Function of Endocrine System

- Homeostasis
  - Regulate:
    - metabolic processes, water balance, ions, BP
  - Aid transporting of substance across membranes
- Stimulate reproduction, development, growth

Negative Feedback
Types of Secretions

- Paracrine
- Autocrine
- Endocrine
  - Gland
  - Target tissue

Hormone Target Specificity

- Steroid
  - Enters cell
  - Binds to receptor
  - Alters DNA activity
Control of Hormone Secretions

• Tropic hormones from anterior pituitary
  – TSH
• Nervous stimulation
  – Adrenal gland
• Composition of internal environment
  – Insulin
• Negative feedback systems
  – TH

The Hypothalamus

Hormones of the Hypothalamus

• Peptides
• Regulated by brain
• Regulated by negative feedback
• All are Releasing or Inhibiting hormones
The Pituitary Gland

Pituitary Hormones

- Anterior
  - Prl
  - TSH
  - GH
  - ACTH
  - LH, FSH

- Posterior
  - ADH
  - Oxytocin

Posterior Pituitary Hormones

- Oxytocin
  - Contraction of smooth muscles of uterus, milk ducts
- ADH (Vasopressin)
  - Conserves water in body
  - Reduces urine volume
  - Dehydration of body stimulates osmoreceptors
  - High blood volume → less ADH and loss of water
THYROID GLAND

• Thyroid Hormones (T3/T4)
  – Produced by follicles

• Increase Metabolic Rate

• Healthy Developed Nervous System

Follicles of Thyroid Gland
Thyroid C cells

- Produce Calcitonin
- Controls blood [Ca++] and [OP--] levels
- Inhibits osteoclasts
  - Reduces loss from bone
- Stimulates osteoblasts
  - Increases deposit of Ca++, OP– in bone

Goiter of Thyroid Gland

PARATHYROID GLANDS
The Pancreas

Melatonin is synthesized within the pinealocytes from tryptophan.
ADRENAL GLANDS

ADRENAL HORMONES

• CORTEX- ALDOSTEROL, CORTISOL, ANDROGENS

• MEDULLA- ADRENALINE, EPINEPHRINE