

Is there an association between tendinopathy and diabetes mellitus? A systemic review and analysis

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The prevalence of Diabetes in our population is increasing, as is the morbidity and mortality associated with this chronic disease. As a primary care provider, we are well aware of the role *'lifestyle'* plays in the development *and* control of Type 2 diabetes mellitus. For this reason, the guidelines recommend exercise and diet as first line treatment for this condition. It has been shown that up to 50% of participants who quit exercise as part of their management do so because of musculoskeletal symptoms. So the question arises: Does tendinopathy, a condition that reduces exercise tolerance, have a role to play in lack of adherence to an exercise program in diabetics?

Earlier studies have shown that hyperglycemia does change the collagen cross-linking of tendons and reduced their proteoglycan content (Reddy, 2003) leading to weakened tendons and predisposing them to tendinopathy. This study investigated the potential association between diabetes and tendinopathy by systematically reviewing and meta-analysing case control, cross sectional, and studies that considered both of these conditions. In total 31 studies were selected for the final analysis with good attention paid to exclusion criteria and reduction of bias. Confounding variables were identified: age, sex, adiposity, statin use and hyperglycemia. There is observational evidence that statins may induce tendinopathy (Marie I, Arthritis Rheum 2008;59:367-72) as well as an association between adiposity and tendinopathy (Gaida, Arthritis Rheum 2009; 61 840-9).

This systematic review showed that “diabetics had greater than three times the odds of tendinopathy compared to controls; and people with tendinopathy had 1.3 times increased odds of diabetes compared to controls. Therefore there is evidence of a strong link between diabetes and tendinopathy however cause and effect cannot be established even though there are plausible biological pathways by which high blood glucose can affect tendon structures.” It was also shown that those diabetics *with* tendinopathy have had a longer duration of diabetes.

Regardless of the cofounders that may exist, the compelling evidence supports the link between diabetes and tendinopathy. This has important clinical implications such as careful monitoring and structuring of load progression when initiating exercise to prevent the development of tendinopathy. A slower, more graduated approach would be crucial for these patients. As well, those who have tendinopathy and require rehabilitation should ensure tight glycemetic control to speed resolution. “Co-management by medical and allied health practitioners may be indicated for people with tendinopathy and long standing diabetes.”

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