



**YOGA**  
**A COMPLEMENTARY THERAPY FOR STRESS AND ANXIETY DISORDER**

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**Abstract:**

**Introduction:**

Anxiety is a normal human emotion, but when it develops without any reason, it becomes abnormal. Mild anxiety is indistinct and bearable (World Yoga Society), while acute anxiety disorder results in significant distress and psychological, social, occupational, biological and other impairments ( J. K Trivadi and Pawan Kumar Gupta, Indian J Psychiatry. 2010 Jan). It is the second leading cause of death (National Institute of Mental Health, 2015).

In present scenario, more than 40% of the countries have no mental health policy, over 30% have no mental health program and around 25% of countries have no mental health legislation (WHO 2001). The impact of inadequate mental health treatment can be estimated, though not entirely correlated by its effect on suicide rates. WHO statistics say the average suicide rate in India is 10.9 for every lakh of a people.(THE HINDU 2012) .

Anxiety disorder is the first step towards depression. 10% persons are depressed worldwide (TNN | Oct 6, 2013). 7.5% Indians suffer from mental disorders (WHO Feb5, 2017). It is detectable when a person has a disturbed sleep or when he is not able to execute his functions smoothly. This disorder can have both psychological and physical symptoms. A person experiences tiredness, irritability, anger, increased pulse rate, heartbeats, palpitation, perspiration, dryness in mouth, lack of concentration and sleeping difficulties.

Children suffering from depression and an anxiety disorder both, have difficulty in

concentration and studies. “Separation Anxiety Disorder” children, if left untreated are at a higher risk of abuse or bad habits. They might ultimately become prone to suicide (Anxiety and Depression disorder Association of America, 2012).

Among the most common disorders, the Obsessive-Compulsive Disorder (OCD) is a mental state where people feel the need to check things repeatedly. Panic disorder is a type of anxiety disorder, characterized by periods of sudden fear or acute anxiety that can be termed as panic attacks. A phobia is an acute anxiety or fear that is out of proportion to any real danger. In Post-Traumatic Stress Disorder (PTSD), patient develops post-traumatic stress even after some period. Children with PTSD often are reported to want to avoid certain places and become emotionally numb .Children who live in homes where there is violence, are more likely to develop PTSD after experiencing a traumatic life event (ADAA, 2012). Generalized Anxiety Disorder (GAD) occurs in different settings. It may happen on most days and affects about three to four percent of children.

Yoga involves different techniques such as physical postures (asana), controlled breathing (pranayama), deep relaxation (yoganidra), and meditation. These techniques seem to have a specific influence on one’s mental state. Yoga breathing (pranayama) can rapidly bring the mind to the present moment and reduce stress. Meditation helps to relax and de-stress the mind and body. Yoga being a safe and effective practice, is useful in stress

reduction, emotion regulation, mood improvement and well-being. Yoga balances Autonomic nervous system, but the overall effect of yoga is to bring a state of parasympathetic dominance.

A review done by Dr. Tiffany Field, Director of the Touch Research Institute at the University of Miami, provides a fascinating overview of the effect of yoga on anxiety, depression, pain and cardiovascular, autoimmune, immune conditions and pregnancy. (Yoga clinical research review, Feb. 2011)

Stress is often associated with an increased occurrence of autonomic, cardiovascular, and immune system pathology. Study done by Steven S. Coughlin proved the important linkages between anxiety and depression and viral diseases. M Javnbakht et al. study suggests that yoga can be considered as a complementary therapy or an alternative method for medical therapy in the treatment of anxiety disorders ( Complementary Therapies in Clinical Practice 2009).

There is preliminary evidence that yoga may be helpful for depression, anxiety or PTSD. Meditation increases cortical thickness in the hippocampus and the brain areas involved in the regulation of emotions and self-preferential thought processes. Yogic exercise promotes mental health by normalizing insulin resistance, boosting natural "feel good" hormones and neurotransmitters associated with mood control including endorphins, serotonin, dopamine, glutamate and GABA (Dr. Joseph Mercola).

([articles.mercola.com/sites/articles/archive/2015/.../depression-makes-brain-smaller.aspx](http://articles.mercola.com/sites/articles/archive/2015/.../depression-makes-brain-smaller.aspx))

GABA or Gamma-aminobutyric acid is a neurotransmitter. There is some research to suggest that yoga does indeed increase PNS activity and also increase GABA levels in the thalamus. These increases are correlated with improved mood. In 2010 study of 19 yoga practitioners, who performed 12-week yoga, a positive correlation between acute increase in thalamic GABA levels and improvements in mean scores on mood and anxiety scales, is observed (Chris C. Streeter, 2010 Nov).

The role of dopamine, a well-known anxiety related neurotransmitter, is being getting only recently explored. Dopamine affects movement, emotional response and our ability to feel pleasure. Depletion of dopamine can lead to Parkinson's disease (J Lotharius, P Brundin - Human Molecular Genetics, 2002).

DHEA or 5-Dehydroepiandrosterone levels have been reported to correlate with meditation activity. It is a natural and most abundant circulating steroid produced in the adrenal glands, the gonads and the brain. DHEA levels in the blood correlate with mood, memory and functional abilities (Mental Health America, April 8).

Dr Russell Reiter is an eminent melatonin researcher. He identified the role of melatonin in epilepsy, manic depression, suicide, sudden infant death syndrome (SIDS), Alzheimer's and Parkinson's Diseases. New research also reveals that Melatonin is a powerful antioxidant. Tooley et al found significantly higher plasma melatonin levels in experienced meditators in the period immediately following meditation. ( Biological Psychology 53(1):69-78 • June 2000)

Neurotransmitter –Endorphins (the body's natural painkillers), is a mood and relaxation stabilizer. The physical postures help to release endorphins which help in lowering anxiety and depression, as well as increasing the energy level. In a study endorphin levels were found to be greatly elevated after meditation's "feel-good effect" (JL Harte, GH Eifert, R Smith - Biological psychology, 1995) .

Serotonin is a most well-known anxiety related neurotransmitter. It helps to regulate mental and emotional processes. Meditation increases the production of serotonin and creates an utopian chemical environment for the production of new brain cells, making a person happier and healthier. An increase in the serotonin levels, during meditation, is correlated by findings of increased serotonin metabolites in the urine after meditation (Walton et al. 1995). Insulin also triggers the production of serotonin that can be stimulated artificially by some anti-depressants, such as Prozac.

In certain brain wave frequencies the brain releases numerous highly beneficial substances including (HGH) human growth hormone. Significant increase in GH were seen in 35-minutes yoga session. The release of GH into the blood, during yoga, recently may partially explain the physiological mechanisms underlying the health benefits of this low impact activity.

When we are stressed, our bodies produce cortisol and adrenaline in abundance. Yoga has been demonstrated earlier to reduce the parameters of stress including cortisol levels (J. Thirthalli, G. H. Naveen, M. G. Rao, S. Varambally, R. Christopher, and B. N. Gangadhar). Yoga may cause activation of prefrontal cortex, thereby reducing cortisol. Hanson describe, how stimulating the PNS through meditation elevates mood, decreases cortisol, strengthens the immune system and increases physical and psychological well-being. A daily meditation practice, whether 20 minutes or one minute, strengthens the PNS. Meditation associated with a decrease in the levels of noradrenaline, is due to increased parasympathetic activity. The breakdown products of noradrenaline are generally found to be low in the urine and plasma, during meditation (Walton, et al., 1995).

Yoga resists the autonomic changes and impairment of cellular immunity. Changes in Serum cortisol levels, serum Interleukin IL-4, serum Interferon and IFN- $\gamma$  levels are observed in yoga performing students during examination period. (A preliminary study, *Int J Yoga*, 2011 Jan-Jun; 4(1): 26–32).

“Yoga is incredible in terms of stress management. It brings a person back to homeostasis or equilibrium. For people who have anxieties of many kinds, yoga helps lower their basic physiological arousal level. Mental focus on the postures combined with breathing and physical strive, not only helps to stop destructive obsessive thinking, but also trains the mind to attain calmness.” (Dr. Eleanor Criswell, a licensed psychotherapist)

Novotney (2009) studied the effect of Yoga on a group of active-duty soldiers returning from Iraq and Afghanistan. He

reported an increased sense of control in the lives and a decrease in symptoms of both depression and anxiety, as well as other mental health conditions. In another study conducted by Jensen and Kenny (2004) on 19 boys having an attention deficit hyperactivity disorder (ADHD), a decrease in mood swings, temper outbursts and crying fits was reported as compared to the control group. Van der Kolk BA and team (2014) gave Yoga, as treatment, weekly 1-hour class for 10 weeks to sixty-four women with chronic treatment-resistant PTSD. A significant decrease in PTSD symptoms was observed. These improvements were maintained in the yoga group, but were not maintained in control group. During the Kripalu-based yoga intervention, 38 women participants, with full or subthreshold PTSD symptoms, showed decrease in re-experiencing hyper-arousal symptoms. Recent research performed by Dr. Vincent Giampapa MD, a prominent anti-ageing researcher, revealed that regular deep meditation dramatically affects production of three important hormones: cortisol, DHEA and melatonin-related to increased longevity, stress, and enhanced well-being.

Yoga, a combination of asanas and pranayama barring meditation, is given as a therapy in psychosis-specifically schizophrenia, by N. Gangadhar and Shivarama Varambally, from NIMHANS (National Institute of Mental Health And Neurosciences) Bangalore. Effects like reduction of psychotic symptoms and depression, improving cognition, increasing quality of life and producing neurobiological changes, such as increased oxytocin levels has been reported (*Int J Yoga*. 2012 Jul-Dec).

NIDHI GUPTA et al, from All India Institute of Medical Sciences (2005), reports that a short educational program for lifestyle modification and stress management leads to remarkable reduction in the anxiety scores of patients of hypertension, coronary artery disease, obesity, cervical spondylitis and those with psychiatric disorders. Within a period of 10 days, depression scores improved by 50%, anxiety scores by 30%, and overall well-

being scores by 65%. Yoga reduces stress and anxiety by triggering neurohormonal mechanisms, that bring about health benefits evidenced by suppression of sympathetic activity (Pallav Sengupta, Int J Prev Med. 2012).

Scientists at the University of California and the Nobel Prize winner Elizabeth Blackburn, found that 12 minutes of daily

yoga meditation for eight weeks increases telomerase activity by 43 percent, suggesting an improvement in stress-induced ageing (Bloomberg.com news). All these evidences supports yoga as alternative, complementary therapy and motivate us to adopt Yoga practice in our daily life.

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