

Organ system of the human body



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The human body is composed of different organs with each performing a specific function. These organs do not work alone, but combine their functionality to work as systems. An organ system is usually composed of different organs which perform closely related functions and work collectively to perform a common purpose (Anatomy 1). The human body is composed of ten major organ systems. The endocrine system is among these ten major organ systems. Its main role is to relay chemical messages, known as hormones, throughout the body. It is usually integrated with the nervous system and together distributes these hormones which regulate growth, nutrient absorption, water re absorption among other processes.

The endocrine system is composed of many glands which secrete different endocrine hormones. These glands include the pituitary gland, hypothalamus, adrenal gland, pineal body, thyroid gland, pancreas, lay-dig cells in the testes and the ovaries. The hypothalamus acts as the major link between the endocrine system and the nervous system (Hoskins 15). The pituitary gland located at the base of the brain is commonly referred to as the " master gland", due to its secretions of many hormones which regulate the activities of the other glands (Nussey and Whitehead 41). These glands are ductless and they secrete hormones into the blood system where they are transported to their target tissues (endocrinology). Although we may not always think about them, these glands and the hormones they produce influence nearly all the functions of the body, and control almost all the cells, organs and organ systems. This systems controls metabolism, tissue function, growth, regulates the mood and reproduction processes (Nussey and Whitehead 39). The system regulates its self mainly through negative

feedback mechanism where production of a specific hormone acts as the check mechanism to avoid over production.

The pancreas which is one of the glands of the endocrine system produces two major hormones (among others) which are glucagon and insulin. These two hormones work in conjunction to regulate the glucose levels in the body at appreciable levels. The secretion is specifically done by special cells called the islets of Langerhans (islets of Langerhans). Islets of Langerhans are divided into alpha and beta cells. The beta cells produce insulin while the alpha cells produce glucagon.

Like all the other organ systems of the body, the endocrine system can also be affected by different diseases. One of these diseases is diabetes mellitus. Diabetes mellitus is a common endocrine disorder directly related to the dysfunction of the pancreas. This disease is caused by the decreased secretion of insulin by the islets of Langerhans leading to diabetes mellitus type I closely associated with young individuals or decreased responsiveness of the target cells to the action of insulin leading to diabetes mellitus type II, closely associated with the aged (McDowell, Matthews and Brown 97). Diabetes type one is mostly autoimmune where the body marks its beta cells for destruction. It is also thought to be caused by a certain virus which destroys the beta cells. There has been mounting evidence that diabetes is caused by a form of genetic predisposition, leading to some degree of heredity.

Diabetes' symptoms are; excessive thirst leading to increased water or fluid intake, production of excess urine, weight loss, fatigue and lethargy.

Excessive urination is caused by the presence of glucose in the urine after the amounts of glucose in the blood exceeds the renal threshold, a condition known as glycosuria (Colwell 85). This disease is wide spread in the US, with almost eight per cent of the whole population being affected. The most prevalent type of diabetes is type two and it's evident in about ninety per cent of all diabetes cases. Diabetes is a life style disease mostly affecting the obese, people who don't exercise frequently and people with the tendency of eating junk food. It is also a hereditary disease, polygenic in nature, and only expressed by a specific combination of genes.

Diabetes not only affects the endocrine system but the whole body at large. It deprives all the body cells of the required energy leading to weight loss and lethargy. Some cells of the body like brain cells utilize only glucose for energy purposes and suffer a lot in the event of untreated diabetes. The whole endocrine system is affected especially the mechanisms dealing with osmoregulation. The body has to strain to maintain a steady body pressure regardless of the increased out put of fluids (McDowell, Matthews and Brown 67). The pituitary gland which is responsible for maintaining a constant body pressure through the production of vasopressin hormone has to work against these challenges and ensure constant re-absorption of water. As mentioned earlier on, all endocrine glands suffer loss of energy leading to slowing of their functions. Among the other organ systems affected by this disease, the excretory system is the most affected as it is charged with the duties of filtering the excess glucose out of the body. Kidneys and ureters are overworked till they can reach their maximum rates (threshold) where they can no longer handle the amount of glucose (MedicineNet 4).

Economically, this disease affects not only the victim, but also the family. It is expensive to treat, and one does not cease medication once affected. The patients take insulin shots or tablets most part of their remaining life. Some of other therapies available are also very expensive to conduct and will affect the patients finance. When the condition is extreme or is not diagnosed early enough, the victim may be required to quit or suspend some his/her economically rewarding activities to concentrate on treatment. Hospitalization also causes withdrawal from normal daily activities.

This disease impacts negatively on the social activities of the affected individuals. One is forced to quite some social habits like drinking which may even cause him some friends. Some social events such as meetings, parties, family outings may be affected especially in the event of hospitalization.

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