Endocrine System Practice Questions

1. Which sequence illustrates a mechanism used by the body to control the blood glucose level?

   A. Blood glucose increases → release of glucagon increases → conversion of glycogen into glucose decreases → blood glucose decreases.

   B. Blood glucose decreases → release of glucagon decreases → conversion of glycogen into glucose decreases → blood glucose increases.

   C. Blood glucose increases → release of insulin increases → conversion of glucose into glycogen increases → blood glucose decreases.

   D. Blood glucose decreases → release of insulin decreases → conversion of glucose into glycogen increases → blood glucose increases.

1. When blood glucose is high so insulin is secreted to lower it
2. Release of insulin converts extra glucose into glycogen (storage)
3. As glucose is removed from blood the level of glucose goes down

When the Chernobyl nuclear reactor in Ukraine melted down, clouds of radioactive material, including iodine, were released into the atmosphere. Iodine is actively absorbed by a certain gland in the body. Scientists were worried that the radioactive iodine would cause tumors in this gland. In an attempt to avoid this problem, people who lived near the reactor were given large doses of non-radioactive iodine.

2. . How would the ingestion of large doses of non-radioactive iodine reduce a person's chances of getting a tumor in a particular gland?

   A. The pituitary would become saturated with non-radioactive iodine and this would limit the absorption of radioactive iodine.

   B. The thyroid would become saturated with non-radioactive iodine and this would limit the absorption of radioactive iodine.

   C. Increased levels of iodine would stimulate hormonal production by the pituitary and limit tumor formation.

   D. Increased levels of iodine would stimulate hormonal production by the thyroid and limit tumor formation.

WHY "B" : Because iodine is used by the thyroid to make thyroxin. If the body is full of non-radioactive iodine, there wont be much room for the body to absorb the bad radioactive iodine.

3. The pituitary hormone ACTH regulates the production of aldosterone by the cortex of the adrenal glands. A severe drop in ACTH levels would likely result in

A. decreased sodium ion retention and increased water loss because aldosterone levels would rise.

B. decreased sodium ion retention and increased water loss because aldosterone levels would drop.

C. increased sodium ion retention and increased water retention because aldosterone levels would rise.

D. increased sodium ion retention and increased water retention because aldosterone levels would drop.

WHY "B"? ACTH stimulates the release of aldosterone. A drop in ACTH = a drop in aldosterone. Aldosterone retains water by absorbing sodium ions back into the body and with it, water follows….so since there is less aldosterone, less sodium is absorbed and so less water too is absorbed and thus more water loss.

4. Which gland produces a hormone that directly increases blood supply to skeletal muscles and increases the rate of contraction of heart muscle?

A. Pancreas **B.** Adrenal gland

C. Thyroid gland **D.** Pituitary gland

Adrenal medulla releases epinephrine and norepinephrine in the fight-or-flight response.

Vegetables such as cabbage, rutabaga, and turnips contain goitrin, a substance that inhibits iodine uptake by the body.

5. A person with a diet high in vegetables containing goitrin may gain weight fairly rapidly. A possible explanation for this weight gain would be

A. increased protein metabolism.

B. decreased blood sugar levels.

C. increased glycogen release.

D. decreased metabolic rate.

Iodine is needed to make thyroxin. Thyroxin increases metabolism. Without enough iodine thyroxin amount will be reduced and thus metabolism rate goes down.

6. The function of which gland would be most affected by goitrin?

A. Anterior pituitary **B.** Adrenal cortex

C. Pancreas **D.** Thyroid

Because the thyroid uses Iodine to make thyroxin.

7. An increase in goitrin consumption would likely cause a person to experience increased

A. fatigue. **B.** heart rate.

C. breathing rate. **D.** urine production.

Low metabolic rate = decreased energy for metabolism = fatigue

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Polygraphs (lie detectors) monitor some changes in some activities of the nervous system. In theory, an emotionally stressful situation like telling lies will increase perspiration, increase breathing and heart rates, and cause slight dilation of pupils. However, polygraphs cannot exclusively differentiate between telling lies and other stressful situations.

8. Emotionally stressful situations may affect more than one system of the body. Another possible response produced by telling lies would be

A. decreased secretion of ADH.

B. increased secretion of insulin.

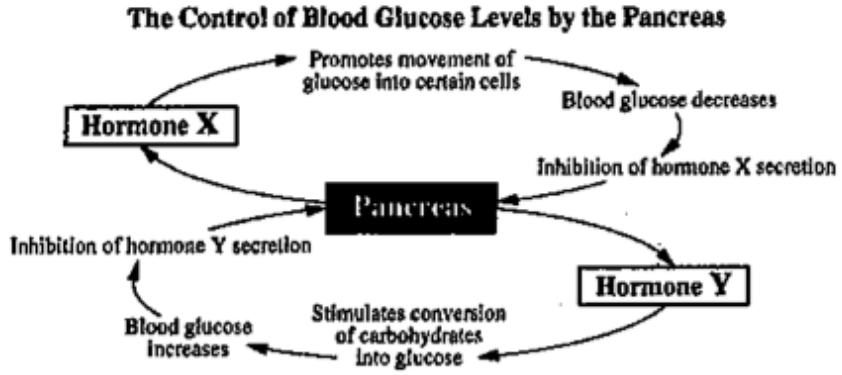
C. decreased secretion of glucagon.

D. increased secretion of epinephrine.

Answer = D - Epinephrine is released during stressful situations. (it actually inhibits secretion of insulin so blood glucose goes up)

A- wrong because has nothing to do with stress
B- wrong because insulin REDUCES glucose in blood which is needed in stress situations
C- wrong because INCREASED glucagon would be needed to raise glucose in blood which would be needed in stressful situation

9.



Hormones X and Y, respectively, are

A. insulin and glucagon.

B. glucagon and insulin.

C. insulin and epinephrine.

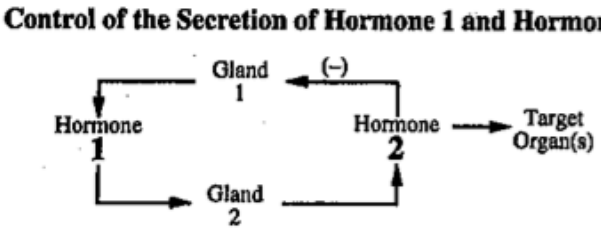
D. epinephrine and insulin.

ANSWER – A

Blood glucose hormones that the pancreas is involved in are: INSULIN and GLUCAGON.

GLUCAGON: raises blood sugar
INSULIN: lowers blood sugar

Epinephrine – although can raise blood sugar it is secreted from adrenal gland not pancreas as shown here



10. If Gland 1 is the pituitary gland, the row that identifies Hormone 1, Gland 2, and Hormone 2 is

Row	Hormone 1	Gland 2	Hormone 2
A.	FSH	testes	testosterone
B.	TSH	thyroid	thyroxine
C.	FSH	ovaries	progesterone
D.	ADH	kidney	aldosterone

A - WRONG- because testosterone stimulated by LH not FSH

B – CORRECT

C-WRONG because progesterone stimulated by LH not FSH

D- WRONG because aldosterone comes from adrenal gland and kidney is **not an endocrine gland**