Endocrine Organs and How Hormones Work

1. Name the 10 basic endocrine organs and their products.
2. What is the difference between an endocrine and exocrine organ?
3. Can an organ be both endocrine and exocrine? Give the most famous example.
4. How can a hormone affect a particular cell?
5. What lipid is required for steroid hormone production?
6. Where are steroid hormones made?
7. Name the 5 main steroid hormones.
8. Which organ makes insulin?
9. How does insulin lower blood sugar?

Answers:

Endocrine Organs and How They Work

1. 10 endocrine organs and their products
    - **pituitary gland releases 9 hormones (ACTH, TSH, FSH, LH, MSH, PRL, GH, ADH, oxytocin)**
    - **pineal gland releases melatonin**
    - **thyroid gland releases thyroxine (T3/T4)**
    - **parathyroid gland releases parathyroid hormone (PTH)**
    - **thymus releases thymosine**
    - **adrenal glands release aldosterone, cortisol, and testosterone**
    - **pancreas releases insulin and glucagon**
    - **ovaries release estrogen and progesterone**
    - **testes release testosterone**
    - **placenta releases progesterone**

2. What is the difference between an endocrine and exocrine organ?
    Endocrine: product goes to blood (hormone)
    Exocrine: product goes to a membrane surface (sweat, digestive enzymes, saliva, etc)
3. Can an organ be both endocrine and exocrine? Give the most famous example.
    yes; pancreas
4. How can a hormone affect a particular cell?
    The cell must have a receptor for the hormone to be able to influence its actions.
5. What lipid is required for steroid hormone production?
    cholesterol
6. Where are steroid hormones made?
    adrenal cortex and the gonads
7. Name the 5 main steroid hormones.
    estrogen; progesterone; testosterone; aldosterone; cortisol
8. Which organ makes insulin?
    pancreas
9. How does insulin lower blood sugar?
    Insulin binds to receptors on cells, allowing glucose to enter.
    Key idea: insulin lowers blood sugar. If someone is insulin resistant, they have fewer receptors on their cells and it takes more insulin, and longer, to allow enough glucose into cells for blood sugar to be in a normal range.