

PHYSIOLOGY - Endocrine

1. A cells of the Islets of Langerhans make up
 - A: 2% of the volume of the pancreas
 - B: 0.4% of the volume of the pancreas ✓
 - C: 100% of the somatostatin-secreting cells of the pancreas
 - D: 60% of the cells in the Islets of Langerhans
2. C peptide is
 - A: found in insulin produced using recombinant DNA technology
 - B: required for the formation of proinsulin ✓
 - C: responsible for non-suppressible insulin-like activity in plasma
 - D: unrelated to pancreatic cell function when patients are receiving exogenous insulin
3. The half-life of insulin in the human circulation is:
 - A: 5 minutes ✓
 - B: 35 minutes
 - C: 4 hours
 - D: varies with formulation
4. The effects of insulin on adipose tissue include
 - A: activation of hormone-sensitive lipase
 - B: increased glycogen breakdown
 - C: increased triglyceride deposition ✓
 - D: potassium efflux
5. The effects of insulin on the liver include:
 - A: increased GLUT 4 transporters in cell membranes
 - B: ketogenesis
 - C: lipolysis
 - D: protein synthesis ✓
6. The SGLT receptors are
 - A: closely related to the GLUT receptors
 - B: responsible for facilitated diffusion of glucose in the renal tubules
 - C: responsible for secondary active transport of glucose in the small intestine ✓
 - D: responsible for uptake of ketones by muscle
7. You treat a hyperkalaemic patient with glucose and insulin. This is effective because of:
 - A: activation of phosphatidylinositol 3-kinase
 - B: activation on SGLT 2 in the renal tubule
 - C: increased activity of Na K ATP ase ✓
 - D: increased glycerol phosphate synthesis
8. Impaired glucose tolerance is due to:
 - A: increased gluconeogenesis
 - B: increased intestinal absorption
 - C: increased reabsorption in the renal tubules
 - D: reduced peripheral utilisation ✓

9. Abnormalities of fat metabolism in diabetes include
- A: activation of lipoprotein lipase
 - B. increased conversion of acetyl-CoA to fatty acids
 - C. increased plasma free fatty acids ✓
 - D. increased removal of triglycerides into fat depots
10. Insulin secretion is inhibited by
- A: Acetylcholine
 - B: Adrenaline
 - C: Beta hydroxybutyrate
 - D: Noradrenaline ✓
11. Glucagon acts on hepatocytes to
- A. increase glycogenolysis ✓
 - B. increase the metabolism of glucose 6-phosphate
 - C. inhibit ketone body formation
 - D. reduce intracellular cAMP levels
12. Somatostatin
- A. has paracrine effects on the islet cells ✓
 - B. is secreted in granules by F cells
 - C. stimulates gastric acid secretion
 - D. stimulates insulin secretion