



PM&R Questions 1 & 2.

vii. Active stabilization exercise

Q1 Recommendation:

There is insufficient evidence to make a recommendation for or against lumbar stabilization in patients with chronic low back pain.

Grade of Recommendation: I

Q1 Evidence Summary:

Moussouli et al⁶⁹ investigated the effects of an isometric and isotonic stabilization exercise program on health-related quality of life in a study of women with chronic LBP. Women with LBP for at least 6 months were randomized to receive 4 60-minute sessions per week of isometric stabilization exercises (n=13), isotonic stabilization exercises (n=13), or no exercise (n=13). Health-related quality of life (SF=36) was assessed upon enrollment, immediately after the four-week treatment period and 9-months after treatment termination. The patients in the isometric stabilization group had significant improvements in pain and vitality at treatment-termination that was maintained for 9 months. The authors concluded that isometric stabilization exercises reduce pain and enhance vitality for at least 9 months in women with chronic LBP. The study's small sample size was the primary factor in downgrading the level of evidence. This potential Level I study offers Level II therapeutic evidence that use of an isometric stabilization program improves functional outcomes in women with chronic LBP at 9 months relative to a dynamic stabilization exercise program or no exercise at all.

Lomond et al⁷⁰ compared the effects of trunk stabilization versus a movement system impairment exercise strategy to treat patients with chronic LBP. Their premise is that LBP arises at least in part due to impaired postural coordination. Patients with LBP for at least 6 months were randomized to a 10-week physical therapy program consisting of either stabilization (n=29) or movement system impairment exercises (n=29). Pain (Numeric Pain Index) and function (Oswestry Disability Index) were assessed 11 weeks and 6 months after treatment initiation along with EMG function to assess postural reeducation. Both groups experienced improvements in pain and function at 6-month follow-up. The detailed data reporting focused on EMG and muscle reeducation changes. There is one sentence that mentions comparable improve-

ment in pain and disability scores although it suggests these improvements are modest and maybe not clinically meaningful. The authors concluded that stabilization treatment does not preferentially improve treatment outcomes in patients with LBP. The study had no power calculation and the sample size was small. They also did not report the details of the pain and disability scores. This study offers Level IV therapeutic evidence exercise improves pain and disability in patients with LBP and Level II evidence that trunk stabilization and movement system impairment exercises result in similar outcomes for pain and disability with no improvement voluntary postural adjustment mechanisms in patients with LBP.

Ganesh et al⁷¹ investigated the effectiveness of the star excursion balance test (SEBT) grid training for the treatment of chronic LBP. Patients with mechanical LBP for at least three months were randomized to receive 5 sessions per week for 4 weeks of diagnosis-specific interventions, core muscles strengthening and muscle training using the SEBT grid (n=30) or diagnosis-specific interventions, core muscle strengthening and stationary cycling (n=30). Disability (Oswestry Disability Index), strength and endurance (pressure-biofeedback unit) were assessed at baseline and at 4 and 16 weeks. Both groups had improvement in disability, strength and endurance with better improvement in the SEBT group compared to the conventional exercises. Although both programs resulted in improvement, the authors concluded that core muscle strengthening using a SEBT grid is more effective than conventional exercise programs. This study provides Level I therapeutic evidence that the addition of star excursion balance test and training to a diagnosis-specific intervention and core muscle strengthening improves functional outcomes at short-term follow-up when compared with a cycling program using the same exercise program. Baseline disability for this study was modest (low 20 scores on Oswestry Disability prior to treatment).