

Bridging Exercises in Spinal Stability

Spinal stability is the ability of the spine to maintain static equilibrium and counteract small fluctuations (Vera-Garcia, Barbado, & Moya, 2014). Spinal stabilization exercises activating the trunk musculature (paravertebral muscles, thoracic and abdominal muscles) provide a "stiffening" and protective sling to counteract excessive, unwanted movement (García-Vaquero, Moreside, Brontons-Gil, Peco-González, & Vera-Garcia, 2012). These muscles include the rotators, multifidi, erector spinae group (spinalis, longissimus thoracis, iliocostalis lumborum), quadratus lumborum, psoas, iliacus, diaphragm, external/internal intercostals, scalenes, rectus abdominis, internal/external oblique, transverse abdominis.

García-Vaquero et al. (2012) compared the electromyographic recordings of the trunk musculature during "bridging" exercises that required maintenance of a neutral spine while lifting the pelvis off the floor in supine, prone, and lateral positions with additional challenges by varying limb movements (e.g. one vs. two leg), using unstable surfaces, and combinations of these. Conventional front bridge targeted rectus abdominis. Conventional back bridge targeted erector spinae. Conventional lateral bridges targeted right internal/external obliques during a right-side bridge and vice versa for a left-side bridge as the lower side is the supports the trunk against gravity (García-Vaquero et al., 2012).

Generally bridging with an elevated leg significantly increased activation of spinal rotation muscles (García-Vaquero et al., 2012) and internal obliques. One-legged front bridge additionally increased external oblique activation on the lifted leg side and opposite internal oblique. One-legged back bridge additionally increased internal oblique activation (same side as lifted leg) and erector spinae bilaterally. Adding hip extension/flexion to side bridges increased muscle activation in all measured muscle groups.

The study by García-Vaquero et al. (2012) would fall into a Level 2-c evidence as described in Medina, McKeon, and Hertel (2006) with a grade B level of confidence. While I am not yet a practicing fitness professional, this study helped me to understand specifically how and why bridging exercises are so effective. Instead of saying "they are a good for you", I can now specifically quote a study and provide details to my future clients.

References

- García-Vaquero, M. P., Moreside, J. M., Brontons-Gil, E., Peco-González, N., & Vera-Garcia, F. J. (2012). [Trunk muscle activation during stabilization exercises with single and double leg support](#). *Journal of Electromyography and Kinesiology*, 22(3), 398-406.
- Medina, J. M., McKeon, P. O., & Hertel, J. (2006, September). Rating the levels of evidence in sports-medicine research. *Athletic Therapy Today*, 11(5), 38-41.
- Vera-Garcia, F. J., Barbado, D., & Moya, M. (2014). [Trunk stabilization exercises for healthy individuals](#). / Exercícios de estabilização do tronco para indivíduos saudáveis. *Brazilian Journal Of Kineanthropometry & Human Performance*, 16(2), 200-211.