Post-operative exercise improves pain, disability and spinal function following microdiscectomy

Synopsis


**Question:** Does the addition of a post-operative exercise program in patients who underwent microdiscectomy for prolapsed lumbar intervertebral disc improve the outcome of pain, disability, psychological status and spinal function?

**Design:** Prospective randomised controlled trial.

**Setting:** Not described.

**Subjects:** Twenty-one patients aged between 18 and 60 years (18 men and three women) with radiological evidence of disc prolapse that was associated with sciatica of less than 12 months’ duration in typical nerve root distribution. One patient withdrew from the trial at six weeks prior to the exercise program and was excluded.

**Main outcome measures:** Spinal function (comprising measures of posture, lumbar and hip mobility, back muscle endurance and EMG measures of back muscle fatigue during the Biering-Sorensen test) was evaluated prior to surgery, and at 6, 10, 27 and 52 weeks post-surgery. Patients also completed questionnaires regarding their pain, disability and psychological status.

**Interventions:** Concealed, random allocation into exercise or control groups. Both groups received the same post-operative care (physiotherapist recommendations on exercises and return to normal activities).Six weeks post-surgery patients in the exercise group undertook a four week exercise program (two hours per week) focused on improving strength, endurance of the back and abdominal muscles and mobility of the spine and hip.

**Main results:** Pain, back muscle endurance and hip and lumbar mobility improved in both groups of subjects. The exercise group showed further statistically significant improvements in these measures and in EMG measures of back muscle fatiguability. All these improvements were maintained 12 months post-surgery. The only improvement shown by the control group between six and 52 weeks was an increase in back muscle endurance.

**Conclusion:** A four-week physiotherapist-delivered post-operative exercise program significantly improves pain, disability and spinal function in patients following microdiscectomy.

Commentary

The main finding of this pilot study is that a four-week supervised post-operative exercise program by an experienced physiotherapist improved measures of pain, disability and spinal function in patients who had undergone microdiscectomy for a prolapsed lumbar intervertebral disc. Thus the study provides evidence that supervised physiotherapy rehabilitation exercises enhances recovery.

The benefits of general lumbar exercise programs have been reported in the literature (O’Sullivan et al 1997). Recent research (Taylor and O’Sullivan 2000) demonstrated that specific transversus abdominis and multifidus retraining programs reduce the recurrence of lumbar episodes.

In this study, a single physiotherapist supervised the exercise programme, unlike the randomised controlled studies conducted by O’Sullivan et al (1997) and Taylor and O’Sullivan (2000). While it could be argued whether the expertise and motivation of a single physiotherapist could be extrapolated to the general physiotherapy population, this research does support that exercise following microdiscectomy has positive clinical and psychological outcomes. These findings should encourage orthopaedic surgeons and neurosurgeons to refer patients to physiotherapists after microdiscectomy. This seems particularly relevant, as some surgeons may not be aware of the benefits of supervised exercise therapy after microdiscectomy while others appear to have concerns that exercises or passive mobilisation could exacerbate the patient’s surgical outcome.

This investigation was a pilot study in 20 patients and replication is required before a final conclusion can be made.

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**References:**
