“Scrub In”

• The normal periodic discharge of the endometrial lining in a female is known as:
  a. Dysmenorrhea
  b. Leukorrhea
  c. Menorrhagia
  d. Menstruation

• The scientific name for the beginning of the menses is called:
  a. Menarche
  b. Menopause
  c. Ovulation
  d. Vulva

4.06 Understand the functions and disorders of the reproductive system
Understand the functions and disorders of the female reproductive system.
Essential questions

• What are the functions of the female reproductive system?
• What are some common disorders of the female reproductive system?
• How do you relate the body’s hormone control to the female reproductive system?
• How do you relate the body’s use of nutrients to the female reproductive system?
Functions of the female reproductive system

- **Ovary**
  - Function:
    - Produce ova
    - Manufacture female sex hormones
      - Estrogen
      - Progesterone

*Did you know a female will produce all of the oocytes (an egg before maturation) she will ever have five months before she is born?*
Functions of the female reproductive system

- **Fallopian tubes**
  - Fertilization of the ovum usually occurs here.
  - Function: serves as a passageway for ova to the uterus. Smooth muscle and cilia help propel the ova into the uterus.
  - Fimbriae – fringelike projections that fall over the ovary and help to move the ova along
Functions of the female reproductive system

• **Uterus** -
  - The main function of the uterus is to nourish the developing fetus prior to birth.
Functions of the female reproductive system

• **Cervix**
  - An opening that allows for the passage of menstrual fluid and semen
  - Barrier to prevent infection of the uterus
  - Cervical mucus provides lubrication for the vagina.

*What instrument is used to observe the cervix?*
Functions of the female reproductive system

• Vagina

– Functions:
  • accommodates the penis during sexual intercourse and carries sperm to the uterus and fallopian tubes
  • acts as the birth canal
  • provides a passageway for menstrual flow from the uterus to exit the body during menstruation.
Functions of the female reproductive system

- **External genitalia**
  - Provide protection for the internal female reproductive organs
Functions of the female reproductive system

- **Mammary glands** (breasts)
  - Secrete milk following pregnancy.
Functions of the female reproductive system

- **Menstrual Cycle** - the normal periodic discharge of the endometrial lining in a female
  - Usually 28 days
  - Four stages
    - Follicle stage
    - Ovulation stage
    - Corpus luteum stage
    - Menstruation stage

*The first menstrual cycle is called menarche*
Functions of the female reproductive system

• Follicle stage
  – Usually lasts about 10 days
  – Follicle-stimulating (FSH) hormone is released by the pituitary
  – FSH stimulates the follicle and ovum to mature
  – Resulting in the release of estrogen and preparation of the uterine lining
Functions of the female reproductive system

- The pituitary stops producing FSH and starts producing luteinizing hormone (LH).
- At day 14 in the menstrual cycle, the follicle ruptures and the mature ovum is released.
Functions of the female reproductive system

- **Corpus luteum stage**
  - Corpus luteum secretes progesterone and continues to do so if the egg is fertilized, preventing further ovulation and maintaining the uterine lining
  - Lasts about 14 days
Functions of the female reproductive system

• **Menstruation stage**
  – Final stage if fertilization of the ova has not taken place
  – The corpus luteum diminishes progesterone production
  – The uterine lining is broken down and discharged over the course of 3 to 6 days
Functions of the female reproductive system

• Menopause
  – Monthly menstrual cycle comes to an end
  – Approximately age 45-55
  – Can be induced prematurely by removal of the ovaries
  – Symptoms include:
    • Hot flashes
    • Dizziness and headaches
    • Emotional changes
“Scrub In”:

• Redness, swelling and pain in the breasts could indicate what?
  a. Adenitis
  b. Mastitis
  c. Pectoritis
  d. Stomatitis

□ The test that women should have annually for the early detection of cervical cancer is the:
  a. Laparoscopy
  b. Pap smear
  c. Pelvimetry
  d. SBE
Disorders of the female reproductive system

**Breast cancer**

- The leading cause of death in woman between the ages of 32 and 52
- Treatment
  - Chemotherapy
  - Radiation therapy
  - Partial or full mastectomy
  - Lumpectomy
- Life saving measures
  - Monthly breast exams
  - Mammogram – used to determine a lump in the breast
  - Ultrasound
Disorders of the female reproductive system

Self breast exam

1. Using a mirror, inspect your breasts with your arms at your sides
2. Look for any changes in contour, swelling, dimpling of skin, or appearance of the nipple.
3. Using the pads of your fingers, press firmly on your breast, checking the entire breast and armpit area.
4. There are three patterns you can use to examine your breast: the circular, the up-and-down, and the wedge patterns.
5. Gently squeeze the nipple of each breast and report any discharge to your doctor immediately.
6. Examine both breasts lying down. To examine the right breast, place a pillow under your right shoulder and place your right hand behind your head. Using the pads of your fingers, press firmly, checking the entire breast and armpit area.
Disorders of the female reproductive system

• **Cervical Cancer**
  - Major cause of cervical cancer is HPV (human papillomavirus). HPV is the most common sexually transmitted infection (STI).
  - Test used for early detection: Pap smear
  - About 15 types of HPV are considered high risk for cancer of the cervix.
  - HPV vaccine – Gardasil prevents HPV types that cause most genital warts. Gardasil also prevents most cervical cancers. It is given in 3 shots over 6 months.
Disorders of the female reproductive system

Endometriosis

– Tissue resembling the inner layer of the uterus grows in various locations in the pelvic cavity.

– Symptoms: internal bleeding, dysmenorrhea (painful menstruation), heavy or irregular bleeding

– Side effects: infertility, ovarian cancer

– Treatment: pain medication, hormone therapy, conservative surgery, hysterectomy
Disorders of the female reproductive system

**Mastitis**

- Inflammation of the breast
- Bacteria enters through the nipple. Infection begins in one lobule and may spread.
- Usually affects lactating women (women who are breastfeeding)
- Symptoms: redness, swelling and pain in the breasts
- Treatment: oral antibiotics, regularly emptying the breast well by breast-feeding or pumping breast milk.
Disorders of the female reproductive system

Pelvic inflammatory disease (PID)

- An infection of the female reproductive organs.
  - Risk factors: being sexually active, having had PID or Chlamydia before, douching
  - Complications: infertility, ectopic (tubal) pregnancy, chronic pelvic pain
  - Treatment: antibiotics, surgery
Disorders of the female reproductive system
Polycystic ovarian syndrome

- A problem in which a woman’s hormones are out of balance.

- The primary cause is unknown

- Classic symptoms: menstrual abnormality, polycystic ovaries - enlarged ovaries containing numerous small cysts, elevated levels of male hormones (androgens)

- Treatment: medications, surgery
Disorders of the female reproductive system

Toxic shock syndrome

– Bacterial infection caused by staphylococcus.
– Cause: use of tampons
– Symptoms: fever, rash, hypotension
– Treatment: antibiotics
Disorders of the female reproductive system

Vaginal yeast infection

- Caused by the fungus candida. Candida is a microorganism that's normally present in your vagina, along with bacteria.
- Prevention: avoid douching; wear cotton underwear and loose fitting pants or skirts; avoid tight-fitting underwear or pantyhose; change out of wet clothes, such as swimsuits or workout attire, as soon as possible; stay out of hot tubs or very hot baths.
- Treatment: short-course vaginal therapy, single-dose oral medication.

Not a sexually transmitted illness. However, sexual partners may be infected and need to be treated to prevent re-infection.
Relevance of nutrients to the female reproductive system

• The female reproductive system plays a vital role in homeostasis
  – Help regulate hormonal balance and fetal development during pregnancy

Did you know???

Vitamin D-
prevents osteoporosis

Iron-
helps hemoglobin
deliver oxygen

Magnesium-
helps prevent heart disease, diabetes, and colon cancer

4.06 Understand the functions and disorders of the reproductive system
“Scrub In”:

- What is the function of ejaculation:
  a. Discharge of sperm
  b. Excretion of urine
  c. To cause an erection
  d. Production of testosterone

- Where are sperm produced:
  a. Prostate gland
  b. Seminal vesicles
  c. Testes
  d. Vas deferens
Understand the functions and disorders of the male reproductive system
Essential questions

• What is the function of the male reproductive system?
• What are some common disorders of the male reproductive system?
• How do you relate the body’s hormone control to the male and female reproductive systems
Hormone production

Testosterone – responsible for the development of male reproductive organs and secondary sex characteristics (deepening of voice, growth of body hair and increase in muscle mass). Produced by the testes.
Function of the male reproductive system

Reproduction – any form of sexual reproduction resulting in the conception of a child, typically involving sexual intercourse between a man and a woman.
Functions of the male reproductive system:

- **Testes** – where sperm are produced
- **Seminiferous tubules** – the area where sperm develop
- **Epididymis** – the area where sperm are stored
Functions of the male reproductive system

Sperm

- Function: to carry the male genes to the female's egg for fertilization
- Approximately 100 million sperm in 1cc of semen
- A female has approximately 400,000 follicles/potential eggs for their lifetime where as a male produces 100 million sperm in just 1cc of semen
- **Vas Deferens** - carry ejaculatory sperm out of the testes.
- **Ejaculatory duct** - delivers sperm into the urethra, adding secretions and additives from the prostate necessary for sperm function.
- The function of ejaculation is the discharge of sperm.
Seminal vesicles –
Produce secretions that nourish and protect the sperm
– These secretions are important for fertility

Seminiferous tubules -
Spermatogenesis occurs here.
Urethra

- Serves 2 purposes:
  - to empty urine from the bladder
  - to expel semen
Prostate gland – secretes a thin, milky alkaline fluid

- Function of this fluid:
  - enhances sperm motility
  - gives semen its strong musky odor

4.06 Understand the functions and disorders of the reproductive system
Bulbourethral glands
Also called Cowper’s gland

Produce a mucous like fluid called pre-ejaculate. The pre-ejaculate fluid is a viscous, clear, and salty liquid that neutralizes any residual acidity in the urethra. This fluid also lubricates the urethra for sperm to pass through.
Penis -

- Reproductive function of the penis:
  - to deliver semen into the vagina
• What are 2 common symptoms of prostatic hypertrophy?

a. Dysuria and urinary retention
b. Constipation and bloating
c. Fever and hematuria
d. Dyspnea and pyuria
• Circumcision
  – The procedure to remove the foreskin of the penis
Cryptorchidism – undescended testes

– a testicle that hasn't moved into its proper position in the scrotum before birth.

– Risks if left untreated:
  • Infertility
  • Testicular cancer

– Treatment: surgery, hormone injection
Epididymitis – painful swelling in the groin and scrotum

- **Cause:** infection
- **Risk factors:** past prostate or urinary tract infections, prostate enlargement, an uncircumcised penis, or an anatomical abnormality of the urinary tract, can be caused by an STI
- **Treatment:** antibiotics

4.06 Understand the functions and disorders of the reproductive system
Erectile Dysfunction (ED)

Also known as impotence

Failure of the penis to become rigid enough for intercourse to occur.

- Common causes:
  
  Acute – psychological or medications
  
  Chronic – diseases (diabetes, HTN, COPD)

- Treatment: medication, penile pump
Disorders of the male reproductive system and their treatments

**Benign prostatic hypertrophy (BPH) – enlarged prostate**

- **Symptoms:** polyuria, nocturia, dysuria, urinary retention, incontinence
- **Cause:** unknown
- **Treatment:** medication, surgery
Prostate cancer

- Risk of prostate cancer goes up as men get older
- Symptoms: blood in the urine or semen, trouble urinating, erectile dysfunction
- Treatment: surgery, radiation, chemotherapy
- Reproductive side effects to treatment: temporary or permanent infertility
Disorders of the male reproductive system and their treatments

**Testicular cancer**

- Risk factors: cryptorchidism, family history, age (15 - 34), race (African Americans)
- Symptoms: a lump or enlargement in either testicle, feeling of heaviness in the scrotum, pain or discomfort in a testicle or the scrotum
Disorders of the male reproductive system and their treatments

Testicular self-examination

• Testicular self-examination is an examination of the testicles. The testicles (also called the testes) are the male reproductive organs that produce sperm and the hormone testosterone. They are located in the scrotum under the penis.

• Perform this test during or after a shower. This way, the scrotal skin is warm and relaxed. It's best to do the test while standing.
Disorders of the male reproductive system and their treatments

Testicular self-examination

– 1. Gently feel your scrotal sac to locate a testicle.
– 2. Hold the testicle with one hand while firmly but gently rolling the fingers of the other hand over the testicle to examine the entire surface.
– 3. Repeat the procedure with the other testicle.

You may perform a testicular self-exam every month if you have any of the following risk factors:

• Family history of testicular cancer
• Past testicular tumor
• Undescended testicle
• You are a teenager or young adult
“Scrub In”

• The sterilization procedure for women is called:
  a. Pap smear
  b. Orchidectomy
  c. Tubal ligation
  d. Vasectomy

• The sterilization procedure for a male is called:
  a. Circumcision
  b. Hysterectomy
  c. Orchidectomy
  d. Vasectomy
Reproductive process: conception

YOU'RE PREGNANT?!
HOW COULD THIS HAPPEN...?!

IF YOU GUYS DON'T KNOW,
THEN I MUST BE ADOPTED.

4.06 Understand the functions and disorders of the reproductive system
Reproductive process

-when the sperm and the egg unite
-pregnancy occurs
Reproductive process: fertilization

- During sexual intercourse sperm enter the female reproductive tract and live for a day or two. Eventually one sperm penetrates and fertilizes the ovum (fertilization). True fertilization occurs when the sperm nucleus combines with the ovum nucleus to form a fertilized egg cell – zygote. (The zygote has 46 chromosomes.) It divides and those cells divide and so on. The zygote continues to divide as it travels down the fallopian tube and is implanted in the wall of the uterus.
Functions of the female reproductive system

- Prenatal period or GESTATION

- Human gestational period is 40 weeks or 280 days. It also divided into 3 trimesters (3 month periods)

- Terms to remember:
  - Embryo
    - 1-8 weeks
  - Fetus
    - 9-40 weeks
  - Newborn
    - At birth
Reproductive process: fetal development

- 6-8 weeks
- 12-14 weeks
- 17-19 weeks
- 5-6 months
Functions of the female reproductive system

**Labor**

– **Dilation stage**
  - The uterine smooth muscle begins to contract
  - Contraction moves the fetus down the uterus and cause the cervix to dilate (open) and thin out (efface) to allow the baby to move into the birth canal.
  - The cervix is completely dilated at 10 centimeters
Functions of the female reproductive system

– Expulsion stage

• The baby is actually delivered
  – Natural – vaginal childbirth
  – Cesarean - the baby is taken out surgically through the mother's abdomen

– Episiotomy - procedure where an incision is made between the vagina and anus to assist in vaginal birth.

• Reasons for doing an episiotomy: 1) extensive vaginal tearing appears likely 2) the baby is in an abnormal position 3) the baby needs to be delivered quickly
Functions of the female reproductive system

- **Placental stage** - The part of labor that lasts from the birth of the baby until the placenta and fetal membranes are delivered
  - The last stage of labor
  - Also known as afterbirth
  - Delivered due to final uterine contractions
Disorders of the female reproductive system

• Spontaneous abortion or miscarriage
  – The unintentional loss of a pregnancy
Disorders of the female reproductive system

- Is when the fertilized egg stays in the fallopian tube.
- Symptoms: light vaginal bleeding, nausea and vomiting, lower abdominal pain, sharp abdominal cramps
- Treatment: If the fallopian tube has not ruptured and the pregnancy has not progressed very far, laparoscopic surgery may be done to remove the embryo and repair the damage. (Laparoscopy – surgical insertion of a lighted instrument through the abdominal wall). If the doctor suspects that the fallopian tube has ruptured, emergency surgery is necessary to stop the bleeding.
- Risk factors: use of an IUD, history of PID, STI’s, use of fertility medications
Disorders of the female reproductive system

Postpartum depression

- New mothers often feel restless, anxious, fatigued and worthless
- Some new moms worry they will hurt themselves or their babies
- Unlike the "baby blues," postpartum depression does not go away quickly
- Cause: brought on by the changes in hormone levels that occur after pregnancy
Disorders of the female reproductive system

Infertility

- Failure for pregnancy to occur after one year of trying to conceive
- If a woman keeps having spontaneous abortions, it is also called infertility
- ZIFT - the fertilized eggs (zygotes) are placed in the fallopian tubes within 24 hours
- GIFT - the sperm and eggs are just mixed together before being inserted
- IVF (in vitro) - involves combining eggs and sperm outside the body in a laboratory. Once an embryo or embryos form, they are then placed in the uterus
Infertility

- Causes of infertility in the male: 1) A varicocele - swelling of the veins that drain the testicle (may prevent normal cooling of the testicle), overheating the testicles, tobacco smoking, alcohol use, illegal drug use
- Treatment: surgery to repair varicocele; abstaining from smoking, alcohol and illegal drug use
Reproductive process:

Abstinence – 100%

Sterilization – 99%
- Tubal ligation – women

Barrier methods
- Female condom – 85-97%
- Spermicides - ???-85%
- Diaphragm – 90-99%
- Cervical cap - 84%
- Contraceptive sponge – 64-82%

Hormonal Methods – 93-99%
- Birth Control Pills
- Depo-Provera
- NuvaRing/Vaginal Ring
- Ortho Evra Patch/Birth Control Patch
- Intrauterine Device (IUD)
Reproductive process: *male contraception*

**Abstinence**

**Vasectomy – 99%**
- Vasectomy
- Permanent
- Does not protect against STI’s

**Condoms**
- Protects against STI’s
- Are most effective when used correctly and consistently
Sexually transmitted infections

• Chlamydia
• Genital warts
• Gonorrhea
• Herpes
• HIV
• Syphilis
• Trichomonas

Effects females and males.
May or may not present symptoms.
May or may not have a cure!