
Design: Meta-analysis of randomized controlled trials

PICOS:
- **Patients:** injured workers or claimants for workers compensation
- **Intervention:** functional capacity evaluation (FCE) of physical capabilities in relation to the physical demands of the job, with one or more physical capacity measures assessed by a health professional, resulting in a recommendation regarding the worker’s physical capacity to return to work (RTW) safely, either relating to the time the worker is considered fit to return to work or relating to workplace adjustments required for safe RTW
- **Comparison intervention:** unspecified; could be either no evaluation or a different form of physical capacity evaluation
- **Outcomes:** Any re-injury outcome measures after functional evaluation, such as time for RTW, days on sick leave, or duration of workers’ compensation claims
- **Study types:** Any type of randomized controlled trial which met inclusion criteria
  - Randomized trial with any type of control group, or prospective cohort study, or clinical controlled trial with any type of control group, or interrupted time series with 3 observations before and 3 after the intervention
  - FCE of worker to meet physical requirements of the job are measured (e.g., if job required lifting 20 kg, FCE measured whether worker could lift 20 kg)
  - Outcome was either occupational disease, occupational injury, time for RTW, work status (on or off work) at follow-up, or sick days

Study search and selection:
- Databases were searched through December 2009 and included the Cochrane Central Register of Controlled Trials, MEDLINE, EMBASE, CINAHL, PsycINFO, and PEDro
- Reference lists from relevant studies were also searched to identify potentially relevant trials
- Two authors independently screened titles and abstracts of studies for satisfaction of inclusion criteria
- Study quality was assessed in terms of allocation concealment, blinding, complete accounting for all patients at follow-up, unbiased outcome reporting, number of patients sufficient to furnish a precise estimate of benefit, and consistency/heterogeneity between studies

Results:
- Initial screening of articles by keywords, titles, and abstracts identified 70 potentially relevant articles whose full text was reviewed (although 3340 citations were retrieved by the initial search of databases)
- Only 1 article fulfilled the inclusion criteria; most of the excluded articles lacked a control group or were historical cohort studies
- The single article which met the inclusion criteria had an internal validity quality rating of 12 out of a possible 13 points, and it compared two forms of FCE (Gross 2007)
- The included study involved 372 claimants, but the randomization was of the evaluating clinicians (n=23), who were assigned to either a standard long-form FCE (Isernhagen Work Systems), which takes 5 hours and is usually done over 2 days, or a short-form FCE developed by the author, which allows the clinician to select the regions of the body being tested, takes 4 hours, and is completed in one day
  o 173 patients received the short FCE and 199 received the standard FCE
  o Three outcomes were compared during the 12 months over which patients were observed
    ▪ All recurrences after claim closure
    ▪ Re-starting benefits after initial suspension
    ▪ Re-opening or filing of new claim after initial closure of claim for the same incident
  o For all three outcomes, the short FCE and the standard long-form FCE had the same hazard ratios; the prediction of successful RTW was the same
  o The only statistically significant difference was the duration of the FCE, which was 43% shorter in the short FCE group

Authors’ conclusions:
- No studies were found which compared FCE to no intervention
- Low quality evidence was found from one study that short form FCE results in similar recurrence rates to long form FCE; even though the study met nearly all criteria for validity, the overall findings were rated as low quality, since only one study was found
- It is unlikely that any studies were missed which would have met all inclusion criteria, since there were no language restrictions and all non-English abstracts were translated to determine their suitability for inclusion
- The effectiveness of FCE-based work recommendations should be investigated in randomized trials which compare FCE to no FCE or which compare FCE to alternative recommendations
- These future studies should use the time to recurrence or the rate of injury recurrence as the primary outcome measure

Comments:
- The criteria for inclusion were quite liberal; not only RCT but any study of FCE which had a control group would have been eligible for inclusion
The search of the relevant databases was very large (3340 initial citations) and more recent studies of FCE which would meet inclusion criteria are not apparent as of September 2012. There are no citations of this review in Web of Science; any studies of FCE which include an adequate literature review would be expected to find and cite this review. A search of PubMed for FCE and RTW retrieved 14 articles indexed as RCTs, but these either were not studies of FCE (e.g., they were studies of various rehabilitation treatments, did not study musculoskeletal conditions (e.g., studied coronary artery disease), or did not have RTW as a measured outcome.

It does appear that most evaluations of FCE recommendations for RTW are not based on adequate evidence of the validity of FCE.

Assessment: High quality for a statement that there is a lack of evidence supporting the validity of FCE for prediction of re-injury following return to work.

Reference:

Appendix: Results of search of PubMed for FCE plus RTW restricted to RCTs.


Not a study of FCE.


RTW is not a primary outcome; comparison is between healthy subjects vs. shoulder injury.

This is the protocol for Vermulen et al 2011 (ref #1 above).


**Not a trial of FCE as an intervention**


**This is a study of collaborative RTW planning and rehabilitation, not of FCE**


**This is reviewed in the Cochrane FCE study Mahmud 2010.**


**RTW is not a primary outcome.**


**RCT of back school, not of FCE.**


**RTW is not the outcome under study; submaximal effort is the outcome.**

This is a protocol of a proposed study of a RTW program.


Not a trial of FCE.


Study of functional restoration as an early rehab intervention, not a trial of FCE.


Coronary artery disease, not musculoskeletal condition.


Coronary artery disease, not musculoskeletal condition.