Ergonomic Intervention for Injury Prevention in Healthcare Personnel: A Systematic Review

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Objectives:

1. Recognize the magnitude of work-related injury in healthcare and the need for intervention in this area
2. Discuss 2 ergonomic interventions within the scope of OT practice that can improve work-related injury
3. Recall 2 common themes that have emerged based on current literature for ergonomic intervention

Clinical Research Question:

Does ergonomic intervention prevent work-related injuries and associated outcomes for healthcare personnel engaged in patient-handling?

Methods:

Databases: PubMed, CINAHL, and Cochrane Library
Search Terms: Developed keywords based on individual components of research question*
Critique Method: Dual-rater system was used to ensure minimization of rater bias

- Determined quality using Law & MacDermid's Evaluation of Study Design Form

Search Results: Initial search with removal of duplicates yielded 184

- Articles were screened, first through title and abstract, next through full text**
- Final number of eligible articles included: N=16

Results:

Article Characteristics: Level of Evidence		
Level of Evidence	**Description**	**N=16**
I	Randomized control trials	5
II	Two groups, nonrandomized	1
III	Pre-post design	9
IV	Focus group/interview/survey	1
V	Case reports/expert opinions	0

Article Characteristics: Population	
Healthcare Personnel (Participants)	**N=16**
Nurse (Student, CNA, LPN, RN, NP)	10
Healthcare workers (not specified	3
Mixed populations: 1. Healthcare workers, nurses, nurses aides 2. Nurses, OT, PT, RT, operating room technicians, paramedic, unit supporter 3. Healthcare technicians, nursing students, nurse managers, LPNs	3

Themes:

1. Education, in combination with hands-on training, is effective in preventing work-related injury and associated outcomes
    - There is strong evidence to support education in conjunction with hands-on training, to reduce:
        - (1) Occurrence of work-related injury, (2) pain levels, (3) associated costs
    - Training should be provided along with educational materials to ensure effectiveness
        - Education: principles of anatomy, biomechanics, transfer techniques, classroom, handouts
        - Training: workstation redesign, lift technique practice, role playing, postural practice training

2. Patient-handling equipment is often utilized to prevent work-related injury and associated outcomes
    - There is moderate evidence to support the use of patient-handling equipment to reduce:
        - (1) Occurrence of work-related injury, (2) pain levels, (3) associated costs
    - Patient-handling equipment appears to be more effective when multiple approaches are used:
        - Administrative buy-in and policy implementation
        - Proper maintenance and availability of equipment
        - Staff training and peer coaching on proper equipment use

3. Physical exercise, combined with transfer training, is effective in reducing work-related injury and associated outcomes
    - There is strong evidence to support the use of physical fitness, in combination with transfer training, to reduce:
        - (1) Pain levels
    - Physical fitness alone is not effective
        - Should be used in combination with specific transfer technique training to be effective in reducing pain levels

*Full search term list is available upon request

**Full inclusion/exclusion criteria list available upon request

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