

ACTIVITY

12

URINARY AND REPRODUCTIVE SYSTEMS

OBJECTIVES

- **How to get ready:** Read CHAPTERS 27 AND 28, MCKINLEY ET AL., *HUMAN ANATOMY*, 5E. All text references are for this textbook
- Identify structures in the urinary system on models and cadavers. **YOU MUST BRING GLOVES FOR THIS ACTIVITY.**
- Histology: Identify structures involved in filtration on a slide or photo of a renal corpuscle.
- Complete a trace of blood flow through the kidney and a trace of filtrate/urine flow through the nephron loop and urinary system organs.
- Identify gross anatomical structures of the female reproductive tract.
- Identify gross anatomical structures of the male reproductive tract.
- Trace semen production and then spermatozoa to site of fertilization during sexual reproduction.

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URINARY SYSTEM

TABLE 12-1. Organs of the urinary system	
STRUCTURE	TEXT REFERENCES AND NOTES
<input type="checkbox"/> kidneys	DESCRIBED: P. 812 FIG. 27.1
<input type="checkbox"/> ureters	
<input type="checkbox"/> urinary bladder	
<input type="checkbox"/> urethra	

TABLE 12-2. Gross anatomy of the kidney, coronal section	
STRUCTURE	TEXT REFERENCES AND NOTES
<input type="checkbox"/> fibrous capsule	DESCRIBED: PP. 814–815 FIG. 27.3
<input type="checkbox"/> renal cortex	
<input type="checkbox"/> renal medulla	
<input type="checkbox"/> renal columns	
<input type="checkbox"/> renal pyramids	
<input type="checkbox"/> renal papilla	
<input type="checkbox"/> minor calyx (pl., <i>calyces</i>)	
<input type="checkbox"/> major calyx	
<input type="checkbox"/> renal pelvis	
<input type="checkbox"/> renal lobe	
<input type="checkbox"/> renal artery	
<input type="checkbox"/> renal vein	

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TABLE 12-3. Blood flow through the kidney

STRUCTURE	TEXT REFERENCES AND NOTES
<input type="checkbox"/> renal artery	DESCRIBED: PP. 815–817 FIG. 27.4, 27.5, 27.7
<input type="checkbox"/> segmental artery	
<input type="checkbox"/> interlobar artery	
<input type="checkbox"/> arcuate artery	
<input type="checkbox"/> interlobular artery	
<input type="checkbox"/> afferent arteriole	
<input type="checkbox"/> glomerulus	
<input type="checkbox"/> efferent arteriole	
<input type="checkbox"/> peritubular capillaries	
<input type="checkbox"/> vasa recta	
<input type="checkbox"/> interlobular vein	
<input type="checkbox"/> arcuate vein	
<input type="checkbox"/> interlobar vein	
<input type="checkbox"/> renal vein	

TABLE 12-4. Nephron structures, including uriniferous tubule. Identify the following structures from a slide, photo, or model.

STRUCTURE	TEXT REFERENCES AND NOTES
<input type="checkbox"/> renal corpuscle = glomerulus + glomerular capsule	DESCRIBED: PP. 817, 819–821 FIG. 27.5, 27.7, 27.8
<input type="checkbox"/> glomerular capsule (<i>or</i> Bowman’s capsule)	
<input type="checkbox"/> visceral layer of glomerular capsule (composed of podocyte cells)	
<input type="checkbox"/> capsular space	
<input type="checkbox"/> parietal layer of glomerular capsule	
<input type="checkbox"/> proximal convoluted tubule	
<input type="checkbox"/> nephron loop (<i>or</i> loop of Henle)	
<input type="checkbox"/> descending limb	
<input type="checkbox"/> ascending limb	
<input type="checkbox"/> distal convoluted tubule	
<input type="checkbox"/> collecting duct	

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TABLE 12-5. Gross anatomy of the urinary bladder and urethra	
STRUCTURE	TEXT REFERENCES AND NOTES
□ ureter	DESCRIBED: PP. 822–824 FIG. 27.9, 27.10A
□ urinary bladder	DESCRIBED: PP. 824–827 FIG. 27.10A
□ detrusor muscle	
□ urinary trigone	
□ ureteral openings	
□ internal urethral sphincter	
□ urethra	
□ urogenital diaphragm	
□ external urethral sphincter	
Male urethra	DESCRIBED: PP. 827–828 FIG. 27.11B
□ prostatic urethra	
□ membranous urethra	
□ spongy urethra	
□ external urethral orifice	
Female urethra	DESCRIBED: P. 827 FIGURE 27.9, 27.11A, 28.2
□ urethra	
□ external urethral orifice	

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KIDNEY BLOOD TRACE

From heart to kidney and back to heart:

left atrium

aorta

vasa recta/peritubular capillaries

right atrium

pulmonary semilunar valve

pulmonary capillary bed

left atrium

MALE URINE TRACE

From glomerular capsule to external environment:

glomerular capsule

collecting duct

ureteral openings into urinary bladder

external environment

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REPRODUCTIVE SYSTEM

TABLE 12-6. Female reproductive organs and structures	
STRUCTURE	TEXT REFERENCES AND NOTES
External Structures	
□ vulva	FIG. 28.9
□ perineum	
□ mons pubis	
□ labia majora	
□ labia minora	
□ clitoris	
□ prepuce	
□ corpora cavernosa	
□ crus	
□ body	
□ glans	
□ vestibule	
□ external urethral orifice	
□ vaginal orifice	
Internal Structures	
□ ovaries	DESCRIBED: P. 838 FIG. 28.2, 28.7
□ uterine (or fallopian) tubes (or oviducts)	DESCRIBED: P. 845 FIG. 28.2, 28.7
□ infundibulum with fimbriae	
□ ampulla	
□ isthmus	
□ uterine part (or interstitial segment)	

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TABLE 12-6. Female reproductive organs and structures	
STRUCTURE	TEXT REFERENCES AND NOTES
□ uterus	DESCRIBED: P. 847 FIG. 28.2, 28.7
□ fundus	
□ body	
□ isthmus	
□ cervix	
□ endometrium	
□ myometrium	
□ perimetrium	
□ vagina	DESCRIBED: PP. 849–850 FIG. 28.2, 28.7
Ligaments and Associated Structures	
□ round ligament of uterus	DESCRIBED: PP. 838, 848 FIG. 28.3, 28.7
□ broad ligament	
□ uterine artery and vein	
□ ovarian ligament	
□ suspensory ligament of ovary	
□ ovarian artery and vein	

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TABLE 12-7. Mammary glands

STRUCTURE	TEXT REFERENCES AND NOTES
□ pectoralis major muscle	DESCRIBED: P. 851 FIG. 28.10
□ areola	
□ nipple	
□ lobule	
□ adipose tissue	
□ suspensory ligaments	

TABLE 12-8. Male reproductive organs and structures

STRUCTURE	TEXT REFERENCES AND NOTES
□ testis (pl., <i>testes</i>)	DESCRIBED: PP. 855–862 FIG. 28.11, 28.12, 28.13
□ scrotum	
□ epididymis	
□ ductus deferens (<i>or vas deferens</i>)	
□ ampulla of ductus deferens	
□ prostate gland	
□ ejaculatory duct	
□ seminal vesicle	
□ bulbourethral gland (in urogenital diaphragm)	
□ urethra	
STRUCTURE	TEXT REFERENCES AND NOTES
□ crus of penis	DESCRIBED: P. 863 FIG. 28.11, 28.15, 28.17
□ body of penis	
□ dorsal surface with dorsal vein	
□ ventral surface	
□ glans (<i>or glans penis</i>)	
□ prepuce	
□ erectile bodies or venous spaces	
□ corpus cavernosum (pl., <i>corpora cavernosa</i>)	
□ corpus spongiosum	
□ spongy (penile) urethra	

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TABLE 12-9. Inguinal canal (male)	
STRUCTURE	TEXT REFERENCES AND NOTES
□ external (superficial) inguinal ring	DESCRIBED: PP. 856, 346, 400 FIG. 28.12
□ internal (deep) inguinal ring	
□ spermatic cord with:	
□ ductus deferens	
□ testicular artery and vein	
□ testicular nerve	

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GAMETE TRACE TO FERTILIZATION DURING SEXUAL REPRODUCTION

From testis (including locations where glands/ducts secrete), to female anatomy, ending at fertilized egg (zygote):

TESTIS	(site of spermatozoa production)
	(site of spermatozoa maturation)
SEMINAL VESICLE	(tube leading from testes to body cavity)
	(wide portion in the above tube leading from testes to body cavity)
	(adds components to semen)
	(adds components to semen)
VAGINAL CANAL	(tube leading from prostate gland to urethra)
	(adds components to semen)
	(tube leading from urogenital diaphragm through penis)
	(opening through which semen leaves the male body)
UTERINE PART OF UTERINE TUBE	(projection of uterus into vagina)
	(narrowest portion of uterus)
	(widest portion of uterus)
	(upper portion of uterus)
FERTILIZATION/CREATION OF ZYGOTE	(region of uterine tube in which fertilization generally occurs)

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STUDY AIDS FOR URINARY AND REPRODUCTIVE SYSTEMS

Helpful terms for Urinary and Reproductive Systems

ANATOMICAL TERMS	DESCRIPTION
arcuate	curved or arched
cervix	neck
afferent	carrying to
detrusor	to drive away
calyx	cup
cavernosum	containing cave-like spaces
convoluted	intricately folded, coiled, or twisted
ductus deferens	duct that carries down
efferent	carrying out
epididymis	upon testis
fimbriae	fringes
fundus	base
glomerulus	to roll up, a ball of thread
infundibulum	funnel
isthmus	narrow passageway
labia	plural of labium = lip
pelvis	basin
prostate	something that stands before (before urinary bladder)
sphincter	a tight binder
prepuce	foreskin
scrotum	leather
spongiosum	sponge
trigone	a triangle
vulva	female external genitalia