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Yoga & meditation as a stress reducing treatment for hypertension

Abstract

The study is designed to investigate whether yoga and meditation has an effect on stress related illnesses, in this case with the focus on hypertension, which is now classed as one of the major illnesses. The study was based on a review of literature on the subject and an analysis of scientific articles, plus personal contact with yoga teachers. The results showed that patients who were given continuous guidance in their yoga exercises, experienced a significant lowering of their blood pressure level. This study shows that we are equipped with an ingenious tool for managing stress, our breathing. Search words: yoga, stress, hypertension.

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PURPOSE

Literature on the subject was researched for the purpose of investigating whether meditation and yoga has a stress reducing effect that lowers blood pressure.

METHOD

The paper is based on a study of the literature and personal communication.

The article search was done using PubMed. The search words used were yoga, hypertension and stress. I have limited myself to the articles that are available in full, but have also read numerous extracts published on PubMed that were relevant to the investigation.

Had email contact with G. Boll, IMY Medicinska Yoga Institutet (13 April 2004), personal contact with yoga teacher K. Freij, Östersund (7 May 2004) and personal contact with A. J. Kroese, Professor of Cardiovascular Surgery, yoga instructor and instructor in Mindfulness Meditation at the Centre for Stress Reduction in Oslo (10 May 2004).

Scientific works used for the paper.

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Indian J Physiol Pharmacol ,July, 273-276.

Patel, C. (1975). Randomised Controlled Trial of Yoga and Bio-Feedback in Management of Hypertension. The Lancet, July 19, 93-95.

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Rasmi Vyas, Nirupama Dikshit (2002). Effect Of Meditation On Respiratory System, Cardiovascular System And Lipid Profile.

Indian J Physiol Pharmacol 2002; 46 (4) : 487-491.

Selvamurthy, W., Sridharan, K., Ray, U.S., Tiwary, R.S., Hedge, K.S., Radhakrishan, U., Sinha, K.C. (1998). A New Physiological Approach To Control Essential Hypertension.

Indian J Physiol Pharmacol, 42(2), 205-213.

Shirley Telles, Nagarathna, R., Nagendra, H.R. (1994) Autonomic Changes During "OM" Meditation.

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THE FINDINGS

Causes of stress

According to Kroese, Professor of Cardiovascular Surgery (2000), many people live a stress inducing lifestyle at both work and home, and putting themselves in a state of chronic readiness has become a behaviour pattern. Inherited, social and economic factors also influence the way we deal with stress. An individual's health habits, diet, exercise, sleep and use of stimulants, also determine how they react to stress. Being in a state of chronic stress is often due to a combination of circumstances. The underlying cause of stress is anxiety, a deep existential (related to birth and death) anxiety. This type of research into how psychological factors are related to the treatment outcome is new and proving sensational in the field of surgery.

Effects of yoga and meditation on blood pressure

In Patel's study (1975a, January), twenty hypertension patients, all of the same age and gender, were treated with relaxing exercises with monthly follow ups over a 12-month period. The groups were controlled in the same way, but only the treatment group was instructed in relaxing exercises. The control group was simply asked to relax on the sofa. The treatment group had a monthly follow up for twelve months, while the control group was followed up in a similar way for nine months. No additional relaxation exercises were offered during the follow up period, but they were encouraged to practise the exercises they had learnt along with their regular meditation at home. A significant lowering of blood pressure could be observed, and they continued to take the same amount of their prescribed blood pressure medication. Increasing the medication in the control group did not help.

In Patel's second study (1975b, July), 34 patients with known hypertension took part, all less than 75 years old. They were randomly selected to either be part of a six-week treatment programme with yoga as a relaxation method with bio-feedback or to receive placebo therapy with general relaxation. Bio-feedback registers various bodily functions that are governed by the unconscious, autonomic nerve system, such as heart beat, electrical skin resistance and muscle tension. Hypertension was defined as pharmacologically treated hypertension for at least six months where systolic blood pressure was initially at least 110 mm Hg. The entire experiment group was treated with blood pressure reducing agents.

Both groups showed a lowering of blood pressure, from 168/100 to 141/84 mm Hg in the treated group and from 169/101 to 160/96 mm Hg in the control group. This revealed a significant difference between the groups. The study clearly showed that the treated group experienced a marked lowering of blood pressure. This suggests that the relaxation exercises were the biggest influencing factor in lowering blood pressure.

Twenty male hypertension patients took part in a study by Selvamurthy et al., (1998). The males who were selected had had raised blood pressure for two to five years with a systolic blood pressure over 140 mm Hg and a diastolic reading of over 90. All patients had been prescribed blood pressure reducing medication for varying lengths of time. All medication was phased out. The aim was to see if, by stimulating baroreceptors (a pressure sensitive organ in certain blood vessels that regulates blood pressure), it could be possible to look into what causes high blood pressure and even determine whether this could be restored to a normal level either by the use of a tilt table or by using equivalent yoga exercises. The following yoga exercises were chosen for this study: Yoga Mudra, Ardha Halasana, Sarvangasana, Panavamukhtasana, Bhujangasana, Dhanurasana, Chakrasana and Savasana. See appendix 2.

The blood pressure reducing drugs were phased out, and the patients were then split into two groups. Group 1, average age 34, were given a three week course of tilt table sessions, with a head up angle of 70 degrees, for 30 minutes a day. Group 2, average age 50, were given specific yoga movements to do, equivalent in the sense that they were with head up or down for the same length of time each day. After three weeks, both groups showed a significant reduction in their blood pressure levels.

Gopal, Bhatnagar, Subramanian and Nishith (1973) published a study that differs slightly from the above, where no one was medicated for raised blood pressure. The two groups consisted of male volunteers, in the 20-35 age group, all about the same weight and height. The experiment group consisted of 14 men who did physical yoga exercises and practised conscious breathing exercises, for a period of at least six months. The control group consisted of 14 men with no special exercises, but who took long walks and played simpler ball games during the study. The

dietary, smoking, toilet, drugs and alcohol habits of both groups were recorded, as were chronic illnesses, physical activities, personal hobbies, what they liked/disliked respectively, interest in religion, general suitability/aptitude for their job and their mental state both when working and resting. Both groups were evaluated under similar circumstances, with regard to environment and if they were fasting or not.

Systolic blood pressure rose in both groups after exercise, although there was no great difference between the groups. Diastolic blood pressure was lower amongst the yoga exercising group, after sessions.

The study by Rashmi and Dishit (2002) differs completely to the others, as they only investigated whether meditation affects lung function, blood pressure and lipids. 105 men and women took part in the study, all about the same age and similar level of physical activity. They were divided into three groups, non-meditating, those who had been meditating for a short period (6 months – 5 years), and those who had been meditating for a long time (over 5 years).

Data on age, gender, smoking, alcohol, physical activity, eating habits (vegetarian or other special diet), were recorded on everyone in the group. Curiously, only 9 of the 105 were not vegetarians, none of the 105 drank alcohol or smoked.

The two meditating groups practised Raja Yoga Meditation (individual visualisation of something that enhances concentration for continued meditation) for one hour each morning from 07.30 to 08.30. Members of the non-meditating group rested for 15 minutes before readings were taken.

Diastolic blood pressure was significantly lower in the two meditating groups, while there was not great difference in systolic blood pressure in any of the three groups.

The sixth and final article reviewed, differs significantly from the others, as only one group was investigated based on two different readings, Telles, Nagarathna and Nagendra (1995).

The survey group consisted of 7 healthy men of normal build between 29 and 55 years old. All had long experience of meditation, from 5-20 years.

They meditated mentally with the OM mantra (OM, a Sanskrit word meaning the eternal word - everything that has been, that which is and that which will come to be). Each session lasted for 32 minutes, 20 minutes of meditation preceded and followed by 6 minutes of relaxation, sitting with eyes closed. The second reading was taken after a similar length of time and in the same way as the previous reading, but with the difference that instead of meditating, the participants simply relaxed without focusing on anything in particular.

All seven members of the group showed a small, but statistically significant reduction in heart rate, after the meditation session, compared with when they purely relaxed.

DISCUSSION

District nurses play a key role in public health work and I feel it is important that we take in, as part of our culture, new knowledge that can help hypertension patients gain a better quality of life by changes in their lifestyle (Swedish Society of Nursing, 2002).

In today's ever more stressful society, I think it is incredibly important that we create time for ourselves, a time for calm and inner tranquillity. Via meditation we can come into contact with an inner core of peace inside ourselves. We become more de-stressed and start reflecting on what is important in life, for a healthy life. To find a lifestyle for yourself where there is room for the most important ingredients, food, sleep, physical activity and work. Through meditation we can learn how to surf life's waves rather than fighting against them.

At the very heart of mindfulness meditation is breathing itself, of learning to observe your own breathing, of understanding that it is an anchor. With meditation part of everyday life, the now becomes the present, thoughts come to a halt, a sense of peace of mind and tranquillity emerges. Meditation is a good tool for modern man because it gives you more energy, to deal with more stress, the aim is to find insights into how energy can be utilised in a better way.

We each breathe 20,000 times a day without thinking about it, but in yoga conscious breathing is one of the core tools. By taking control over our breathing, we can then take control of our autonomic nervous system. According to the yogic view, breathing is the barometer that displays the energy level in your life. Using breathing as part of your personal development is a tradition that dates back a very long time in yoga, at least 2,500 years. All exercises are performed with respect for your own breathing and what links us with our mind.

We all know how vital breathing is, no breathing, no life, obviously, but we can teach ourselves more about the dynamics available in using breathing as a tool for dealing with stress. Learning to be present in the now, of daring to let go, daring to forgive, of observing yourself from a slight distance and daring to make fun of yourself, of changing perspective releases tension.

According to the yogic view, your lifestyle affects every layer of you, what we eat, how we eat, with whom we eat. The day is divided into three parts, sleep, work, play, where physical activity and spirituality are all part of these. These three parts can be applied to all people, the platform for maintaining good health.

I have the feeling that people today have a real sense of being lost and lonely and that this has a negative effect, that not feeling a sense of belonging creates a feeling of meaninglessness which in turn leads to stress. I am not trying to claim that yoga and meditation is the magic bullet to solve all problems, but that we can reach an inner peace and strength through breathing that can help us manage stress in a better way.

If we are to break the prevailing spiral of stress in our society, we have to start by changing at an individual level. We must take responsibility for the way we can safeguard our health and quality of life. I hope that healthcare will put greater emphasis on this type of help to self help.

Having said that, neither meditation nor yoga is an alternative treatment, but rather a complement to other possible therapy, methods that teach us to tackle stress in our everyday life, whether or not we are ill. Cooperation between complementary and orthodox medicine is starting to take off in Sweden, yoga and meditation then form a good complement.

I think this study shows that the purpose of my paper has been achieved. Yoga and meditation as stress management, has a positive effect on body and soul, these techniques have the blood pressure lowering effect I wanted to demonstrate. This was most clearly shown in the studies in which the patients received guidance in how to breathe in the conscious breathing exercises, how to relax your entire body and practical, physical yoga positions. One saw a significantly greater reduction in blood pressure levels in these patients, compared with the control group that was only asked to rest. The significant difference between the groups, shows that the yoga positions and meditation are of major importance, you learn to relax and in so doing, reduce stress which in its turn positively affects blood pressure.