Endocrine function of hypothalamo-hypophyseal system

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Hypothalamus and hypophysis

- Anterior pituitary
  - Pars tuberalis
  - Pars intermedia
  - Pars distalis

- Posterior pituitary
  - Infundibular stalk
  - Pars nervosa

- Hypophyseal fossa in sella turcica of sphenoid bone
Hypothalamus and posterior pituitary

- Neural connections
- Hormones: ADH + oxytocin (neuropeptides)
- ADH = primarily associated with supraoptic ncl
- Oxytocin = primarily associated with paraventricular ncl
Control of hormonal secretion
Hypothalamus and anterior pituitary

- Secretes 6 peptide hormones:
  - TSH
  - FSH
  - LH
  - Growth hormone
  - Prolactin
  - ACTH

- Hypothalamus and ant. pituitary linked directly by hypothalamic-hypophyseal portal system
# Hormones

<table>
<thead>
<tr>
<th>Hormone</th>
<th>Major target organ(s)</th>
<th>Major Physiologic Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anterior Pituitary</strong></td>
<td></td>
<td></td>
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<tr>
<td>Growth hormone</td>
<td>Liver, adipose tissue</td>
<td>Promotes growth (indirectly), control of protein, lipid and carbohydrate metabolism</td>
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<tr>
<td>Thyroid-stimulating hormone</td>
<td>Thyroid gland</td>
<td>Stimulates secretion of thyroid hormones</td>
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<tr>
<td>Adrenocorticotropic hormone</td>
<td>Adrenal gland (cortex)</td>
<td>Stimulates secretion of glucocorticoids</td>
</tr>
<tr>
<td>Prolactin</td>
<td>Mammary gland</td>
<td>Milk production</td>
</tr>
<tr>
<td>Luteinizing hormone</td>
<td>Ovary and testis</td>
<td>Control of reproductive function</td>
</tr>
<tr>
<td>Follicle-stimulating hormone</td>
<td>Ovary and testis</td>
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<tr>
<td><strong>Posterior Pituitary</strong></td>
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<tr>
<td>Antidiuretic hormone</td>
<td>Kidney</td>
<td>Conservation of body water</td>
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<tr>
<td>Oxytocin</td>
<td>Ovary and testis</td>
<td>Stimulates milk ejection and uterine contractions</td>
</tr>
</tbody>
</table>
1. Hormones synthesized by cell bodies in the hypothalamus

- **Hypothalamic hormone control secretion**
  - Releasing Factors
  - Inhibitory Factors
  - Conducted through: Hypothalamic-hypophyseal portal vessels

**Vascular Connection**

1. Hormones synthesized by cells in hypophysis

2. To Target Glands

2. To General Circulation

**Overview**

- **Supraoptic nucleus**
- **Paraventricular nucleus**
- Nerve Fibers: Hypothalamic-hypophyseal tract
References


Thank you for your attention!