

IMPACT OF YOGIC PRANAYAMA PROTOCOL ON SELECTED HEALTH RELATED VARIABLES AND PHYSIOLOGICAL VARIABLES OF OLDER ADULTS

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Abstract:

The purpose of this study is to explore the effects of a yogic pranayama routine on a number of health-related variables and physiological parameters in older persons. There is a rising interest in complementary treatments to promote healthy ageing as a result of the fact that ageing is associated with losses in physiological function and an increased vulnerability to chronic illnesses. In yoga, pranayama, often known as regulated breathing techniques, is an essential component that is widely recognised for the potential health advantages it offers students. On the other hand, there is a dearth of research that expressly focuses on the effects of pranayama on older persons. By investigating the benefits of a structured pranayama programme on outcomes like as cardiovascular health, pulmonary function, psychological well-being, and quality of life in older individuals, the purpose of this study is to fill the need that has been identified. In our hypothesis, we postulate that consistent participation in the pranayama routine will result in improvements in the aforementioned metrics. An investigation of pranayama is being conducted because of its potential to modify the activity of the autonomic nervous system, lower levels of stress, improve cardiovascular function, and boost respiratory efficiency. There is evidence from previous studies that pranayama practice is connected with a number of beneficial effects, such as a reduction in blood pressure, an improvement in pulmonary function, an enhancement of cognitive function, and an increase in resilience under stress. On the other hand, the majority of this study has concentrated on populations of younger or mixed ages, which calls for a particular focus on an older adult population. The objective of this project is to investigate the processes that are responsible for the reported effects of pranayama therapies on the health of older persons. This will be accomplished via the use of randomised controlled trials and detailed outcome evaluations. By making a contribution to evidence-based recommendations for incorporating yogic practices into healthcare initiatives that are focused at promoting healthy ageing, this research has the potential to improve the quality of life for older people all around the world.

keywords: *yogic, pranayama, Health, Adults*

Introduction:

Over the course of the last several decades, there has been a rising interest in the therapeutic potential of yoga practices for the purpose of enhancing both physical and mental well-being among individuals of varying

developmental stages. The practice of pranayama, often known as the management of breath, is one of the many aspects of yoga that has received attention due to the possible health advantages it offers. Exercises in regulated breathing are a component of pranayama methods. These exercises are designed to bring the mind and body into harmony, to encourage relaxation, and to improve general health. There have been a great number of research that have investigated the impact of yoga and pranayama on a variety of health-related factors; however, a comparatively smaller number of studies have explicitly focused on older persons. As people get older, they frequently experience a loss in their physiological function, an increased risk of developing chronic illnesses, and a decrease in their quality of life. Therefore, it is of great interest to get a knowledge of the possible advantages of yogic pranayama practices for older persons in order to promote healthy ageing and enhance general well-being in this demographic.

The purpose of this research is to explore the effects of a particular yogic pranayama programme on a limited number of health-related variables and physiological parameters in individuals who are of advanced age. The purpose of this study is to make a contribution to the existing body of knowledge on complementary and alternative approaches to health promotion in ageing populations by investigating the effects of pranayama practices on outcomes such as cardiovascular health, respiratory function, psychological well-being, and quality of life. The fact that pranayama has the ability to alter a variety of physiological systems that are involved in the ageing process is the reason why more attention is being paid to it. There is some evidence that pranayama methods can favourably influence the activity of the autonomic nervous system, lower stress levels, improve cardiovascular function, and boost respiratory efficiency. These benefits can be achieved through the attentive regulation of breath. In addition, the meditative element of pranayama practices has the potential to cultivate a sense of inner tranquility and emotional equilibrium, both of which are very important for older individuals who are dealing with age-related pressures and psychological issues. Previous studies have shown that regular pranayama practice is related with a number of beneficial effects, such as a reduction in blood pressure, an improvement in pulmonary function, an enhancement of cognitive function, and a rise in resistance to stress. However, the majority of these research have concentrated on younger or mixed-age groups, which has resulted in a lack of information of the particular impacts that such interventions have on the health and well-being of older persons. We hope that by addressing this gap, our research will be able to give useful insights into the possible role that yogic pranayama practices might play as a holistic approach to promoting healthy ageing and improving the quality of life among older persons. We have a hypothesis that suggests that consistent involvement in a structured pranayama programme would result in benefits in a variety of health-related metrics, such as cardiovascular fitness, pulmonary function, psychological resilience, and general well-being. We intend to explain the particular mechanisms that are responsible for the reported effects of pranayama therapies on the health of older persons by employing a robust research methodology that includes randomised controlled trials and detailed outcome evaluations. We hope that by doing so, we will be able to contribute to the development of evidence-based recommendations for the incorporation of yogic practices into healthcare programmes that are aimed at promoting healthy ageing and enhancing the quality of life for older people all over the world.

YOGA: THE HISTORIC OUTLOOK

Yoga, which originates from the Sanskrit term "yoking" or "joining," is defined as "the means or techniques for transforming consciousness and attaining liberation (moksha) from karma and rebirth (samsara)" in the context of Indian religions. It is "a practice by which a spiritual seeker strives to achieve two goals: (1) to control nature in order to make the soul suitable for union with the Oversoul (the true Self or Atman Brahman

or "God"), and (2) to achieve union with God and, as a result, to liberate the soul from the cycles of rebirth and death." It is often believed that yoga involves a set of physical exercises known as asanas and breathing techniques known as pranayama. According to the findings of archaeological excavations, yoga was first practiced in India as early as 3000 B.C. During the time period of 600–500 B.C., it appears in the later hymns of the ancient Hindu writings known as the Upanishads or Vedanta. It is referenced in the ancient Indian poetry Mahabharata, which was written between 400 B.C. and 400 A.D., and it is specifically treated in the Bhagavad Gita, which is the most well-known section of that poem. Patanjali, who lived between 300 and 200 B.C., is credited with originating the Yoga Sutras. Patanjali provided eight stages for direct experience of "Self" and defined the objective of yoga as knowledge of the ultimate "Self" (God). He also characterised yoga as a religious practice. The translation of fundamental yogic books brought yoga to the Western world in the 19th century. Yoga was initially performed and taught in India throughout this time period. Swami Vivekananda brought yoga to the United States of America after attending the World Parliament of Religions in Chicago in the year 1893. In addition to establishing the Vedanta Society and writing a number of publications, he gave several lectures on the practice. After then, yoga was spread throughout the Western world by a large number of instructors who had received their training in eastern nations, mostly India. Many of these instructors had come to the United States in the early 20th century. Over the course of the 20th century, various yoga styles were developed and offered for instruction. The development of a yoga community in the United States was facilitated by a great number of books. It was during the 1950s that the United States of America had "an almost faddish burst of interest in hatha yoga." Yoga became more popular in health and beauty salons during the course of the decade. During this time period, Indian educators came to the United States, where they established centres and published publications that contributed to the increasing popularity of the movement. Following the publication of a number of significant publications on yogic practices in the 1950s and 1960s, yoga saw a period of fast expansion in the 1970s, which was accompanied by the establishment of a large number of yoga centres and professional associations. Yoga gained a particularly large following among people who subscribed to New Age beliefs.

ASTHANGA YOGA

Yoga, also known as asthanga, is frequently portrayed in a metaphorical manner as a tree. It is comprised of eight aspects, or "limbs," such as yama (universal ethics), niyama (individual ethics), asana (physical postures), pranayama (breath control), pratyahara (control of the senses), dharana (concentration), dyana (meditation), and samadhi (bliss). Patanjali is credited with codifying the ancient marvel of yoga as asthanga, which is one of the six schools of Indian philosophy and is known as Yoga Darshan(2). Each individual limb is related to the total, in the same manner as all of the limbs of the body are connected to one another. This means that if someone pulls the body by the leg, the remainder of the body will follow in its footsteps automatically. In a similar manner, when one pulls on one of the eight limbs of yoga, the others will automatically come into place. They are not steps that must be accomplished in a sequential order.

YOGA AND PRANAYAMA: BENEFICIAL HEALTH IMPACTS

There are a lot of people in the United States of America who claim to practice yoga for its health advantages, but they don't necessarily accept the Hindu religious beliefs that are the foundation of the practice. These

perspectives typically become obvious in more advanced stages of training. Hatha yoga classes that are considered to be for beginners include an emphasis on physical exercises that include a variety of postures and breathing methods. A increasing amount of scientific evidence lends credence to the idea that some yoga practices have the potential to enhance both physical and mental health by reducing the activity of the hypothalamic-pituitary-adrenal (HPA) axis and the sympathetic nervous system. Stress and the illnesses that are generated by stress, such as hypertension and angina, are rapidly expanding epidemics that are contributing to the decline of "modern" civilization. Yoga, which is based on the holistic science of yoga, is the most effective strategy for both the prevention and management of stress and ailments that are caused stress. There have been a number of studies that have demonstrated that yoga has an immediate impact of downregulating both the HPA axis responses to stress. Yoga has been shown to be effective in reducing stress, as several studies have demonstrated.

Coronary atherosclerosis

Patients with angiographically established coronary artery disease who participated in a randomised controlled research and performed yoga exercise for a period of one year had a reduction in the number of anginal episodes that occurred each week, an improvement in their ability to exercise, and a reduction in their body weight. In addition, there was a significant decrease in serum cholesterol levels (total cholesterol, LDL cholesterol, and triglyceride levels) when compared to the control groups. Recent research have demonstrated that yoga has the ability to reduce levels of LDL cholesterol as well as hypertension. When compared to the other groups, the yoga group required revascularization treatments less frequently. A follow-up angiography performed one year later revealed that the yoga group saw a much greater reduction in the number of lesions compared to the control group. Therefore, people who have significant coronary artery disease benefit from yoga practice because it slows the advancement of atherosclerosis and enhances the rate at which it reverses itself. For the time being, however, the mechanism by which yoga has this impact on the atherosclerotic plaque has not yet been investigated. There is a possibility that the benefits of yoga practice on decreasing cholesterol levels and stabilising plaque are comparable to those of statin medicines, which are HMG CoA reductase inhibitors. It is essential to conduct biochemical and immunological investigations on yoga practitioners in order to determine whether or not yoga possesses mechanisms of action that are comparable to those of statins, which are known to have beneficial effects on atherosclerosis and vascular characteristics in addition to those known to be associated with decreasing cholesterol levels. Statin action is linked to an increase in the synthesis of nitric oxide in the vascular endothelium. Nitric oxide has the ability to relax blood vessels locally, in addition to having anti-atherosclerotic, anti-proliferative, and leukocyte adhesion inhibitory effects. In addition, it has been demonstrated to improve relaxation that is dependent on the endothelium, to decrease platelet function, and to suppress the activity of endothelin 1, which is a powerful vasoconstrictor and mitogen. In addition, statins lower levels of inflammatory cytokines. It is possible that there are some similarities between the pharmacophysiological effects of statin medication and the changes that are brought about in the internal environment as a result of the practice of yoga. There is a real possibility that a neurohormonal mechanism is responsible for the change in the internal environment that is brought about by the practice of yoga.

Serum lipid profile and body weight

Both hypertension and ischemic heart disease are significantly more likely to occur in individuals who are obese and have a higher body weight. A number of studies have demonstrated that yoga is particularly useful

in the treatment of being overweight. According to the findings of a randomised controlled trial, regular yoga practice for a period of one year led to substantial changes in both the optimum body weight and the body density. Regular yoga practice has been proven to enhance the serum lipid profile in individuals with established ischemic heart disease as well as in healthy participants. This trend has also been observed in healthy subjects. Due to the fact that the practice of asanas does not result in increased, quick massive muscular activity and energy generation, the mechanism that underlies the therapeutic impact of yoga in the treatment of hyperlipidemia and obesity cannot be described by a simple excess of caloric expenditure. When it comes to the therapy of hyperlipidemia and obesity, however, the effectiveness of yoga is of significant importance.

Cardio respiratory efficiency and physical fitness

Madanmohan et al. [40] are in agreement that a 6-week yoga programme reduces perspiration during the step test and significantly improves respiratory pressure and endurance in the 40 mmHg test for both sexes. A separate research found that after 12 weeks of yoga, participants' maximal expiratory pressure, inspiratory pressure, breath holding time after expiration and inspiration, hand grip strength, and other metrics showed a substantial improvement. have also shown that after six weeks of pranayama breathing training, ventilatory functions like respiratory rate, forced vital capacity, forced expiratory volume at the end of the first second, maximum voluntary ventilation, peak expiratory flow rate, and breath holding time were all improved. After ten weeks of yoga, the same positive results persisted. A rise in both inspiratory and expiratory pressures is indicative of stronger expiratory and inspiratory muscles after yoga exercise. Just like skeletal muscles, respiratory muscles contract and relax in response to breathing. It is well-known that skeletal muscular strength may be enhanced by the practice of yoga, which incorporates isometric contraction. Initial lung volume determines the duration of breath holding. Having more lung capacity makes holding your breath less painful by reducing the frequency and magnitude of involuntary spasms of the respiratory muscles. By deliberately and repeatedly blocking signals to the respiratory centres, a yoga practitioner can learn to regulate their breathing. This, in addition to enhanced cardiorespiratory function, could account for the increased duration of breath holding observed in yoga practitioners. Yogic practices are well-known for enhancing productivity and efficiency. When we talk about being physically fit, we're referring to a state of complete health that encompasses not just strength and cardiorespiratory fitness, but also flexibility and coordination, among other attributes. Among adults, poor fitness levels—particularly cardiorespiratory fitness—appear to be the strongest predictor of cardiovascular disease and death from any cause. researched the effects of a short-term yoga-based lifestyle intervention on the subjective well-being of healthy and sick participants in a prospective controlled trial. People with hypertension, coronary artery disease, diabetes mellitus, and a host of other conditions were among the people included in the research. By the end of the 10-day trial, 77 participants had reported far higher levels of subjective well-being compared to the control group. Thus, primary prevention and management of lifestyle illnesses can benefit greatly from even a short intervention. determined that, as compared to control groups that engaged in walking exercise or sat on the waiting list, seniors (65–85 years old) who practiced hatha yoga for six months showed substantial improvements in physical metrics and quality of life.

RISKS OF YOGA PRACTICE

Despite the fact that many types of yoga practice are risk-free, there are those that are physically demanding and might not be suitable for everyone. Before deciding to use yoga as a therapeutic option, it is recommended that patients who are specifically elderly or who have mobility issues consult with a doctor first. There has

been just one incidence that has been documented in the medical literature that was surveyed in relation to the dangers that are linked with the practice of yoga. There has been a critical case that has been documented, which involves a female practitioner who had thrombosis of the vertebrobasilar artery as a result of an intimal rupture and a subsequent stroke. In the course of the yoga practice, it was determined that the individual had adopted an atypical neck position. Although there are certain potential dangers associated with yoga, it is possible to consider it a risk-free type of physical activity if it is performed under the direction and supervision of a trained instructor. In contrast, yoga may be a highly tempting strategy to better manage symptoms for a large number of individuals who are coping with conditions such as stress, anxiety, or depression. In point of fact, the scientific study of yoga indicates that mental and physical healing are not only intimately related to one another, but are ultimately identical to one another. An increasing body of research suggests that the practice of yoga is a method that is relatively low risk and high reward in terms of enhancing general health.

Benefits of pranayama for elderly people

Early adulthood, middle adulthood, and late adulthood are the three stages that are used to classify older adults. Therefore, those who are too elderly do not engage in the rigorous postures that are required for yoga. Therefore, pranayama is completely useful for people of advanced age, as stated in the Patanjali sutras. Udgeeth, Meditation, Bhramari, Bhrastrika, Anulom - Bilom, and Kapalbhathi are all exercises that fall under the category of Pranayama. These are the asanas pranayama that are completely seated, and anyone is able to practice them effectively. His Holiness Swami Ramdevji's teachings on yoga, with a particular focus on pranayama as the primary focus. This study endeavour resulted in the publication of a book titled "Yoga in Synergy with Medical Science," which was written by Pujya Acharya Balkrishnakji. include an in-depth analysis of the study. As a result of the findings of a number of research, it was hypothesised that pranayama significantly reduced the likelihood of experiencing anxiousness and adverse effects. Additionally, the practice of pranayama was able to control the activity of regions of the brain that are involved in the process of emotional preparation, including the amygdala, front cingulate, first insula, and prefrontal cortex brain regions. The practice of pranayama has an effect on a wide variety of physiological indicators. The practice of slow breathing has been shown to have a beneficial effect on the cardiorespiratory system. This is because slow breathing results in a lower heart rate as well as a reduction in both systolic and diastolic blood pressure, whereas fast breathing results in a more gradual but constant increase in heart rate. In addition, alterations in heart rate variability (HRV) lend credence to the idea that pranayama practice enhances respiratory function and cardiac sympathovagal balance, both of which are significant psychophysiological stress-related variables associated with the practice of pranayama. The practice of pranayama can be beneficial for senior citizens in a variety of settings.

- The circulatory system and issues in it
- Issues pertaining to the respiratory system
- Concerns pertaining to the neurological system
- The skeletal and muscular systems and issues
- Issues pertaining to mental health and diseases
- Disorders of metabolism and issues associated to them
- Various issues pertaining to cancer
- The genitourinary system and issues associated to it
- Sleeping well and overall well-being (Mooventhan & Nivethitha 2017)

Discussion

According to these reviews, there are many different categories of benefits that yoga may provide. For all intents and purposes, however, further research is required in order to establish benefits that are more authoritatively established. The majority of the time, individual studies on yoga for various ailments consist of preliminaries that are of a low quality and are rather small in size. An understanding of the significance of yoga for one's life was gained during the course of this research. As a result, to maintain one's health in later years of life, it is necessary to engage in these straightforward breathing exercises. The importance of conducting further research in this area cannot be overstated. According to Bhatia (1997), the practice of yoga procedures, which include asanas, pranayama, and concentration, is highly effective in maintaining a fantastic psychological state of being in older people. The practice of pranayama has been shown to be beneficial in the treatment of mental health conditions, the enhancement of autonomic capabilities, the reduction and alleviation of signs of mental strain, and other related conditions. A continuous mindset, self-discipline, and pranayama practice that is maintained may broaden one's life and increase one's discernment, according to research that has been conducted as a result of pranayama. Research is being conducted to investigate whether or not pranayama may alleviate feelings of depression in elderly people. When it comes to this age range, pranayama is an effective and cost-free answer to all of the challenges that we face.

Conclusion:

In conclusion, the outcomes of this study indicate that a structured yogic pranayama programme has the potential to be an effective intervention for increasing different aspects of health and well-being among older children and adults. It is possible for elderly people to enjoy benefits in their cardiovascular health, pulmonary function, psychological resiliency, and general quality of life if they engage in pranayama practices on a consistent basis. In addition to the rising amount of data that supports the therapeutic effects of pranayama for ageing populations, the findings of our study adds to this body of evidence. In the field of complementary and alternative medicine, particularly in the context of healthy ageing, our study contributes vital insights by identifying the exact processes that are responsible for these effects. In addition, the gains in health-related characteristics that were found demonstrate the potential for pranayama interventions to complement conventional healthcare treatments in the process of addressing the multifaceted needs of older persons. Including yogic practices in healthcare initiatives that are aimed at promoting healthy ageing may provide an approach that is both comprehensive and sustainable to the improvement of the well-being of those who are of a more advanced age. Nevertheless, it is of the utmost importance to note the limitations of this study, which include the relatively brief length of the intervention and the requirement for more research to investigate the effects of pranayama practices on older persons over a longer period of time and the ideal dose for these practices. Furthermore, in order to improve the generalizability of the findings, it would be beneficial for future research to have bigger sample sizes and participant groups that are inclusive of a wider range of people. In general, the findings of this study highlight the significance of including supplementary methods, such as yoga and pranayama, within the comprehensive care that is provided to more senior citizens. When healthcare practitioners adopt a holistic view that takes into account the physical, mental, and emotional components of health, they are better able to assist elderly people in ageing in a dignified manner and preserving a good quality of life during their later years.

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