repositioning				
3 - Dependant with restricted repositioning i.e. 1-2 positions				

\*Use Heel Device Guide for off loading heels

FIGURE 2. Talley FUSION™ mattress system

Fourteen patients took part in the evaluation. Thirteen patients utilised the powered mode (dynamic), of which one patient was stepped down to the static mode prior to discharge. One patient used the static mode throughout. The patient with a Waterlow score of 28 was transferred on to a full alternating mattress system after six days, in line Trust guidance.

The primary aim for all fourteen patients was to remain free from any new pressure related tissue damage.

## Results

Patients included one male and thirteen females, with a mean age of 81 years old (range 64 to 95 years). Mean length of stay was 15 days (range 4 to 43 days).

Three patients had Waterlow scores below 10, but were deemed 'At Risk' by clinical staff. Seven patients were assessed as 'At Risk', with Waterlow scores between 10 and 14, two patients were at 'High Risk' with Waterlow scores between 15-19 and two patients were at 'Very High Risk' with Waterlow scores of 21 and 28 respectively.

Prior to being placed on the new hybrid mattress, six out of the fourteen patients had persistent red blanching skin to their sacrum, one of which also had red blanching skin to the left heel and two with bilateral heel redness (blanching). The

patient with a Waterlow score of 28 presented with Category III pressure ulcers to both heels, which were offloaded with a heel device. The remaining thirteen patients were free from pressure ulcers.

All fourteen patients remained free from pressure damage whilst on the FUSION Mattress Replacement System. The blanching redness in five out of the six patients also resolved during their time on the mattress. One patient developed red blanching skin to their right heel which was subsequently offloaded using a heel device. The patient with existing pressure damage remained free of any further skin breakdown.

Nineteen staff provided feedback and all found the new FUSION mattress easy to use, safe and reliable, with one member of staff stating. "Patients like mattress – no complaints". In addition to this therapy staff highlighted ease of use and stated "A better mattress for therapy assessment, more stable and able to support patient for good sitting balance as appropriate".

Eleven patients provided feedback on the new hybrid system and all reported the mattress to be comfortable, safe and stable, with no noise, which enabled the patients to sleep well. Nine out of the eleven patients stated that they would be happy to use the mattress again. One patient stated "Lovely no problems".

## Discussion / Conclusion

The new FUSION hybrid mattress has been effective in the prevention of pressure ulcers for a range of patients at varying risk levels in a rehabilitation setting. In addition, the mattress was also effective in resolving persistent redness over bony prominences.

No patients developed any pressure ulcers during their stay on the new hybrid system. The new mattress system evaluated well with both staff and patients.

The use of this new hybrid mattress within a rehabilitation setting has proved invaluable. The ease of use for staff, and concordance from patients enables this system to be used effectively, ensuring that patients remain pressure ulcer free throughout their recovery. The ability to step up (dynamic) or down (static) is particularly useful for ongoing skin assessment in preparation for patient discharge, with no disruption to the patient.

## References

1. Fletcher J, Gefen A, Jones L, Sanada H, Irvine M. Hybrid Support Systems Made Easy. Wounds International May 2015. Available from: <http://www.woundsinternational.com/other-resources/view/hybrid-support-surfaces-made-easy>



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