

Musculoskeletal conditions may increase the risk of chronic disease: a systematic review and meta-analysis of cohort studies

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Abstract

Background: Chronic diseases and musculoskeletal conditions have a significant global burden and frequently co-occur. Musculoskeletal conditions may contribute to the development of chronic disease; however, this has not been systematically synthesised. We aimed to investigate whether the most common musculoskeletal conditions, namely neck or back pain or osteoarthritis of the knee or hip, contribute to the development of chronic disease.

Methods: We searched CINAHL, Embase, Medline, Medline in Process, PsycINFO, Scopus and Web of Science to February 8, 2018, for cohort studies reporting adjusted estimates of the association between baseline musculoskeletal conditions (neck or back pain or osteoarthritis of the knee or hip) and subsequent diagnosis of a chronic disease (cardiovascular disease, cancer, diabetes, chronic respiratory disease or obesity). Two independent reviewers performed data extraction and assessed study quality. Adjusted hazard ratios were pooled using the generic inverse variance method in random effect models, regardless of the type of musculoskeletal condition or chronic disease.

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Results: There were 13 cohort studies following 3,086,612 people. In the primary meta-analysis of adjusted estimates, osteoarthritis (n = 8 studies) and back pain (n = 2) were the exposures and cardiovascular disease (n = 8), cancer (n = 1) and diabetes (n = 1) were the outcomes. Pooled adjusted estimates from these 10 studies showed that people with a musculoskeletal condition have a 17% increase in the rate of developing a chronic disease compared to people without (hazard ratio 1.17, 95% confidence interval 1.13-1.22; I² 52%, total n = 2,686,113 people).

Conclusions: This meta-analysis found that musculoskeletal conditions may increase the risk of chronic disease. In particular, osteoarthritis appears to increase the risk of developing cardiovascular disease. Prevention and early treatment of musculoskeletal conditions and targeting associated chronic disease risk factors in people with long standing musculoskeletal conditions may play a role in preventing other chronic diseases. However, a greater understanding about why musculoskeletal conditions may increase the risk of chronic disease is needed.

Keywords: Back pain; Chronic disease; Meta-analysis; Osteoarthritis.