THE CONCEPT OF THE ENDOCRINE GLANDS

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The glands are organs consisting of secretory cells that produce specific substances of different chemical nature, secreted through the excretory ducts in the body cavity, the environment or into the blood, lymph.
THE SCHEME OF THE GENERAL STRUCTURE OF THE EXOCRINE AND ENDOCRINE GLANDS

EXOCRINE GLANDS

ENDOCRINE GLANDS

cells
The Endocrine glands (greek. *endon* – inside, *krinein* – excrete) – glands characterized by the absence of excretory ducts that excrete the produced substances into the internal environment of the body (in the intercellular space, from where they enter the blood, lymph, CSF)
THE GENERAL CHARACTERISTICS OF THE ENDOCRINE GLANDS

- small size, low mass
  (from a fraction of a gram to several grams)

- richly supplied with blood vessels

- have an extensive network of nerve fibers innervating blood vessels
THE ROLE OF THE ENDOCRINE GLANDS IN THE BODY

- participation in the regulation of metabolic processes and maintenance of homeostasis
- providing physiological adaptation of the body
- ensuring full physical, mental and sexual development
1 - pineal gland (corpus pineale)
2 - hypothalamic neurosecretory nuclei
3 - pituitary gland (hypophysis)
4 - thyroid and parathyroid glands (glandula thyroidea et glandulae parathyroideae)
5 - thymus gland (thymus)
6 - adrenal gland (glandula suprarenalis)
7 – pancreas (pancreas)
8 - ovary (ovarium)
9 - testis (testis)

Figure source: http://massagelib.ru/books/item/f00/s00/z0000044/st066.shtml
THE ORIGIN OF THE ENDOCRINE GLANDS

- from the ectoderm - pineal gland, posterior pituitary, medulla adrenal glands
- from mesoderm - adrenal cortex and gonads
- from endoderm - anterior lobe of the pituitary gland, thyroid gland, parathyroid glands, thymus gland and pancreatic islets (intrasecretory part)
The hormones (from the greek. *horman* – initiate) – products of the activity of the endocrine glands, which are biologically highly active substances that have a specific effect on metabolism, growth and development of the body.
HORMONE PROPERTIES

- high biological activity
- specific actions
- rapid tissue destruction
- distant action
## HORMONE CLASSIFICATION

### According to Chemical Nature

<table>
<thead>
<tr>
<th>Group</th>
<th>Hormones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peptide Hormones</td>
<td>Oxytocin, vasopressin, glucagon, thyrocalcitonin, insulin, human growth hormone, parathyroid hormone</td>
</tr>
<tr>
<td>Amino Acid-Derived Hormones</td>
<td>Thyroxine, triiodothyronine, epinephrine, norepinephrine, dopamine</td>
</tr>
<tr>
<td>Steroid Hormones</td>
<td>Cortisol, aldosterone, estradiol, progesterone, testosterone</td>
</tr>
</tbody>
</table>
## HORMONE CLASSIFICATION

### On the Basis of Stimulation of Endocrine Glands

<table>
<thead>
<tr>
<th>Grup</th>
<th>Function</th>
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</thead>
<tbody>
<tr>
<td>Non-tropic hormones</td>
<td>Have an effect on target cells</td>
</tr>
<tr>
<td>Tropic hormones</td>
<td>These hormones stimulate other endocrine glands for secretion</td>
</tr>
<tr>
<td>Releasing hormones</td>
<td>Regulate the secretion of tropic hormones</td>
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</tbody>
</table>
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