

Yoga and Health

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ABSTRACT

Yoga has been the subject of research in the past few decades for therapeutic purposes for modern epidemic diseases like mental stress, obesity, diabetes, hypertension, coronary heart disease, and chronic obstructive pulmonary disease. Individual studies report beneficial effect of yoga in these conditions, indicating that it can be used as nonpharmaceutical measure or complement to drug therapy for treatment of these conditions. However, these studies have used only yoga asana, pranayama, and/ or short periods of meditation for therapeutic purposes. General perception about yoga is also the same, which is not correct. Yoga in fact means union of individual consciousness with the supreme consciousness. It involves eight rungs or limbs of yoga, which include yama, niyama, asana, pranayama, pratyahara, dharana, dhyana, and samadhi. Intense practice of these leads to self-realization, which is the primary goal of yoga. An analytical look at the rungs and the goal of yoga shows that it is a holistic way of life leading to a state of complete physical, social, mental, and spiritual well-being and harmony with nature. This is in contrast to purely economic and material developmental goal of modern civilization, which has brought social unrest and ecological devastation.

Keywords: Anxiety, chronic pulmonary disease, coronary heart disease, diabetes, hypertension, meditation, mental stress, pranayama, yoga

Introduction

Mental stress, diabetes, hypertension, and cardiovascular disease are fast growing epidemics consequent to changing lifestyles accompanying globalization and modernization. Although yoga originated in India thousands of years ago, it was introduced to western world in 19th century. In the past few decades, it has been the subject of research as a therapeutic measure in mental stress, obesity, diabetes, hypertension, dyslipidemia, coronary heart disease, and chronic obstructive pulmonary disease.

Stress, Anxiety, and Depression

Yoga is effective in prevention as well as management of stress and stress-induced disorders. A systematic

review based on eight studies observed that though they reported positive results but due to methodological inadequacies it is not possible to say that yoga is effective in treating anxiety or anxiety disorders in general. However, there are encouraging results, particularly with obsessive compulsive disorder.⁽¹⁾ A systematic review has demonstrated beneficial effects of yoga interventions on depressive disorders.⁽²⁾ A study on patients who were taking antidepressant medications but who were only in partial remission showed significant reductions for depression, anger, anxiety, and neurotic symptoms. The study supports the potential of yoga as a complementary treatment of depression.⁽³⁾

It has been shown that yoga decreases anxiety, stress, and levels of salivary cortisol^(4,5) as well as plasma rennin levels, and 24-h urine norepinephrine and epinephrine levels.⁽⁶⁾ These may be the possible mechanisms for effects of yoga on stress and stress-related diseases like diabetes, hypertension, and coronary heart disease.

In 2008, researchers at the University of Utah showed that among control subjects and yoga practitioners, by functional magnetic resonance imaging (MRIs), that yoga practitioner had the higher pain tolerance and

Access this article online	
Quick Response Code: 	Website: www.ijcm.org.in
	DOI: 10.4103/0970-0218.132716

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Received: 04-04-14, **Accepted:** 08-04-14

lower pain-related brain activity during the MRI. The study shows the importance of yoga in regulating pain responses and associated stress.⁽⁷⁾

Overweight and Obesity

Overweight and obesity are strong risk factors for diabetes, hypertension, and ischemic heart disease. Yoga has been found to be helpful in the management of obesity. Training of yoga asanas and pranayama for three continuous months, 1 h every day in the morning by a yoga expert resulted in decrease in body weight, body mass index (BMI), and waist hip ratio.⁽⁸⁾

Hypertension

Regular yogic practice for 1 h/day was found to be effective in controlling blood pressure in hypertensive subjects.⁽⁹⁾ Yoga, together with relaxation, biofeedback, transcendental meditation, and psychotherapy, has been found to have a convincing antihypertensive effect.⁽¹⁰⁾ A study from Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry showed that Sukha pranayama at the rate of 6 breaths/min reduced heart rate and systolic blood pressure in hypertensive patients within 5 min of practice. This may be due to a normalization of autonomic cardiovascular rhythms as a result of increased vagal modulation and/or decreased sympathetic activity and improved baroreflex sensitivity.⁽¹¹⁾

Diabetes mellitus

India is referred to as diabetic capital of the world as it has the largest number of cases of diabetes. The practice of yoga asanas and pranayama helps in control of type II diabetes mellitus and can serve as an adjunct to medical therapy.⁽¹²⁾

Training of yoga asanas and pranayama for three continuous months, 1 h every day in the morning by a yoga expert resulted in decrease in fasting as well as postprandial blood glucose levels and acetylated hemoglobin.⁽⁸⁾

In another study from India, yoga asanas and pranayama after 40 days of practice brought down fasting as well as postprandial blood glucose levels and acetylated hemoglobin in patients of non – insulin-dependent diabetes mellitus. They developed a sense of well-being within 10 days and there was a lowering of anti-diabetic drugs.⁽¹³⁾

Yoga also has a beneficial effect on cognitive brain functions and thus can be incorporated along with the conventional medical therapy for improving cognitive brain functions in type 2 diabetes mellitus.⁽¹⁴⁾

Lipid profile

Elevated serum total cholesterol, low-density lipoprotein (LDL), very low-density lipoprotein (VLDL), and

triglycerides are risk factors for ischemic heart disease, whereas high-density lipoprotein (HDL) has a protective role. Studies on type II diabetes mellitus patients have shown beneficial effects of yoga asanas and pranayama on serum lipid levels.

A study from Delhi reported significant lowering of total serum cholesterol following 40 days of practice of yoga asanas and pranayama. Serum LDL, VLDL, and triglycerides though showed a downward trend but it was not significant.⁽¹³⁾

Another study from Bangalore reported a significant decrease in serum total cholesterol, triglycerides, and LDL levels. However, there was no significant change in HDL levels.⁽⁸⁾

Some other studies have reported a significant reduction in free fatty acids, LDL, VLDL, and an increase in HDL.^(15,16)

The differences in results of these studies are probably due to small sample size, varying duration of intervention, and differences in diets of patients.

Coronary heart disease

In a randomized controlled study, patients with angiographically proven coronary artery disease who practiced yoga exercise for a period of 1 year showed a decrease in the number of anginal episodes per week, improved exercise capacity, and decrease in body weight. Revascularization procedures were required less frequently in the yoga group. Follow-up angiography at 1 year showed that significantly more lesions regressed in the yoga group compared with the control group. Thus, yoga exercise increases regression and retards progression of atherosclerosis in patients with severe coronary artery disease.⁽¹⁷⁾

Another prospective, controlled, open trial including angiographically proved coronary artery disease patients showed yoga-based lifestyle modifications helped in regression of coronary lesions and in improving myocardial perfusion, which was translated into clinical benefits and symptomatic improvement.⁽¹⁸⁾

Chronic obstructive pulmonary disease

Yoga training significantly improves lung functions and strength of inspiratory and expiratory muscles.^(19,20)

In a randomized controlled trial by All India Institutes of Medical Sciences (AIIMS), Delhi, it was reported that yoga postures, pranayama, and meditation improved several measures of pulmonary function in subjects having mild to moderate bronchial asthma and a decrease in exercise-induced bronchoconstriction. Yoga improved the quality of life (QOL), reduced rescue medication use in bronchial

asthma, and achieved the reduction of medicines earlier than conventional treatment alone.⁽²¹⁾ Similar findings were reported by another study conducted in United States of America among patients suffering from chronic obstructive pulmonary disease.⁽²²⁾

Limitations of the Studies

Findings of several studies showing beneficial effects of meditation in reduction of mental stress and anxiety, improvement in pulmonary functions among patients of chronic obstructive pulmonary disease, and improved exercise tolerance among patients of coronary heart disease have been questioned on the grounds that there was often selection of favorably predisposed subjects. Other weaknesses that have been pointed out are use of multiple co-interventions, high attrition, and inadequate statistical analysis.⁽²³⁾

It indicates that observed favorable effects of yoga on stress, anxiety, asthma, and coronary heart disease need to be substantiated by more rigorous scientific studies.

However, so far what we have discussed about yoga is not yoga in its true sense. "Yoga" means union of our individual consciousness with the Universal Divine Consciousness in a superconscious state known as *Samadhi*. Archaeological evidence and other texts suggest that the methods described in the yoga sutras were being practiced as early as 3000 before common era (BCE). Oral tradition states that the date may be even earlier. Yoga sutras were historically passed on orally by learned teachers to their pupils. Scholars estimate that Patanjali, who lived sometime between 400 BCE and 200 anno domini (AD), systematized and compiled these sutras.⁽²⁴⁾

According to Patanjali, yoga consists of eight steps or limbs, which are all equally important and are related as parts of a whole. The purpose of these eight limbs is discriminative enlightenment or self realization.⁽²⁵⁾ But here the emphasis will be on health benefits. The eight steps or limbs of yoga are as follows:^(24,25)

1. **Yama:** Codes of restraint, abstinences, self-regulations
2. **Niyama:** Observances, practices, self-training
3. **Asana:** Meditation posture
4. **Pranayama:** Expansion of breath and prana, regulation, control
5. **Pratyahara:** Withdrawal of the senses, bringing inward
6. **Dharana:** Concentration
7. **Dhyana:** Meditation
8. **Samadhi:** Deep absorption, meditation in its higher state, the state of perfected concentration

The five yamas

The five yamas are considered codes of restraint, abstentions, self-regulations, and involve our relationship

with the external world and other people. These apply equally to thought, word, and action. The five yamas are as follows:

1. **Ahimsa:** Nonviolence, nonharming, noninjury
2. **Satya:** Truthfulness, honesty
3. **Asteya:** Nonstealing, to the extent that one should not even desire something that is not his own. It also means that we should consider that whatever resources are available to us are borrowed from the nature. Using them or acquiring them more than minimum required for living amounts to stealing as these are then not available to others.
4. **Brahmacharya:** Walking in awareness of the highest reality, remembering the divine, practicing the presence of God. As an effect it leads to celibacy or what one generally means by brahmacharya.
5. **Aparigraha:** Nonpossessiveness, nonholding through senses, nongreed, nongrasping, nonindulgence, nonacquisitiveness.

The five niyamas

The five niyamas are the observances or practices of self-training and deal with our personal inner world. These are a means for self-training in relation to body, senses, and mind. The five niyamas are as follows:

1. **Shaucha:** Cleanliness and purity of body and mind. It results in purification of the subtle mental essence, brings pleasantness, mastery over the senses, and capability for self-realization.
2. **Santosh:** Contentment or comfortable acceptance of what one currently has. It brings joy and happiness from within.
3. **Tapah:** Through asceticism or training of the senses, there comes a destruction of mental impurities and an ensuing mastery over the body and the mental organs of senses and actions.
4. **Svadyaya:** Self-study, reflection on sacred words, and study of the scriptures. Through this one attains communion with the underlying natural reality.
5. **Ishvarapranidhana:** Surrender and dedication to the Supreme Being or Causal Source, devotion, and surrender of fruits of practice. It helps in achieving the state of perfected concentration (samadhi).

Asana

Practice of postures to make body fit for long sittings for meditation. For meditation any posture may be used, which is steady (head, neck, and chest must be aligned, leaving the natural curve in the spine), stable, motionless, and comfortable. It is achieved by relaxing attention or loosening of effort to sit in a particular posture and allowing attention to merge with the infinite.

Pranayama

Practice of breath control and breathing techniques with awareness, making breathing slow and subtle.

Exhalation is prolonged. The pause between inhalation and exhalation is eliminated. It helps in control of mind and concentration (dharana). There are other types of pranayama also.

Pratyahara

Withdrawal of the senses of cognition and action from both the external world and the images or impressions in the mind. When the mental organs of senses and actions (indriyas) cease to get engaged with the corresponding objects in their mental realm, they assimilate or turn back into the mindfield from which they arose, this is called pratyahara.

Dharana (concentration)

It is holding or fixing the attention of mind onto one object.

Dhyana (meditation)

It is sustained concentration.

Samadhi (absorption in the infinite)

Trance or a state of bliss, reaching a state of absorption in a subject or in the Divine.

As mentioned earlier, the eight steps of yoga are meant primarily for self-realization. However, practice of Yamas resulting in better relations with external world would help in promotion of social health. It helps build up a society, where there is self-regulation in nonharming others and in maintaining honesty rather than relying on external controls or policing, which certainly cannot be present all the time. Asteya and aparigraha encourage conservation of natural resources. Their practice will ensure access of these resources to all. It will also avoid the peril of too much exploitation of nature leading to problems such as global warming and resultant catastrophe.

The five niyamas dealing with our personal inner world through practices of self-training help in mental health promotion. A person whose mind is clear and has positive thoughts (shaucha), a person who is contented (santosha), who has mastery over his body, its senses and actions, and mastery over his mind (tapah) is certainly a mentally healthy person. Continued introspection and reading of scriptures (svadhyaya) will help in improving a person. The practice of surrendering fruits of action to Supreme Being (ishvarapranidhana) helps develop attitude of humility and service.

The primary goal of yoga “self-realization or union of self-consciousness with the supreme consciousness” is a goal suggested for mankind in contrast to pure economic and material development as a goal of modern civilization. We are all aware of what the latter has given

to the world and the mankind. It has brought temporary happiness, followed by further desires and ultimately discontentment. It has brought in too much competition and compulsion to achieve very high targets leading to stressful lives. It has brought social inequities and unrest. The social strife and ecological destruction by this so-called modern model of development is obvious to us.

Therefore, it can be concluded that practice of yoga is beneficial for all the dimensions of health, i.e. physical, mental, social, and spiritual and at the same time promotes harmony with nature and helps in conserving environment.

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How to cite this article: Taneja DK. Yoga and health. *Indian J Community Med* 2014;39:68-72.

Source of Support: Nil, **Conflict of Interest:** None declared.

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