



Article: Nava-Bringas TI, Romero-Fierro LO, Trani-Chagoya YP, et al. **Stabilization Exercises Versus Flexion Exercises in Degenerative Spondylolisthesis: A Randomized Controlled Trial.** *Phys Ther.* 2021;101(8):pzab108. doi:[10.1093/ptj/pzab108](https://doi.org/10.1093/ptj/pzab108)

Study Design: Randomized control trial

Abstract:

Objective. Exercise is the mainstay of treatment in individuals with low back pain and the first-line option in degenerative spondylolisthesis (DS); however, there is still no consensus surrounding the superiority of any specific exercise program. Thus, the primary aim of this study was to compare the effectiveness of lumbar stabilization exercises and flexion exercises for pain control and improvements of disability in individuals with chronic low back pain (CLBP) and DS.

Methods. A randomized controlled trial was conducted in a tertiary public hospital and included 92 individuals over the age of 50 years who were randomly allocated to lumbar stabilization exercises or flexion exercises. Participants received 6 sessions of physical therapy (monthly appointments) and were instructed to execute exercises daily at home during the 6 months of the study. The primary outcome (measured at baseline, 1 month, 3 months, and 6 months) was pain intensity (visual analog scale, 0–100 mm) and disability (Oswestry Disability Index, from 0% to 100%). Secondary outcomes were disability (Roland-Morris Disability Questionnaire, from 0 to 24 points), changes in body mass index, and flexibility (fingertip to floor, in centimeters) at baseline and 6 months, and also the total of days of analgesic use at 6-month follow-up.

Results. Mean differences between groups were not significant (for lumbar pain: 0.56 [95% CI = -11.48 to 12.61]; for radicular pain: -1.23 [95% CI = -14.11 to 11.64]; for Oswestry Disability Index: -0.61 [95% CI = -6.92 to 5.69]; for Roland-Morris Disability Questionnaire: 0.53 [95% CI = -1.69 to 2.76]).

Conclusion. The findings from the present study reveal that flexion exercises are not inferior to and offer a similar response to stabilization exercises for the control of pain and improvements of disability in individuals with CLBP and DS.

Impact. Exercise is the mainstay of treatment in individuals with CLBP and DS; however, there is still no consensus surrounding the superiority of any specific exercise program. This study finds that flexion exercises are not inferior to and offer a similar response to stabilization exercises.

Lay Summary. Exercise is the mainstay of treatment in individuals with CLBP and DS, but there is no consensus on the superiority of any specific exercise program. If you have DS, flexion exercises may provide similar effects to stabilization exercises.

Key Findings:

- Neither one of the treatments were found to be superior to the other
- Flexion exercises and stabilization exercises provide similar effects to improve pain and function in patients with degenerative spondylolisthesis
- Both groups demonstrated improvement in pain (measured by VAS) and disability (measured by ODI) during the 6-month treatment period



Reviewer Summary:

The study compared the effectiveness of a lumbar stabilization exercise program with flexion exercises for pain and function with patients with chronic low back pain and degenerative spondylolisthesis. The groups received one physical therapy appointment once a month and were instructed to complete their exercises daily for 6 months. Both groups received a HEP that started with a warm-up and then progressed into the stabilization exercises or the flexion exercises. The stabilization exercise program focus was on establishing a neutral spine and activation of lumbopelvic muscles (multifidus, internal and external oblique, pelvic floor muscles and diaphragmatic breathing control), and the exercises were gradually progressed throughout the 6-month period adding on exercises and increasing duration. The flexion exercise group was based on William's Flexion Exercises that consisted of pelvic tilts, single and double knee to chest, partial sit up, lumbar trunk rotations and hamstring and thoracolumbar fascia stretching with no progression throughout the 6-month period. There were no significant differences in pain as measured by the VAS, and disability as measured by the ODI, between the groups at the end of the 6-month follow-up. Therefore, showing that neither one of the exercise programs is superior to the other, with a more complex home exercise program vs simpler plan. This can be applied clinically to patients where a flexion-based program may be more tolerable for patients who are unable to tolerate increased loading through their joints, and the stabilization exercises can be used for patients looking to increase their exercise loads and the exercises can be incorporated into their exercise routine. The researchers advise that future studies should further examine long-term differences between the exercise programs looking at reoccurrence of acute pain, neurological deteriorations, the need for surgical management, and differences between clinical conditions, such as low back pain, radicular pain or pseudo-claudication.