


**A REVIEW STUDY ON THE HOLISTIC EFFECT ON SURYANAMASKARA**

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**ABSTRACT**

Surya Namaskara is our form of yogic practices which has series of 12 postures. It helps in activating the Chakras which help in increasing the higher psychic and spiritual energy. It creates positive effect on the muscles, spine, digestion, respiration, circulatory system and nervous system in our body. It also aids in controlling and maintaining the functions of the endocrine glands. Through the rhythmic breathing of Surya Namaskara, the oxygen content of the blood is increased. This improves oxygenation of the body, especially to the heart and brain. It also helps in optimum utilization of the lungs and respiratory system. Chants called Sun Salutation Mantra's may accompany Surya Namaskara. These Mantra's can enhance the spiritual level of an individual.

**KEYWORDS** – Yoga, Surya Namaskara, 12 Postures, Breathing, Mantra's, Spirituality.

**INTRODUCTION**

The word Yoga means unity or oneness and is derived from the Sanskrit word 'yuj' which means 'to join'. This unity or joining is described in spiritual terms as a union of individual consciousness with the universal consciousness. Yoga shastra aims at establishing physical, mental and psychological values of the mankind. Yoga helps in unifying Jeevatma and Paramatma. Yoga is the means of balancing and harmonizing the body, mind and emotions. This is done through practice of asana, pranayama, mudra, banda etc.

Surya Namaskara is one of the important Yogasana. The Sanskrit name Surya here refers to Sun and Namaskara means salutation. Surya Namaskara is a complete sadhana, spiritual practice, it includes asana, pranayama

mantra and meditation techniques. Surya Namaskara has a direct vitalizing effect on the solar energy of the body which flows through Pingala Nadi. Regular practice of Surya Namaskara regulates pingala nadi. Regulation of pingala nadi leads to balanced energy system at both physical and mental levels.<sup>[1]</sup>

Surya Namaskara has a good effect on shatchakras (plexus) that are located in various parts of our body. There are 7 chakras and are located along the pathway of Sushumna nadi. The chakras are depicted symbolically as lotus flower, each having a particular number of petals and a characteristic color. The lotus symbolizes the 3 stages, the aspirant must pass through in spiritual life – ignorance, aspiration and illumination.

**MATERIAL AND METHODOLOGY**

**Table 1.1 – Methods, Breathing Technique's and Benefits of 12 Asana's of Surya Namaskara.<sup>[2]</sup>**

SL. NO	ASANA	HOW TO DO	BREATHING	BENEFITS
1	Tadasana	Stand erect with feet together, keeps hands in prayer position in the front of your chest;keep your body weight disturbed evenly.	Exhale	Builds focus relieves mental stress and anxiety.
2	Urdhwa Hastasana	Inhale as you stretch your arms up and archthem back from the waist, pushing the hipsout, legs straight. Relaxes your neck.	Inhale	Improves digestion, remedy for backache, fatigue, anxiety and asthma
3	Padahastasana	Fold /bend forwardspress your palms down. Let the fingertips be in line with	Exhale	Good remedy forstress, osteoporosis, anxiety and

		toes.		headache. Strengthens knees and thighs, opens up the hamstrings, calf muscles and hip
4	Ashwasanchalanasana	Bring the right or left leg (whichever side you are doing) back and place the knee on the floor arch back, lift your chin, look up.	Inhale	Strengthens spine, increases lung capacity, enhances one's will power
5	Parvatasana	Straighten the bent leg and take it backwards, keep the right and left foot together. Raise the butts, the two hands are on the floor and support the body weight, lower the head such that it comes in between two arms.	Exhale	Strengthens muscles of arms and legs, tones the spinal nerves, and improves blood circulation to the spinal region.
6	Ashtanga namaskara	Lower your knee first, then your chest and then your forehead, keep your hips up and toes curled under.	Exhale	Tones and strengthens the arm, shoulders and legs, relaxes extension around the neck and shoulders, improves flexibility of spine.
7	Bhujangasana	Lower your hips, point your toes and bend the back. Keep your legs together and shoulders down look upwards.	Inhale	Tones abdominal muscles, improves blood circulation. Helps relieve menstrual pains, remedy for sciatica and backache.
8	Parvatasana	Curl your toes under. Raise your hips pivot into an inverted 'v' shape. Push your heels and head down keep your shoulder's back.	Exhale	Improves blood circulation calms nerves, relieves stress, relieves symptoms of menopause, remedy for headache and backache.
9	Ashwasanchalanasana	Step forward and place the right/left foot between your hands. Rest the other knee on the floor look up.	Inhale	Strengthens spine, increases lung capacity, enhances one's will power
10	Padahasthasana	Bring the other leg forward and bend down from the waist, other steps as in 3.	Exhale	Good remedy for stress, osteoporosis, anxiety and headache. Strengthens knees and thighs, opens up the hamstrings, calf muscles and hip
11	Urdhwa Hastasana	Stretch your arms forward then up and back over your head. Bend back slowly from the waist as in step 2	Inhale	Improves digestion, remedy for backache, fatigue, anxiety and asthma
12	Tadasana	Gently come back to upright position, bring your palms together in prayer pose. Bring your arms down by your sides.	Exhale	Builds focus, relieves mental stress and anxiety.

**Table 1.2 – Associated Bija Mantra's of 12 Asana's of Surya Namaskara.**<sup>[2][3]</sup>

Asana	Associated Mantra (Name of Sun God)	Bija Mantra
Tadasana	Om Mitraya Namah	Om Hram
Urdhwa Hastasana	Om Ravaye Namah	Om Hrim
Padahasthasana	Om Suryaya Namah	Om Hrum
Ashwasanchalanasana	Om Bhanave Namah	Om Hraim
Parvatasana	Om Khagaya Namah	Om Hraum
Ashtanga namaskara	Om Poosne Namah	Om Hrah

Bhujangasana	Om HiranyaGarbhaya Namah	Om Hram
Parvatasana	Om Marichaye Namah	Om Hrim
Ashwasanchalanasna	Om Adityaya Namah	Om Hrum
Padahastasana	Om Savitre Namah	Om Hraim
Urdhwa Hastasana	Om Arkaya Namah	Om Hraum
Tadasana	Om Bhaskaraya Namah	Om Hrah

**Table 1.3 – Co-Relation of 12 Asana’s of Surya Namaskara with Chakra’s of Body Along with Anatomical Landmarks and Physiological Functions of Body.**<sup>[2][3][4]</sup>

SL. NO	Asana	Chakra’s	Anatomy	Physiology
1	Tadasana	Anahata	Cardiac Plexus	Maintain the heart rate and the cardiac output
2	Urdhwa Hastasana	Vishuddha	PharyngealPlexus	Co- ordinates swallowing and speech
3	Padahastasana	Swadistana	Lumbar Plexus	Maintaining the ability to extend the knee, flex thehip, adduct the thigh, and more
4	Ashwasanchalanasana	Ajna	Hypothalamus,Pineal	Smart co - ordinating centerof body, keeps body in stable condition called hemostasis. Regulates the Endocrine Glands functions of the body. Helps to control the circadian cycle of sleep and wakefulnessby secreting melatonin
5	Parvatasana	Vishudhha	PharyngealPlexus	Co- ordinates swallowing and speech
6	Ashtanga namaskara	Manipura	Solar Plexus	Responsible forself – esteem, boundaries and will power
7	Bhujangasana	Swadistana	Lumbar Plexus	Maintaining the ability to extend the knee, flex thehip, adduct the thigh, and more
8	Parvatasana	Vishudda	PharyngealPlexus	Co- ordinates swallowing and speech
9	Ashwasanchalanasna	Ajna	Hypothalamus, Pineal	Smart co - ordinating centerof body, keeps body in stable condition called hemostasis. Regulates the Endocrine Glands functions of the body. Helps to controlthe circadian cycle of sleep and wakefulnessby secreting melatonin
10	Padahastasana	Swadistana	Lumbar Plexus	Maintaining the ability to extend the knee, flex thehip, adduct the thigh, and more
11	Urdhwa Hastasana	Vishudda	Pharyngeal Plexus	Co- ordinates swallowing and speech
12	Tadasana	Anahata	Cardiac Plexus	Maintain the heart rate and thecardiac output

## DISCUSSION

The co relation of each asana’s of Surya Namaskara to Chakra’s with its Anatomy and Physiology.<sup>[5]</sup>

### 1. TADASANA (1<sup>ST</sup> AND 12<sup>TH</sup> POSTURE)

– ANAHATA CHAKRA ANATOMY - The deep

cardiac plexus lies in front of the tracheal bifurcation behind the aortic arch and is formed by cardiac nerves arising from the cervical ganglia of the sympathetic trunk and cardiac branches off the vagus and recurrent laryngeal nerves. Thus, this

plexus tends to have both left and right sided input. Essentially, the deep cardiac plexus receives all neuronal input not contained within the superficial plexus. The deep plexus then divides into a right and a left half. Branches from the right half run both anterior and posterior to the right pulmonary artery and form most of the anterior coronary plexus, with some fibers also going to the right atrium and posterior coronary plexus. The left half, in turn, connects back with the superficial cardiac plexus and gives branches to the left atrium and portions of the anterior pulmonary plexus, but generally forms most of the posterior coronary plexus.

**PHYSIOLOGY** - The functional distribution of atrial ganglia has generally been done by dividing their preferential input to the sinoatrial versus atrioventricular nodes, with the sinoatrial ganglia mainly consisting of those inferior and posterior to the sinoatrial node, extending from the right pulmonary veins to the sulcus terminalis, and the atrio ventricular ganglia mainly consisting of those in and near the interatrial groove and at the coronary sulcus junction. However, there is crosslinking between ganglia such that ganglia that preferentially affect the sinus node may also have innervation to the atrioventricular node, and vice versa. This cross-modulation from unidirectional and bidirectional feedback makes study difficult due to the multiple levels of complexity.

## 2. URDHWA HASTASANA (2<sup>ND</sup> AND 11<sup>TH</sup> POSTURE) PARVATASANA (5<sup>TH</sup> AND 8<sup>TH</sup> POSTURE) – VISHUDDHACHAKRA

**ANATOMY** - It is represented by cervical plexus or brachial plexus. It is originating from the ventral branches of the last 4 cervical and 1st thoracic spinal nerve supplying structures in the neck region. The chakra is situated precisely where that little indentation is in the throat, the organ of voice, the air passage between the lower pharynx and the trachea formed by cartilage thyroid, coracoid, epiglottis, paired arytenoids corniculate and cuneiform.

**PHYSIOLOGY** - The function of the cervical plexus is to provide skeletal muscle control of the neck and upper torso as well as providing cutaneous sensation to parts of the occiput, neck, and shoulder.

## 3. PADAHASTASANA (3<sup>RD</sup> AND 10<sup>TH</sup> POSTURE) BHUJANGASANA (7<sup>TH</sup> POSTURE) – SWADISHTANA CHAKRA

**ANATOMY** – The inferior hypogastric (pelvic) plexus lies in the extraperitoneal connective tissue. In the male it is lateral to: the rectum, seminal vesicles, prostate and the posterior part of the urinary bladder ... lateral to it are the internal iliac vessels and their branches and tributaries, the levator ani, coccygeus and obturator internus.

Posterior are the sacral and coccygeal plexuses and

above are the superior vesical and obliterated umbilical arteries.” Continuous meditation with a proper aum chanting leads to open swadhisthana chakra and a state of peace.

**PHYSIOLOGY** - The ejaculatory ducts connect the inferior portion of the seminal vesicle and the ampullae of the vasa to the urethra. The ducts pass through the prostate gland, posterior to the median lobe. The ductal wall is a single layer of easily compressible endothelial cells with an approximately 1 mm diameter and 2 cm in length. These ducts terminate lateral to the prostate utricle on the verumontanum of the urethral ridge within the prostatic central zone. Ejaculation consists of two distinct phases: 1) emission, the release of semen into the posterior urethra from the ejaculatory ducts, and 2) expulsion, the forceful discharge of semen from the penis.

These complex processes are mediated and orchestrated by the sympathetic and somatic nervous systems and are out of the scope of this review. Emission relies on sympathetic nerves from the superior and inferior hypogastric plexuses that course through the prostatic plexus (within the primary radiation fields for PCa). Expulsion relies on a spinal reflex arc, Onuf's nucleus, and the perineal branch of the pudendal nerve (mostly outside the primary radiation fields). A patent urethra is necessary for the antegrade movement of seminal fluid.

## 4. ASHWASANCHALANASNA (4<sup>TH</sup> AND 9<sup>TH</sup> POSTURE) – AJNACHAKRA

**ANATOMY** – Ajna Chakra: It is believed by some to be a dormant organ that can be awakened to enable telepathic communication. Ajna Chakra “is located between the eyebrows. In physical body there are two eyes which view objects upside down and send image and makes it appear right side up to us but in human body was another physical eye i.e. third eye or spiritual eye which is correlated with the pineal gland. Ajna Chakra is best balance through meditation and Pranayama or Bramhari technique.

**PHYSIOLOGY** - Ajna Chakra is often called as “center of command” or chief commanding or regulating center on the basis of its applied physiological aspects. The Hypothalamus (representing the circle of Ajna Chakra) with the help of its all associated nuclei is performing a function of a leader or can act as a ruling personality over most of the physiological activity of body and mind. Meeting point of three Nadis (Ida, Pingala and Sushumna) forms a triangular circle called as Triveni of Sangama, from where the information may communicate (receive and relay) with the other parts of body and mind. This Triveni point represents the thalamus also known chief relay station. 13 Supra chiasmatic nucleoli and paraventricular nucleus with the supraoptic nucleus of hypothalamus regulates the functions of the pineal and pituitary endocrine glands which act like two petals with Beejakshar Ham and Ksham respectively. Preoptic

region of hypothalamus participates in regulating the autonomic activities. Through this hypothalamus controls and integrates balancing activity of sympathetic and parasympathetic nervous system, represents the power of Lord Hakini Shakti.

### 5. ASTANAGA NAMASKARA (6<sup>TH</sup> POSTURE) - MANIPURACHAKRA

**ANATOMY** – Coeliac or Solar plexus: The coeliac plexus is also known as the solar plexus. It is located at the back of the stomach or the upper abdomen where the coeliac trunk, renal arteries and the superior mesenteric artery subdivide from the abdominal aorta. It is positioned behind the stomach and the omental bursa and before the crura of the diaphragm, the level of the 1<sup>st</sup> lumbar vertebra. The plexus is formed by the greater and lesser splanchnic nerves on both sides and anterior and posterior vagal trunks. The sympathetic supply to the stomach is from coeliac plexus which branches from T6 to T9 via the greater splanchnic. The coeliac plexus follows the course of the gastric and gastro-omental arteries to reach the stomach. The autonomous nervous system is in the form of sympathetic trunks which is situated on either side of Sushumna (spinal cord). It is made up of number of sympathetic ganglia. These ganglia give rise to lateral and medial branches. The lateral branches from these ganglia join the spinal nerves and supply to concerned viscera or part of the body. The medial branches of both sides join together along with other components and form plexuses. These plexuses are of autonomous nervous system so have no voluntary control over it. And here the role of Yoga starts to get control over these plexuses or to regularize their activities the Asana and Pranayama has a great role.

**PHYSIOLOGY** - The deep cardiac plexus lies in front of the tracheal bifurcation behind the aortic arch and is formed by cardiac nerves arising from the cervical ganglia of the sympathetic trunk and cardiac branches off the vagus and recurrent laryngeal nerves. Thus, this plexus tends to have both left and right sided input.

Essentially, the deep cardiac plexus receives all neuronal input not contained within the superficial plexus. The deep plexus then divides into a right and a left half.

Branches from the right half run both anterior and posterior to the right pulmonary artery and form most of the anterior coronary plexus, with some fibers also going to the right atrium and posterior coronary plexus. The left half, in turn, connects back with the superficial cardiac plexus and gives branches to the left atrium and portions of the anterior pulmonary plexus, but generally forms most of the posterior coronary plexus.

### CONCLUSION

Surya Namaskara practice is the most widely adopted sequence of asanas. It also has lots of variations

regarding different yogic traditions of India in the modern era. The practice of Surya Namaskara regularly increases mobility of joints, extending muscle power and vitality. The physiological attributes of improving the metabolic rate, cardiovascular stimulation and increase of respiratory capacity, improvement of mental health in the body and proper functioning of endocrine glands can be achieved by endocrine glands. Surya Namaskara is necessary not just for those who are regular yogic practitioner or spiritual seekers but for a common man, to maintain the physical, physiological and mental health.<sup>[6]</sup>

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