

Beyond Development™ References

Breathing Exercises

1. Amon K., Campbell A. (2008). Biofeedback video games to teach ADHD children relaxation skills to help manage symptoms. *Patoss Bull.* 34–38. Available at: http://www2.fhs.usyd.edu.au/arow/biofeedback4adhd/Amon_Campbell_2008.pdf (accessed January 21, 2011).
2. Anju D., Anita C., Raka J., Deepak Y., Vedamurthachar (2015). Effectiveness of yogic breathing training on quality of life of opioid dependent users. *Int. J. Yoga* 8 144–147.
3. Anup Sharma, Marna S. Barrett, Andrew J. Cucchiara, Nalaka S. Gooneratne, Michael E. Thase. A Breathing-Based Meditation Intervention for Patients With Major Depressive Disorder Following Inadequate Response to Antidepressants. *The Journal of Clinical Psychiatry*, 2016.
4. Argyropoulos S. V., Bailey J. E., Hood S. D., Kendrick A. H., Rich A. S., Laszlo G., et al. (2002). Inhalation of 35% CO₂ results in activation of the HPA axis in healthy volunteers. *Psychoneuroendocrinology* 27 715–729.
5. Arsenio W. F., Loria S. (2014). Coping with negative emotions: connections with adolescents' academic performance and stress. *J. Genet. Psychol.* 175 76–90.
6. Aston-Jones G., Rajkowsky J., Cohen J. (1999). Role of locus coeruleus in attention and behavioral flexibility. *Biol. Psychiatry* 46 1309–1320.
7. Bazhenova O. V., Plonskaia O., Porges S. W. (2001). Vagal reactivity and affective adjustment in infants during interaction challenges. *Child Dev.* 72 1314–1326.
8. Beauchaine T. (2001). Vagal tone, development, and Gray's motivational theory: Toward an integrated model of autonomic nervous system functioning in psychopathology. *Dev. Psychopathol.* 13 183–214.
9. Becker I. (2000). Uses of yoga in psychiatry and medicine. *Complement. Altern. Med. Psychiatry* 19 107–145.
10. Benson T. (1996). *Timeless Healing: The Power and Biology of Belief*. New York, NY: Scribner.
11. Bernardi L., Spadacini G., Bellwon J., Hajric R., Roskamm H., Frey A. W. (1998). Effect of breathing rate on oxygen saturation and exercise performance in chronic heart failure. *Lancet* 351 1308–1311.
12. Bhatia M., Kumar A., Kumar N., Pandey R. M., Kochupillai V. (2003). Electrophysiologic evaluation of Sudarshan Kriya: an EEG, BAER, P300 study. *Ind. J. Physiol. Pharmacol.* 47 157–163.
13. Booth S., Burkin J., Moffat C., Spathis A. (2014). *Breathing Techniques for Breathlessness Managing Breathlessness in Clinical Practice*. Berlin: Springer; 67–112.
14. Brown R. P., Gerbarg P. L. (2005a). Sudarshan kriya yogic breathing in the treatment of stress, anxiety, and depression: Part II—Clinical applications and guidelines. *J. Altern. Complement. Med.* 11 711–717.

15. Brown R. P., Gerbarg P. L. (2005b). Sudarshan Kriya yogic breathing in the treatment of stress, anxiety, and depression: part I-neurophysiologic model. *J. Altern. Complement. Med.* 11 189–201.
16. Brown R. P., Gerbarg P. L., Muench F. (2013). Breathing practices for treatment of psychiatric and stress-related medical conditions. *Psychiatr. Clin. North. Am.* 36 121–140.
17. Cahalin L. P., Braga M., Matsuo Y., Hernandez E. D. (2002). Efficacy of diaphragmatic breathing in persons with chronic obstructive pulmonary disease: a review of the literature. *J. Cardiopulm. Rehabil.* 22 7–21.
18. Carney R. M., Saunders R. D., Freedland K. E., Stein P., Rich M. W., Jaffe A. S. (1995). Association of depression with reduced heart rate variability in coronary artery disease. *Am. J. Cardiol.* 76 562–564.
19. Chandla S. S., Sood S., Dogra R., Das S., Shukla S. K., Gupta S. (2013). Effect of short-term practice of pranayamic breathing exercises on cognition, anxiety, general wellbeing and heart rate variability. *J. Indian Med. Assoc.* 111 662–665.
20. Chang S.-B., Kim H.-S., Ko Y.-H., Bae C.-H., An S.-E. (2009). Effects of abdominal breathing on anxiety, blood pressure, peripheral skin temperature and saturation oxygen of pregnant women in preterm labor. *Korean J Women Health Nurs* 15 32–42.
21. Chen Y. F., Huang X. Y., Chien C. H., Cheng J. F. (2016). The effectiveness of diaphragmatic breathing relaxation training for reducing anxiety. *Perspect. Psychiatr. Care* 10.
22. Chervin R. D., Ruzicka D. L., Giordani B. J., Weatherly R. A., Dillon J. E., Hodges E. K., et al. (2006). Sleep-disordered breathing, behavior, and cognition in children before and after adenotonsillectomy. *Pediatrics* 117 e769–e778.
23. Clow A., Hucklebridge F., Stalder T., Evans P., Thorn L. (2010). The cortisol awakening response: more than a measure of HPA axis function. *Neurosci. Biobehavior. Rev.* 35 97–103.
24. Descilo T., Vedamurtachar A., Gerbarg P. L., Nagaraja D., Gangadhar B. N., Damodaran B., et al. (2010). Effects of a yoga breath intervention alone and in combination with an exposure therapy for post-traumatic stress disorder and depression in survivors of the 2004 South-East Asia tsunami. *Acta Psychiatr. Scand.* 121 289–300.
25. Drozdz T., Bilo G., Debicka-Dabrowska D., Klocek M., Malfatto G., Kielbasa G., et al. (2016). Blood pressure changes in patients with chronic heart failure undergoing slow breathing training. *Blood Press* 25 4–10.
26. Feder A., Nestler E. J., Charney D. S. (2009). Psychobiology and molecular genetics of resilience. *Nat. Rev. Neurosci.* 10 446–457.
27. Freeman F. G., Mikulka P. J., Prinzel L. J., Scerbo M. W. (1999). Evaluation of an adaptive automation system using three EEG indices with a visual tracking task. *Biol. Psychol.* 50 61–76.]
28. Friedman B. H., Thayer J. F. (1998). Autonomic balance revisited: Panic anxiety and heart rate variability. *J. Psychosomat. Res.* 44 133–151.
29. Goldin P. R., Gross J. J. (2010). Effects of mindfulness-based stress reduction (MBSR) on emotion regulation in social anxiety disorder. *Emotion* 10 83–91.
30. Gunaratana H. (1993/2002). *Mindfulness in Plain English*. Boston, MA: Wisdom.
31. Gyatso T., Jinpa G. T. (1995). *The World of Tibetan Buddhism: An Overview of Its Philosophy and Practice*. Somerville, MA: Wisdom Publications.

32. Hayama Y., Inoue T. (2012). The effects of deep breathing on 'tension-anxiety' and fatigue in cancer patients undergoing adjuvant chemotherapy. *Complement. Ther. Clin. Pract.* 18 94–98.]
33. Hernández S. E., Suero J., Rubia K., González-Mora J. L. (2015). Monitoring the neural activity of the state of mental silence while practicing Sahaja yoga meditation. *J. Altern. Complement. Med.* 21 175–179.
34. Jacobs G. D. (2001). Clinical applications of the relaxation response and mind–body interventions. *J. Altern. Complement. Med.* 7 93–101.
35. Jaedicke K. M., Taylor J. J., Preshaw P. M. (2012). Validation and quality control of ELISAs for the use with human saliva samples. *J. Immunol. Methods* 377 62–65. 10.1016/j.jim.2012.01.010
36. Jensen C. G., Vangkilde S., Frokjær V., Hasselbalch S. G. (2012). Mindfulness training affects attention– or is it attentional effort? *J. Exp. Psychol. Gen.* 141 106–123.
37. Jerath R., Crawford M. W., Barnes V. A., Harden K. (2015). Self-regulation of breathing as a primary treatment for anxiety. *Appl. Psychophysiol. Biofeedback* 40 107–115.
38. Jha A. P., Krompinger J., Baime M. J. (2007). Mindfulness training modifies subsystems of attention. *Cogn. Affect. Behav. Neurosci.* 7 109–119.
39. Kalyani B. G., Venkatasubramanian G., Arasappa R., Rao N. P., Kalmady S. V., Behere R. V., et al. (2011). Neurohemodynamic correlates of 'OM' chanting: a pilot functional magnetic resonance imaging study. *Int. J. Yoga* 4 3–6.
40. Kawachi I., Sparrow D., Vokonas P. S., Weiss S. T. (1995). Decreased heart rate variability in men with phobic anxiety (data from the normative aging study). *Am. J. Cardiol.* 75 882–885.
41. Khng K. H. (2016). A better state-of-mind: deep breathing reduces state anxiety and enhances test performance through regulating test cognitions in children. *Cogn. Emot.* 10.1080/02699931(2016).
42. Kirschbaum C., Hellhammer D. H. (1994). Salivary cortisol in psychoneuroendocrine research: Recent developments and applications. *Psychoneuroendocrinology* 19 313–333.
43. Lehofer M., Moser M., Hoehn-Saric R., McLeod D., Liebmann P., Drnovsek B., et al. (1997). Major depression and cardiac autonomic control. *Biol. Psychiatry* 42 914–919.
44. Lehrer P. M., Gevirtz R. (2014). Heart rate variability biofeedback: how and why does it work? *Front. Psychol.* 5:756 10.3389/fpsyg.2014.
45. Lehrer P., Karavidas M. K., Lu S. E., Coyle S. M., Oikawa L. O., Macor M., et al. (2010). Voluntarily produced increases in heart rate variability modulate autonomic effects of endotoxin induced systemic inflammation: an exploratory study. *Appl. Psychophysiol. Biofeedback* 35 303–315.
46. Lutz A., Greischar L. L., Rawlings N. B., Ricard M., Davidson R. J. (2004). Long-term meditators self-induce high-amplitude gamma synchrony during mental practice. *Proc. Natl. Acad. Sci. U.S.A.* 101 16369–16373.

47. Lutz A., Slagter H. A., Rawlings N. B., Francis A. D., Greischar L. L., Davidson R. J. (2009). Mental training enhances sustained attention: neural and behavioral evidence. *J. Neurosci.* 29:13418–13427. 10.1523/jneurosci.1614-09.2009.
48. Ma X, Yue Z-Q, Gong Z-Q, et al. The Effect of Diaphragmatic Breathing on Attention, Negative Affect and Stress in Healthy Adults. *Frontiers in Psychology*. 2017.
49. MacLean K. A., Ferrer E., Aichele S. R., Bridwell D. A., Zanesco A. P., Jacobs T. L., et al. (2010). Intensive meditation training improves perceptual discrimination and sustained attention. *Psychol. Sci.* 21: 829–839.
50. Manjunath N. K., Telles S. (2005). Influence of yoga and Ayurveda on self-rated sleep in a geriatric population. *Indian J. Med. Res.* 121: 683–690.
51. Marshall R. S., Basilakos A., Williams T., Love-Myers K. (2014). Exploring the benefits of unilateral nostril breathing practice post-stroke: attention, language, spatial abilities, depression, and anxiety. *J. Altern. Complement. Med.* 20: 185–194. 10.1089/acm.2013.
52. Matousek R. H., Dobkin P. L., Pruessner J. (2010). Cortisol as a marker for improvement in mindfulness-based stress reduction. *Complement. Ther. Clin. Pract.* 16: 13–19.
53. Oakley S., Evans E. (2014). The role of yoga: breathing, meditation and optimal fetal positioning. *Pract. Midwife* 17: 30–32.
54. Ogbureke K. U., Ogbureke E. I. (2015). "The history of salivary diagnostics," in *Advances in Salivary Diagnostics* ed. Streckfus C. F., editor. (Berlin: Springer;) 17–31.
55. Pariante C. M., Lightman S. L. (2008). The HPA axis in major depression: classical theories and new developments. *Trends Neurosci.* 31: 464–468.
56. Perelman School of Medicine at the University of Pennsylvania. "Yogic breathing helps fight major depression, study shows." ScienceDaily. ScienceDaily, 22 November 2016.
57. Porges S. W. (2001). The polyvagal theory: phylogenetic substrates of a social nervous system. *Int. J. Psychophysiol.* 42: 123–146.
58. Raghuraj P., Telles S. (2003). Effect of yoga-based and forced uninostril breathing on the autonomic nervous system. *Percept. Motor Skills* 96: 79–80.
59. Russell M. E. B., Hoffman B., Stromberg S., Carlson C. R. (2014). Use of controlled diaphragmatic breathing for the management of motion sickness in a virtual reality environment. *Appl. Psychophysiol. Biofeedback* 39: 269–277.
60. Sahar T., Shalev A. Y., Porges S. W. (2001). Vagal modulation of responses to mental challenge in posttraumatic stress disorder. *Biol. Psychiatry* 49: 637–643.
61. Salyers M. P., Hudson C., Morse G., Rollins A. L., Monroe-DeVita M., Wilson C., et al. (2011). BREATHE: a pilot study of a one-day retreat to reduce burnout among mental health professionals. *Psychiatr. Serv.* 62: 214–217.]

62. Sargunaraj D., Lehrer P. M., Hochron S. M., Rausch L., Edelberg R., Porges S. W. (1996). Cardiac rhythm effects of .125-Hz paced breathing through a resistive load: implications for paced breathing therapy and the polyvagal theory. *Biofeedback Self Regul.* 21 131–147.
63. Schmidt N. B., Woolaway-Bickel K., Trakowski J., Santiago H., Storey J., Koselka M., et al. (2000). Dismantling cognitive-behavioral treatment for panic disorder: questioning the utility of breathing retraining. *J. Consult. Clin. Psychol.* 68 417–424.
64. Shaw I., Shaw B. S., Brown G. A. (2010). Role of diaphragmatic breathing and aerobic exercise in improving pulmonary function and maximal oxygen consumption in asthmatics. *Sci. Sports* 25 139–145.
65. Sherlin L., Muench F., Wyckoff S. (2010). Respiratory sinus arrhythmia feedback in a stressed population exposed to a brief stressor demonstrated by quantitative EEG and sLORETA. *Appl. Psychophysiol. Biofeedback* 35 219–228.
66. Snayder N. A., Agarkova N. O., Lyulyakina E. G. (2006). “The bioelectrical brain activity in humans who practiced Sudarshan Kriya,” in *Proceedings of the World Conference Expanding Paradigms: Science, Consciousness and Spirituality* New Delhi.
67. Sonne T., Jensen M. M. (2016). “ChillFish: a respiration game for children with ADHD,” in *Proceedings of the TEI’16: Tenth International Conference on Tangible, Embedded, and Embodied Interaction* Eindhoven: 10.
68. Stromberg S. E., Russell M. E., Carlson C. R. (2015). Diaphragmatic breathing and its effectiveness for the management of motion sickness. *Aerospace Med. Hum. Perform.* 86 452–457.
69. Tang Y. Y., Ma Y., Wang J., Fan Y., Feng S., Lu Q., et al. (2007). Short-term meditation training improves attention and self-regulation. *Proc. Natl. Acad. Sci. U.S.A.* 104 17152–17156.
70. Tao J., Liu J., Egorova N., Chen X., Sun S., Xue X., et al. (2016). Increased hippocampus-medial prefrontal cortex resting-state functional connectivity and memory function after Tai Chi Chuan practice in elder adults. *Front. Aging Neurosci.* 8:25 10.3389/fnagi.2016.00025.
71. Tekur P., Nagarathna R., Chametcha S., Hankey A., Nagendra H. R. (2012). A comprehensive yoga programs improves pain, anxiety and depression in chronic low back pain patients more than exercise: an RCT. *Complement. Ther. Med.* 20 107–118.
72. Telles S., Reddy S. K., Nagendra H. (2000). Oxygen consumption and respiration following two yoga relaxation techniques. *Appl. Psychophysiol. Biofeedback* 25 221–227.
73. Thayer J. F., Friedman B. H., Borkovec T. D. (1996). Autonomic characteristics of generalized anxiety disorder and worry. *Biol. Psychiatry* 39 255–266.
74. Thompson E. R. (2007). Development and validation of an internationally reliable short-form of the positive and negative affect schedule (PANAS). *J. Cross Cult. Psychol.* 38 227–242.
75. Tomasino B., Fabbro F. (2016). Increases in the right dorsolateral prefrontal cortex and decreases the rostral prefrontal cortex activation after-8 weeks of focused attention based mindfulness meditation. *Brain Cogn.* 102 46–54.

76. Tsang H. W., Cheung W. M., Chan A. H., Fung K. M., Leung A. Y., Au D. W. (2015). A pilot evaluation on a stress management programme using a combined approach of cognitive behavioural therapy (CBT) and complementary and alternative medicine (CAM) for elementary school teachers. *Stress Health* 31 35–43.
77. Tsang H. W., Fung K. M., Chan A. S., Lee G., Chan F. (2006). Effect of a qigong exercise programme on elderly with depression. *Int. J. Geriatr. Psychiatry* 21 890–897.
78. Tsiouli E., Pavlopoulos V., Alexopoulos E. C., Chrouzos G., Darviri C. (2014). Short-term impact of a stress management and health promotion program on perceived stress, parental stress, health locus of control, and cortisol levels in parents of children and adolescents with diabetes type 1: a pilot randomized controlled trial. *Explore* 10 88–98.
79. Van Honk J., Tuiten A., van den Hout M., Koppeschaar H., Thijssen J., de Haan E., et al. (1998). Baseline salivary cortisol levels and preconscious selective attention for threat: a pilot study. *Psychoneuroendocrinology* 23 741–747.
80. Velikonja O., Curic K., Ozura A., Jazbec S. S. (2010). Influence of sports climbing and yoga on spasticity, cognitive function, mood and fatigue in patients with multiple sclerosis. *Clin. Neurol. Neurosurg.* 112 597–601.
81. Vempati R. P., Telles S. (2002). Yoga-based guided relaxation reduces sympathetic activity judged from baseline levels. *Psychol. Rep.* 90 487–494.
82. Villemure C., Ceko M., Cotton V. A., Bushnell M. C. (2015). Neuroprotective effects of yoga practice: age, experience, and frequency-dependent plasticity. *Front. Hum. Neurosci.* 9:28110.3389/fnhum.2015.00281.
83. Wang S.-Z., Li S., Xu X.-Y., Lin G.-P., Shao L., Zhao Y., et al. (2010). Effect of slow abdominal breathing combined with biofeedback on blood pressure and heart rate variability in prehypertension. *J. Altern. Complement. Med.* 16 1039–1045.
84. Watson D., Clark L. A., Tellegen A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *J. Person. Soc. Psychol.* 54 1063–1070.
85. Wei G. X., Dong H. M., Yang Z., Luo J., Zuo X. N. (2014). Tai Chi Chuan optimizes the functional organization of the intrinsic human brain architecture in older adults. *Front. Aging Neurosci.* 6:7410.
86. Wei G. X., Li Y., Yue X., Ma X., Chang Y., Yi L., et al. (2016). Tai Chi Chuan modulates heart rate variability during abdominal breathing in elderly adults. *Psych. J.* 5 69–77.
87. Wei G. X., Xu T., Fan F. M., Dong H. M., Jiang L. L., Li H. J., et al. (2013). Can Tai Chi reshape the brain? A brain morphometry study. *PLoS ONE* 8:e61038 10.
88. Winterer G., Ziller M., Dorn H., Frick K., Mulert C., Wuebben Y., et al. (2000). Schizophrenia: reduced signal-to-noise ratio and impaired phase-locking during information processing. *Clin. Neurophysiol.* 111 837–849.
89. Yu W.-J., Song J.-E. (2010). Effects of abdominal breathing on state anxiety, stress, and tocolytic dosage for pregnant women in preterm labor. *J. Korean Acad. Nurs.* 40 442–452.

90. Zeidan F., Johnson S. K., Diamond B. J., David Z., Goolkasian P. (2010). Mindfulness meditation improves cognition: evidence of brief mental training. *Conscious. Cogn.* 19 597–605.