



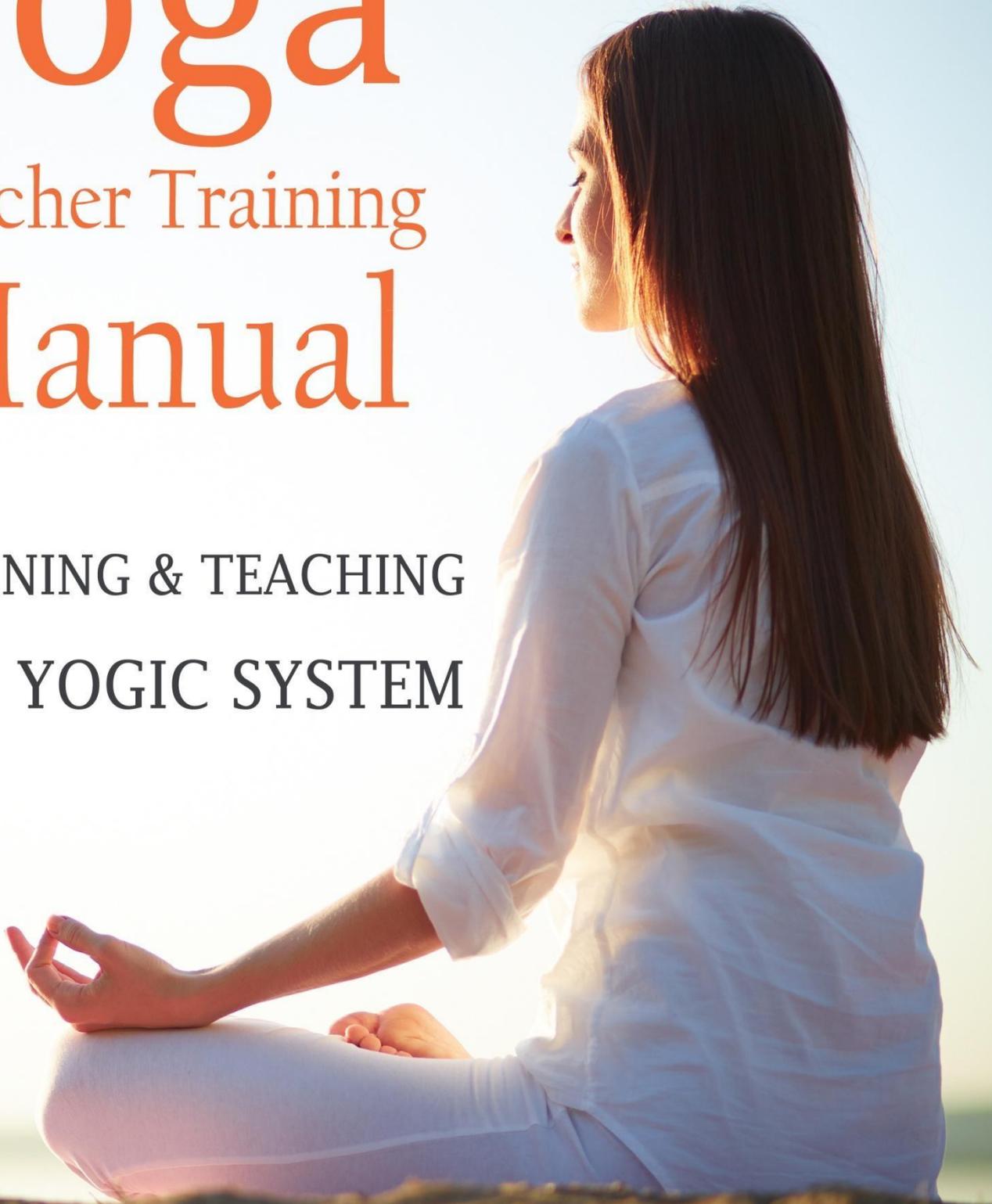
आरोग्यं परमं भाग्यं स्वास्थ्यं सर्वार्थसाधनम्॥

# Yoga

## Teacher Training

# Manual

LEARNING & TEACHING  
THE YOGIC SYSTEM



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## Arogya Yoga School

Arogya (pronounced Ah-RO-GYA) is a Sanskrit word which means living a healthy life without disease and having complete health in mind and body.

“Aarogyam Param Bhagyam, Swasthyam Sarwaarth Sadhanam”

which means good health is the greatest fortune, he stressed Health is the only way to happiness in the world.

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## MODULE 1:

# Yoga Philosophy & Lifestyle

### Introduction:

Learning yoga starts with learning its philosophy. Yoga philosophy is entirely distinct from western philosophy. It's purpose is not mindless questioning, but to deepen our observations of our own experience, ultimately leading us to make better decisions in life that support our health and happiness. The goal of studying yoga philosophy is to develop clarity in our minds about what we are doing here and why.



## 1.1 THE MEANING OF YOGA

In ancient times the desire for greater personal freedom, health, a long life, and heightened self-understanding gave birth to this system. Yoga is a science of right living and it works when integrated in our daily life. It works on all aspects of the person: the physical, mental, emotional, psychological and spiritual. The word yoga means ‘unity’ or ‘oneness’, and is derived from the Sanskrit word ‘yuj’ which means ‘to join’ or union.

### Why Yoga?

Practicing the postures, breathing exercises and meditation makes you healthier in body, mind and spirit. Yoga lets you tune in, chill out, and shape up - all at the same time.

For starters, yoga is good for what ails you. Specifically, research shows that yoga helps to manage or control anxiety, arthritis, asthma, back pain, blood pressure, carpal tunnel syndrome, chronic fatigue, depression, diabetes, epilepsy, headaches, heart disease, multiple sclerosis, stress and other conditions and diseases. What’s more, yoga:

- Improves muscle tone, flexibility, strength and stamina
- Reduces stress and tension
- Boosts self-esteem
- Improves concentration and creativity
- Lowers body fat
- Improves circulation
- Stimulates the immune system
- Creates sense of well-being and calmness

And that’s just the surface stuff. In fact, most of the benefits mentioned above are secondary to yoga’s original purpose. The main purpose of yoga is to achieve that higher consciousness where there is no worry, no conflict - a state of total thoughtlessness, so that a person can enjoy his/her life.

## 1.2 HOW YOGA CAME INTO THE WORLD

### The Sage Patanjali & The Yoga Sutras:

The word `yoga` automatically calls to mind \_Sage Patanjali\_, the founder and father of yoga. Historically, Patanjali may have lived sometime between 500 and 200 BC, and was a great philosopher and grammarian. His best known work is Patanjali Yoga Sutras on yoga. Yoga existed for thousands of years before Patanjali, however he was the first to write it down and turn it into a system. Before him, it was passed on from master to student all throughout the ages.

Yoga is pure science, and Patanjali is the greatest scientist in the world of yoga. This breed of man is rare. There is no other name comparable to Patanjali. For the first time in the history of humanity, this man brought enlightenment to the state of science: he made ultimate happiness a science, bare laws; no belief is needed.

And if you follow Patanjali, you will come to know that he is as exact as any mathematical formula. Simply do what he says and the results will happen. The result is bound to happen; it is just like two plus two, they become four. It is just like you heat water up to one hundred degrees and it evaporates. No belief is needed: you simply do it and know. It is something to be done and known. That's why I say there is no comparison. On this earth, never has a man like Patanjali existed.

Patanjali's 196 aphorisms or sutras cover all aspects of life, beginning with a prescribed code of conduct and ending with man's vision of his true self. His work is divided into four chapters or padas. They are:

#### Samadhi Pada (51 sutras)

Samadhi refers to a blissful state where the yogi is absorbed into the One. The author describes yoga and then the nature and the means to attaining Samadhi. This chapter contains the famous definitional verse: —Yoga's citta-vritti-nirodha|| (—Yoga is the restraint of mental modifications|[13]).

#### Sadhana Pada (55 sutras)

Sadhana is the Sanskrit word for —practice|| or —discipline||. Here the author outlines two forms of Yoga: Kriya Yoga (Action Yoga) and Ashtanga Yoga (Eightfold or Eight-limbed Yoga). Kriya yoga, sometimes called Karma Yoga, is also expounded in Chapter 3 of the

Bhagavad-Gita, where Arjuna is encouraged by Krishna to act without attachment to the results or fruit of action and activity. It is the yoga of selfless action and service. Ashtanga Yoga describes the eight limbs that together constitute Raja Yoga.

### **Vibhuti Pada (56 sutras)**

Vibhuti is the Sanskrit word for –power|| or –manifestation||. Extraordinary powers are acquired by the practice of yoga. The temptation of these powers should be avoided and the attention should be fixed only on liberation.

### **Kaivalya Pada (34 sutras)**

Kaivalya literally means –isolation||, but as used in the Sutras stands for emancipation, liberation and used interchangeably with moksha (liberation), which is the goal of Yoga. The Kaivalya Pada describes the nature of liberation and the reality of the transcendental self.

## **1.3 THE 8 LIMBS OF “ASHTANGA YOGA”**

The eight steps of yoga according to Patanjali’s Yoga Sutras. This is the whole science of yoga in one sentence, in one seed. Many things are implied. First, understand the exact meaning of each step. And remember, Patanjali calls them steps and limbs - both. They are both. They are steps because one has to be followed by the other, there is a sequence of growth. But they are not only steps: they are limbs of the body of yoga. They have an internal unity, as well as an organic unity, that is the meaning of limbs. For example, my hands, my feet, my heart - they don’t function separately. They are not separate; they are an organic unity. If the heart stops, the hand will not move then. Everything is joined together. They are not just like steps on a ladder, because every rung on the ladder is separate. If one rung is broken the whole ladder is not broken.

So Patanjali says they are steps, because they have a certain, sequential growth - but they are also angas. Limbs of a body, organic. You cannot drop any of them. Steps can be dropped; limbs cannot be dropped. You can jump two steps in one jump, you can drop one step, but limbs cannot be dropped; they are not mechanical parts. You cannot remove them. They make you. They belong to the whole; they are not separate.

The whole functions through them as a harmonious unit. So these eight limbs of yoga are steps in the sense that each follows the other, and they are in a deep relationship. The second cannot come before the first - the first has to be first and the second has to be second; the eighth will come to be the eighth - it cannot be the fourth, it cannot be the first. So they are steps and an organic unity too.

The Patanjali Yoga Sutra is referred to as `yoga darsana`. The word `darsana` means `seen`. So the philosophy of yoga is meant to be seen or to be experienced. The Sutras present not only the philosophy and science of yoga but the actual practice, through which the ultimate goal of yoga - kaivalya (detachment) - is attained.

## The Yamas & Niyamas

The mind and body are closely connected to each other. Modern science has come to a conclusion that most diseases are nothing but a physical manifestation of the disturbances on the mental and emotional planes. In other words, physical health is dependent on mental well-being. In order to achieve a balanced state of mind, the observance of yamas and niyamas is necessary.

If the mind is disturbed and restless, the resulting physical disturbances can't be combated by any of the asanas, that's why it is essential to practice the yamas and niyamas.

### 1. YAMA OR SELF RESTRAINT

(Principles or moral codes or a set of universal moral commandments)

The Yamas are five self-restraints or behavior patterns of relationships between the individual and the outside world. `Yama` means `control`, not suppression. Through understanding comes control. It is all about creating a friendly atmosphere around you. Yama is the bridge between you and society. It is a more conscious behavior: you don't react unconsciously; you don't react like a mechanism, like a robot. You become more conscious; you become more alert. You react only when there is absolute necessity; even then that reaction should be a response and not a reaction. The Yoga Sutras of Patanjali 2.0 states these five commandments: `ahimsa satya asteya brahmacharya aparigraha yama`.

a) **Ahimsa** - The word `ahimsa` literally means `non-violence`; not to injure or show cruelty to any creature or person in any way whatsoever. Ahimsa is, however, more than just lack of violence as adapted in yoga. It means kindness, friendliness, and

thoughtful consideration of other people and things. It also has to do with our duties and responsibilities. It could even mean that we must fight if our life is in danger. Ahimsa implies that in every situation we should adopt a considerate attitude. The cultivation of ahimsa leads to a feeling of love and friendship to everybody. One begins to see the unity in all creation and thus progress towards the goal of self-realization.

**b) Satya** - `Satya` means to speak the truth, yet it is not always desirable to speak the truth on all occasions, for it could harm someone unnecessarily. We have to consider what we say, how we say it, and in what way it could affect others. If speaking the truth has negative consequences for another, then it is better to say nothing. Satya should never come into conflict with our efforts to behave with ahimsa.

**c) Asteya** - `Asteya` or `non-stealing` includes refraining from misappropriation, accepting bribes, and the like. The desire for what another owns can be very strong. Such an attitude leads to a feeling that someone else has what I need in order to feel complete. But stealing an external object doesn't get rid of the basic sense of inadequacy, so one takes again and again. Still, the underlying feelings remain unsatisfied. Cultivating asteya counteracts such attitudes. It helps to develop a sense of completeness and self-sufficiency, and leads to freedom from the bondage of such cravings.

**d) Brahmacharya** - This literally means to walk in Brahman. One who cultivates this yama is aware of Brahman alone. Such a state is possible only if the mind is free from all sensual desires. The sexual urge is the most powerful and the most destructive of all sensual desires. Brahmacharya is therefore often translated as abstinence from sex, or celibacy. Brahmacharya should not, however, be interpreted as repression of sexual urges- repression only leads to frustration and an abnormal state of mind. Brahmacharya means control of and freedom from sexual cravings. The bliss that accompanies self-realization is far greater than any sensual pleasure.

**e) Aparigaha** - Non-possessiveness. This has been misinterpreted to mean denying oneself of all material possessions. The problem arises when one gets addicted and dependent on the material objects. By practicing the yama of aparigaha (non possessiveness) to the level of perfection, the sadhaka (practitioner) realizes that a life without the support of worldly comforts, possessions, status, wealth etc. is more helpful for his spiritual upliftment. And the yogi understands the futility of amassing material possessions. The sadhaka realizes that possession of worldly goods, which all human beings are hankering after, is not the real purpose of human existence. He will

enjoy all comfort with a non-attached attitude.

## 2. NIYAMAS

**(Fixed observance, regularity, self-purification)**

Patanjali's Yoga Sutra 2.32 states the five ethical guidelines of how to be in peace with ourselves: *saucha santosa tapah svadhyaya isvarapranidhanani niyamah*. The five components of Niyama should be practiced for purifying the physical and mental bodies. `Niyam` means `fixed observance`, `regularity`. Now with the Yamas you have related to society in a new way. Niyama is for body. A controlled body is a beautiful phenomenon - a controlled energy, glowing, always having more than what is needed, always alive, never dull and dead. Then the body also becomes intelligent, the body also becomes wise, the body glows with a new awareness.

**a) Saucha** - Purity, act of cleaning and purification. In Yoga Shashtra (yogic scriptures) the word *sauch* denotes a very wide concept. Here *saucha* means external and internal purification. That is the purification of soul as well as of the gross physical body. We know different ways to purify our body externally and to some extent internally. But to purify the inner self, adoption of some moral virtues is required. In fact, internal purity is of greater value than external. Though external purification gives a feeling of peace and purity and creates an ambiance of sacrament, it is of no use if internal purity remains unachieved.

According to Yoga Shastra, there are different ways for outer purification, such as: Shatkarma (the six Yogic Kriyas: Dhauti, Basti, Neti, Lauliki [Nauli], Tratak and Kapalabhati).

**b) Santosa** - Contentment: to be contented and happy towards every situation in life is the basic meaning of Santosa. The mind should not be overloaded with demands and aspirations, which ultimately brings dejection and frustration. Complacence in true sense can only bring the serenity of mind, which is a vital requirement of yogic performances.

**c) Tapas** - Tapas has often been interpreted as excessive austerity, but it means simplicity. Being simple in your life is great tapas. You are doing things from authenticity for your inner growth, not to show off. There is no desire to become extraordinary. I am what I am, as long as I am certain my way is not hurting others either physically or mentally - that is tapas.

**d) Svadhyaya** - Self-Study - study yourself. Who are you? What is inside? How this body is working? Who am I inside? This study will give you the way to look inside of you

and gain a clear picture of who you are, what your true nature is, what you want, etc. will be clearer about yourself. When your consciousness is clear, your mind cannot create conflicts for you. Then you can move towards your aim with clarity. You will be nearer to yourself. The self is the main aim here.

**e) Ishvara Pranidhana** - Dedication, complete surrender to God. This is the final stage of Niyama where, as stated in Yoga Darshan, lies the practice of surrendering oneself absolutely to God. At this stage, the yogi has to give up all sorts of desires and passions and must develop qualities like tolerance, love for all and selflessness. Everything should be performed impersonally. An unconditional and absolute faith towards God in every thought and action is the essence of this stage.

### The Benefits of practicing the Yamas and Niyamas:

The Yamas and Niyamas help in managing our energy in an integrative manner, complementing our outer life with our inner development. They help us view ourselves with compassion and awareness. They help us in respecting the values of this life, in balancing our inner growth with outer restraint. In short, they help us to lead a conscious life. Yamas and Niyamas are not about right and wrong. They are about being honest with the true Self. Living according to these principles is about living our lives in a better way, about moving towards an understanding, about making it possible to 'connect' with the Divine.

### 3. ASANA

#### (Posture)

Patanjali's Yoga Sutra 2.46 states, 'sthirā sukham āsanam', which means Asana should be a steady and comfortable posture. Whatever Asana is performed, it should be done with a feeling of steadiness, awareness and delight. The practice of Asana heightens one's awareness and prepares one for one-pointedness which is essential for Dharana (concentration).

### 4. PRANAYAMA

#### (Breath control)

Patanjali's Yoga Sutra 2.49 states, 'tasmin sati svāsa prasvāsayoh gāticchedah pranayamah' which defines Pranayama as the regulation of in-breath and out-breath with retention. It is important to note that Patanjali expressly advises the practitioner to practice Pranayama only after attaining perfection in Asana. The breath is our life. It is very important to know this. The practice of Pranayama prepares the mind for Pratyahara.

### 5. PRATYAHARA

#### (Withdrawal of senses)

Pratyahara is the fifth anga of Patanjali's Astanga yoga. The specific meaning of the term Pratyahara in ashtanga yoga is 'the withdrawal of the senses inwards towards their source' viz. Pratyahara means you are with your true self, you are turning inwards, listening to what's inside you. You are returning to your home. All your senses are helping you to move inwards.

**The five sense organs and their functions are as follows:**

- i) The eyes like to see
- ii) The nose likes to smell
- iii) The tongue likes to taste
- iv) The ears like to hear melodious sounds
- v) The skin likes tender touch

Though these are the blessings for fully living life, they bring with them vices which are called SEX, ANGER, GREED, ILLUSION, PRIDE and JEALOUSY. Since the organs are the centers of perception and sensation, having control over the organs keeps the mind free from all these unnecessary disturbances.

## 6. DHARANA

### (Concentration, Focus)

Patanjali's Yoga Sutra 3.1 states that Dharana is the stage of concentration whereby one gathers the scattered mind in one place and gets it to concentrate on a certain object. Dharana occurs when the chitta or the mind-stuff is confined and limited to a certain place or object.

According to Yoga Shasta, sixteen places in the human body which are suitable for concentration have been identified. This is known as –SHORHOSH BANDHA ADHAR|| as described in the third chapter of the Hatha Yoga Pradipika. They are: 1) Padangustha (Big Toes), 2) Padagulpha (Heels), 3) Gujjhadesh (Anus), 4) Lingamul (Genital organs) 5) Navimandal (Naval), 6) Hridaya (Heart), 7) Kanthakup (Throat cavity), 8) Jehwagra (Tip of the tongue), 9) Dantadhar (Teeth), 10) Talumul (Root of the palate), 11) Nasagra (Tip of the nose), 12) Bhrumadhya (Middle point of the eye brows), 13) Netradhar (Eyes), 14) Lalat (Forehead), 15) Murdhna (Medulla Oblongata), and 16) Sahashrara (seat of the soul).

## 7. DHYANA

### (Meditation)

Dhyana is a technique for attaining a state of consciousness that is totally different from the normal waking state. In meditation, one is alert, but the mind is not focused on the external world or the events taking place around it. In this state, the mind is not dreaming, fantasizing or sleeping. Instead, it is clear, relaxed and inwardly focused.

The root of the word 'meditation' is similar to that of medical or medicate. The root of all these words implies the sense of 'attaining to' or 'paying attention to' something. In meditation, you pay attention to the dimensions of yourself which are seldom known - your own deepest, innermost levels. These deeper levels are more profound than the processes of thinking, analyzing, daydreaming, or experiencing emotions or memories. Meditation involves a type of inner attention that is quiet, aware and at the same time, relaxed. There is nothing difficult or strenuous about creating this inner attention, in fact, meditation is a process that is restful for the mind.

## 8. SAMADHI

### (Salvation, super-consciousness)

Patanjali's Yoga Sutra 3.3 defines Samadhi as the stage whereby the object of meditation becomes the subject and self-awareness is lost. It is the state of Super Bliss and Joy, merging individual consciousness into universal consciousness, a union between

Jivatman and Paramatman (mind & soul), a union of Shiva and Shakti in the Sahasrara Chakra (Crown Chakra). Realizing the Brahman (pure consciousness) or the realization of God is the ultimate achievement of Human Birth. Self-Realization is the ultimate stage of Ashtanga Yoga. Samadhi comes from Sanskrit word ‘samadhan’, which means every problem of life is solved, now there is no suffering and a person can live joyfully without any conflict, fear, or complexity. A TOTAL FREEDOM & LIBERATION.

## 1.4 GUIDELINES FOR A TRADITIONAL YOGA PRACTICE

A yoga teacher has the responsibility to make all his/her students aware of the following do's and don'ts, so that students can practice safely and effectively.

### 1) Yoga should not be practiced immediately after having food.

Advise your students to plan their meals according to the time of their practice. There should be a minimum of 3 to 4 hours gap after a meal and a 45-minute gap after having a snack before they begin their practice. When the digestion process is on-going, the digestive organs need more blood to be supplied to them to run the digestive system properly. If yoga exercises are started immediately after a meal, there will be a competition for blood supply as the muscles and organs which are being exercised also need more blood to be supplied to them. However, the body cannot supply more blood at the same time to both areas and the Central Nervous System also cannot concentrate on both functions at a time.

### 2) Select a suitable class for safe practice.

Always advise your beginner students to begin their yoga practice with a basic yoga class for safe practice and to enjoy the optimal benefits of yoga. After 2 to 3 weeks of regular practice, they can go for the next advanced class according to their needs and after consulting with their teacher.

### 3) Be punctual for class and do not skip warming-up exercises.

Impress upon your students the importance of being punctual and performing warming-up exercises as they are crucial in any exercise system, sports and games and similarly in the yogic systems too. Warming-up exercises prepare the body and mind for the main yogic exercises. They are essential to ensure that the practice of subsequent

postures is done safely without any trouble. On the other hand, warming-up exercises help in proper concentration, which is important in all physical activities to achieve better performance.

#### **4) Avoid jerky movements when going in and out of a posture.**

Emphasize the importance of awareness during yoga practice. Most injuries are a result of a lack of awareness when coming in and out of a posture rather than holding the posture.

#### **5) Maintain normal breathing when holding a posture.**

Remind your students to maintain normal breathing throughout the entire time they are in a posture. To reap benefits from the Asana, they will be required to hold the posture for a minimum of 15-30 seconds in the initial stages. Constant, consistent breathing is important as it ensures a continual flow of oxygen throughout the entire body and the benefits of yoga are achieved when oxygen reaches and nourishes the part(s) of the body which is being worked on in the posture.

Many yoga practitioners tend to hold their breath or rather forget to breathe when they are in a pose, especially when performing a challenging one. Besides maintaining normal breathing, they should also be reminded to relax their muscles other than the ones they are working on, otherwise they are unnecessarily bringing tension to their body.

#### **6) Proper relaxation between postures and at the end of each class.**

The yogic exercise system is different from other exercise techniques. It has its own relaxation method which has also been widely adopted by other exercise systems. In traditional yoga, students are required to rest for a few seconds after performing each posture as well as at the end of each class to get optimal benefits from them. The mentality of most students is to sweat it out in a yoga class and many find taking a break between postures a ‘disruption’ to their practice. Nonetheless, as a yoga teacher you must ensure that your students rest for a few seconds between postures by performing the recommended posture for relaxation, such as child’s pose. At the end of the session, get your students to relax in Savasana (Corpse Pose) for 5 - 8 minutes according to their needs. This is crucial as during relaxation, blood supply and oxygen are encouraged to flow to that part of the body which requires them most. Proper relaxation normalizes the blood circulation throughout the entire body.

### **7) Dress comfortably for yoga practice.**

Advise your students to wear comfortable clothing for their yoga class. An overly-tight outfit will obstruct normal blood circulation and restrict their range of movements.

### **8) Seek guidance for special health condition(s).**

Always encourage your students to be upfront with their health condition and get them to seek medical clearance for their condition before beginning their yoga practice. Below are some basic dos and don'ts, more will be talked about in Level 2 - Application of Traditional Yogic Exercises for Therapeutic Purposes:

- If your student has pain or injury in the neck (cervical region), back (dorsal region) or lower back (lumber-sacral region) area, make sure they avoid forward bending postures (spinal flexion) as these can further aggravate their condition. Get them to do some light spinal extension postures instead.
- If they have pain or injury in the knees (due to osteoarthritis), they should avoid knee bending postures, such as Vajrasana or Padmasana, as these will aggravate their condition and potentially damage their knee joints.
- If they have high blood pressure, they should avoid all head down postures such as standing forward bending postures and inverted postures. As such, postures like Padahasthasana, Sasangasana, Sarvangasana and Sirshasana should be avoided.
- If they have high blood pressure and/or heart disease, they should also avoid retention of the breath during Pranayama practice. They can only practice inhalation and exhalation without retention during a Pranayama class.
- If they have low blood pressure, they can practice Pranayama with retention of breath, but only after inhalation.
- If they have asthma, they should avoid all forward bending poses, such as Paschimottanasana, Janusirsasana, and Padahasthasana. On the other hand, spinal extension poses, such as Bhujangasana, Ustrasana, Dhanurasana, and Matsyasana, are beneficial for them as such poses involve chest expansion, which ultimately leads to an increase in the breathing capacity.

### **9) No yoga practice during heavy menstrual flow days.**

Advise your female students not to practice yoga or any other exercise, and to take proper rest during the first 4-5 days of their menstrual period. This is to avoid affecting

the menstrual flow which may potentially lead to the growth of fibroids in the uterus. Though the exact cause of fibroid (tumor) growth is unknown, it is a known fact that fibroids are fed by hormones and blood. As such, they should not do anything which can cause heavier blood flow during this period.

#### **10) No general yoga class during pregnancy.**

Pregnant students require special guidance and should not attend general yoga classes unless they have previously practiced yoga and are expressly allowed to do so by the teacher conducting the class. Pregnant students should at all times be cautioned against practicing any postures which will put pressure on the abdomen. They can practice Pranayama during this time but without retention of breath. However, they should not practice yoga at all during their first trimester. After one month of delivery, they can, under special guidance, resume their yoga practice to help them regain their previous shape, strength and flexibility.

#### **11) Morning is the best time for yoga practice.**

The best time to practice yoga is in the morning, especially for Pranayama practice. To get optimal results, Pranayama classes should be practiced in the morning and in a dry and well-ventilated room with deep concentration and sitting in any steady posture.

## **YOGIC EXERCISE VS. TRADITIONAL EXERCISE**

The ancient science of yoga has a holistic viewpoint of exercise. There are many differences between yogic exercises and typical physical exercises. Other exercise systems have recognized the tremendous benefits of the yogic system and have adapted many of the wisdom of yoga into their practice.

### **Two Broad Categories of Exercise**

#### **1) Active Exercise**

##### **(a) Isotonic (Dynamic).**

These are exercises in which muscle contraction is dynamic and the contracting muscle shortens against a constant load, as when lifting a weight. In isotonic exercises, movements are produced by which, tension remains constant during the contraction of

muscles and energy is increased. Examples of this type of exercises are weight training, running/jogging, aerobics, and other exercises which involve rapid movements.

### **(b) Isometric (Static).**

These are exercises in which muscle contraction is static and is taking place with minimal shortening of the muscles. In isometric exercises, no movements are produced but energy is still increased. Examples of this type of exercise are yogic practices such as: Asana (posture), Mudra/Bandha (gestures/energy locks) and Pranayama (breathing techniques).

## **2) Passive Exercise**

These are exercises given by someone such as a therapist to a patient who is unable to perform exercises on his/her own due to diseases such as paralysis. Examples of passive exercises are body massage and manipulation of muscles by a therapist.

## **The Key Difference Between Yogic Exercise and Regular Exercise**

The common feature of typical physical exercises is that they often involve movements which are repetitive, rapid and jerky. Yogic exercises, on the other hand, involve little movement and are done in a non-repetitive, slow, and gentle manner. The yoga posture (Asana) is a static exercise that's done with normal breathing.

All the Pranayamas are also to be practiced in a still meditative pose with no movement at all.

Mudras/Bandhas are the yogic practices done with minimum muscle contractions.

1. **a) Typical Exercises:** Physical exercises involve vigorous movements, speed and jerky movements. These are designed to strengthen voluntary muscles, making them well shaped and healthy. However, a lot of strength and energy is required to perform them.

**b) Yogic Exercises:** Asanas involve static and comfortable postures with a major emphasis on breath. They are designed to develop a state of deep relaxation and are very effective in strengthening the internal organs. Yogic postures have a tremendous and direct effect on the involuntary muscles. They do not require a lot of strength and energy to perform.

2. **a) Typical Exercises** emphasize on vigorous and fast movements, which stimulate the secretion of adrenaline and other hormones in the body and thereby stimulate the mind and the nerves. Physical exercise also produces a large quantity of lactic acid in the muscle fiber, causing fatigue.  
  
**b) Yogic Exercises**, on the other hand, are calming in nature. They don't cause any fatigue and stimulation because of the proper breathing and relaxation while holding poses.

### **Other remarkable features of yogic practices:**

1. A set of yogic practices known as Mudras and Bandhas keeps the internal organs and glands healthy. This, however, cannot be achieved by typical exercise system.
2. Yogic exercises are very helpful in preventing/curing diseases. However, typical exercises do not have such benefits. (The therapeutic exercises which are being applied in Physiotherapy, are something different from such non-yogic exercise systems).
3. Yogic exercises are simple, easy and can be performed by anybody, regardless of age and sex. However, most typical exercises require a lot of strength and energy to perform and are often too challenging for the elderly and sick.
4. Non-yogic exercises focus primarily on the physical body while yogic exercises involve a holistic approach, taking care of both the physical and mental well-being of an individual.
5. Higher yogic practices like Pranayama and Meditation have a subtle effect on the entire mind-body organism. Practices like Bandhas and Mudras balance the flow of vital energy in the subtle energy centres and channels of the body.

### **These are the benefits of a regular yogic exercise practice:**

- a) Ensures a balanced and harmonious growth from childhood.
- b) Helps children and adults develop greater concentration, memory, intelligence and creativity.
- c) Helps to gain a high degree of flexibility and strength.
- d) Helps in curing and preventing many diseases.
- e) Helps to achieve a balanced state of mind.

## 1.5 YOGIC LIFESTYLE

Yoga is a complete lifestyle. The practice of Yoga does not only deal with developing the physical body, it also covers all aspects of a person's life - the physical, mental and spiritual well-being of an individual as well as his environment and relationship with other creatures. In Patanjali's Yoga Sutras, he described the eight aspects of a Yogic lifestyle and called it the Eight-Limbs of Yoga or Ashtanga Yoga. These eight limbs are a practical guide for personal development to achieve harmony of the mind, body and spirit, which ultimately leads to Samadhi or Enlightenment.

As Yoga deals with universal truth, its teachings are as valid today as they were thousands of years ago. The practice of Patanjali's eight principles would lead to deeper self knowledge, love and respect towards other people and creatures, a cleaner environment, healthy diet and union with the Divine.

### The 3 Gunas of Nature

In the philosophy of Yoga, all matter in the universe arise from the fundamental substrate called Prakriti. From this ethereal Prakriti, the three primary Gunas (qualities) emerge, creating the essential aspects of all nature - energy, matter and consciousness. These three Gunas are Tamas (darkness), Rajas (activity), and Sattva (beingness).

All three Gunas are always present in all beings and objects surrounding us, but vary in their relative amounts. We humans have the unique ability to consciously alter the levels of the Gunas in our bodies and minds. The Gunas cannot be separated or removed in oneself, but can be consciously acted upon to encourage their increase or decrease. A Guna can be increased or decreased through the interaction and influence of external objects, lifestyle practices and thoughts.

#### a) Tamas

Tamas is a state of darkness, inertia, inactivity and materiality. Tamas manifests from ignorance and deludes all beings from their spiritual truths. To reduce tamas, avoid tamasic foods, over sleeping, over eating, inactivity, passivity and fearful situations. Tamasic foods include heavy meats and foods that are spoiled, chemically treated, processed or refined.

### b) Rajas

Rajas is a state of energy, action, change and movement. The nature of rajas is of attraction, longing and attachment. Rajas strongly binds us to the fruits of our work. To reduce rajas, avoid rajasic foods, over-exercising, over work, loud music, excessive thinking and consuming excessive material goods. Rajasic foods include fried foods, spicy foods, and stimulants.

### c) Sattva

Sattva is a state of harmony, balance, joy and intelligence. Sattva is the Guna that yogi/nis aspire towards, as it reduces Rajas and Tamas, thus making liberation possible. To increase Sattva, reduce both Rajas and Tamas, eat Sattvic foods and enjoy activities and environments that produce joy and positive thoughts. Sattvic foods include whole grains, legumes, fresh fruits and vegetables that grow above the ground. All yogic practices were developed to create Sattva in the mind and body. Thus, practicing yoga and leading a yogic lifestyle strongly cultivates Sattva.

The mind's psychological qualities are highly unstable and can quickly fluctuate between the different Gunas. The pre-dominant Guna of the mind acts as a lens that effects our perceptions and perspective of the world around us. Thus, if the mind is in Rajas it will experience world events as chaotic, confusing and demanding, and it will react to these events in a Rajasic way.

All Gunas create attachment and thus bind one's self to the ego. 'When one rises above the three Gunas that originate in the body; one is freed from birth, old age, disease, and death; and attains enlightenment' (Bhagavad Gita 14.20). While the goal of yogi/nis is to cultivate Sattva, his/her ultimate goal is to transcend the misidentification of the self with the Gunas and to be unattached to both the good and the bad, the positive and negative qualities of all life.

In Yoga philosophy, all living beings have Three Bodies and Five Different Layers which are known as 'Kosha', or 'Sheath'.

## The Three Bodies & The Five Layers

Physical Body ———-Annamaya Kosha (Food Sheath)

Subtle Body -----Pranamaya Kosha (Vital Sheath)

Subtle Body -----Manomaya Kosha (Mental Sheath)

Subtle Body -----Vijnanamaya Kosha (Intellectual Sheath)

Causal Body ———-Annandamaya Kosha (Blissful Sheath)

Human beings are the best and greatest creature of God, and are very different from all other living beings. According to Yogic science, the existence of human beings starts from the Manomaya Kosha or Mental Sheath. The power of discrimination comes simultaneously with this state. On the other hand, the animal's existence is only up to the Annamaya and Pranamaya Koshas (the Food and Pranic Sheaths), which is why their interests are only eating and reproduction and unlike humans, they do not have the power of discrimination.

The development of a person's Manomaya Kosha depends on the type of company one mixes with. Mixing with good company helps develop & bring up the superior part of the Manomaya Kosha, and associating with the bad brings out the inferior part of the Manomaya Kosha. The wave of high thoughts or hopes creates the wave in Manomaya Kosha, which in turn develops one's intelligence and consciousness. These good notions ultimately have an effect on the later life. On the other hand, the bad effects of Manomaya Kosha will be transferred to the next birth. Manomaya Kosha is the place of work - a virtuous act takes you to heaven whereas impure work takes you to the nether/lower world. If one's Manomaya Kosha becomes pure, there will be a luster around one's body just like a saint's.

## 1.6 THE YOGIC DIET

In order to derive the full benefits from what Yoga has to offer, the practice of Yoga should be complemented by the consumption of the right kinds of food. We need to properly nourish both our mind and body so as to keep us alert and energized throughout the day.

According to Yoga Shastra (philosophy), there are different ways for purifying the body and mind, which is described in Saucha of Niyama, the 2nd limb of Ashtanga Yoga. Observing a proper diet is one of the ways in which yogis keep their body and mind healthy. Suddhahar means a pure and flawless diet while Habishyanna means a balanced diet which helps the mind to maintain chastity and protects the inner self from all sorts of evil and degrading perceptions.

Diet has an intimate connection with the mind, as the mind is formed from the subtlest portion of food. The only layer of the physical body, known as Annamaya Kosha (Food Sheath), is made up of food. The human body is an aggregation of a number of cells. Every day, some cells die and some new ones are being created - this is job of the food sheath. A proper diet is therefore essential for the repair and maintenance of the cells. Bad food causes disorders in the food sheath, which ultimately adversely affects the development of the other sheaths. As such, ancient Yogis placed great emphasis on the Diet to build up the body and mind according to the needs of Yogic practices.

A Yogic Diet is one that is wholly conducive to the practice of Yoga and to one's spiritual progress, which is an essential aspect of any yoga practice. In general, one should always have a well-balanced diet and eat in moderation. This following section covers several important aspects of the Yogic Diet, such as: a) A Proper Vegetarian Diet, b) Fasting, and c) The Influence of the Three Gunas in your Diet.

### **A Proper Vegetarian Diet**

In the past, most meat eaters often viewed vegetarians with a certain suspicion, dismissing them as cranks or food faddists, who lived on an unappetizing diet of brown rice and nut cutlets. However, nowadays, people are better informed and educated on the benefits and importance of a vegetarian diet. Nonetheless, there are still many people who consider the Vegetarian Diet as dull, uninteresting and lacking in vital ingredients (such as proteins). This is due to a lack of knowledge about the most recent science on food.

It has been proven that the human body is not made to eat non-vegetarian food and animal proteins are not suitable for us. Our body is a living body and we need living food every day. Animal proteins cannot be consumed before they are cooked. By consuming animal proteins, we are in fact taking in the worst qualities of protein, that which is dead or dying. Not only do these proteins fail to help us fulfill the level of protein required by our body, they also cause poisons like uric acid, cholesterol etc, to accumulate in our body, which in turn increase the likelihood of heart attack, stroke, kidney disease and cancer.

There are people who are obsessed with protein, believing that they need far more protein than they actually do. Fear of protein deficiency is one of the reasons these people avoid a vegetarian diet. However, statistically speaking, compared to meat eaters, vegetarians have lower incidences of heart attack, stroke, kidney disease and cancer. The vegetarian diet helps increase the level of resistance in the body and vegetarians are also less likely to suffer from obesity which is the cause of various diseases in most meat eaters.

A balanced vegetarian diet is extremely healthy and provides all the proteins, vitamins, minerals and other nutrients which our body requires. Proteins from the vegetable kingdom, such as nuts, beans, cereals, dairy product and legumes are just as good as those from animals, if not better. The demand for living foods in our body can be adequately fulfilled by including various seasonal fresh fruits in our diet. These fruits are rich in amino acids, which the body converts into human protein after digestion, and they take comparatively less time to digest. Sprouting seeds are also another type of living food which is very good source of protein.

**A proper vegetarian diet should comprise of the following foods:**

- Fresh and seasonal fruits
- Fresh seasonal vegetables
- Pure fruit juices
- Legumes
- Nuts
- Seeds
- Milk
- Cereals
- Wholemeal bread
- Rice and/or potatoes
- Yoghurt

- Butter
- Sprouting seeds
- Honey
- Herbal teas

### **How to Change your diet**

You should not make sudden changes to your diet. People who are used to the taste of non-vegetarian food will find it difficult to adapt to a completely vegetarian diet overnight. As such, changes must be done slowly, gradually and not instantaneously. For example, if you have been eating fish, meat or egg every day, you should first reduce the consumption of such food to once or twice a week, and at the same time you should include and increase the intake of fruits and vegetables with the aim of eventually shifting yourself towards a complete vegetarian diet. Maintaining a fruit diet is very healthy and it will help you develop a stronger body with calmness (which is very important in Yoga Sadhana) and a better state of mind (if done together with daily yoga practice).

**The following guidelines are some of the ways which will help you change your diet:**

1. Eat only fresh fruits and sprouts for breakfast every day.
2. Drink lemon juice with honey in the morning. This helps to boost health and energy as well as purify the blood.
3. Include plenty of green, leafy vegetables in your diet while minimizing the intake of fish, eggs and meat.
4. Eat salad or raw vegetables every day.
5. Cut back on junk, unhealthy and denatured foods such as any type of packaged fried chips (included potato chips), cold drinks, alcohols, food like flour, white bread, cakes, refined cereals etc. Reduce the intake of such food to once or twice a week until you feel good without eating or drinking them.
6. Gradually give up all processed foods, which produces diseases of the liver, kidneys and pancreas.
7. Include healthy sources of proteins such as nuts, legumes, whole grains, milk or milk product in your diet.
8. Avoid overeating, as this has serious repercussions later in life. You should be aware and learn about your own daily requirement of food.
9. Cook only the amount needed for today's consumption and avoid having to preserve food for tomorrow.

10. Students of Yoga must learn to cook their own food as according to Yogic philosophy, all the Gunas (qualities) are constantly being transformed from the person who cooks, to the person who serves and right up to the person who consumes the food. As such, depending on how the Gunas are transformed, this may ultimately have an adverse effect on their Yoga Sadhanas (yogic practices).
11. Be simple in your food selection as eating serves only to maintain body heat, to produce new cells and to make up for the wear and tear of the body.

### **The Influence of the 3 Gunas on your diet**

By changing your food habits (purifying your food), you become purified of your hidden inner nature. Food plays an important role in keeping you healthy and fit, purifying your mind, and bringing calmness in nature and in life. It also plays an important role in concentration and meditation. Different types of food produce different effects on the compartments of the brain. As such, food should always be very light, nutritious and Sattvic in nature for the purpose of bringing calmness in your mind and for the purpose of concentration and meditation.

The yogic diet is the perfect complement for yoga practices. Ayogic diet is a well-balanced diet in which all the different principles of a diet such as proteins, carbohydrates, fats, vitamins, minerals etc, exist in proper proportions. If you can follow the proper yogic diet along with yoga practices, you will soon notice that eating according to the yogic way will improve your health and make you feel good, fit and cleaner.

According to yoga philosophy, there are three kinds of diets - Sattvic Diet, Rajasic Diet and Tamasic Diet. According Yogic science, energy is also divided into three different Gunas or qualities and these are also applicable in foods. These Gunas or qualities are as follows:

1) **Sattvic Food** is made of the purest diet, which increases vitality, energy, vigor, health and joy; and is delicious, wholesome, substantial and agreeable with the body. Such food nourishes the body, as well as calms and purifies the mind, enabling it to function at its maximum potential. This is the most suitable diet for any serious student of Yoga as such a diet leads to true health and a peaceful mind in control of a fit body, with a balanced flow of energy between them.

- They are fresh, juicy, light, nourishing, sweet and tasty.
- They give the necessary energy to the body without taxing it.
- Thus the foundation for higher states of consciousness is laid.
- Examples: juicy fruits, fresh vegetables that are easily digestible, fresh milk

and butter, whole soaked or sprouted beans, grains and nuts, cereals, whole meal bread, fresh fruit and vegetables, pure fruit juice, milk, butter & cheese, legumes, nuts, seeds, sprouting seeds, honey and herb teas, many herbs and spices in the right combinations with other foods.

2) **Rajasic Food** is that which is bitter, sour, saline, excessively hot, pungent, dry and burning and produces pain, grief and disease. Too much Rajasic Food over-stimulates the body, excites the passions, and makes the mind restless and uncontrollable. This type of food destroys the mind-body equilibrium, feeding the body at the expense of the mind.

- They are bitter, sour, salty, pungent, hot and dry.
- They increase the speed and excitement of the human organism.
- They are the foundation of motion, activity and pain.
- Examples of Rajasic food : sattvic foods that have been fried in oil or cooked too much or eaten in excess, Hot substances, such as: sharp spices or strong herbs, Stimulants, such as: coffee and teas, salt and chocolates, and specific foods and spices that strongly stimulate the system.

3) **Tamasic Food** is that which is stale, tasteless, putrid, rotten and impure. Food which is decomposed, unclean, twice cooked or kept overnight, over-ripe or unripe should be abandoned. Tamasic Food benefits neither the mind nor the body.

- They are dry, old, decaying, distasteful and/or unpalatable.
- They require a large amount of energy while being digested.
- They lay the foundation of ignorance, doubt, pessimism, ...
- Examples of Tamasic food: foods that have been strongly processed, canned or frozen and/or are old, stale or incompatible with each other - meat, fish, eggs. Fermented foods such as vinegar, stale overripe substances and liquor

## MODULE 2:

# Yoga Asana

### Introduction:

Asana is defined as a steady and comfortable posture. Asana is the third limb of Patanjali's Ashtanga Yoga. Postures are gentle stretching movements designed to help balance the mind and the body. Yoga postures are designed to rejuvenate the brain, spine, glands and internal organs. They work by increasing the blood and prana supply to these areas and by stimulating them with gentle squeezing action. The Asanas were designed with economy of time and effort in mind. Most of them work on more than one aspect of the body at the same time. For example, a twisting Asana benefits the spine, adrenal glands, liver, pancreas and kidneys.

‘Sthira sukham asanam’ ( - ‘Asana should be stable and comfortable’ )

-Patanjali Yoga Sutra.



## 4.1 THE MEANING & BEAUTY OF ASANA

Yoga Asanas produce their beneficial effect on the organs and glands in three ways.

1. **The position of the Asana causes an increase in blood circulation to the specific target organ or gland.**
2. **The position of the Asana often produces a slight squeezing of the organ or gland. This has the effect of massaging the organ or gland and stimulating it.**
3. **Deep breathing and visualization of the target area sends an extra supply of prana to the area.**

According to ‘Gheranda-Samhita’, an ancient Indian text on Hatha Yoga, this earth originally contained 8.4 millions species of animals, humans included. The yogis created Asanas by observing these animals. According to Lord Shiva, out of these 84 lakhs (8.4 million) Asanas, only 1600 are great. Out of those, only 84 are generally known and of special importance, and out of those 84 postures, only 32 are said to give good results, and only 2 can be practiced by anyone.

Different Asanas are described in detail in different books of yoga. The Hatha Yoga Pradipika describes 14 Asanas, the Gheranda Samhita 32, the Vishva Kosha 32, the Anubhava Prakasha 50 postures. All however agree that the number of the chief postures is 84, although there exists some technical differences in defining them.

### Asana Mentioned in Gheranda Samita

**Thirty-two important asanas as described in the Gheranda Samhita:**

Siddhasana, Padmasana, Bhadrasana, Muktasana, Vajrasana, Swastikasana, Simhasana, Gomukhasana, Virasana, Dhanurasana, Mritasana (Savasana), Guptasana, Matsyasana, Matsyendrasana, Gorakkhasana, Pashchimottasana, Utkatasana, Sankatasana, Mayurasana, Kukkutasana, Kurmasana, Uttan Kurmasana, Uttan Mandukasana, Vrkkshasana, Mandukasana, Garurhasana, Vrishasana, Salabhasana, Makarasana, Ushtrasana, Bhujangasana, and Yogasana.

### Asanas mentioned in Hatha Yoga Pradipika

This text by Yogi Svatmarama dates from the fifteenth century. It is one of the most important and the most comprehensive texts on Hatha Yoga. It is divided into four chapters describing the techniques of Hatha Yoga: Asana, Pranayama, Mudra and Nada.

### **Svatmarama mentioned the following fourteen asanas:**

Swastikasana, Gomukhasana, Virasana, Kurmasana, Kukkutasana, Uttan Kurmasana, Dhanurasana, Matsyendrasana, Paschimottanasana, Mayurasana, Shabhasana, Siddhasana, Bajrasana, Muktasana, Guptasana, Padmasana, Sinhasana, and Bhadrasana.

### **The Four Main Asanas:**

According to Hatha Yoga Pradipika 1.34: “Siddha, Padma, Simha and Bhadra are the four main bodily postures. Best is he who can sit without effort in Siddhasana. ‘

The four postures are:

- the Posture of Attainment (Siddhasana)
- the Lotus Posture (Padmasana)
- the Posture of Prosperity (Bhadrasana)
- the Lion posture (Simhasana).

The Posture of Prosperity is sometimes replaced by the Auspicious Posture (Swastikasana).

## **4.2 CLASSIFICATION OF POSTURES & THEIR BENEFITS**

Asanas or yoga postures should always be performed and practiced with normal breathing and minimum effort. To attain maximum benefit from an Asana, one should hold it for a minimum of 15 to 30 seconds in the initial stage and should rest for a few seconds after each Asana by adopting the appropriate relaxation posture. After a few weeks of regular practice, the time for holding each Asana can be increased according to one's capacity.

Asanas can be divided into the following categories (some may fall under more than one category):

1. Warming-Up Postures
2. Relaxation Postures
3. Meditative Postures
4. Standing Postures
5. Forward-Bending Postures
6. Backward-Bending Postures
7. Twisting Postures
8. Inverted Postures
9. Arm-Balancing Postures & Others

## The General Benefits of Each Category

### 1. Warming-Up Exercises

Warming-Up Exercises prepare the body and mind for the main yogic exercises. They are essential to ensure that the practice of subsequent postures is done safely and without any trouble. **Depending on one's physical ability and needs, the choice of warming up exercises will vary from person to person.**

### 2. Relaxation Postures

The practice of Relaxation Postures encourages proper blood and oxygen flow to parts of the body which require them most. Proper relaxation normalizes blood circulation throughout the entire body and ensures the maximum benefits are reaped from the asana practice. **One must always end a yoga session with deep relaxation.**

### 3. Meditative Postures

The practice of Meditative Postures prepares one to sit comfortably for a longer period of time which is required to perform higher practices such as Pranayama, Concentration and Meditation. Great care should be taken when moving in and out of these postures, especially for those with a knee injury, as the knee is a very delicate joint. A few meditative postures include Padmasana (Lotus Pose), Baddha Konasana (Bound angle Pose) and Sukhasana (Easy Pose).

#### 4. Standing Postures.

These include Tadasana (Mountain Pose), Trikonasana (Triangle Pose), Virbhadrasana (Warrior Pose), Ardha Chandrasana (Half Moon Pose), Utthita Hasta Padangusthasana (Extended hand-to-big-toe Pose), Padangusthasana (Forward fold) etc. Improper standing posture leads to many disorders of spine, hips, knees and also the digestive organs. To correct these and avoid future problems, yogis have prescribed standing postures to maintain the health of the entire body. The practice of standing postures strengthens the leg and hip joints, tones the leg muscles, and increases one's sense of balance. These postures also help remove stiffness in the legs, correct the hips due to minor deformity in the legs, relieve cramps in and increase elasticity of the calf and thigh muscles. They also tone abdominal muscles and organs. **Those who suffer from sciatica or slipped disc should practice standing postures with care, especially postures which involve forward bending action.**

#### 5. Forward-Bending Postures.

Some Forward-Bending postures: Paschimottanasana (Seated Forward Fold), Uttanasana (Standing Forward Fold), Upavistha Konasana (Wide-legged Seated Forward Bend), and Kurmasana (Tortoise Pose).

Yogis have watched animals and understood the benefits of assuming a horizontal position in a conscious manner. Similarly, when we are tired, we also assume a horizontal position.

The practice of forward-bending postures induces relaxation as it is done with chest compression and exhalation. It also increases flexibility of the leg muscles and tones abdominal muscles and organs, keeping them free from sluggishness. When the organs inside the abdominal cavity are kept healthy, proper digestion and bowel movement will take place, thereby preventing/curing constipation. These postures also give a good stretch to the pelvic region, bringing more oxygenated blood and nourishment to the gonad or reproductive glands, thereby helping to cure impotency and promote Brahmacharya. **Those suffering from lower back pain or any back condition should avoid these postures.**

#### 6) Backward-Bending Postures.

These include Bhujangasana (Cobra Pose), Dhanurasana (Bow Pose), Urdhva Dhanurasana (Wheel Pose), Kapotasana (King Pigeon Pose), Salabhasana (Locust Pose) etc. These Asanas are more intensive. It requires great mental and physical stamina to practice them.

The practice of Backward-Bending Postures is stimulating as it involves chest expansion and inhalation. It also provides a good stretch to the spine and the abdominal area, thereby increasing spinal flexibility, toning the spinal nerves and strengthening the abdominal organs as more blood and oxygen gets directed to the spinal and abdominal regions. These postures also help to maintain proper function of the kidneys. **Depending on the application, backward bending postures are generally very effective in removing back pain and correcting spinal defects.**

### **7) Twisting Postures.**

The practice of twisting postures increases spinal flexibility and stimulates spinal nerves. Lateral twisting of the spine can help remove backache and pain in the hips as well as stiffness and pain in the shoulder joints. Twisting also works strongly on the abdominal region, massaging and nourishing the abdominal muscles and organs, keeping the liver, spleen, pancreas well toned and in good function. Daily practice of twists also helps prevent enlargement of the prostate and bladder. Those with a stiff back must practice with care and not twist more than their current flexibility allows.

Many of our activities involve asymmetrical usage of the muscles. While watching television we often turn the body to one side. Most of us turn the spine to the same side to reverse a car. In this manner many activities can be shown to be one-sided in execution - some unconsciously and others consciously. Yoga teaches us to be more aware of our body position and movements.

### **8) Inverted Postures.**

Inverted asanas peculiar to the yogic system include Sirshasana (Headstand), Sarvangasana (Shoulderstand), Halasana (Plow Pose) etc.

The practice of inverted postures reverses the effects of gravity on the body and encourages a rich supply of blood to the brain, nourishing the pituitary gland and enhancing the working of the entire endocrine system. These postures are also effective in improving mental power and concentration. Those with high blood pressure, heart or back conditions or illness causing blood to be impure should avoid these postures.

### **9) Arm-Balancing Postures.**

The practice of arm-balancing postures should be done in the intermediate or advanced stages of asana practice and is generally not suitable for beginners. These

postures strengthen the wrist and shoulder joints, chest and arm muscles as well as the abdominal muscles and organs. **Those with high blood pressure, heart problem, back or knee pain should avoid these postures.**

## 4.3 WARMING UP EXERCISES

### 1) The Pawanmuktasana Series

Pawan means ‘wind’ or ‘prana’, mukta means ‘release’ and asana means ‘pose’. As such, the Pawanmuktasana series refers to a group of asanas that remove any blockages which prevent the free flow of energy in the body and mind.

The Pawanmuktasana Series is hence one of the most important series of practices that has a profound effect on the human body and is a useful tool for the yogic management of various disorders and maintenance of health. It is valuable for developing awareness of the body’s movements and the subtle effects they have at the various levels of being and is a useful preparatory practice which opens up all the major joints and relaxes the muscles of the body. As the series is simple and gentle, the whole series except for the Energy Block Postures can be practiced by anyone.

#### a. Anti-Rheumatic Group (Joint-Freeing Group).

This group focuses on loosening the joints of the body and is excellent for those with rheumatism, arthritis, high blood pressure, heart problems or other ailments where vigorous exercise is not advised.

- Hand Clenching
- Wrist Bending
- Wrist Joint Rotation
- Elbow Bending
- Shoulder Socket Rotation
- Neck Movements
- Base Position

- Toe Bending
- Ankle Bending
- Ankle Rotation
- Knee Bending
- Half Butterfly
- Full Butterfly

**b. Digestive/Abdominal Group.**

This group focuses on strengthening the digestive system and is excellent for those suffering from indigestion, constipation, acidity, excess wind or gas, lack of appetite, diabetes, disorders of the male and female reproductive systems and varicose veins.

- Single & Double Leg Raises
- Leg Rotation
- Cycling
- Wind Releasing (Leg Cradle)

**c. Energy Block Postures**

This group focuses on improving the energy flow within the body and breaking down neuromuscular knots especially in the pelvic region where energy tends to stagnate. It is useful for those with reduced vitality, stiff back, menstrual problems, weak pelvic organs and muscles. Those with serious ailments should seek professional advice before attempting.

- Pulling the Rope
- Dynamic Spinal Twist

- Churning the Mill
- Rowing the Boat
- Chopping Wood
- Salutation Pose
- Wind Releasing Pose - Crow Walking

## 2) SURYA NAMASKAR

‘Surya’ means ‘sun’ and ‘namaskar’ means ‘salutation’. The sun salutation is a dynamic practice made up of a smooth, flowing sequence of yoga postures. It originated as a series of prostrations carried out to the rising sun in gratitude for its lighting, warming and energizing effect on our lives.

Surya Namaskar is not part of traditional Hatha Yoga practices as it was introduced at a much later time. Nonetheless, it is an effective way to loosen up, stretch, tone and



strengthen the entire body. Each posture is sequenced in such a way that postures opening the chest are followed by those which contract the chest. This frees the respiratory system and encourages deeper breathing. This practice also increases blood circulation and focuses the mind. As such, it is an excellent warm up and can also be included at any part of a yoga session or practiced on its own. Benefits are not only gained from the postures themselves but also from flowing from one posture to another with breath-movement coordination.

## 4.4 RELAXATION POSTURES

### 1. Equal Standing Position (Samasthiti)

Equal standing pose is used to start the practice of standing postures, such as Vrikshasana and Utkatasana, and should be adopted while taking a short break between these postures. When resting in Samasthiti, one should stand straight with feet apart (one foot apart), arms by the side in a relaxed manner and maintain normal breathing.

### 2. Long Sitting Position (Dandasana)

Dandasana or the Staff/Stick Pose is used to start the practice of sitting postures such as Vakrasana and Ardha Matsyendrasana, and should be adopted while taking a short break between these postures. When resting in Dandasana, legs should be kept slightly apart with the arms at the back of the body, palms on the floor, head leaning back in a relaxed manner and normal breathing maintained.

### 3. Prone Lying Position (Makarasana)

Makarasana or Crocodile Pose is used to start the practice of prone lying postures such as Bhujangasana and Salabhasana, and should be adopted while taking a break between these postures. When resting in Makarasana, one should lie down on the abdomen, arms folded, keeping the head on the folding arms, legs apart, toes pointing outside in a relaxed manner and maintain normal breathing.

2. Long Sitting Pose (Dandasana)



3. Prone Lying Position



4. Supine Lying Position (Savasana)



## 4.5 MEDITATIVE AND OTHER SITTING POSTURES

### 1. Dandasana (Staff Pose)

#### Benefits:

- Recommended for proper spinal alignment
- Strengthens the legs and gives relief in the case of a bloating sensation in the stomach.
- Opens the chest fully and improves breathing pattern.

### 2. Sukhasana (Easy Pose)

#### Benefits:

- The easiest and most comfortable of the meditative postures, can be utilized without ill effect by people who can't stay long in the more difficult meditative postures
- Facilitates mental & physical balance without causing strain or pain.

### 3. Padmasana (Lotus Pose)

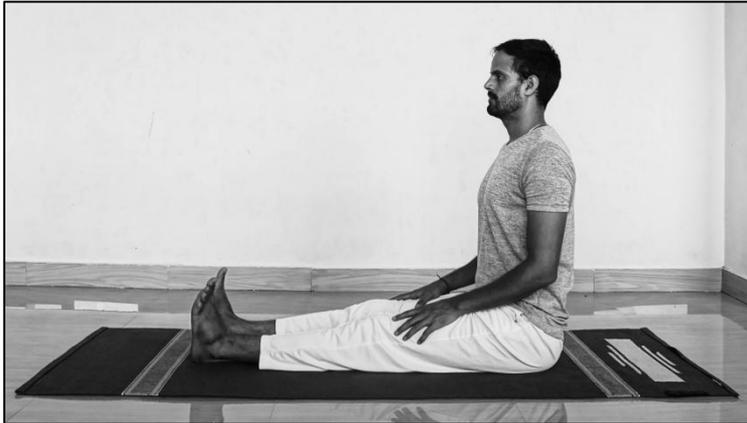
#### Benefits:

- One of the best poses for meditation as it keeps the body steady and the mind still for long periods of time
- Cures stiffness in the knees and ankles
- Tones the spine and abdominal organs by circulating blood in the lumbar and abdominal regions
- Applies pressure to the lower spine, induces a relaxing effect on the nervous system, calms the mind
- Directs prana from the base chakra to the highest chakra, heightening the experience of meditation

#### Limitations:

- Not for those not yet developed flexibility of the knees should not attempt until they first master the premeditative postures

1. Dandasana (Staff Pose)



2. Sukhasana (Easy Pose)



3. Supine Lying Position (Savasana)



#### 4. Arda Padmasana (Half-lotus Pose)

**Benefits:**

- Same as Padmasana but at a reduced level

**Limitations:**

- Same as Padmasana

#### 5. Siddhasana (Inspired sage pose)

**Benefits:**

- According to Hatha Yoga Pradipika, it's one of the best postures for spiritual growth
- The position of both feet places pressure on the two lower chakras, directs energy from the lower chakras upward through the spine, (helps maintain brahmarcharya), thereby stimulates the brain & calms the entire nervous system
- Removes stiffness in the knees and ankles.

**Limitations:**

- Not for those with sciatica or sacral infections

#### 6. Gomukhasana (Cow face pose)

**Benefits:**

- An easier posture to maintain for a long time
- Massages and tones the pelvic floor and reproductive organs
- Removes stiffness & pain in the hip joints & lower extremities, relieves sciatica by relaxing the piriformis muscles
- Adopting the arm positions relieves stiff shoulders & neck, strengthens the back muscles, tones the arm, expands the chest & exercises the lungs
- Induces relaxation, if practiced for more than 10 minutes, alleviates tiredness, tension & anxiety
- Stimulates the kidneys and good for diabetes

4. Arda Padmasana (Half-lotus Pose)



5. Siddhasana (Inspired sage pose)



6. Gomukhasana (Cow face pose)



## 7. Varjasana (Thunderbolt pose) &

## 8. Virasana (Hero pose)

### Benefits:

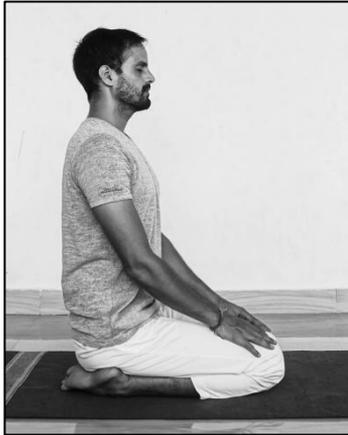
- Best meditative posture for those with sciatica or sacral infections
- Strengthens the pelvic muscles, prevents hernia, relieves piles
- Enhances digestive function, excellent pose to be in after meals (5 mins)
- Relieves stiffness in the ankles, relieves cramps in the feet, good for people with gout & arthritic pain in the knees, pain in the heels or growth of calcaneal spurs
- Good for flat feet as it helps to develop proper arches

## 9. Baddha Konasana (Bound/Caught angle pose)

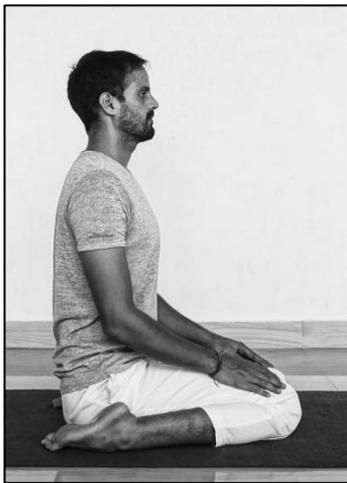
### Benefits:

- Makes the groins and hip joints very flexible, good for knees
- Helps relieve urinary disorders, sciatica pain and hernia, regulates menstrual flow & keeps the bladder, the kidneys and the prostate healthy
- Excellent for pregnant women in preparation for childbirth
- Forward-bending variation tones abdominal organs, improves digestion

7. Varjasana (Thunderbolt pose)



8. Virasana (Hero pose)



+

9. Baddha Konasana (Bound/Caught angle pose)

## 10. Simhasana (Lion Pose)

### Benefits:

- Cures foul breath and cleanses the tongue
- Helps make speech clearer and is supposed to cure speech disorder
- Exercises and tones the neck and eye muscles, improves blood circulation
- Keeps the thyroid healthy, keeps tonsillitis of certain types in check

## 11. Yoga Mudra (Psychic Union Pose)

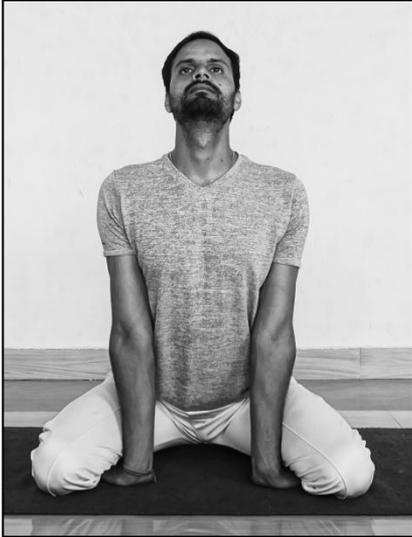
### Benefits:

- Excellent preparation for meditation
- Calms the adrenal system as the abdomen and the chest gets compressed
- induces relaxation and tranquility, develops awareness and control of psychic energy
- Massages the abdominal organs, prevents constipation, removes seminal weakness
- Stretches the spine, gently tones the spinal nerves
- Strengthens nerves of navel if practiced with fists placed at navel region

### Limitations:

- Not for those with serious eye, abdominal, heart or back conditions and those in early post-operative or post delivery period

11. Simhasana (Lion pose)



12. Simha garjana asana ( Roaring Lion Pose)



13. Yoga Mudra (Psychic union pose)



## 4.6 STANDING POSTURES

### 1. Samasthiti (Equal Standing/Upright Straight Position)

#### Benefits:

- Practicing this basic standing posture helps one learn the correct way of standing by balancing the body weight on both the feet
- Helps one regain proper alignment of the spine in relation to the pelvis and hip joints
- Develops both physical & mental balance

### 2. Vrksasana (Tree pose)

#### Benefits:

- Gives flexibility to the hip joint and a good stretch to the lower back muscles
- Strengthens the standing leg
- Improves one's sense of balance
- Calms the mind
- Opens the chest fully

### 3. Utkatasana (Powerful or chair pose)

#### Benefits:

- Excellent pose for strengthening the legs and rectifying some minor leg deformities
- Strengthens the back muscles
- Removes stiffness in the shoulders
- Develops overall endurance and strength of the whole body
- The diaphragm is lifted up, giving a gentle massage to the heart

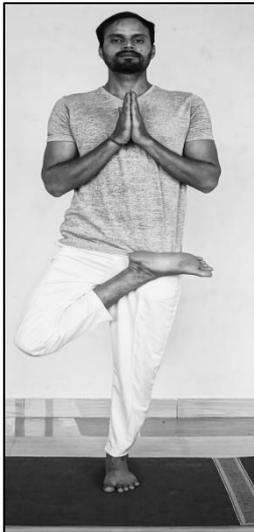
#### Limitations:

- Those with high blood pressure or heart problem should not raise their arms above the head
- Not for women suffering from prolapse of the uterus or within first 3 months of pregnancy.

1. Samasthiti (Equal Standing Pose)



2. Vrikshasana (Tree pose)



3. Utkatasana (powerful or chair pose)



#### 4. Garudasana (Eagle pose)

##### Benefits:

- Strengthens the muscles, tones the nerves and loosens the joints of legs and arms
- Develops the ankles and removes stiffness in the shoulders
- Improves sense of balance
- Relieves sciatica, rheumatism & hydrocele

#### 5. Uttanasana (Intense forward bend)

##### Benefits:

- Brings rich blood supply to the spine, strengthens the spine, mobilizes joints, tones the spinal nerves & invigorates the nervous system
- Stretches the back, hamstrings and the posterior of the body
- rectifies the shortening of legs resulting from fractures, corrects inequalities in leg length, gives flexibility to the hip joints
- Increases blood supply to the brain, an alternative to Sirsasana
- Tones the liver, spleen and kidneys
- Opens the chest cavity, creates space in the abdominal cavity
- Helps to recover after a strong practice of standing poses
- Relieves stomach pain during menstrual periods
- Relaxes the mind, enhances concentration, expels tamas (inertia or laziness), stimulates intellectual capacities

##### Limitations:

- Not for those with serious back complaints, sciatica, heart problem, high blood pressure or abdominal hernia

4. Garudasana (Eagle pose)



5. Uttanasana (Intense forward bend)



## 6. Trikonasana (Triangle pose)

### Benefits:

- Opens the chest cavity, improves the elasticity of the lungs & keeps them healthy.
- Removes stiffness in the shoulders, neck and hip joints
- Gives great strength & elasticity to the back muscles, removes sprain in the lower back
- Develops legs evenly
- Opens the abdominal cavity and improves the peristaltic movement of the intestines
- Tones the legs and buttocks

## 7. Virabhadrasana- I (Warrior Pose-I)

### Benefits:

- Stretches the spine & trunk, tones spinal nerves, promotes flexibility in the hips, spine, and legs
- Invigorates circulation
- Corrects minor deformities in the legs
- Develops the chest, strengthens the back and shoulder muscles, opens the abdominal cavity and improves the function of digestive organs

### Limitations:

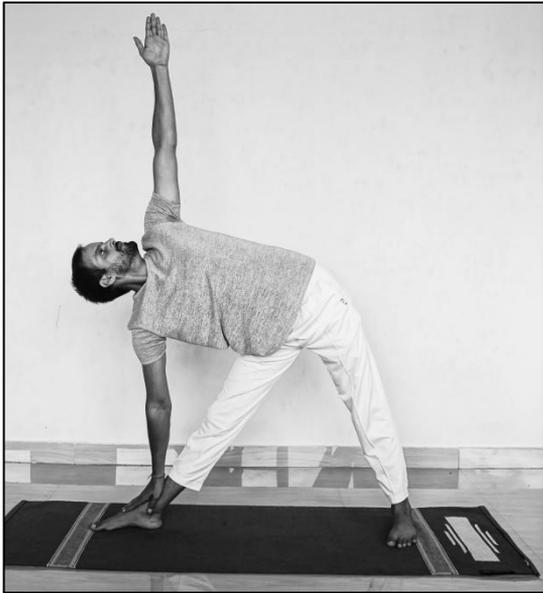
- Those suffering from cervical and lumbar spondylitis or hypertension should practice carefully

## 8. Virabhadrasana- II (Warrior Pose-II)

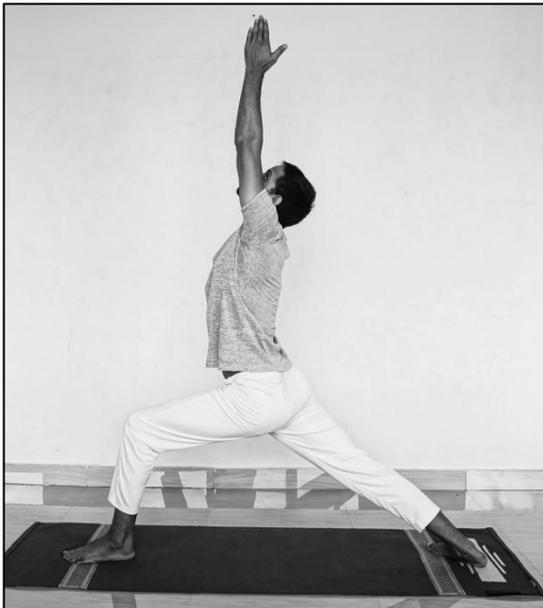
### Benefits:

- Relieves cramps in the lower back
- Helps to develop the legs evenly
- Opens the chest cavity, keeps the lungs healthy
- Gives strength to the whole body
- Helps to reduce body fat
- Gives strength to the lower back
- Tones the abdominal organs
- gives grace to the whole body

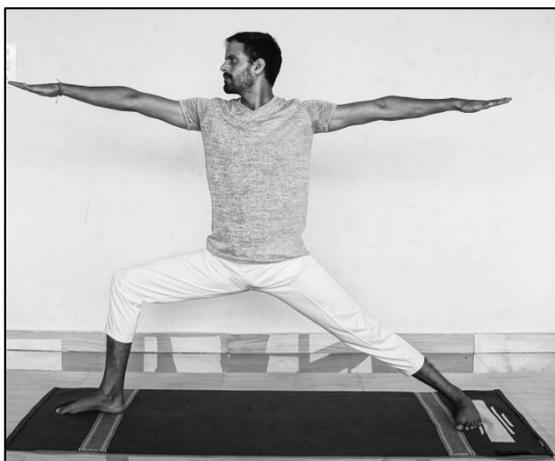
7. Trikonasana (Triangle pose)



8. Virabhadrasana-I (Warrior Pose-I)



9. Virabhadrasana-II (Warrior Pose-II)



## 10. Virabhadrasana III/ Tuladandasana (Warrior Pose-III/balancing stick)

### Benefits:

- A challenging pose - gives strength, poise, balance & grace to one's personality
- Makes the legs strong and shapely
- Gives elasticity to the hip joints, back and leg muscles, strengthens the back
- Removes cramps in the legs, hips, & the back
- Aids in digestion and elimination
- Helps to reduce excess body fat

## 11. Parsvakonasana (Side angle pose)

### Benefits:

- Tones the ankles, knees and thighs
- Gives a good stretch to the back
- Relieves stiffness in the shoulders and hip joints
- Minor deformities in the legs are rectified
- Opens the chest fully
- Improves digestion as the peristaltic activity is increased
- Helps to reduce fat around the waist and hips

## 12. Natarajasana (Dancer pose)

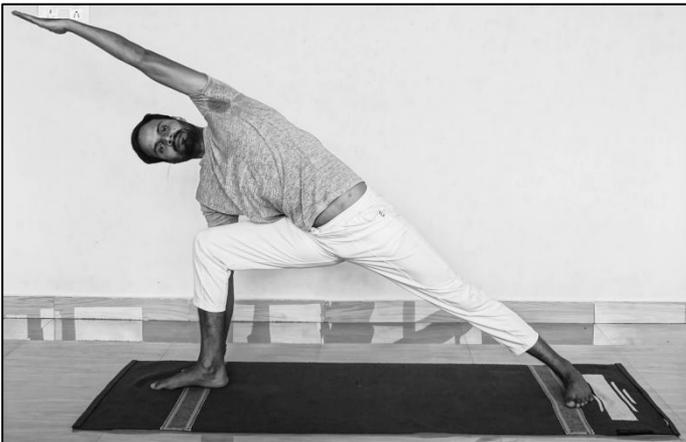
### Benefits:

- A demanding pose - gives grace, balance and poise to the practitioner.
- Develops the chest fully.
- Gives strength and flexibility to the spine, tones all vertebrae, strengthens the nervous system
- Develops the legs, gives flexibility to the shoulders

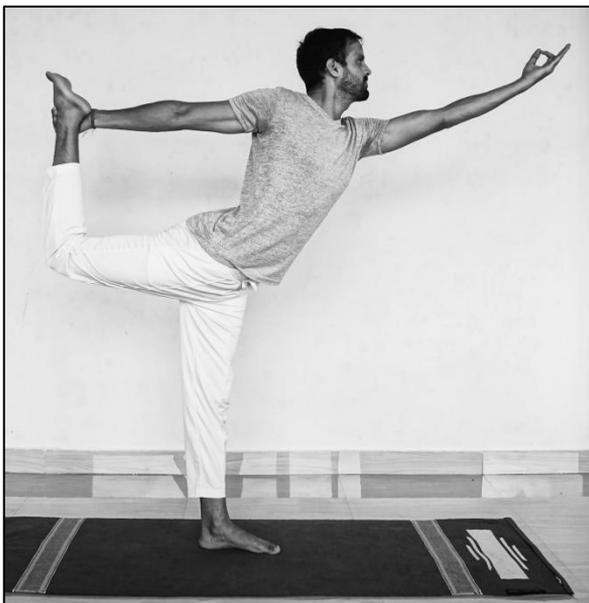
10. Virabhadrasana III/ Tuladandasana (Warrior three/balancing stick)



11. Parsvakonasana (Side angle pose)



12. Natarajasana (Dancer pose)



### 13. Ardha Chandrasana (Half Moon pose)

**Benefits:**

- Strengthens ankles, knees and legs
- Roots thighbones to help alleviate backpain
- Strengthens abdomen, buttocks and spine
- Opens chest and shoulders
- Improves digestion
- Reduces anxiety, depression
- Improves balance, coordination
- Relives stress

### 14. Utthita Pandangusthasana (Extended Hand-To-Big-Toe Pose)

**Benefits:**

- Stretches and strengthens the spine, hips, legs, groins, and calves
- Stimulates the prostate gland
- Improves digestion
- Relieves backache, sciatica, and menstrual discomfort
- Good for flat feet
- Good for infertility
- Improves concentration, coordination and balance

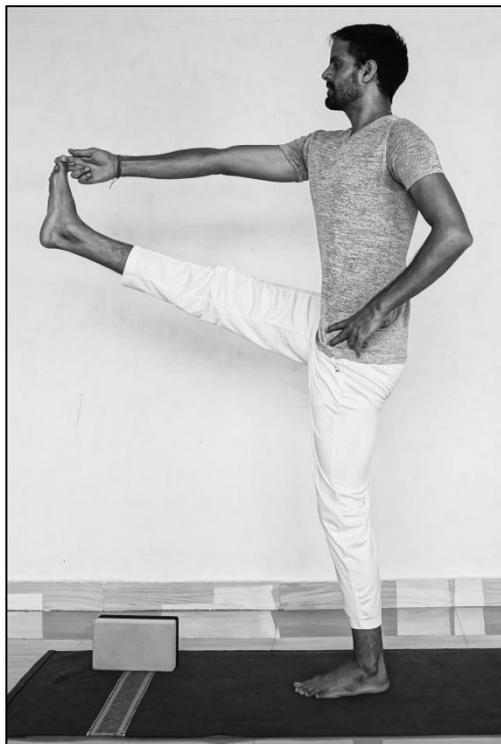
**Limitations:**

- Not for those with sciatica, foot, hip, knee joint conditions, or serious lower-back problem

13. Ardha Chandrasana (Half Moon pose)



14. Utthita Pandangusthasana (Extended Hand To Big-Toe Pose)



## 15. Prasarita Padottanasana (Wide Legged forward bend pose)

### Benefits:

- Develops the hamstring & abductor muscles fully, gives flexibility to the hip joints
- Brings rich supply of blood to the trunk and the brain, nourishes them
- An alternative to Sirsasana

### Limitations:

- Not for those with high blood pressure, heart problems, ear and eye problems, severe respiratory problems, slipped disc or a weak spine

## 16. Parsvottanasana (Intense side stretch)

### Benefits:

- Stretches the hamstring muscles, makes the legs stronger, tones the calf muscles.
- Tones the abdominal organs, improves digestion.
- Opens the chest fully so that deep breathing becomes easy.
- Relieves stiffness in the shoulders.

## 17. Parivritta Trikonasa (Revolving triangle pose)

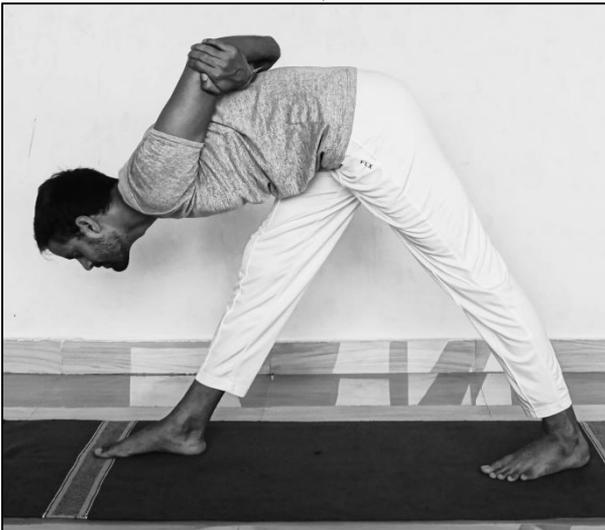
### Benefits:

- A counter pose to Utthita Trikonasana
- Gives flexibility to the hip joints and tones the buttock muscles
- Gives strength and flexibility to the back muscles, relieves stiffness and sprains in the lower back
- Massages the digestive organs, improves digestion
- Opens the chest and gives flexibility to the shoulder

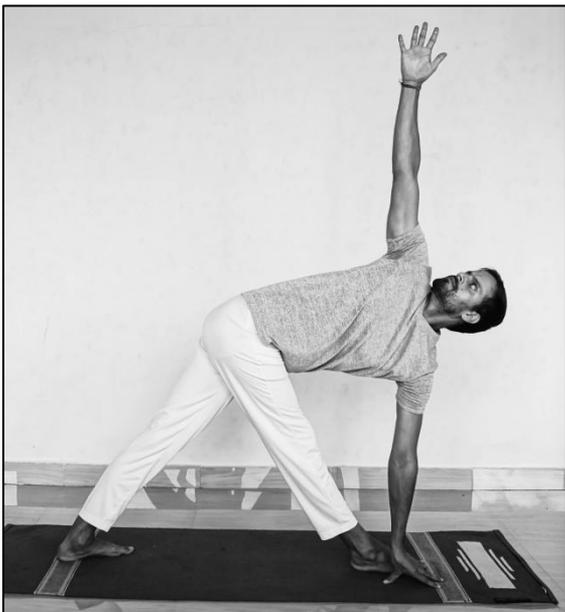
16. Prasarita Padottanasana (Wide legged forward bend pose)



17. Parsvottanasana (Intense side stretch)



18. Parivritta Trikonasa (Revolving triangle pose)

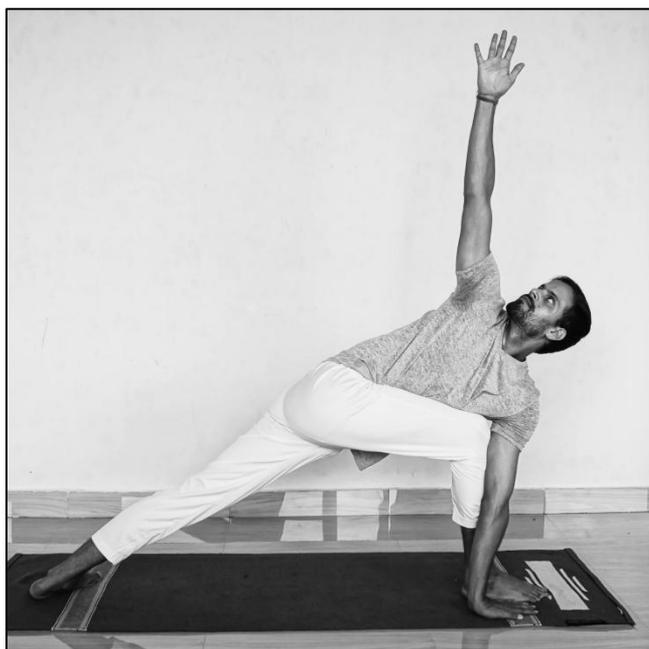


## 19. Parivritta Parsvakonasana (Revolving side angle pose)

### Benefits:

- A more intense version of Parsvakonasana - the hamstrings are stretched more & become more flexible.
- Tones the thighs, calves and ankles
- Back muscles become stronger and more supple
- Rejuvenates the entire spine

## 19. Parivritta Parsvakonasana (Revolving side angle pose)



## 4.7 FORWARD-BENDING POSTURES

### 1. Janusirsasana (Head to knee pose)

#### Benefits

- Same as in Paschimottanasana, plus loosening up the legs in preparation for meditative postures.

### 2. Paschimottanasana (Stretch of the waist pose/Seated Forward Bend pose)

#### Benefits:

- This traditional pose is one of the best forward-bending poses
- Strengthens the spinal muscles, nourishes the entire nervous system, increases lumbar spine elasticity, relieves compression of the spine & sciatica
- Massages & stimulates the abdominal organs, increases peristalsis, relieves constipation & other problems, counteracts obesity & enlargement of the spleen & liver, regulates pancreatic function, helps in diabetes or hypoglycemia
- Tones the hamstring muscles and increases flexibility of the hip joints
- Nourishes the gonads as the extra stretch in the pelvic region brings more blood to that area; increases vitality, removes seminal weakness, cures impotency, helps in sex sublimation (also known as brahmacharyasana)
- By activating the parasympathetic nervous system, enhances concentration & mental endurance, invigorates and calms the mind & nervous system, controlling many nervous complaints

#### Limitations:

- Not for those with a stomach ulcer, slipped discs or sciatica

### 3. Upavistha Konasana (Seated angle pose)

#### Benefits:

- Increases flexibility of the hip joints and inner thighs
- Stretches and strengthens the back
- Benefits the reproductive organs
- Forward-bending tones abdominal organs, improves digestion

1. Janusirsasana (Head to knee pose)



2. Paschimottanasana (Stretch of the west pose)



3. Upavista konasana (Seated angle pose)



#### 4. Triang Mukha Eka pada Paschimottanasana (Three-limbed facing single leg forward bend)

##### Benefits:

- Massages the abdominal organs, prevents constipation, reduces excess fat
- Recommended for those with dropped arches and flat feet
- Cures sprains in the ankles and knees and reduces swelling in the legs

#### 5. Naukasana/Navasana (Boat pose)

##### Benefits:

- A balancing pose which gives tremendous strength to the abdominal muscles and tones the digestive organs
- Strengthens the back muscles
- Tones the nerves connected to the solar plexus/manipura charka
- Gives strength and flexibility to the hip joints and the legs.

#### 6. Adho Mukha Svanasana (Downward facing dog pose)

##### Benefits:

- A rejuvenating pose after a strenuous yoga practice, especially standing poses
- Healthy blood is brought to the head, nourishes the brain.
- Stretches and strengthens the feet, legs, arms and shoulders
- Relieves pain in the heels and helps in the case of calcaneal spurs
- Strengthens the abdominal organs
- Calms the brain, helps relieve stress and mild depression

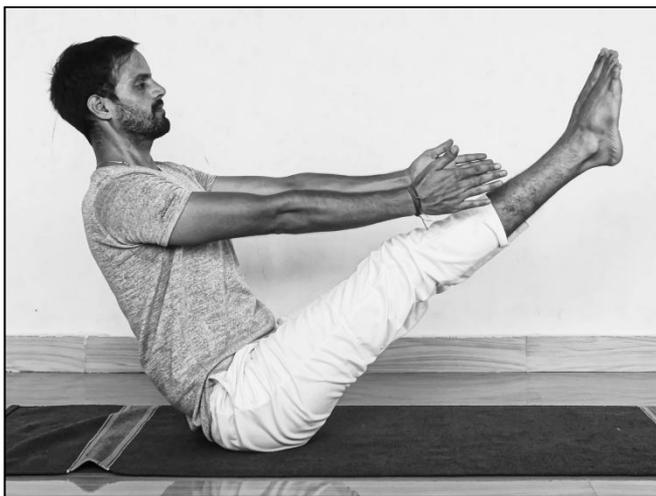
##### Limitations:

- Those with high blood pressure or headache should practice carefully

4. Triang Mukha Ekapada Paschimottanasana (Three-limbed facing single leg forward bend)



5. Naukasana/Navasana (Boat)



6. Adho Mukha Svanasana (Downward facing dog pose)



## 4.8 BACKWARD-BENDING POSTURES

### 1. Backbending Boat pose (Naukasana/Navasana)

#### Benefits:

- Stretches abdominal organs, improves digestion and relieves gastric troubles
- Stretches & strengthens the spine, relieves lower back pain, good for slipped discs
- Keeps prostate and bladder healthy

### 2. Sethubadhasana (Bridge pose)

#### Benefits:

- Realigns the spine, eliminates rounded shoulders, relieves backache
- Strengthens the back, buttocks and neck
- Brings blood to the pineal, pituitary, thyroid and adrenal glands, helps them work more efficiently.
- Stretches abdominal organs, improves digestion
- Opens the chest, strengthens the lungs, relieves respiratory conditions

#### Limitations:

- Not for those with a stomach ulcer or abdominal hernia

### 3. Bhujangasana (Cobra pose)

#### Benefits:

- Increases spinal flexibility and strength, brings rich blood supply to the spine, rejuvenates spinal nerves, works, massages and tones back muscles
- Helps in the case of slipped discs, minor lower back pain and injury
- Opens the chest fully, gives strength & elasticity to the lungs, helps in asthma and respiratory problems
- Massages the abdominal organs, especially the kidneys and liver, stimulating the adrenal glands, in dyspepsia and vata diseases,
- Brings more blood to the pelvic area, keeps it healthy, relieves menstrual problems and problems with uterus and ovaries

#### Limitations:

- Not for those suffering from stomach ulcer, hernia, intestinal tuberculosis or hyperthyroidism

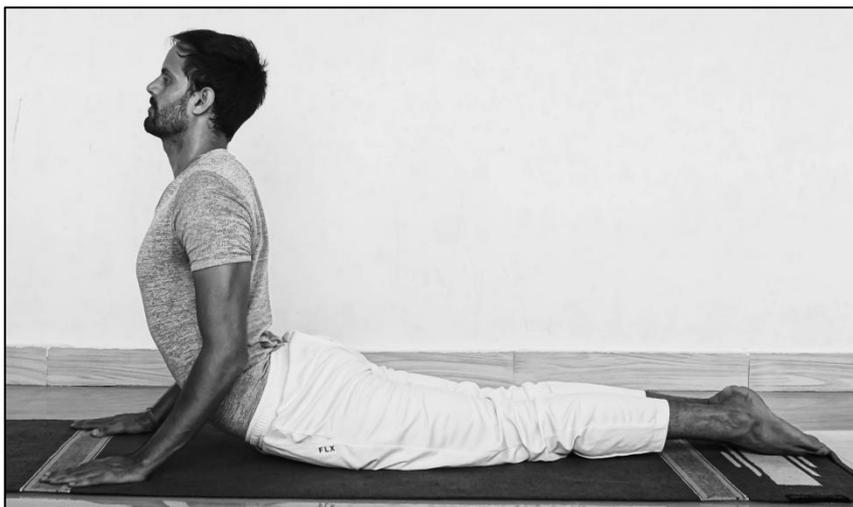
1. Naukasana/Navasana (Boat pose)



2. Sethubadhasana (Bridge pose)



3. Bhujangasana (Cobra pose)



#### 4. Shalabhasana (Locust pose)

##### Benefits:

- Parasympathetic nerves are prominent in the neck and pelvic region so Shalabhasana stimulates the entire autonomic nervous system, especially the parasympathetic outflow
- Increases spinal flexibility & strength, brings rich blood supply to the spine, rejuvenates spinal nerves, tones back, shoulder, neck and buttock muscles
- Provides relief for backache, mild sciatica, slipped discs, and other minor back problems
- Increases abdominal pressure, ignites digestive fire, relieves gastric troubles & constipation, tones and balances the function of the liver
- According to Gherand Samhita it gives strength & heat to the body

##### Limitations:

- Same as in Bhujangasana; and also not for those with a weak heart or high blood pressure

#### 5. Dhanurasana (Bow pose)

##### Benefits:

- An excellent pose for increasing and regaining spinal strength flexibility, a man is said to be as young as his spine
- Invigorates internal organs especially digestive organs, removes constipation & pitta disorders
- Stimulates the adrenal glands and the sympathetic nervous system
- Expands the chest, strengthens the lungs, good for asthma & respiratory problems
- Strengthens the leg muscles especially the upper thighs, relieves stiff shoulders and reduces excess weight around the abdominal area
- Recommended pose for diabetes, incontinence and menstrual disorder

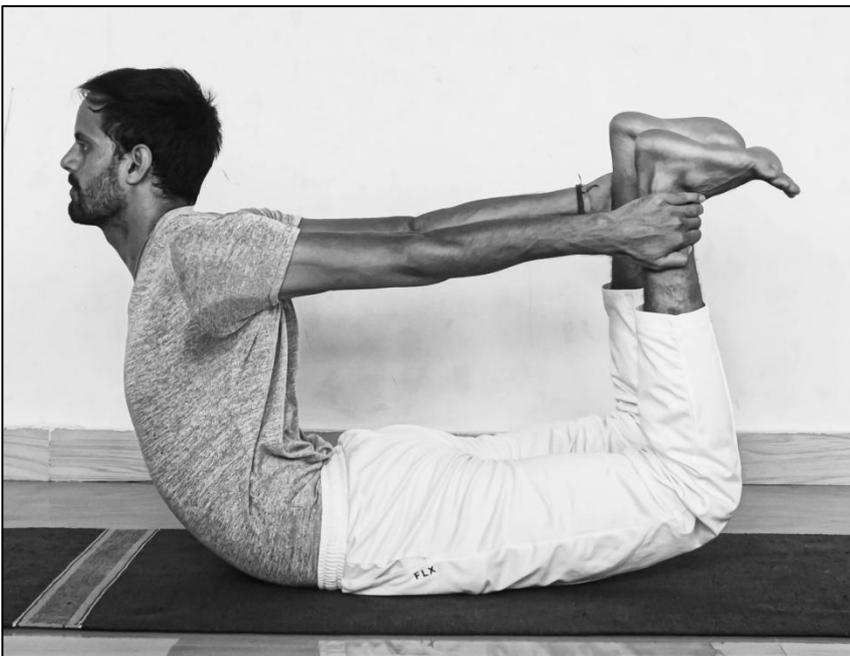
##### Limitations:

- Not for those with a weak heart, high blood pressure, hernia, stomach ulcers, stiff back or back injury

4. Shalabhasana (Locust pose)



5. Dhanurasana (Bow pose)



## 6. Ustrasana (Camel pose)

### Benefits:

- Gives flexibility and strength to the spine, tones the sacral nerves and all the spinal muscles
- Helps in spinal injury and in the case of a stiff back
- Gives elasticity and strength to the diaphragm and lungs, improves the functioning of the respiratory system
- Stretches & tones the front thigh and buttocks & relieves drooping shoulders

## 7. Chakrasana/Urdhva Dhanurasana (Wheel pose)

### Benefits:

- Benefits the nervous, digestive, respiratory and glandular systems
- Strengthens the spine, thighs & buttocks, keeps the body alert and supple, brings life to the back
- Increases flexibility of the hips and brings blood to brain, nourishes it

### Limitations:

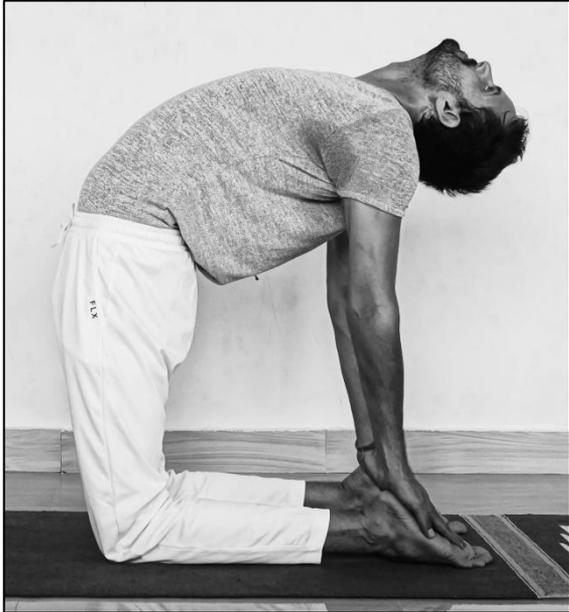
- Not for those with illness, weak wrists, during pregnancy or generally weak

## 8. Matsyasana (Fish pose)

### Benefits:

- Expands the chest, increases lung capacity, encourages deeper breathing, helps in asthma, bronchitis & other respiratory problems
- Increases blood supply to the head, nourishes the pituitary and pineal glands
- Regulates mood & emotion, relieves stress & mental agitation
- Energizes the thyroid and parathyroid glands in the neck, which are the regulators of metabolism.
- Removes stiffness in cervical, thoracic, & lumbar region, increases nerve impulses & blood circulation in these areas, natural massage to the neck & shoulders, corrects rounded shoulders

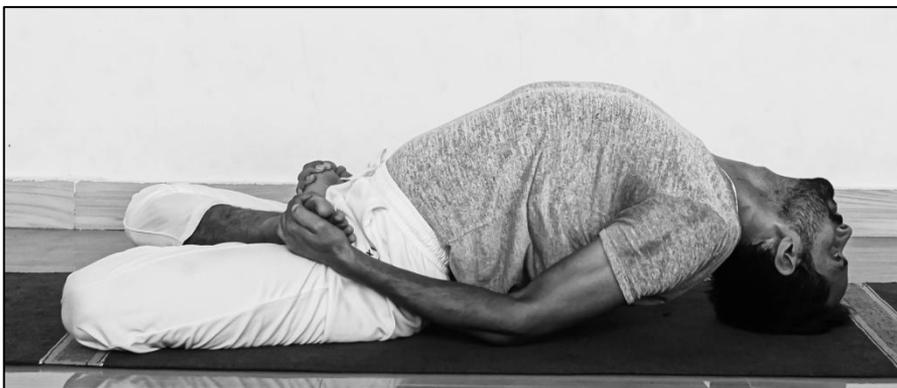
6. Ustrasana (Camel pose)



7. Chakrasana (Wheel pose)



8. Matsyasana (Fish pose)



## 9. Supta Baddha Konasana (Reclining bound angle pose)

### Benefits:

- Rejuvenates the entire spine, good for people with stiff back, relieves pain in the spine
- Helps in cases of sciatica, lumbago, sprains and slipped discs
- Opens the chest, helps the lungs become stronger and more elastic
- Opens the hips and stretches the inner thighs

## 10. Supta Virasana (Reclining hero pose)

### Benefits:

- A relaxation pose; stretches the back, upper thighs, relaxes the legs. Good for sciatica and high blood pressure
- Stretches the abdominal organs & the pelvic region
- Helps with constipation
- Opens the chest fully, makes breathing easier and deeper, good in the case of breathlessness and anxiety.

### Limitations:

- Not for those suffering from gas & pain in the hips

## 11. Urdhva Mukha Svanasana (Upward facing dog pose)

### Benefits:

- Same as those in sitting Baddha Konasana
- Stretches the abdominal organs & the pelvic region.
- Helps with constipation
- Opens the chest fully, makes breathing easier and deeper, good in the case of breathlessness and anxiety
- Gently stretches the back

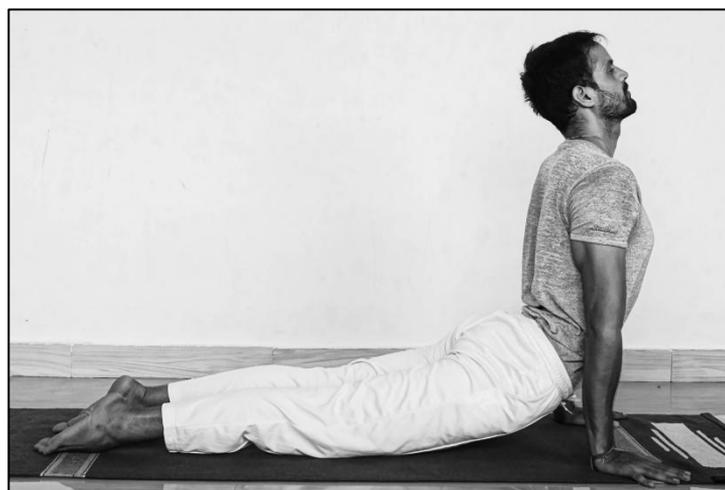
9. Supta Baddha Konasana (Reclining bound angle pose)



10. Supta Virasana (Reclining hero pose)



11. Urdhva Mukha Svanasana (Upward facing dog pose)



## 12. Dwipada Viparita Dandasana (Inverted staff pose)

### Benefits:

- Strengthens the back (mainly the lower back) and the abdominal organs
- Strengthens the knees and ankles, removes stiffness in the upper feet, helps cure flat feet & relieves pain in the heels.
- Helps those with calcaneal spurs

## 13. Bhekasana (Frog pose)

### Benefits:

- Gives relief from the practice of forward bending postures by extending the anterior part of the entire body - hence the name
- Strengthens the wrists and ankles, improves the movement of shoulder joints
- Expands the chest, strengthens the lungs and gives strength and relaxation to the lower back

## 14. Purvottanasana (Stretch of the east pose)

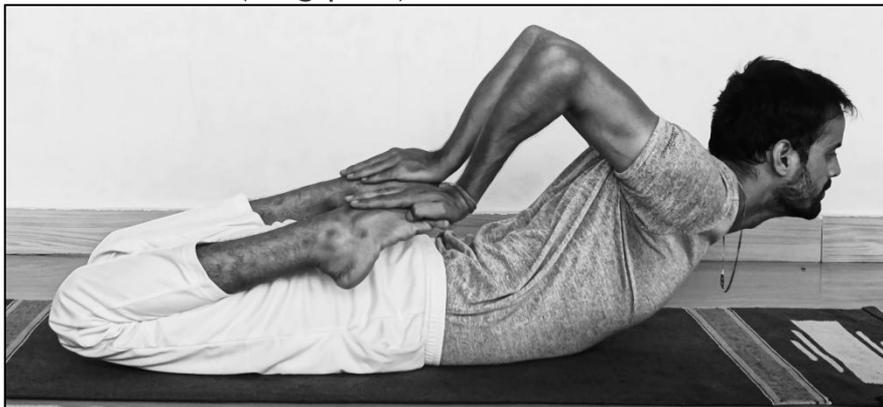
### Benefits:

- Expands the chest, strengthens the lungs; gives strength and flexibility to the entire back
- Strengthens the legs and lengthens the upper thighs
- Gives mobility to the shoulder joints, relieving stiff shoulders

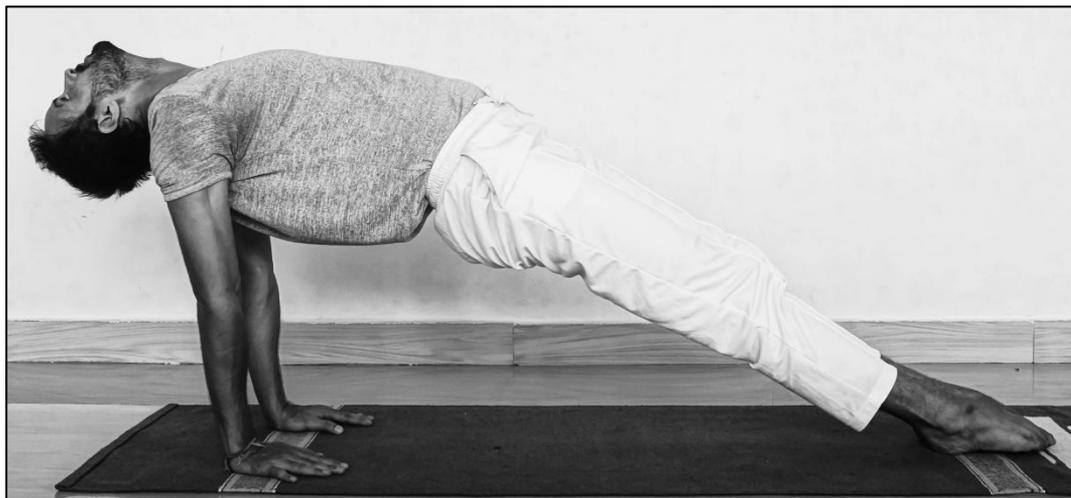
12. Dwipada Viparita Dandasana (Inverted staff pose)



13. Bhekasana (Frog pose)



14. Purvottanasana (Stretch of the east pose)



## 4.9 TWISTING POSTURES

### 1. Vakrasana (Twisted pose)

#### Benefits:

- Helps to align the spine and relax the spinal muscles.
- Squeezes and massages the abdominal organs, improves digestion and elimination
- Helps to heal minor cases of slipped discs and spinal injuries.
- Stretches and strengthens the back and relaxes the hip joints

### 2. Ardha Matsyendrasana (Half lord of the fishes pose)

#### Benefits:

- Keeps spine elastic, aligns vertebrae, retains side to side mobility,
- Relieves muscular problems in the back & hips, removes adhesion in joints caused by rheumatism, increases synovial fluid in joints, tones spinal nerve roots & the sympathetic nervous system
- Massages the abdominal organs, increases peristaltic activity in the intestines, prevents constipation, helps in dyspepsia and diabetes, improves liver efficiency,
- Removes debility of kidney
- Squeezes the vagus nerves and the root of the autonomic nervous system
- Benefits those with sciatica or slipped discs but practice with great care

#### Limitations:

- Not for those over two or three months pregnant
- Those suffering from stiffness in spine should practice carefully
- Those with stomach ulcer, hernia or hyperthyroidism should only practice under guidance.

### 3. Bharadvajasana (Sage pose)

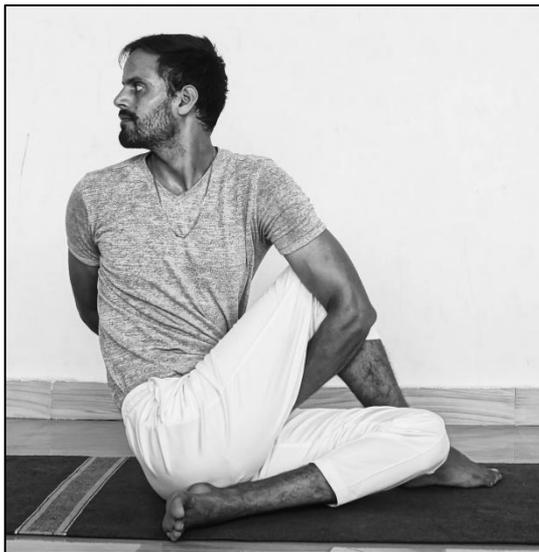
#### Benefits:

- Works on the dorsal & lumbar spine.
- Strengthens the spine, makes it supple, beneficial for people with minor spinal injury
- Removes stiffness in the shoulders.
- Massages the abdominal organs, improves digestion.

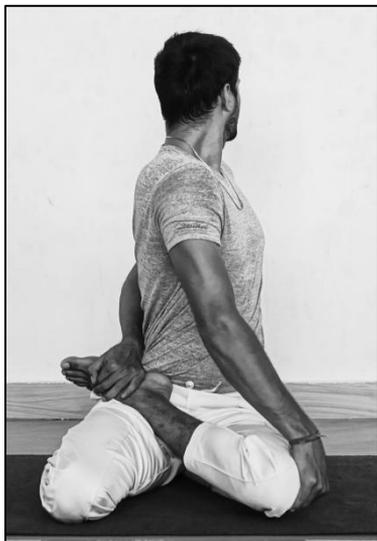
1. Vakrasana (Twisted pose)



2. Ardha Matsyendrasana (Half lord of the fishes pose)



3. Bharadvajasana (Sage pose)



#### 4. Parivritta Vajrasana

#### 5. Parivritta Sukhasana

#### 6. Marichyasana- I

#### 7. Marichyasana- III

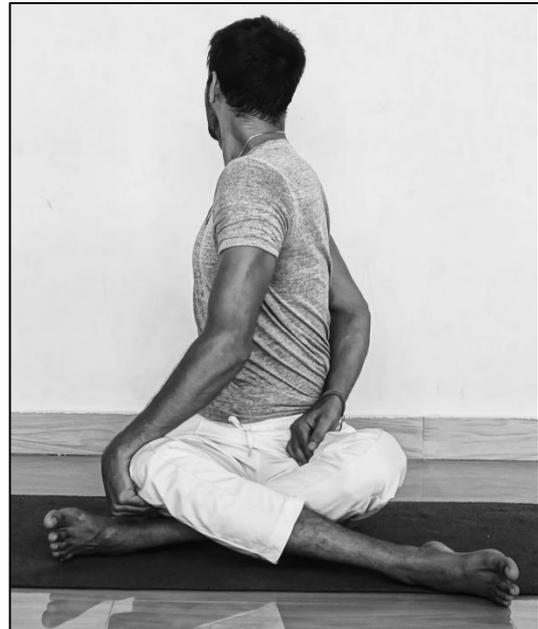
##### Benefits:

- Same as the twists mentioned before, the only difference is the positioning of hands and legs - this reduces the effects to cater for people of different conditions or abilities

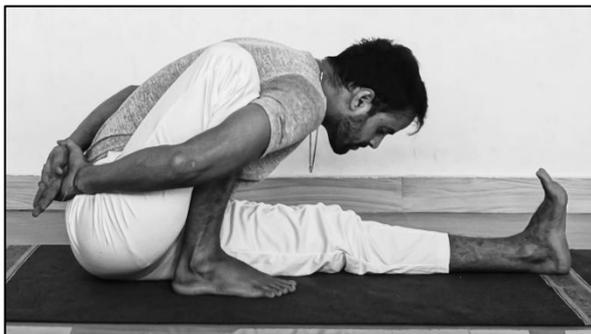
4. Parivritta Vajrasana



5. Parivrittasukhaasana



6. Marichyasana-I



7. Marichyasana-III



## 8. Supta Padangusthasana- B (Reclining big toe pose- B)

### Benefits:

- Helps to reduce the excess body fat around the pelvic area
- Gives good health to the liver, spleen and pancreas
- Cures gastritis and strengthens the intestines
- Strengthens the spine and relaxes the lumbar region

## 9. Parsva Upavistha Konasana (Seated side angle pose)

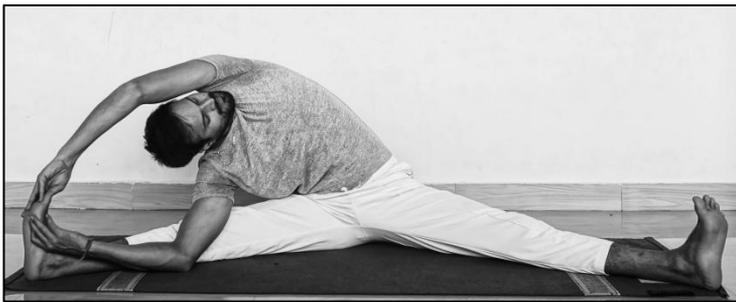
### Benefits:

- A variation of Upavista Konasana - the sides of the spine get a complete stretch.
- Stretches the hamstrings and tones the pelvic region by improving blood supply.
- Gives flexibility and strength to the hip and knee joints.
- Cures sprain in the lower back, helps to remove lower back deformity and adjusts lumbar discs , helpful in sciatica.
- A boon for women, as it regularizes menstrual periods, and keeps the ovaries in a good condition

8. Supta Padangusthasana- B (Reclining big toe pose B)



9. Parsva Upavistha Konasana (Seated side angle Pose)



## 4.10 INVERTED POSTURES

### 1. Sarvangasana (Shoulder stand)

#### Benefits:

- Increases blood supply to the throat, massages the thyroid, maintains the health of the thyroid gland
- The best pose to prepare the lungs and diaphragm for Pranayama practices
- Centralizes blood supply in the spinal column, stretches the spine
- Encourages blood circulation, relieves varicose veins, prevents blood stagnation
- Encourages deep abdominal breathing, massages the heart & lungs
- Relaxes the brain and nervous system, increases blood supply to the brain and nourishes it
- Relieves lethargy & mental sluggishness.

#### Limitations:

- Not for those suffering from high blood pressure, cervical spondylitis, enlarged thyroid, liver or spleen, operative stage of hernia, slipped discs
- Should be avoided during menstruation or advanced stage of pregnancy

### 2. Viparita Karani (Half shoulder stand)

#### Benefits:

- A simpler version of sarvangasana, gives relaxation as the abdomen is more relaxed than in sarvangasana, which makes breathing deep and smooth.
- Improves digestion & elimination.
- Improves the capacity of lungs and makes them elastic and stronger.

1. Sarvangasana (Shoulder stand)



2. Viparita Karani (Half shoulder stand)



### 3. Halasana (Plough pose)

#### Benefits:

- The effects are quite similar to that of Sarvangasana, except the spine receives extra blood supply due to the forward bend - this stimulates spinal nerves & helps to relieve backache
- Rejuvenates the abdominal organs, useful in dyspepsia, hernia and visceroptosis, gastric disorders, certain types of diabetes
- Advantageous in semen and testicle problems, removes ovary disorders
- Interlocking the fingers & stretching the palms will relieve shoulder & cervical tension
- Maximum benefits can be derived when Bhujangasana is practiced immediately after Halasana
- ‘Ploughs’ the blood supply & energizes it into the head region, availing this energy for higher mental and spiritual work
- Relieves insomnia & restless sleep
- Develops mental poise & inner balance

#### Limitations:

- Same as those in Sarvangasana plus avoid in case of a serious back problem

### 4. Karnapidasana (Ear to knee pose)

#### Benefits:

- Extended stretch to the lumbar spine and the back muscles, stimulates the spinal nerves
- Massages the abdominal organs
- Brings balance to and calms the nervous system
- Induces pratyahara or the withdrawal of senses

#### Limitations:

- Same as those in Halasana

3. Halasana (Plough pose)



4. Karnapidasana (Ear to knee pose)



## 5. Sirshaasana (Headstand)

### Benefits:

- Improves respiration, digestion, blood circulation to the brain, soothes the mind, makes circulation easy - rests the heart
- Increases body temperature
- Increases red blood cell count, immunity, relieves sexual disorders
- Improves balance, core and neck strength
- Increases confidence and stillness of mind
- Strengthens the spine
- Tones the kidneys, bladder, prostate, and intestines

### Limitations:

- Same as those in Halasana

## 6. Shashankasana (Rabbit pose)

### Benefits:

- Strengthens the hips, legs and arms
- Refreshes the brain
- Regulates the adrenal gland functions
- Relieves constipation

### Limitations:

- Posterior vertebrae injury
- Menstruation, pregnancy
- Shoulder, elbow, wrist injury
- High blood pressure.
- Slipped discs
- Burning eyes

5. Sirshaasana (Headstand)



6. Shashankasana (Rabbit pose)



## 4.11 ARM-BALANCING POSTURES

### 1. Vasisthasana (One arm balance pose)

#### Benefits:

- Tones the entire upper body and strengthens back muscles, especially the lumbar area
- Develops the sense of balance and develops the arms and wrists
- Strengthens the legs and makes them supple
- Strengthens the abdominal wall

### 2. Chaturanga Dandasana (Four limb pose)

#### Benefits:

- Strengthens the muscles of the arm (triceps and pectoralis), core, and leg muscles
- Stabilizes the shoulders, core, hips and upper back muscles
- Improves balance and concentration

### 3. Bakasana (Crane pose)

#### Benefits:

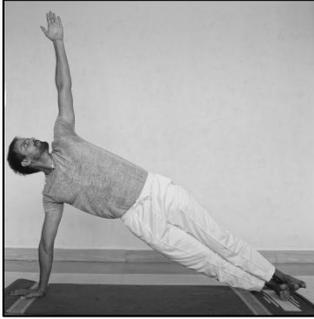
- Same as chaturanga

### 4. Parsva Bakasana (Side ways crane)

#### Benefits:

- Same as chaturanga

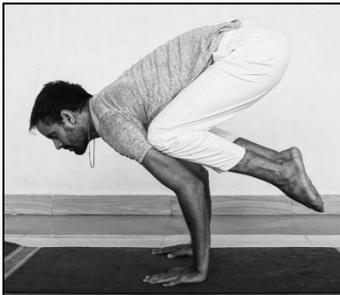
1. Vasisthasana (One arm balance pose)



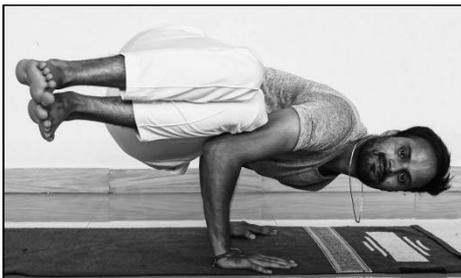
2. Chaturanga Dandasana (four limb pose)



3. Bakasana (Crane pose)



4. Parsva Bakasana (Side ways crane)



## 5. Lolasana (Swinging pose)

### Benefits:

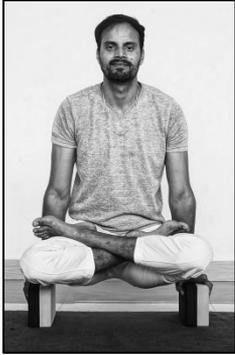
- Strengthens the shoulders, back and neck
- Tones abdominal organs, improves digestion, removes excess weight
- Beneficial in diabetes and piles
- Opens & develops the chest, induces a state of relaxation
- Stimulates the digestive fire

## 6. Padangusthasana (Big toe balancing Pose)

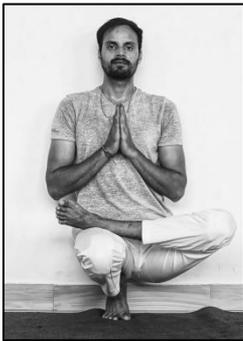
### Benefits:

- Regulates the reproductive system
- Cures flat feet and strengthens the toes and ankle

5. Lolasana (Swinging pose)



6. Padangusthasana (Big toe balancing Pose)



## 7. Tolangulasana (Weighing scale pose)

### Benefits:

- Strengthens the arms, wrists and shoulders
- Strengthens the abdominal muscles, improves digestion and elimination
- Generates control, coordination and dexterity
- Stimulates the activity of the solar plexus, increases the heat of the body and energizes the body

## 8. Malasana (Garland pose)

### Benefits:

- Exercises and strengthens the abdominal organs
- Relieves backache, especially beneficial for women who suffer from severe back pain during menstruation
- It is a relaxation pose if done correctly

## 9. Supta Padangusthasana (Reclining big toe pose)

### Benefits:

- Strengthens the leg muscles and makes them more supple and shapely
- Improves flexibility of the hip joints
- Strengthens the lower back and opens the abdominal and thoracic cavities
- Reduces excess fat on the hips and thighs

## 10. Utthita Upavista Konasana (Extended seated angle pose)

### Benefits:

- Tones the abdominal organs, strengthens the abdominal muscles, relieves constipation, removes intestinal worms
- Tones the sympathetic and parasympathetic nervous systems
- Strengthens the back muscles, realigns the spine

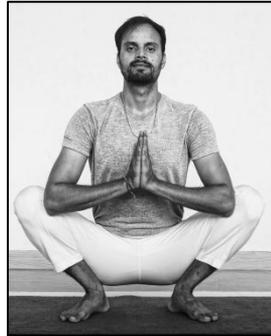
### Limitations:

- Not for those with sciatica, slipped discs, high blood pressure, or heart problem

7. Tolangulasana (Weighing scale pose)



8. Malasana (Garland pose)



9. Supta Padangusthasana (Reclining big toe pose)



10. Utthita Upavista Konasana (Extended seated angle pose)



## MODULE 5:

# Pranayama

### Introduction:

Pranayama, or breath control, is a powerful practice to add to your daily routine. It has a variety of benefits, physical, mental, and spiritual. Pranayama is the fourth stage in Patanjali's 8 limb yoga system, to be practiced after Asana is mastered.



## 5.1 PRANAYAMA & ITS BENEFITS

### What is Pranayama?

Pranayama is generally understood as yogic breathing, breath control or control over vital energy. In Sanskrit, `Prana` means `vital energy` or `life force` and `ayama` means `extension or expansion`. As such, Pranayama literally means the `expansion of vital energy`.

Pranayama is a process in which inhalation and exhalation take place in a stable rhythm and in harmony, which leads the mind to a state of peace and tranquility. Based on the Yoga Sutras of Patanjali, it is the fourth stage of Ashtanga Yoga and should be practiced after mastering Asana.

### Why Practice Pranayama?

The breath is the most vital force of the body as it affects the activities of every cell of the body and is closely linked with the performance of the brain. The practice of Pranayama, the correct breathing technique, helps manipulate our energies, re-educate our breathing process, and helps release tensions, which in turn develops a relaxed state of mind. It also balances our nervous system and encourages creative thinking. In addition, by increasing the amount of oxygen to our brain it improves mental clarity, alertness and physical well-being. If practiced along with Asanas, the benefits of Pranayama are more pronounced.

### The Main Benefits of Practicing Pranayama:

- Pranayama makes the body lighter
- It is the only natural way to eliminate all carbon dioxide and other used up gases from the lungs
- Maintains good physical & mental health
- Increases life span
- Prepares one for higher yoga practices like concentration and meditation.

The cells in our body need a continuous supply of oxygen as they utilize it to run the internal systems and keep the organs in a good health. In turn, they produce carbon dioxide and other used up gases (metabolic waste products), which must be eliminated from the body as they are considered toxins. The process by which oxygen is taken and exchanged for carbon dioxide is known as cellular respiration. In this process, when we inhale, air fills our lungs, and the oxygen is absorbed into the blood stream. At the same time, carbon dioxide passes from the blood into the lungs to be expelled out of our system. Oxygen-rich blood returns to the heart and is then pumped to all parts of the body by the hemoglobin of the red blood cells. Pranayama purifies the entire respiratory tract, from the nasal passages to the lungs, helping the body eliminate large quantities of carbon dioxide and other impurities as well as providing sufficient oxygen for the proper functioning of every cell.

Most people breathe incorrectly, utilizing only a small part of their lung capacity when they breathe, as such their breathing tends to be shallow, rapid, hasty and irregular. Poor breathing habits not only deprive the body of oxygen and prana, but also upset our mental balance. Our state of mind is affected by the breath and the breath is in turn affected by it. An irregular breathing pattern is a sign of poor health. To achieve perfect health on all the dimensions, one needs to regulate the breathing pattern.

Through observing nature, the ancient yogis and rishis also realized the impact of the breath on our lifespan. Animals with a slow breath rate, such as tortoises, have long life spans whereas those with a fast breathing rate, such as dogs, have short life spans. A slow breathing rate keeps the heart stronger and healthy and deep breathing enhances the absorption of prana.

The normal breathing rate of an adult is about 18-20 times per minute, which works out to be 1,200 times per hour and 28,800 times per day. According to Yoga Shastra, it is better to limit this to within 21,600 per day.

Of course, the main objective of Pranayama is to maintain the proper flow of breath which ultimately purifies our gross and subtle bodies as well as the mind, thus preparing the consciousness for the next steps - Dharana (Concentration) & Dhyana (Meditation).

## **The Best Time For Pranayama Practice.**

As recommended by yogi masters, the five following times of the day, according to the position of the sun, are beneficial for Pranayama practice:

- Morning - 6am
- Noon - 12pm
- Evening - 6pm,
- Midnight - 12am
- Early morning - 4am.

While it may be difficult for the modern man to practice according to the aforesaid time, efforts must still be made as regular practice of Pranayama is crucial to the maintenance of good physical and mental health.

## 5.2 IMPORTANT CONCEPTS

### 1. THE THREE COMPONENTS OF PRANAYAMA.

The Pranayamic breath involves three basic phases of breathing: inhalation, exhalation and retention:

- **Puraka**- it is the inhalation, controlled in a yogic way.
- **Rechaka**- it is the phase of exhalation, controlled in a yogic way.
- **Kumbhaka**- it is the phase of retention, controlled in a yogic way.

When the breath is retained inside the body after inhalation, it is known as Abhyantara or Antara or Purna Kumbhaka. On the other hand, when the breath is retained outside the body after exhalation it is known as Bahya or Shunya Kumbhaka. Though the use of Bahya Kumbhaka is found sporadically in some practices of Pranayama, it is mainly the Abhyantara Kumbhaka which is used in the majority of Pranayamic practices, especially when they belong to the hatha yoga tradition.

### 2. THE THREE MOST IMPORTANT NADIS.

A sage is one established in that supreme seat to which the sun and moon have no access' YOGA VASHISHTHA.

This tantric literature is filled with the description of the nadis which is the basic structure of the subtle body.

Long before our modern knowledge of the nervous system was acquired, the ancient yogis were aware of the flow of prana energy through channels called nadis. The nadis are not the same as nerves, but are subtler coordinates of the physical nerves. According to the yoga manuals, there are 72 000 nadis (others mention 350 000), among which fourteen are more important, but the most important among them are six: **Ida, Pingala, Sushumna, Prahmani, Chitrani and Vijnani.**

### Three of which play a particularly important role:

- Sushumna
- Ida
- Pingala

**Sushumna:** The central energy channel or nadi that runs along the spinal column from its base to the crown of the head. The goal of preliminary breathing exercises is to open this central channel so that both nostrils are flowing equally. Expansion of that moment is called Sandhya. Then the mind enters a joyful state in which it easily attains a deep state of blissfulness.

In meditation, the application of Sushumna is of prime importance, for after applying sushumna, the meditator will not be disturbed by noise or other disturbances from the external world, or by bubbles of thought arising from the unconscious during meditation.

**Pingala:** One of the three nadis or energy channels running parallel to the spinal column and situated on the right side. It terminates in the right nostril and controls the flow of breath in the right nostril. This is equated with the male aspect, and is ascribed the colour red. When this channel is active, one's behavior is characterized by rationality, activity, and energy. It corresponds with the solar energy in the body.

**Ida:** One of the three principal energy channels flowing in the spinal cord. Ida terminates in the left nostril and controls the flow of breath in the left nostril. It primarily controls all those activities which conserve energy, and gives a cooling effect to the body. This nadi is symbolically equated with the female aspect, and is ascribed the colour blue. It corresponds with the lunar energy and is situated on the left side of the spinal column.

### 3. THE THREE BANDHAS.

- a. Moola Bandha
- b. Jalandhara Bandha
- c. Uddiyana Bandha

These three bandhas are performed during the practice of Pranayama. More will be mentioned in the next module.

#### Types of Pranayamas:

##### 1. Nadi Shodhanam:

According to the great Rishi Gheranda, Nadi Shodhanam (also known as Nadi Suddhi, Anuloma Viloma or Alternate Nostril Breathing) should be practiced religiously over a certain period of time before practicing other Pranayamas. Nadi Suddhi is required because prior to the actual yogic practices one, has to prepare the base (physical body) by cleaning out all impurities and obstructions from the body.

##### Technique:

Sit in any steady and comfortable posture with the back straight, eyes closed and hands on knees. With the right thumb, close the right nostril and slowly inhale through the left without making any sound, for as long as is comfortable. After complete inhalation, close the left nostril with the ring and little fingers and exhale very slowly through the right nostril, taking a longer period of time. The duration of exhalation will be double that of inhalation. After complete exhalation, inhale through the right nostril and exhale through the left. Practice this for 5 - 10 minutes.

##### Benefits:

This practice purifies the entire respiratory track in the human body as it is said in Yoga Shastra that Nadi Suddhi Pranayama is to be practiced for a few weeks before all other Pranayamas. If practiced with complete regularity and dedication, it can purify all the 72,000 nadis in the subtle body within three months.

##### 2. Ujjayi Pranayama:

The word Ujjayi may be interpreted as ‘controls or victory arising from a process of expansion’. This Pranayama enhances the ventilation of the lungs, removes phlegm, calms the nerves, and fills the whole body with vitality.

Most techniques based on tantric yoga utilize this Pranayama.

### **Technique:**

Inhalation and exhalation during Ujjayi is slow and deep, and take place with partial closure of the glottis. This produces a sobbing-like sound, but is even and continuous. During inhalation, the incoming air is felt on the roof of the palate and is accompanied by the sobbing sound `sa`. During exhalation, the outgoing air is felt on the roof of the palate and is accompanied by the aspirate sound `ha`. During inhalation, the abdominal muscles are kept slightly contracted, and during exhalation, the abdominal pressure is exerted until the breath is completely expelled.

### **Benefits:**

Tension and stress are associated with high blood pressure. Ujjayi Pranayama, by applying a slight pressure on these sinuses in the neck, causes them to react as though they have detected high blood pressure, which result in the heartbeat and blood pressure being reduced below normal. One becomes physically and mentally relaxed. This is the reason why Ujjayi is so important in many meditational practices. It induces overall relaxation, which is essential for success in meditation.

People who suffer from insomnia will find it very useful. Those who suffer from high blood pressure will find that Ujjayi helps to reduce their blood pressure, even if only for a short period of time at first.

In general, we can say that Ujjayi is helpful for all ailments that originate from nervousness or chronic stress.

### **3. Bhastrika Pranayama.**

The word Bhastrika means ‘bellows’. This practice is so called because air is drawn forcefully and quickly in and out of the lungs like the bellows of a village blacksmith. The blacksmith increases the flow of air into the fire in order to produce more heat. Bhastrika Pranayama can be said to do the same thing; it increases the flow of air into the body which produces inner heat, both gross and subtle. The inner fire of the mind-body is stoked. This heat burns up impurities, whether physical impurities such as toxins, pranic blockages, or mental neuroses. In this Pranayama, the abdominal muscles work like bellows. ‘Draw air in and out of your nostrils over and over again like blacksmith’s bellows.’ (Gheranda Samhita Chapter V: 74)

**Technique:**

In this practice, the diaphragm and abdominal muscles are used as in Kapalabhati, but here both inhalation and exhalation are vigorous and forceful. Between seven to twenty one cycles should follow each other in quick succession.

One should breathe in and out rapidly using only the abdomen. The movement of the chest should be minimized. The respiration must be performed by conscious and accentuated movement of the abdomen.

**Limitations:**

Bhastrika should not be practiced by people who suffer from:

- High blood pressure
- Any heart ailments
- Hernia
- Menstruation
- Vertigo

**Benefits:**

Bhastrika Pranayama brings a wide range of benefits that span the whole spectrum of the human being:

- i Opens up the air cells of the lungs. Most people do not breathe properly - their breathing tends to be shallow. The lungs are not fully utilized and exercised, thus the small air cells at the bottom of the lungs tend to stay permanently closed. Mucus builds up and acts as fertile soil for the growth of the germs and the disease. Also, when the air cells remain permanently closed, blood is not fully oxygenated. The parts of the lungs that are open allow the exchange of oxygen and carbon dioxide, while the closed or blocked parts do not. The effect is decreased oxygen content in the blood. This results in decreased oxygenation of the body tissues and general weakness and bad breath.
- ii Directly opens up closed air cells. Germs, mucus and stagnant air are eliminated from the lungs. All air cells are cleaned and rejuvenated from top to the bottom, which leads to an increased transfer of oxygen through the cell membranes and allows for better removal of waste carbon dioxide from the body. This results in better health of the whole body and increased vitality.
- iii Bhastrika purifies the lungs. This makes it a very useful technique for combating

ailments such as asthma, tuberculosis, pleurisy and bronchitis.

- iv Improves digestion. By performing this Pranayama, a vigorous massage is given to the digestive system. This also leads to better all round health, removes physical impurities by increasing the metabolic rate and increasing blood circulation. Bhastrika is therefore a first rate technique for purifying the blood, improving skin complexion and removing boils, pimples, etc.
- v Increases the flow of prana throughout the whole pranic body, which helps to induce good health and also to remove disease at more subtle levels. The pranic body is recharged.

#### 4. Kapalabhati.

According to an ancient text known as Gheranda Samhita, Kapalabhati is not a pranayama but a cleansing practice.

Kapalabhati literally means ‘the practice that makes the forehead and entire face lustrous’. It helps clean the sinuses and all other respiratory passages, and stimulates the abdominal muscles and digestive organs. A sense of exhilaration is experienced with this practice.

According to the Hatha Yoga Pradipika: ‘Inhalation and exhalation should be done quickly like a blacksmith’s bellows. This is the very renowned practice of Kapalabhati which removes diseases caused by excessive mucus in the body’. (Ch II:35)

#### Limitations:

Kapalabhati should not be done by those who suffer from ailments such as high blood pressure, vertigo, hernia and heart problems. To be avoided during menstruation.

#### Benefits:

The benefits are very similar to Bhastrika Pranayama. Briefly, the main benefits are as follows:

- i **Digestion:** Massages and improves the functioning of the digestive system.
- ii **Brain:** Clears the frontal lobe of the brain by speeding up blood flow. At a more subtle level, it also stimulates pranic flow in the same region.
- iii **Respiration:** Kapalabhati cleans out the lungs. It improves the elasticity of the lungs, making oxygen and carbon dioxide exchange more efficient. It should definitely be practiced by those who suffer from respiratory ailments such as bronchitis, tuberculosis etc. Those who suffer from asthma and emphysema will utilize forceful

exhalation to expel air from the lungs. This tends to induce severe muscular tiredness. Kapalabhati, practiced at times other than during an attack, may be useful in strengthening respiratory muscles as well as improving the general tone of the lungs.

- iv **Alertness.** Kapalabhati wakes up the mind. So, if you have a lot of mental work to complete, yet feel tired, we suggest that you energize the mind with a few rounds of Kapalabhati.

### 5. Sheetal Pranayama:

The Sanskrit word ‘sheetali’ means ‘cooling’ or ‘relaxing’. This type of pranayama is so called because it cools the body and relaxes the mind. In English it is usually called ‘the cooling pranayama’ or ‘cooling breath’.

This practice is briefly described in various Hatha Yoga Scriptures. The Hatha Yoga Pradipika states: ‘Those who are wise should inhale through the mouth and then exhale through slowly, through the nose.’ (Chapter 3: 57).

No other practical details are given. Benefits are briefly mentioned in the following verse: ‘Sheetali Pranayama alleviates diseases of the spleen and other large organs of the body, and helps to remove fever, hunger, thirst and bilious problems. Furthermore, it helps to eradicate all poisons from the body’. (Hatha Yoga Pradipika 3:58)

#### Technique:

Sit in a comfortable meditative asana. Hold the back straight and the head upright, but without strain. During inhalation, the tongue has to be rolled as described below.

Roll the tongue so that both sides curl upwards and inwards, with the edges almost meeting each other. Needless to say, the teeth should be separated. The end of the tongue should protrude outside the mouth, but without strain. The rolled tongue forms a tube through which one inhales.

Close the eyes and relax the whole body, roll the tongue. Slowly inhale through the tube-like tongue. Breathe in deeply, but without strain. Then hold the breath. Withdraw the tongue and close the mouth. Do Jalandhara Bandha.

After a few seconds, release Jalandhara Bandha. Exhale slowly through the nose. Be aware of the breath.

## 6. Sheetakari Pranayama (Hissing Breath).

The sound 'shee' or 'sheet' is made during inhalation in this practice. The Sanskrit word kari means 'that which produces'. Therefore sheetakari can be translated as 'the pranayama that produces the sound shee'. In English the practice is called as 'the Hissing Breath'.

This practice is mentioned in the Hatha Yoga Pradipika, which states 'Make the sound 'shee' while breathing through the mouth. By doing this practice one will become like kamadeva (Cupid, the god of love)'. (3:54)

### Shape of the mouth:

Press the lower and upper teeth together. Separate the lips as much as is comfortable. Fold the tongue backwards into Khechari Mudra, so that the lower surface gently presses the upper palate.

### Technique:

Sit in a comfortable posture. Close the eyes. Shape the mouth as described above. Breathe in slowly and deeply. At the end of inhalation close the mouth, keeping the tongue in Khechari Mudra. Hold the breath and do Jalandhara Bandha for a few seconds. Then release the bandha, and raise the head. Slowly breathe out through the nose.

## 7. Bhramari.

In Sanskrit, Bhramari means 'bee', and the sound produced during exhalation in this practice sounds like the humming of a bee.

### Technique:

Sit in any steady and comfortable posture with back straight, eyes closed and hands on knees. Close both the ears with the thumbs, place both the index fingers on eyebrows and place the middle, ring and little fingers on both the eyes very gently. Inhale through both nostrils as much as you can, hold the breath for as long as is comfortable and then exhale through the nostrils very slowly, producing an 'OM' sound with the mouth closed. This sound will create a vibration inside the head and after a few days, it will descend to all the parts of the body. Repeat 10 -15 times at a stretch.

### Benefits:

This practice controls body heat and is beneficial for eye, ear, nose and throat diseases. Gaining success in Bhramari Kumbhaka will help the yoga student gain success in Samadhi.

–You really love only when you do not possess, when you are not envious, not greedy. Love cannot be thought about, love cannot be cultivated, love cannot be practised. When all this has stopped, then love comes into being, then you will know what it is to love.||

-J. KRISHNAMURTI

## MODULE 6:

# Mudra, Bandha & Kriya

### Introduction:

Mudras, Bandas and kriyas are considered advanced practices of yoga. Once Asana and Pranayama are mastered, there are additional, more specific instructions in yoga that help the student cleanse, purify, and move energy inside themselves in subtler ways.



## What is Kriya?

Kriya means ‘\_action’. Kriya is a yogic technique which involves the cleansing actions of the body. The objective of kriya is to achieve physical and mental purification and balance so as to prepare one to progress safely and successfully along the spiritual path.

Kriyas can be grouped into the following six types, otherwise known as the shatkarmas:

- i **Neti:** The process of cleansing and purifying the nasal passages such as Jala Neti and Sutra Neti
- ii **Dhauti:** A series of cleansing techniques, which includes internal cleansing, head cleansing and thoracic cleansing, such as Agnisar Kriya
- iii **Nauli:** Techniques for massaging & strengthening the abdominal organs
- iv **Basti:** Techniques for washing and toning the large intestines
- v **Kapalabhati:** Shining skull breathing technique
- vi **Tratak:** The practice of intense gazing to develop concentration.

## 6.1 SOME BENEFICIAL PRACTICES

According to Yoga Shastras, there are many Mudras, Bandhas and Kriyas. However, only some are effective for human body in terms of achieving physical and mental well being and curing diseases. Some of these are described below. They should always be performed with guidance.

### Shankh Prakshalan:

Shankha meaning "conch" and prakshalana meaning to wash completely. The word shankha is used to represent the entire alimentary canal from mouth to anus. ... Shankhaprakshalana is the process to clean the intestinal tract by removing the impurities with salty water.

### JALANDHARA BANDHA.

**Jalan** means '\_net' and **dhara** means '\_stream', and so Jalandhara Bandha is the lock that controls the network of nadis in the neck. It is also commonly known as the '\_throat lock'. In Jalandhara Bandha, the neck and throat are contracted by placing the chin on the chest in the notch between the collar bones while sitting in any meditative posture with the hands on knees.

**MOOLA BANDHA**

The Sanskrit word 'moola' means root and 'bandha' means lock. Here, the word 'moola' refers to the mooladhara chakra and also to the root of the spine, the perineum.

**UDDIYANA BANDHA.**

The Sanskrit word 'uddiyana' means 'to raise up' or 'to fly upwards'. The word bandha means to 'hold', 'tighten' or 'lock'. This practice is so called because the physical lock applied to the body causes the diaphragm to rise towards the chest. Another reason for this name is that the lock helps direct prana into the sushumna nadi so that it flows upwards towards the sahasrara.

**TRATAKA.**

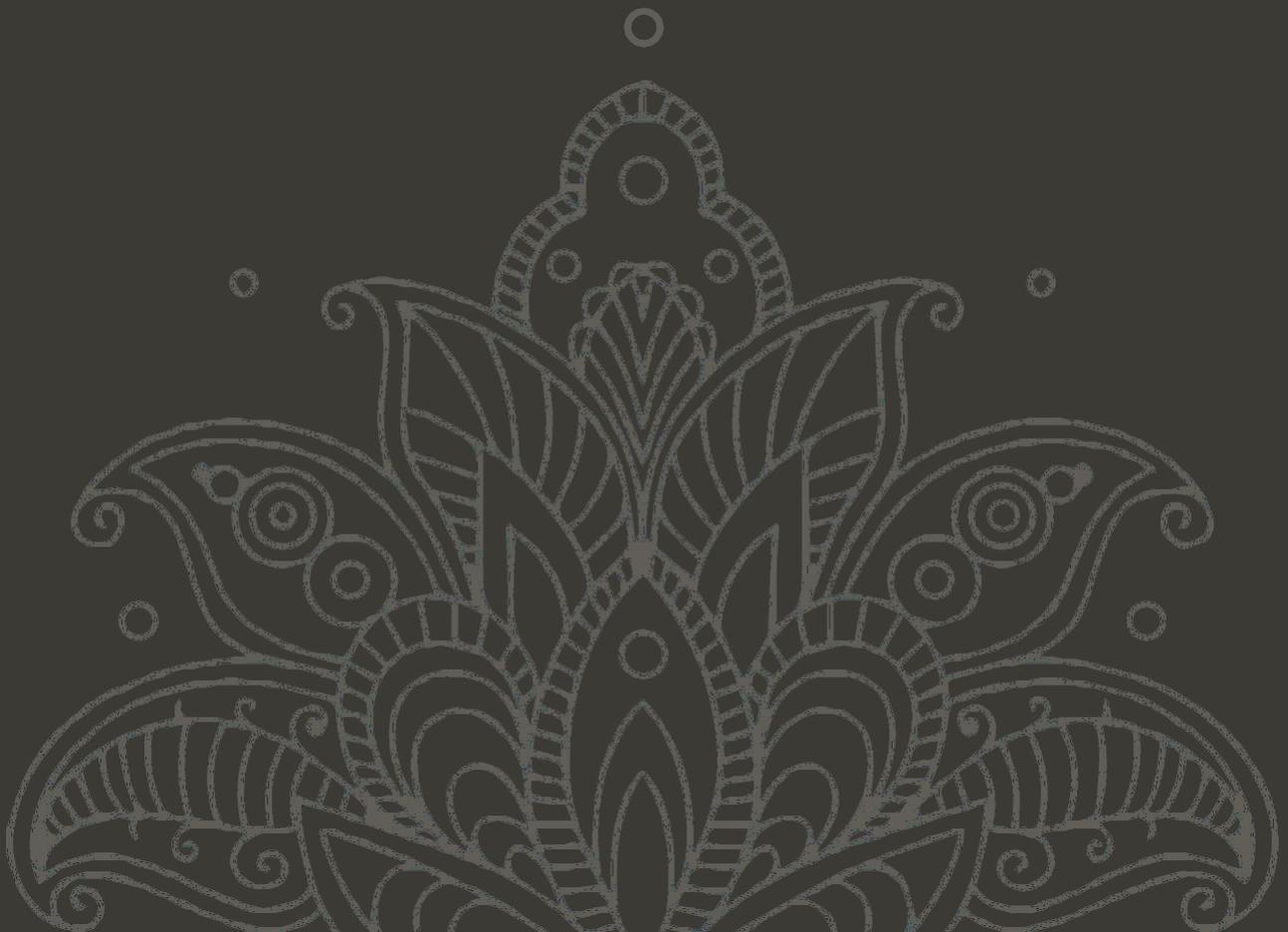
Trataka is one of the six cleansing processes (kriyas) of hatha yoga. It is performed with the eyes. Traditionally there are 3 types of trataka available for the practice.

## MODULE 7:

# Chakras and Kundalini Energy

### Introduction:

Throughout the ages, masters of yoga needed to create systems of understanding to help students refine their insights into the subtle nature of their bodies. Understanding the body energies, and the energetic anatomy of the chakras can help you fine tune your personal practice and diagnose energetic misalignments in your students to deliver more healing.



## 7.1 CHAKRAS & KUNDALINI ENERGY

### **Kundalini Shakti:**

In yoga, the cosmic energy is believed to be within everyone. It is pictured as a coiled serpent lying at the base of the spine. Through a series of exercises involving posture, meditation, and breathing, a practitioner can force this energy up through the body to the top of the head. This brings about a sensation of bliss, as the ordinary self is dissolved into its eternal essence, atman.

### **The Chakras**

#### **1. Mooladhara Chakra [Root].**

**[Earth, Physical identity, oriented to self-preservation ]**

Mooladhara is the beginning of the human incarnation. It is referred to as the root, the source and the foundation. Located at the base of the spine, this chakra forms our foundation. It represents the earth element, and is therefore related to our survival instincts, and to our sense of grounding and connection to our bodies and the physical plane. Ideally, this chakra brings us health, prosperity, security, and dynamic presence. The other centers of energy rely upon the root chakra to perform properly. Disorders within the root chakra may result in mental problems (e.g. aggression, confusion) or physical symptoms (e.g. of the intestines, excretory systems, or bones).

#### **2. Swadhisthana Chakra [One's own dwelling place].**

**[Water, Emotional identity, oriented to self-gratification]**

The second chakra, located in the abdomen, lower back, and sexual organs, is related to the water element, and to emotions and sexuality. It connects us to others through feeling, desire, sensation, and movement. Ideally, this chakra brings us fluidity and grace, depth of feeling, sexual fulfillment, and the ability to accept change. Blockages result in a variety of phobias or conditions such as a fear of being touched, a general incomprehension or an obsessive cleanliness. Physical manifestations may include being prone to infections or problems with the kidneys/bladder or lymphatic system.

### 3. Manipura Chakra [Jewel city].

[Fire, Ego identity, oriented to self-definition]

This chakra is known as the power chakra, located in the solar plexus. Often referred to as the ‘fire centre’, the Manipura chakra belongs to the fire element, and is represented by the sun. It rules our personal power, will, and autonomy, as well as our metabolism. When healthy, this chakra brings us energy, effectiveness, spontaneity, and non-dominating power. Mental consequences of a blockage might be anxiety about how others perceive you, envy or selfish greed. Physically there could be digestive disorders, liver and gall bladder problems or disorders of the pancreas.

### 4. Anahata Chakra [Unstruck or Unbeaten].

[Air, social identity, oriented to self-acceptance]

This chakra is called the heart chakra and is the middle chakra in a system of seven. The Anahata’s element is air and its sense is touch. The fourth chakra moves beyond the survival aspects of the lower three chakras. It is related to love and is the integrator of opposites in the psyche: mind and body, male and female, persona and shadow, ego and unity. A healthy fourth chakra allows us to love deeply, feel compassion, have a deep sense of peace and centeredness. Blockages may result in attitudes such as selfishness or emotional blackmail. Physical manifestations could be disorders of the lungs and heart, and circulatory problems.

### 5. Vishuddhi Chakra [Purification centre].

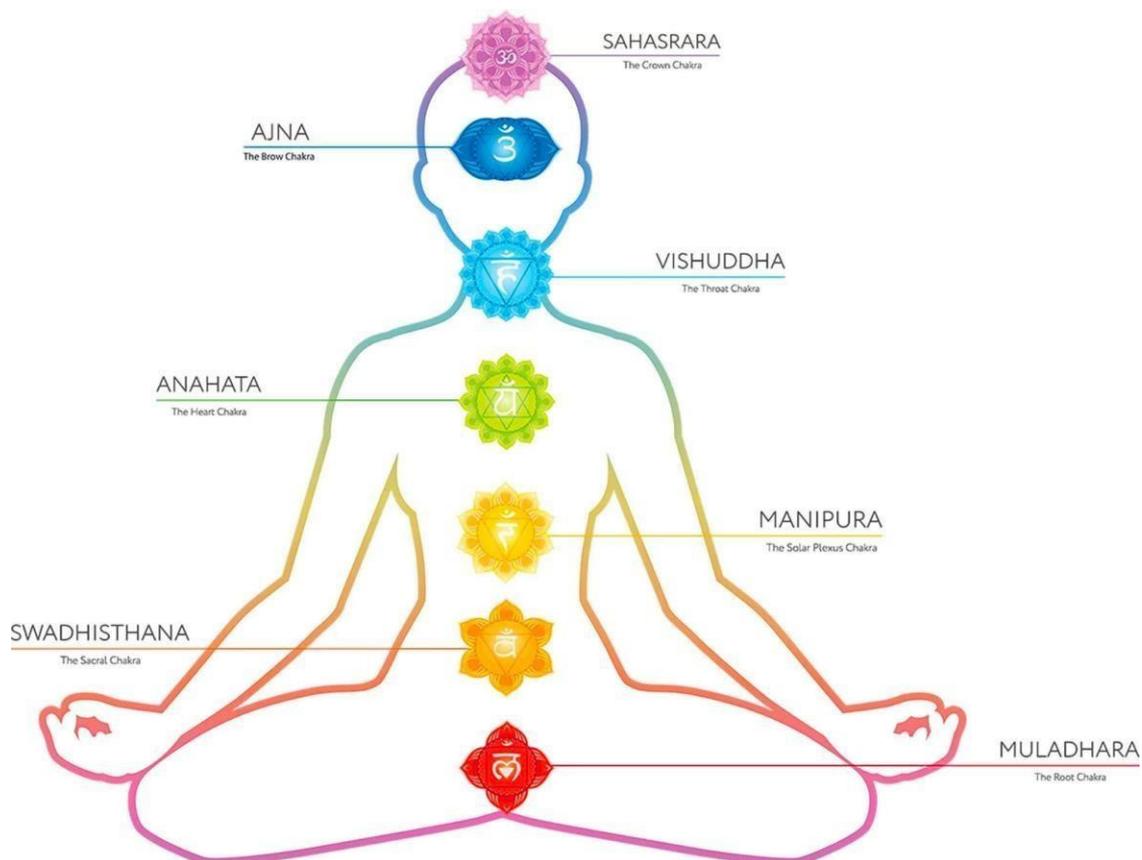
[Sound, creative identity, oriented to self-expression]

This is the chakra located in the throat and is thus related to communication and creativity. Its element is ether and its sense is hearing. Here we experience the world symbolically through vibration, such as the vibration of sound representing language. An upset in this centre could well result in an individual who becomes dictatorial while the physical signs could be growth problems, or a muscular tension leading to a lack of vocal control.

### 6. Ajna Chakra [Command centre/„to know“].

[Light, archetypal identity, oriented to self-reflection]

This chakra is known as the brow chakra or third eye center. Its organ of action is the mind. When awakened, psychic abilities and Siddhis develop. It is related to the act of seeing, both physically and intuitively. As such it opens our psychic faculties and our understanding of archetypal levels. When healthy it allows us to see clearly, in effect, letting us ‘see the big picture’. Blockage of this chakra will culminate in a haphazard approach to life, and probably an inability to settle down to any one task for any length of time.



## 7. Sahasrara Chakra [„A thousand petals“].

[Thought, universal identity, oriented to self-knowledge]

This is the crown chakra that relates to consciousness as pure awareness. It is our connection to the greater world beyond, to a timeless, space-less place of all-knowing. When developed, this chakra brings us knowledge, wisdom, understanding, spiritual connection, and bliss. It is generally felt that the crown chakra is appreciated only by experience and it depends upon the other six for its development.

## MODULE 8:

# Anatomy & Physiology

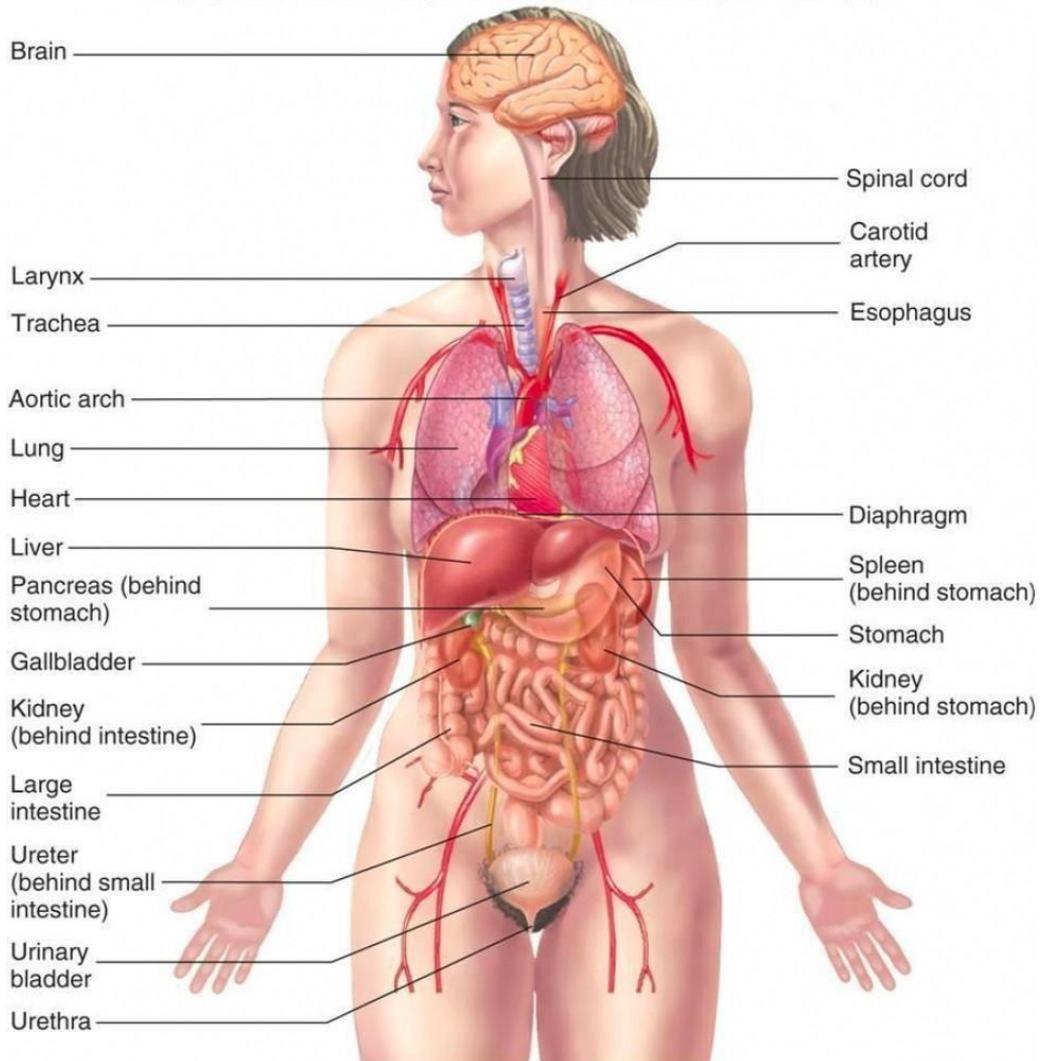
### Introduction:

Understanding anatomy and physiology is important for any yoga teacher to lead students in a safe, responsible practice. This is a vast topic that can take lifetimes to understand. Developing a love for this topic will significantly advance your skills as a yoga teacher, allowing you to give more specific insights to your students and deliver them deeper healing.



## 8.1 THE HUMAN BODY

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## 8.2 THE DIGESTIVE SYSTEM

### What Is the Digestive System & What Does It Do?

Every morsel of food we eat has to be broken down into nutrients that can be absorbed by the body, which is why it takes hours to fully digest food. In humans, protein must be broken down into amino acids, starches into simple sugars, and fats into fatty acids and glycerol. The water in our food and drink is also absorbed into the bloodstream to provide the body with the fluid it needs.

The digestive system is made up of the **alimentary canal** and the other abdominal organs that play a part in digestion, such as the liver and pancreas. The alimentary canal (also called the **digestive tract**) is the long tube of organs – including the esophagus, the stomach, and the intestines – that runs from the mouth to the anus. An adult's digestive tract is about 30 feet long.

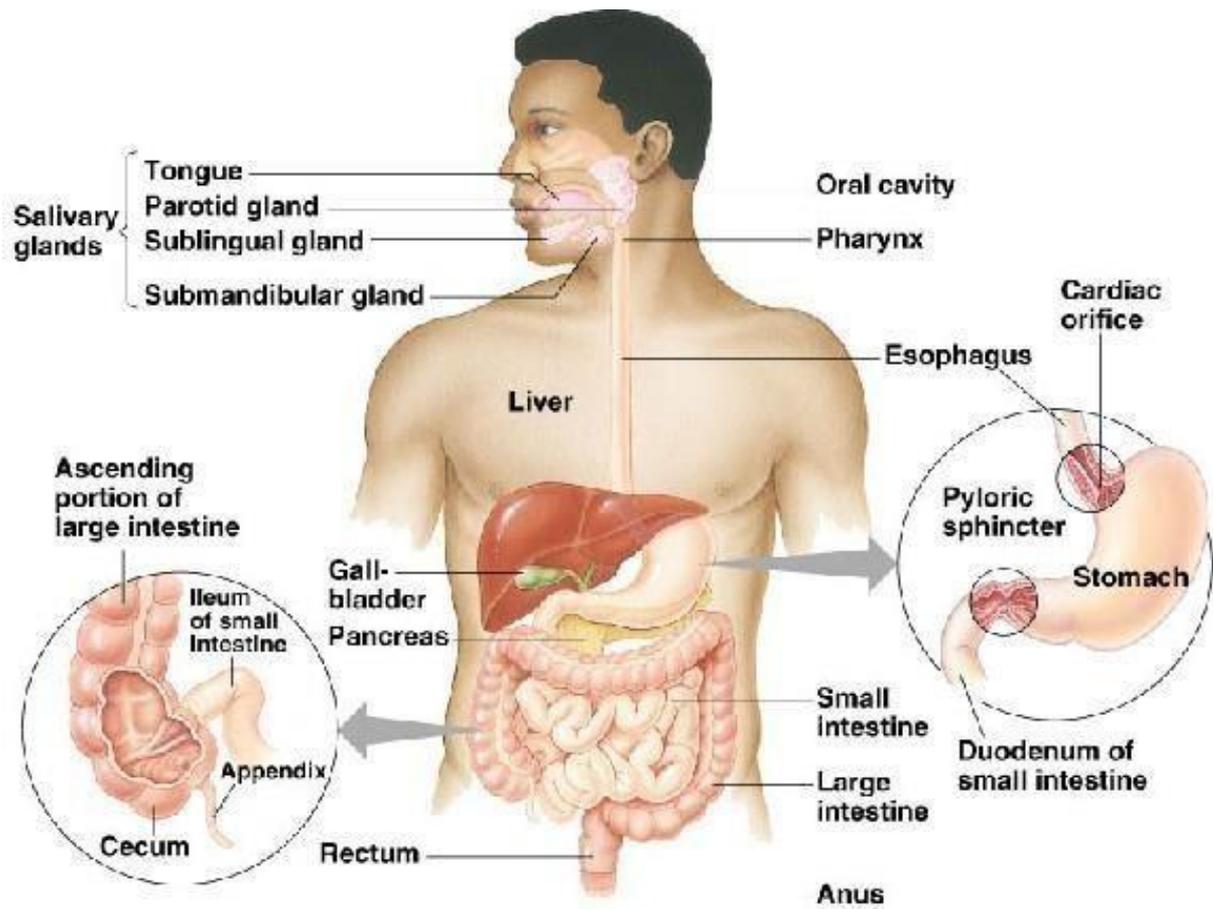
### Digestion Begins in the Mouth.

The process of digestion starts well before food reaches the stomach. When we see, smell, taste, or even imagine a tasty snack, our **salivary glands**, which are located under the tongue and near the lower jaw, begin producing saliva. This flow of saliva is set in motion by a brain reflex that's triggered when we sense food or even think about eating. In response to this sensory stimulation, the brain sends impulses through the nerves that control the salivary glands, telling them to prepare for a meal.

As the teeth tear and chop the food, **saliva** moistens it for easy swallowing. A digestive enzyme called **amylase** (pronounced: **ah-meh-lace**), which is found in saliva, starts to break down some of the carbohydrates (starches and sugars) in the food even before it leaves the mouth.

### On the Way Down.

Swallowing, which is accomplished by muscle movements in the tongue and mouth, moves the food into the throat, or **pharynx**. The pharynx (pronounced: **fair-inks**), a passageway for food and air, is about 5 inches long. A flexible flap of tissue called the epiglottis (pronounced: **ep-ihglah-tus**) reflexively closes over the windpipe when we



swallow, to prevent choking. If you've ever drunk something too fast, started to cough, and heard someone say that your drink –went down the wrong way,|| that person meant that it went down your windpipe by mistake. This happens when the epiglottis doesn't have enough time to flop down, and you cough involuntarily (without thinking about it) to clear your windpipe.

From the throat, food travels down a muscular tube in the chest called the **esophagus** (pronounced: ih-**sah**-fuh-gus) which is like a stretchy pipe that's about 10 inches (25 centimeters) long. Waves of muscle contractions called **peristalsis** (pronounced: per-uh-**stall**-sus) force food down through the esophagus to the stomach. A person normally isn't aware of the movements of the esophagus, stomach, and intestine that take place as food passes through the digestive tract. At the end of the esophagus, a muscular ring called the **sphincter** (pronounced: **sfink**-ter) allows food to enter the stomach and then squeezes shut to keep food or fluid from flowing back up into the esophagus.

### See You in the Stomach!

Your stomach, which is attached to the end of the esophagus, is a stretchy and sack-shaped like the letter J. It has three important jobs:

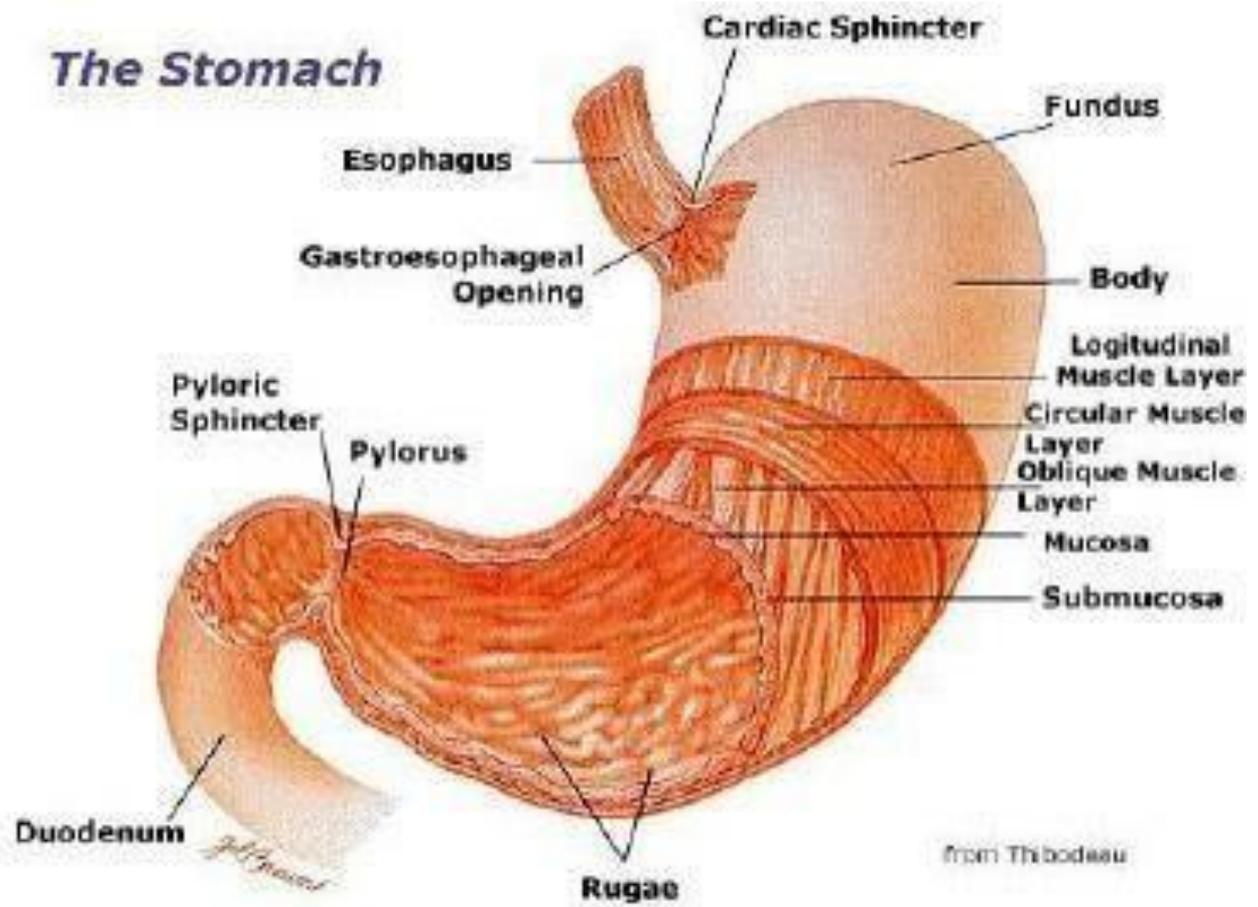
1. to store the food you've eaten
2. to break down food into a liquidy mixture
3. to slowly empty that liquidy mixture into the small intestine

The stomach churns and mixes the food with acids and enzymes, breaking it into much smaller, more digestible pieces. It does this with help from the strong muscles in the walls of the stomach and **gastric** (say: **gas**-trik) juices that also come from the stomach walls. In addition to breaking down food, gastric juices also help to kill bacteria that might be in the ingested food. An acidic environment is needed for the digestion that takes place in the stomach. Glands in the stomach lining produce about 3 quarts of these digestive juices each day.

Most substances in the food we eat need further digestion and must travel into the intestine before being absorbed. When it's empty, an adult's stomach has the volume of one fifth of a cup, but it can expand to hold more than 8 cups of food after a large meal.

By the time food is ready to leave the stomach, it has been processed into a thick liquid called **chyme** (pronounced: **kime**). A walnut-sized muscular tube at the outlet of the stomach called the **pylorus** (pronounced: **py**-loreus) keeps chyme in the stomach until it reaches the right consistency to pass into the small intestine. Chyme is then squirted

## The Stomach



down into the small intestine, where the digestion of food continues so that the body can absorb the nutrients into the bloodstream.

## The Small Intestine: 22 Feet Isn't Small at All!

The **small intestine** (say: in-tes-tin) is a long tube that's about 1½ inches to 2 inches (about 3.5 to 5 centimeters) in diameter, and is packed beneath your stomach. If you stretched out an adult's small intestine, it would be about 22 feet long (6.7 meters) – that's like 22 notebooks lined up end to end, all in a row!

The small intestine breaks down the food mixture even more so your body can absorb all the vitamins, minerals, proteins, carbohydrates, and fats. If your food is full of proteins – and a little fat – the small intestine can help extract them with a little help from three friends: the pancreas (say: pankree- us), liver, and gallbladder.

Those organs send different juices to the first part of the small intestine. These juices help to digest food and allow the body to absorb nutrients. The pancreas makes juices that help the body digest fats and protein. A juice from the liver called bile helps to absorb fats into the bloodstream. The gallbladder serves as a warehouse for bile, storing it until the body needs it.

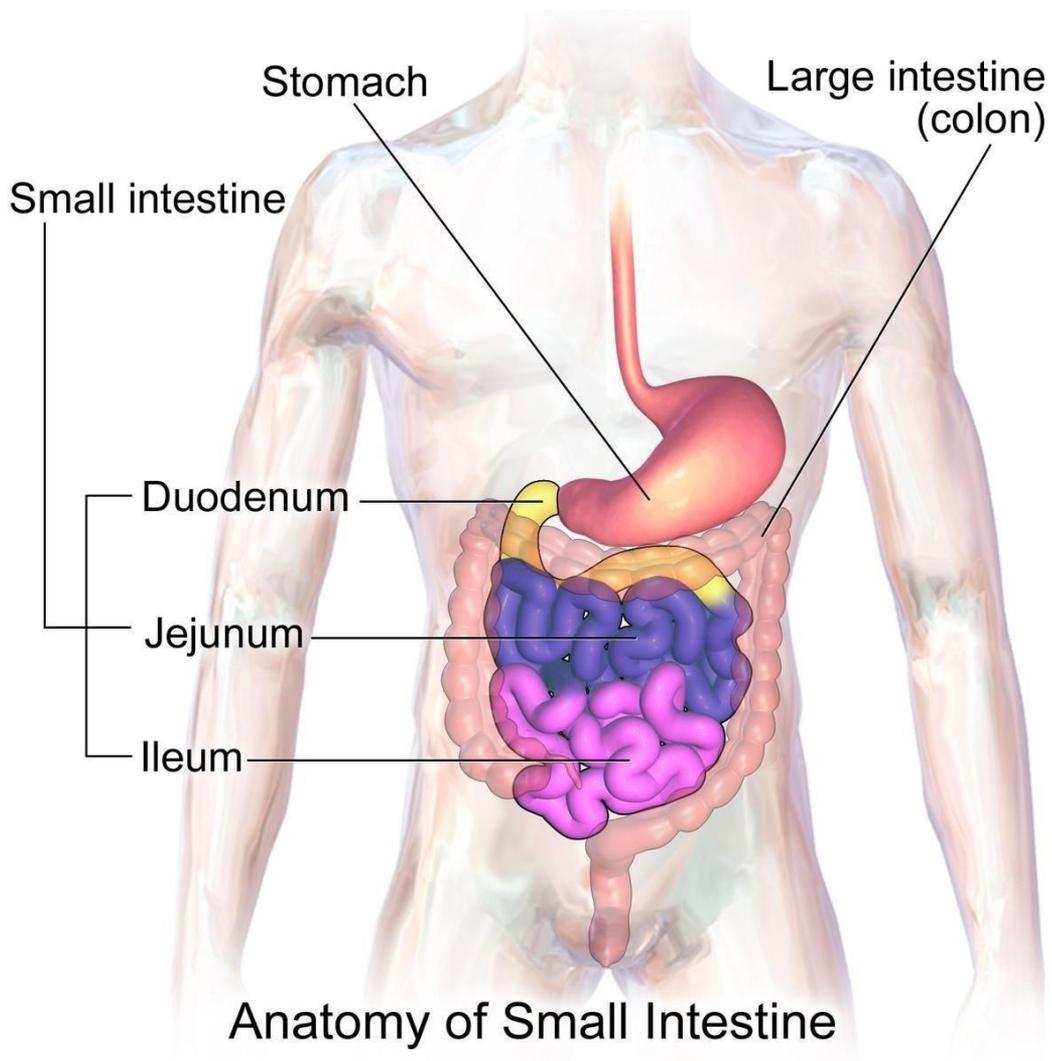
Your food may spend as long as 4 hours in the small intestine and will become a very thin, watery mixture. It's time well spent because, at the end of the journey, the nutrients from your food can pass through the intestine into the blood.

Next stop for these nutrients: the liver! Leftover waste – remnants of the food that your body can't use – goes on into to the large intestine.

### The small intestine is made up of three parts:

- i The **duodenum** (pronounced: due-uh-dee-num), the C-shaped first part
- ii The **jejunum** (pronounced: jih-ju-num), the coiled midsection.
- iii The **ileum** (pronounced: ih-lee-um) the final section that lead into the large intestine.

The inner wall of the small intestine is covered with millions of microscopic, finger-like projections called villi (pronounced: vih-lie). The **villi** are the vehicles through which nutrients can be absorbed into the body.



## The Liver - Love Your Liver!

The **liver** (located under the ribcage in the right upper part of the abdomen), the **gallbladder** (hidden just below the liver), and the **pancreas** (beneath the stomach) are not part of the alimentary canal, but these organs are still important for healthy digestion.

The pancreas produces enzymes that help digest proteins, fats, and carbohydrates. It also makes a substance that neutralizes stomach acid. The nutrient-rich blood comes directly to the liver for processing.

The liver filters out harmful substances and waste, turning some of the waste into more bile, which helps the body absorb fat. Bile is stored in the gallbladder until it is needed. The liver even helps figure out how many nutrients will go to the rest of the body, and how many will stay behind in storage. For example, the liver stores certain vitamins and a type of sugar your body uses for energy. These enzymes and bile travel through special channels (called ducts) directly into the small intestine, where they help break down food.

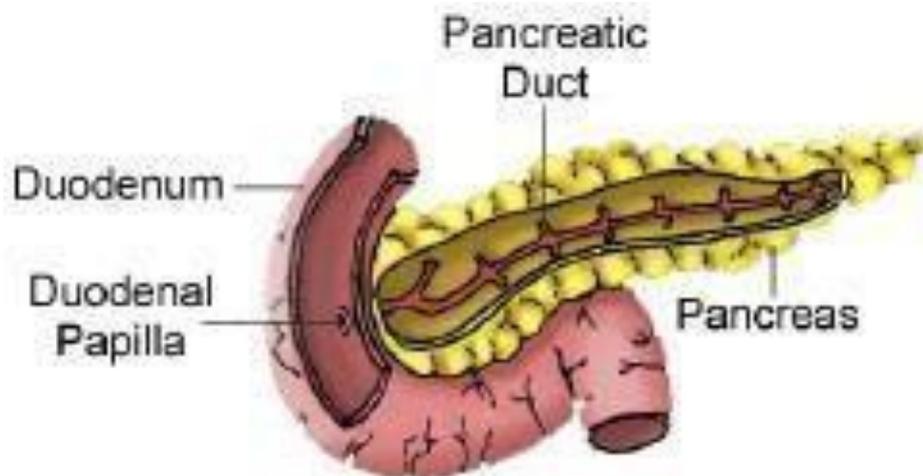
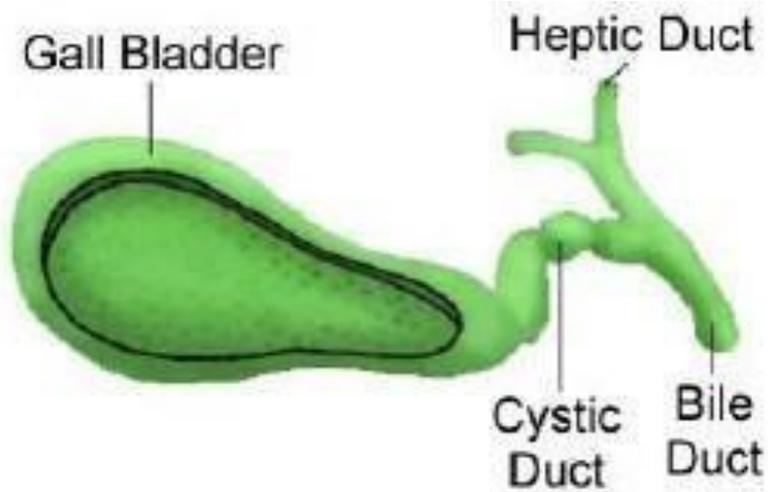
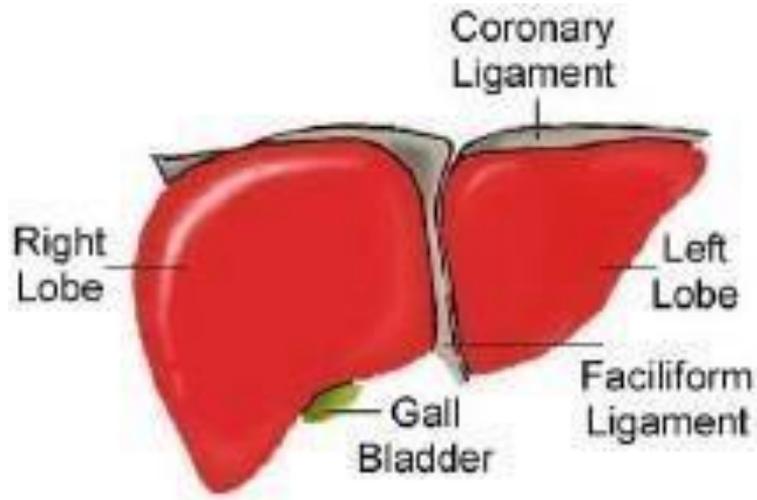
The liver also plays a major role in the handling and processing of nutrients. These nutrients are carried to the liver in the blood from the small intestine.

## The Large Intestine.

From the small intestine, food that has not been digested (and some water) travels to the large intestine through a valve that prevents food from returning to the small intestine. By the time food reaches the large intestine, the work of absorbing nutrients is nearly finished. The large intestine's main function is to remove water from the undigested matter and form solid waste that can be excreted.

At 3 or 4 inches (about 7 to 10 centimeters) in diameter, the large intestine is thicker than the small intestine and almost the last stop on the digestive tract. Like the small intestine, it is packed into the body, and would measure 5 feet (about 1.5 meters) long if you spread it out.

The large intestine has a tiny tube with a closed end coming off it called the **appendix** (say: uh-**pen**-dix). It is part of the digestive tract, but it doesn't seem to do anything, though it can cause big problems because it sometimes gets infected and needs to be removed.



Like we mentioned, after most of the nutrients are removed from the food mixture there is waste left over – stuff your body can't use. This stuff needs to be passed out of the body. Can you guess where it ends up? Well, here's a hint: It goes out with a flush.

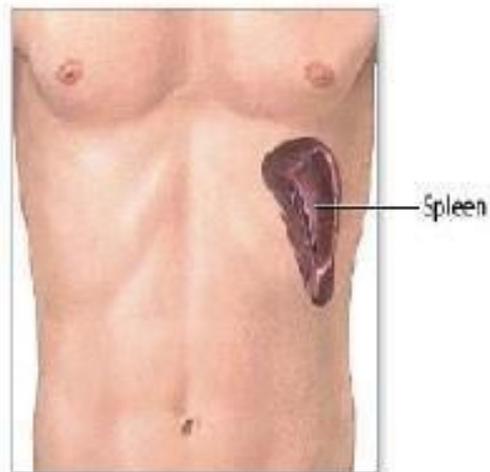
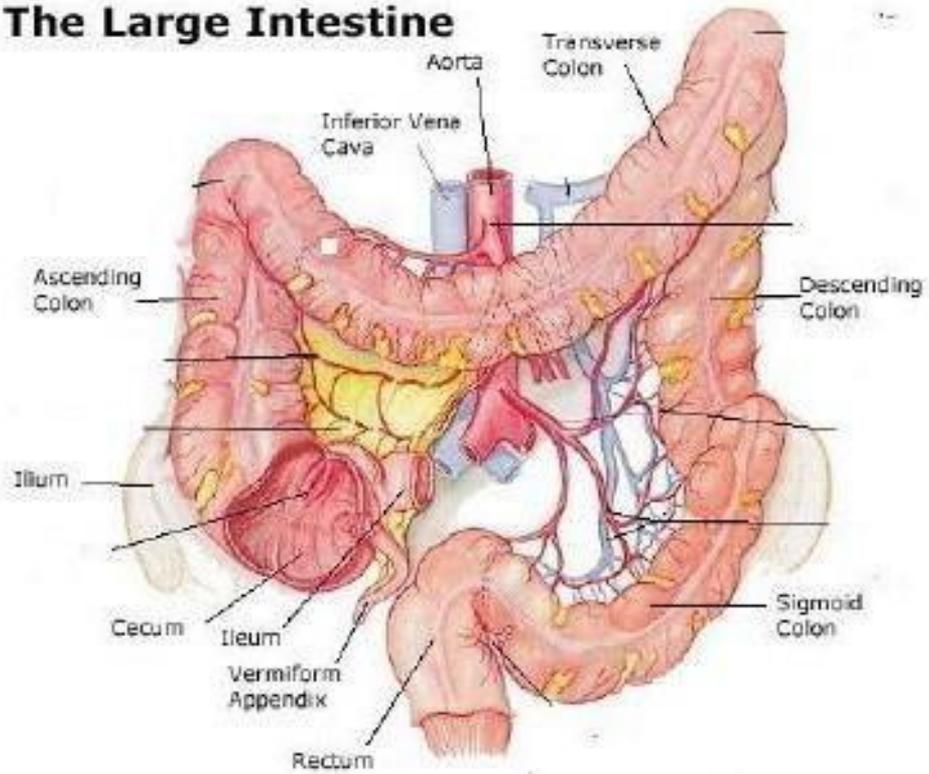
Before it goes, it passes through the part of the large intestine called the colon (say: coe-lun), which is where the body gets its last chance to absorb the water and some minerals into the blood. As the water leaves the waste product, what's left gets harder and harder as it keeps moving along, until it becomes a solid matter (also called stool or a bowel movement).

The large intestine pushes this into the rectum (say: rek-tum), the very last stop in the digestive tract. The solid waste stays here until you are ready to go to the bathroom. When you go to the bathroom, you are getting rid of this solid waste by pushing it through the **anus** (say: ay-nus).

### **The large intestine is made up of three parts:**

1. **The cecum** (pronounced: see-kum) is a pouch at the beginning of the large intestine that joins the small intestine to the large intestine. This transition area allows food to travel from the small intestine to the large intestine.
2. **The appendix**, a small, hollow, finger-like pouch, hangs off the cecum. Doctors believe the appendix is left over from a previous time in human evolution. It no longer appears to be useful to the digestive process, though it can cause big problems because it sometimes gets infected and needs to be removed
3. **The colon** extends from the cecum up the right side of the abdomen, across the upper abdomen, and then down the left side of the abdomen, finally connecting to the rectum. The colon has four parts: the ascending colon and transverse colon, which absorb water and salts; and the descending colon, which holds the resulting waste. Bacteria in the colon help to digest the remaining food products.
  - a) **The Ascending Colon:** The ascending colon is on the right side of the abdomen, which starts from the cecum to the liver (hepatic flexure).
  - b) **The Transverse Colon:** The transverse colon starts from the hepatic flexure (the turn of the colon by the liver) to the splenic flexure (the turn of the colon by the spleen).
  - c) **The Descending Colon:** The descending colon starts from the splenic flexure to the beginning of the sigmoid colon.
  - d) **The Sigmoid Colon:** The sigmoid colon starts after the descending colon and before the rectum.

## The Large Intestine



4. **The rectum** is where feces are stored until they leave the digestive system through the anus as bowel movement.

About 2 quarts (1.9 liters) of food and liquid pass through your body each day. They can stay for several days in your bowels, where your body absorbs water and salts. As water is absorbed, the digested food gets more solid and become solid matter called stool.

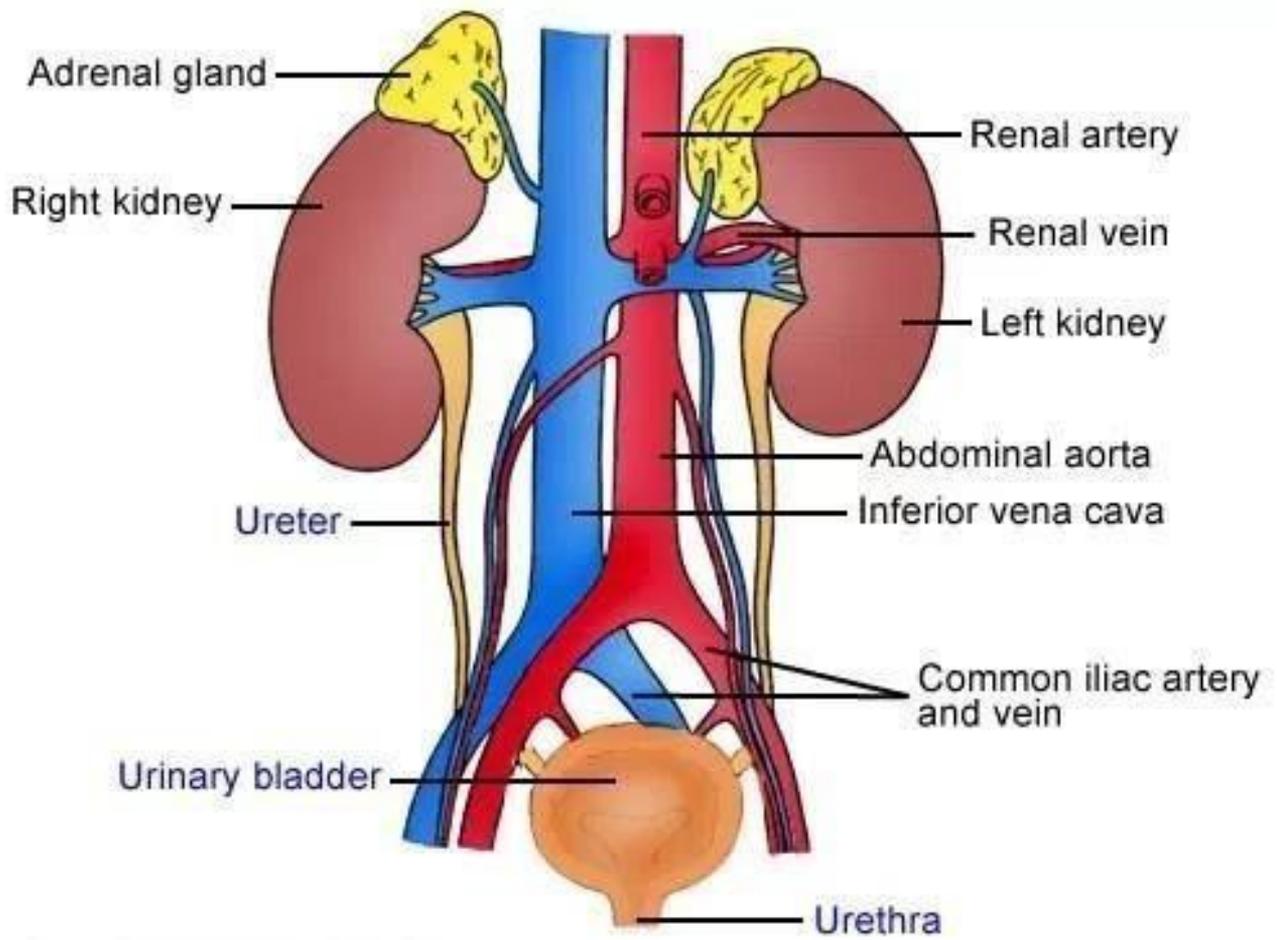
### **The process of metabolism:**

Foods are first digested, then absorbed and are finally metabolized. Metabolism is the actual utilization of the food by the body cells.

In this way, the process of metabolism is really a balancing act involving two kinds of activities that go on at the same time - the building up of body tissues and energy stores and the breaking down of body tissues and energy stores to generate more fuel for body functions.

**The spleen** is an organ above your stomach and under your ribs on your left side. It lies beneath the 9th to the 12th thoracic ribs. It is about as big as your fist. It is a part of your lymphatic system. The lymphatic system helps keep bodily fluid levels in balance and defends the body against infections. It is made up of a network of lymphatic vessels that carry lymph – a clear, watery fluid that contains protein molecules, salts, glucose, urea, and other substances – throughout the body. The spleen contributes to the production and storage of blood cells. It produces and stores white blood cells to destroy and recycle old red blood cells. Another important function of the spleen is to help the body fight off infection by acting as part of the immune system. When germs or bacteria are detected in the blood stream, the spleen works along with lymph nodes to produce an army of cells to defend the body against the invader. These cells are made specifically for defending the body against any type of bacteria or germ that is detected, and they are then released into the blood stream to attack and kill the invader.

**The kidneys** are located just under the rib cage in the back, one on each side. The right kidney is located below the liver, therefore it is a little lower than the one on the left. Its function is to filter waste materials out of the blood to be passed out of the body as urine. It regulates blood pressure and the levels of water and salts. Each adult kidney is about 5 inches (127 millimeters) long, 3 inches (76 millimeters) wide, and 1 inch (25 millimeters) thick. Each has an outer layer called the **cortex**, which contains the filtering units. The center part of the kidney is the **medulla** (pronounced: muh-duh-luh). A layer of fat surrounds the kidneys to cushion and help hold them in place. Every



minute, more than 1 quart (about 1 liter) of blood passes through the kidneys, adding up to about 425 gallons (1,609 liters) of blood each day.

About a quarter of our blood is in our kidneys at any one time, and the kidneys cleanse all of the blood in the body about every 50 minutes. In addition to filtering blood, producing urine, and ensuring that body tissues receive enough water, the kidneys also regulate blood pressure and the level of vital salts in the blood. They also secrete a hormone called **erythropoietin** (pronounced: eh-rith-ro-po-uh-ten), which stimulates and controls the body's red blood cell production (red blood cells carry oxygen throughout the body).

**The Urinary Bladder** is a hollow, muscular, balloon shaped organ that lies in your pelvis. It is part of your urinary tract, along with your kidneys, ureters, and urethra. Urine enters into the kidneys through the ureters and stores it until it is full enough to empty out through the urethra. The bladder swells into a round shape when it is full and gets smaller when empty. If the urinary system is healthy, the average adult bladder holds about 2 cups of urine for 2 to 5 hours.

## The Effects Of Yogic Practices On The Digestive System

**INVERTED POSTURES:** The oral and pharyngeal cavities are benefited by the increase in blood supply. The tongue, salivary glands and mucus membrane are bathed in fresh blood. In inverted poses, the internal organs are massaged.

The constant strain on the digestive organs is reversed and fresh blood circulates around the abdominal organs, and they get relief from congestion. Fresh blood reaches the villi of the intestine. Hence, food absorption is better. The nerves of the abdominal organs get relief from the erect posture, and feel light and refreshed after inversions.

**FORWARD BENDS:** The quieting of the senses soothes the salivary glands. Forward bends are soothing because of flexion of the abdominal organs, which is compressed and massaged. This improves their digestive, absorptive and excretory functions. These asanas help massage the colon, thus properly eliminating waste matter. The stimulative effect of compression increases gastric acidity. This arouses appetite and hunger as the vagus nerve is massaged.

**SEATED ASANAS:** Supta virasana gives relief to patients suffering from dyspepsia and peptic disorders.

In Baddha Padmasana and other postures where the pressure of the heels is on the nerve plexuses, the functions of the abdominal organs are improved. In seated postures, the abdominal organs are contracted and thus function better due to the massage given to them.

**TWISTING POSTURES:** Twisting postures improve blood circulation in the pelvic and abdominal organs by alternately squeezing and rinsing them. While one side of the abdominal organs is squeezed, the other side is rinsed with blood. Stomach disorders like dyspepsia and constipation are relieved.

The stomach, ileum and colon are massaged; this improves digestion. One of the best effects of asanas is that of the twisting poses on the gastrointestinal tract. The gall bladder is squeezed, thus ensuring better fat digestion.

Intestinal villi function is stimulated. Due to the softness of the cells, water regulation of the colonic contents is good, even in old age.

**BACKBENDS:** Due to the stretch of the vagus nerve (in lay terms, the vagus nerve helps to balance the levels of stomach acid), acidity decreases and dyspepsia is relieved. Back bends reduce excess hunger. The liver, gall bladder and pancreas get a better supply of blood so digestion, absorption are maintained.

**THE EFFECTS OF NAULI:** Nauli is an excellent exercise for the digestive organs. It maintains the optimum tone of the abdominal recti muscles by their repeated contraction and relaxation.

## 8.3 THE ENDOCRINE SYSTEM

There are seven endocrine glands in the body. They pass their secretions directly into the blood stream without the help of ducts; hence they are called ductless glands.

### These glands are:

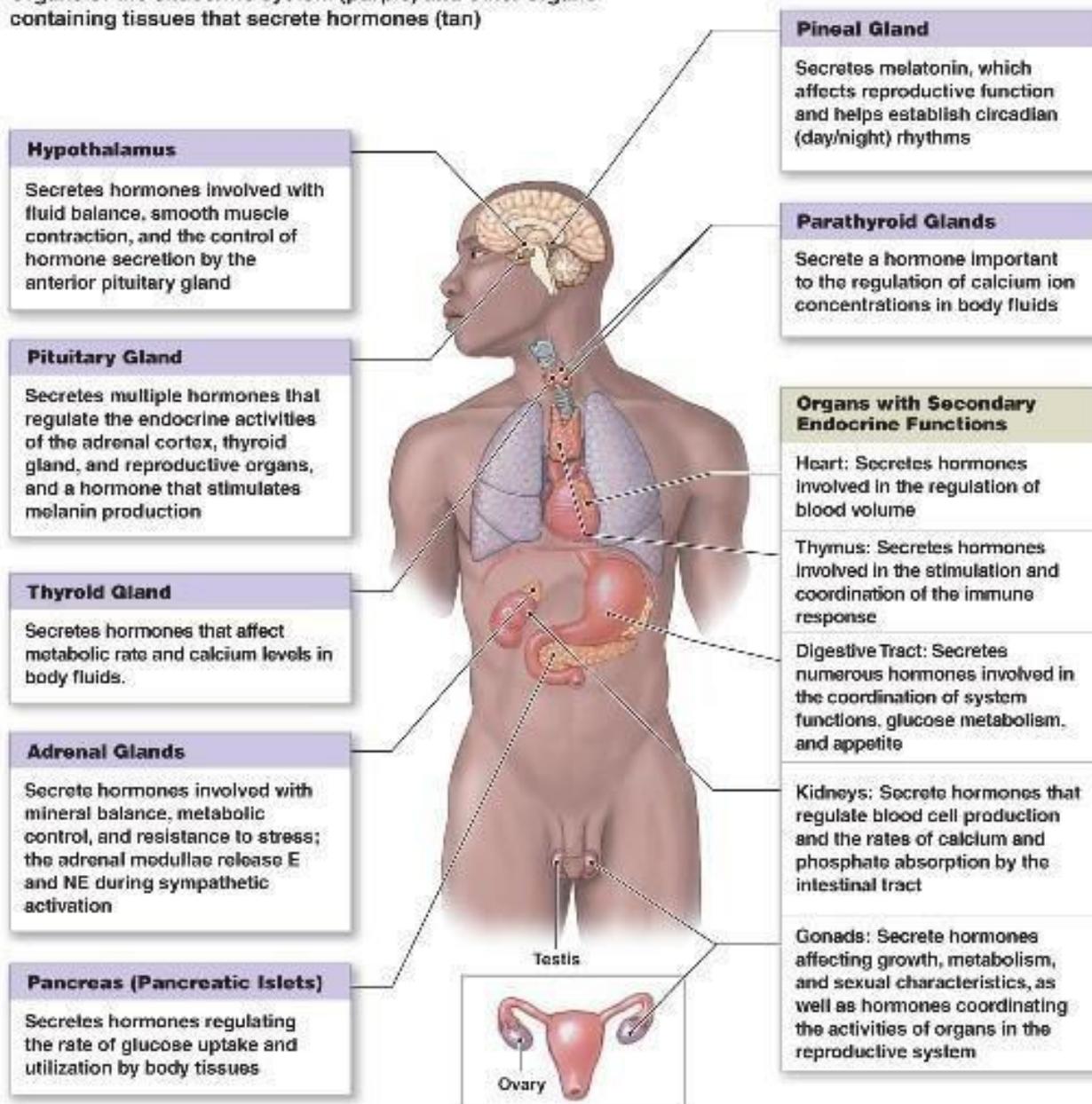
1. The pituitary gland
2. The thyroid gland
3. The parathyroid glands
4. The adrenal gland
5. The islets of Langerhans in the pancreas
6. The pineal gland
7. The testes and the ovaries

**THE PITUITARY GLAND:** The pituitary gland is an endocrine gland about the size of a pea that sits in a small, bony cavity (sella turcica) at the base of the brain. It is also known as the master gland. The pituitary gland secretes hormones that stimulate the other endocrine glands. Located at the base of the brain, it is functionally linked to the hypothalamus (the main link between the endocrine and nervous systems). The tiny pituitary is divided into two parts: the anterior lobe and the posterior lobe. The **anterior lobe** regulates the activity of the thyroid, adrenals, and reproductive glands. The **posterior lobe** releases **antidiuretic** (pronounced: an-ty-dy-uh-rehtik) **hormones**, which help control the balance of water in the body.

### The pituitary gland helps control the following body processes:

- Growth
- Blood pressure
- Some aspects of pregnancy and childbirth
- Breast milk production
- Sex organ functions in both women and men
- Thyroid gland function
- The conversion of food into energy (metabolism)

Organs of the endocrine system (purple) and other organs containing tissues that secrete hormones (tan)



**THE PINEAL GLAND:** The pineal (pronounced: pih-nee-ul) **body**, also called the pineal gland, is located in the middle of the brain. It secretes melatonin (pronounced: meh-luh-toe-nin), a hormone that may help regulate when you sleep at night and when you wake in the morning. The pineal gland (also called the pineal body or epiphysis) is a small endocrine gland in the brain. Its functions are not yet fully understood. It produces a hormone called melatonin, and is located near the center of the brain. The pineal gland is a reddish-gray body about the size of a pea (8 mm in humans), The pineal gland is large in children, but shrinks at puberty. It appears to play a major role in sexual development.

**THE THYMUS GLAND:** The thymus is an organ located in the upper anterior portion of the chest cavity, underneath the top of the sternum. It has two lobes which generally differ in size, and are a soft and pinkish-gray color. At birth it is about 5 cm in length, 4 cm in breadth, and about 6 mm in thickness. The organ enlarges during childhood. The thymus plays an important role in the development of the immune system during childhood.

#### **THE THYROID AND PARATHYROID GLANDS:**

**The Thyroid gland** is one of the larger endocrine glands in the body. It is a double-lobed structure located in the neck and produces hormones, principally thyroxin (T4) and triiodothyronine (T3), which regulate the rate of metabolism and affect the growth and rate of function of many other systems in the body. The hormone calcitonin is also produced and controls calcium blood levels. Iodine is necessary for the production of both hormones. Hyperthyroidism (overactive thyroid) and hypothyroidism (under active thyroid) are the most common problems of the thyroid gland.

**The Parathyroid glands** are small endocrine glands in the neck, usually located behind the thyroid gland, which produce the parathyroid hormone. In rare cases, the parathyroid glands are located within the thyroid glands. Most often there are four parathyroid glands, but some people have six or even eight.

The parathyroid glands produce the **parathyroid hormone**, which regulates the level of calcium in the blood with the help of calcitonin (pronounced: kal-suh-toe-nin), which is produced in the thyroid and bones. It then stimulates osteoclasts (a type of bone cell) to break down bone and release calcium into the blood.

## Diseases of the Thyroid Gland:

**Hypothyroidism:** It is a disease state in humans and animals caused by insufficient production of thyroid hormones by the thyroid gland.

**Hyperthyroidism:** It is due to an ‘overactive thyroid gland’; the clinical syndrome is caused by an excess of circulating free thyroxine (T4) or free triiodothyronine (T3), or both.

**Goiter:** Goiter is a swelling condition in the neck, which is due to an enlarged thyroid gland.

Note: There are various ways in the yogic system to control the thyroid gland and keep it healthy with proper secretion of thyroid hormones. Proper application of yogic exercises and yogic diet can also prevent/cure these diseases.

**The Adrenal Glands:** In mammals, the adrenal glands (also known as suprarenal glands) are the triangle-shaped endocrine glands that sit atop the kidneys; their name indicates their position (ad means ‘near’ or ‘at’ and renes means ‘kidneys’). Anatomically, the adrenal glands are located in the abdomen. In humans, the adrenal glands are found at the level of the 12th thoracic vertebra and receive their blood supply from the adrenal arteries. An adrenal gland is made of two parts: the outer region called the **adrenal cortex** (which influences or regulates the salt and water balance in the body, the body’s response to stress, metabolism, the immune system, and sexual development and function) and the inner region called the **adrenal medulla** (increases blood pressure and heart rate when the body experiences stress) The adrenal glands work interactively with the hypothalamus and pituitary gland.

## THE ISLETS OF LANGE RHANS IN THE PANCREAS:

The **islets of Langerhans** are the regions of the pancreas that contain its endocrine (i.e., hormone-producing) cells. The pancreas works as both the exocrine and the endocrine glands. The exocrine portion of pancreas helps in the secretion of digestive juices. The

endocrine part consists of clusters of cells called islets of Langerhans.

## The Effects Of Yogic Practices On The Endocrine System

Yoga is the only system where it is possible to consciously reduce glandular secretions. The main aim of Asanas is to preserve glandular function and maintain optimum energy levels. The stimulation also does not exhaust the glandular sections.

### **STANDING POSTURES:**

These poses stimulate the glandular system. The glands are made to function properly.

### **INVERTED POSES:**

In Sirsasana, the pituitary and pineal glands are soaked in blood. This helps maintain their optimum functioning. The thyroid and parathyroid are well fed with blood in shoulderstand and Halasana due to the chin lock. This massages the glands, improving their blood supply. Thyroid dysfunctions are prevented by these two poses. The adrenal gland is given rest. This conscious rest given to the sympathetic nerves in asanas is the mechanism by which recuperation occurs. As the nervous and endocrine systems are in harmony, they help affect each other's proper functioning. Age-related atrophy of the cells in the endocrine glands does not affect the practitioner of inverted poses.

### **FORWARD BENDS:**

The hormonal status doesn't fluctuate from the baseline. All endocrine glands are soothed by the practice of forward bends. As the mind is kept quiet, the nervous system is resting. This in turn soothes the glandular system.

The adrenal glands derive maximum benefit due to the soothing action of these poses. The adrenal glands are profusely innervated with the sympathetic nerves and if this system is rested, the glands don't suffer exhaustion and its cellular contents are preserved. It is interesting that a regular practitioner of yoga feels the lack of energy by omitting forward bends, even for a day.

Metabolic activity slows down; this gives rest to the thyroid gland. The entire system recuperates by the regular practice of forward bends. The degeneration of the body slows down as one gets older.

### **BACK BENDING:**

Through the practice of backbends, the major endocrine glands are stimulated in contrast to forward bends. The effect can be felt very fast. The adrenal, pituitary, pineal and thyroid glands are stimulated. The ovarian cells which secrete female hormones are also stimulated. As the asanas are intensive in nature, the metabolic rate is sped up.

The degeneration of these glands do not occur as one grows older.

## 8.4 THE SKELETAL SYSTEM

The skeleton is a collection of bones that supports the rest of our body. It gives us shape and a framework to protect the vital organs, such as the brain (protected by the skull), the heart and the lungs (protected by the ribcage). It also produces blood cells, stores important minerals especially calcium till it is needed by the body; and enables us to move. Without bones, we would not be able to stand, walk, run or even sit!

The skeleton makes up about 20% of the human mass. When we were born, our skeleton had around **350 bones**. By the time we become an adult, we will have only around **206 bones** as when we grow, some of the bones fuse (join) together to form one larger bone. The outside of a bone is hard, but the inside is softer, made of marrow. Young children have soft bones which keep on growing, once we reach twenty years old our bones stop growing.

Bones do not work on their own; together with ligaments, tendons, and cartilages, the bones join together to form joints. Some joints, like those connecting the skull's series of bones, allow no movement. Others permit only limited movement; the joints in the spine allow some movement in several directions. Most joints have a greater range of movement, and these are called –synovial|| joints.

**Ligaments** are the stretchy bands which bind the bones to prevent dislocations and limit the joint's movements. The bones are hence held in position and controlled in movement by the ligaments.

**Tendons** are the fibrous structures which connect the muscle to the bone.

**Cartilages** are the tough, smooth shiny substances which cover the end of each bone. They help reduce friction and cushion the bones against jolts. The cartilage-coated bone-ends are kept apart by a thin film of slippery fluid (called synovial fluid) which works like a lubricant. Between the bones, in a narrow space, is the joint –cavity,|| which gives us freedom of movement.

Bones are of differing size, weight and composition. The longest bone in our bodies is the **femur** (thigh bone). The smallest bone is the **stirrup bone inside the ear**. Each hand has 26 bones in it. Your nose and ears are not made of bone; they are made of cartilages.

### Our skeleton can be divided into twoparts:

1. **The Axial Skeleton** consists of 80 bones of different shapes & sizes. This includes the **skull, vertebra column, ribs and sternum**, which form the longitudinal axis of the body.
2. **The Appendicular Skeleton** consists of 126 bones of different shapes & sizes. This includes the bones of upper extremities & lower extremities.

The bones of the **upper extremities** consist of the **clavicle, scapula, humerus, radius, ulna, bones of the wrist and hand** (8 carpal bones, 5 metacarpal & 14 phalanges)

The bones of the **lower extremities** consist of the **pelvic bones, femur, patella, tibia, fibula, and bones of the ankle & feet** (7 tarsal bones, 5 meta tarsal & 14 phalanges)

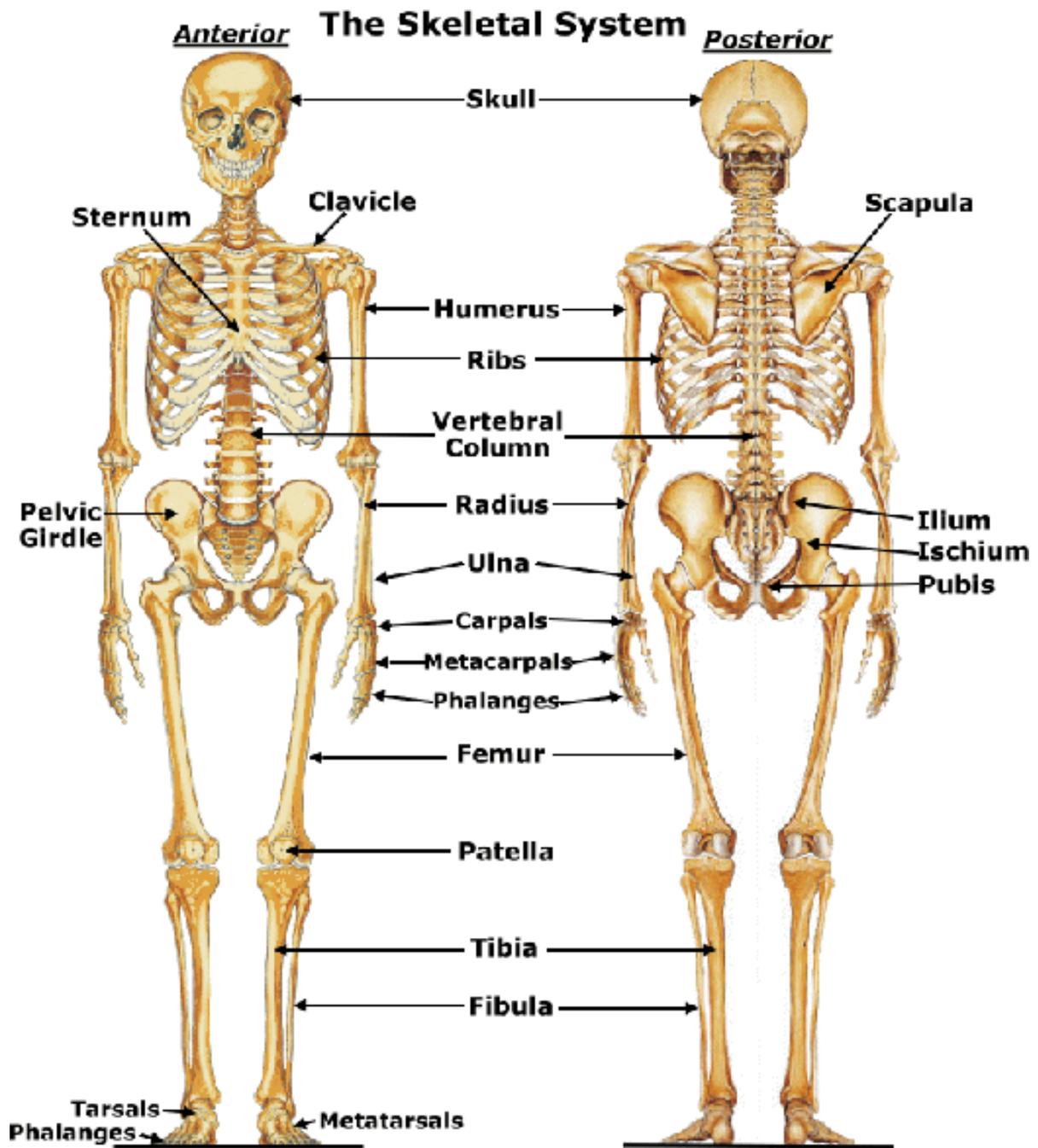
## THE AXIAL SKELETON.

**Skull:** It consists of **8 cranial bones** and **14 facial bones**

**Ribs:** Also known as the **thoracic cage or rib cage** and consists of **24 ribs**. The first seven ribs are attached with the costal cartilage and the 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> ribs are connected to the 7<sup>th</sup> rib. The 11<sup>th</sup> and 12<sup>th</sup> ribs are floating ribs. The rib cage protects the heart, lungs and kidneys. It also provides attachment sites for inter-coastal muscles and muscles of the arms. These 24 ribs are attached to the 12 thoracic vertebrae from the back, and with the sternum (breastbone) from the front.

**The Vertebral Column:** A total of **26 vertebrae** for an adult.

- **The Cervical Spine:** Consists of **7 vertebral bodies** (C1 through C7). These vertebrae are the smallest in the spinal column and they support the skull.
- **The Thoracic Spine:** Consists of **12 vertebral bodies** (upper back - T1 through T12). This part of the spine has very little motion as they are attached to the ribs & sternum. However, because there is little motion in this region, it is usually not a source of chronic pain.
- **The Lumbar Spine:** Consists of **5 vertebral bodies** (lower back - L1 through L5). This part extends from the lower thoracic spine to the sacrum. The vertebral bodies stack on top of each other with a disc in between each one. These vertebrae are the largest in the spinal column and they transmit the weight down to the sacrum. These take the most strain during lifting.
- **The Sacrum Spine:** The **5 sacrum vertebrae** are fused together to become **one vertebra** when a child grows up. The sacrum is housed within the bones of the pelvis and it transmits the weight sideways from the spine into the pelvic girdle.



- **The Coccyx Spine:** The 4 coccyx vertebrae are fused together to become one vertebra known as the „tailbone“ when a child grows up and it moves only during pregnancy.

There are **inter-vertebral discs** between each vertebra. These discs consist of semi fluid and thick cartilage and act as shock absorbers. Once the disc is injured or starts to degenerate due to age, it can become painful for the spine and back. Injury, stress, and poor postural habits can cause progressive weakness in these discs and the muscles in the spine. It is recommended that you develop habits that reduce the pressure placed on the back.

Spinal exercise, when performed correctly, is one of the best measures to prevent spinal problems and back pain, and should be an important part of your fitness routine. Successful and appropriate back strengthening exercises can build stability in weak muscles and are more effective if they are easy to perform, and do not aggravate other problems or worsen a current condition. Always consult your doctor/therapist before beginning an exercise program if you have specific spine or back problems.

The intervertebral discs are fibro cartilaginous cushions serving as the spine's shock absorbing system, which protect the vertebrae, brain, and other structures (i.e. nerves). The discs allow some vertebral motion: extension and flexion. Individual disc movement is very limited - however, considerable motion is possible when several discs combine forces.

### **The Annulus Fibrosus and Nucleus Pulposus.**

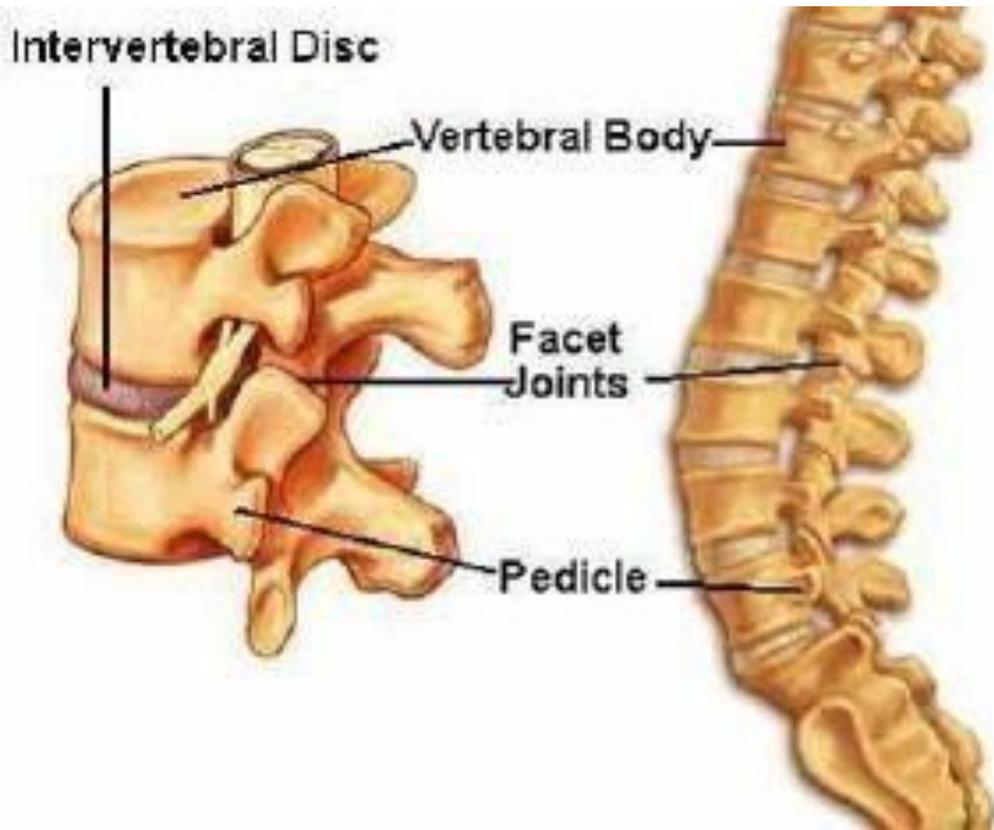
Intervertebral discs are composed of an annulus fibrosus and a nucleus pulposus.

Each intervertebral disc has a semi-fluid core - the nucleus pulposus. The nucleus pulposus is surrounded by a tough but elastic connective tissue exterior, the annulus fibrosis.

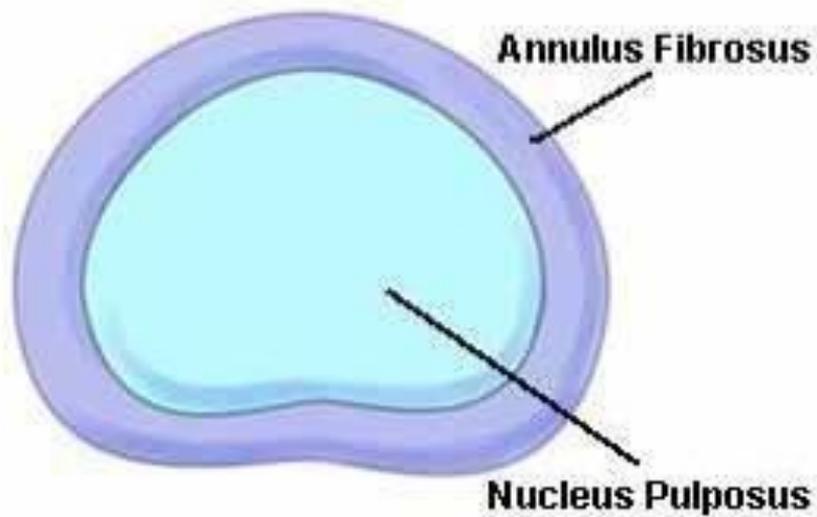
**Slipped disc: Spinal disc herniation**, incorrectly called a „slipped disc“, is a medical condition affecting the spine, in which a tear in the outer, fibrous ring( annulus fibrosus) of an intervertebral disc allows the soft, central portion (nucleus pulposus) to bulge out .This tear in the disc ring results in severe pain.

### **Disorders related to the spine.**

We have seen the vertebrae at different sections of the spine. Now we need to examine the spine as a whole within the body. The four curvatures could be examined from the side.



**Axial (Overhead) View  
of Intervertebral Disc**



**Lordosis:** Your lower back has a natural inward curve. An excessive inward curve is called lordosis. Lordosis is a common cause of lower back pain in strength training & daily activities, especially in the lumbar region - the spine will be unstable. This condition is known as lordosis.

**Kyphosis** (Greek - kyphos, a hump): Also called hunchback, kyphosis is a forward-rounding of the upper back. Some rounding is normal, but the term 'kyphosis' usually refers to an exaggerated rounding, more than 50 degrees. This deformity is also called round back or hunchback.

**Scoliosis** (from Greek: skolíōsis meaning –crooked): A medical condition in which a person's spine is curved from side to side, shaped like an 'S', and may also be rotated (from either the front or the back the spine should look straight).

**Sciatica:** The sciatic nerve is the longest nerve in your body. It runs from the spinal cord to the buttock and hip area and down the back of each leg. The term 'sciatica' refers to pain that radiates along the path of this nerve – from the back down the buttock and leg.

## THE APPENDICULAR SKELETON.

### The Upper & Lower Extremities.

#### THE DIFFERENCES BETWEEN MALE AND FEMALE SKELETONS.

Males and females have slightly different skeletons, including a different elbow angle. Males have slightly thicker and longer legs and arms; females have a wider pelvis and a larger space within the pelvis, through which babies travel when they are born.

## JOINTS.

Bones are connected to other bones at the joints. All of our bones, except for one (the hyoid bone in the neck), form a joint with another bone. Joints hold our bones together and allow our rigid skeleton to move.

### Types of Joints:

Joints enable our body to move and consist of the following types:



- **Fixed joints:** Some of our joints, like those in your skull, are fixed and do not allow any movement. The bones in your skull are held together with fibrous connective tissue.
- **Slightly movable joints:** Other joints, such as those between the vertebrae in our spine, which are connected to each other by pads of cartilage, have only limited movement.
- **Movable or most mobile type of joints:** Ball and socket joints, such as hip and shoulder joints are the most mobile type of joints or most movable joints in the human body. Hinge joints, such as knee joints, elbow joints and wrist joints are also considered movable joints.
- **Synovial Joints:** Most of the joints are synovial joints. They are movable joints containing a lubricating liquid called **synovial fluid**. Synovial joints are predominant in our limbs where mobility is important. Ligaments help provide their stability and muscles contract to produce movements.

#### **Most Common Synovial Joints:**

- **Ball and socket joints:** Hip and shoulder joints are the most mobile joints in the human body. They allow us to swing our arms and legs in many different directions.
- **Ellipsoidal joint:** This is the joint at the base of our index finger, allowing bending and extending, rocking from side to side, but rotation is limited.
- **Gliding joints:** Gliding joints are also called plane joints or arthrodial joints. The book —Fundamentals Concepts of Anatomy|| describes gliding joints as flat bone diarthroses that move in a gliding action that is limited by ligaments. Ligaments are the fibrous tissues that hold bones together. Gliding joints are located in wrists, ankles and spines.
- **Hinge joints:** Knee and elbow joints are an example of hinge joints, which enable movement similar to the opening and closing of a hinged door.
- **Pivot joint:** This is in our neck & allows us to turn our head from side to side.
- **Saddle joints:** The only saddle joints in your body are in our thumbs, helping us to grasp things. The bones in a saddle joint can rock back and forth and side to side, but they have limited rotation.

	Types of Joints	Movements
<b>Shoulder Joint</b>	Ball & Socket	Flexion, Extension, Abduction, Adduction, Rotation & Circumduction
<b>Sternoclavicular Joint (also called sc joint, the connection of breast bone to collar bone)</b>	Others	Elevation & Depression (on an anterior-posterior axis) Protraction & Retraction (on the vertical axis through)
<b>Elbow Joint</b>	Hinge	Flexion & Extension only
<b>Radioulnar Joint</b>	Others	Supination and Pronation.
<b>Wrist Joint</b>	Gliding	Flexion, Extension, Abduction, Adduction, Circumduction
<b>Metacarpophalangeal Joint</b>	Others	Flexion, Extension, Rotation, Abduction, Adduction, (very limited and cannot be performed when the fingers are flexed)
<b>Hip Joint</b>	Ball & Socket	Flexion, Extension, Abduction, Adduction & Rotation
<b>Knee Joint</b>	Hinge	Flexion & Extension Rotation (internal & external in certain positions of the joint)
<b>Ankle Joint</b>	Hinge	Rotation, Dorsiflexion, Plantar flexion, Dorsiflexion with Ankle Eversion, and Dorsiflexion with Ankle Inversion
<b>Metatarsophalangeal Joint</b>	Others	Flexion, Extension, Abduction & Adduction

	<b>Vertebral Joints</b>	<b>Others</b>	Flexion (freest in lumbar), Extension (freest in cervical & lumbar regions) Lateral Movement (freest in cervical & lumbar regions) Rotation (freer in thoracic, limited in cervical, absent in lumbar) * In the thoracic region, notably in its upper part, all movements are limited by the resistance of the ribs and sternum.	
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Movements	Descriptions
Flexion	Decreases the angle of the joint, moving two bones closer
Extension	Increases the angle of the joint, moving two bones apart
Abduction	Moves the bone away from the midline of the body
Adduction	Brings the bone closer to the midline of the body
Rotation	Movement around a longitudinal axis
Elevation	Raises a part of the body
Depression	Lowers a part of the body
Supination	Turns the palm or soles upwards
Pronation	Turns the palm or soles downwards
Dorsiflexion	Bends the forefoot towards the front of the leg
Plantar Flexion	Extension of the ankle resulting in the forefoot moving away from the body
Inversion	Turning the soles inward towards the opposite foot
Eversion	Turning the soles outwards away from the midline
Protraction	Forward movement of the scapula, moving the scapula away from the Spine
Retraction	Backward movement of the scapula, moving the scapula towards the Spine

## THE EFFECTS OF YOGIC PRACTICES ON THE SKELETAL SYSTEM.

The practice of yoga increases lubrication within the joints, ligaments and tendons. Yoga is very low impact, as the asanas work on precision and correct alignment. Because the poses are held for a set time, this gives the body an opportunity to increase blood flow and supply all areas of the body with the vital supplies that they need.

They also help to correct and balance the roles that the joints, ligaments and tendons play together, in providing the support that the body's limbs need to function properly.

**It is very important that** your joints remain well lubricated because if they are not, it will begin to limit your mobility and you will become more susceptible to injuries. If this is the case, you can say hello to all kinds of ailments that come when parts of your body fail to be maintained. It is never too late to start yoga and start reversing the signs of aging. Aging we believe is the result of failing to maintain your body. Once again we bring up the saying – „use it or lose it!“

Yoga poses provide relief to stiff and damaged joints. Yoga's controlled movements and gentle pressures reach deep into troubled joints.

In addition, the controlled stretches in conjunction with deep breathing exercises relax and release the muscles that have seized up around the joints to protect them.

### **FORWARD BENDS:**

The joints between the ribs and the spine on the posterior side are made stronger. The posterior intercostal muscles are made elastic. The intervertebral joints are stretched and strengthened. As they maintain their elasticity, degeneration of the spinal joints doesn't occur. All parts of the spine are made stronger. The ligaments of the spinal column are strengthened. Nutrition to the disc is made proper even in the old age. As the spine is flexible, lower back pain does not occur.

### **BACKBENDS:**

Due to the specific nature of the backbends the blood is made to circulate well deep into the vertebrae, thus providing them with proper nourishment.

The entire anterior surfaces of all the vertebrae are opened up and stretched out to maintain their optimum health. This avoids degenerative changes such as arthritis, spondylitis and so on.

Vertigo caused by cervical spondylitis is controlled. The posterior surfaces of the discs are made stronger, preventing the occurrence of slipped disc. Discs are kept in healthy condition by their proper nourishment. As the surrounding tissues remain soft, the vertebrae are kept healthy. The breast bone, ribs, shoulders, collar bone, upper arms and wrists are made stronger.

Backbends successfully manage vertebral changes such as decalcification as one grows older.

### **BALANCING ASANAS:**

All the arm-balancing asanas help to strengthen the wrists, arms and shoulders. The body acts as a weight and counterweight in these asanas. The bones of the forearm, upper arms and the entire vertebral column are made stronger.

The bones in the spinal column are massaged as a compressive load is applied. Bone remodeling is excellent as the load on the bones is precisely calculated according to one's capacity. This helps to maintain bone density even without lifting heavy weights.

### **TWISTING:**

All the twisting asanas relieve spinal, hip and groin problems. The intervertebral joints are made elastic, compression doesn't occur, nor does the disc herniate. These asanas prevent internal derangement and calcification of the shoulder, pain in the shoulder blades disappears, and osteoarthritic hip joints are benefited. Arthritic disorders of the knee and ankles are prevented.

Twisting poses relieve from backaches. Pasasana is highly beneficial to manage backaches.

### **SEATED POSTURES:**

Poses like padmasana, virasana and supta virasana relieve arthritis of the knees and ankles. Hanumanasana tones the entire neuro-physio-venous system of the legs. It also prevents arthritis of the hips and knees. Kandasana, an advanced pose, keeps the ankles, knees and hips completely flexible as one grows older.

Baddha padmasana gives elasticity to the shoulders, knees and the hips.

### STANDING POSTURES:

Suppleness, strength and alignment of the spine are maintained due to a variety of geometric positions while practicing the standing postures. Hence, spinal disorders of a mechanical nature such as scoliosis, slipped disc, spondylitis, and lower back pain are alleviated. The intervertebral disc ruptures only if the ligaments, discs and muscles lose their elasticity. Nutrition to the disc is maintained through standing poses.

Injuries to the cartilage of the knee are healed by standing poses. In many cases even if the ligaments of the knees are damaged, the structures could be strengthened by standing poses.

The hip joints are made supple due to the stretching of the hamstring muscles.

## 8.5 THE MUSCULAR SYSTEM

Muscles are the part of our body which allow us to move. They are made up of special tissues that can contract or shorten when they receive a signal from the brain. The muscles are attached to bones by stretchy tissue called **tendons**. When the muscles contract, they pull on the tendons and the tendons in turn pull on the bones and cause our limbs to move. Muscles are dependent on the nerves which supply them. Nerves stimulate the muscle to contract and they carry sensory information from the muscles to the brain so that muscular contractions and movements are coordinated. If the nerve supplying any muscle is paralyzed or severed, the muscle will lose its power of movement.

There are more than 640 muscles and they make up about 35% to 50% of a human's weight whereas muscle contractions account for 85% of the heat produced. Most muscles hardly ever work alone. Muscles can get shorter and pull, but they cannot push. Most muscles are arranged in opposing teams, known as antagonistic muscles. One team pulls the body part one way while the other team pulls it back again. As each team pulls, the other team relaxes and gets stretched.

Our bodily needs demand that muscles accomplish different chores, so we are equipped with three types of muscles:

- i **Cardiac Muscles** are found in the walls of the heart and they power the action that pumps blood throughout the body.

- ii **Smooth Muscles** are found in the walls of the internal organs such as the bladder and uterus. Both cardiac and smooth muscles are called involuntary muscles, because they are not under our conscious control.
- iii **Skeletal Muscles** cover the skeletal framework and are attached directly attached to the bones via tendons. These muscles carry out movements which can be controlled by your thoughts and are known as voluntary muscles and they are what ache after strenuous exercise.

Each skeletal muscle has an origin and an insertion (attachment). For example, the origin of the biceps muscle is on the shoulder bone and its insertion is on the radius bone.

**Most skeletal muscles have names which describe the feature of the muscle such as:**

- **Size:** vastus (huge), maximus (large), minimus (small), longus (long), brevis(short)
- **Shape:** deltoid (triangular), rhomboid(like a rhombus with equal and parallel sides), latissimus (wide), teres (round), trapezius (like a trapezoid, a four sided figure with two sides parallel)
- **Direction of Fibers:** rectus (straight), transverse (across), oblique (diagonally), orbicularis (circular)
- **Location:** pectoralis (chest), gluteus (buttocks), brachii (arm), supra- (above), infra- (below), sub-(beneath), lateralis (lateral)
- **Number of Origins:** biceps (two heads), triceps (three heads), quadriceps (four heads)
- **Action:** abductor (move away from midline), adductor (move towards midline), flexor (move 2 bones closer), extensor (move 2 bones further), levator (lift), masseter (chew)

**The Functions of the Muscular System.**

- **Motion:** The main function of muscles is motion, for example in conjunction with the bones for walking. Muscles may work alone e.g. the diaphragm for breathing, and the heart for circulating blood.
- **Stabilizing:** Muscles help maintain body positions.
- **Thermogenesis:** Muscles produce body heat.
- **Support:** Muscles support soft tissue, such as the abdominal wall and pelvic floor.
- **Guard Entrance and Exits:** Muscles are also involved in swallowing, defecation and urination (sphincter muscles).

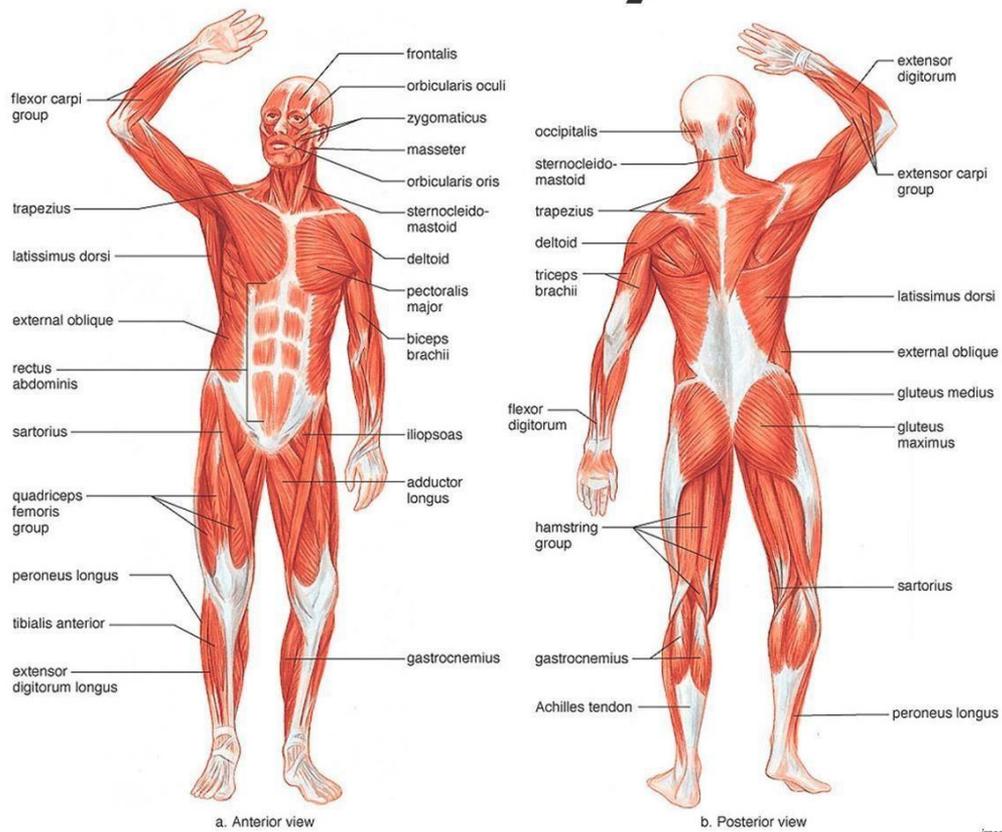


Image via: halk

### **The Characteristics of Muscle Tissue.**

- **Irritability:** (excitability) Muscles receive and respond to stimulation.
- **Contractibility:** Allows muscles to change shape to become shorter and thicker.
- **Extendibility:** Living muscle cells can be stretched and extended; longer and thinner.
- **Elasticity:** Once the stretching force is removed, a living muscle cell retains its original shape

## **THE EFFECTS OF YOGIC PRACTICES ON THE MUSCULAR SKELETAL SYSTEM**

### **INVERTED POSES:**

Cervical and dorsal spinal muscles and vertebrae are made stronger, the deltoid and trapezius become elastic and strong. Balance, grace and agility are developed. All parts of the body are developed due to the various movements done while practicing variations in the postures like Sirsasana and Sarvangasana.

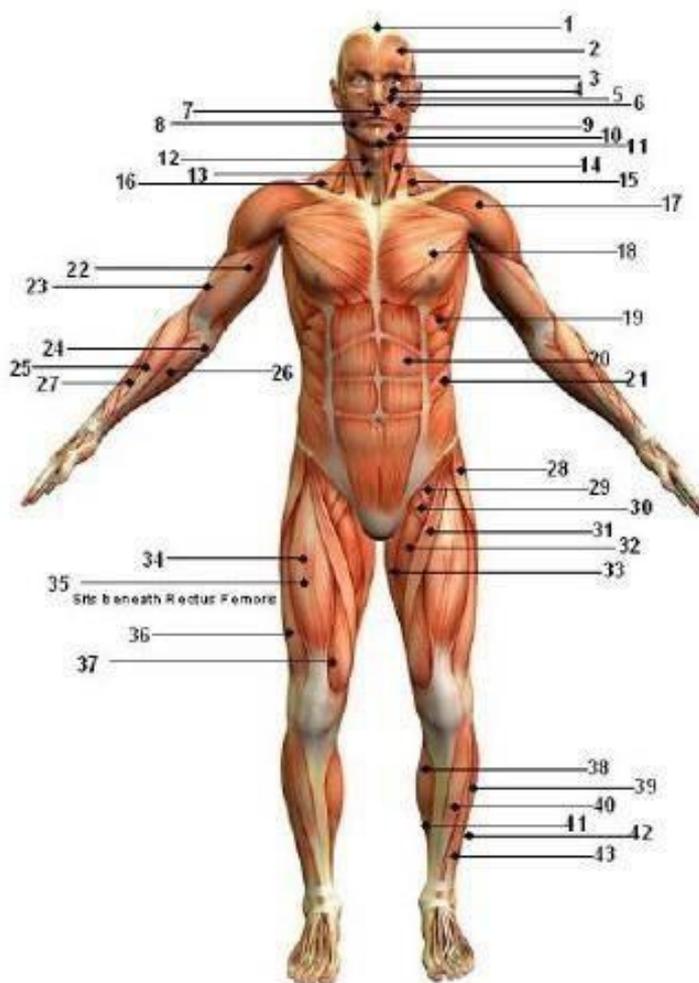
### **SPECIAL NOTE:**

It is very important to keep the skeletal muscles active when you practice yoga. It not only helps to stabilize the joints but also enhances the energy flow and improves overall strength and flexibility.

### **Passive and active stretching:**

It is generally well known that when we try to stretch a muscle in its relaxed state it potentially dangerous, since it doesn't offer any additional support and stabilization to the joint structure; which can result in tearing of the muscle or/and cause damage to the surrounding structures. The rule is any muscle that is lengthened during a pose must be kept active to avoid any injuries.

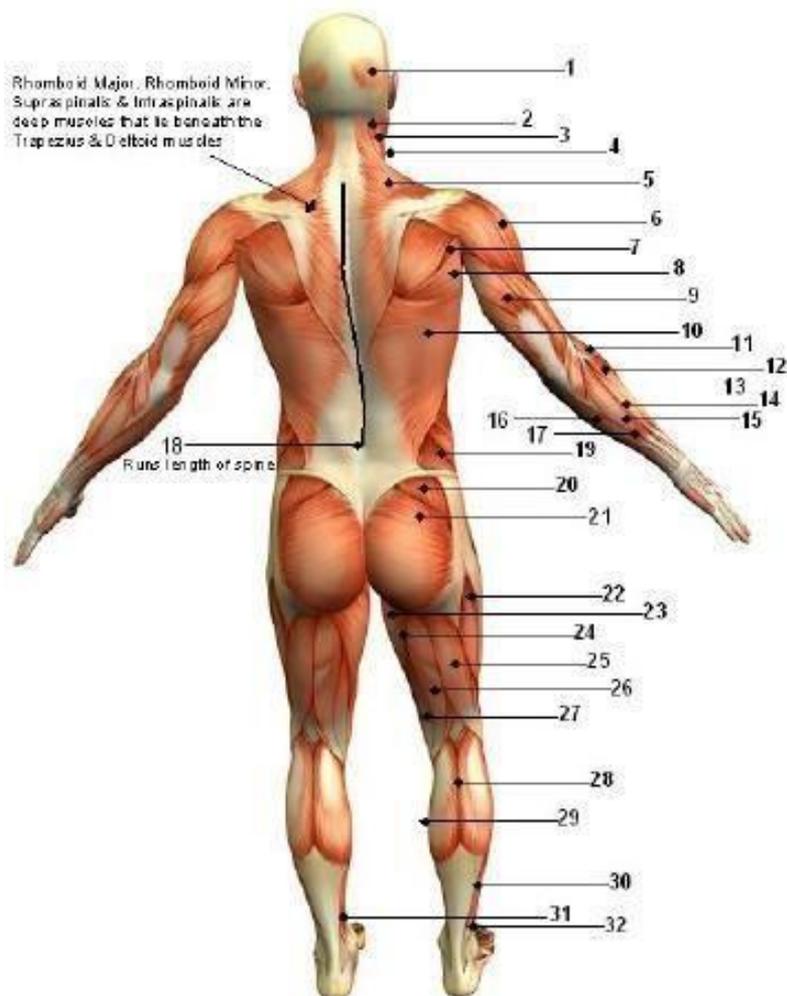
To keep the muscles active you have to apply 'BANDHAS' or locks which are special techniques which help to stabilize the pose. You may for example try to press the base of the pose on the floor firmly, whatever the base may be. When you try this, you activate the group of muscles which eventually become firm and stable, thus avoiding injury.



- |  |                                       |                               |
|--|---------------------------------------|-------------------------------|
| 1. Galea Aponeurotica,                         | 15. <b>Scalene</b>                    | 30. Pectinues muscle          |
| 2. Epicranius                                  | 16. <b>Trapezius</b>                  | 31. Sartorius                 |
| 3. Orbicularis Oculi                           | 17. <b>Deltoid</b>                    | 32. Adductor longus           |
| 4. Nasalis                                     | 18. <b>Pectoralis Major</b>           | 33. Gracilis                  |
| 5. Levator Labii Superioris                    | 19. Serratus Anterior                 | 34. <b>Rectus Femoris</b>     |
| 6. <b>Zygomaticus major &amp; minor</b>        | 20. <b>Rectus Abdominis</b>           | 35. Vastus Intermedius        |
| 7. Orbicularis Oris                            | 21. <b>External Abdominal Oblique</b> | 36. Vastus Lateralis          |
| 8. Risorius                                    | 22. <b>Biceps Brachii</b>             | 37. Vastus Medialis           |
| 9. Depressor Anguli Oris                       | 23. Brachialis                        | 38. Gastrocnemius             |
| 10. Depressor Labii Inferioris                 | 24. Pronator Teres                    | 39. Peroneus Longus           |
| 11. Mentalis                                   | 25. Brachioradialis                   | 40. Tibialis Anterior         |
| 12. Omohyoid                                   | 26. Flexor Carpi Radialis             | 41. Soleus                    |
| 13. Sternohyoid                                | 27. Extensor Carpi Radialis           | 42. Peroneus Brevis           |
| 14. <b>Sternal Head of Sternocleidomastoid</b> | 28. Tensor Fasciae Latae              | 43. Extensor Digitorum Longus |
|  | 29. <b>Iliopsoas</b>                  |                               |

**Special attention:**

- If you activate the muscle in its lengthened state, then it gradually stretches further then relaxes more; eventually becoming stronger. So activate muscles that are stretched in a pose.
- When a muscle is stretched long enough, then the muscle relaxes eventually. So always hold the posture longer [at least 15 seconds].
- If you activate or tense one muscle, the surrounding group of muscles is also fired and eventually leads to better strength and stability.
- Counter poses: In yoga you can use counter poses to successfully create balance. Vinyasas are counter poses [Upward dog/ downward dog]. It is important to use counter poses too in your classes since they balance and reset the muscles. For example, forward bends followed by back bends, side bends by doing on both sides, internal rotation by external rotation.
- As you move from one pose to the next during a yoga session, try to enter and exit the pose with grace and elegance. A smoother, gentler and more controlled movement strengthens the body, quiets the mind induces relaxation and control.
- Creating internal heat within your body gives you more flexibility and helps your body release toxins.
- Active stretching is where you assume a position and hold it by using the relative muscle groups. It builds up strength in muscles involved.
- Passive stretching is where you assume and hold a pose with the help or support of parts of your body, partner, blocks or other assistance. It helps with cooling down and reduces post-workout soreness and tension.



- |                                    |   |                               |
|------------------------------------|---|-------------------------------|
| 1. <b>Occipitalis</b>              | 14. Extensor Carpi Radialis Brevis  | 22. Vastus Lateralis          |
| 2. Semispinalis Capitis            | 15. Extensor Digitorum  | 23. Gracilis                  |
| 3. Splenius Capitis                | 16. Flexor Carpi Ulnaris  | 24. Adductor Magnus           |
| 4. <b>Sternocleidomastoid</b>      | 17. Extensor Carpi Ulnaris  | 25. Biceps Femoris            |
| 5. <b>Trapezius</b>                | 18. <b>Erector Spinae</b>   | 26. Semitendinosus            |
| 6. <b>Deltoid</b>                  | 19. <b>Internal &amp; External Oblique</b>                                  | 27. Semimembranosus           |
| 7. Teres Minor                     | 20. <b>Gluteus Medius &amp; Gluteus Minimus (underneath Gluteus Medius)</b> | 28. <b>Gastrocnemius</b>      |
| 8. Teres Major                     | 21. <b>Gluteus Maximus</b>  | 29. <b>Soleus</b>             |
| 9. <b>Triceps Brachii</b>          |   | 30. Peroneus Longus           |
| 10. <b>Latissimus Dorsi</b>        |   | 31. Flexor Digitorum Longus   |
| 11. Brachioradialis                |   | 32. Extensor Digitorum Longus |
| 12. Extensor Carpi Radialis Longus |   |                               |
| 13. Anconeus                       |   |                               |

## 8.6 THE RESPIRATORY SYSTEM

The respiratory system is made up of the organs which help us breathe. Respiration is about breathing. The goal of breathing is to deliver oxygen to the body and to remove carbon dioxide.

### How Does The Respiratory System Work?

The respiratory system includes the mouth, nasal passage, pharynx, larynx, lungs, trachea, bronchi, bronchioles, alveoli, epiglottis and diaphragm.

**Mouth:** Air enters the body through either the open mouth or the nose. It travels down the trachea to the lungs, where the oxygen in it passes into the bloodstream.

**Nasal passage:** Air enters the body through either the open mouth or the nose. Tiny hairs in the nose trap unwanted particles while a sticky liquid called mucus catches many of the germs before they can go too far into the respiratory system. The mucus also warms and moistens the air.

**Pharynx:** It is divided into naso-pharynx, oro-pharynx and laryngeal pharynx. The naso-pharynx serves only the respiratory system. The laryngeal and oro-pharynx both act as a passage for respiratory and digestive functions and as a resonating chamber for speech sounds.

**Larynx:** The upper part of the windpipe which contains the vocal cords. It also produces sound vibrations.

**Epiglottis:** It is a flap in the throat that blocks the windpipe when food or liquid is being swallowed.

**Trachea:** The trachea is sometimes called the windpipe. About half of its 13 cm length is inside the chest and the other half is in the neck. The lower end of the trachea divides into two bronchi (tubes) that carry air into the lungs. The trachea filters the air we breathe and branches into the bronchi.

**Lungs:** It is a balloon-like structure in the chest that brings oxygen into the body and expels carbon dioxide from the body. There are two lungs in human body, and they are

the main organs of the respiratory system. In the lungs, oxygen is taken into the body and carbon dioxide is breathed out. The red blood cells are responsible for picking up the oxygen in the lungs and carrying it to the body cells that need it. The red blood cells drop off oxygen to the body cells, then pick up carbon dioxide which is a waste gas product produced by our cells. The red blood cells transport the carbon dioxide back to the lungs and we breathe it out when we exhale.

**Bronchi:** This is the lower end of the trachea which divides into two bronchi (tubes) that carry air into the lungs. One bronchus goes to the left lung, the other to the right lung.

**Bronchioles:** Each bronchus divides into smaller tubes called bronchioles.

**Alveoli:** Bronchioles eventually lead to tiny, stretchy sacs called alveoli. These sacs blow up like tiny balloons when you breathe in. Oxygen from the air passes through the walls of the alveoli into capillaries, while carbon dioxide is passed out.

**Diaphragm:** Breathing starts with a dome-shaped muscle at the bottom of the lungs called the diaphragm. It is the main muscle used in breathing. When we breathe in, the diaphragm contracts, flattens out and pulls downward. This movement enlarges the space that the lungs are in. This larger space pulls air into the lungs. When we breathe out, the diaphragm expands, reducing the amount of space for the lungs and forcing air out.

### **Diaphragmatic breathing VS. chest breathing.**

Diaphragmatic breathing is superior to chest breathing for the following reasons:

- Diaphragmatic breathing gently massages the digestive organs. This is thought to contribute to proper blood perfusion in these organs and to maintain the peristaltic movement of the intestine. This massaging doesn't take place during chest breathing. Diaphragmatic breathing is also a very good tool in controlling stress.
- Chest breathing fills the middle and upper portion of the lungs which constitute only the upper two thirds of the lungs. When the body is upright, most of the blood is collected at the lowest one third of the lungs, so air is not mixed as thoroughly with blood if we breathe through the chest. Consequently, gas exchange is insufficient, making the heart and lungs work more to achieve the proper amount of oxygenation.
- On the other hand, in diaphragmatic breathing the air is pulled all the way down into the blood-rich lower lobes. This increases the efficiency of the entire cardio-respiratory functioning.

Whichever way one breathes, there is no difference in the amount of oxygen consumed by the body, but there is a vast difference in the amount of work required by the lungs and heart to accomplish the same amount of oxygenation. In fact, **the workload of the cardio-respiratory system may be reduced by as much as fifty percent by changing from chest to diaphragmatic breathing (Freedom from stress, Dr Phil Nurenberger Ph.D.).**

This can be seen by the number of breaths one takes in one minute. While those who breathe through the chest will average about sixteen to twenty breaths per minute, those who breathe through the diaphragm will average only six to eight breaths per minute. In a 24 hour period, chest breathers will take 22,000 to 25,000 breaths while diaphragmatic breathers will take only 10,000 to 12,000. This is a significant difference.

Many of us confuse the term habitual breathing and natural breathing. Most of us believe that our own breathing pattern is natural for us, when the truth is that it is shaped primarily by habit. Natural breathing can best be seen in a healthy infant. If you observe one closely, you will see little or no movement of the chest when it breathes - only the stomach goes up and down (which indicates diaphragmatic breathing). But when the infant is under stress (through hunger or discomfort) and begins to cry, you will see the chest moving up and down in rhythm with the diaphragm.

As we grow up we develop poor and unhealthy breathing patterns which replace natural breathing and eventually we don't utilize the diaphragm in our normal day to day resting breathing pattern. In fact in many cases the diaphragm gets 'frozen', showing little to absolutely no movement at all.

There are a number of reasons why we develop poor breathing patterns.

The psychological traumas we undergo as we grow up also contribute to the development of thoracic breathing. You can actually observe that fear tightens the stomach muscles, preventing diaphragmatic breathing. For example if you watch children being scolded by their parents, they tighten their stomach muscles, forcing them to breathe through the chest. We all experience these small traumas as we grow up - and they have their effect on our breathing pattern.

Poor posture also prevents diaphragmatic breathing and one makes one rely completely on thoracic breathing.

For these and many more reasons, we develop a habitual breathing pattern which results in increased stress, anxiety, depression and inefficient use of the cardiopulmonary system.

## The Effects Of Yogic Practices On The Respiratory System.

### **FORWARD BENDS:**

Some of the forward-bending Asanas are Janu Sirsasana, Paschimottanasana, Ardha Baddha Padmasana, Upavishta Konasana and Kurmasana.

Yogis observed the animal kingdom and noticed the effect of postures where the spine is in a horizontal position. Yogis consciously assume such positions which have an effect on the nervous system and the flow of the energy.

In forward bends, the frontal lungs are flexed and the posterior surface of the lungs is stretched out.

The intercostal muscles are well exercised and made elastic. This is something that seldom happens in day to day life. The anterior surface of the lungs is compressed and toned up. Due to restricted space, the anterior fibres of the lungs are well exercised by having to learn to breathe in a smaller compartment. The reverse occurs in back bends.

The diaphragm is well massaged and toned up, and as breathing is restful, the heart recuperates. The respiratory rate is reduced due to the decrease in sympathetic discharge.

### **INVERTED POSTURES:**

In the upper respiratory tract, the secretions of the nose and paranasal sinuses drain well and it prevents stagnation.

Freshly oxygenated blood flows into the sinuses. The oral cavity derives better blood supply, maintaining the health of the mucus membranes.

Regular practice prevents sinus disorders and allergy problems of the upper respiratory tract.

In the lungs, an enhanced venous return occurs; more pulmonary veins and capillaries open up. This ensures better pulmonary circulation and cellular longevity. The rhythmic pressure of the lung movement against the diaphragm exercises the entire respiratory tree and the cells of the lungs. This happens without a rise in oxygen consumption. This is a peculiar feature of yogic exercises. Vital capacity of the lungs improves. The capacity to withstand higher altitudes is derived from inverted postures.

Due to deep breathing in inverted postures the lungs open up. Immunity of the respiratory system is improved.

Asthma, bronchitis and sinusitis are alleviated by the regular practice of inverted postures.

### **SITTING POSTURES:**

Due to the erect position of the spine, the ribs and intercostal muscles are well toned. The dorsal spine is elasticized and this contracts the back of the lungs.

### **TWISTING POSTURES:**

The thoracic spine is made elastic. The intercostal muscles are stretched and become healthier and supple. The diaphragm is made elastic and thus remains healthy; this promotes optimum expansion of the lungs. The lungs are alternately squeezed and expanded, maintaining their vital capacity. This gives longevity to the cells of the lungs. Venous return is healthier and thoracic, arterial and venous circulation is excellent.

### **BACK BENDING POSTURES:**

Forward bends cause flexion of the anterior lungs and backbends cause expansion of the anterior lungs. In backbends the posterior lungs are contracted. As one grows older the intercostal muscles become rigid and weak, thus the lungs can't function properly. Backbends stretch the intercostals muscles and keep the lungs healthy.

Backbends stretch the anterior fibers of the lungs and promote deep breathing, thus ensuring the optimum health of the entire respiratory system.

Though medical science accepts decline in lung capacity as part of the normal aging process, yoga doesn't. The vital capacity of the lungs can be kept up throughout life by practicing backbends. Every bronchi and bronchiole is made to open completely.

If deep breathing is done in these postures, mucous plugs are removed and narrowed bronchioles are opened.

### **STANDING POSTURES:**

The dorsal spine which supports the lungs is well aligned in these postures. The intercostal muscles are toned and every alveolus is opened so that oxygenation is better and the vital capacity of the lungs doesn't reduce as one ages.

## **THE IMPORTANCE OF BREATHING THROUGH THE NOSE.**

The first rule of correct breathing is that we should breathe through the nose. This may seem obvious, but many people breathe primarily through the mouth. Mouth breathing can adversely affect the development of the thyroid gland. It can retard the mental development of children.

The nose has various defense mechanisms to prevent impurities and excessively cold air entering the body. At the entrance to the nose, a screen of hairs traps dust, tiny insects and other particles that may injure the lungs if you breathe through the mouth. After the entrance of the nose, there is a long winding passage lined with mucus membranes, where excessively cool air is warmed and very fine dust particles that escaped the hair screen are caught. Next, in the inner nose are glands which fight off any bacilli which have slipped through the other defenses. The inner nose also contains the olfactory organ - our sense of smell. This detects any poisonous gases around that may injure our health.

The yogis believe that the olfactory organ has another function: the absorption of prana from the air. If you breathe through the mouth all the time, as many people do, you are cheating yourself of all this free energy (prana). The yogis say this is a major factor in lowered resistance to disease and impairs the functioning of the vital glands and nervous system. Add to this the fact that pathogens can enter the lungs via mouth breathing, and you can see that it's impossible to be healthy, not to mention full of vitality, if you breathe through the mouth.

## **THE SUBTLER ASPECTS OF THE BREATH.**

Besides supplying oxygen, the respiratory system also contributes to our state of consciousness, awareness and attention. We will deal with this aspect in further detail in the Pranayama module.

The breathing cycle differs from person to person in terms of depth, rate of respiration, the movements of the chest and abdomen, pauses, and ratio between the duration of inspiration and expiration.

Silent and slow breathing which is going on easily without producing any sound, any jerks, and any pauses is an indication of good health.

Respiration is semi-voluntary in nature. Therefore we can breathe in or out deeply, hold the breath, and move our chest or the abdomen voluntarily, up to a certain extent. This is the only bodily system with which we can interfere. No other system can be regulated as per our wish.

Most of the time, breathing takes place either from the left or the right nostril. Rarely is it found that both the nostrils are equally open. This is because the breath flows predominantly through one nostril for about an hour and fortyfive minutes to two hours, after which it becomes predominant in the other side.

In a healthy, tranquil and composed person, the alternation of breath between one nostril and another follows a definite regular rhythm.

**Special notes on the breath during practice:**

- Breathing helps to expand and soften particular parts of the body and also helps to deepen a pose.
- Deep and slow breathing helps to calm the mind.
- Any movement that enlarges the chest cavity or lengthens the spine is always performed on the inhalation.
- Any action that compresses the chest cavity and lung is performed with exhalation.
- Ventilation refers to how much air gets into lungs.
- While practicing, always concentrate on long, steady and smooth breathes. This provides manybenefitstoone's practice, including corestrength, stability, awareness, improving internal organ functions and switching to parasympathetic mode.

## 8.7 THE CIRCULATORY & CARDIOVASCULAR SYSTEMS.

### THE CIRCULATORY SYSTEM

The circulatory system is the transport system, consisting of a network of blood vessels through which blood travels to all parts of the body. Blood contains red blood cells (which carry oxygen from the lungs to the tissues and carbon dioxide from the tissues back to the lungs), white blood cells (which protect the body from bacteria and viruses) and plasma (made up of mainly water and transport materials such as food, waste, hormones).

### THE CARDIOVASCULAR SYSTEM

The heart and the circulatory system make up the cardiovascular system. The heart works as a pump that pushes blood to the organs, tissues, and cells of the body. Blood delivers oxygen and nutrients to every cell and removes the carbon dioxide and waste products made by those cells. Blood is carried from the heart to the rest of the body through a complex network of arteries, arterioles, and capillaries. Blood is returned to the heart through venules and veins. If all the vessels of this network in our body were laid end-to-end, they would extend for about 60,000 miles (more than 96,500 kilometers), which is far enough to circle the earth more than twice!

### THE HEART

**The heart, a muscular organ, is the pump that keeps this transport system moving.** It weighs between 7 and 15 ounces (200 to 425 grams) and is a little larger than the size of our fist. By the end of a long life, a person's heart may have beaten (expanded and contracted) more than 3.5 billion times. In fact, each day, the average heart beats 100,000 times, pumping about 2,000 gallons (7,571 liters) of blood.

The heart is situated slightly to the left of the breastbone (sternum). A double-layered membrane called the pericardium surrounds the heart like a sack. The outer layer of the pericardium surrounds the roots of the heart's major blood vessels and is attached by ligaments to the spinal column, diaphragm, and other parts of the body. The inner layer of the pericardium is attached to the heart muscle. A coating of fluid separates

the two layers, letting the heart move as it beats, yet still be attached to our body.

The heart has 4 chambers. The upper chambers are called the left and right atria, and the lower chambers are called the left and right ventricles. A wall of muscle called the septum separates the left and right atria and the left and right ventricles. The left ventricle is the largest and strongest chamber in the heart and even though its wall chambers are only about half an inch thick, they have enough force to push blood through the aortic valve and into the body.

### **The Valves of the Heart.**

Four types of valves regulate blood flow through the heart:

- The **tricuspid valve** regulates blood flow between the right atrium and right ventricle.
- The **pulmonary valve** controls blood flow from the right ventricle into the pulmonary arteries, which carry blood to the lungs to pick up oxygen.
- The **mitral valve** lets oxygen-rich blood from the lungs pass from the left atrium into the left ventricle.
- The **aortic valve** opens the way for oxygen-rich blood to pass from the left ventricle into the aorta, the body's largest artery, where it is delivered to the rest of the body.

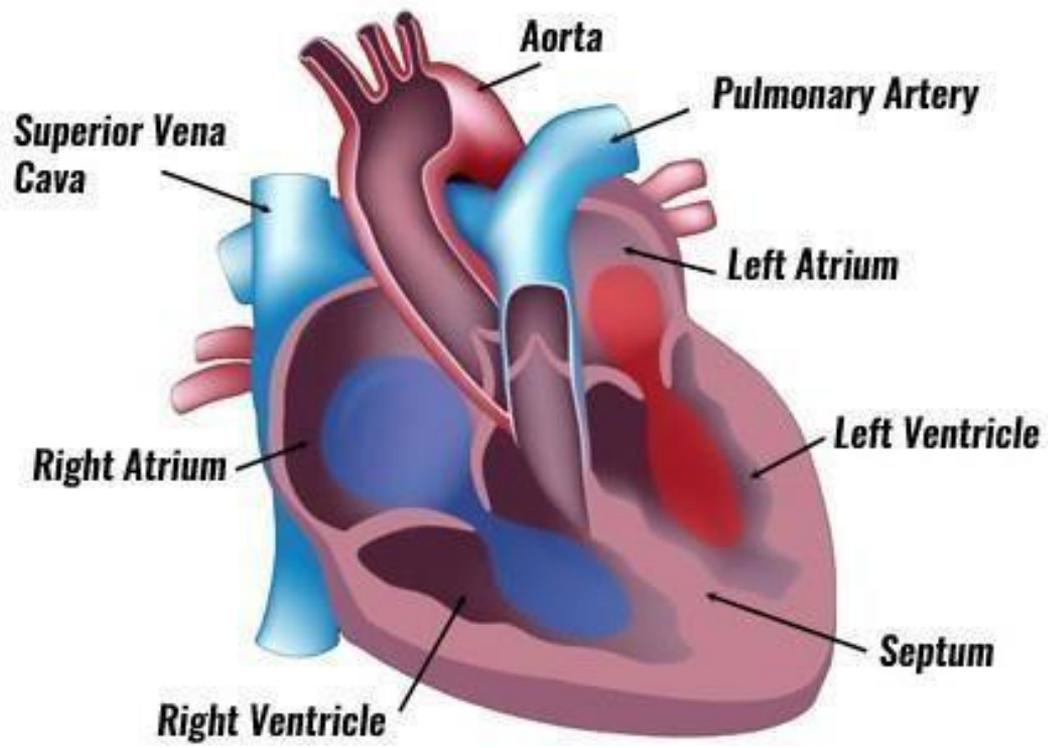
### **The Conduction System.**

Electrical impulses from the heart muscle (the myocardium) cause the heart to contract. This electrical signal begins in the sinoatrial (SA) node, located at the top of the right atrium. The SA node is sometimes called the heart's 'natural pacemaker'. An electrical impulse from this natural pacemaker travels through the muscle fibers of the atria and ventricles, causing them to contract. Although the SA node sends electrical impulses at a certain rate, our heart rate may still change depending on physical demands, stress, and hormonal factors.

### **The Heartbeat.**

A heartbeat is a two-part pumping action that takes about a second. As blood collects in the upper chambers (the right and left atria), the heart's natural pacemaker (the SA node) sends out an electrical signal that causes the atria to contract. This contraction pushes blood through the tricuspid and mitral valves into the resting lower chambers (the right and left ventricles). This part of the two-part pumping phase (the longer of the two) is called diastole.

The second part of the pumping phase begins when the ventricles are full of blood. The electrical signals from the SA node travel along a pathway of cells to the ventricles, causing them to contract. This is called systole. As the tricuspid and mitral valves shut tight to prevent a back flow of blood, the pulmonary and aortic valves are pushed



open. While blood is pushed from the right ventricle into the lungs to pick up oxygen, oxygen-rich blood flows from the left ventricle to the heart and other parts of the body. After blood moves into the pulmonary artery and the aorta, the ventricles relax, and the pulmonary and aortic valves close. The lower pressure in the ventricles causes the tricuspid and mitral valves to open, and the cycle begins again. This series of contractions is repeated over and over again, increasing during times of exertion and decreasing while we are at rest.

The heart normally beats about 60 to 80 times a minute when we are at rest, but this can vary. As we get older, our resting heart rate rises. Also, it is usually lower in people who are physically fit.

Our heart does not work alone. Our brain tracks the conditions around us - climate, stress, and our level of physical activity - and adjusts our cardiovascular system to meet those conditions.

The human heart is a muscle designed to remain strong and reliable for a hundred years or longer. By reducing our risk factors for cardiovascular disease, we may help our heart stay healthy longer.

### **The Coronary Arteries & Circulation.**

The heart muscle, like every other organ or tissue in your body, needs oxygen-rich blood to survive. Blood is supplied to the heart by its own vascular system, called the coronary circulation. The aorta (the main blood supplier to the body) branches off into two main coronary blood vessels (also called arteries). These coronary arteries branch off into smaller arteries, which supply oxygen-rich blood to the entire heart muscle.

The right coronary artery supplies blood mainly to the right side of the heart. The right side of the heart is smaller because it pumps blood only to the lungs. The left coronary artery, which branches into the left anterior descending artery and the circumflex artery, supplies blood to the left side of the heart. The left side of the heart is larger and more muscular because it pumps blood to the rest of the body.

The one-way circulatory system carries blood to all parts of the body. This process of blood flow is called circulation. Arteries carry oxygen-rich blood away from the heart and veins carry oxygen-poor blood back to the heart.

In pulmonary circulation, the roles are switched. It is the pulmonary artery that brings oxygen-poor blood into the lungs and the pulmonary vein that brings oxygen-rich blood back to the heart.

In the diagram, the vessels that carry oxygen-rich blood are in darker colour, and the vessels that carry oxygen-poor blood are in lighter colour.

## **THE EFFECTS OF YOGIC PRACTICES ON THE CARDIOVASCULAR SYSTEM**

Disease is a manifestation of underlying disharmony in the mind-body domain. The yogic way of life offers a solution to elevate the health of body, mind and soul. Yoga is a cure for many diseases - diabetes, obesity and psychiatric illnesses - as much as it offers immense benefits to alleviate heart diseases.

Yoga has an important role in the prevention of cardiovascular diseases; that includes recurrence of heart attacks, hypertension and coronary heart diseases. Yoga influences the hypothalamus directly, the area of the brain which controls endocrine activity and helps prevent heart attacks.

A complete yoga program involves exercises (asanas), breath control (pranayama), sleep control (yoga Nidra) and mind control (meditation). These are the tenets for cardiac health, and also probably the reason why cardiologists universally recommend yoga to their patients. The curative benefits of yoga enhances heart health, lowers blood pressure, reduces chronic stress, boosts the immune system and enhances cognitive ability. Relaxation through yoga helps many patients control their blood pressure. Yoga also improves blood flow and makes arteries and veins more elastic. Yoga can help reduce stress, a major contributor to heart disease.

### **FORWARD BENDS:**

The cardiac chambers are compressed and massaged. Rest is given to the heart though the body is being exercised. Animals have a horizontal posture; their heart is placed along the line of the spine. There is no strain on the heart to pump the blood against gravity. Exhaustion does not occur easily in the horizontal position.

As the spine is in a horizontal position, blood flows to the extremities of the body easily. Elevated blood pressure is controlled in essential hypertension. This is due to the de-stressing of the pressure regulation centre in the frontal brain.

The pulse rate and blood pressure reduce in a normal as well as in a hypertensive individual.

**SITTING POSTURES:**

The heart is well stretched in asanas where the spine is kept erect. In the eka pada sirsasana cycle, the heart is compressed, and the erect posture favours better mechanical function of the heart.

**TWISTING POSTURES:**

These poses alternately squeeze and stretch the lateral walls of the heart. They compress and stretch the thoracic cavity, ensuring excellent cardiac function. The major blood vessels in the thoracic cavity are well massaged.

**BACK BENDING POSTURES:**

These asanas help prevent atherosclerotic changes in the coronary arteries. If done from childhood, no atherosclerosis can occur in the coronary vessel. In cases where the vessels are blocked, either partially or fully, these asanas maintain free passage in the vessels, or in certain cases reopen the vessels so that further reduction of blood flow doesn't occur and fresh blood is introduced to the starving tissues. A healthy heart is essential for the good health of the entire circulatory system. Bypass surgery can be avoided in many cases if yoga is started early enough. The benefits depend on the practice of an individual.

**INVERTED POSTURES:**

Inverted postures create better venous return. Blood flows to the heart without any strain. Cardiac output improves. Cardiac toning occurs, without a rise in pulse rate or blood pressure.

Pressure of the abdominal contents against the diaphragm exercises the muscles of the diaphragm and the heart. The chambers of the heart are massaged.

These asanas soak the entire system with fresh blood. They rinse, dry, squeeze and flush the various areas. An example of soaking can be given in sirsasana, where the brain is bathed in blood.

Through regular practice of headstand and shoulderstand, the lymphatic and venous systems of the legs are given rest from the constant strain of the force of gravity. The formation of varicose veins is prevented. Persons with varicose veins get great relief by inversions. Lightness is felt in the legs.



—Beauty is eternity gazing at itself  
in a mirror. But you are eternity and  
you are the mirror.||

-KHALIL GIBRAN

USEFUL TOOLS

# Patanjali Yoga Sutras



## SAMADHI PADA

### Introduction to the path of Yoga.

1. Now the discipline of yoga.
2. Yoga is the cessation of mind.
3. Then the witness is established in itself.
4. In the other states there is identification with the modifications of the mind.

### The five modifications of the mind.

5. The modifications of the mind are five. They can be either a source of anguish or of non-anguish.
6. They are right knowledge, wrong knowledge, imagination, sleep and memory.

### Right and wrong knowledge.

7. Right knowledge has three sources - direct cognition, inference and the words of the awakened ones.
8. Wrong knowledge is the false conception not corresponding to the thing as it is.
9. An image conjured up by words without any substance behind it is Vikalpa - imagination.
10. The modification of the mind which is based on the absence of any content in it is sleep.
11. Memory is the calling up of past experiences.

### Constant inner practice.

12. Their cessation is brought about by persistent inner effort and nonattachment.
13. Of these two - Abhyasa- the inner practice, is the effort of being firmly established in oneself.
14. It becomes firmly grounded by being continued for a long time, without interruption and with reverent devotion.

**Practice and desirelessness.**

15. The first state of Vairagya, desirelessness - cessation from self-indulgence in the thirst for sensuous pleasures, with conscious effort.
16. The last state of Vairagya, desirelessness - cessation of all desiring by knowing the innermost nature of Purusha, the supreme self.

**The meaning of Samadhi.**

17. Samprajnatasamadhi is the Samadhi that is accompanied by reasoning, reflection, bliss and a sense of pure being.
18. In Asamprajnata Samadhi there is a cessation of all mental activity, and the mind only retains unmanifested impressions.
19. Videhas and prakriti-layas attain asamprajnata Samadhi because they ceased to identify themselves with their bodies in their previous life. They take rebirth because seeds of desire remained.
20. Others who attain Asamprajnata Samadhi attain it through faith, effort, recollection, concentration and discrimination.

**Total effort or surrender.**

21. Success is nearest to those whose efforts are intense and sincere.
22. The chances of success vary according to the degree of effort.
23. Success is also attained by those who surrender to god.
24. God is the supreme ruler. He is an individual unit of divine consciousness. He is untouched by the afflictions of life, action and its result.
25. In god the seed is developed to its highest extent.

**The master of masters.**

26. Being beyond the limits of time, he is the master of masters.
27. He is known as Aum.
28. Repeat and meditate on Aum. Repeating and meditating on Aum brings about the disappearance of all obstacles and an AWAKENING OF A NEW CONSCIOUSNESS.

**The obstacles to meditation.**

29. Disease, Languor, Doubt, Carelessness, Laziness, Sensuality, Delusion, Impotency and Instability Are The Obstacles That Distract The Mind.
30. Anguish, despair, tremors and irregular breathing are the symptoms of a distracted mind.
31. To remove these, meditate on one principle.

**Cultivating right attitudes.**

32. The mind becomes tranquil by cultivating attitudes of friendliness towards the happy, compassion towards the miserable, joy towards the virtuous and indifference towards the evil.
33. The mind also becomes tranquil by alternately expelling and retaining the breath.
34. When meditation produces extraordinary sense perceptions, the mind gains confidence and this helps perseverance.
35. Also, meditate on the inner light which is serene and beyond all sorrow.
36. Also meditate on one who has attained desirelessness.

**Dropping out of the wheel.**

37. Also, meditate on knowledge that comes during sleep.
38. Also, meditate on anything that appeals to you.
39. Thus, the yogi becomes master of all, from the infinitesimal to the infinite.

**Periphery and center.**

40. When the activity of the mind is under control, the mind becomes like pure crystal, reflecting equally, without distortion, the perceiver, the perception and the perceived.
41. Savitarka Samadhi is the Samadhi in which the yogi is still unable to differentiate between real knowledge, knowledge based on words and knowledge based on reasoning or sense perceptions, which all remain in the mind in a mixed state.

**The pure look.**

42. Nirvitarka Samadhi is attained when the memory is purified, and the mind is able to see the true nature of things without obstruction.
43. The explanations given for the Samadhis of Savitarka and Nirvitarka also explain the higher states of Samadhi, but in these higher states of Savichara and Nirvichara Samadhis, the objects of meditation are more subtle.
44. The province of Samadhi that is connected with these finer objects extends up to the formless stage of the subtle energies.

**The thought of no-thought.**

45. These Samadhis that result from meditation on an object are Samadhis with seed, and do not give freedom from the cycle of rebirth.

46. On attaining the utmost purity of the Nirvichara stage of Samadhi, there is a dawning of the spiritual light.
47. In Nirvichara Samadhi, the consciousness is filled with truth.

### **The fall of the idiots.**

48. In the state of Nirvichara Samadhi, an object is experienced in its full perspective, because in this state knowledge is gained directly, without the use of the senses.
49. The perception gained in Nirvichara Samadhi transcends all normal perceptions both in extent and intensity.
50. When this controlling of all other controls is transcended, the seedless Samadhi is attained, and with it, freedom from life and death.

## **SADHANA PADA**

### **The seeds of misery.**

1. Kriya yoga is a practical, preliminary yoga, and is composed of austerity, self-study and surrender to god.
2. The practice of kriya yoga reduces misery, and leads towards Samadhi.
3. Miseries are caused by: lack of awareness, egoism, attractions, repulsions, clinging to life and fear of death.
4. Whether they be in the states of dormancy, attenuation, alteration or expansion, it is through lack of awareness that the other causes of misery are able to operate.

### **Sleep, identification, duality.**

5. Lack of awareness is taking the transient for the eternal, the impure for the pure, the painful as pleasurable and the non-self for the self.
6. Egoism is the identification of the seer with the seen.
7. Attraction, and through it, attachment, is towards anything that brings pleasure.
8. Repulsion is from anything that causes pain.

**Prati-prasav: the primal of the ancients.**

9. Flowing through life is the fear of death, the clinging to life, and it is dominant in all, even the learned.
10. The sources of the five afflictions can be abolished by resolving them back to their origin.
11. The outward expressions of the five afflictions disappear through meditation.

**Awareness: the fire that burns the past.**

12. Whether fulfilled in the present or the future, karmic experiences have their roots in the five afflictions.
13. As long as the roots remain, karma is fulfilled in rebirth through class, span of life, and types of experiences.
14. Virtue brings pleasure: vice brings pain.

**The seer is not the seen.**

15. The discriminating person realizes that everything leads to misery because of change, anxiety, past experience, and the conflicts that arise between the three attributes and the five modifications of the mind.
16. Future misery is to be avoided.
17. The link between the seer and the seen that creates misery is to be broken.

**The bridegroom is waiting for you.**

18. The seen which is composed of the elements and the sense organs is of the nature of stability, action, and inertia, and is for the purpose of providing experience and thus liberation to the seer.
19. The three gunas - stability, action, and inertia - have four stages: the defined, the undefined, the indicated, and the unmanifest.
20. The seer, although pure consciousness, sees through the distortions of the mind.
21. The seen exists for the seer alone.
22. Although the scene is dead to him who has attained liberation, it is alive to others because it is common to all.
23. The seer and the seen come together so that the real nature of each may be realized.
24. The cause of this union is ignorance.

**Awareness, not knowledge.**

25. The disassociation of the seer and the seen which is brought about by the dispersion of ignorance is the remedy that brings liberation.
26. The unwavering practice of discrimination between what is the real and what is the unreal brings about the dispersion of ignorance.
27. The highest stage of enlightenment is reached in seven steps.

**The eight limbs of yoga.**

28. By practising the different steps of yoga for the destruction of impurity, there arises spiritual illumination which develops into awareness of reality.
29. The eight steps of yoga are: self-restraint, fixed observance, posture, breath regulation, abstraction, concentration, contemplation and trance.

**Death and discipline.**

30. Self-restraint, the first step of yoga, is comprised of the following five vows: non-violence, truthfulness, authenticity, mystery in daily activities (brahmacharya), and non-possessiveness.
31. These five vows, which constitute the great vow, extend to all the seven stages of enlightenment regardless of class, place, time, or circumstance.
32. Purity, contentment, austerity, self-study, and surrender to god are the laws to be observed.
33. When the mind is disturbed by wrong thoughts, ponder on the opposites.
34. It is necessary to ponder on the opposites because wrong thoughts, emotions, and actions, such as violence, result in ignorance and intense misery whether they be performed, caused, or approved through greed, anger, or delusion in mild, medium, or intense degrees. :

**Life is a mirror.**

35. When the yogi is firmly established in non-violence, there is an abandonment of enmity by those who are in his presence.
36. When the yogi is firmly established in truthfulness, he attains the fruit of action without acting.
37. When the yogi is firmly established in honesty, inner riches present themselves.
38. When the yogi is firmly established in sexual continence, vigor is gained.
39. When the yogi is firmly established in non-possessiveness, there arises knowledge of the how and wherefore of existence.

**The shadow of religion.**

40. When purity is attained there arises in the yogi wisdom for his own body and a disinclination to come in physical contact with others.
41. From mental purity there arises cheerfulness, power of concentration, control of the senses, and a fitness for self-realization.
42. Contentment brings supreme happiness, purity and power.
43. Austerities destroy impurities, and with the ensuing perfection in the body and sense organs, physical and mental powers awaken.
44. Union with the divine happens through self-study.
45. Total illumination can be accomplished by surrendering to god.

**Death to the limited.**

46. Posture should be steady and comfortable.
47. Posture is mastered by relaxation of effort and meditation on the unlimited.
48. When posture is mastered there is a cessation of the disturbances caused by qualities.
49. The next step after the perfection of posture is breath control, which is accomplished through holding the breath on inhalation and exhalation, or stopping the breath suddenly.
50. The duration and frequency of the controlled breaths are conditioned by time and place, and become more prolonged and subtle. In
51. There is a fourth sphere of breath control, which is internal, and it goes beyond the other three.

**Returning to the source.**

52. Then comes the dispersion of the cover that hides the light.
53. And then the mind becomes fit for concentration.
54. The fifth constituent of yoga, pratyahar - returning to the source - is the restoration of the mind's ability to control the senses by renouncing the distractions of outside objects.
55. Then comes the complete mastery over all the sense.

## INTRODUCTION TO MANTRAS

The word –mantra|| is shaped up by linking two words from the Sanskrit language- –man,|| to think consciously, to ponder over, to meditate and to witness, and –tra|| to transform, to liberate, to release.

Mantra merely means to do something new with the old patterns of our thoughts, with careful consideration, towards the ultimate liberation.

Chanting or singing mantras repetitively with musical instruments is an ancient process of meditation, through which people throughout time have tried to open up the gateway towards freedom, love, compassion, and oneness with the entire universe, in their consciousness.

Mantras are a powerful way to transform the mind. However, the chanter must first hand an understanding of the mantra they sing or chant. If we pay close attention to word mantra explained above, it becomes evident that it is not the mantra and its meaning which liberates. It is the **understanding** behind the mantra which charges the mantra with spiritual energy. Thus the mantra must be linked to the chanters direct experience for it to work as a tool of healing.

There is a possibility even today while singing these mantras with love and understandings; one may realize

### || Ganesha Mantra ||

“Vakra tunda Maha kaya Surya koti Sama prabha.  
Nirvighnam Kuru me deva Sarva karyeshu Sarvada”

Meaning: O Mighty Ganesha of Large body, curved trunk, with the brilliance of a million suns, please makes all my work free of obstacles, always.

## II Guru Mantra II

“Gurur Brahma Gurur Vishnu, Gurur Devo Maheshwara  
Guru Sakshat Para Brahma, Tasmai Sree Guruve Namah”

Meaning: Guru is verily the representative of Brahma, Vishnu and Shiva, He creates, sustains knowledge and destroys the weeds of ignorance, and I salute such a Guru.

“Dhyana moolam Gurur Murti, Pooja moolam Guro Padam  
Mantra moolam Gurur Vakyam, Moksha Moolam Guru Kripa”

Meaning: Guru's form is the best to meditate upon, the Guru's feet are the best for worship, the Guru's word is the mantra; the Guru's Grace is the root of liberation.

## II Shakti Mantra II

“Ya Devi Sarva Bhuteshu Shakti rupena samsthita  
Ya Devi Sarva Bhuteshu Buddhi rupena samsthita  
Ya Devi Sarva Bhuteshu Laxmi rupena samsthita  
Namstasyai, Namestasyai, Namestasyai, Namoh Namah”

Meaning: O the Divine Goddess who resides in all existence in the form of energy, to the Divine Goddess who resides in all existence in the form of intelligence, to the Divine Goddess who resides in all the form of true wealth, we bow to her, we bow to her and continually we bow to her.

## II Gayatri Mantra II

Om Bhuur-Bhuvah Svah, Tat-Savitur-Varenyam I  
Bhargo Devasya Dhiimahi, Dhiyo Yo Nah Pracodayaat II

Meaning:

Om, that (Divine Illumination) which Pervades the Bhu Loka (Physical Plane), Bhuvar Loka (Antariksha Loka or the Astral Plane) and Suvar Loka (Swarga Loka or the Celestial Plane), That Savitr (Divine Illumination) which is the Most Adorable, On that Divine Radiance we Meditate, May that Enlighten Our Intellect and Awaken our Spiritual

Wisdom.

## II Mangalacharan Mantra II

“Sarveshaam Svasti Bhavatu, Sarvesham Shantir Bhavtu  
Sarvesham Purnam Bhavatu, Sarvesham Manglam Bhavatu”

Meaning: May auspiciousness be unto all, may peace be unto all, may fullness be unto all, may prosperity be unto all.

“Om sarve bhavantu sukhinah, sarve santu niramayah  
Sarve bhadrani pasyant, ma kashchit dukh bhag bhavet”

Meaning: O Lord, in thee may all be happy, may all be free misery, may all realize goodness and may no one suffer pain.

“Asto ma sadgamyam,  
Tamsa ma jyotirgamaya  
Mrityormam amrutumgamaya”

Meaning: from lie to truth, from dark to light, from death to divine.

## II Shanti Mantra II

“Om Sahna vavatu sahnau bhunaktu sahaveeryam karvaavahet  
Tejasveenaa vaditamastu maa vid vishaa vahai”  
“om shaanthih, shaanthih, shaanthihi”

**Meaning:** May he protect all, may we all perform together the most heroic and divine actions, may our leaning be prosperous to all, may we never quarrel on the different beliefs we may have, may we illumine together, may we live in harmony, may there be peace for all and forever.

“Om punnamadah purnamidam purnat purnamudachyate  
Purnasaya purnamadaya purnamevavashishyte”

Meaning: Om is infinite, from infinite comes out infinite, and if infinite is subtracted from infinite, still left infinite.