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Original Research Paper

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EFFECT OF SARVANGASANA ON BLOOD PRESSURE

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ABSTRACT The present study is to see the immediate effects of sarvangasana on blood pressure in yoga practicing healthy volunteers for more than 3 months so that they can do sarvangasana and maintain that posture for 2-3 minutes which is required for our study. There are 14 are males and 19 are females with an age range of 20-60 years. Heart rate Systolic blood pressure, Diastolic blood pressure were recorded in 33 subjects, before asana, In asana at intervals of 1minute and 2minutes, and immediately after asana. There is a mean increase in Systolic Blood Pressure of 32-35 mm of Hg from the rest to the 1ST minute of posture with a further rise of 3-5 mm of Hg during the 2nd minute of posture. Immediately after the asana there is slight fall in the Systolic Blood pressure as well as in the Diastolic BloodPressure than that measured before the Asana.

KEYWORDS : sarvangasana , systolic blood pressure , diastolic blood pressure

INTRODUCTION:

Therapeutic values of Yoga practices are well documented in the ancient Indian literature. Yoga can be a very beneficial therapy for controlling and lowering high blood pressure naturally. The different Yogic Psychophysiological techniques are bound to have different effects on each and every cell of the human body and this in turn will depend on the various body systems, organs and tissues involved in the performance of such practices.

If you choose the right yoga asanas, yoga can help to switch on the parasympathetic nervous system, which is responsible for rest and repair ,and turn off the sympathetic nervous system, used for the fight or flight stress response. Instead, there are some cautions that need to be considered.

Based on the available scientific literature, suggests that the regular practice of Yoga can be considered as an effective intervention in improving physical (reduces heart rate, blood pressure, blood glucose, oxidative damage, fatigue, weakness, fear of fall, and improve heart rate variability, baroreflex sensitivity, insulin sensitivity, physical functions, mobility, flexibility, and urinary incontinence), mental (reduces depression, anxiety), emotional (reduces anger, stress, tension and improve self-efficacy), social (improve life satisfaction), and vital (improved vitality) planes of elderly individuals, offering a better quality of sleep and quality of life.

In this study an attempt has been made to see the effect of Sarvagasana on yoga practicing healthy adults for more than 3 months. This is a head down body up postural exercise in a "negative g "condition. Here we evaluated not only the actual performance of Asana, but also the period of recovery following it. Though highly recommended as one of the best of all the asanas it has not yet been studied for its very obvious effects on the cardiovascular functions.
It is known as the queen of asanas which works out to be very beneficial for your mind, body and soul. Sarvangasana is a combination of three parts such as "sarva" "anga" and "asana" which means "all body posture". It is one the asana which is very important and helpful for your entire body including the pressure massages for your thyroid glands.

MATERIALS AND METHODS:

We have visited local yoga centers of Visakhapatnam in the month of septmber ,enrolled the individuals practicing yoga from 3 months so that they can do sarvangasana and maintain that posture for 2-3 minutes which is required for our study. Thorough history was taken to rule out other diseases like Hypertension, Diabetes etc.Heart rate(HR), Systolic blood pressure(SBP), Diastolic blood pressure(DBP) were recorded using Non invasive blood pressure apparatus in 33 subjects, before asana, In asana at intervals of 1minute and 2minutes, and immediately after asana.

RESULTS:

Data were tabulated in microsoft excel spread sheet and analyzed using computer software stastical package for social sciences(SPSS) version 18.Data were expressed as mean and standard deviation before asana, during asana at 1 minute and 2 minute interval and immediately after asana at supine position. ANOVA was used to compare the mean values.

There are 14 are males and 19 are females with an age range of 20-60 years.There is a mean increase in SBP of 32-35 mm of Hg from the rest to the 1ST minute of posture with a further rise of 3-5 mm of Hg during the 2nd minute of posture. Immediately after the asana there is slight fall in the SBP as well as in the DBP than that measured before the Asana.

Table-1

GROUP	MEAN	SD	P- value
Before asana	127.44	17.8	
During asana after Imin	156.74	21.81	<0.0001
During asana after 2min	158.35	16.88	
After asana	125.39	8.9	

Table-2

GROUP	MEAN	SD	P- value
Before asana	82.45	8.59	
During asana after Imin	99.99	28.78	<0.0002
During asana after 2min	100.11	26.12	
After asana	74.89	8.65	

DISCUSSION:

Due the head –down position in sarvangasana there is increase in to venous return causing subsequent increase in the End Diastolic volume and there by increase in the Cardiac output and so the BP. The rise in the Heart Rate may be attributed to increased sympathetic response due to relative difficulty of the posture.

In this posture, the venous return (flow of blood along the veins back to the heart) from the upper body is unimpeded; the blood drops

like a waterfall to the heart, aided by gravity. For blood to return from the feet to the heart (in normal upright position) along the veins, the venous return has to overcome a pressure of about 140 mm Hg. The veins below the heart have an elegant construction to facilitate this task: they contain one-way valves; the valves close to prevent back flow of blood that may occur due to gravity. (There are no valves in veins in head and neck; because our upright posture has rendered them irrelevant).

For a person who is mostly physically inactive, fluids in the circulatory system (blood, lymph) move so sluggishly out of the lower body that the process of cellular nourishment and elimination is compromised. The venous return from the lower extremities is impaired due to the lack of sufficient energy to overcome the pressure of 140 mm Hg needed to return the blood to the heart. As too much blood stagnates in the lower extremities, cardiac output decreases and the heart may not receive enough blood to pump to the brain and other vital organs. Along with the cumulative action of gravity results in bodily conditions such as swollen ankles, varicose veins and hemorrhoids.

When we perform inverted poses, during the first moments of the pose, blood accumulates in the capillary beds and veins in the upper body (head, neck and shoulders etc) until arterial pressure builds up to guide it back to the heart. Recall there are no valves in the veins of this region; so skeletal muscle contraction cannot assist its return. This is not a problem if we hold the posture for less than about 10 minutes. Remaining in the inverted posture even for few minutes, blood will drain quickly to the heart from lower extremities and abdominal organs. The stagnant blood that was accumulated in the lower extremities find its way to the heart and lungs, where the toxins get released and blood is purified. Thus supply of fresh blood nourishes the vital organs (especially of the upper body) and the heart, promoting health and vitality. Furthermore, the tissue fluids flow more effectively into the veins and the lymph channels, promoting healthier exchange of nutrients between cells and capillaries. Inverted poses also help to drain the accumulation of stagnant blood in digestive organs and to replace it with a fresh supply of blood.

Here is where Sarvangasana contributes to the efficiency of the thyroid and the entire body. Since the body is held inverted in this pose, a good blood flow to the thyroid gland results under the action of Gravity. And importantly, the curvature of the neck in Sarvangasana redirects more blood to flow to the thyroids by applying gentle extra pressure. Thus for the duration of the asana, the thyroid is flushed and nourished with copious supply of blood, which improves its functioning. The extra pressure also helps to squeeze out stagnant secretions from the thyroid.

Similar benefits also extend to the parathyroid glands. These are four glands located outside the thyroid gland and has an independent blood supply. These glands secrete a hormone called parathormone that controls the calcium level in the blood and influence the growth and regeneration of the bones in the body. Lack of proper functioning of parathyroid glands leads to soft or brittle bones either of which has disastrous effects. Sarvangasana helps promote the health of these glands in a similar manner as Thyroid; the gentle pressure combined with abundant supply of blood nourishes and vitalizes the parathyroids.

CONCLUSION:

According to previous studies the resting and left ventricular end diastolic volume are significantly reduced after practising this Asana. The effect of supine relaxation on BP is more pronounced after the performance of asana, attributed to normalization and resultant Homeostatic effect occurring due to a greater, healthier de-activation of autonomic nervous system occurring towing to the presence of prior activation.

By sudden increase in systolic and diastolic pressures increases the effectiveness of the baroreceptor mechanisms to normalize the blood pressure.

The results of this study would motivate the community, by providing evidence of simple strategies to maintain health, and help policy makers formulate and strengthen the existing prevention strategies in bringing down the burden of hypertension.

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