

The Medical Benefits of Hatha Yoga

- A discourse by Savi Chetty-Tulsee at the Sivananda School of Yoga, 17 June 2017.

H.H. Sri Swami Sivananda Maharaj said: “Hatha Yoga is a divine blessing for attaining success in any field. Body and mind are instruments which the practice of Hatha Yoga keeps sound, strong and full of energy.”

Ha” means sun, “tha” - moon. Yoga means union. Hatha Yoga is a union of the sun and the moon. It could be considered as the union of 2 opposing forces. It is suggested that the practice of Hatha Yoga can unite opposing forces of the mind, body and soul bringing about harmony.

Hatha Yoga supports the spiritual progress in a Raja Yogi which is the path of body and mind control. Sage Patanjali described the eight limbs of Raja Yoga in the Yoga Sutras. The eight limbs yama (moral restraints), nyama (spiritual observances), asana (reference posture is the sitting posture for meditation), pranayama (regulation of breath), pratyahara (withdrawal of mind), Dharana (concentration on one object), Dhyana (meditation) and Samadhi (supreme harmony) refer to the progressive steps toward enlightenment. [*Practical Guide to Yoga, The Yoga System*]

Hatha Yoga relates to the practice of asanas, kriyas, pranayama, bandhas and mudras. Asanas are physical postures. Pranayama refers to breath control. Kriyas refer to purification and cleansing activities to prepare the body for asana practice (eg. Nasal, Stomach, Colonic cleansing, Nauli – abdominal churning, trataka – concentrated eye gazing, kapalabhati]. Bandhas are locks/binds. The bandha binds prana or subtle life force enhancing strength, vigour and vitality to the yogi. (Eg. Mula bhanda, Uddiyana Bhanda, Jalandhara Bhanda). Mudra symbolises meaning through a gesture [Eg jnana mudra, Anjali mudra]. It also refers to sealing of prana. *Imagine a closed electrical circuit*. All of these practices work together to improve the function of the body, making the body flexible and healthy. [*Sivananda Health and Hatha Yoga – Life and Works of Swami Sivananda Volume 2*]

The practice of hatha yoga is not confined to a specific group of people. Barriers to yoga practice could be due to perceptions such as: Yoga linked to religious association – in the earlier session you heard Swami Ishwaramayanandaji tell us that the scriptures do not associate Yoga with a religion; certain body shape and size – Yoga is so commercialised these days that in our minds eye we see yoga practitioners of slim shape – “bigger” people feel awkward and self-conscious; flexibility and suppleness – we often hear of people saying “ I can’t bend to touch my toes – how am I going to practice yoga?” or they envision that they will be required to perform complicated postures that is beyond their reach and fear tangled limbs, injury & a wounded pride; yoga is not really “exercise” – people accustomed to intense exercising may think of yoga as not true exercise....etc. These types of perceptions can be addressed through increased awareness and education. Celebrating days such as this (International Yoga Day) is intended to educate, promote and encourage yoga practice.

Everyone is unique in his/her own right and therefore anyone can practice yoga! If you have chronic illness it is always good to check in with your treating physician who bests knows your medical history and can give you appropriate guidance on what practice would suit your health needs. Each person has differing physical capabilities. It is recommended you opt for posture modifications to suit your physical capability. In this age of immediate gratification, one needs to apply patience, common sense and understand that yoga practice is a progressive process. Regular, consistent practice is needed to receive the full benefit. The benefits of Hatha Yoga practice are not limited to physical wellness but extends to mental wellness. Hatha Yoga has been around for > 5000 years. Swami Vishnu Devanandaji described Hatha Yoga as the oldest system of personal development in the world.

In 2008, a study conducted in the US reported an upward trend in the therapeutic medical use of yoga with 15.8 million people currently practicing yoga. The study also documented that 14 million Americans reported that their Dr./ therapist recommended yoga to support their wellness regime. [2008 Yoga In America Study, https://www.researchandmarkets.com/reports/836593/2008_yoga_in_america_study]

Clinical trials involving human participants are required to be registered on an international registry – this ClinicalTrials.gov website is managed by the National Institutes for Health (NIH) in the US. Currently there are 456 studies registered for research in yoga across a wide range of therapeutic conditions such as: arthritis, diabetes, hypertension, chronic neck/back pain, fibromyalgia, cancer, , respiratory conditions, anxiety, depression, insomnia, Alzheimer’s disease, stress, irritable bowel syndrome, and with children in-school settings.

The Harvard Medical School also published research results on the benefits of yoga – such as improved body image (improved self-awareness, improved breathing, increased strength), improved mindfulness (focus of attention to the moment), increased weight loss, increased fitness, increased cardiovascular benefit (lowered BP, improved lipid, lowered blood sugar), improved mood and function, increased control of breath. [<http://www.health.harvard.edu/staying-healthy/yoga-benefits-beyond-the-mat>]

The Hatha Yoga Pradipika cautions against trying to understand the benefits of yoga with an exclusive western scientific frame of reference. The ancient science of yoga is a complex one. There are dynamic processes occurring at multiple levels within the subtle body that lies beyond the understanding of western science alone. CG Jung says: “At the borderline of logic science stops, but not nature, which blossoms there were no theory has as yet penetrated.” In that vein of thought, I want to emphasize that this information that I will share with you about the medical benefit of yoga applies to/ is limited to the material aspect of the body. It would be fair to say that in our practice of yoga we are experiencing a value of which we are yet to fully understand.

Asanas:

Asanas are physical postures. Each asana has three steps - going into the pose, holding the pose and coming out of the pose. Go into a pose as instructed with control and without jerking (avoid injury), come out of the pose in reverse of going into it. The holding of the pose requires more effort – you need to maintain the pose, at the same time breathing slowly and

concentrating the mind thereby improving relaxation in the pose. You may be also guided to focus your attention during the pose – yogic gaze/ drishti. This is intended to control and direct our focus inwardly and reduce the distraction of the eyes and even the mental chatter in our minds.

Asanas influence different systems of the body creating flexibility of the spine and joints; massaging, strengthening and toning the muscles, glands and internal organs.

[Yoga Your Home Practice Companion; The Sivananda Companion to Yoga]

Let's look at the body system briefly.

The human skeleton is the internal framework of the body. It is made up of 206 bones. The bones protect your organs and provide support for your body. Ligaments connect bone to bone and tendons connect muscle to bone/organ structures. Skeletal muscles, ligaments and joints move bones along joints. Muscles can contract, lengthen and stretch. This attribute of a muscle is called elasticity. Some muscles contract and pull bones whilst others relax to facilitate the motion. Muscles work in paired coordination with each other.

Practice to understand paired coordination of muscles: bend at your elbow drawing your forearm toward your upper arm. This is a bicep curl: what happens here is that the bicep muscle shortens (concentric contraction) and the triceps stretches (eccentric contraction). / Another example is in a Leg extension. When you stretch out your leg, the quadricep muscles contract and hamstrings, glute muscles stretch. A deeper stretch is gained for the hamstrings and gluteal muscles in a sitting forward bend.

The practice of yoga stretches the muscles and fascia sheath surrounding the muscles as well as improves the flexibility of ligaments and tendons.

The muscle fascia facilitates this stretch. "Muscle fascia hold muscle to keep them in its place, separate muscle to allow independent function, provides a lubricated surface to allow muscles to move smoothly against each other". [<http://stretchcoach.com/articles/stretching-fascia/>]. Inactivity and injury results in muscle fascia adhering together and reducing muscle movement leading to stiffness and tightness and limited range of movement. Regular stretching of large and small muscles keep the muscles and its fascia in good working condition, increases the range of motion, and realigns muscle fibres in the case of injury or prolonged inactivity.

The holding of postures for increased lengths of time further challenges the muscles increasing the strength. Concentration and endurance is also developed. Yoga can be a form of strength training. Strength training in yoga practice comes from using one's own body weight for resistance. Resistance exercise is known to improve bone health. [FYI: Most people reach peak bone mass between age 25-30 and by the time we reach 40 we slowly begin to lose bone mass.]

By improving the balance between muscle length and muscle strength, posture alignment is gained. Major muscles stretch and strengthen with asana practice resulting in improved tone and flexibility. Asanas also reinforce muscles around the spine and the centre of your body

which is the core. When the core muscles are working properly and are engaged, balance and posture is improved. With improved posture, there is the benefit of reduced back, shoulder and neck pain.

“The vertebral column forms the pillar of support for the cranium and the trunk, protects the spinal cord and roots of the spinal nerve. Four curves of the spine make the vertebral column resilient and gives it spring - i.e. cervical, thoracic, lumbar and sacral curves. Yoga asanas are designed to keep proper curvature of the spine. Halasana (plough), forward bends, backward bends, spinal twists all serve to manipulate the cervical, lumbar, sacral and lateral regions of the spine.

An exaggerated thoracic curve is called Kyphosis – this can be worsened by slouching and hunching in front of a computer/ gaming screen for long hours. Corrective postures are bow/ Danurasana [shoulders round forward in kyphosis – Bow posture pulls back the shoulders and opens the chest]; fish/ matsayasana [stretches out the shortened muscles of the shoulder and upper chest and eases the hardened connective tissue in the shoulder and chest area]; cobra variation with arms extended behind back strengthens weakened upper back and neck muscles

An exaggerated lumbar curve is called Lordosis. In this condition, the muscles of the abdomen are weak, hamstrings and lower back muscles are shortened. Connective tissue in the back of legs and back are hardened. Poses to strengthen and lengthen the muscles are sitting forward bend [deep stretch to the muscles in the back of the body – note: go only as far as the body allows]; standing forward bend [deep stretch]; double leg lifts to strengthen muscles of abdomen

A lateral curvature of the spine is called scoliosis. The muscles diagonally opposite each side of the spine are shortened on one side and overstretched on the other. May have a case of the left side of lumbar and the right side of the thoracic out of alignment. Poses to rebalance the right and left are half spinal twists [note: pose to be held for same amount of time on either side]; Triangle/Trikonasana [restore balance, softens hardened connective tissue; lateral bend with twist restores balance of shortened muscles on both sides, with a small stretch for hip through to shoulder. “ *[Yoga Your Home Practice Companion; The Sivananda Companion to Yoga]*

The endocrine glands secrete hormones into the blood stream. The hormones initiate and regulate many body functions. For example, the Thyroid gland in the neck releases hormones regulating growth and metabolism, the Parathyroid lies behind it and regulates calcium absorption, the thymus at the top of the chest regulates immunity, the adrenals on top of each kidney manages fluid balance, fat distribution and stress hormones. The pancreas regulates blood sugar. The gonads release the sex hormones. The pineal glands regulate the sleep-wake cycle. The pituitary via the hypothalamus, both located in the brain and are the master glands controlling most of the other endocrine glands.

Malfunction of the glands can result in pathological conditions such as diabetes, hypo/hyperthyroidism. Posture like Sarvangasana supports the good functioning of the

thyroid; Matsyasana stimulates the the parathyroid glands, the pituitary and pineal gland, Trikonasana stimulates the adrenal gland. Forward bends stimulates pancreatic function.

The digestive system is made up of a group of organs which work together to convert food into energy. Food passes through the gastrointestinal tract (GI). The GI tract is made up of the oral cavity, pharynx, oesophagus, stomach, small and large intestines, rectum and anal canal ending at the anus. The abdominal accessory organs that support digestion are gall bladder, pancreas and liver. Almost all asanas and kriyas influence the digestive organs. Forward bends, twists and to some extent backward bends massage and tone the abdominal organs improving the function of the digestive system.

The heart, lungs, blood vessels and the blood form part of the cardiovascular system (CVS). Nutrients and oxygen are transported to the tissues. Carbon dioxide and other waste products of metabolism are removed from the tissues.

Asanas such as Surya-Namaskar, Sirsasana /headstand, Sarvangasana, Viparita karani (supported shoulder stand), Garuda asana (standing limb twist posture), relaxation postures, pranayama all positively benefit the circulatory system. With a good functioning CVS, there is a reduction in key risk factors for heart disease, such as lowered cholesterol, lowered Blood Pressure, lowered Body Mass Index (BMI), lowered blood sugar.

The autonomic nervous system (ANS) controls the activities of the important organs such as the heart, respiratory, digestive and endocrine systems. It manages homeostasis (body function balance). It functions automatically /involuntarily to ensure messages between the brain, organs, muscles and glands are transmitted by the nerves. The ANS is made up of 2 systems: The sympathetic NS and the parasympathetic NS. The sympathetic NS supports the body in the fright/fight/flight reaction. In times of perceived physical /psychological danger, the SNS sends nerves impulses that triggers the release of hormones such as adrenaline and noradrenaline, cortisol. The body responds with increased heart rate, sweating, blood is diverted to the skeletal muscles, etc. The SNS is important because it helps us deal with stress by promoting alertness and quick thinking – we are either rooted to the spot in fright/our bodies ready themselves to either fight or flee.

This response state will continue so long as the stressor exists. Environment stressors can range from war-torn areas to varying levels of work and home stress. Over time in this continued state of stress, there is damage to the mind and body. With this continued erosion to mind and body health, conditions such as high BP, other cardiac risks factors, anxiety, nervous disorders, depression, burn-out etc. present themselves.

The parasympathetic NS is the rest and repair component of the ANS. In opposition to the SNS which utilises energy to respond to the stressor, the PNS supports energy conservation keeping you calm and collected. This system also supports regular function of the CVS, digestive and excretory systems. adequate digestive processes with appropriate absorption of nutrients to maintain good health. Now you can link the disease conditions we may

experience due to inadequate functioning of the body because of stress conditions to which our bodies may be subjected.

Creating a state of balance in the function of these 2 branches of the ANS is integral in homeostatis management. We live in a world full of stressors! Engaging the PNS through resting postures, pranayama, meditation supports repairing and revitalization of the body.

Yoga works on the nervous system keeping it in balance to better manage stressors of daily life. The order of the asanas practiced, the focus on the posture and breathing, the relaxation in each asana supports the function of the nervous system leading to relaxation and revitalization. [*Yoga Your Home Practice Companion*]

You will note that in the yoga practiced at this Ashram (Sivananda School of Yoga), the practice of posture sequence is in a specific order to support good health and awaken subtle energy. Practice is started with OM chant and prayer invocation which relaxes the mind and redirects focus to the body/practice. The Surya-Namaskar /sun salutation stimulates the heart and circulation and acts as a warm up. The inverted poses support improved circulation, improved blood supply with resultant improved brain function and thyroid/parathyroid function. The asanas progress to muscle stretching and relaxation in the forward bends. Backward bends that follow focus on muscle strengthening through contraction and relaxation. Half spinal twists exert pressure on the abdominal organs supporting detoxification of the tissues and increasing blood supply to the abdominal organs. Standing poses develop strength, flexibility, balance and improves concentration and special awareness. The practice of breath retention and mudras are incorporated in various postures with Uddhiyana bandha performed toward the end of the practice. The practice is completed with relaxation to allow the body to relax and to absorb the benefits of the asanas practiced. This sequential practice also serves to strengthen the PNS reducing the effect of your daily stressors. Deep breathing is also encouraged.

The practice of asanas is intrinsically linked with breathing. **Quoting from The Hatha Yoga Pradipika: “When the breath wanders, the mind is unsteady, but when the breath is calm, so is the mind still”**. It stands to reason that if your breath is unsteady, your mind and posture is unsteady... controlling the breath will support a firm posture and concentrated mind.

How does the body function during breathing?

The torso is made up of the thoracic cavity and the abdominal cavity. Both these cavities contain important organs. The thoracic cavity contains the heart and lungs. The abdominal cavity contains the stomach, liver, gall bladder, spleen, pancreas, small and large intestines, kidneys and bladder. The cavities have a dividing muscle called the diaphragm.

Breathing is a process of taking air into and expelling it from the lungs.

Practical activity: You each have a balloon. Now blow up the balloon. Look around - What do you notice? Perhaps some have blown up the balloon well and others may not have blown the balloon to full capacity. Metaphorically speaking, imagine this balloon to be your lungs including representing the thoracic/chest space. When we blow the balloon to full capacity – there is a lengthening from top to bottom, side to side and front to back. That’s what

happens in an inhalation. The thoracic cavity can change shape and volume. The abdomen also changes shape. As you inhale the diaphragm pushes downwards, changing the abdominal shape and the belly pushes out (belly breath), the rib cage also lifts and expands. When you exhale the abdomen is pulled inwards, the diaphragm moves upward, the cavity space of the thorax is reduced and the air is expelled.

Although the diaphragm is considered as a principal muscle of breathing, there are other accessory muscles such as the intercostal muscles between the ribs, the transverse abdominis and the internal, external oblique muscles. These muscles work together to support inhalation and exhalation. *Practice: Try contracting all your abdominal muscles and try to inhale at the same time – you will find it difficult as you are limiting the ability of the abdomen to change shape.*

Spinal movement also influences the shape change of these cavities. That is why you receive instructions to inhale in a spinal extension (back bend) and exhale in a spinal flexion (forward bend).

Breathing properly ensures:

1. Increased oxygen to the blood and better organ perfusion
2. Vital/ Subtle energy is controlled leading to better control of the mind.

There are 3 basic types of breathing – clavicular (shallow breathing), intercostal (middle) and abdominal breathing (deep). A full yogic breath combines the 3 – beginning with the deep continuing through the intercostals and clavicular areas. *[The Sivananda Companion to Yoga]*

Often people shallow breathe and do not sufficiently use the respiratory muscles to breathe deeply. Practicing yoga encourages correct breathing: Breathing through the nose, involving full inhalation and exhalation. Nasal breathing allows for warming of the air and air filtration as opposed to mouth breathing. In an inhalation, the diaphragm pushes downward and the massages the organs in the abdominal cavity. In an exhalation, the abdomen contracts, the diaphragm moves up and massages the organs in the chest.

Inhalation, retention and exhalation make up a breath in Pranayama. In yoga, the exhalation process is emphasized. The greater amount of stale air you are able to exhale, the greater the amount of fresh air can be inhaled. In some breathing practices, the outbreath is twice as long as the in breath and the retention 4 times that of the inbreath and the outbreath. *[Yoga Your Home Practice Companion; The Sivananda Companion to Yoga]*

Retention of the breath is said to aid concentration, increase vitality and energize the body. Sri Yukteswar in his book Holy Science speaks about the value of pranayama and infers that holding the breath rests the autonomic nervous system revitalizing and replenishing the action of the organs.

There are various types of pranayama practices such as Anuloma Viloma (alternate nostril breathing), brahmari (humming bee) and kapalabhati (also a form of kryia – literally translated it means skull shining). Practice of pranayama is also a progressive process. Efficiency in the practice is developed over time.

Mind and breath are interlinked. Do you remember moments when you have been very angry and upset? Think on how was your breathing during this time. Was it all calm? Or were you breathing fire like a dragon?

Your state of mind is reflected in the way you breathe. If we are able to control our breathing we are able to learn to control our states of mind. Yogic breathing reduces tension, increases lung function and capacity, improves blood circulation, oxygen saturation, improves mental performance and focus.

Yoga teaches us to treat the body as a whole – every part is interrelated and affects the next and the body is inextricably linked with the mind.

Swami Vishnu Devanandaji in his book “The Complete Illustrated Book of Yoga” recommends five principles for optimal health and function: Proper relaxation, proper exercise, proper breathing, proper diet and positive thinking and meditation.

The following is not so much medical benefits but important practical suggestions to ensure your practice of yoga is optimised and not impeded:

- Wear comfortable clothing – not restrictive or too loose clothing that will result in you fidgeting or increasing your discomfort. Feelings of awkwardness or discomfort is going to undermine your practice.
- Practice on a mat or towel – sweat in your own space! 😊 And using a towel and mat may also reduce slip factor depending on the floor type on which you are practicing.
- Do not eat +-2-3 hours prior to yoga practice. This will result in competition between your yoga practice and digestive processes. You may experience abdominal discomfort, and may experience digestive related symptoms such as flatulence and nausea. This again affects the mind set and disturbs the mind-body connection. I can share with you my own experience in my early days of practice. I didn't take the guidance seriously and arrived for practice having had my oats porridge. I felt terrible nausea after the shoulder stand sequence. I didn't make that mistake again.
- Only go as far as you are able to! Do not push past pain. Take note of the difference between a stretch and actual pain. Remember to progress steadily.
- Breathing is through the nose unless you are instructed otherwise. Remember the earlier comment about air filtration and warming of the air through nasal breathing. Nasal breathing also supports the awakening of subtle energy.
- Let your teacher know if you have any injuries or any medical conditions. This way the teacher can not only keep an eye on you but also propose modified postures that will be more suitable to you.

Conclusion

H. H. Sri Swami Sivananda Maharaj best sums up the benefits of yoga practice: “You can have calmness of mind at all times by the practice of yoga. You can have restful sleep. You can have increased energy, vigour, vitality, longevity and a high standard of health. You can turn out efficient work within a short space of time. You can have success in every walk of life.”

Note from the speaker: The following books were important resources in supporting the compilation of the talk on the health benefits of Hatha Yoga practice.

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