

## **The Organs and their Functions**

**BRAIN-** The brain is a portion of the central nervous system that lies in the skull. The brain is the control center for virtually every function in the body including movement, sleep, hunger and thirst. When the brain is not functioning properly symptoms may occur such as: headaches/migraines, poor memory, depression and confusion.

**PITUITARY-** Sometimes called the “master gland”; the pituitary gland is the primary influence of how your other glands operate. The pituitary gland secretes and stores the hormones which it uses to stimulate other glands. Your hormones regulate a variety of body functions, such as temperature, urine production, thyroid activity, growth in children, and the production of sex hormones (testosterone in men and estrogen in women). This makes your pituitary pretty important. When the pituitary is not functioning properly symptoms of thyroid problems, growth and hormone imbalances, and endocrine problems may occur.

**HYPOTHALMUS-** The hypothalamus is the link between the endocrine and nervous systems. The hormones produced by this area of the brain govern body temperature, thirst, hunger, sleep, moods, sex drive, and the release of other hormones in the body. It is responsible for maintaining your body's internal balance, which is known as homeostasis. It controls the pituitary gland and other glands in the body. The hypothalamus uses a set-point to regulate the body's systems including electrolyte and fluid balance, blood pressure, and body weight. It receives inputs from the body, and then initiates compensatory changes if anything differentiates from this set-point.

**PINEAL-** Located near the center of the brain, the pineal gland is a very small organ shaped like a pine cone. The pineal gland secretes a single hormone—melatonin. This simple hormone is special because its secretion is dictated by light. Researchers have determined that melatonin has two primary functions in humans—to help control your circadian (24-hour biological cycle characterized by sleep-wake patterns) rhythm and regulate certain reproductive hormones. In conjunction with the hypothalamus gland, the pineal gland controls the sex drive, hunger, thirst and the biological clock which determines the body's normal aging process. The gland also helps the body to convert signals from the nervous system to signals in the endocrine system.

**EYES-** The eyes are round shaped organs that work with the brain to provide us the vision. The eye and brain translate light waves into sight. Possible symptoms of the eyes can be: Blurred vision, dry eye, cataracts, glaucoma, sensitivity to light, inflammation, stinging, burning, and excess tears.

**SINUSES-** Air cavities above the eyebrows and near the nose and also connecting to the nose. Problems of the sinuses can cause pressure, pain, infection and blockage.

**UPPER/LOWER JAW-** Bones that form the framework of the mouth and teeth. The jaw can experience problems from unhealthy gums and teeth causing infection, inflammation of gums and bad breath.

**TONSILS-** Lymphatic organ that cleanses the lymph, like an air filter of an engine. They guard against illness by identifying harmful bacteria, fungi, and viruses in food and air. When the tonsils are



not functioning properly, sore throat, colds, infections of virus and bacteria, and low immune function may occur.

**THYROID-** The thyroid is a large gland in the neck which secretes hormones that regulate growth and metabolism. The hormones influence every organ, tissue and cell in the body. These hormones also control heart rate, body weight, body temperature, energy level, muscle strength and menstrual regularity. Symptoms of dysfunction of thyroid may cause: fatigue, brain fog, weight problems, and decreased energy level, hair loss, dry skin, and feeling cold.

**PARATHYROID-** Parathyroid glands are small glands located in the neck behind the thyroid. They control the calcium in our bodies, and how much calcium is in our blood and bones. Calcium is the most important element in our bodies. We use it to control many systems; therefore calcium is regulated very carefully. Dysfunctions may show as: high calcium, kidney stones, high BP, poor sleep, thinning hair, hyperparathyroidism causing osteopenia/osteoporosis.

**THYMUS-** An organ that is located in the upper chest behind the breastbone and in front of the lower neck in which the immune cells called T lymphocytes mature and multiply in early life. The thymus begins to shrink after puberty.

**SPLEEN-** The spleen is an organ that functions mainly as a filter for old red blood cells. It is also an important organ of the immune system. The spleen also creates antibodies which are proteins that identify and help remove viruses and bacteria. Symptoms of dysfunction may present as: blood conditions, anemia, mononucleosis, and splenomegaly (enlargement).

**STOMACH-** The stomach is a muscular organ located on the left side of the upper abdomen. The stomach is J-shaped and it can expand to temporarily store food. It is a part of the digestive system and important for churning food into a consistency that is easier to digest for the rest of your intestines. The stomach receives food from the esophagus. It releases acids and enzymes for the chemical breakdown of food. The enzyme pepsin is responsible for protein breakdown. Partial digestion of the food takes place here. The churning action of the stomach muscles physically breaks down the food. The stomach releases food into the small intestine in a controlled and regulated manner.

**LIVER-** moon-shaped, the liver is the second largest organ in the body, the first being the skin. It is such a vital organ, as it serves as your body's inspection station. Virtually every nutrient we consume, whether it has a valid passport or not, must pass through the liver to be transformed into a different biochemical form. That transformation is what allows the nutrient to be used, then transported to a different location in the body or stored as fat. The liver digests, makes proteins, and gets rid of toxins. Dysfunctions of the liver may cause: sluggishness, fatigue, liver disease, nausea, jaundice, congestion of the liver and cirrhosis.

**GALLBLADDER-** A small pear shaped organ that stores and concentrates bile. Bile is digestive liquid continually secreted by the liver. It emulsifies fat and neutralizes acids in partially digested food. Conditions of the gallbladder may cause: abdominal pain, burping or belching, nausea, inflammation, and gallstones.

**PANCREAS-** The pancreas is a gland organ that is located in the abdomen. It is a part of the digestive system and produces important enzymes and hormones that help breakdown foods.



Enzymes, or digestive juices, produced by the pancreas are secreted into the small intestine to further break down food after it has left the stomach. The gland also produces the hormone insulin and secretes it into the bloodstream in order to regulate the body's glucose or sugar level. Problems with the pancreas may show symptoms of: Blood sugar level imbalance, diabetes, pancreatitis, cystic fibrosis, and pancreatic cancer.

**SMALL INTESTINES-** The key role of the small intestine is chemical digestion of food and absorption of nutrients into the blood. By the time the food leaves the small intestine every nutrient in the food would have entered the bloodstream. Dysfunction of the small intestine may cause: poor digestive problems such as poor absorption of nutrients, inflammatory bowel, crohn's disease, ulcerative colitis, and intestinal cancer.

**LARGE INTESTINE (COLON)** - The colon is the last part of the digestive system. It extracts water and salt and plays a major role in absorption of foods and nutrients. However the colon does absorb water, sodium and some fat soluble vitamins. In mammals, the colon consists of four sections: the ascending colon, transverse, descending, and sigmoid colon. Symptoms of conditions of colon may be: constipation, colitis, diverticulitis, diverticulosis, inflammatory bowel, ulcerative colitis, crohn's and diarrhea.

**OVARIES-** The ovaries make the hormones estrogen and progesterone, which help to manage monthly periods. They also store the woman's eggs called ova that are released from the fallopian tube to the uterus where it may be fertilized by a male sperm. Dysfunction symptoms may appear as: hormonal problems, menstrual irregularities, PMS, pelvic pain, fertilization problems, fibroids, and tumors.

**TESTES-** The testes form part of the male reproductive system, and are the glands where sperm and testosterone (the primary male sex hormone) are produced. The testes are oval organs about the size of large olives that lie in the scrotum. Most men have two testes.

**PROSTATE-** The prostate gland is positioned along the path from the bladder to the penis. The urethra, which is a thin tube that runs from the bladder through the penis to carry urine and sperm, also runs through the prostate. The prostate produces prostatic fluid, which is secreted at the time of ejaculation. Prostatic fluid is alkaline and helps to neutralize the acidic environment of the vagina, therefore helping sperm to survive after ejaculation. Symptoms of prostate: frequent urination, prostatitis, enlarged prostate and prostate cancer.

**UTERUS-** The uterus is a hollow muscular organ of the female reproductive system that is responsible for the development of the embryo and fetus during pregnancy. The uterus is divided into two parts: the cervix, which is the lower part that opens into the vagina, and the main body of the uterus, called the corpus. The cervix works to control the flow of material into and out of the uterus. Around the time of ovulation the uterus builds a thick layer of vascular endometrial tissue in preparation to receive a fertilized egg cell. If the egg cell does not become fertilized by the time it reaches the uterus, it will pass through the uterus and trigger the uterine lining to be shed (known as menstruation). The shedding of the egg cell and uterine lining is and occurs approximately every 28 days for most women. In the case of successful fertilization, it triggers changes that lead to the formation of the placenta, which provides the developing fetus with vital nutrients and oxygen from



the mother's blood, while transferring carbon dioxide and metabolic waste products to the mother's blood for disposal.

**URINARY BLADDER-** The bladder is a balloon-shaped organ that lies in your pelvis. It collects waste products known as urine from your kidneys and stores it until it is full enough to empty through the urethra. The bladder's main function is to store and release urine. Nerves in the bladder tell you when it is time to urinate. Bladder conditions are: inflammation and infection (cystitis), urinary stones, overactive bladder, urinary incontinence, painful urination (dysuria), blood in urine (hematuria), bed-wetting, and bladder cancer.

**KIDNEYS-** The kidneys remove waste products from the body by filtering the blood. They are found in the rear of the abdominal cavity. Kidneys can suffer from high blood pressure, diabetes, kidney stones, infections and failure.

**ADRENAL GLANDS-** The adrenal glands sit above the kidneys. The function of these organs is to manufacture and secrete almost 50 different hormones. They not only affect the functioning of every single tissue, organ, and gland in your body; they also have important effects on the fluid balance control and bladder regulation. They even regulate how you think and feel and determine how effective your immune system functions. Symptoms of adrenals: sleeplessness, inability to fall asleep, depression, anxiety, cravings for sweet and salty foods, midday fatigue, reduced tolerance to stress, increased susceptibility to infections, and tendency to feel cold.

**ENDOCRINE SYSTEM-** Although we rarely think of the endocrine system, it influences almost every cell, organ and function in our bodies. The endocrine system is instrumental in regulating mood, growth and development, tissue function, metabolism, sexual function and reproductive processes. In general, it is in charge of body processes that happen slowly, such as cell growth. Even though the nervous system and endocrine system are separate systems, they often work together to help the body function properly. The major glands that make up this system are: -hypothalamus - thyroid -reproductive -ovaries and testes-pituitary - parathyroid -pineal body