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[Spine \(Phila Pa 1976\)](#). 2001 Dec 1;26(23):2623-8.

Smoking as a predictor of negative outcome in lumbar spinal fusion.

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Abstract

STUDY DESIGN: A review of the **smoking** habits in 426 patients who had been followed prospectively for 2 years after a lumbar **spinal fusion** procedure was conducted.

OBJECTIVE: To analyze the effect of pre- and postoperative **smoking** on clinical and functional outcome after lumbar **spinal fusion**.

SUMMARY OF BACKGROUND DATA: Several animal models have shown a negative effect of nicotine on **spinal fusion**. At this writing, the clinical effect of nicotine on **spinal fusion** has not been fully clarified.

METHODS: The study comprised 426 patients who underwent lumbar **spinal fusion** between 1993 and 1997. These patients received a mailed questionnaire regarding their tobacco consumption before and after their surgery. All other data, including preoperative clinical and functional status, were collected prospectively during a 2-year follow-up period. To assess functional outcome, the Dallas Pain Questionnaire was used.

RESULTS: The questionnaire was answered by 396 patients (93%). Of these patients, 54.5% (20% more than the background population) were smokers before the operation. **Smoking** of more than 10 cigarettes daily before the operation and attempted **fusion** at two or more levels increased the risk of nonunion: odds ratio, 2.01 ($P < 0.016$) and odds ratio, 3.03 ($P < 0.001$), respectively. **Smoking** cessation increased **fusion** rates to near those of nonsmokers. **Smoking** had no influence on functional outcome, as assessed by the Dallas Pain Questionnaire, but preoperative **smoking** predicted a negative answer to the question "Would you undergo the same treatment again, now that you know the result?" (odds ratio, 1.65; $P < 0.054$).

CONCLUSIONS: **Smoking** was shown to have a negative effect on **fusion** and overall patient satisfaction, but no measurable influence on the functional outcome as assessed by the Dallas Pain Questionnaire.

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