DOI: 10.7860/JCDR/2025/80478.21720

Workplace-based Physiotherapy Programmes for Preventing Carpal Tunnel Syndrome: A Scoping Review

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ABSTRACT

Carpal Tunnel Syndrome (CTS) is a common musculoskeletal condition, especially among individuals who perform repetitive hand and wrist jobs. Workplace-based physiotherapy programmes have been suggested as preventive measures, however there is insufficient information on their efficacy, implementation approaches, and associated challenges. This scoping review outlines the existing literature on physiotherapy procedures targeted to prevent CTS in occupational settings. It aims to identify the types of treatments used, evaluate their effectiveness, investigate techniques for successful implementation, and investigate the barriers to program acceptance and sustainability. A thorough search was done across many databases, including PubMed, Scopus, CINAHL, Embase, Ovid MEDLINE, AMED, and Cochrane Library, to locate research on workplace physiotherapy programmes for CTS prevention covering studies published from December 2000 to December 2024. The initial search identified 627 articles, which were refined to 113 articles after removing duplicates. Following a screening process for relevance, 7 studies met the inclusion criteria and were included in the final review. This review adhered to the scoping methodology described by Arksey and O'Malley, Levac et al., and the Joanna Briggs Institute. Qualitative and quantitative studies were considered, including randomised controlled trials, cohort studies, and systematic reviews focussing on physiotherapy, occupational setting, and quantitative outcomes like pain relief, increased function, and worker engagement. This review identified a wide range of physiotherapy interventions, including ergonomic assessments, stretching and strengthening exercises, manual therapy, and postural correction programmes. Effectiveness varied, with some studies indicating reduced CTS symptoms and increased worker productivity, while others found minimal long-term effects. Insufficient organisational support, employee restricted time, and poor participation rates were major barriers to program implementation. Workplace-based physiotherapy programmes have the potential to prevent CTS, but their success depends on a variety of factors, including program design, workplace culture, and resource availability. Future study should concentrate on enhancing program models, assessing cost-effectiveness, and overcoming implementation challenges to ensure widespread acceptance and long-term influence on occupational health.

Keywords: Aquatic therapy, Pain, Patellofemoral pain syndrome, Visual Analogue Scale (VAS), Quality of life.