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**Scientific Validation of the Effect of the Transcendental Meditation Programme for Improving Mental/Physical Health & Wellbeing**

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## **RESEARCH OVERVIEW**

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- [REDUCED STRESS, ANXIETY, AND BURNOUT](#)
- [REDUCED PTSD SYMPTOMS](#)
- [REDUCED SUBSTANCE USE DISORDER](#)
- [IMPROVED HEART HEALTH](#)
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## REDUCED STRESS, ANXIETY, AND BURNOUT

- **A three-month randomized controlled study of secondary school teachers in Vermont found that TM practice significantly reduced perceived stress, depression and overall teacher burnout.** Charles Elder MD, MPH, FACP et al, Effect of Transcendental Meditation on Employee Burnout: A randomized controlled study. *The Permanente Journal*, 2014 Winter; 18(1):19-23.
- **Two months of regular TM practice significantly reduced perceived stress and mood disturbance in family caregivers, including reductions in anxiety, depression, anger, confusion, and fatigue, and increase in spiritual well-being.** Nidich S et al. Stress reduction with the Transcendental Meditation program in caregivers: A pilot study. *International Archives of Nursing and Health Care Perspectives* (2015): 1(11): 1-4.
- **A randomized controlled study of 42 attending physician faculty at Loyola Stritch Medical School in Chicago over a four-month period found that TM practice was associated with significantly reduced levels of physician burnout, depression and insomnia.** Loiselle M, et al. Effect of Transcendental Meditation on Physician Burnout, Depression, and Insomnia: A Randomized Controlled Study. In preparation for publication, *Academic Medicine* 2020.
- **In a pilot study of 27 hospital-based nurses, quantitative measures were assessed at baseline and 4 months after instruction in the TM technique. Post-test results showed statistically significant improvements in resilience and the 3 subscales of the compassion fatigue questionnaire: nurse burnout, secondary traumatic stress and compassion satisfaction.** Bonamer J, Aquino-Russell C. Transcendental Meditation Reduces Compassion Fatigue and Improves Resilience for Nurses. *Journal for Nurses in Professional Development* (2019); 35(2);93-97.
- **In a pilot study, 13 emergency medicine physicians (6 faculty and 7 residents) at Weill Cornell Medical Center-New York Presbyterian Hospital were instructed in Transcendental Meditation. Results on standardized measures of physician burnout, post-traumatic stress symptoms, and insomnia showed significant improvements at 1 month and 3 months following instruction.** Department of Emergency Medicine, Weill Cornell Medical Center (NYC), unpublished data (2019).
- **A meta-analysis of 16 randomized controlled trials found TM to be especially effective in reducing anxiety in people with elevated anxiety, including prisoners, war veterans and war refugees, with rapid reductions in anxiety within the first two weeks of practice.** Orme-Johnson DW, Barnes V. Effects of the Transcendental Meditation Technique on Trait Anxiety: a Meta-Analysis of Randomized Controlled Trials. *Journal of Alternative and Complementary Medicine* (2013);20:330-341.
- **A meta-analysis of 30 studies found that TM was more effective in reducing trait anxiety than mindfulness or other meditation techniques.** Sedlmeier P, et al. The psychological effects of meditation: A meta-analysis. *Psychological Bulletin* 2012; 138, 1139–1171.
- **Cadets at Norwich Military Academy who learned TM showed significant increases in psychological resilience and decreases in perceived stress, hypervigilance, and depression relative to controls after two to six months of TM practice.** Bandy, C., Fleming, K., Meyer, M., Dulmage, J. & Grosswald, S. (2013). Unpublished data.

- **A meta-analysis of 32 physiological studies found that the TM technique produced over twice the effect size as ordinary rest (sitting with eyes closed) on objective markers of relaxation, including respiratory rate, plasma lactate, and basal skin resistance.** Dillbeck M and Orme-Johnson D (1987). *American Psychologist*, 42, 879–881.
- **TM practice has been associated with significant reductions in stress hormones, including cortisol and epinephrine both during and after the practice.** Jevning R, Wilson AF, Davidson JM. Adrenocortical activity during meditation. *Hormones and Behavior* 1978 10(1):54-60. Infante JR, et al. ACTH and b-endorphin in transcendental meditation. *Physiology & Behavior* 1998;64:311-5. Infante JR, et al. Catecholamine levels in practitioners of the transcendental meditation technique. *Physiology & Behavior*. 2001;72(1-2):141-6. Werner OR, et al. Long-term endocrinologic changes in subjects practising the transcendental meditation and TM-Sidhi program. *Psychosomatic Medicine* 1986;48:59–66.

## **REDUCED PTSD SYMPTOMS**

- **A randomized controlled study of 203 military veterans with PTSD performed at the VA San Diego Healthcare System found TM to be as or more effective than traditional trauma exposure therapy (prolonged exposure) in reducing PTSD symptoms. 61% of veterans assigned to TM experienced clinically meaningful improvement in PTSD symptoms, compared to 42% with prolonged exposure and 32% with health education.** Nidich S, et al. Non-trauma-focused meditation versus exposure therapy in veterans with post-traumatic stress disorder: a randomized controlled trial. *The Lancet Psychiatry* 2018 5:975-986.
- **TM decreased multiple features of post-traumatic stress disorder in US war veterans, with reductions in depression, anxiety, insomnia, severity of delayed stress syndrome, emotional numbness, alcohol consumption, family problems, and difficulty in obtaining employment.** Rosenthal JZ, et al. Effects of Transcendental Meditation in veterans of Operation Enduring Freedom and Operation Iraqi Freedom with posttraumatic stress disorder: a pilot study. *Military Medicine* 2011; 176:626-630.
- **TM practice decreased PTSD symptoms in war veterans to below clinical levels after one month, with further reductions after three months. The study found those veterans who practiced TM twice a day (recommended schedule) had a 30% greater decline in symptoms of PTSD than veterans who practiced TM only once a day, a dose-response effect that suggests causality.** Herron RE and Rees B. The Transcendental Meditation Program's Impact on the Symptoms of Post-traumatic Stress Disorder of Veterans: An Uncontrolled Pilot Study. *Military Medicine* 2017;1:1-7.
- **Active duty military service members with PTSD or anxiety who learned TM showed reduced medication usage and an overall decrease in severity of psychological symptoms.** Barnes VA, et al. Transcendental Meditation and psychotropic medication use among active duty military service members with anxiety and PTSD. *Military Medicine* 2016; 181:56-63.
- **A randomized controlled study with male prison inmates, a population with one of the highest rates of lifetime trauma of any segment of society, found significant reductions in trauma symptoms after four months of TM.** Nidich S, et al. Reduced trauma symptoms and perceived stress in male prison inmates

through the Transcendental Meditation program: A randomized controlled trial. *The Permanente Journal*. 2016;20(4):16-27.

- **A randomized controlled trial with military veterans with post-traumatic stress disorder (PTSD) found significant reductions in anxiety, insomnia, depression, and alcohol abuse.** Brooks JS & Scarano T. Transcendental Meditation and the treatment of post-Vietnam adjustment. *Journal of Counseling and Development* 1985; 64: 212-215.

## **REDUCED SUBSTANCE USE DISORDER**

- **Patients in a residential rehabilitation program for alcohol use disorder who were closely adherent to twice daily practice of TM (recommended schedule) were significantly less likely than controls to resume any drinking (25% vs 59%) or heavy drinking (0% vs. 47%) post-discharge.** Gryczynski, J., et al. Integration of Transcendental Meditation (TM) into alcohol use disorder (AUD) treatment. *Journal of Substance Abuse Treatment* (2018); 87:23-30.
- **In meta-analyses, TM was more effective in reducing smoking, alcohol consumption, and illicit drug use than conventional programs, whether or not these were combined with relaxation techniques.** Alexander, C.N., Robinson, P., and Rainforth, M., Treating alcohol, nicotine and drug abuse through Transcendental Meditation: A review and statistical meta-analysis. *Alcoholism Treatment Quarterly*, 1994; 11: 13-87.

## **IMPROVED HEART HEALTH**

- **A meta-analysis of 107 independent studies on stress-reduction and hypertension found that the Transcendental Meditation program reduced blood pressure to a significantly greater extent than other mind-body interventions that have been studied in this regard.** Rainforth MV, et al (2007). "Stress reduction programs in patients with elevated blood pressure: a systematic review and meta-analysis." *Current Hypertension Reports*, 9 (6): 520–528.
- **A scientific statement from the American Heart Association (AHA) found evidence that TM reduces blood pressure and states that "TM may be considered in clinical practice to lower BP." In contrast, the AHA report found insufficient evidence to recommend other meditation techniques for blood pressure reduction.** Brook RD, et al. Beyond medications and diet: alternative approaches to lowering blood pressure. A scientific statement from the American Heart Association. *Hypertension* 2013; 61:1360-1383.
- **A long-term randomized controlled trial of patients with coronary heart disease showed that Transcendental Meditation practice was associated with a 48% reduction in mortality, nonfatal myocardial infarction, and stroke compared to controls over an average of five years follow-up.** Schneider RH, et al. Stress reduction in the secondary prevention of cardiovascular disease: randomized controlled trial of Transcendental Meditation and health education in Blacks. *Circulation: Cardiovascular Quality and Outcomes*. 5:750-758, 2012.

## IMPROVED COGNITIVE FUNCTIONING

- **TM globally increases coherence in alpha1 EEG, distinguishing it from ordinary eyes-closed resting. Other meditation techniques do not have this effect. Alpha coherence has been found to functionally bind different areas of the brain for creativity, memory, perception, and motor behavior, which explains TM's effects in enhancing cognitive performance.** Travis FT, Arenander A. Cross-sectional and longitudinal study of effects of Transcendental Meditation practice on interhemispheric frontal asymmetry and frontal coherence. *International Journal of Neuroscience*. 2006;116(12):1519-38.
- **Randomized controlled studies on 362 secondary school students found that those who learned and practiced the TM technique over a 6-12 month period showed significant improvements compared to controls in 5 measures of intellectual functioning, including whole-brain creativity, practical intelligence, field independence, mental efficiency, and fluid intelligence; TM subjects also showed decreased anxiety relative to controls.** So KT, Orme-Johnson DW. Three randomized experiments on the holistic longitudinal effects of the Transcendental Meditation technique on cognition. *Intelligence* 29, no. 5 (2001): 419-440.