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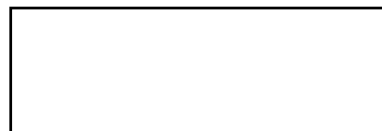
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1 **Review title**

2 The effectiveness of Vocational rehabilitation on work participation for adults with musculoskeletal
3 disorders: an umbrella review protocol

4 **Reviewers**

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16

17 **Key words**

18 Vocational rehabilitation; Work; Musculoskeletal; Umbrella review

19 **Review question/objective**

20 This objective of this umbrella review is to determine the effectiveness of vocational rehabilitation on
21 work participation in working age adults with musculoskeletal disorders. More specifically the review
22 will address the following questions:

23 1. Is vocational rehabilitation effective at improving work participation, reducing sickness absence and
24 reducing disability due to musculoskeletal disorders in working age adults?

25 2. Which types/modes of vocational rehabilitation are most effective for improving work participation,
26 reducing sickness absence and reducing disability due to musculoskeletal disorders in working age
27 adults?

1 3. Which musculoskeletal disorder is vocational rehabilitation most beneficial for?

2 **Background**

3 Musculoskeletal disorders (MSD) refer to a range of problems affecting the musculoskeletal system
4 due to inflammatory and degenerative disorders, injuries or repetitive movements, forces and
5 postures.^{1,2} Musculoskeletal disorders are common with 60-80% of working adults experiencing a
6 MSD at some point which has a direct effect on functional ability, quality of life, medical costs and
7 time off work.³⁻⁵ Of 131 million days lost to sickness in 2013, 31 million were attributed to back and
8 neck problems in the UK.⁶ The UK Labour Force Survey have reported a work-related MSD
9 prevalence of 553,000 out of 1,243,000 work related illnesses in 2014/15.⁷ This equates to
10 9.5million working days lost and 44% of the total days lost. Australia has a similar incidence
11 reported with around 500,000 workers injured at work in 2013/14 representing 4.3% of the workforce
12 and a societal cost of musculoskeletal injury estimated to be around \$60.6 billion a year (4.8% of the
13 Gross Domestic Product).^{8,9} Musculoskeletal disorders are also the biggest cause of working days
14 lost in the USA accounting for 29% of days off work in 2012 and an overall cost (direct and indirect) of
15 \$949 billion or 7.4% of Gross Domestic Product.¹⁰

16 In addition to MSD, work related MSD have been defined as “impairments of body structures such as
17 muscles, joints, tendons, ligaments, nerves, bones or a localized blood circulation system caused or
18 aggravated primarily by the performance of work and by the effects of the immediate environment
19 where the work is carried out”.^{11(p7)} Therefore, for the purposes of this umbrella review, all MSD will
20 be considered, including work related MSD, to ensure all applicable evidence is considered.

21 Vocational rehabilitation has been identified as a solution to address the impact of MSD in working
22 age adults, where vocational rehabilitation is defined as “whatever helps someone with a health
23 problem to stay at, return to, and remain in work”^{5(p5)} and work is defined as “activity involving mental
24 or physical effort done in order to achieve a result”.¹² Vocational rehabilitation is a multi-component
25 approach that includes different interventions specific to a condition which should begin early and
26 address the physical musculoskeletal problem, any psychological disorders and employment factors
27 to facilitate a sustained return to work.⁵ Often the main outcome of interest in vocational
28 rehabilitation is return to work (RTW), but as this is complex and can take time, it is acknowledged
29 that a sustained RTW is more advantageous. Sustained RTW differs in comparison to first RTW as it
30 has been acknowledged that there can be multiple episodes of time off work and also failed RTW.¹³
31 Additional outcomes that are also commonly reported for vocational rehabilitation are sickness
32 absence, quality of life, pain and mental wellbeing (depending if there are psychological factors
33 involved).^{14,15}

1 There has been a significant body of research on vocational rehabilitation for MSD conducted since
2 the best evidence synthesis by Waddell, Burton and Kendall,⁵ including a number of systematic
3 reviews.¹⁶⁻¹⁸ A preliminary search of the JBI Database of Systematic Reviews and Implementation
4 Reports, the Cochrane Database of Systematic Reviews, Prospero, Medline and CINAHL has not
5 identified any umbrella reviews (completed or in progress) on the topic. An umbrella review on the
6 effectiveness of vocational rehabilitation on work participation for adults with MSD would enable
7 enhanced understanding of which interventions are effective for which MSD. This will provide an up-
8 to-date synthesis of the best available research evidence to inform commissioning and provision of
9 vocational rehabilitation services. This umbrella review will therefore review all systematic reviews
10 on the effectiveness of vocational rehabilitation interventions on return to work for people with MSD.

11

12 **Inclusion criteria**

13 **Types of participants**

14 This umbrella review will consider systematic reviews that include working age adults aged 18 and over
15 with MSD including but not limited to: low back pain, neck pain, upper limb disorders (affecting joints
16 and soft tissue around shoulder, elbow, wrist and hand), repetitive strain injuries, arthritis, rheumatic
17 disease, and lower limb disorders (affecting joints and soft tissue around hip, knee, ankle and foot) to
18 provide as broad an overview as possible. The following exclusion criteria will be employed: (i) Any
19 study with participants aged under 18 years of age as this review is concerned with working age adults
20 and reflects the working age included in published studies¹⁵; (ii) any studies focused on cardiovascular,
21 respiratory, neurological or psychological vocational rehabilitation as this review has a primary focus on
22 MSD vocational rehabilitation.

23 **Types of interventions**

24 This umbrella review will consider systematic reviews that have evaluated vocational rehabilitation.
25 Any systematic reviews that have evaluated vocational rehabilitation (as defined above) and include

- 26 1. work participation/work place interventions (such as but not limited to ergonomic/postural
27 assessments, modifications to the physical work environment, job modifications, case
28 management and workplace visits) and/or
- 29 2. any systematic reviews of studies assessing interventions with the specific stated aim of
30 assisting RTW such as but not limited to physiotherapy, exercise, education, back school, or
31 psychological/behavioural treatment) will be included.

32

1 **Types of outcomes**

2 This umbrella review will consider systematic reviews that include the following outcome measures:

3 (i) The primary outcome of interest is return to work – systematic reviews that use outcomes to measure
4 return to paid work (including part-time and fulltime work) such as sick leave duration, time to return to
5 work, time until a lasting/sustained return to work¹⁹, mean days of sick leave/month over follow up or
6 percentage population resumed work will be included.

7 (ii) The secondary outcomes of interest for disability are patient reported outcomes such as mean or
8 median change in overall function/disability (such as Roland Morris Functional Disability
9 Questionnaire²⁰); quality of life (such as Short form 36²¹), and pain (pain rating scales).

10 Any studies focusing on presenteeism (reflecting people in work with an injury or illness which impacts
11 on their work productivity²²) will be excluded as this review is focused on work participation in terms of
12 return to work.

13

14 **Types of studies**

15 This umbrella review will consider quantitative systematic reviews, meta-analyses and pooled analyses
16 identifying relevant international scientific evidence on the effectiveness of vocational rehabilitation for
17 working age adults with MSD. This umbrella review will not consider critical reviews, integrative reviews,
18 general literature reviews, primary research or qualitative reviews.

19 **Search strategy**

20 The search strategy aims to find both published and unpublished systematic reviews and meta-
21 analyses. A three-step search strategy will be utilized in this umbrella review. An initial limited search
22 of MEDLINE and CINAHL will be undertaken followed by analysis of the text words contained in the title
23 and abstract, and of the index terms used to describe each article. A second search using all identified
24 keywords and index terms will then be undertaken across all included databases. Thirdly, the reference
25 list of all identified reports and articles will be searched for additional studies. Studies published in
26 English will be considered for inclusion in this umbrella review. To ensure relevance all studies
27 published from 2006 onwards will be considered for inclusion in this umbrella review.

28 The databases to be searched include:

29 Medline, CINAHL, AMED, Cochrane Database of Systematic Reviews, Centre for Reviews and
30 Dissemination Databases (Database of Reviews of Effects [DARE]), PROSPERO register, Joanna
31 Briggs Institute of Systematic Reviews and Implementation Reports, PEDro database, and OT seeker.

32 The search for unpublished studies will include:

1 Google Scholar, Grey Literature Report (The New York Academy of Medicine), National Institute for
2 Occupational Safety and Health (USA), National Rehabilitation Information Centre (NARIC, USA),
3 National Institute of Disability Management and Research (Canada), Database of International
4 Rehabilitation Research, Vocational Rehabilitation Association (UK), The UK Rehabilitation Council
5 (UKRC), British Society for Rehabilitation Medicine

6 Initial keywords to be used will be:

7 Systematic review, meta-analysis, Vocational rehabilitation, Occupational rehabilitation, work
8 rehabilitation, return to work, RTW, work retention, work status, sick leave, sickness absence,
9 intervention, absence management.

10 Papers will be assessed for relevance utilizing the title, abstract and index terms, including papers found
11 from searching reference lists of relevant papers. Screening will be conducted independently by two
12 reviewers.

13 **Assessment of methodological quality**

14 Papers selected for retrieval will be assessed by two independent reviewers for methodological validity
15 prior to inclusion in the review using standardized Joanna Briggs Institute critical appraisal tool for
16 systematic reviews and research syntheses.^{23p29} Any disagreements that arise between the reviewers
17 will be resolved through discussion, or with a third reviewer.

18 **Data collection**

19 Data will be extracted from papers included in the review by two independent reviewers using the
20 standardized Joanna Briggs Institute data extraction tool for systematic reviews and research
21 syntheses.^{23p34} The data extracted will include specific details about the type of review, countries where
22 the studies were conducted, number of studies included in the review, participants (numbers, age
23 group), type/s of intervention/s, outcomes identified (type/characteristics), length and completeness of
24 follow-up, primary outcome measures. In the event of missing information or to seek clarity, the authors
25 of this umbrella review will endeavor to contact the authors of the paper in question to seek clarification.
26 Any disagreements between the two reviewers will be resolved through discussion, or with a third
27 reviewer.

28 **Data summary**

29 The above data extracted from selected reviews related to the effectiveness of vocational rehabilitation
30 for musculoskeletal conditions will be tabulated and accompanied by a narrative to address the review
31 objective and specific questions. Tabular presentation of quantitative results describing overall effect

1 sizes and a clear description of the vocational rehabilitation intervention will be presented with
2 supporting interpretation. Tables will include a high level of detail for each included systematic review
3 including: number of studies, total number of participants, MSD, heterogeneity of results, setting, age,
4 and information on the vocational rehabilitation itself.

5 The results of the review will be provided in tabular format in a “Summary of Evidence” table that
6 includes the vocational rehabilitation, musculoskeletal condition/s, and a simple visual indicator of the
7 effectiveness of the vocational rehabilitation using a “stop-light” indicator²⁴. The criteria that will be
8 evaluated include methodological limitations, consistency, risk of bias and relevance to the study
9 population.

10 **Conflicts of interest**

11 The authors have no conflict of interest

12 **Acknowledgements**

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14 UK

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