Human Anatomy Lab: The Kidney

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Expected Learning Outcomes
At the end of this lab, you will be able to
Compare the anatomy of a pig kidney and the kidney of the cat and human.
Identify internal structures of the pig kidney.
Identify vessels and ureter emerging from the pig undissected kidney.

Introduction
The kidney is the organ responsible for removing nitrogenous wastes from the body. Together your kidneys filter approximately 160 liters of blood per day, removing toxins and ions relentlessly. You will dissect pig kidneys and observe demonstrations of cat and human kidneys. The pig kidney is very similar to the human kidney, so we are able to use it instead for the study of human anatomy. Each pair of students will receive one pig kidney to study. At the end of the lab you will be asked to put the kidney in a plastic bag with your name on it. Return it to the refrigerated chamber to save for future studying.

Dissection Instructions

1. Every two students should obtain a preserved pig kidney on a dissecting tray. Rinse it out to remove any excess preserving fluid. Obtain a scalpel handle and use your blades for the dissection.

   NOTE: When returning the tray at the end of the lab, please wash out with the green disinfectant used to wipe the tables. Use a dish brush to brush the trays and remove any debris. Next rinse them out with warm water and place on the shelves to dry.

2. Slice the kidney so that you have a coronal section as in the diagram above. Try and not use a serrating motion as it will tear up the tissue. Single slices result in a better dissection.
Use the diagram above of the human kidney to identify the bulleted structures. These structures are the ones you need to memorize.

- fibrous capsule
- renal cortex
- renal medulla
- renal pelvis
- renal sinus
- renal papilla
- ureter
- renal pyramid
- renal blood vessels

Check Your Understanding

Try to answer the following questions without looking at your notes.

1. How does the renal medulla differ from the renal cortex?
2. How many renal papilla(e) does the cat kidney have? How does that number compare with that of the pig and human?
3. What structures carry urine from the kidney to the bladder?
A cat and human kidney will be available in the lab for comparison to the pig kidney. Notice the size differences and also how the cat kidney only has one pyramid and therefore only one renal papilla.
Human Anatomy Lab: Reproductive System

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Expected Learning Outcomes
At the end of the labs where you examine internal structures, you will be able to
• locate and write the names of structures in the male reproductive system;
• locate and write the names of structures in the female reproductive system;
• observe pathologies and variation among individuals: and
• identify and write the names of male and female urogenital structures of the cat.

Introduction
The reproductive system in our cadavers is not always complete. It is not uncommon for elderly females to have had a hysterectomy and ovarioectomy, limiting what we can see in those cadavers. For that reason we will also look at female dissected cats, and in this way we can observe the uterus and ovaries that otherwise would not have been present. In the male cadavers we are also partially limited by the complexity of a full dissection of the male reproductive system. Dissected male cats will supplement our demonstrations, presenting structures not visible in the dissected human.

Structures of the Female Reproductive System

Locate on the female cat:
• uterine horns
• uterus
• ovary
• vagina
• round ligament
• broad ligament
• fimbriae
• urogenital sinus
Locate on the female cadaver:
- uterus
  - fundus
  - body
  - cervix
- ovary
- vagina
- ovarian ligament
- fimbriae
- infundibulum

Figure 1. Female Reproductive Tract. (posterior view)
STRUCTURES OF THE MALE REPRODUCTIVE SYSTEM

Locate on the male cadaver:
- scrotum
- testes
- tunica vaginalis
- tunica albuginea
- epididymis
- ductus deferens

Locate on the male cat:
- scrotum
- testes
- tunica vaginalis
- epididymis
- ductus deferens
- spermatic cord
- spermatic artery
- spermatic vein
- prostate gland
- penis
- prepuce

Check Your Understanding
Try to answer the following questions without looking at your notes.

1. Where does the fetus develop in the cat versus the human?
2. What is the function of the ovarian ligament in the human?
3. Trace the movement of a sperm cell leaving the testis and name the structures it would travel through before leaving the penis.