

# Male Hormone Physiology

# Objectives

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At the end of this presentation, attendees should have a better understanding of, and gain insights into:

- The primary and secondary male characteristics.
- How and where sex hormones are produced in males.

# Primary & Secondary Male Sex Characteristics

# Primary Male Sex Characteristics

In utero, the production of testosterone at around 9 weeks of gestation causes the fetus to develop into a male.

Primary male sex characteristics:

- Penis
- Testes



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# Secondary Male Characteristics

Androgens support **secondary** male sex characteristics:

- Facial hair
- Chest hair
- Increased body hair
- Pelvic build (lack of rounded hips)
- Upper body muscular build
- Ability to generate muscle mass at a faster rate than a female
- Voice changes



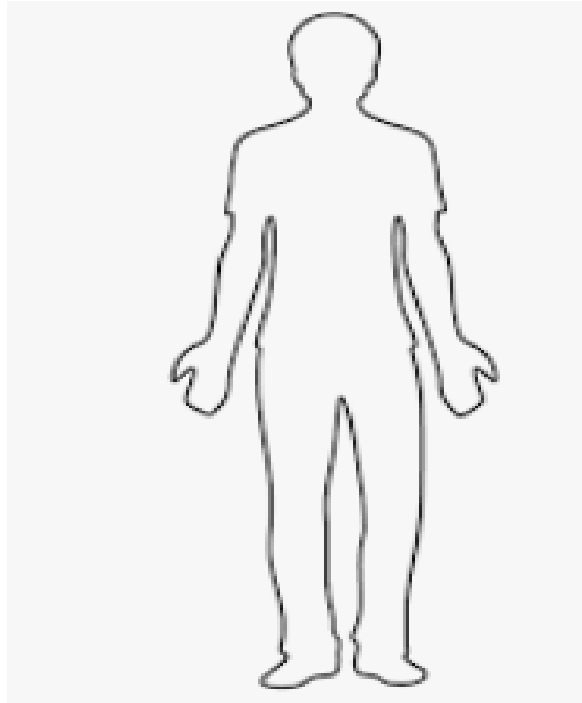
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# How & Where Sex Hormones are Produced in Males

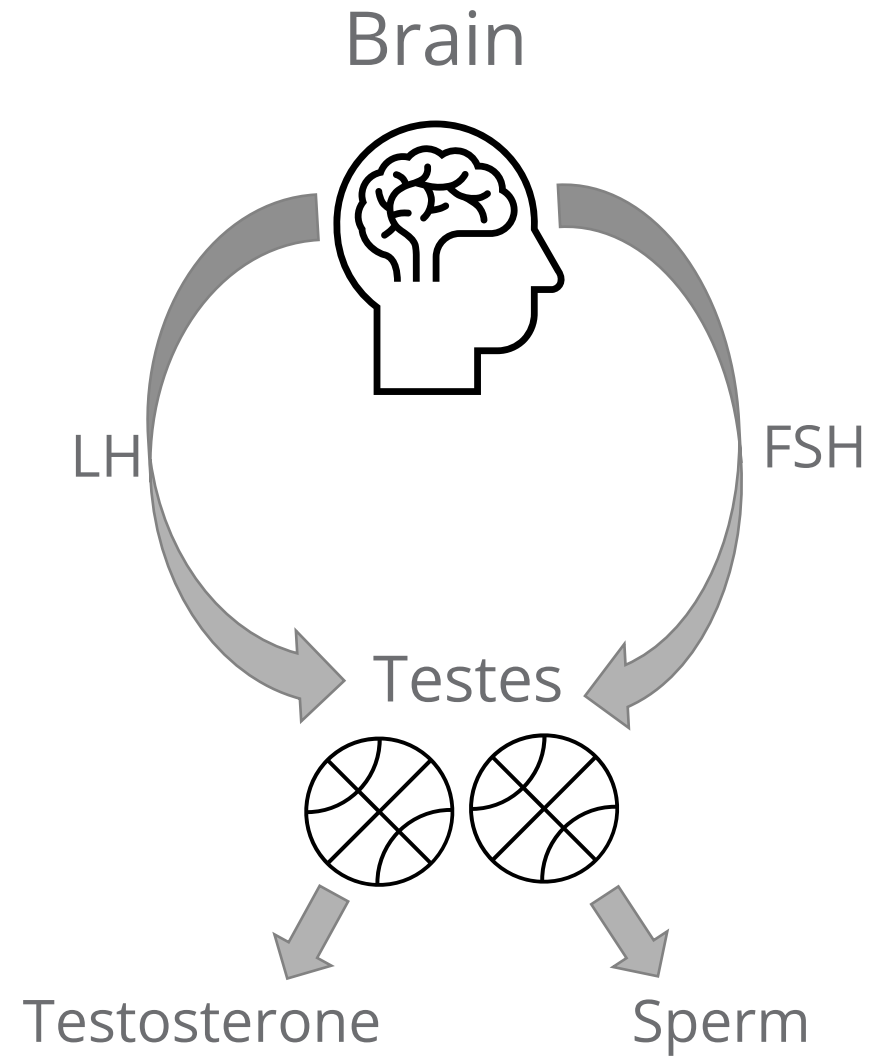
# Testosterone

## Males

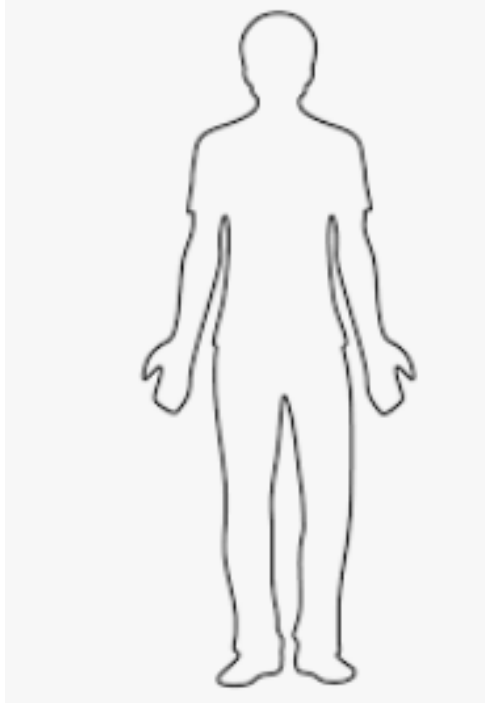
- Testosterone production:
  - 95% testes
  - 5% adrenals



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## Males



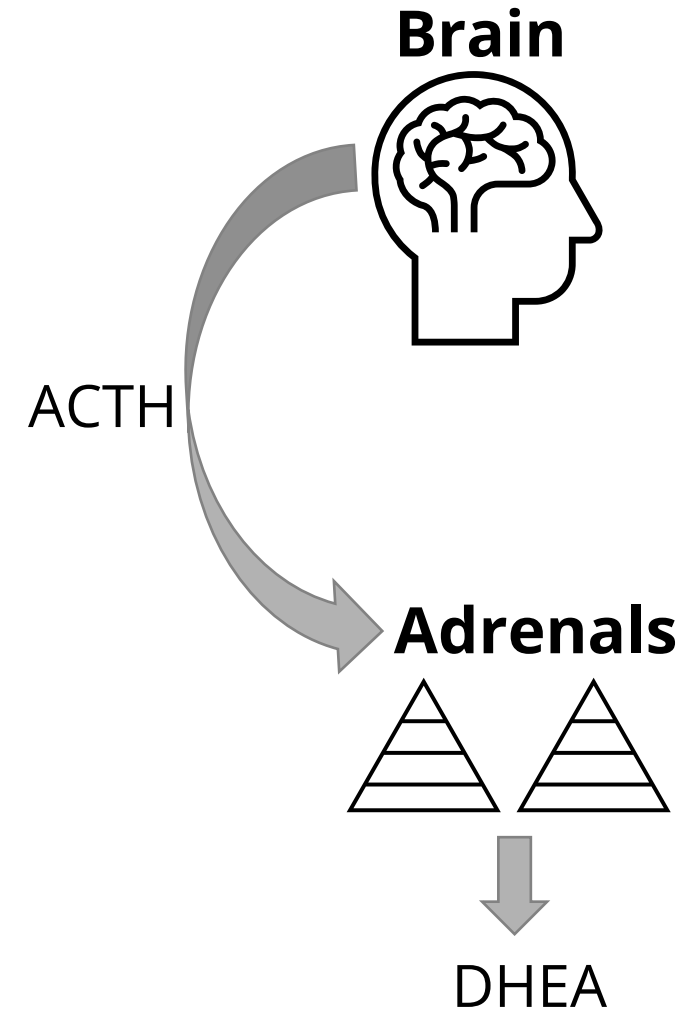
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DHEA production:

- 80% adrenals
- 20% testes

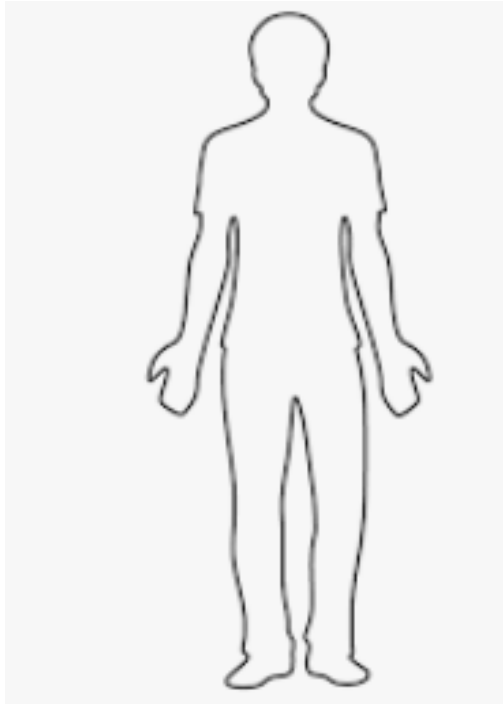
DHEA-S production:

- 100% adrenals





## Males

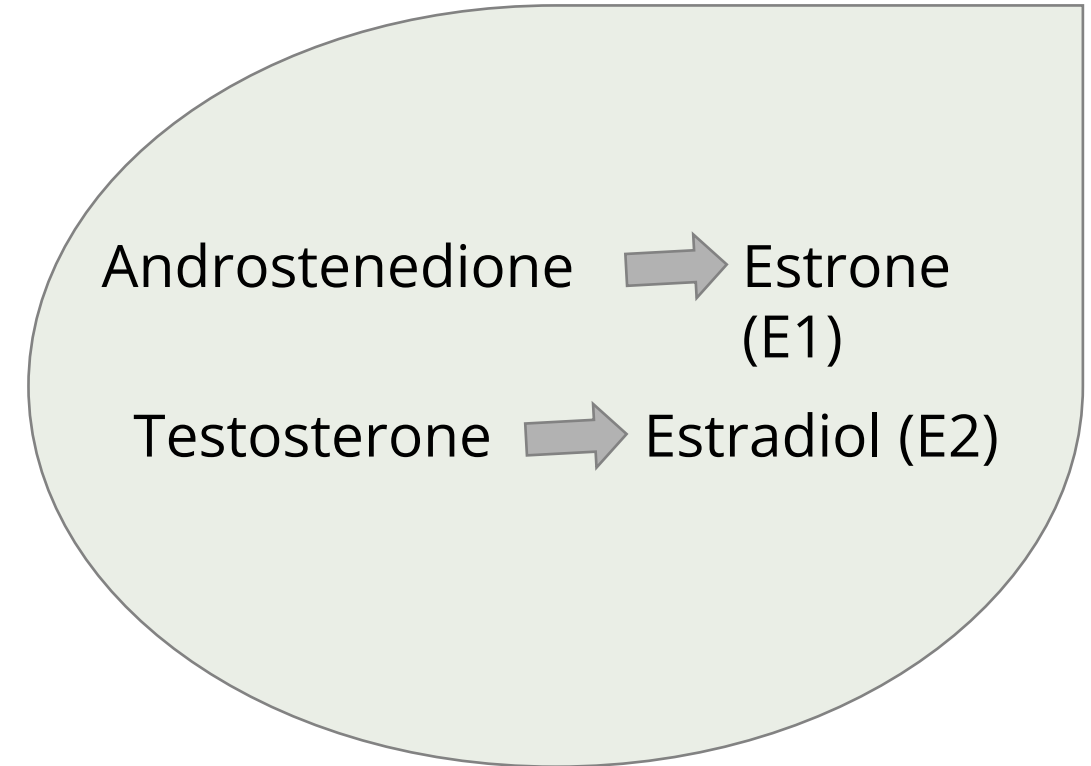


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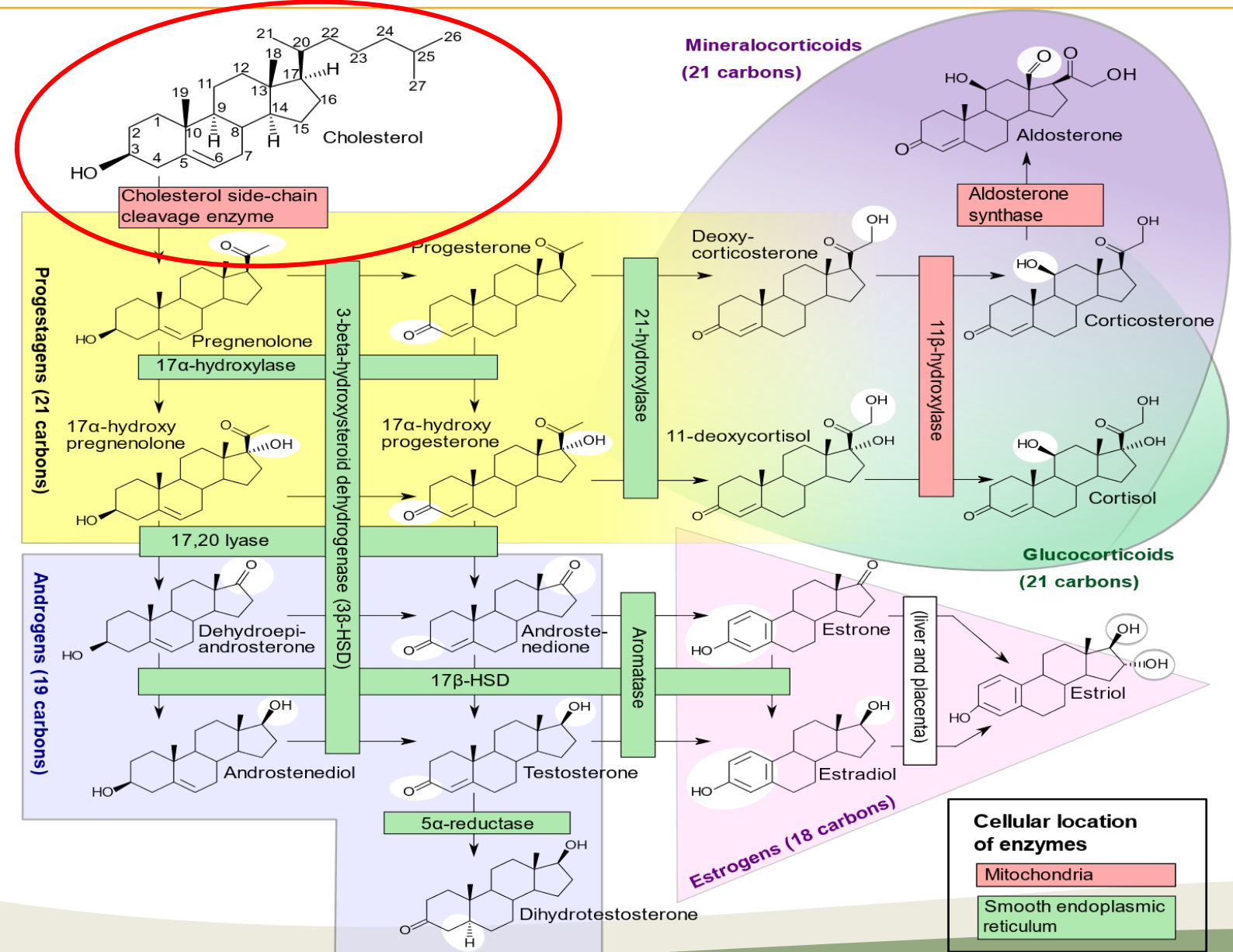
Estrogen production:

- 80% aromatization from androgens
- 20% testes

## Fat Cell



# The Syntheses of Hormones From Cholesterol



All sex hormones and cortisol are made from cholesterol

# DUTCH Steroid Pathways Chart

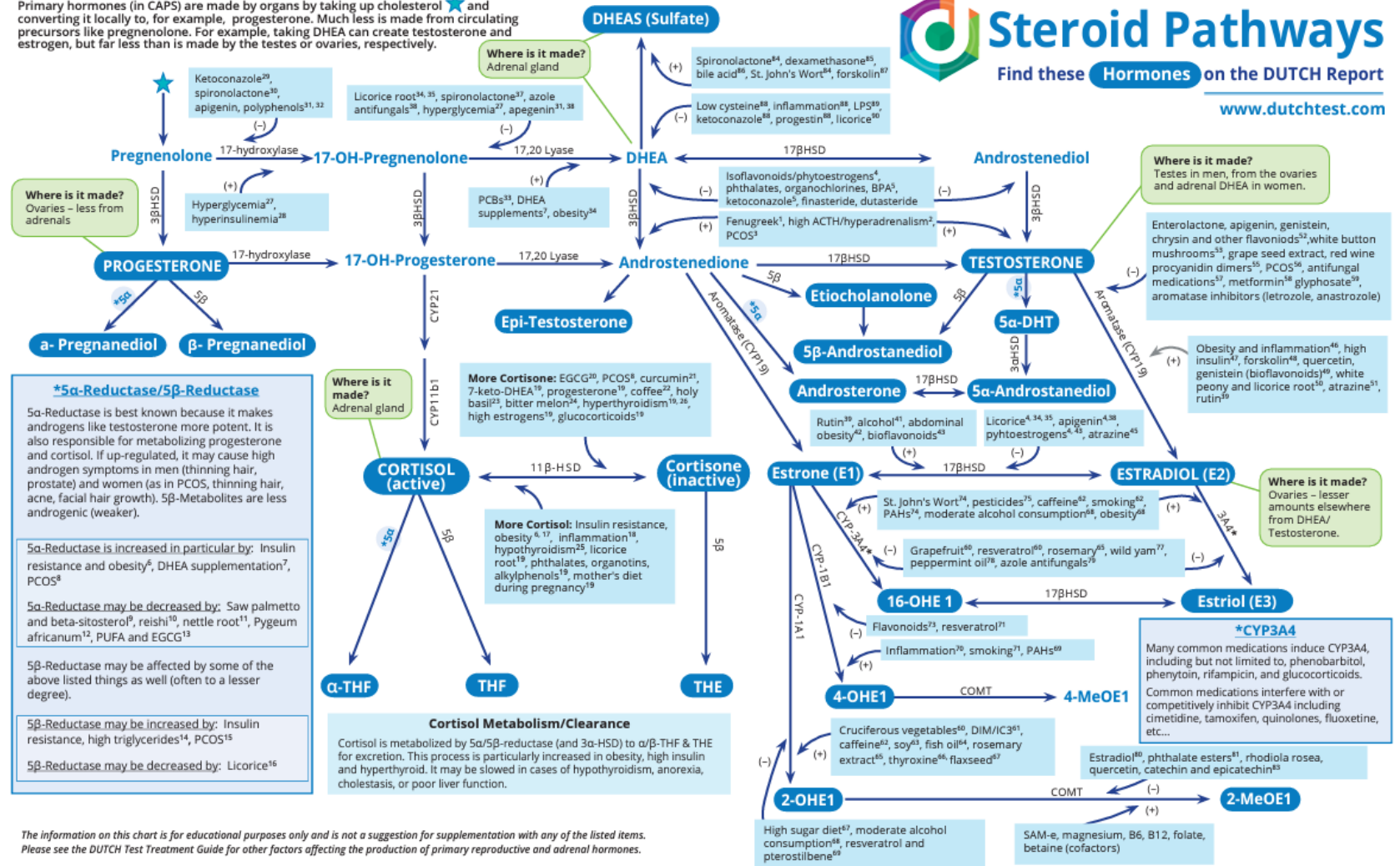
Primary hormones (in CAPS) are made by organs by taking up cholesterol and converting it locally to, for example, progesterone. Much less is made from circulating precursors like pregnenolone. For example, taking DHEA can create testosterone and estrogen, but far less than is made by the testes or ovaries, respectively.



## Steroid Pathways

Find these Hormones on the DUTCH Report

[www.dutchtest.com](http://www.dutchtest.com)



Follow the link below to see the DUTCH Steroid Pathways Chart!

This chart can give you insights into what factors affect hormone metabolism.

# Key Points

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- Androgens are important for primary and secondary male characteristics.
- In males, the majority of testosterone is made by the testes in response to luteinizing hormones (LH) that is released by the anterior pituitary.
- In males, the majority of DHEA is made by the adrenals in response to ACTH that is also released by the anterior pituitary.
- In males, the majority of estrogen is made in the fat tissue (but also bone, brain and skin) from the aromatization of androgens.
- The DUTCH test measures 8 androgen metabolites, 9 estrogen metabolites and 2 progesterone metabolites. These metabolites will be explained in more detail in the upcoming videos.

# Thank You!

If you are interested in learning more about hormones, each week we hold one-hour long mentorship sessions! Once you are a registered DUTCH provider, you can book these through our online scheduling link. Please call to get registered today.

**For questions, contact:**

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