

An Online Manual Handling Toolkit to Improve Skills and Reduce Risks.

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1. Introduction

Safer moving and handling is an integral part of patient care with a range of legislation and guidance available to protect the health and well-being of employees within the health sector. The cost to the nation of an unproductive workforce due to Work-related Musculoskeletal Disorders (WRMSD) is well documented with approximately 40% of days lost being due WRMSDs (HSE, 2015).

To decrease risk of injury, safe patient handling techniques should be taught as standard of practice (Nelson et al, 2007; Waters et al, 2006), considering the balance between theory and practical sessions. Evidence exists to demonstrate that traditional manual handling training is largely *ineffective* in reducing back injuries (Clemes, 2010) with techniques and principles often failing to transfer into the workplace (Haslam et al, 2007). A lack of opportunity to practice within the working environment (Ling et al, 2011, Brown and McCracken, 2009), combined with loss of clarity in recollection of procedures and knowledge may result in an increase in errors whilst manual handling, resulting in increased risk of injury for the patient or employee.

A1 Risk Solutions® has developed an online patient manual handling toolkit, incorporating evidence based practice. On line-learning is now considered part of mainstream medical and health professional education (Miller et al, 2010). The use of videos as a training resource is known to be an effective additional resource to traditional training (Wieling and Hofman, 2010) as long as the videos are relevant (Zhang et al, 2006), resulting in improved learning goals (Siedel et al, 2013), (Blomberg, 2014). This study evaluated the impact of video clips and printed material on practical skill performance, errors made throughout the task and self-perceived confidence levels with undergraduate occupational therapy (OT) students at The University of Salford.

2. Methods

2.1 Design

Experimental design randomised trial comparing 2 groups of students performing 4 standardised moving and handling tasks. Scores allocated for (1) Skill level, (2) Number of errors, (3) Level of self-perceived confidence for the following tasks:

- Assisted sit to stand
- Use of the one way glide sheet to move someone back in a chair whilst sitting
- Inserting a slide sheet in lying and moving someone up the bed
- Fitting universal sling in sitting and hoisting from a chair

Hypothesis: The introduction of a moving and handling video clip and supporting material will reduce the number of errors, increase the level of skill and self-perceived confidence in the student carrying out the task.

2.2 Participants

Purposive sampling recruited 130 participants (54% representative sample) Control group n=63, Experimental group n=67 taken across 3 years of the programme (Year 1 = 41, year 2 = 37, year 3 = 52).

2.3 Procedure

Participants randomly allocated into half groups within each co-hort.

Group 1 (Control): Participants assessed in four different workstations for each of the above tasks by trained objective assessors recruited from The National Back Exchange. Students were asked to perform the task without prompting from their assessors, relying on their previous practical training and were scored on level of skill, number of errors made and level of self-perceived confidence.

Group 2 (Experimental): Participants assessed in four workstations as above but prior to performing the task, the student viewed a short video clip demonstrating the task in brief as a refresher in line with “just in time” training theory (Tiernan,2014) also provided with printed supplementary material for reference.

3. Results

Data analysed using Excel. Means, standard deviations and t-tests used to identify any statistical significance between control and experimental groups in terms of scores for skill level and number of errors. Results demonstrate statistically significant improvements across all tasks in all year groups ($p = 0.000127$), see Figure 1 and Table 1. Results highlighted a significant reduction in the number of errors for each task and increased self-perceived level of confidence on task completion. Three themes emerged from the qualitative feedback with participants focussing on the value of more practice, learning materials and theoretical content of the system.

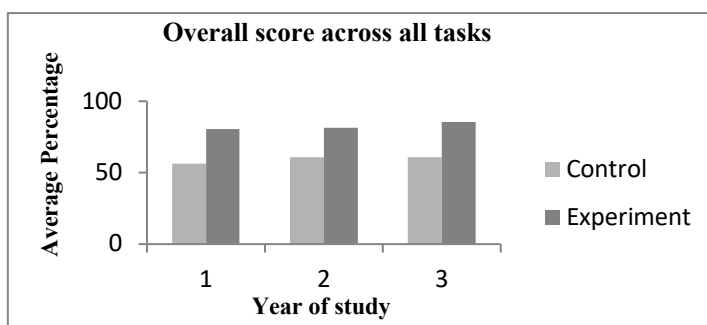


Figure 1: Overall score across all tasks

Table 1:
Overall score across all tasks

Year	Control	Experiment
1	57	80
2	61	81
3	61	85
P-value	0.000127	

4. Discussion and Conclusion

The experimental group across all years gained a higher score for all four tasks, with reduced errors. The first year students with no placement experience increased their level of skill to a similar level as the third year students. Results indicate an additional benefit in that there may be a reduced amount of supervision required throughout the task whilst reducing the number of errors, together with an increased self-perceived level of confidence. Further exploration of each error point indicates key areas for training to improve clinical skills and minimise risk with additional benefits linked to tissue viability, workplace wellness, enablement and supervision levels. Further studies

are planned to compare the use of the virtual learning tool with traditional demonstration techniques and a longitudinal evaluation of skill development and competence.

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