

Spinal Stabilization Program May Be Most Effective for Low Back Problems

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For the treatment of chronic low back disorder, a 10-week spinal stabilization program appears to be more effective than manually applied therapy or giving patients an education booklet, according to a new study in the May 1 issue of *Spine*.

The spinal stabilization program evaluated consisted of "functionally progressive" exercises that emphasized strengthening of various muscles supporting the spine. A video illustrating the effect of the muscles on the stability of the spine was shown at the beginning and end of each of the 10 classes, between which the patients exercised at facilitation stations.

By comparison, the manually applied therapy group received up to 10 standard physical therapy sessions in which no exercises were prescribed. For the control intervention, patients were given an educational booklet called "Back in Action," but no treatment or exercises were performed. All patients went on to receive a session called "the Back School," a single session that included a question and answer session and training on various topics related to back pain.

Lucy Jane Goldby, PhD, with Balance Performance Physiotherapy, in London, England, and colleagues compared these approaches in 346 subjects with chronic low back disorder, with a current episode lasting for a minimum of 12 weeks.

Patients were randomized to receive 1 of the 3 treatment approaches (20% in the control group and 40% each in the other 2 groups), and 213 completed treatment. Data were collected for 2 years after the intervention. On average, the spinal stabilization group attended about 7 to 8 of the 10 sessions, and the manual therapy group attended about 5 of the 10 sessions.

At 6 months, the spinal stabilization group had a 65.9% reduction in pain symptoms and a reduction in dysfunction. At 1 year, a 34.3% reduction in medication was observed for the spinal stabilization group, as was a reduction in scores of dysfunction and disability (mean difference in change, 15.71 Oswestry Disability Index; 95% confidence interval, 19.3 - 10.01).

Thus, the results indicated "a benefit for the spinal stabilization group in comparison to the other 2 groups," Dr Goldby and colleagues conclude.

The researchers also reported that manual therapy was significantly better than the control group at reducing pain in patients with chronic low back disorder who have the highest amount of pain at 3 months after intervention.

With regard to manual therapy, the authors note that this approach "remains physiotherapists' preferred modality for chronic low back disorder" and "is appropriate to be used on these patients as a pain reducing modality, but the results of this study suggest that it should not be used as an isolated modality because it does not concomitantly reduce disability, handicap, or improve quality of life."

The authors call on the physical therapy profession "to direct its clinical research priorities to explore the most effective and timely form of rehabilitation after application of manual therapy to achieve maximum patient benefit."

Clinical Context

According to the current authors, 12 months after a first episode of low back pain, 20% of patients become asymptomatic, 70% to 80% have at least one recurrence with 3% to 4% developing a chronic back syndrome, and the largest cohort of those with back pain have chronic low back disorder. Musculoskeletal physiotherapy consisting of manual joint manipulation and mobilization is the most common conservative intervention with exercise prescription to rehabilitate spinal stability. According to the current authors, the efficacy of a spinal stabilization regimen has not been demonstrated in chronic low back pain patients. This randomized study compares efficacy at 3, 6, and 12 months after 10 weeks of treatment with spinal stabilization, manual therapy, or minimal intervention with an education booklet.

Study Highlights

- * Inclusion criteria were chronic low back pain with a current episode lasting at least 12 weeks and age 18 to 65 years.
- * Exclusion criteria were mechanical pathology for low back pain, contraindication to manipulation or stabilization, or need for alternative treatment.
- * There were 18 treating physiotherapists with a minimum of 5 years postgraduate experience for low back pain treatment, and 60% had master's level degrees.
- * 302 patients were randomized to 10 weeks of spinal stabilization (40%), manual therapy (40%), or education (20%) stratified by age, sex, and referral site.
- * Spinal stabilization comprised functionally progressive exercise class to selectively retrain the muscles of the transverses abdominis, multifidus, pelvic floor, and diaphragm using a videotape for demonstration and exercise stations in small groups of no more than 12 patients.
- * Patients attended a total of 10 one-hour classes and were then discharged to the Back School.
- * Manual therapy comprised treatment according to diagnosis and clinical reasoning without exercise prescription or use of electrophysical methods. A maximum of 10 treatments were provided, and patients were then discharged to the Back School.
- * Education comprised giving the patient a booklet ("Back in Action") and discharge to Back School.
- * The Back School was 1 session of a 3-hour question and answer class covering anatomy and biomechanics of the back and exercise and general fitness.
- * Outcome measures were pain intensity using a 0 to 100 numeric scale, disability using the modified Oswestry Disability Index, quality of life using the Nottingham Health Profile (with 6 subsections), and a composite dysfunction score.
- * Of the original cohort, 200 were available at 3 months, 174 at 6 months, and 173 at 1 year for analysis.
- * Mean age was 42 years, 68% were female, mean duration of low back pain was 12 years, 76% were white, 50% used medications for low back pain, and mean number of days of use weekly was 2.
- * Mean number of sessions attended for spinal stabilization was 7.6, and for manual therapy was 5.3.
- * For pain intensity, all groups experienced reduction at 3, 6, and 12 months with the spinal stabilization having the greatest reduction at 6 months ($P = .009$), but this was not maintained at 12 months.
- * For disability, the spinal stabilization and manual therapy groups showed a statistically significant reduction in the modified Oswestry Disability Index scores at 3, 6, and 12 months with the spinal stabilization group showing significant reduction between 3 and 6 months ($P = .007$) and between 3 and 12 months ($P < .001$).
- * The stabilization group had a 38.8% reduction in disability by 12 months vs a reduction of 24.5% in the manual therapy and 19.8% in the education group.
- * Quality of life was improved by 56.8% in the stabilization group vs 36.5% and 37.3%, respectively, in the manual therapy and education groups.
- * The mean percentage reduction in the Nottingham Health Profile was higher for spinal stabilization than the other 2 groups at 12 months.

* Medication use and numbers of days of use was significantly reduced in the spinal stabilization group at 12 months ($P = .007$) vs the other 2 groups.

* The improvement in dysfunction score was greater for the spinal stabilization group than the other 2 groups ($P = .042$) at 6 and 12 months.

Pearls for Practice

* Spinal stabilization uses progressive muscle retraining, whereas manual therapy is given according to clinical symptoms in the treatment of chronic low back pain.

* Spinal stabilization compared with manual therapy for 10 weeks is more efficacious in improving function, disability, and quality of life at 6 and 12 months.

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