



Workplace based rehabilitation of upper limb conditions: A Systematic Review

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forward together · saam vorentoe · masiye phambili

Background



In support of workplace based rehabilitation...



Benefits

- ➔ Early identification and treatment
- ➔ Collaboration
- ➔ Reduced travel time and loss of work time
- ➔ Use of actual job tasks in rehabilitation

Objective

effectiveness

workplace-based

rehabilitative

workers with **upper limb conditions**

work performance, pain, absenteeism, productivity and other outcomes, including ergonomic risk and mental health.

Methods



PRISMA

TRANSPARENT REPORTING OF SYSTEMATIC REVIEWS AND META-ANALYSES

PROSPERO

International prospective register of systematic reviews

Inclusion criteria

Studies

Participants

Interventions

Outcomes

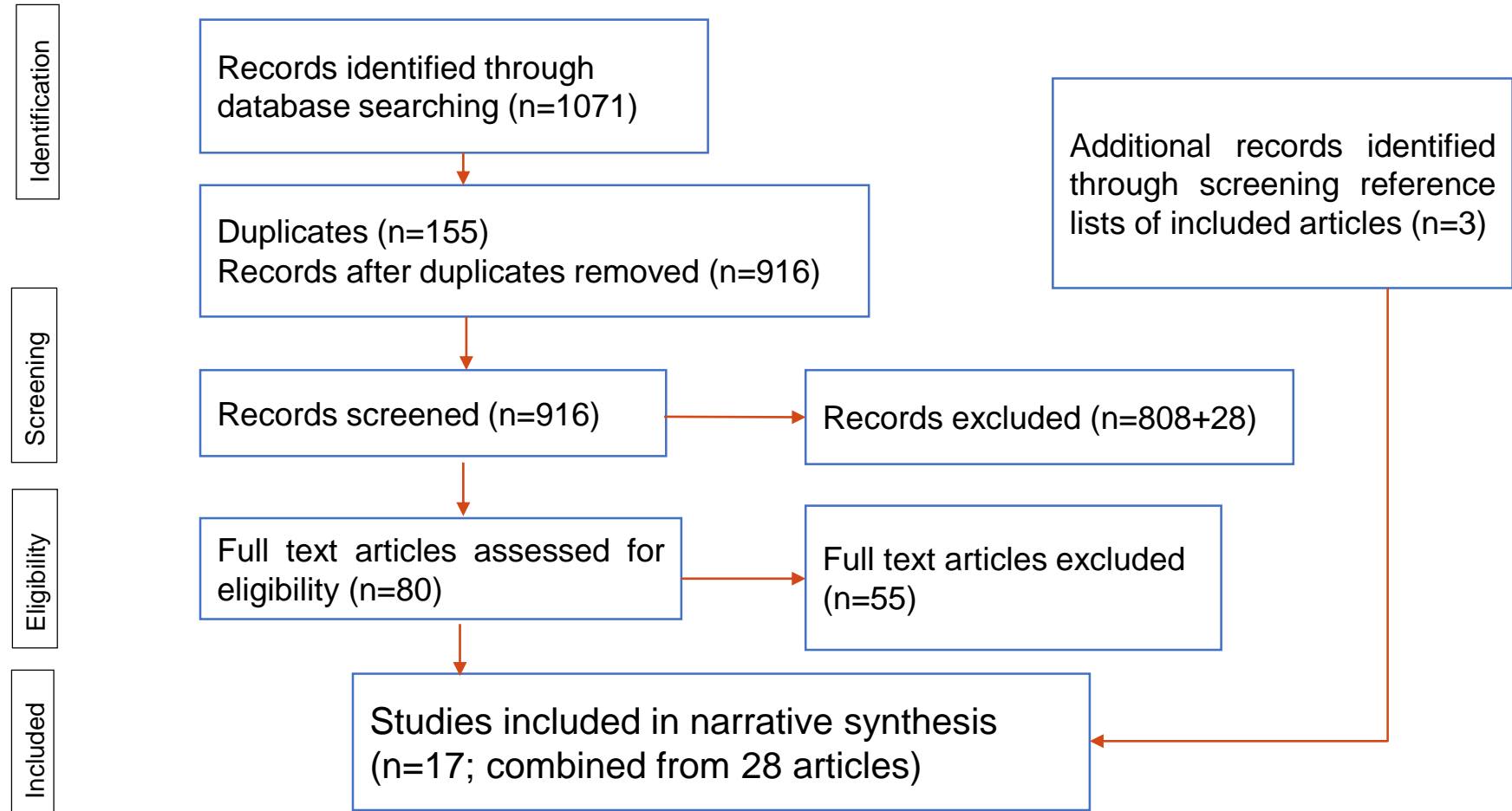
Inclusion & Exclusion Criteria

Search strategy

Databases

- Cochrane
- Pubmed
- Scopus
- Web of Science
- Academic Search Premier, Africa-Wide Information, CINAHL
- OTSeeker
- PEDro

PRISMA flow diagram



Data extraction and analysis



Quality appraisal

9 high quality

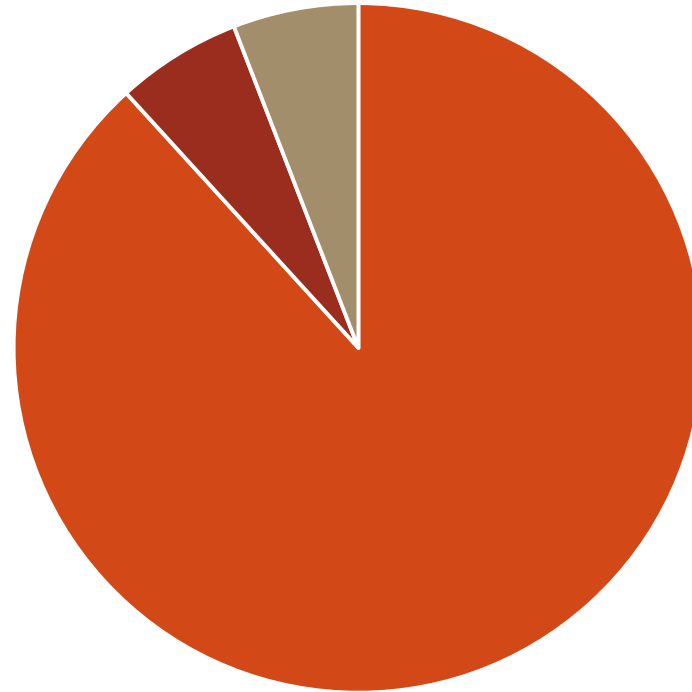
7 medium quality

1 low quality



ALL INCLUDED

Types of studies



■ Randomised controlled trials = 15 ■ Prospective parallel group = 1 ■ Single group = 1

Countries

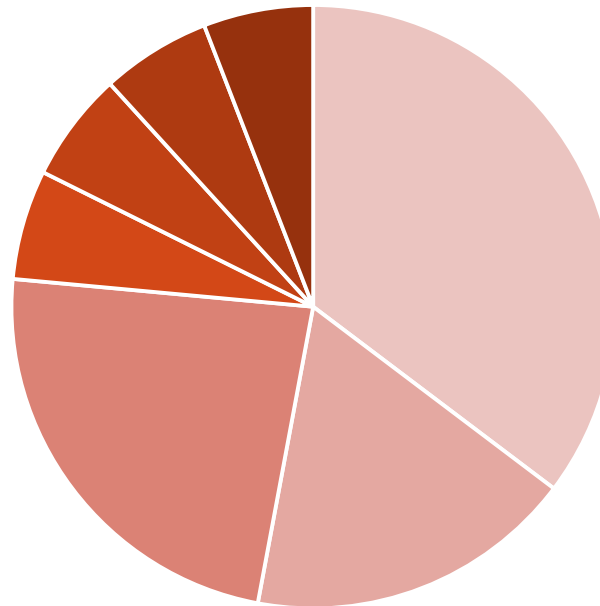
◦ Denmark	-	4
◦ USA	-	3
◦ Sweden	-	2
◦ Norway	-	1
◦ Netherlands	-	1
◦ Sweden & Neth	-	1
◦ Finland	-	1
◦ Hong Kong	-	1
◦ Canada	-	1
◦ Turkey	-	1
◦ Brazil	-	1

Types of workers

- 9 - Office/computer workers
- 2 - Industrial workers
- 2 - Slaughterhouse workers
- 1 - Lab technicians & office workers
- 1 - Medium work
- 1 - Managers, clerks, postal carriers, electrical/mechanical workers
- 1 - Healthcare workers, clerical, warehouse



Interventions



- Exercise
- Ergonomic controls
- Ergonomic training and workstation adjustments
- Clinic vs workplace based work hardening
- Nurse case manager training
- Physiotherapy vs Feldenkrais
- Ambulant myofeedback training

Exercise (n=6)

Positive results on pain, strength, functional ability, work ability, absenteeism, medication use.



Ergonomic controls (n=3)



Ergonomic training and workstation adjustments (n=4)



Work hardening (n=1)

Clinic based



Workplace based

Nurse case manager training (n=1)



Feldenkrais vs Physiotherapy (n=1)



Ambulant myofeedback training (n=1)



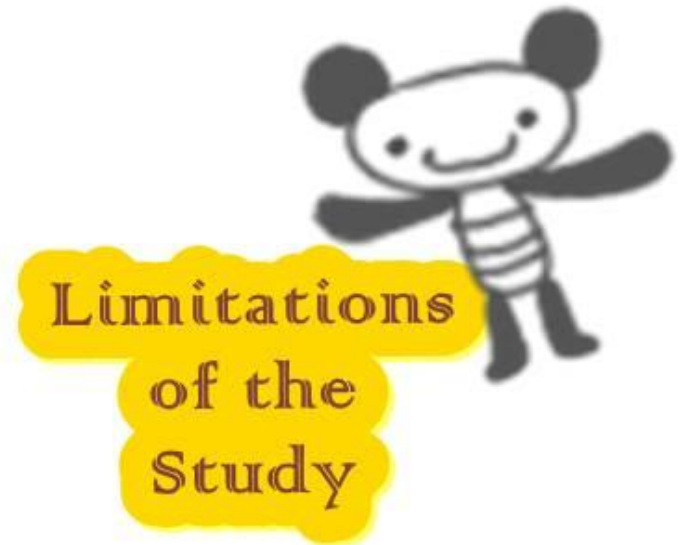
Strengths

- ➔ 9 databases used
- ➔ No language or date restrictions



Limitations

- ➔ No meta-analysis
- ➔ No grey literature – publication bias
- ➔ Search strategy – 7/8 studies from previous review not found!



Recommendations: Practice

Exercise programs work!

Workstation adjustment and ergonomic training

- Reduce ergonomic risk, MS symptoms, productivity

Ergonomic controls - varied

Workplace based work hardening, case manager training,
Feldenkrais – implement with caution

Ambulant myofeedback training – not recommended



Recommendations: Research

Diversity!

High vs Low to middle income



Want to know more?

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Workplace-Based Rehabilitation of Upper Limb Conditions: A Systematic Review

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Abstract

Purpose The objective of this systematic review was to identify, collate and analyse the current available evidence on the effectiveness of workplace-based rehabilitative interventions in workers with upper limb conditions on work performance, pain, absenteeism, productivity and other outcomes. **Methods** We searched Medline, Cochrane Library, Scopus, Web of Science, Academic Search Premier, Africa-Wide Information, CINAHL, OTSeeker and PEDro with search terms in four broad areas: upper limb, intervention, workplace and clinical trial (no date limits). Studies including neck pain only or musculoskeletal pain in other areas were not included. **Results** Initial search located 1071 articles, of which 80 were full text reviewed. Twenty-eight articles were included, reporting on various outcomes relating to a total of seventeen studies. Nine studies were of high methodological quality, seven of medium quality, and one of low quality. Studies were sorted into intervention categories: Ergonomic controls (n = 5), ergonomic training and workstation adjustments (n = 4), exercise and resistance training (n = 6), clinic-based versus workplace-based work hardening (n = 1), nurse case manager training (n = 1), physiotherapy versus Feldenkrais (n = 1), and ambient myofeedback training (n = 1). The largest body of evidence supported workplace exercise programs, with positive effects for ergonomic training and workstation adjustments, and mixed effects for ergonomic controls. Ambient myofeedback training had no effect. The remaining three categories had positive effects in the single study on each intervention. **Conclusion** While there is substantial evidence for workplace exercise programs, other workplace-based interventions require further high quality research. **Systematic review registration** PROSPERO CRD4201709706.

Keywords Workplace rehabilitation · Upper extremity · Occupational health

Background

Upper limb conditions, whether work related or not, continue to pose significant challenges in the workplace. Repetitive strain injury (RSI) is the most common cause of work-related ill health internationally [1]. In high income economies such as the United States of America (USA), Canada and West Europe, upper limb and lower back disorders are among the leading occupational injuries and diseases, and considered a growing problem [2]. Similarly, in middle and lower income economies, musculoskeletal disorders are among the most commonly reported work-related diseases [3].

Workplace-based rehabilitation services may be offered by a variety of healthcare providers, including occupational therapists, physiotherapists and ergonomists. Services may include workplace-based exercise programs [4, 5], education of workers [6], modifications to work stations or work

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