



**Overview of
the Female
Reproductive System**

Center for
Educational Outreach
Baylor College of Medicine

A light microscopic image of a human ovum ready for IVF.
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Overview of the Female Reproductive System

Image Reference

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Key Words

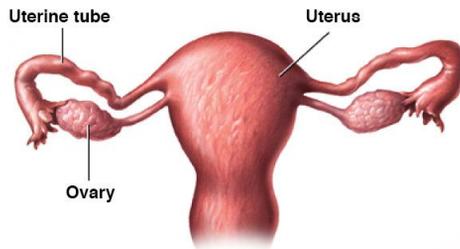
reproductive system, female, human, anatomy

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Major Components of the System

There are two main components of the female reproductive system.

- Ovaries
- Accessory sex organs



The ovaries, uterine tubes and uterus of the female reproductive tract.

Major Components of the System

The two main components of the female reproductive system are the ovaries and the accessory sex organs. The ovaries contain follicles, or clusters of cells surrounding an egg. The follicles help eggs reach maturity, so they can be released into the reproductive tract and subsequently fertilized. Once each month, a single, mature egg is produced and released from the ovary.

The remaining female reproductive organs are called accessory sex organs. Although separate from the reproductive system, the mammary glands are associated with parental care.

References

1. Clark, Joe O.E. (1999). *A Visual Guide to the Human Body*. London: Barnes and Noble, Inc.
2. Raven, P.H. (2005). *Biology, 7th Edition*. New York, NY: McGraw-Hill.

Image Reference

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<http://www.nlm.nih.gov/medlineplus/ency/imagepages/8652.htm>

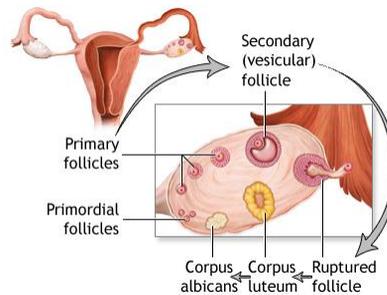
Key Words

reproductive system, female, human, ovary, sex organ, egg, fertilization

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Ovaries

- The ovaries lie in the abdominal cavity, attached by a mesentery (membranous fold) to the uterus.
- Ovaries (female gonads) produce both eggs and reproductive hormones.



Normal egg release from the ovaries, shown in stages of development.

Ovaries

The female gonads, the ovaries, have a dual function. They produce the female sex hormone, estrogen, and house the female sex cells, or ova.

Each ovary is enclosed in a tough protective capsule and contains many follicles. Within each follicle is an egg cell.

References

1. Campbell, N.A., and Reece, J.B. (2008). *Biology, 8th Edition*. San Francisco, CA: Pearson Benjamin Cummings.
2. Clark, Joe O.E. (1999). *A Visual Guide to the Human Body*. London: Barnes and Noble, Inc.
3. Wikipedia: Mesovarium CC-BY-SA 3.0.
<http://en.wikipedia.org/wiki/Mesovarium>

Image Reference

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<http://www.nlm.nih.gov/medlineplus/ency/imagepages/8652.htm>

Key Words

reproductive system, female, human, ovary, gonad, egg, hormone, reproduction

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Fallopian Tubes

- The fallopian tubes are a pair of cilia-lined tubes leading from the ovaries to the uterus.
- The cilia in the fallopian tubes help convey an egg cell down a duct to the uterus.



SEM of cilia within a normal human fallopian tube.

Fallopian Tubes

The female reproductive system is not completely closed. Egg cells are released from the ovary into the abdominal cavity near the opening of the fallopian tubes. The fallopian tubes have a funnel-like opening and cilia on the inner epithelium lining that help to collect the egg cell by drawing fluid from the body cavity into the duct. The cilia also convey the egg down the duct to the uterus.

Reference

Campbell, N.A., and Reece, J.B. (2008). *Biology, 8th Edition*. San Francisco, CA: Pearson Benjamin Cummings.

Image Reference

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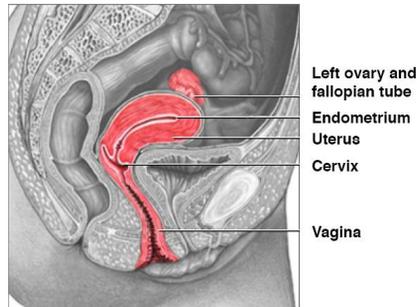
Key Words

reproductive system, female, human, ovary, gonad, egg, hormone, fallopian tube

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Uterus

- The uterus is connected to the fallopian tubes and is continuous with the cervix.
- The uterus accepts fertilized ovum (eggs), which become implanted in the endometrium (blood rich lining of the uterus).
- The developing embryo is contained and nurtured with the uterus.



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Uterus

The uterus is a thick muscular organ that can expand during pregnancy. The inner lining of the uterus, the endometrium, is richly supplied with blood vessels. This is where fertilized eggs become implanted. The ovum eventually develops into a fetus, which is housed in the uterus for the duration of the pregnancy.

Reference

Campbell, N A., and Reece, J.B. (2008). *Biology, 8th Edition*. San Francisco, CA: Pearson Benjamin Cummings.

Image Reference

Illustration courtesy of MedlinePlus, U.S. National Library of Medicine, NIH.
<http://www.nlm.nih.gov/medlineplus/ency/imagepages/17079.htm>

Key Words

reproductive system, female, human, uterus, ovum, pregnancy, endometrium, fetus

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Cervix and Vagina

- The neck of the uterus is the cervix, which opens into the vagina.
- The female's external reproductive structures are known collectively as the vulva.



Baby in the normal birth position, pushing its head through the mother's cervix.



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Cervix and Vagina

The vagina, a thin-walled chamber, is a muscular tube 4-6 inches long. Capable of great distension, it forms the birth canal through which the baby is born. It is also the repository for sperm during copulation.

The external component of the female reproductive system, known as the vulva, surrounds the openings of the vagina and urethra. Internally, the vagina is connected to the uterus, which is connected to two oviducts.

Reference

Campbell, N.A., and Reece, J.B. (2008). *Biology, 8th Edition*. San Francisco, CA: Pearson Benjamin Cummings.

Image Reference

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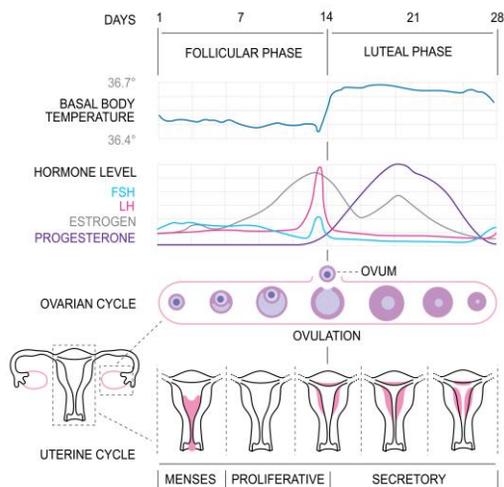
Key Words

reproductive system, female, human, vulva, cervix, vagina, birth canal

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Menstrual Cycle

- Follicular phase
- Ovulation
- Luteal phase



Menstrual Cycle

Hormonal stimuli in a woman coordinate the ovarian and menstrual cycles to prepare the endometrium for implantation of an embryo. The ovarian cycle consists of a follicular phase, during which follicles grow and secrete estrogens; ovulation; and a luteal phase, during which the corpus luteum secretes estrogens and progesterone. The menstrual cycle consists of a menstrual flow, proliferative, and secretory phase.

Menstruation, the shedding of the endometrium, occurs during the menstrual flow phase. During the proliferative phase, estrogens from the growing follicle stimulate the endometrium to thicken and become increasingly vascularized. During the secretory phase, the endometrium continues to thicken. The secretory phase parallels the luteal phase of the ovarian cycle. Disintegration of the corpus luteum at the end of the luteal phase reduces the amount of estrogen and progesterone, and the endometrium is shed. In the event of pregnancy, additional mechanisms maintain high levels of estrogens and progesterone, preventing loss of the endometrium.

An illustrated animation of the menstrual cycle may be seen at the

Womenshealth.gov website. <https://www.womenshealth.gov/publications/our-publications/fact-sheet/menstruation.html>

Reference

Campbell, N.A., and Reece, J.B. (2002). *Biology, 6th Edition*. San Francisco, CA: Pearson Benjamin Cummings.

Image Reference

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http://commons.wikimedia.org/wiki/File:MenstrualCycle2_en.svg

Key Words

reproductive system, female, human, menstrual cycle, ovulation, hormone

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Functions of the System

- Produce, store and release ova.
- Produce female sex hormones.
- House the developing fetus during pregnancy.



Functions of the System

The female reproductive system is responsible for the production, storage and release of ova. The ovaries also produce the female sex hormones, estrogen and progesterone, which are responsible for secondary sexual characteristics and control of the menstrual cycle. The uterus is the site of implantation of the zygote, and it houses the developing fetus during pregnancy. The vagina serves as the birth canal during labor, the process by which childbirth occurs.

References

1. Clark, Joe O.E. (1999). *A Visual Guide to the Human Body*. London: Barnes and Noble, Inc.
2. Raven, P.H. (2005). *Biology, 7th Edition*. New York, NY: McGraw-Hill.

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reproductive system, female, human, ovary, gonad, egg, hormone, fetus, function

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