

A&P 27

Reproductive
System Essay

Author: OpenStax College

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4. Chapter: A&P 27 Reproductive System Essay

1. A&P 27 Reproductive System Essay Questions

4.1.1. Watch this video (<http://openstaxcollege.org/l/vasectomy>) to learn ...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/vasectomy>) to learn about vasectomy.

As described in this video, a vasectomy is a procedure in which a small section of the ductus (vas) deferens is removed from the scrotum.

This interrupts the path taken by sperm through the ductus deferens.

If sperm do not exit through the vas, either because the man has had a vasectomy or has not ejaculated, in what region of the testis do they remain?

- Sperm remain in the epididymis until they degenerate.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege.org/l/vasectomy](http://openstaxcollege.org/l/vasectomy) OpenStax College Anatomy

4.1.2. Watch this video (<http://openstaxcollege.org/l/spermpath>) to explor...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/spermpath>) to explore the structures of the male reproductive system and the path of sperm that starts in the testes and ends as the sperm leave the penis through the urethra.

Where are sperm deposited after they leave the ejaculatory duct?

- Sperm enter the prostate.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege.org/l/spermpath](http://openstaxcollege.org/l/spermpath) OpenStax College Anatomy

4.1.3. Watch this video (<http://openstaxcollege.org/l/ovulation>) to observ...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/ovulation>) to observe ovulation and its initiation in response to the release of FSH and LH from the pituitary gland.

What specialized structures help guide the oocyte from the ovary into the uterine tube?

- The fimbriae sweep the oocyte into the uterine tube.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege.org/l/ovulation](http://openstaxcollege.org/l/ovulation) OpenStax College Anatomy

4.1.4. Watch this series of videos (<http://openstaxcollege.org/l/oocyte>) t...

Author: OpenStax College

Watch this series of videos (<http://openstaxcollege.org/l/oocyte>) to look at the movement of the oocyte through the ovary.

The cilia in the uterine tube promote movement of the oocyte.

What would likely occur if the cilia were paralyzed at the time of ovulation?

- The oocyte may not enter the tube and may enter the pelvic cavity.

Check the answer of this question online at QuizOver.com:

Question: [Watch this series of videos http:// OpenStax College Anatomy](http://openstaxcollege.org/l/oocyte)

4.1.5. A baby's gender is determined at conception, and the different geni...

Author: OpenStax College

A baby's gender is determined at conception, and the different genitalia of male and female fetuses develop from the same tissues in the embryo.

View this animation <http://openstaxcollege.org/l/fetus>) that compares the development of structures of the female and male reproductive systems in a growing fetus.

Where are the testes located for most of gestational time?

- The testes are located in the abdomen.

Check the answer of this question online at QuizOver.com:

Question: [A baby's gender is determined at conception OpenStax College Anatomy](#)

4.1.6. Briefly explain why mature gametes carry only one set of chromosomes.

Author: OpenStax College

Briefly explain why mature gametes carry only one set of chromosomes.

- A single gamete must combine with a gamete from an individual of the opposite sex to produce a fertilized egg, which has a complete set of chromosomes and is the first cell of a new individual.

Check the answer of this question online at QuizOver.com:

Question: [Briefly explain why mature gametes carry OpenStax College Anatomy](#)

4.1.7. What special features are evident in sperm cells but not in somatic...

Author: OpenStax College

What special features are evident in sperm cells but not in somatic cells, and how do these specializations function?

- Unlike somatic cells, sperm are haploid. They also have very little cytoplasm. They have a head with a compact nucleus covered by an acrosome filled with enzymes, and a mid-piece filled with mitochondria that power their movement. They are motile because of their tail, a structure containing a flagellum, which is specialized for movement.

Check the answer of this question online at QuizOver.com:

Question: [What special features are evident in sperm OpenStax College Anatomy](#)

4.1.8. What do each of the three male accessory glands contribute to the s...

Author: OpenStax College

What do each of the three male accessory glands contribute to the semen?

- The three accessory glands make the following contributions to semen: the seminal vesicle contributes about 60 percent of the semen volume, with fluid that contains large amounts of fructose to power the movement of sperm; the prostate gland contributes substances critical to sperm maturation; and the bulbourethral glands contribute a thick fluid that lubricates the ends of the urethra and the vagina and helps to clean urine residues from the urethra.

Check the answer of this question online at QuizOver.com:

Question: [What do each of the three male accessory OpenStax College Anatomy](#)

4.1.9. Describe how penile erection occurs.

Author: OpenStax College

Describe how penile erection occurs.

- During sexual arousal, nitric oxide (NO) is released from nerve endings near blood vessels within the corpora cavernosa and corpus spongiosum.
The release of NO activates a signaling pathway that results in relaxation of the smooth muscles that surround the penile arteries, causing them to dilate.
This dilation increases the amount of blood that can enter the penis, and induces the endothelial cells in the penile arterial walls to secrete NO, perpetuating the vasodilation.
The rapid increase in blood volume fills the erectile chambers, and the increased pressure of the filled chambers compresses the thin-walled penile venules, preventing venous drainage of the penis.
An erection is the result of this increased blood flow to the penis and reduced blood return from the penis.

Check the answer of this question online at QuizOver.com:

Question: [Describe how penile erection occurs. OpenStax College Anatomy Quest](#)

4.1.10. While anabolic steroids (synthetic testosterone) bulk up muscles, t...

Author: OpenStax College

While anabolic steroids (synthetic testosterone) bulk up muscles, they can also affect testosterone production in the testis.

Using what you know about negative feedback, describe what would happen to testosterone production in the testis if a male takes large amounts of synthetic testosterone.

- Testosterone production by the body would be reduced if a male were taking anabolic steroids. This is because the hypothalamus responds to rising testosterone levels by reducing its secretion of GnRH, which would in turn reduce the anterior pituitary's release of LH, finally reducing the manufacture of testosterone in the testes.

Check the answer of this question online at QuizOver.com:

Question: [While anabolic steroids synthetic testosterone OpenStax College Anatomy](#)

4.1.11. Follow the path of ejaculated sperm from the vagina to the oocyte.

...

Author: OpenStax College

Follow the path of ejaculated sperm from the vagina to the oocyte.

Include all structures of the female reproductive tract that the sperm must swim through to reach the egg.

- The sperm must swim upward in the vagina, through the cervix, and then through the body of the uterus to one or the other of the two uterine tubes.
Fertilization generally occurs in the uterine tube.

Check the answer of this question online at QuizOver.com:

Question: [Follow the path of ejaculated sperm from OpenStax College Anatomy](#)

4.1.12. Identify some differences between meiosis in men and women.

Author: OpenStax College

Identify some differences between meiosis in men and women.

- Meiosis in the man results in four viable haploid sperm, whereas meiosis in the woman results in a secondary oocyte and, upon completion following fertilization by a sperm, one viable haploid ovum with abundant cytoplasm and up to three polar bodies with little cytoplasm that are destined to die.

Check the answer of this question online at QuizOver.com:

Question: [Identify some differences between meiosis OpenStax College Anatomy](#)

4.1.13. Explain the hormonal regulation of the phases of the menstrual cycle.

Author: OpenStax College

Explain the hormonal regulation of the phases of the menstrual cycle.

- As a result of the degradation of the corpus luteum, a decline in progesterone concentrations triggers the shedding of the endometrial lining, marking the menses phase of the menstrual cycle. Low progesterone levels also reduce the negative feedback that had been occurring at the hypothalamus and pituitary, and result in the release of GnRH and, subsequently, FSH and LH. FSH stimulates tertiary follicles to grow and granulosa and theca cells begin to produce increased amounts of estrogen. High estrogen concentrations stimulate the endometrial lining to rebuild, marking the proliferative phase of the menstrual cycle. The high estrogen concentrations will eventually lead to a decrease in FSH because of negative feedback, resulting in atresia of all but one of the developing tertiary follicles. The switch to positive feedback that occurs with elevated estrogen production from the dominant follicle stimulates the LH surge that will trigger ovulation. The luteinization of the granulosa cells of the collapsed follicle forms the progesterone-producing corpus luteum. Progesterone from the corpus luteum causes the endometrium to prepare for implantation, in part by secreting nutrient-rich fluid. This marks the secretory phase of the menstrual cycle. Finally, in a non-fertile cycle, the corpus luteum will degrade and menses will occur.

Check the answer of this question online at [QuizOver.com](http://www.quizover.com):

Question: [Explain the hormonal regulation of the OpenStax College Anatomy Quest](#)

4.1.14. Endometriosis is a disorder in which endometrial cells implant and ...

Author: OpenStax College

Endometriosis is a disorder in which endometrial cells implant and proliferate outside of the uterus-in the uterine tubes, on the ovaries, or even in the pelvic cavity.

Offer a theory as to why endometriosis increases a woman's risk of infertility.

- Endometrial tissue proliferating outside of the endometrium-for example, in the uterine tubes, on the ovaries, or within the pelvic cavity-could block the passage of sperm, ovulated oocytes, or a zygote, thus reducing fertility.

Check the answer of this question online at [QuizOver.com](http://www.quizover.com):

Question: [Endometriosis is a disorder in which OpenStax College Anatomy Quest](#)

4.1.15. Identify the changes in sensitivity that occur in the hypothalamus,...

Author: OpenStax College

Identify the changes in sensitivity that occur in the hypothalamus, pituitary, and gonads as a boy or girl approaches puberty.

Explain how these changes lead to the increases of sex steroid hormone secretions that drive many pubertal changes.

- As an individual approaches puberty, two changes in sensitivity occur. The first is a decrease of sensitivity in the hypothalamus and pituitary to negative feedback, meaning that it takes increasingly larger concentrations of sex steroid hormones to stop the production of LH and FSH. The second change in sensitivity is an increase in the sensitivity of the gonads to the FSH and LH signals, meaning that the gonads of adults are more responsive to gonadotropins than are the gonads of children. As a result of these two changes, the levels of LH and FSH slowly increase and lead to the enlargement and maturation of the gonads, which in turn leads to secretion of higher levels of sex hormones and the initiation of spermatogenesis and folliculogenesis.

Check the answer of this question online at QuizOver.com:
Question: [Identify the changes in sensitivity that OpenStax College Anatomy](#)

4.1.16. Explain how the internal female and male reproductive structures de...

Author: OpenStax College

Explain how the internal female and male reproductive structures develop from two different duct systems.

- The internal reproductive structures form from one of two rudimentary duct systems in the embryo. Testosterone secretion stimulates growth of the male tract, the Wolffian duct. Secretions of sustentacular cells trigger a degradation of the female tract, the Müllerian duct. Without these stimuli, the Müllerian duct will develop and the Wolffian duct will degrade, resulting in a female embryo.

Check the answer of this question online at QuizOver.com:

Question: [Explain how the internal female and male OpenStax College Anatomy](#)

4.1.17. Explain what would occur during fetal development to an XY individu...

Author: OpenStax College

Explain what would occur during fetal development to an XY individual with a mutation causing a nonfunctional SRY gene.

- If the SRY gene were not functional, the XY individual would be genetically a male, but would develop female reproductive structures.

Check the answer of this question online at QuizOver.com:

Question: [Explain what would occur during fetal OpenStax College Anatomy Quest](#)