

## **IMPORTANT INTERNAL ORGANS. THEIR LOCATION AND FUNCTIONS.**

The human body is naturally divided into four cavities, which contain the most important organs of the body.

**The first of these cavities is called the cranial cavity** because it is within the cranium, or skull. It contains the brain and its membranes, the upper portion of the spinal cord, which is called the medulla oblongata, certain ganglia or little brains, and the commencement of nine pairs of nerves. The brain is in two parts, a greater and lesser brain. The greater brain is called the cerebrum, and is situated in the front and upper portion of the skull, nearly filling it. The smaller brain is called the cerebellum, and is situated in the lower and back portion of the cranial cavity.

It is the function of the brain to think and feel, to recognize the existence and relation of things, and to direct the organs of voluntary motion, using the nerves which originate in the brain and spinal cord as its means of communication with those organs.

The nerves of hearing, seeing, smelling, tasting, and feeling, all originate in the brain. The spinal cord originates within the cranial cavity, and is continued

downward through the spinal column, sending off nerves between the joints of the various vertebral bones. The brain and spinal cord are both surrounded with membranes which may be diseased as well as the substance of the brain and cord. The nerves, arteries, and veins, may be diseased also. The brain and cord and their membranes are liable to inflammation, congestion, the exudation of water or blood, or the formation of pus, to ulcers, tumors, abscesses, and cancers. The nerves of sense and the mucous membrane in which each terminates may be diseased.

Just above the outer angle of the eye and lodged within a depression of the bone that forms the roof of the orbit is situated the lachrymal gland, whose function is to secrete a watery fluid — the tears. There is at the inner corner of each eye a little canal, called the lachrymal canal, which communicates with the nasal duct. The nasal duct is within the bones of the face and nose, and terminates in the lower portion of the nasal cavity. These canals and ducts convey the water from the eyes to the nose. When these ducts become stopped, the tears flow slowly, but constantly.

Passing from the cranial cavity to the mouth, we find the tongue, palate, tonsils, fauces, teeth, salivary glands, all of which are liable to disease. The fauces are the extreme upper portion of the throat.

The tonsils are two glands situated on either side of the upper portion of the fauces. The tonsils secrete a fluid to moisten the throat. There are six of the salivary glands, whose function it is to secrete saliva. The two largest are situated on each side of the head just in front and a little below the ear. These are called the parotid glands. The two next in size are called the sub maxillary glands, and are situated on either side just below and a little in front of the angle of the lower jaw.

The two smallest, called the sublingual glands, are under the tongue, in contact with the lower jaw and near its center. Each of these glands is provided with a duct through which it sends its secretion, the saliva, to the mouth. The salivary glands may be inflamed, as in mumps, the tongue may be inflamed, as in mercurial salivation, the tonsils and fauces, as in quinsy. The principal organs of the throat are the pharynx, the oesophagus, the larynx, trachea, thyroid gland, several lymphatic glands, and blood-vessels. The pharynx consist of about four and one-half inches of the alimentary canal, commencing immediately back of

the mouth. The oesophagus is also a portion of the alimentary canal, and is about nine inches in length, and connects the pharynx with the stomach. This organ lies mostly within the thorax. The larynx is situated between the base of the tongue and the trachea or windpipe. By placing the thumb and finger on the throat, and at the same time swallowing, there will be felt a hard, cartilaginous tube, which rises as the action of swallowing is performed. This tube is the larynx, and contains the vocal cords, hence it is the organ of voice.

The trachea is the windpipe. It is a cartilaginous tube, about four and one-half inches in length and from three-quarters of an inch to an inch in diameter. It extends from the larynx to the lungs, where it divides into two branches, called the bronchial tubes. The thyroid gland is situated at the upper portion of the trachea. It consists of two lobes placed one each side of this tube. These lobes are connected by a narrow, transverse portion. The function of this gland is unknown. There is quite a number of the lymphatic glands in the neck. They are principally situated a little beneath the skin, underneath the margin of the lower jaw, and in front of, under, and behind, the ears, also a few at the sides of the neck, just below the collar bone. These glands become inflamed, and abscesses or ulcers are often formed if the person is scrofulous. The thyroid gland is liable to

enlargement, as in goiter. The trachea, larynx, and pharynx, are liable to inflammation, as in croup, laryngitis, clergyman's sore throat, putrid sore throat, scarlatina, diphtheria, etc.

**The second cavity of the body is inclosed by the ribs**, and separated from the abdomen by a large, thin, flat muscle, called the diaphragm. This cavity is called the thorax, which signifies a coat of mail, which the chest resembles.

The principal organs within the thorax are the heart, lungs, and large blood-vessels. It contains also the pericardium, which is a membrane surrounding the heart, and containing fluid to lubricate it; also the pleura, a membrane that covers the lungs and lines the entire thorax, and also passes between the lungs and attaches to the breast-bone in front, and to the spine, and divides the thorax into two cavities, thereby preventing both lungs from becoming useless, as would otherwise result in case an opening was made into one side of the thorax. The function of the pleura is to secrete a lubricating fluid to moisten and lubricate the organs within the thorax.

The bronchial tubes are the continuation of the trachea after it divides into two branches within the thorax. These again subdivide as they pass into the lungs, and

continue to subdivide until by their minute subdivisions and ramifications they form the air-cells of the lungs.

The heart is liable to a change of structure or texture as is seen in organic disease of the heart. It is also liable to functional derangement, as is seen in palpitation and irregularity of pulse. It is also liable to inflammation and to rupture. The pericardium is liable to inflammation, and to adhesion to the heart, and to dropsical effusion, as in dropsy of the heart.

The pleura is liable to inflammation, as in pleurisy, or it may throw out water into the thoracic cavity, as in dropsy of the chest. The substance of the lungs may be inflamed, as in pneumonia, or lung fever, or tubercles and abscesses may form in them as in tubercular consumption.

The mucous membrane of the bronchial tubes and air-cells may be inflamed, as in bronchitis, catarrhal consumption, and lingering consumption. The large arteries are liable to become weakened in places and give rise to blood tumors called aneurisms.

**The third cavity is the abdomen.** This contains the stomach, liver, spleen, pancreas, kidneys, small intestines, the most of the large intestine, the omentum, mesentery, and peritoneum. The stomach is the principal organ of digestion. It

lies immediately behind the front wall of the abdomen under the lower ribs, and a little to the left. When moderately full, it is usually about twelve inches in length and four inches in diameter. The stomach is liable to inflammation or great irritation when anything improper enters it or when food ferments within it, and to become distended with gas, as in flatulency. Its secreting vessels— the gastric follicles— may also become so diseased by overfeeding or improper feeding as to fail in the work of secreting gastric juice, and indigestion or dyspepsia is the result. The small intestines are that part of the alimentary canal where the most of the nutritive portion of the food is separated from the innutritive portion and absorbed preparatory to entering the circulation. They are about twenty feet in length.

The first nine inches of the small intestine constitute the duodenum. It receives the food from the stomach, and the pancreatic juice, and the bile. After leaving the stomach, the food under goes further digestion in the duodenum. The duodenum is liable to inflammation, caused by errors in diet, such as overeating or eating improper articles, or from acrid bile.

The next eight or nine feet of the small intestines form the jejunum, from jejunus— empty— because usually found empty after death. The remainder of

the small intestines is called the ileum— to twist— because of its numerous convolutions. The small intestines lie in the central part of the abdomen. They are liable to inflammation, colic, and spasmodic contractions.

The large intestine is about five feet in length. It commences on the right side at the lowest part of the abdominal cavity and passes upward to the liver, where it makes a short turn to the left, and passes transversely across the abdomen, passing thence downward along the left side of the abdomen into the pelvis, where it makes a fold upon itself somewhat like the letter Z or S. This fold is called the sigmoid flexure. After making this fold, it passes through the pelvis along the posterior wall and terminates at the anus. The last portion is called the rectum. The large intestine is liable to acute inflammation, as in dysentery, cholera, etc., and to chronic inflammation, as in diarrhea, also to hemorrhoidal tumors or piles and ulcers in the lower portion. The intestines, if foul, may contain worms, or they may become torpid, and contain large quantities of hardened faeces, or they may be distended with gas or wind.

The liver lies under the last six ribs on the right side and extends across the central line of the abdomen partially under the ribs on the left side. Its function is to excrete the bile elements from the blood. These are transmitted through the bile



ducts to the gall bladder and duodenum. The liver is liable to acute and chronic inflammation, to abscesses, congestion, and to a change of structure. Gall stones may form in the bile ducts and gall bladder.

The pancreas is a gland about six or eight inches in length, one and a half inches broad, and three-fourths of an inch thick. It lies behind the stomach. Its function is to secrete a digestive fluid called the pancreatic juice. This organ is liable to inflammation and tumors.

The kidneys are situated at the back part of the abdominal cavity on either side of the spinal column. The upper portion of the kidneys extends as high as the union of the last rib but one — the eleventh — with the spinal column. The kidneys may become inflamed, or gravel may form in them if hard water is used internally.

The peritoneum is the lining membrane of the abdominal cavity. It also covers each organ within the abdomen separately, and binds them all down to the posterior wall of the abdomen, or to the diaphragm above. That portion of the peritoneum which collects the intestines into a convoluted mass is called the mesentery. There is a large double fold of the peritoneum that that passes down like an apron in front of the intestines. This is called the omentum.

Within the mesentery there are certain glands called the mesenteric glands, whose function it is to assist in transforming the food into blood, the food being conveyed to them by the lacteal vessels, by which it is absorbed.

The peritoneum secretes a watery fluid to moisten the organs it enshrouds, and to keep them lubricated. When this membrane is inflamed, dropsy of the abdomen is liable to follow. When the mesentery or its glands are inflamed, the work of nutrition is imperfect. Tumors may form in the mesentery. Puerperal or childbed fever is a fever resulting from inflammation of the peritoneum.

**The fourth cavity is called the pelvis.** It is formed by the pelvic bones, and contains the bladder and rectum in males, and, in addition to these, the uterus fallopian tubes and ovaries in females. These organs are liable to inflammation and displacements, which will be treated of hereafter.