

Anatomy – structure of the pancreas assignment



**ASSIGN
BUSTER**

ANATOMY AND PHYSIOLOGY: Structure of the Pancreas The pancreas is an elongated organ that lies behind and below the stomach. This mixed gland contains both exocrine and endocrine tissues. The predominant exocrine part consists of grape-like clusters of secretory cells that form sacs known as acini, which connect to ducts that eventually empty into the the first portion of the intestine called duodenum. The smaller part of the gland consists of isolated islands of endocrine tissue known as islets of Langerhans which are dispersed throughout the pancreas.

Hormones Secreted by the Pancreas The most important hormones secreted by the pancreas are insulin and glucagon. Both play a role in proper metabolism of sugars and starches in the body. Insulin promotes the movement of glucose and other nutrients out of the blood and into cells. When blood glucose rises, insulin, released from the beta cells causes glucose to enter body cells to be used for energy. Also, it sometimes stimulates conversion of glucose to glycogen in the liver.

Another pancreatic hormone, glucagon, promotes the movement of glucose into the blood when glucose levels are below normal. It causes the breakdown of stored liver glycogen to glucose, so that the sugar content of blood leaving the liver rises. Insulin is a hormone central to regulating carbohydrate and fat metabolism in the body. Insulin causes cells in the liver, muscle, and fat tissue to take up glucose from the blood, storing it as glycogen in the liver and muscle. Insulin stops the use of fat as an energy source by inhibiting the release of glucagon.

With the exception of the metabolic disorder diabetes mellitus and Metabolic syndrome, insulin is provided within the body in a constant proportion to remove excess glucose from the blood, which otherwise would be toxic.

When blood glucose levels fall below a certain level, the body begins to use fat as an energy source through glycogenolysis, for example, by transfer of lipids from adipose tissue to the liver for mobilization as an energy source.

As its level is a central metabolic control mechanism, its status is also used as a control signal to other body systems (such as amino acid uptake by body cells). In addition, it has several other anabolic effects throughout the body.

Glucagon, a hormone secreted by the pancreas, raises blood glucose levels.

Its effect is opposite that of insulin, which lowers blood glucose levels. [1]

The pancreas releases glucagon when blood sugar (glucose) levels fall too low. Glucagon causes the liver to convert stored glycogen into glucose, which is released into the bloodstream. Glucagon raises blood glucose levels.

High blood glucose levels stimulate the release of insulin. Insulin allows glucose to be taken up and used by insulin-dependent tissues.

Thus, glucagon and insulin are part of a feedback system that keeps blood glucose levels at a stable level. Glucagon belongs to a family of several other related hormones. Somatostatin (also known as growth hormone-inhibiting hormone (GHIH) or somatotropin release-inhibiting factor (SRIF)) is a peptide hormone that regulates the endocrine system and affects neurotransmission and cell proliferation via interaction with G-protein-coupled somatostatin receptors and inhibition of the release of numerous secondary hormones.

Function of the Pancreas

The pancreas is largely responsible for maintaining blood glucose levels. The normal clinical range of blood glucose levels is 70 to 150 mg/dL (milligrams per deciliter). The pancreas can measure blood sugar and if it is high or low, the pancreas releases a hormone to correct the level. Blood glucose must be maintained at a certain level for cells to neither gain or lose water.

HEALTH TEACHING

1. Teach the patient sign and symptoms of hypoglycemia and hyperglycemia
2. Teach the patients about medication purpose, dosage, route, and possible side effects of all prescribed medications. . In patients with self-administer insulin, demonstrate patient the appropriate preparation and administration techniques.
4. Teach to the patient signs and symptoms of diabetic neuropathy and emphasize the need for safety precautions because neuropathy decreased sensation can hide sense injuries
5. Tell to the patient the Prognosis of Diabetes Mellitus, Insulin resistance increases with age, After the first few years of treatment, the majority of people with type 2 diabetes require more than one medicine to keep their blood sugar controlled
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Teach the patient how to manage diabetes when he has a minor illness, such as a cold, or flu.

7. To encourage compliance with lifestyle changes, emphasize how blood glucose control affects long-term health.
8. Teach the patient how to care for his feet.
9. Advise him to wear comfortable, nonconstricting shoes and never to walk barefoot
10. To prevent diabetes, teach people at high risk to avoid risk factors “ for example, maintaining proper weight and exercising regularly, teach to patients you can help to prevent type 2 diabetes by maintaining your ideal body weight, especially if you have a family history of diabetes.

Diet and exercise have been shown to delay the onset of diabetes in people who are in the early stages of insulin resistance. If you already have been diagnosis Diabetes Mellitus type 2, you can delay or prevent complications by keeping tight control of your blood sugar. 11. Advise patients to have annual ophthalmologic examinations for early detection of diabetic retinopathy 12. Encourage the patient and his family to obtain additional information about Diabetes mellitus from nearby Diabetic foundations.