

# Association Of Annular Defect Width Following Lumbar Discectomy With Risk Of Symptom Recurrence And Reoperation: Systematic Review And Meta-Analysis Of Comparative Studies

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## Abstract

**Study Design:** Systematic review and meta-analysis of comparative studies.

**Objective:** To characterize the association of annular defect width after lumbar discectomy with the risk of symptom recurrence and reoperation.

**Summary of Background Data:** Large annular defect width after lumbar discectomy has been reported to increase risk of symptom recurrence. However, this association has not been evaluated in a systematic manner.

**Methods:** A systematic literature search of MEDLINE and EMBASE was performed to identify comparative studies of large versus small annular defects following lumbar discectomy that reported symptom recurrence or reoperation rates. Main outcomes were reported with pooled odds ratios (OR) and 95% confidence intervals (CIs). Sensitivity analyses were performed to assess the robustness of the meta-analysis findings.

**Results:** After screening 696 records, we included data from 7 comparative studies involving 1653 lumbar discectomy patients, of whom 499 (30%) had large annular defects and 1154 (70%) had small annular defects. Methodological quality of studies was good overall. The median follow-up period was 2.9 years. The risk of symptom recurrence (OR = 2.5, 95% CI = 1.3–4.5, P = 0.004) and reoperation (OR = 2.3, 95% CI = 1.5–3.7, P < 0.001) was higher in patients with large versus small annular defects. Publication bias was not evident. The associations between annular defect width and risk of symptom recurrence and reoperation remained statistically significant in all sensitivity analyses.greater (OR=2.3, 95% CI, P<0.001) in patients with large vs. small annular defects.

**Conclusion:** Annular defect width following lumbar discectomy is an under-reported modifier of patient outcome. Risk for symptom recurrence and reoperation is higher in patients with large vs. small annular defects following lumbar discectomy.

**Levels of Evidence:** 2

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