

REFERENCES

1. Brooks C, Kennedy S, Marshall PW. Specific Trunk and General Exercise Elicit Similar Changes in Anticipatory Postural Adjustments in Patients With Chronic Low Back Pain. *Spine (Phila. Pa. 1976)*. 2012;1.
2. Busch V, Magerl W, Kern U, Haas J, Hajak G, Eichhammer P. The Effect of Deep and Slow Breathing on Pain Perception, Autonomic Activity, and Mood Processing—An Experimental Study. *Pain Med*. 2012;13:215-228.
3. Badiuk BWN, Andersen JT, McGill SM. Exercises to activate the deeper abdominal wall muscles: the Lewit: a preliminary study. *J. Strength Cond. Res*. 2014;28:856-60.
4. Hides JA, Stanton WR. Can Motor Control Training Lower the Risk of Injury for Professional Football Players? *Med. Sci. Sports Exerc*. 2014;46:762-768.
5. Gordon AT. Relationships between core strength, hip external rotator muscle strength, and star excursion balance test performance in female lacrosse players. *Int J Sport. Phys Ther* 2013;8:97-104.
6. Hides JA, Stanton WR, Mendis MD, Gildea J, Sexton MJ. Effect of motor control training on muscle size and football games missed from injury. *Med. Sci. Sports Exerc.* 2012;44(6):1141-9. .
7. O'Sullivan PB, Twomey LT, Allison GT. Evaluation of specific stabilizing exercises in the treatment of chronic low back pain with radiologic diagnosis of spondylolisthesis. *Spine (Phila. Pa. 1976)*. 1997;22:2959-2968.
8. Granacher U, Gollhofer A, Hortobágyi T, Kressig RW, Muehlbauer T. The importance of trunk muscle strength for balance, functional performance, and fall prevention in seniors: A systematic review. *Sport. Med*. 2013;43:627-641.
9. Corrêa ECR, Bérzin F. Mouth Breathing Syndrome: Cervical muscles recruitment during nasal inspiration before and after respiratory and postural exercises on Swiss Ball. *Int. J. Pediatr. Otorhinolaryngol*. 2008;72:1335-1343.
10. Paprika D, Gingl Z, Rudas L, Zöllei E. Hemodynamic effects of slow breathing: does the pattern matter beyond the rate? *Acta Physiol. Hung*. 2014;101(3):273-81.
11. Hodges PW, Butler JE, McKenzie DK, Gandevia SC. Contraction of the human diaphragm during rapid postural adjustments. *J. Physiol*. 1997;505:539-548.
12. Vostatek P, Novák D, Rychnovský T, Rychnovská S. Diaphragm postural function analysis using magnetic resonance imaging. *PLoS One* 2013;8:e56724.
13. Hamaoui A, Do MC, Poupart L, Bouisset S. Does respiration perturb body balance more in chronic low back pain subjects than in healthy subjects? *Clin. Biomech*. 2002;17:548-550.
14. Flink IK, Nicholas MK, Boersma K, Linton SJ. Reducing the threat value of chronic pain: A preliminary replicated single-case study of interoceptive exposure versus distraction in six individuals with chronic back pain. *Behav. Res. Ther*. 2009;47(8):721-8.
15. Janssens L, Brumagne S, Polspoel K, Troosters T, McConnell A. The effect of inspiratory muscles fatigue on postural control in people with and without recurrent low back pain. *Spine (Phila. Pa. 1976)*. 2010;35:1088-1094.
16. Jerath R, Edry JW, Barnes VA, Jerath V. Physiology of long pranayamic breathing: Neural respiratory elements may provide a mechanism that explains how slow deep breathing shifts the autonomic nervous system. *Med. Hypotheses* 2006;67:566-571.
17. Pal GK, Velkumary S, Madanmohan A. Effect of short-term practice of breathing exercises on autonomic functions in normal human volunteers. *Indian J. Med. Res.* 2004;120:115-121.
18. Hodges PW, Richardson CA. Altered Trunk Muscle Recruitment in People with Low Back Pain with Upper Limb Movement at Different Speeds.; 1999: *Arch Phys Med Rehabil* 80(9):1005-12. 1005-1012.
19. Hodges P, Kaigle Holm A, Holm S, et al. Intervertebral stiffness of the spine is increased by evoked contraction of transversus abdominis and the diaphragm: in vivo porcine studies. *Spine (Phila. Pa. 1976)*. 2003;28:2594-2601.
20. Hodges P, Cresswell A, Thorstensson A. Preparatory trunk motion accompanies rapid upper limb movement. *Exp. Brain Res*. 1999;124:69-79.
21. Gardner-Morse MG, Stokes IA. The effects of abdominal muscle coactivation on lumbar spine stability. *Spine (Phila. Pa. 1976)*. 1998;23:86-91; discussion 91-92.
22. Hodges. Core stability exercise in chronic low back pain. *Orthop. Clin. North Am*. 2003;34:245-254.
23. Ferreira PH, Ferreira ML, Maher CG, Herbert RD, Refshauge K. Specific stabilisation exercise for spinal and pelvic pain: a systematic review. *Aust. J. Physiother*. 2006;52:79-88.
24. Rackwitz B, de Bie R, Limm H, von Garnier K, Ewert T, Stucki G. Segmental stabilizing exercises and low back pain. What is the evidence? A systematic review of randomized controlled trials. *Clin. Rehabil*. 2006;20:553-567.
25. Gubler D, Mannion AF, Schenk P, et al. Ultrasound tissue Doppler imaging reveals no delay in abdominal muscle feed-forward activity during rapid arm movements in patients with chronic low back pain. *Spine (Phila. Pa. 1976)*. 2010;35(16):1506-13.
26. Jacobs J V, Henry SM, Nagle KJ. People with chronic low back pain exhibit decreased variability in the timing of their anticipatory postural adjustments. *Behav. Neurosci*. 2009;123:455-458.

27. Tsao H, Tucker KJ, Hodges PW. Changes in excitability of corticomotor inputs to the trunk muscles during experimentally-induced acute low back pain. *Neuroscience* 2011;181:127-133.
28. Hodges PW, Moseley GL, Gabrielsson A, Gandevia SC. Experimental muscle pain changes feedforward postural responses of the trunk muscles. *Exp. Brain Res.* 2003;151:262-271.
29. Tsao H, Galea MP, Hodges PW. Driving plasticity in the motor cortex in recurrent low back pain. *Eur. J. Pain* 2010;14:832-839.
30. McGill S. Low Back Disorders-2nd Edition. *Hum. Kinet.* 2007.
31. Grenier SG, McGill SM. Quantification of Lumbar Stability by Using 2 Different Abdominal Activation Strategies. *Arch. Phys. Med. Rehabil.* 2007;88:54-62.
32. Stokes IAF, Gardner-Morse MG, Henry SM. Abdominal muscle activation increases lumbar spinal stability: Analysis of contributions of different muscle groups. *Clin. Biomech.* 2011;26:797-803.
33. Cholewicki J, VanVliet JV JJ. Relative contribution of trunk muscles to the stability of the lumbar spine during isometric exertions. *Clin. Biomech.* 2002;17:99-105.
34. White SG, McNair PJ. Abdominal and erector spinae muscle activity during gait: The use of cluster analysis to identify patterns of activity. *Clin. Biomech.* 2002;17:177-184.
35. Kavcic N, Grenier S, McGill SM. Quantifying tissue loads and spine stability while performing commonly prescribed low back stabilization exercises. *Spine (Phila. Pa. 1976)*. 2004;29(20):2319-29.
36. Bae S-H, Kim and K-Y. The Effects of Sensorimotor Training Applied to Chronic Low Back Pain Patients on Their Pain and Change in Excitability of Cerebral Cortex Neurons. *Int. J. Bio-Science Bio-Technology* 2014;6(4):33-44.
37. Massion J. Movement, Posture and Equilibrium: Interaction and Coordination. *Prog. Neurobiol.* 1992;38(1).
38. Lomond K V, Henry SM, Jacobs J V, et al. Protocol to assess the neurophysiology associated with multi-segmental postural coordination. *Physiol Meas* 2013;34:N97-105.
39. Grachev ID, Fredrickson BE, Apkarian A V. Dissociating anxiety from pain: mapping the neuronal marker N-acetyl aspartate to perception distinguishes closely interrelated characteristics of chronic pain. *Mol. Psychiatry* 2001;6(3):256-8.
40. Cunningham DA, Machado A, Yue GH, Carey JR, Plow EB. Functional somatotopy revealed across multiple cortical regions using a model of complex motor task. *Brain Res.* 2013;1531:25-36.
41. Van Petten C. Relationship between hippocampal volume and memory ability in healthy individuals across the lifespan: Review and meta-analysis. *Neuropsychologia* 2004;42:1394-1413.
42. Tulving E, Markowitsch HJ. Episodic and declarative memory: Role of the hippocampus. *Hippocampus* 1998;8:198-204.
43. O'Keefe J. A computational theory of the hippocampal cognitive map. *Prog. Brain Res.* 1990;83:301-312.
44. Raz N, Rodriguez KM, Head D, Kennedy KM, Acker JD. Differential aging of the medial temporal lobe: a study of a five-year change. *Neurology* 2004;62:433-438.
45. Erickson Kl, Voss MW, Prakash RS, et al. Exercise training increases size of hippocampus and improves memory. *Proc. Natl. Acad. Sci. U. S. A.* 2011;108:3017-3022.
46. Niemann C, Godde B, Voelcker-Rehage C. Not only cardiovascular, but also coordinative exercise increases hippocampal volume in older adults. *Front. Aging Neurosci.* 2014;6:170.

REFERENCES

1. Brooks C, Kennedy S, Marshall PW. Specific Trunk and General Exercise Elicit Similar Changes in Anticipatory Postural Adjustments in Patients With Chronic Low Back Pain. *Spine (Phila Pa 1976)*. 2012;1:1.
2. Busch V, Magerl W, Kern U, Haas J, Hajak G, Eichhammer P. The Effect of Deep and Slow Breathing on Pain Perception, Autonomic Activity, and Mood Processing-An Experimental Study. *Pain Med*. 2012;13:215-228.
3. O'Sullivan PB, Twomey LT, Allison GT. Evaluation of specific stabilizing exercises in the treatment of chronic low back pain with radiologic diagnosis of spondylolisthesis or spondylolysis. *Spine (Phila Pa 1976)*. 1997;22:2959-2968.
4. Badiuk BWN, Andersen JT, McGill SM. Exercises to activate the deeper abdominal wall muscles: the Lewit: a preliminary study. *J Strength Cond Res*. 2014;28:856-860.
5. Hides JA, Stanton WR. Can Motor Control Training Lower the Risk of Injury for Professional Football Players? *Med Sci Sports Exerc*. 2014;46:762-768.
6. Gordon AT. Relationships between core strength, hip external rotator muscle strength, and star excursion balance test performance in female lacrosse players. *Int J Sport Phys Ther*. 2013;8:97-104.
7. Hides JA, Stanton WR, Mendis MD, Gildea J, Sexton MJ. Effect of motor control training on muscle size and football games missed from injury. *Med Sci Sports Exerc*. 2012;44(6):1141-1149.
8. Granacher U, Gollhofer A, Hortobágyi T, Kressig RW, Muehlbauer T. The importance of trunk muscle strength for balance, functional performance, and fall prevention in seniors: A systematic review. *Sport Med*. 2013;43:627-641.
9. Miyake Y, Nakamura S, Nakajima M. The effect of trunk coordination exercise on dynamic postural control using a Core Noodle. *J Bodyw Mov Ther*. 2014;18(4):519-525.
10. Taube W, Gruber M, Gollhofer A. Spinal and supraspinal adaptations associated with balance training and their functional relevance. *Acta Physiol*. 2008;193(2):101-116.
11. Heitkamp HC, Horstmann T, Mayer F, Weller J, Dickhuth HH. Gain in strength and muscular balance after balance training. *Int J Sports Med*. 2001;22(4):285-290.
12. Granacher U, Gollhofer A, Strass D. Training induced adaptations in characteristics of postural reflexes in elderly men. *Gait Posture*. 2006;24(4):459-466.
13. Myer GD, Ford KR, Brent JL, Hewett TE. The effects of plyometric vs. dynamic stabilization and balance training on power, balance, and landing force in female athletes. *J Strength Cond Res*. 2006;20(2):345-353.
14. Yaggie JA, Campbell BM. Effects of balance training on selected skills. *J Strength Cond Res*. 2006;20(2):422-428.
15. Gruber M, Gruber SBH, Taube W, Schubert M, Beck SC, Gollhofer A. Differential effects of ballistic versus sensorimotor training on rate of force development and neural activation in humans. *J Strength Cond Res*. 2007;21(1):274-282.
16. Beck S, Taube W, Gruber M, Amtage F, Gollhofer A, Schubert M. Task-specific changes in motor evoked potentials of lower limb muscles after different training interventions. *Brain Res*. 2007;1179(1):51-60.
17. Taube W, Gruber M, Beck S, Faist M, Gollhofer A, Schubert M. Cortical and spinal adaptations induced by balance training: Correlation between stance stability and corticospinal activation. *Acta Physiol*. 2007;189(4):347-358.
18. Dietz V, Horstmann G, Berger W. Involvement of different receptors in the regulation of human posture. *Neurosci Lett*. 1988;94(1-2):82-87.
19. Bove M, Trompetto C, Abbruzzese G, Schieppati M. The posture-related interaction between Ia-afferent and descending input on the spinal reflex excitability in humans. *Neurosci Lett*. 2006;397(3):301-306.
20. Tokuno CD, Carpenter MG, Thorstensson A, Garland SJ, Cresswell AG. Control of the triceps surae during the postural sway of quiet standing. *Acta Physiol (Oxf)*. 2007;191(3):229-236.
21. Llewellyn M, Yang JF, Prochazka A. Human H-reflexes are smaller in difficult beam walking than in normal treadmill walking. *Exp Brain Res*. 1990;83(1):22-28.
22. Hoffman MA, Koceja DM. The effects of vision and task complexity on Hoffmann reflex gain. *Brain Res*. 1995;700(1-2):303-307.
23. Earles DR, Koceja DM, Shively CW. Environmental changes in soleus H-reflex excitability in young and elderly subjects. *Int J Neurosci*. 2000;105(1-4):1-13.
24. Solopova IA, Kazennikov O V., Deniskina NB, Levik YS, Ivanenko YP. Postural instability enhances motor responses to transcranial magnetic stimulation in humans. *Neurosci Lett*. 2003;337(1):25-28.
25. Tokuda T, Tako K, Hayashi R, Yanagisawa N. Disturbed modulation of the stretch reflex gain during standing in cerebellar ataxia. *Electroencephalogr Clin Neurophysiol*. 1991;81(6):421-426.
26. Trimble MH, Koceja DM. Modulation of the triceps surae H-reflex with training. *Int J Neurosci*. 1994;76(3-4):293-303.
27. Trimble MH, Koceja DM. Effect of a Reduced Base of Support in Standing and Balance Training on the Soleus H-Reflex. *Int J Neurosci*; 2001;106(1-2):1-20. .
28. Mynark RG, Koceja DM. Down training of the elderly soleus H reflex with the use of a spinally induced balance perturbation. *J Appl Physiol*. 2002;93(1):127-133.

29. Pascual-Leone A, Grafman J, Hallett M. Modulation of cortical motor output maps during development of implicit and explicit knowledge. *Science*. 1994;263(5151):1287-1289.
30. Muellbacher W, Ziemann U, Boroojerdi B, Cohen L, Hallett M. Role of the human motor cortex in rapid motor learning. *Exp Brain Res*. 2001;136(4):431-438.
31. Floyer-Lea A, Matthews PM. Changing Brain Networks for Visuomotor Control with Increased Movement Automaticity; *J Neurophys*. 2004;92(4):2405-2412.
32. Puttemans V, Wenderoth N, Swinnen SP. Changes in brain activation during the acquisition of a multifrequency bimanual coordination task: from the cognitive stage to advanced levels of automaticity. *J Neurosci*. 2005;25(17):4270-4278.