

Author's Reply

The Role of Yoga in Relieving Medical Student Anxiety and Stress

Dear Editor,

Yoga is gaining prominence in improving mental health and quality of life and in the treatment of a number of psychiatric and psychosomatic disorders. Previous studies on medical education have shown that perceived stress is higher in medical students than in other age-controlled students.^[1] As medical students are the underpinning of the medical profession, they must be aware of the adjunct therapy of yoga for the betterment of their own health as well as that of their patients.

As defined by the World Health Organization, health is "a state of complete physical, mental, and social well-being and not merely absence of disease or infirmity."^[2] This definition has been expanded to embrace the ability to

"lead a socially and economically productive life."^[3] Apart from causing mental turbulences, anxiety and stress have unfavorable effects on the body that may evolve into chronic conditions, if left untreated.^[4] Stress has been linked to harmful effects on the immune system,^[5,6] while anxiety has been associated with coronary heart disease,^[7] decreased quality of life,^[8] and suicidal behavior.^[9]

Although yoga has been practiced for over 5000 years, it has only newly gained popularity worldwide.^[10] The drill originated in India and has been applied to relieve both mental and physical infirmities,^[11-13] for it incorporates postures, breathing techniques, and meditation. From the yogic perspective, the body and the mind are so interconnected that they are essentially inseparable.^[14] Whatever affects the body must impact the mind and vice-versa. Since the mind exists throughout the body and pervades its every particle, the yogic techniques which are implemented to stretch, strengthen, and otherwise improve, and develop the body must have a correspondingly deep effect on the mind and the emotions as well.^[14]

Psychological stress and yoga are believed to be reciprocally related. Stress induces imbalance of the autonomic nervous system with decreased activity of

the parasympathetic nervous system and increased activity of the sympathetic nervous system.^[15] Autonomic imbalance is closely associated with anxiety. Scientific evidence supports the belief that yoga benefits physical and mental health via down-regulation of the hypothalamic-pituitary-adrenal axis and the sympathetic nervous system.^[16] Deep relaxation and calming down of the mind lead to effective reduction in blood pressure, pulse rate, and respiratory rate by decreasing the amount of cortisol which typically increases during the body's response to stress.^[14] Yoga, also, reduces the level of acetylcholine, which leads to the reduction in the sympathetic nervous system activity and increase in vagal activity.^[14] As a result, it reduces psychological conflicts, suppressions, and hypersensitivities, which are recognized as the triggering factors for psychosomatic problems.

Moreover, stress is strongly concomitant with muscle tension. When mentally stressed, one unconsciously tenses his muscles.^[17] Tension held in muscles adds physical discomfort or pain, which is commonly exhibited as a headache, backache, stomachache, or concentrate in the face, neck, and shoulders - making the mental stress even worse.^[17] Yoga, through progressive muscle relaxation techniques, disrupts this repeated stressed-mind/tense-muscle cycle that is the "fight and flight" stress response.^[17]

Studies comprising medical students have shown that mental and physical exercises, including yoga, lessen mental distress and improve student well-being.^[18] Malathi and Damodaran^[19] have reported that there is a significant reduction in examination stress with better academic performance and sense of well-being in students practicing yoga. Studies comparing effects of yoga and exercise indicate that in both healthy and diseased populations, yoga may be as effective or better than exercise at improving a variety of health-related outcome measures.^[20]

Nonetheless, many health care providers in Western countries have not yet recognized yoga as an alternative therapy for the lack of empirical evidence.^[21] Research into the impact of yoga in certain disease conditions and in refining overall health is ongoing. With yoga's rising popularity and focus on a spiritual connection between the mind and the body it is sensible to investigate its role in the treatment of mental disorders. Randomized controlled trials and cohorts are needed to further support yoga as an alternative treatment to anxiety and stress.

In conclusion, yoga offers comprehensive solutions for managing health as a whole. It can lead to reduction of stress levels and thereby preventing autonomic dysregulation. Reduction in perceived stress levels

results in lesser negative feelings of anxiety and depression, improved sense of well-being, and better sensory-motor performance and hand grip endurance.^[22] Medical students of today are the physicians of tomorrow and a good physician must be physically and mentally healthy to lead a quality life.^[23] Hence, teaching medical students to relate mindfully to current internal and external stimuli, through yoga, can decrease mental distress and increase well-being.

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There are no conflicts of interest.

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References

1. Fares J, Al Tabosh H, Saadeddin Z, El Mouhayyar C, Aridi H. Stress, burnout and coping strategies in preclinical medical students. *N Am J Med Sci* 2016;8:75-81.
2. Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference. New York: Official Records of the World Health Organization; 1946. (Accessed March 20, 2016, at <http://www.who.int/about/definition/en/print>).
3. The Ottawa Charter for Health Promotion. Ottawa: International Conference on Health Promotion; 1986. (Accessed March 20, 2016, at <http://www.who.int/healthpromotion/conferences/previous/ottawa/en>).
4. Li AW, Goldsmith CA. The effects of yoga on anxiety and stress. *Altern Med Rev* 2012;17:21-35.
5. Segerstrom SC, Miller GE. Psychological stress and the human immune system: A meta-analytic study of 30 years of inquiry. *Psychol Bull* 2004;130:601-30.
6. Bedrossian N, Haidar M, Fares J, Kobeissy FH, Fares Y. Inflammation and elevation of interleukin-12p40 in patients with schizophrenia. *Front Mol Neurosci* 2016;9:16. [In press].
7. Roest AM, Martens EJ, de Jonge P, Denollet J. Anxiety and risk of incident coronary heart disease: A meta-analysis. *J Am Coll Cardiol* 2010;56:38-46.
8. Olatunji BO, Cisler JM, Tolin DF. Quality of life in the anxiety disorders: A meta-analytic review. *Clin Psychol Rev* 2007;27:572-81.
9. Brezo J, Paris J, Turecki G. Personality traits as correlates of suicidal ideation, suicide attempts, and suicide completions: A systematic review. *Acta Psychiatr Scand* 2006;113:180-206.
10. Kumar VR, Aanand S. Yoga: A Case of Reverse Innovation. *Purushartha* 2016;8:12-8.

11. Behera D. Yoga therapy in chronic bronchitis. *J Assoc Physicians India* 1998;46:207-8.
12. da Silva GD, Lorenzi-Filho G, Lage LV. Effects of yoga and the addition of Tui Na in patients with fibromyalgia. *J Altern Complement Med* 2007;13:1107-13.
13. Booth-LaForce C, Thurston RC, Taylor MR. A pilot study of a Hatha yoga treatment for menopausal symptoms. *Maturitas* 2007;57:286-95.
14. Mehta M, Taneja P. Effect of short-term yoga practices on psychological general well being in medical students. *J Evol Med Dent Sci* 2013;2:1812-20.
15. Howlett TA. Hormonal responses to exercise and training: A short review. *Clin Endocrinol (Oxf)* 1987;26:723-42.
16. Khalsa SB. Yoga as a therapeutic intervention: A bibliometric analysis of published research studies. *Indian J Physiol Pharmacol* 2004;48:269-85.
17. McCann WJ, Marion GS, Davis SW, Crandall SJ, Hildebrandt CA. Applied Relaxation and Applied Mindfulness (ARAM): A practical and engaging approach for mind-body regulation training in medical education. *Ann Behav Sci Med Educ* 2013;19:10-5.
18. Fares J, Saadeddin Z, Al Tabosh H, Aridi H, El Mouhayyar C, Koleilat MK, *et al.* Extracurricular activities associated with stress and burnout in preclinical medical students. *J Epidemiol Glob Health* 2015. pii: S2210-600630060-5.
19. Malathi A, Damodaran A. Stress due to exams in medical students – role of yoga. *Indian J Physiol Pharmacol* 1999;43:218-24.
20. Craft LL, Perna FM. The benefits of exercise for the clinically depressed. *Prim Care Companion J Clin Psychiatry* 2004;6:104-111.
21. Landers SJ. Alternative Therapy Use Documented in New Survey: American Medical Association; 2009. (Accessed March 19, 2016, at <http://www.amednews.com/article/20090113/health/301139999/8>).
22. Ayoub F, Fares Y, Fares J. The psychological attitude of patients toward health practitioners in Lebanon. *N Am J Med Sci* 2015;7:452-8.
23. Bajunaid K, Mullah MA, Winkler-Schwartz A, Alotaibi FE, Fares J, Baggiani M, *et al.* Impact of acute stress on psychomotor bimanual performance during a simulated tumor resection task. *J Neurosurg* 2016. DOI: 10.3171/2015.5.JNS15558.

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