ChirosHub

# Back Pain

REFERENCES - FURTHER READING

## Beyond the Ache: The Hidden Impact of Back Pain


1. Hartvigsen J, Hancock MJ, Kongsted A, et al.Lancet 2018;391(10137):2356-67. doi: 10.1016/s0140-6736(18)30480-x

2. Non-invasive Treatments for Acute, Subacute, and Chronic Low Back Pain 2017;166(7):514-30. doi: 10.7326/m16-2367 %m 28192789

3. Corp N, Mansell G, Stynes S, et al. 2021;25(2):275-95. doi: 10.1002/ejp.1679

4. Hodges PW, Danneels L. J Orthop Sports Phys Ther 2019;49(6):464-76. doi: 10.2519/jospt.2019.8827

5. van Dieën JH, Reeves NP, Kawchuk G, et al. 2019;49(6):370-79. doi: 10.2519/jospt.2019.7917

6. Hodges PW. 2011;21(2):220-8. doi: 10.1016/j.jelekin.2011.01.002

7. Meier ML, Vrana A, Schweinhardt P. 2019;25(6):583-96. doi: 10.1177/1073858418809074

8. Haavik H, Murphy B. 2012;22(5):768-76. doi: 10.1016/j.jelekin.2012.02.012

9. Haavik H, Kumari N, Holt K, Niazi IK, Amjad I, Pujari AN, Türker KS, Murphy B. 2021; doi: 10.1007/s00421-021-04727-z.

10. Eklund A, Jensen I, Lohela-Karlsson M, et al. 2018;13(9):e0203029. doi: 10.1371/journal.pone.0203029

11. Lelic D, Niazi IK, Holt K, et al. 2016;2016:3704964. doi: 10.1155/2016/3704964

12. Seminowicz DA, Moayedi M. 2017;18(9):1027-35. doi: 10.1016/j.jpain.2017.03.008

13. Goertz CM, Long CR, Vining RD, et al. 2018;1(1):e180105. doi: 10.1001/jamanetworkopen.2018.0105

# Pain is Created in Your Brain

1. Seymour B. Pain: A Precision Signal for Reinforcement Learning and Control. Neuron 2019;101(6):1029-41. doi: 10.1016/j.neuron.2019.01.055 [published Online First: 2019/03/22]

2. Koyama T, McHaffie JG, Laurienti PJ, et al. The subjective experience of pain: Where expectations become reality. Proceedings of the National Academy of Sciences 2005;102(36):12950-55. doi: 10.1073/pnas.0408576102

3. Hadjistavropoulos TD, S; Goubert, L.; Mogil J.S.; Sullivan, M.J.L.; Vervoort, T.; Craig K.D.; Cano, A.; Jackson, P.L.; Rainville, P.; Williams, A.C.; Fitzgerald, T.D. A Biopsychosocial formulation of pain communication. Psychological Bulletin 2011;137(6):910- 39. doi: 10.1037/a0023876

4. Wager TD. Placebo-Induced Changes in fMRI in the Anticipation and Experience of Pain. Science 2004;303(5661):1162-67. doi: 10.1126/science.1093065

5. Ploghaus A. Dissociating Pain from Its Anticipation in the Human Brain. Science 1999;284(5422):1979-81. doi: 10.1126/science.284.5422.1979

6. Curatolo M, Arendt-Nielsen L, Petersen-Felix S. Central Hypersensitivity in Chronic Pain: Mechanisms and Clinical Implications. Physical Medicine and Rehabilitation Clinics of North America 2006;17(2):287-302. doi: 10.1016/j.pmr.2005.12.010

7. Fenton BW, Shih E, Zolton J. The neurobiology of pain perception in normal and persistent pain. Pain management 2015;5(4):297-317. doi: 10.2217/pmt.15.27 [published Online First: 2015/06/20]

8. Mitsi V, Zachariou V. Modulation of pain, nociception, and analgesia by the brain reward center. Neuroscience 2016;338:81-92. doi: 10.1016/j.neuroscience.2016.05.017

9. Apkarian AV, Hashmi JA, Baliki MN. Pain and the brain: specificity and plasticity of the brain in clinical chronic pain. Pain 2011;152(3 Suppl):S49.

10. Atlas LY, Bolger N, Lindquist MA, et al. Brain Mediators of Predictive Cue Effects on Perceived Pain. 2010;30(39):12964-77. doi: 10.1523/jneurosci.0057-10.2010

11. May A. Chronic pain may change the structure of the brain. PAIN® 2008;137(1):7-15. doi: https://doi.org/10.1016/j.pain.2008.02.034

12. Costigan M, Scholz J, Woolf CJ. Neuropathic Pain: A Maladaptive Response of the Nervous

# REFERENCES - FURTHER READING

System to Damage. Annual Review of Neuroscience 2009;32(1):1-32. doi: 10.1146/annurev.neuro.051508.135531

13. Draganski B, Gaser C, Busch V, et al. Changes in grey matter induced by training. Nature 2004;427(6972):311-12. doi: 10.1038/427311a

14. Kolb B, Whishaw IQ. BRAIN PLASTICITY AND BEHAVIOR. Annual Review of Psychology 1998;49(1):43-64. doi: 10.1146/annurev.psych.49.1.43

15. Ungerleider L. Imaging Brain Plasticity during Motor Skill Learning. 2002;78(3):553-64. doi: 10.1006/nlme.2002.4091

16. Ruddock JK, Sallis H, Ness A, et al. Spinal manipulation vs sham manipulation for nonspecific low back pain: a systematic review and meta-analysis. Journal of chiropractic medicine 2016;15(3):165-83.

17. Goertz C, Pohlman K, Vining R, et al. Patient-centered outcomes of high-velocity, low-amplitude spinal manipulation for low back pain: a systematic review. Journal of Electromyography and Kinesiology 2012;22(5):670-91.

18. Hidalgo B, Detrembleur C, Hall T, et al. The efficacy of manual therapy and exercise for different stages of non-specific low back pain: an update of systematic reviews. Journal of Manual & Manipulative Therapy 2014;22(2):59-74.

19. Paige NM, Miake-Lye IM, Booth MS, et al. Association of spinal manipulative therapy with clinical benefit and harm for acute low back pain: systematic review and meta-analysis. Jama 2017;317(14):1451-60.

20. Bryans R, Decina P, Descarreaux M, et al. Evidence-based guidelines for the chiropractic treatment of adults with neck pain. Journal of manipulative and physiological therapeutics 2014;37(1):42-63.

21. Wong JJ, Shearer HM, Mior S, et al. Are manual therapies, passive physical modalities, or acupuncture effective for the management of patients with whiplash-associated disorders or neck pain and associated disorders? An update of the Bone and Joint Decade Task Force on Neck Pain and Its Associated Disorders by the OPTIMa collaboration. The Spine Journal 2016;16(12):1598-630.

22. Gross A, Miller J, D'Sylva J, et al. Manipulation or mobilisation for neck pain: a Cochrane Review. Manual therapy 2010;15(4):315-33.

23. Bryans R, Descarreaux M, Duranleau M, et al. Evidence-based guidelines for the chiropractic treatment of adults with headache. Journal of manipulative and physiological therapeutics 2011;34(5):274-89.

# REFERENCES - FURTHER READING


24. Rist PM, Hernandez A, Bernstein C, et al. The impact of spinal manipulation on migraine pain and disability: a systematic review and meta analysis. Headache: The Journal of Head and Face Pain 2019;59(4):532-42.

25. Fernandez M, Moore C, Tan J, et al. Spinal manipulation for the management of cervicogenic headache: A systematic review and meta analysis. European Journal of Pain 2020;24(9):1687-702.

26. Haavik H, Kumari N, Holt K, et al. The contemporary model of vertebral column joint dysfunction and impact of high-velocity, low-amplitude controlled vertebral thrusts on neuromuscular function. European Journal of Applied Physiology 2021:1-46.

27. Haavik H, Murphy B. The role of spinal manipulation in addressing disordered sensorimotor integration and altered motor control. J Electromyogr Kinesiol 2012;22(5):768-76. doi: 10.1016/j.jelekin.2012.02.012 [published Online First: 2012/04/10]

28. Lelic D, Niazi IK, Holt K, et al. Manipulation of Dysfunctional Spinal Joints Affects Sensorimotor Integration in the Prefrontal Cortex: A Brain Source Localization Study. Neural Plast 2016;2016:3704964. doi: 10.1155/2016/3704964

29. Lelic D, Niazi IK, Holt K, et al. Manipulation of dysfunctional spinal joints affects sensorimotor integration in the prefrontal cortex: a brain source localization study. Neural plasticity 2016;2016

30. Topham L, Gregoire S, Kang H, et al. The transition from acute to chronic pain: dynamic epigenetic reprogramming of the mouse prefrontal cortex up to 1 year after nerve injury. Pain 2020;161(10):2394-409. doi: 10.1097/j.pain.0000000000001917 [published Online First: 2020/05/20]

31. Apkarian AV, Baliki MN, Farmer MA. Predicting transition to chronic pain. Curr Opin Neurol 2013;26(4):360-7. doi: 10.1097/WCO.0b013e32836336ad [published Online First: 2013/07/05]

32. Eklund A, Jensen I, Lohela-Karlsson M, et al. The Nordic Maintenance Care program: Effectiveness of chiropractic maintenance care versus symptom-guided treatment for recurrent and persistent low back pain—A pragmatic randomized controlled trial. PLoS One 2018;13(9):e0203029.

33. Holt K, Russell D, Cooperstein R, et al. Interexaminer reliability of a multidimensional battery of tests used to assess for vertebral subluxations. Chiropr J Aust 2018;46(1):101-17.Haavik H, Murphy B. The role of spinal manipulation in addressing disordered sensorimotor integration and altered motor control. J Electromyogr Kinesiol 2012;22(5):768-76.

34. Pickar JG. Neurophysiological effects of spinal manipulation. Spine J 2002;2(5):357-71.

# REFERENCES - FURTHER READING


35. Pickar JG, Bolton PS. Spinal manipulative therapy and somatosensory activation. J Electromyogr Kinesiol 2012;22(5):785-94.

36. Haavik H, Murphy B. Subclinical neck pain and the effects of cervical manipulation on elbow joint position sense. J Manipulative Physiol Ther 2011;34(2):88-97.

37. Holt KR, Haavik H, Lee AC, et al. Effectiveness of chiropractic care to improve sensorimotor function associated with falls risk in older people: A randomized controlled trial. J Manipulative Physiol Ther 2016;39(4)267-78

38. Haavik H, Kumari N, Holt K, Niazi IK, Amjad I, Pujari AN, Türker KS, Murphy B. The contemporary model of vertebral column joint dysfunction and impact of high-velocity, low-amplitude controlled vertebral thrusts on neuromuscular function. Eur. J. Appl. Physiol. 2021;121(10):2675-2720. 10.1007/s00421-021-04727-z.

39. Haavik H, Niazi IK, Kumari N, Amjad I, Duehr J, Holt K. The potential mechanisms of high-velocity, low-amplitude, controlled vertebral thrusts on neuroimmune function: A narrative review. Medicina (Kaunas, Lithuania). 2021;57(6). doi:10.3390/medicina57060536

# Pain is our Alarm System

1. Gray H. Gray's anatomy: the anatomical basis of medicine and surgery. 38th ed. London: Churchill Livingstone 1995.

2. Brumagne S, Cordo P, Lysens R, et al. The Role of Paraspinal Muscle Spindles in Lumbosacral Position Sense in Individuals With and Without Low Back Pain. 2000;25(8):989-94. doi: 10.1097/00007632-200004150-00015

3. Szolcsanyi J. Effect of capsaicin on thermoregulation: an update with new aspects. Temperature (Austin, Tex) 2015;2(2):277-96. doi: 10.1080/23328940.2015.1048928 [published Online First: 2016/05/27]

4. Bohlen CJ, Julius D. Receptor-targeting mechanisms of pain-causing toxins: How ow? Toxicon : official journal of the International Society on Toxinology 2012;60(3):254-64. doi: 10.1016/j.toxicon.2012.04.336 [published Online First: 04/14]

5. Moller AR. Sensory systems: Anatomy and Physiology. California: Elsevier Science 2003.

6. Morasso P, Sanguineti V. Self-Organizing Body Schema for Motor Planning. Journal of Motor Behavior 1995;27(1):52-66. doi: 10.1080/00222895.1995.9941699

7. Lackner JR, DiZio P. Vestibular, Proprioceptive, and Haptic Contributions to Spatial Orientation. Annual Review of Psychology 2004;56(1):115-47. doi: 10.1146/annurev.psych.55.090902.142023

8. Kane MJ, Engle RW. The role of prefrontal cortex in working-memory capacity, executive attention, and general fluid intelligence: An individual-differences perspective. Psychon Bull Rev 2002;9(4):637-71. doi: 10.3758/bf03196323

9. Rossi AF, Pessoa L, Desimone R, et al. The prefrontal cortex and the executive control of attention. 2009;192(3):489-97. doi: 10.1007/s00221-008-1642-z

10. Haavik H, Kumari N, Holt K, et al. The contemporary model of vertebral column joint dysfunction and impact of high-velocity, low-amplitude controlled vertebral thrusts on neuromuscular function. European Journal of Applied Physiology 2021:1-46.

11. Lelic D, Niazi IK, Holt K, et al. Manipulation of dysfunctional spinal joints affects sensorimotor integration in the prefrontal cortex: a brain source localization study. Neural plasticity 2016;2016

# REFERENCES - FURTHER READING


12. Apkarian AV, Bushnell MC, Treede R-D, et al. Human brain mechanisms of pain perception and regulation in health and disease. European journal of pain 2005;9(4):463-84.

13. Koyama T, McHaffie JG, Laurienti PJ, et al. The subjective experience of pain: Where expectations become reality. Proceedings of the National Academy of Sciences 2005;102(36):12950-55. doi: 10.1073/pnas.0408576102

14. Ploghaus A. Dissociating Pain from Its Anticipation in the Human Brain. Science 1999;284(5422):1979-81. doi: 10.1126/science.284.5422.1979

15. Wiech K. Deconstructing the sensation of pain: The influence of cognitive processes on pain perception. Science 2016;354(6312):584-87. doi: 10.1126/science.aaf8934 [published Online First: 2016/11/05]

16. Wager TD. Placebo-Induced Changes in fMRI in the Anticipation and Experience of Pain. Science 2004;303(5661):1162-67. doi: 10.1126/science.1093065

17. Loggia ML, Berna C, Kim J, et al. The lateral prefrontal cortex mediates the hyperalgesic effects of negative cognitions in chronic pain patients. The Journal Of Pain: Official Journal Of The American Pain Society 2015;16(8):692-99. doi: 10.1016/j.jpain.2015.04.003

18. Seminowicz DA, Moayedi M. The Dorsolateral Prefrontal Cortex in Acute and Chronic Pain. The Journal of Pain 2017;18(9):1027-35. doi: https://doi.org/10.1016/j.jpain.2017.03.008

19. Fenton BW, Shih E, Zolton J. The neurobiology of pain perception in normal and persistent pain. Pain management 2015;5(4):297-317. doi: 10.2217/pmt.15.27 [published Online First: 2015/06/20]

20. Kimelberg HK, Nedergaard M. Functions of astrocytes and their potential as therapeutic targets. 2010;7(4):338-53. doi: 10.1016/j.nurt.2010.07.006

21. Apkarian AV, Hashmi JA, Baliki MN. Pain and the brain: specificity and plasticity of the brain in clinical chronic pain. Pain 2011;152(3 Suppl):S49.

22. Hadjistavropoulos TD, S; Goubert, L.; Mogil J.S.; Sullivan, M.J.L.; Vervoort, T.; Craig K.D.; Cano, A.; Jackson, P.L.; Rainville, P.; Williams, A.C.; Fitzgerald, T.D. A Biopsychosocial formulation of pain communication. Psychological Bulletin 2011;137(6):910- 39. doi: 10.1037/a0023876

23. Mitsi V, Zachariou V. Modulation of pain, nociception, and analgesia by the brain reward center. Neuroscience 2016;338:81-92. doi: 10.1016/j.neuroscience.2016.05.017

24. 24. Laird RA, Keating JL, Ussing K, et al. Does movement matter in people with back pain? Investigating 'atypical' lumbo-pelvic kinematics in people with and without back pain using wireless

movement sensors. BMC Musculoskelet Disord 2019;20(1):28. doi: 10.1186/s12891-018-2387-x [published Online First: 2019/01/20]

25. 25. Cardinali DP. Autonomic Nervous Sytem: basic and clinical aspects. Switzerland: Springer International Publishing 2017.

26. Kolb B, Whishaw IQ. BRAIN PLASTICITY AND BEHAVIOR. Annual Review of Psychology 1998;49(1):43-64. doi: 10.1146/annurev.psych.49.1.43

27. Hannibal KE, Bishop MD. Chronic Stress, Cortisol Dysfunction, and Pain: A Psychoneuroendocrine Rationale for Stress Management in Pain Rehabilitation. Physical Therapy 2014;94(12):1816-25.

28. Brown RA. Spinal Health: The Backbone of Chiropractic's Identity. Journal of Chiropractic Humanities 2016;23(1):22-28. doi: https://doi.org/10.1016/j.echu.2016.07.002

29. McManus C. Chronic Stress, Chronic Pain, and the Corticolimbic System. Orthopaedic Physical Therapy Practice 2019;31(1):50-53.

30. Vachon-Presseau E. Effects of stress on the corticolimbic system: implications for chronic pain. Progress in Neuro-Psychopharmacology and Biological Psychiatry 2018;87:216-23. doi: https://doi.org/10.1016/j.pnpbp.2017.10.014

31. Melzack R. From the gate to the neuromatrix. Pain 1999;82:S121-S26. doi: 10.1016/s0304-3959(99)00145-1

32. Seymour B. Pain: A Precision Signal for Reinforcement Learning and Control. Neuron 2019;101(6):1029-41. doi: 10.1016/j.neuron.2019.01.055 [published Online First: 2019/03/22]

33. Sjøogaard G, Lundberg U, Kadefors R. The role of muscle activity and mental load in the development of pain and degenerative processes at the muscle cell level during computer work. European Journal of Applied Physiology 2000;83(2-3):99-105. doi: 10.1007/s004210000285

34. Butler D, Moseley AM. Explain Pain. 2 ed: Noigroup Publications 2013.

35. Ruddock JK, Sallis H, Ness A, et al. Spinal manipulation vs sham manipulation for nonspecific low back pain: a systematic review and meta-analysis. Journal of chiropractic medicine 2016;15(3):165-83.

36. Goertz C, Pohlman K, Vining R, et al. Patient-centered outcomes of high-velocity, low-amplitude spinal manipulation for low back pain: a systematic review. Journal of Electromyography and Kinesiology 2012;22(5):670-91.

# REFERENCES - FURTHER READING


37. Hidalgo B, Detrembleur C, Hall T, et al. The efficacy of manual therapy and exercise for different stages of non-specific low back pain: an update of systematic reviews. Journal of Manual & Manipulative Therapy 2014;22(2):59-74.

38. Paige NM, Miake-Lye IM, Booth MS, et al. Association of spinal manipulative therapy with clinical benefit and harm for acute low back pain: systematic review and meta-analysis. Jama 2017;317(14):1451-60.

39. Bryans R, Decina P, Descarreaux M, et al. Evidence-based guidelines for the chiropractic treatment of adults with neck pain. Journal of manipulative and physiological therapeutics 2014;37(1):42-63.

40. Wong JJ, Shearer HM, Mior S, et al. Are manual therapies, passive physical modalities, or acupuncture effective for the management of patients with whiplash-associated disorders or neck pain and associated disorders? An update of the Bone and Joint Decade Task Force on Neck Pain and Its Associated Disorders by the OPTIMa collaboration. The Spine Journal 2016;16(12):1598-630.

41. Gross A, Miller J, D'Sylva J, et al. Manipulation or mobilisation for neck pain: a Cochrane Review. Manual therapy 2010;15(4):315-33.

42. Bryans R, Descarreaux M, Duranleau M, et al. Evidence-based guidelines for the chiropractic treatment of adults with headache. Journal of manipulative and physiological therapeutics 2011;34(5):274-89.

43. Rist PM, Hernandez A, Bernstein C, et al. The impact of spinal manipulation on migraine pain and disability: a systematic review and meta-analysis. Headache: The Journal of Head and Face Pain 2019;59(4):532-42.

44. Fernandez M, Moore C, Tan J, et al. Spinal manipulation for the management of cervicogenic headache: A systematic review and meta-analysis. European Journal of Pain 2020;24(9):1687-702.

45. Schutze R, Rees C, Slater H, et al. 'I call it stinkin' thinkin": A qualitative analysis of metacognition in people with chronic low back pain and elevated catastrophizing. British journal of health psychology 2017;22(3):463-80. doi: 10.1111/bjhp.12240 [published Online First: 2017/04/05]

46. Booth J, Moseley GL, Schiltenwolf M, et al. Exercise for chronic musculoskeletal pain: A biopsychosocial approach. Musculoskeletal care 2017;15(4):413-21. doi: 10.1002/msc.1191 [published Online First: 2017/04/04]

47. O'Connor SR, Tully MA, Ryan B, et al. Walking exercise for chronic musculoskeletal pain: systematic review and meta-analysis. Archives of physical medicine and rehabilitation 2015;96(4):724-34.e3. doi: 10.1016/j.apmr.2014.12.003 [published Online First: 2014/12/23]

# REFERENCES - FURTHER READING


48. Masino SA, Ruskin DN. Ketogenic diets and pain. Journal of child neurology 2013;28(8):993-1001. doi: 10.1177/0883073813487595 [published Online First: 2013/05/18]

49. Silva AR, Bernardo A, Costa J, et al. Dietary interventions in Fibromyalgia: a systematic review. Annals of medicine 2019:1-29. doi: 10.1080/07853890.2018.1564360 [published Online First: 2019/02/09]

50. Burgess HJ, Burns JW, Buvanendran A, et al. Associations Between Sleep Disturbance and Chronic Pain Intensity and Function: A Test of Direct and Indirect Pathways. The Clinical journal of pain 2019 doi: 10.1097/ajp.0000000000000711 [published Online First: 2019/03/27]

51. Goertz CM, Pohlman KA, Vining RD, et al. Patient-centered outcomes of high-velocity, low-amplitude spinal manipulation for low back pain: a systematic review. J Electromyogr Kinesiol 2012;22(5):670-91. doi: 10.1016/j.jelekin.2012.03.006 [published Online First: 2012/04/27]

52. Ruddock JK, Sallis H, Ness A, et al. Spinal Manipulation Vs Sham Manipulation for Nonspecific Low Back Pain: A Systematic Review and Meta-analysis. J Chiropr Med 2016;15(3):165-83. doi: 10.1016/j.jcm.2016.04.014 [published Online First: 2016/09/24]

# Break the Pain Cycle

1. Swieboda P, Filip R, Prystupa A, et al. Assessment of pain: types, mechanism and treatment. Annals of agricultural and environmental medicine : AAEM 2013;Spec no. 1:2-7. [published Online First: 2014/07/09]

2. Curatolo M, Arendt-Nielsen L, Petersen-Felix S. Central Hypersensitivity in Chronic Pain: Mechanisms and Clinical Implications. Physical Medicine and Rehabilitation Clinics of North America 2006;17(2):287-302. doi: 10.1016/j.pmr.2005.12.010

3. Manchikanti L, Singh V, Kaye AD, et al. Lessons for Better Pain Management in the Future: Learning from the Past. Pain and therapy 2020 doi: 10.1007/s40122-020-00170-8 [published Online First: 2020/05/16]

4. Genova A, Dix O, Thakur M, et al. Chronic Non-cancer Pain Management and Addiction: A Review. Cureus 2020;12(2):e6963-e63. doi: 10.7759/cureus.6963

5. Elma Ö, Yilmaz ST, Deliens T, et al. Chronic Musculoskeletal Pain and Nutrition: Where Are We and Where Are We Heading? Pm r 2020 doi: 10.1002/pmrj.12346 [published Online First: 2020/02/23]

6. Suh JH, Kim H, Jung GP, et al. The effect of lumbar stabilization and walking exercises on chronic low back pain: A randomized controlled trial. Medicine 2019;98(26):e16173. doi: 10.1097/md.0000000000016173 [published Online First: 2019/07/03]

7. Navid MS, Lelic D, Niazi IK, et al. The effects of chiropractic spinal manipulation on central processing of tonic pain – a pilot study using standardized low-resolution brain electromagnetic tomography (sLORETA). Sci Rep 2019;9(1):6925. doi: 10.1038/s41598-019-42984-3 [published Online First: 2019/05/08]

8. Haavik H, Murphy B. The role of spinal manipulation in addressing disordered sensorimotor integration and altered motor control. J Electromyogr Kinesiol 2012;22(5):768-76. doi: 10.1016/j.jelekin.2012.02.012 [published Online First: 2012/04/10]

9. Lelic D, Niazi IK, Holt K, et al. Manipulation of Dysfunctional Spinal Joints Affects Sensorimotor Integration in the Prefrontal Cortex: A Brain Source Localization Study. Neural plasticity 2016;2016:3704964. doi: 10.1155/2016/3704964

10. Seminowicz DA, Moayedi M. The Dorsolateral Prefrontal Cortex in Acute and Chronic Pain. The journal of pain : official journal of the American Pain Society 2017;18(9):1027-35. doi:

# REFERENCES - FURTHER READING

10.1016/j.jpain.2017.03.008 [published Online First: 2017/04/13]

11. Gross A, Langevin P, Burnie SJ, et al. Manipulation and mobilisation for neck pain contrasted against an inactive control or another active treatment. Cochrane Database Syst Rev 2015(9):Cd004249. doi: 10.1002/14651858.CD004249.pub4 [published Online First: 2015/09/24]

12. Gross A, Miller J, D'Sylva J, et al. Manipulation or mobilisation for neck pain: a Cochrane Review. Man Ther 2010;15(4):315-33. doi: 10.1016/j.math.2010.04.002 [published Online First: 2010/06/01]

13. Bryans R, Decina P, Descarreaux M, et al. Evidence-based guidelines for the chiropractic treatment of adults with neck pain. J Manipulative Physiol Ther 2014;37(1):42-63. doi: 10.1016/j.jmpt.2013.08.010 [published Online First: 2013/11/23]

14. Goertz CM, Pohlman KA, Vining RD, et al. Patient-centered outcomes of high-velocity, low-amplitude spinal manipulation for low back pain: a systematic review. J Electromyogr Kinesiol 2012;22(5):670-91. doi: 10.1016/j.jelekin.2012.03.006 [published Online First: 2012/04/27]

15. Ruddock JK, Sallis H, Ness A, et al. Spinal Manipulation Vs Sham Manipulation for Nonspecific Low Back Pain: A Systematic Review and Meta-analysis. J Chiropr Med 2016;15(3):165-83. doi: 10.1016/j.jcm.2016.04.014 [published Online First: 2016/09/24]

16. Bryans R, Descarreaux M, Duranleau M, et al. Evidence-based guidelines for the chiropractic treatment of adults with headache. J Manipulative Physiol Ther 2011;34(5):274-89. doi: 10.1016/j.jmpt.2011.04.008 [published Online First: 2011/06/07]

# Who sees a Chiropractor?

1. Adams J, Peng W, Cramer H, et al. The Prevalence, Patterns, and Predictors of Chiropractic Use Among US Adults: Results From the 2012 National Health Interview Survey. Spine (Phila Pa 1976). Dec 1 2017;42(23):1810-1816.

# How often should you see your chiropractor?

1. Hodges PW, Moseley GL. Pain and motor control of the lumbopelvic region: effect and possible mechanisms. J Electromyogr Kinesiol. 2003;13(4):361-370.
2. MacDonald D, Moseley GL, Hodges PW. Why do some patients keep hurting their back? Evidence of ongoing back muscle dysfunction during remission from recurrent back pain. Pain. Apr 2009;142(3):183-188.
3. Ferreira ML, Ferreira PH, Hodges PW. Changes in postural activity of the trunk muscles following spinal manipulative therapy Manual Therapy August 2007;12(3):240-248.
4. Haas M, Bronfort G, Evans R, et al. Dose-response and efficacy of spinal manipulation for care of cervicogenic headache: a dual-center randomized controlled trial. Spine J. Feb 23 2018.