Lumbar Disc Degeneration: Epidemiology and Genetic Influences

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Abstract

Study Design. A literature review.

Objective. To synthesize the scientific literature on the prevalence of lumbar disc degeneration and factors associated with its occurrence, including genetic influences.

Methods. A literature review was conducted of the prevalence of disc degeneration. Studies of the etiology of disc degeneration were summarized, with particular attention given to studies of genetic influences.

Results and Conclusions. There are extreme variations in the reported prevalence of specific degenerative findings of the lumbar spine among studies, which cannot be explained entirely by age or other identifiable risk factors (e.g., prevalence figures for disc narrowing varied from 3% to 56%). It is likely that these variations are due, in great part, to inconsistencies in case definitions and measurements, which are impeding epidemiologic research on disc degeneration. Research conducted over the past decade has led to a dramatic shift in the understanding of disc degeneration and its etiology. Previously, heavy physical loading was the main suspected risk factor for disc degeneration. However, results of exposure-discordant monozygotic and classic twin studies suggest that physical loading specific to occupation and sport has a relatively minor role in disc degeneration, beyond that of upright postures and routine activities of daily living. Recent research indicates that heredity has a dominant role in disc degeneration, explaining 74% of the variance in adult populations studied to date. Since 1998, genetic influences have been confirmed by the identification of several gene forms associated with disc degeneration.