



# YOGA AND THE NERVOUS SYSTEM

*Our nervous system has two main pathways that automatically run the functions of the body. The sympathetic nervous system drives the bodily functions during periods of stress or, more commonly known, the “flight or fight” stages. This system drains the body of energy and shunts nourishing blood from many vital organs to compensate for the rapid use of energy.*

*The opposite system, parasympathetic nervous system, is active during periods of rest. Organs like the digestive system are given ample flow of energy and nutrients to function. The body uses this system to rejuvenate and repair.*

## 1. Central Nervous System

The Central Nervous System is divided into two parts: the **brain** and the **spinal cord**. The vertebral column, made up of twenty four vertebra, houses the spinal cord. One of Hatha Yoga’s main functions is to keep the vertebral column as healthy as possible as its inhabitant, namely the spinal cord, has a leading role to play in maintaining our health and vitality! Imagine what a different experience you’d have living in a house with no roof and ceilings only five feet from floor level! The spinal column and nerves passing through the vertebra are no different. They thrive on having healthy and spacious surroundings!

## 2. Peripheral Nervous System

The Peripheral Nervous System branches outside of the Central Nervous System and is comprised of nerves and neurons that transmit information to and from the Central Nervous System

The peripheral nervous system is divided into two major parts: the **Somatic** nervous system and the **Autonomic** nervous system.

### 2.1 Somatic Nervous System

The Somatic Nervous System controls organs under voluntary control (mainly muscles)

### 2.2 Autonomic Nervous System

The autonomic nervous system is divided into three parts: the **Sympathetic** nervous system, the **Parasympathetic** nervous system and the **Enteric** nervous system.





## YOGA AND THE NERVOUS SYSTEM

### 2.2.1 Sympathetic Nervous System

The Sympathetic Nervous System is generally associated with what is known as the fight-or-flight stress response. The Sympathetic Nervous System is set apart as the system that operates without conscious thought.

Unconscious bodily functions from pupil diameter to urinary control are maintained by this complex and efficient network of nerve cells.

The Sympathetic Nervous System prepares the body for action. Nerves originating in the middle of the vertebral column spread out via axons, slender nerve projections that transmit information back and forth. From here, messages are sent to all the body's systems.

The Sympathetic Nervous System is able to trigger simultaneous bodily reactions within a fraction of a second. When the fight-or-flight response kicks in, the Sympathetic Nervous System will speed up your heart, give you goose bumps, increase air flow to the lungs and blood flow to your limbs, all getting you ready to either fight or run away as fast as you can. Way back in the evolution of human beings this response came in very handy when being attacked! In modern society it is activated in a very different way!

The Sympathetic Nervous System doesn't just work in times of high stress. It's up before we even hear the alarm, preparing the body for the waking state. Just as you are leaving your dreams, the Sympathetic Nervous System is restarting digestive processes, increasing blood flow and giving you a surge of energy to stretch and get out of bed.

### 2.2.2 Parasympathetic Nervous System

Fortunately, the body has a natural counterbalance to the "fight or flight" response, called the Parasympathetic Nervous System or the "relaxation response." The Parasympathetic Nervous System is activated when the threat or stress has passed or ended, but it can also be consciously activated by deepening the breath and by relaxing the skeletal muscles. In modern society it is all too common that the Parasympathetic Nervous System isn't active enough! This is where Yoga can assist.

When activated, the Parasympathetic Nervous System lowers blood pressure, heart rate and respiration (the pace of the breath). Digestion and elimination are allowed to be stimulated, and blood is free to travel to the digestive, reproductive, glandular, and immune systems. These systems are necessary for the promotion of long-term health. The "relaxation response" is also known as the "rest and renew" stage, when the body has the time and resources to heal the body and to respond to illness. Obviously, by increasing the frequency, time and depth of the "relaxation response" we not only allow our body to





## YOGA AND THE NERVOUS SYSTEM



recover from illness and disease, but we also practice preventive medicine by allowing the body to perform all of its essential maintenance tasks.

Yoga emphasises long and deep breathing and conscious relaxation. This activates the Parasympathetic Nervous System and promotes its "rest and renew" functions. A recent study has shown Yoga to decrease the level of the stress hormone cortisol in the blood. The meditative practices of Yoga help to reduce the stress levels in the body.

Yoga has the ability to activate the Parasympathetic Nervous System and reduce stress allowing the body to heal itself. The practice of Yoga also improves the body's inherent healing abilities. The inverting, twisting and compressing that occurs in Yoga postures enhances the circulation of blood and body fluids. This increase in circulation not only improves the body's ability to deliver the materials needed to allow healing to take place, but also activates the lymphatic system to maintain normal functioning of the immune system and inflammation response. Yoga poses also improve muscle strength, flexibility and range of motion. Yoga's emphasis on deep breathing combined with backbends improves lung capacity and function. Practicing Yoga also encourages one to lead a healthier lifestyle, through developing the self-awareness and discipline required for maintenance of a healthy life.

### 2.2.3 Enteric Nervous System

The gut has a mind of its own, the "Enteric Nervous System". Just like the larger brain in the head, researchers say, this system sends and receives impulses, records experiences and responds to emotions. Its nerve cells are bathed and influenced by the same neurotransmitters. The gut can upset the brain just as the brain can upset the gut.

The role of the Enteric Nervous System is to manage every aspect of digestion, from the oesophagus to the stomach, small intestine and colon. The second brain, or little brain, accomplishes all that with the same tools as the big brain, a sophisticated nearly self-contained network of neural circuitry, neurotransmitters and proteins.

When someone skips lunch, the gut is more or less silent. Eat a cheese and pickle sandwich, and contractions all along the small intestines mix the food with enzymes and move it toward the lining for absorption to begin. If the sandwich is rotten, reverse contractions will force it, and everything else in the gut, into the stomach and back out through the oesophagus at high speed.

In each situation, the gut must assess conditions, decide on a course of action and initiate a reflex.





## YOGA AND THE NERVOUS SYSTEM

The Enteric Nervous System monitors pressure, it monitors the progress of digestion, it detects nutrients, and it measures acid and salts. It's a little chemical lab.

The enteric system does all this on its own, with little help from the central nervous system.

**Twice blessed is he who knows true love and can love all Gods creatures.**

