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**SELECTED PARANAYAMA IN THE TREATMENT OF STRESS:
A CLINICAL STUDY**

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Abstract

Yogic breathing is a unique method for balancing the autonomic nervous system and influencing psychological and stress-related disorders. A neurophysiologic theory of the effects of selected paranayama will review clinical studies, our own clinical observations, and guidelines for the safe and effective use of yoga breath techniques in a wide range of clinical conditions. Although more clinical studies are needed to document the benefits of programs that combine pranayama (yogic breathing) asanas (yoga postures), and meditation, there is sufficient evidence to consider selected paranayama to be a beneficial, low-risk, low-cost adjunct to the treatment of stress disorder, depression, stress-related medical illnesses, substance abuse, and rehabilitation of criminal offenders. Pranayama has been used as a public health intervention to alleviate stress disorder in survivors of mass disasters. Yoga techniques enhance well-being, mood, attention, mental focus, and stress tolerance. Proper training by a skilled teacher and a 30-minute practice every day will maximize the benefits. Health care providers play a crucial role in encouraging patients to maintain their yoga practices.

Introduction

A neurophysiologic theory of the effects of pranayama was theory was based on elements common to yogic breath practices, respiratory physiology, and nerve stimulation. Here, relevant clinical studies are presented, along with personal and friends clinical observations, and guidelines are proposed for the safe and effective use of yogic breath techniques for a wide range of clinical conditions.

'Yogic Breathing' as an equivalent of the Sanskrit word 'Pranayama', which seems to have come to enjoy a very important place in yoga literature. The word 'Prana' is perhaps as old as word 'Yoga' itself, but the elaborate technique concerning its control, which forms a part of the eight fold system of yoga, seems to be of a later origin. Yogic breathing has often been very highly talked about and the marvelous phenomena, which are supposed to take place as a result of its intense and prolonged practice, have been acknowledged at several places in the yoga texts.

Pranayama the fourth component of the eightfold Path Yoga is the control of 'Vital Force' or 'Cosmic energy' by concentration and regulated breathing. It also signifies life or breath. The heart, lungs and digestive organs like stomach, liver, and the nervous and endocrine systems like the brain, the spinal cord spine nerves get the message and rejuvenating exercise, it helps to normalize the circulation of blood. The process of Pranayama involves Puraka (inhaling), Kumbhaka (breath holding) and Rechaka (exhaling), one who practices Pranayama regularly and punctually enjoys good appetite, vitality, glowing face, sparkling eyes, sharp memory and concentration of mind. Regular and systematic practice of Pranayama removes many of the chronic diseases and brings purity of the body; Nadis (nerves) iculcates true Viveka and Vairgya (power or discrimination and dispassion for things).

Pranayama destroys of the lungs, the heart, the liver and the other important internal organs, purifies blood and increases its supply and circulation to the different parts of the body. All the tissues and nerves get proper supply of blood and oxygen and this ensures proper supply of nerve-energy for the different functions of the body.

Pranayama performed according to the technique described in Yoga-Mîmânsâ is capable of improving the oxygen supply of the blood as no other exercise is. This is not because during the process of Pranayama an individual absorbs a larger quantity of oxygen, but because of the training of the respiratory system, which helps the individual for twenty-four hours. 'The impression that an individual absorbs larger quantities of oxygen in Pranayama is merely a superstition. We shall explain how. Any Pranayama worth the name should have every round of it to cover at least one minute. Now an average person inhales in one minute about 7,000 C.c. of air during' normal inspiration. The same individual during Pranayama will inhale at the most 3,700 C.c. in one minute. The total intake of air being far smaller in Pranayama the absorption of oxygen is consequently smaller. In the Scientific Section we have conclusively proved on the strength of experimental evidence that the degree of absorption of oxygen does not vary in proportion to the time for which breath is retained. For this reason even when breath is held even for half a minute, the increase in the absorption of oxygen over the normal absorption is not considerable. Thus it will be clear that the idea that an individual absorbs larger quantities of oxygen during Pranayama is a myth.

1. Ujjayi or "Victorious Breath" is sometimes called "Ocean Breath" because the sound created by the gentle contraction of the laryngeal muscles and partial closure of the glottis is reminiscent of the sound of the sea. This slow breath technique (2 to 4 breaths per minute) increases airway resistance during inspiration and expiration and controls airflow so that each phase of the breath cycle can be prolonged to an exact count. The subjective experience is physical and mental calmness with alertness.

2. During Bhastrika or "Bellows Breath" air is rapidly inhaled and forcefully exhaled at a rate of 30 breaths per minute. It engenders excitement followed by calmness.

3. "Om" is chanted three times with very prolonged expiration. In addition to pranayama, include asanas (yoga postures), meditation, group processes, and basic yogic knowledge.

Although volumes of books and anecdotal reports have been written on the psychologic benefits of Iyengar, Hatha, and other Yoga practices,²⁻⁵ we focus on studies and personal clinical observations over the past 6 years from more than 40 patients of the authors.

Stress Disorder

A series of four open unpublished pilot studies were designed to develop a yoga program for the treatment of Amravati veterans with stress disorder. 1 study eight participants showed marked improvement in depression but not insomnia or anger expression during a 6-week program of BMHYP yoga postures. 15 Mean scores on the Center for Epidemiological Studies Depression Scale and mean 17 scores dropped to a significant extent. Long-term improvement (21 weeks) was maintained with home practice and 1-hour group yoga sessions once per week. In Study 2, Iyengar poses for anxiety produced no additional benefit in eight veterans with stress disorder and were therefore discontinued. In Study 3, eight SD veterans added OM Meditation and *pranayama* to the Iyengar yoga postures for depression. These *pranayama* included *Ujjayi* breathing and another technique with prolonged expiration and end expiratory breath hold. In addition to drops in CES-D and HDRS-17 scores, participants showed marked improvements in sleep initiation, disturbed sleep, flashbacks, and anger

outbursts. Several subjects used the *pranayama* to calm themselves when they awoke at night. The most striking finding was that although yoga postures reduced depression, they had no impact on SD hyper arousal symptoms of sleep disturbance, flashbacks, or anger outbursts until *Ujjayi*, another similar *pranayama*, and meditation were added to the practice. Studies combining *pranayama*, meditation, and *asanas* may find that using synergistic yoga practices is far more effective for the full range of SD symptoms than any single practice. BMHYP courses include aspects of cognitive-behavioral therapy and psycho education in human values of acceptance, social responsibility, and community service. Yogic breathing sometimes evokes trauma related sensations and affects in a safe, supportive setting. Researcher has observed that many patients with SD experience improvement in physical and psychological symptoms. The overall effect is amelioration of feelings of fear, neglect, abuse, rejection, depression, isolation, and worthlessness. Patients with SD have a less stressful experience if they are told in advance about what occurs in BMHYP courses and the possibility of physical or emotional reactions. Usually the patient experiences release of painful emotions without consciously re-experiencing. The therapist should monitor the patient during and after the course to help in processing intense emotions that can be evoked.

Case Example

A 26-year old woman had been in weekly psychotherapy since her hospitalization at age 20 after a suicide attempt. She was stabilized on antidepressants and low-dose antipsychotic medication, which controlled her depression and dissociative symptoms. She experienced SD stemming from emotional and sexual abuse throughout her childhood. During psychotherapy many of her symptoms improved, and she was able to complete college, hold a job, and get married. All standard medical treatments short of surgery had failed. Because she was under intense stress from her family, job, Dr. Khodaskar referred her to take a BMHYP course program for stress reduction. She reported that on the days when she does her yoga practice she is pain free. When she skips her practice, some pain returns, but never as severe as before. It is unlikely that this was a placebo response, as she had not responded to other treatments. How did yoga practices work? One possibility is that through stimulation of nociceptive pathways, Another possibility is that the pain and tension in the jaw were remnants of somatic reactions to oral sexual abuse and that, through its actions on the limbic system, thalamus, and cortex,¹ BMHYP enhances the plasticity of neural assemblies where trauma memories, impressions, and associations are stored. The increase in plasticity enables mutative changes in the configuration of neural connections. Many patients obtain substantial relief from yoga practices and make more rapid progress in therapy. Appears to complement traditional psychotherapy and can reduce the need for antidepressant and anxiolytic medication. Studies of BMHYP may lead to more effective approaches to the treatment of SD.

Prison programs

Controlled studies of yoga breathing have not been conducted in adult prisons. However, in India, Africa, and the programs modified for prison populations have been taught to more than 400 prison inmates and staff. Researcher have viewed videotaped interviews with prison officials and visited several maximum security prisons in Amravati central jail to observe these programs. Prison authorities reported that even for violent criminals in maximum security prisons such as Delhi's Tihar Jail and Patna's Beur Model Jail, BMHYP organization and other yoga programs significantly reduced violent behavior and improved quality of life for prison staff and prisoners. The benefits of these programs have been reported in the news media and other literature. 4-month open pilot study of 86 juvenile 707B

offenders (ages 13–18 years) convicted of violent crimes with deadly weapons (gang members of Pune) found that those given yoga training for 1 week (20–25 hours) in the Prison Smart Program followed by 30 minutes of guided meditation and pranayama 3 nights per week showed significant overall reduction in anxiety, anger, reactive behavior, and fighting. 28 Further studies are needed to develop the potential benefits of such programs in these challenging groups.

Referrals, risks, and benefits

In general, patients with psychotic disorders, severe borderline pathology, or difficulty maintaining a sense of reality should not undertake pranayama training. However, gentle Ujjayi breathing under professional supervision is safe and can be helpful even in psychotic patients. 36–38 pregnant women should not engage in breath-holding exercises, straining, or Bhastrika. Patients with high blood pressure, cerebral vascular disease, or migraine may not tolerate breath holding, Bhastrika, or head-down postures. A knowledgeable instructor is needed to modify the pranayama to reduce the risk of seizure in patients with epilepsy 5 and to prevent CO₂ retention in symptomatic asthmatic patients. Patients with respiratory problems can improve pulmonary function through long-term practice of pranayama, but the techniques should be done more gently at first to reduce airway irritation. To avoid injuries, yoga stretches should be started gradually in accordance with each person's physical condition. Incorrect technique or the overuse of traditional breath practices beyond the prescribed time limits can cause dizziness, lightheadedness, irritability, euphoric states, or psychosis in vulnerable patients, particularly those with bipolar disorder, dissociative disorders, or schizophrenic spectrum illnesses. The risk of adverse events can be minimized by appropriate patient screening when making referrals and by collaboration with a competent yoga instructor. Many physicians and other health care professionals participate in bhyp courses. First-hand knowledge of yoga techniques prepares the physician or health care provider to assess the qualities of yoga instructors, to make appropriate referrals, to prepare patients for courses, to support their daily practice, and to integrate yoga lessons into the overall treatment. Yoga training has helped hundreds of health care professionals to overcome the effects of work stress and to function with more energy, focus, and empathy.

Conclusions

Although controlled clinical trials are needed to document the benefits of programs that combine pranayama, asanas, and meditation, there is now sufficient evidence to consider Yoga as a potentially beneficial, low-risk adjunct for the treatment of stress, anxiety, SD, depression, stress-related medical illnesses, and substance abuse, and for the rehabilitation of criminal offenders. Yoga techniques have historically been found to enhance well-being, mood, attention, mental focus, and stress tolerance. Proper training by a skilled teacher is essential for the safe and effective use of yoga. Daily practice will maximize the benefits. Programs that provide weekly follow up sessions and group support improve compliance. Health care providers can play crucial roles in making appropriate referrals and in encouraging patients to maintain their yoga practices.

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