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Anatomical interpretation of *Siddhasana* as per *Gheranda Samhita*

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ABSTRACT

Yoga is being practiced and promoted more in recent times and it has been spread all over the world by different *yoga acharya*'s and under different label. In ancient times *hatha yoga* was practiced for centuries as a preparation to attain higher states of consciousness. Today, however, the actual purpose of this *yoga* has been forgotten completely. To get the correct position of *asana*'s proper study of classical *hatha yoga* texts are necessary. *Gheranda Samhita* is a classical text of *hatha yoga* which explains maximum number of *asana*'s. Among all *asana*'s *Siddhasana* occupies an important position. It is considered to be one of the best *asana*. To know the proper position of *asana* and its merits and demerits detail anatomy of joint positions, muscles, ligaments and nerves are important. In the practice of *Siddhasana* the position of heels are important and slight variation in them changes the nomenclature of *asana*. The muscles being stretched mostly in *Siddhasana* is mainly present in lower limb. The ligaments of hip, knee and ankle joint are under the threat of injury if the *asana* is not practiced properly. *Siddhasana* also imparts greater pressure on perineal region and on external genitals which are potent enough to lead to infertility if *Siddhasana* is not practiced under proper guidance and with proper precautions.

KEYWORDS

Yoga, Asana, Siddhasana, Hatha yoga



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INTRODUCTION

According to *Gheranda Samhita*, the yogic practitioner who has controlled his passion should bring one heel at the perineum and should keep the other heel on the root of genital organs. Afterwards he should place his chin upon the chest and should be quite and straight. Then he should concentrate by focusing in between the eyebrows. This asana is called *Siddhasana* which helps in attaining *Moksha*¹.

According to *Hathayogapradipika*, to assume the *siddhasana* pose, one has to place the heel of the foot firmly at the perineum. Place the heel of other foot above the genital organ. Place the chin steady on the chest. He should sit calmly and restrain the senses. Look with a steady gaze between the eyebrows. This *asana* is *Siddhasana*, the opener of the doors of salvation². Description in *Hatharatnavali*³ and *Goraksha Shatakam*⁴ are quite similar to above description. In *Shiva Samhita* also there is similar description for *Siddhasana*. Yogi should press with care on the perineum with one heel and other heel should be placed on the genitals. He should place his gaze upward in between the eyebrows. One should restrain his senses and place his body straight without any bend. This is *Siddhasana*, which provides siddhi to *siddhas*⁵. *Siddhasana* is also

mentioned in kannada text *Sritatvanidhi*. In its description, place the left ankle below the penis and the right above it. Maintain balance and look at the space between the eyebrows. This is called *Siddhasana*⁶.

In *Hathayogapradipika* another version of *Siddhasana* is mentioned. In this variation, one should place the heel above the medhra (above the genital organ), and the other heel above the first one. Some say this as *Siddhasana*. Some acharyas name this *asana* as *Siddhasana*, some *Vajrasana*, others know it as *Muktasana* and some call it as *Guptasana*. In the *kyotsna* commentary of *Hathayogapradipika* it's mentioned that these four *asana* are similar to each other with slight differences in positioning of heel. In *Siddhasana* and *Vajrasana*, one heel is placed in the perineum and other one above the genital. In *Muktasana* one heel is placed in the perineum and other heel above the first one. While in *Guptasana* one heel is placed above the genital organ and other heel above the first one⁷.

Siddhasana is so important that one should always practice it above all other eighty four *asanas*. Because it helps in cleaning the impurities present in seventy two thousand *nadis*. Purification of *nadi's* is important for *pranayama*. The Yogi who meditates on the *Atman* and follows *mitahara* achieves *yoga siddhi* by practicing *Siddhasana* for twelve years.



One who has mastered *Siddhasana* and able to carefully restrain breath through *Kevala Kumbhaka*, does not require any other *asanas*⁸. According to *Shiva Samhita*, one who wishes to attain quickly attain complete knowledge of yoga should follow *Siddhasana*. Due to this reason *Siddhasana* can be always performed by *pavanabhyasi*. Through this posture the *yogi* is able to leave the world and attains the highest end. There is no posture more secret than this and by assuming this posture, the practitioner is freed from all of his sins⁹.

Description of *Siddhasana* in modern yoga texts

*Swami Kuvalayananda*¹⁰, *Swami Vyas Dev*¹¹, *Direndra brahmachari*¹² and *Swami Vishnudevananda*¹³ explain *Sidhasana* in a similar manner. One should take his seat with his legs fully stretched out. Then one should bend his left leg at the knee joint and folding place his heel tightly against the perineum. The right leg should be placed in the similar manner, its heel being placed against the pubic bones just above the penis. The chin is set against the chest to form *Jalandhara Bandha*. The eyes are directed between the eyebrows securing *Bhrumadhya Drishti*. Except for this bent of the, the spine is to be kept erect. The hands and fingers may be arranged to form *Jnana Mudra*. In the light of yoga by *BKS Iyengar*¹⁴, it's described is as follows, one

should sit on the floor with legs being stretched straight in front. The left leg should be bent at the knee joint and the ankle should be placed near the perineum. The sole of the left foot should be placed against the right thigh. The right knee joint should be bent and the right foot should be placed above the left ankle in such a manner that the right heel is against the pubic bone. The sole of the right foot should be placed between the thigh and the calf of the left leg. Keep the upper limb straight and place the dorsum of the hands on the knees such that the palms are facing upwards. The thumbs and the forefingers should be joined and the other fingers are extended. Keep the back, neck and head erect and the gaze at the tip of the nose.

According to *BKS Iyengar* This posture helps to keep the pubic region healthy. This is one of the best *asana* for relaxing. It keeps the mind alert and attentive. This *asana* is mainly used for the practice of pranayama and for meditation. This *asana* cures stiffness in the knee and ankle joint. It increases the blood circulation in the lumbar region and the abdomen, and keeps the lower region of the spine and the abdominal organs healthy¹⁵. In the view of *Swami Vyas Dev*, this is the most useful posture for meditation. It causes contraction of perineum and cause upward movement of *prana* and semen. It opens up the passage



of *Sushumna*, steadies *Prana*, sense organs and mind. It also helps in maintaining continence¹¹.

DISCUSSION

Position of joints in *Siddhasana*

- The ankles plantar flexed.
- The feet are inverted.
- The knees flexed and leg laterally rotated.
- The hips are flexed, abducted and externally rotate.
- The lumbar and thoracic spine erect.
- The Cervical spine flexed
- The shoulders flexed and externally rotated
- The elbows extended
- The forearm supinated

• Muscles and ligaments involved in *Siddhasana*

Ankle and foot region

In *Siddhasana* the ankle is plantarflexed and the foot is inverted. The extensor muscles of the anterior compartment of leg are stretched when the ankle is plantarflexed. This include extensor digitorum longus, extensor hallucis longus, tibialis anterior and peroneus tertius. During the inverted position of foot the evertor muscles of the lateral compartment are stretched. Peroneus longus and brevis belong to lateral compartment of leg. The muscles of dorsum of foot are also stretched when the heel is placed near the perineum. Extensor digitorum brevis and extensor hallucis brevis belongs to the dorsum of foot. The muscles involved are shown in table 1.

Table 1 Muscles stretched passively in ankle and foot region.

Muscle	Location	Nerve supply
Tibialis anterior	Anterior compartment of leg	Deep peroneal nerve (L4-S1)
Extensor digitorum longus	Anterior compartment of leg	Deep peroneal nerve (L4-S1)
Extensor hallucis longus	Anterior compartment of leg	Deep peroneal nerve (L4-S1)
Peroneus tertius	Anterior compartment of leg	Deep peroneal nerve (L4-S1)
Peroneus longus	Lateral Compartment of leg	Superficial peroneal nerve (L5,S1,S2).
Peroneus brevis	Lateral Compartment of leg	Superficial peroneal nerve (L5,S1,S2).
Extensor digitorum brevis	Dorsum of foot	Terminal branches of the deep peroneal nerve (S1-S2)
Extensor hallucis brevis	Dorsum of foot	Terminal branches of the deep peroneal nerve (S1-S2)

Since the ankle and foot are in a fixed position, the muscles are not in active contraction to maintain the position.

Ligaments

Foot is inverted hence the lateral collateral ligaments are stretched here these includes

- Anterior talofibular ligaments (ATFL)
- Posterior talofibular ligaments (PTFL)



- Calcaneofibular ligament

Knee Joint

Knee joint is flexed and leg laterally rotated. The extensor compartment or anterior compartment of thigh is stretched when the knee is flexed. This compartment consists of quadriceps femoris which includes rectus femoris, vastus lateralis, medialis and intermedius. Sartorius

muscle is not stretched as it's a flexor of knee and hip joint. All these muscles are supplied by femoral nerve (L2-L4). Semitendinosus and Semimembranosus are a part of hamstring and belong to posterior compartment of thigh. These are medial rotators of knee and are stretched when it is laterally rotated. The muscles involved are shown in table 2.

Table 2 Muscles stretched passively at knee joint

Muscle	Location	Nerve supply
Vastus medialis	Anterior compartment of thigh	Femoral nerve (L2-L4)
Vastus intermedius	Anterior compartment of thigh	Femoral nerve (L2-L4)
Vastus lateralis	Anterior compartment of thigh	Femoral nerve (L2-L4)
Rectus femoris	Anterior compartment of thigh	Femoral nerve (L2-L4)
Semitendinosus	Posterior compartment of thigh	Sciatic nerve (L5-S2)
Semimembranosus	Posterior compartment of thigh	Sciatic nerve (L5-S2)

Since the knee joint is in a fixed position, the muscles are not in active contraction to maintain the position.

Ligaments

Knee joint is flexed and leg laterally rotated. In this position the maximum pressure is on the following ligaments

- Lateral collateral or fibular collateral ligament. (LCL)
- anterior collateral ligament (ACL)
- Medial meniscus

LCL can be injured during both flexion and external rotation of the knee. In lateral rotation, the ACL is lengthened and stretched over the PCL. There is a possibility that the ACL can tear when the knee is flexed and either internally or externally rotated. Of the two menisci, the

medial meniscus is the one most commonly torn. One of the most common ways to tear the meniscus is to rotate a completely flexed knee.

Pelvis and Hip

The hips are flexed, abducted and externally rotated. The adductor compartment or medial compartment of thigh is stretched when hip is abducted. The adductor muscles are stretched the most as it resists flexion and external rotation also. This compartment comprises of Gracilis, Adductor longus, magnus and brevis. These muscles are supplied by obturator nerve (L2-L4). Adductor magnus is a hybrid muscle which is also supplied by the Sciatic nerve (L4). The pectineus is the proximal muscle in the adductor group. It adducts,



and internally rotates the hip. Hence it's stretched in this pose. It is supplied by

femoral nerve (L2, L3). The muscles involved are shown in table 3.

Table 3 Muscles stretched passively at hip joint

Muscle	Location	Nerve supply
Adductor Longus	medial compartment of thigh	obturator nerve (L2-L4)
Adductor Magnus	medial compartment of thigh	obturator nerve (L2-L4) Sciatic nerve (L4)
Adductor Brevis	medial compartment of thigh	obturator nerve (L2-L4)
Pectineus	medial compartment of thigh	femoral nerve (L2,L3)
Gracilis	medial compartment of thigh	obturator nerve (L2-L4)

The knee and ankle joint were fixed due to the position of *Siddhasana*. Hence the muscles were not actively contracting to maintain the pose. But in hip joint and pelvis there is active contraction of muscles to maintain the posture. Tensor fascia lata is a muscle of the gluteal region, which helps in extension of knee and lateral rotation of leg. It's supplied by superior gluteal nerve. Gluteus medius and minimus are abductors and helps in medial rotation.

These are supplied by Superior gluteal nerve (L4-L5, S1). The six small lateral rotators of the hip are Piriformis, Gemellus superior, Gemellus inferior, Obturator externus, Obturator internus and Quadratus femoris. These muscles help to abduct the flexed thigh. The psoas major along with iliacus helps in flexing and external rotation of hip. The muscles involved are shown in table 4.

Table 4 Muscle in active contraction pelvis and hip region

Muscle	Location	Nerve supply
Tensor fascia lata	Gluteal region	Superior gluteal nerve (L4-S1)
Gluteus medius	Gluteal region	Superior gluteal nerve (L4-S1)
Gluteus minimus	Gluteal region	Superior gluteal nerve (L4-S1)
Gluteus maximus	Gluteal region	Inferior gluteal nerve (L5-S2)
Piriformis	Gluteal region	branches from S1 and S2
Gemellus superior	Gluteal region	Nerve to obturator internus (L5, S1)
Gemellus inferior	Gluteal region	Nerve to quadratus femoris (L5, S1)
Obturator externus	Gluteal region	Obturator nerve (L3, L4)
Obturator internus	Gluteal region	Nerve to obturator internus (L5, S1)
Quadratus femoris	Gluteal region	Nerve to quadratus femoris (L5, S1)
Psoas major	Iliac Region	ventral rami of the lumbar spinal nerves (L1, L2)
Iliacus	Iliac Region	femoral nerve (L2, L3)

Ligaments

The hips are flexed, abducted and externally rotate. The ligaments of the hip joint are some of the strongest in the body.

As a whole, they tend to limit abduction.

The ligaments more stretched are

- Ischiofemoral ligament
- Pubofemoral ligament

The Spine: Thoracic and Lumbar



The lumbar and thoracic spines are erect. To maintain an upright shape, the erector muscles contract to extend the spine, and the psoas major and minor contract to pull the anterior lumbar spine forward attempting to restore the lumbar curve.

The erector spinae is the largest muscle mass of the back, forming a prominent bulge on either side of the vertebral column. It is the chief extensor of the vertebral column. It consists of three groups: iliocostalis (laterally), longissimus

(intermediately), and spinalis (medially). These groups consist of a series of overlapping muscles. The lumbar and thoracic group of erector spinae muscles are contracted to keep the spine straight. It flattens the thoracic kyphosis and increases the lumbar lordosis. These muscles are supplied by lumbar and thoracic spinal nerves. Quadratus lumborum act as synergist to the function of erector spinae and helps in maintaining lumbar lordosis. The muscles involved are shown in table 5.

Table 5 Muscle in active contraction at thoracic and lumbar spine

Muscle	Location	Nerve supply
Erector spinae	Back	lateral branches of the dorsal rami of the cervical, thoracic and lumbar spinal nerves
Quadratus lumborum	Posterior abdominal wall	ventral rami of the twelfth thoracic and upper three or four lumbar spinal nerves

Cervical Region

The Cervical spine is flexed. The flexors of cervical spine and head are in active contraction and the extensor muscles are stretched. The upper fibres of Trapezius is stretched most, it elevates the scapula and is innervated by the spinal part of the accessory nerve. Splenius capitis is innervated by lateral branches of the second and third cervical dorsal rami. Splenius cervicis is innervated by lateral branches of the lower cervical dorsal rami. Semispinalis Capitis and longissimus Capitis are part of erector spinae muscle, these help to extend

the head and are stretched in this case. Semispinalis capitis is innervated by descending branches of the greater occipital nerve (C2) and the third cervical nerve (C3). The suboccipital muscles are Rectus capitis posterior major, Rectus capitis posterior minor, Obliquus capitis inferior and Obliquus capitis superior are involved in extension of the head at the atlanto-occipital joints and rotation of the head and atlas on the axis. All the suboccipital muscles are supplied by the dorsal ramus of the first cervical spinal nerve. The muscles involved are shown in table 6.

Table 6 Muscles Stretched passively at cervical region

Muscle	Location	Nerve supply
Trapezius.	Scapular	Spinal accessory nerve, C3 and C4.



Longissimus Capitis	Cervical	Dorsal primary rami of C3 to C8
Longissimus Cervicis	Cervical	Dorsal primary rami of C4 to C8
Semispinalis Capitis	Cervical	greater occipital nerve (C2) and the third cervical nerve (C3)
Semispinalis cervicis	Cervical	Dorsal primary rami of C3 to C5
Splenius Capitis	Cervical	Dorsal primary rami of C2 and C3
Splenius Cervicis	Cervical	Dorsal primary rami of C5 to C7
Suboccipital muscles	Cervical	Dorsal primary rami of C1
Rectus capitis posterior major		
Rectus capitis posterior minor		
Obliquus capitis superior		
Obliquus capitis inferior		

Sternocleidomastoid acting together draws the head forwards and so help to flex the cervical part of the vertebral column, Sternocleidomastoid is supplied by the spinal part of the accessory nerve. This muscle is important in creating the lock formed in *Jalandhara Bandha*.

Rectus capitis anterior, Longus capitis and Longus colli flexes the head at the atlanto-occipital joints. Rectus capitis anterior is

innervated by branches from the loop between the ventral rami of the first and second cervical spinal nerves. Longus capitis is innervated by branches from the ventral rami of the first, second and third cervical spinal nerves. Longus colli is innervated by branches from the ventral rami of the second, third, fourth, fifth and sixth cervical spinal nerves. The muscles involved are shown in table 7.

Table 7 Muscle in active contraction at cervical region

Muscle	Location	Nerve supply
Sternocleidomastoid	Cervical	spinal part of the accessory nerve Ventral rami of C2 and C3
Longus colli	Anterior Vertebral	Ventral rami of the C2, C3, C4, C5 and C6.
Longus Capitis	Anterior Vertebral	Ventral rami of the C1, C2 and C3.
Rectus Capitis anterior	Anterior Vertebral	Ventral rami of the C1 and C2.
Scalenus anterior	Lateral Vertebral	Ventral rami of the C4, C5 and C6.

The Shoulder region

The shoulders flexed, abducted and externally rotated. Since the shoulder joint is flexed, abducted and externally rotated there will be minor stretching of the antagonist muscles. The extensors include the Latissimus dorsi and teres major. Latissimus dorsi is the extensor, adductor

and medial rotator of shoulder joint. Teres major is an extensor and also an medial rotator. Pectoralis major is an adductor and medial rotator of shoulder joint. Subcapularis and the anterior fibres of deltoid is the medial rotator of shoulder joint. The muscles involved are shown in table 8.

Table 8 Muscles Stretched passively at shoulder region

Muscle	Location	Nerve supply
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Subscapularis	Shoulder	upper and lower subscapular nerves (C5, C6)
Latissimus dorsi	Back	thoracodorsal nerve (C6-C8)
Teres major	Shoulder	Axillary nerve (C5, C6)
Anterior fibers of the deltoid	Shoulder	Axillary nerve (C5, C6)
Long head of triceps brachii	Arm	Radial nerve (C7)
Pectoralis major	Pectoral	medial and lateral pectoral nerves

The shoulder joint is in a position of flexed, abducted and externally rotated. Since the wrist rest at the knees the flexors and abductors are not contracted to maintain that position. But the external rotators are contracted so that the shoulder joint

maintains that position. Externally rotation of the shoulders is by the infraspinatus and teres minor muscles of the rotator cuff. The posterior deltoids synergize this action. The muscles involved are shown in table 9.

Table 9 Muscle in active contraction at shoulder region

Muscle	Location	Nerve supply
Infraspinatus	Shoulder	Suprascapular nerve (C5, C6)
Teres minor	Shoulder	Axillary nerve (C5, C6)
Posterior fibres of Deltoid	Shoulder	Axillary nerve (C5, C6)

Elbow region

Elbow extended and Forearm supinated.

As the elbow is flexed and forearm is supinated, the flexors and pronators are stretched in this position. The primary flexor of elbow joint is brachialis muscle

which is supplied by musculocutaneous nerve. The pronators are pronator teres and pronator quadratus present in the anterior compartment of forearm and both are supplied by median nerve. The muscles involved are shown in table 10.

Table 10 Muscles stretched passively at elbow joint

Muscle	Location	Nerve supply
Brachialis	Anterior compartment of arm	musculocutaneous nerve (C5,C6)
Brachioradialis	Posterior compartment of forearm	radial nerve (C5-C6)
Pronator teres	Anterior compartment of forearm	median nerve (C6,C7)
Pronator quadratus	Anterior compartment of forearm	median nerve (C7,C8)

In *Siddhasana* the upper limb is kept straight, hence the elbow is extended. To maintain this position Triceps brachii is actively contracted. The forearm is also supinated in *Siddhasana*, hence the supinators are actively contracted. Biceps brachii supplied by musculocutaneous

nerve and supinator supplied by posterior interosseous nerve are actively contracted. The muscles involved are shown in table **Hand** - The hand is placed on the knees and it is in the position of Jnana Mudra. In Jnana Mudra, the thumb and index finger are joined together and the remaining three



Table 11 Muscle in active contraction at elbow joint

Muscle	Location	Nerve supply
Triceps brachii	Posterior compartment of arm	radial nerve (C6-C8)
Supinator	Posterior compartment of forearm	posterior interosseous nerve (C6,C7)
Biceps brachii	Anterior compartment of arm	musculocutaneous nerve (C5,C6)

fingers are kept straight. To maintain the position of fingers and thumb the flexors

are contracted. The muscles involved are shown in table 12.

Table 12 Muscle in active contraction at thumb and index finger

Muscle	Location	Nerve supply
Flexor pollicis longus (FPL)	Anterior compartment of forearm	median nerve (C8-T1)
Flexor digitorum profundus (FDP)	Anterior compartment of forearm	median nerve (C8-T1)
Flexor pollicis brevis (FPB)	Intrinsic muscles of the hand	median nerve (C8-T1)

FDP is the muscle performing most of the finger flexion, while the Flexor digitorum superficialis came into play when additional strength was needed. The FDP originates from the proximal anterior and medial surface of the ulna and inserts into the base of the distal phalanx. In the mid forearm, the muscle divides into two bellies: the radial and the ulnar. The radial part inserts into the index finger, while the ulnar part inserts into middle, ring, and little fingers. Consequently, the latter three fingers tend to move together, while the index finger can function independently of the others.

Other anatomical structures

The description of *Siddhasana* suggests that pressure of the lower heel against the penis is beneficial for men who are attempting to maintain celibacy. But there are chances that this pose can cause impotence. The posture can cause numbness in the penis as

the result of direct pressure on the cutaneous nerves. Impotency can also be caused by traumatization of the central arteries of the corpora cavernosa, the erectile bodies of the penis, from too much or too prolonged pressure from the lowermost heel.

While performing *Siddhasana*, it helps in stimulating four chakras. Each heel presses a certain point; the lower heel presses on the *muladhara chakra*, the upper heel presses the *svadhistana* chakra. The cervical region is bent so as to press the *vishuddha chakra*, and the focusing in between eyebrows stimulates the *ajna chakra*.

CONCLUSION

In the classical texts of yoga including *Gheranda Samhita* the *Siddhasana* is considered to be the best pose for meditation. *Siddhasana* is described by



placing one heel at perineum and other one at the pubic region above the genitals. The neck should be bending and chin rests at the chest. There is no description of position of hands but usually it is placed at the knees in jnana mudra. The eyes should be focused in the middle of eyebrows. In *Siddhasana* the muscles being stretched maximum are present in the lower limb. The muscles in the dorsum of foot, anterior compartment of leg, medial and anterior compartment of thigh are stretched. In the trunk the extensors of head and cervical spine are stretched. The ankle, knee and hip joints are under more stress in *Siddhasana* and there are chances of injuries to ligaments in these joints. The lateral collateral ligament of ankle, fibular collateral ligament, anterior cruciate ligament and medial meniscus are under stress. Due to the position of heels, there are chances of impotency in practice of *Siddhasana* for longer duration.



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