

physio-anatomical exploration of shirshasana and its benefits in the body

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Abstract: The word 'Yoga' is derived from Sanskrit root 'Yuj' which means 'to join' or 'to yok'. The union of individual self Jivatma, with the universal self Paramatma is Yoga. Yoga is performed through some specific postures called Asanas. The benefits of Asanas range from physical to spiritual level. Asanas not only tone the muscles, ligaments, joints and nerves but also maintains the smooth functioning and health of entire body. Sirshasana is considered by some to be the most important inversion and is often referred to as the "king" of Asanas. This full inversion returns blood to the heart and the brain, refreshing the cardiovascular and lymphatic system and providing energizing effects for the whole body. The inverted position of the body alters the anatomy and physiology of the body at various levels.

Keywords: Yoga, Asanas, Shirshasana, Inversion.

INTRODUCTION:-

Yoga is very ancient system that originated in India. The word 'Yoga' is derived from Sanskrit root 'Yuj' which means 'to join' or 'to Yok'. Asana is defined as the steady posture comfortable for the practice of meditation. Asanas are not only a form of physical exercise but also the method of gaining the perfect mental and physical relaxation. Asana³ is third step of Astang yoga¹. Sirshasana is an advanced inversion that exhibits strength, control and the beauty of overcoming the fear of falling through physical and mental balance. The name is derived from the Sanskrit sirsa, meaning "head," and Asana meaning "pose" or "posture." In this Asana, the head and forearms rest on the mat with the hands clasped. The legs are lifted and the body's weight is shifted until it is fully supported by the head and forearms. The torso is perpendicular to the mat in a straight line from the hips to the head. Sirsasana may also be referred to as headstand in English. Sirsasana is considered by some to be the most important inversion and is often referred to as the "king" of Asanas. This full inversion returns blood to the heart and the brain, refreshing the cardiovascular and lymphatic system and providing energizing effects for the whole body.²

How to perform Shirshasana?

1. Coming to your knees, make a triangle with your hands placing them flush with the wall.

Interlock your fingers together, palms open, and place your forearms down. Elbows should be the same distance as your shoulders. Keep this position with your arms no matter what.

2. Place the top of your head down on the yoga mat in between your hands.

Rock back and forth on the top of your head to get a feel for the position of your skull. Find the spot where the frontal and parietal sutures meet—it will feel flat and your neck will be in a neutral position.

3. Take some of the pressure off of your head and into your forearms, pulling your shoulders away from your ears.

Eventually you will be balancing on the top of your head, but most of the weight should be in the forearms, supported by your shoulders.

4. Slowly straighten the legs, coming onto the toes.

Maybe this is as far as you go. If you feel comfortable here, begin to walk your straight legs closer to your face until you feel your abs catch. Your hips will be over your shoulders.

5. Push more of the weight into your forearms and shoulders, and use your strong core to lift the toes away from the mat.

Bend your knees, bringing your heels to your seat. The knees will still be in towards the chest. Once you have successfully obtained balance here, begin to straighten at the hips, bringing your knees towards the sky. Then straighten the legs. Hold for 10-15 breaths.

To come out of the pose, bend the knees first, then bend at the hips, slowly coming down to the mat. Stay in Balasana or child's Pose for 5 breaths before lifting the head.

Precautions and contraindications:-

Precautions and contraindications to practicing the headstand have to be kept in mind. Those with **osteoarthritis** of the **C spine**, **cervical spondylosis**, **diabetes**, **heart problems**, **down's syndrome**, **autoimmune disease** affecting musculoskeletal system or any other condition impacting the neck should proceed with caution, consulting their health specialists or omit this pose altogether.³

PHYSIOANATOMICAL EFFECTS OF SHIRSHASANA:-

When you turn upside down, you are increasing the blood flow to your brain and upper parts of the body. This can help the body in many ways listed below.

1. Relieves Stress
2. Increases Focus
3. Improves Blood Flow to The Eyes.
4. Increases Blood Flow to the Head And Scalp.
5. Strengthens Shoulders and Arms
6. Improves Digestion
7. Helps to Flush Out the Adrenal Glands
8. Decreases Fluid Build-Up in the Legs, Ankles, and Feet
9. Develops Strength in the Core Muscles
10. Stimulates The Lymphatic System.⁴

Apart from its standing on head, the posture requires strength, precision, and focus. However, when headstand is assessed from an anatomical point of view, it is categorized as a resting pose, despite its complex look. The "neck" plays a fundamental role in the headstand, so one should have a closer look at the anatomy of the neck. The cervical spine is comprised of seven vertebrae, designed specifically for mobility. Also known as the C spine, this includes the neck bones and its primary purpose is movement. A cushion of connective tissues holds the cervical vertebrae in place making a whole range of movements possible for us, be it flexing, extending, or rotating of the neck. The cervical spine is basically concave in nature. By default, the neck rests in a slightly curved position at its neutral state. To move the neck away from this state, this curve is disturbed, which can often happen during Yoga Asanas. The key is to maintain the basic curvature of the spine to prevent neck injuries. The C- spine also encompasses the vertebral arteries. These reach up to the brain and hence blocking these arteries in any way may cause dizziness or blurred vision. In a posture like headstand, the movement through these arteries can be compromised because of misalignment or additional pressure on the cervical spine.

Muscles and joints involved:-

In Shirshasana, muscle lengthening does not happen and all body parts either contract or stabilize, one stacking over another in a single plane. While in the pose, our upper body forms a firm foundation with the essential contact points being the crown of the head, the forearms, and the wrists. All of these are connected together to hold the body in place. We need strong arms to do the headstand. So, it is necessary to build a foundation of strength in the arms to be able to physically balance a headstand. We need to practice suitable arm strengthening exercises before attempting the pose. As we go into Salamba Shirshasana, our shoulder blades get weighed down, helping to release any kind of tension from the cervical spine. There should be minimum weight on the head. The rotator cuff muscles and Serratus Anterior shorten while the Triceps Brachii gets stabilized. This aids in keeping our shoulders and arms steady. This pose stabilizes the Rectus Abdominus, Spinal Extensors, Iliopsoas and flexors. The pelvic floor muscles get compressed while keeping the sacrum (base of the spinal column) in control. The entire upper body forms a solid base, leaving the lower body relaxed even in this inverted-upright position. Our shoulders are the source of strength and support at the foundation. As soon as we come into the headstand position, we rotate and protract the shoulder blades in an upward direction (towards the hips). The Serratus Anterior is the strongest muscle for carrying out these actions involved in Salamba Shirshasana.⁵

DISCUSSION:

We spend most of our waking hours either sitting or standing, with the head above the heart. Headstand inverts and balances this habitual position, potentially affecting a variety of physiological processes. For example, there is an increase in the blood returning to the heart (venous return), which can improve (at least temporarily) cardiac output. Also, baroreceptors in the aorta and carotid arteries are stimulated, resulting in increased parasympathetic outflow from the central nervous system. This can, in turn, temporarily lower heart rate and blood pressure. Additionally, the cerebral spinal fluid that bathes the brain is likely affected, altering the flow to various regions and potentially improving the transport of nutrients to the brain. Headstand can also have musculoskeletal benefits, including strengthened paraspinal muscles and improved alignment of the vertebral column. When you're in the pose, it is important to align the direction of the force of gravity with the anatomical axis of the vertebral column, such that the weight of the body is taken into the shoulders and distributed evenly throughout the intervertebral discs and vertebral bodies. The preparatory section below provides guidance on how to strengthen and train "muscle memory" in the paraspinal muscles, prior to actually going up into the pose. However, Headstand can also be potentially hazardous, especially if you have any pathology in the cervical spine region. It should always be practiced under the direct supervision of a qualified instructor. If you choose not to practice Shirshasana, there are effective alternatives in the restorative pose sequence that allow you to obtain many of the benefits of inversions while avoiding the dangers.

CONCLUSION:-

Headstand can be immensely beneficial for our circulation and the state of our mind. It helps relieve stress, anxiety or fear. On turning upside down, the blood flow to the brain increases which enhances our concentration and focus. Not just blood flow, this pose enhances the flow of oxygen and nutrients which benefits the hair and eyes and also brings a glow of health to the face. Holding the headstand increases the strength of the upper body including the arms, shoulders, and back. Reversing the effect of gravity also improves digestion. The mesh of nodes and fluids that form our lymphatic system, get stimulated and this helps remove toxins from the blood. For those with contraindications, the benefits of the pose can be availed by practising it in a modified form, such as using an inversion swing. Whether doing it unsupported or with props, it simply requires patience, attention, and a bit of focus so that one can take maximum advantage, of this fabulous posture, the King of Asanas.

References

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