

Global Spine J 2012; 02(03): 129-136

DOI: 10.1055/s-0032-1326951

Histomorphometric Analysis of Experimental Disc Degeneration

Symptomatic disc degeneration is a complex pathological condition that involves a cascade of events and is not totally understood. In this context, animal models gain an important role, allowing for better understanding of the degenerative process and therapeutic interventions. There are several models with different methods of evaluation of experimental disc degeneration (EDD), including imaging, biochemical, genetics, and histological approaches, but no real gold standard has been set. The authors aim to evaluate EDD by means of automated morphometric analysis and to determine values for differentiating normal and degenerated discs by this method. The criteria mean and total cellular area, mean and total cytoplasm area, and total nuclear area of cells in the nucleus pulposus were able to differentiate the condition of degeneration ($p < 0.05$). In conclusion, by applying the histomorphometric analysis of EDD, the authors could present an objective measure of EDD changes within the nucleus pulposus, reducing the evaluator bias in future studies and presenting highly sensitive and specific criteria for EDD.

實驗性椎間盤退化的組織形態檢查

有臨床症狀之椎間盤退化是一種複雜的病理情況涉及連串的因素，而且還沒有完全理解。在這種情況下，動物模型有很重要的作用，從而更了解退化過程和治療介入。有幾種模型用不同的方法評估性椎間盤退化症（EDD），包括影像學，生物化學，遺傳學，和組織學，但沒有確定真正的黃金標準。作者旨在透過自動形態分析評估椎間盤退化症（EDD），並確定使用這種方法的數值用於區分正常和退化的椎間盤。標準均值和細胞總面積，均值和總細胞質總面積，髓核細胞的核總面積都能夠區分退化的狀態（ $P < 0.05$ ）。總括而言，利用組織形態學分析椎間盤退化症（EDD），作者能夠提出一個客觀衡量在髓核內椎間盤退化症（EDD）的變化，減少在今後的研究中出現評估員的偏見及呈現高敏感性和特定的標準給椎間盤退化症。