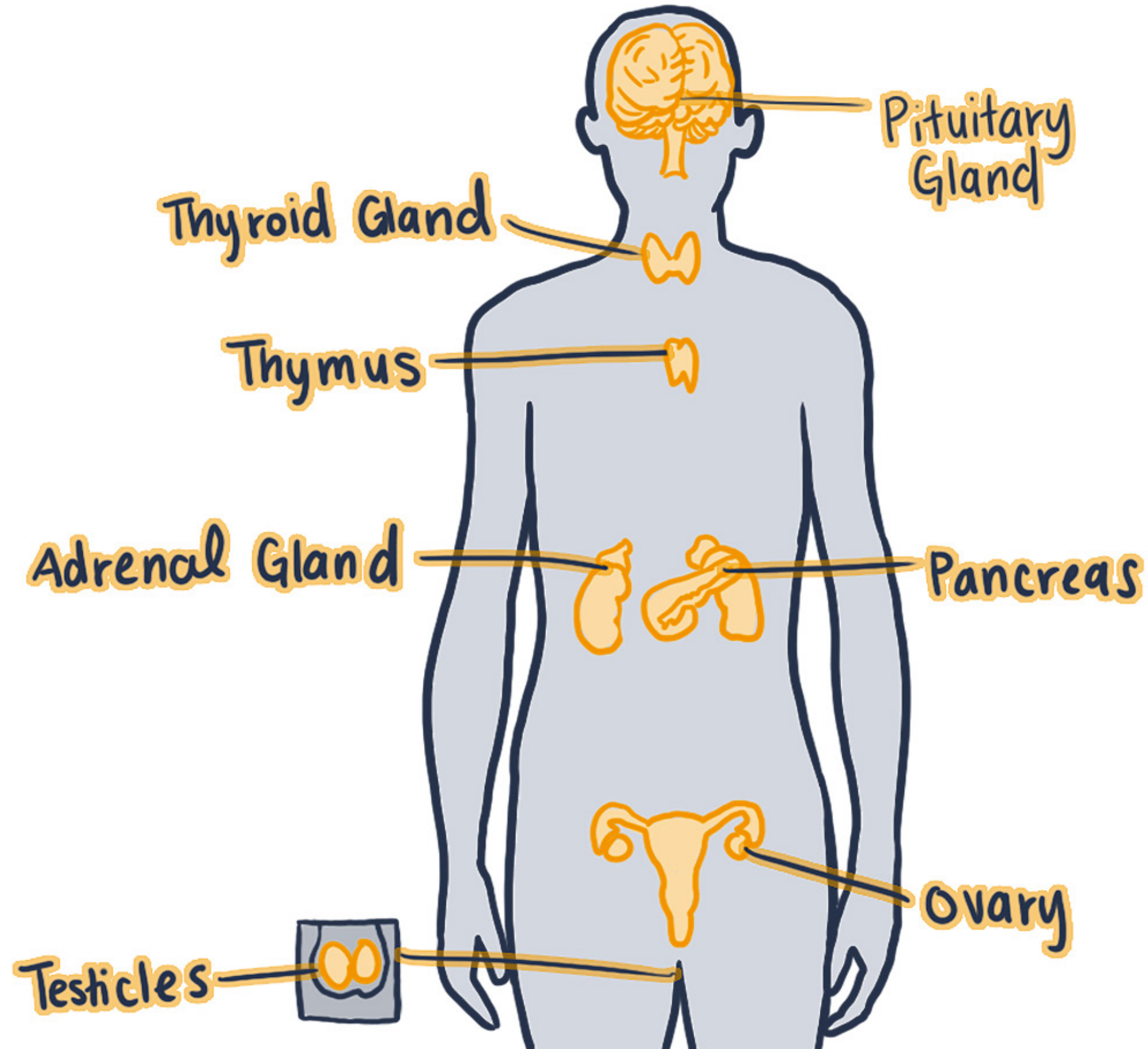


The Endocrine System

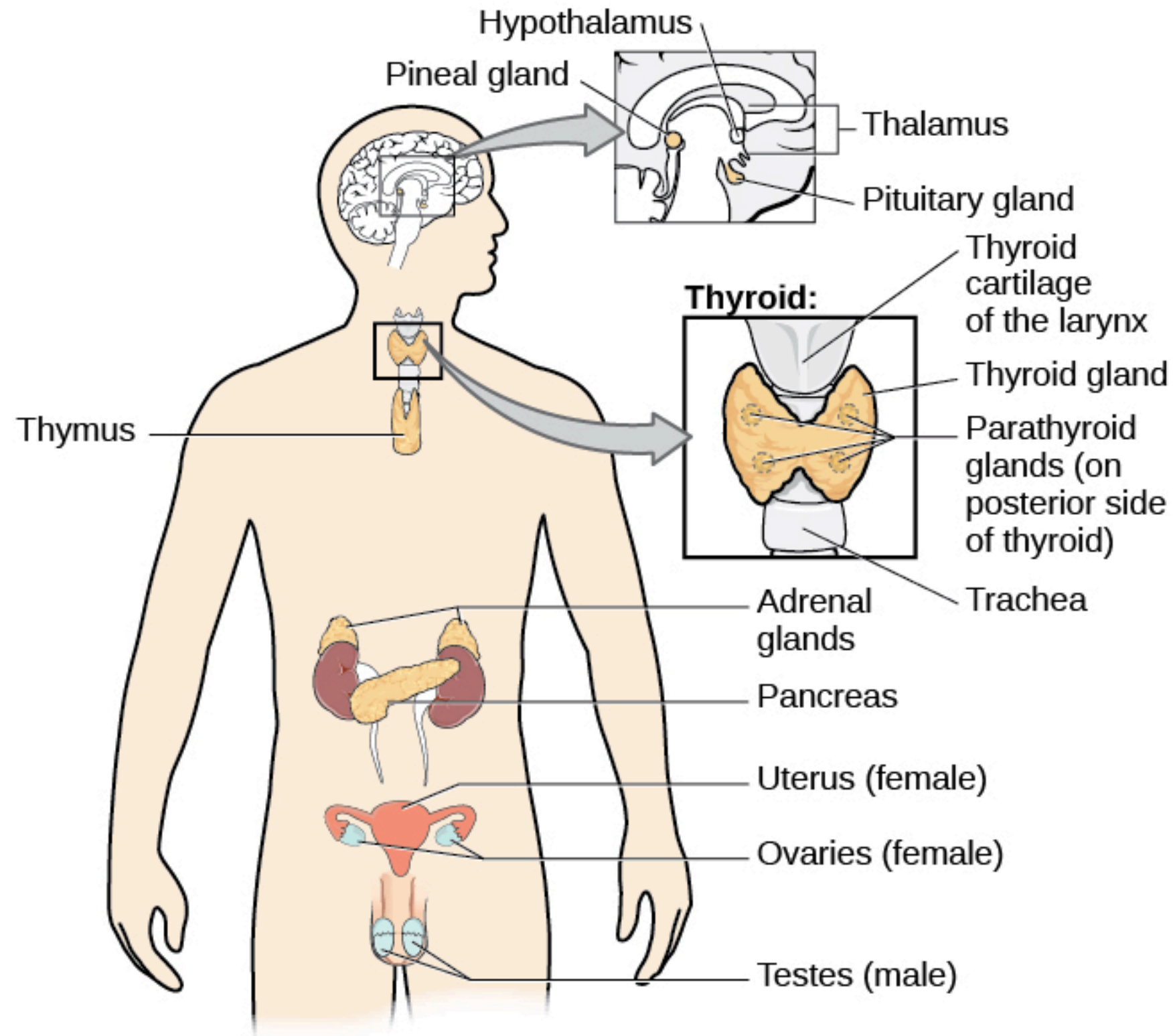


1. The Neuroendocrine System

Today

- Name the different components of the neuroendocrine system.
- Name the different types of hormones.
- Name three types of sex steroids.
- Explain how hormonal levels are regulated.

Lecture Learning Objectives



Neuroendocrine System

Hormones

Three Classes:

1. **Amino acid derivative hormones:** Synthesized from an amino acid molecule (e.g., epinephrine).
2. **Peptide and protein hormones:** Short and long chains of amino acids, respectively (e.g., growth hormone).
3. **Steroid hormones:** Synthesized from cholesterol.

Neuroendocrine System

Sex Steroids

The gonads produce and release hormones.

In fact, they both release the same hormones:

1. **Androgens** (testosterone is the most common).
2. **Estrogens** (estradiol is the most common).

Neuroendocrine System

Sex Steroids

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In fact, they both release the same hormones:

1. Androgens (testosterone is the most common).
2. Estrogens (estradiol is the most common).

Adult ovaries tend to release more estrogens than androgens, whereas adult testes release more androgens than estrogens. This difference has led to the incorrect practice of referring to androgens as “male” hormones and estrogens as “female” hormones.

Neuroendocrine System

Sex Steroids

The gonads produce and release hormones.

In fact, they both release the same hormones:

1. Androgens (testosterone is the most common).
2. Estrogens (estradiol is the most common).

They also both release a third class of sex steroids:

3. **Progestins** (progesterone is the most common).

Neuroendocrine System

Sex Steroids

The gonads produce and release hormones.

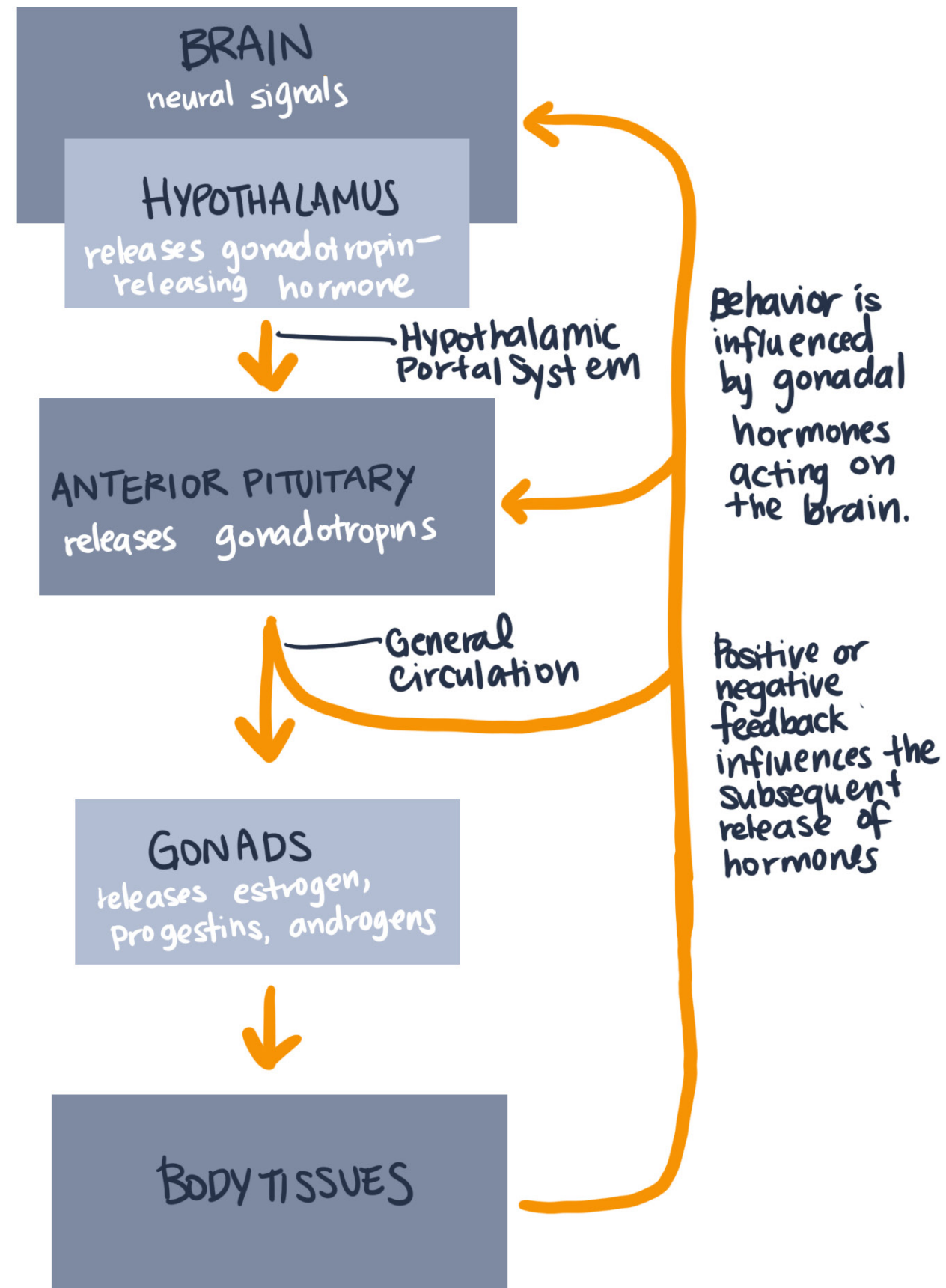
In fact, they both release the same hormones:

1. Androgens (testosterone is the most common).
2. Estrogens (estradiol is the most common).
3. Progestins (progesterone is the most common).

The adrenal gland also releases small amounts of all three.

Neuroendocrine System

Sex Steroids



Neuroendocrine System

Regulation of Hormonal Levels

Hormone release is regulated by 3 kinds of signals:

1. Signals from other hormones.
2. Signals from nonhormonal chemicals (e.g., glucose increases insulin release).
3. Signals from the nervous system.

Neuroendocrine System

Regulation of Hormonal Levels

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2. Signals from nonhormonal chemicals (e.g., glucose increases insulin release).
3. Signals from the nervous system.

Experience can affect hormone levels via this latter sort of signal. So, “hormonal” explanations for a behaviour do not rule out an effect of experience on that behaviour.

Neuroendocrine System