**Student or Group Name:**  **Date:**

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|  | **Activity 3-****Kidney Dissection** |  |

**Safety: Goggles, Gloves, Apron optional**

**Materials: Dissection tray, one sheep kidney, scalpel, blunt probe, forceps, small scissors, several pins with different colored heads.**

**Procedure:**

1. Observe the renal capsule. This structure is made up of dense irregular connective tissue and provides protection as well as helps maintain shape. Remove any adipose tissue that may be attached to the capsule.
2. Locate the hilus. This is an indentation where the ureter and blood vessels enter and exit the kidney. Place a blue pin in the hilus. Remove the excess adipose tissue and locate the renal artery and place a red pin in the artery. Locate the renal vein and place a white pin in the vein. Have your instructor check off these structures.
3. Make a frontal structure through the kidney. Locate the cortex, which lies below the cortex and place a yellow pin in the cortex. Locate the medulla and place a red pin in the medulla. Have your instructor check off these structures.
4. The medulla consists of numerous conical structures called renal pyramids. The base of each pyramid lies next to the cortex, while the tip forms a renal papilla. Each papilla projects into the renal sinus. Locate the renal pyramid and mark it with a red pin, the renal papilla and mark it with a white pin, and the renal sinus and mark it with a green pin. Have your instructor check off these structures.
5. Renal pyramids are separated by bands of tissue called renal columns. Each column begins in the cortex and extends through the medulla. Examine the texture of this tissue. Columns have a granular texture similar to that of the cortex.
6. Each renal pyramid and adjacent cortical region makes up a renal lobe. Urine production occurs in the renal lobes. Each renal papilla discharges urine into a cup shaped minor calyx. Four or five minor calyces merge to form a major calyx. Major calyces merge to form the renal pelvis. Using a probe, trace the path of urine from the renal pyramids to the renal pelvis. Have your instructor check off this procedure.
7. Examine the renal pelvis. It is formed by a wall of thick fibrous tissue and forms the expanded end of the ureter. Using a scalpel, carefully cut one wall of the ureter and extend the incision into the hilus. The ureter is continuous with the renal pelvis. Observe the fine ridges on the endothelial lining of the ureter and renal pelvis.
8. Once you have observed all structures of the kidney and your instructor has completed your checklist, you may dispose of your kidney and clean up all equipment and your lab area.

**Kidney Diagram Drawing**

|  |  |
| --- | --- |
| **Check Off List** | Image result for check mark |
| **Renal Sinus**  **(Hilus)** |  |
| **Ureter** |  |
| **Renal Artery** |  |
| **Renal Vein** |  |
| **Cortex** |  |
| **Medulla** |  |
| **Renal Pyramids** |  |
| **Renal Papilla** |  |
| **Minor Calyx** |  |
| **Major**  **Calyx** |  |
| **Renal**  **Pelvis** |  |
| **Renal Capsule** |  |
| **Renal**  **Columns** |  |

**Questions**

1. In the space next to your list, draw a frontal section of a kidney. Label and color code each structure that is on your list.

1. What are the differences between the renal cortex and the renal medulla?
2. Describe the general function of each of the following:

* Kidney:
* Ureter:
* Urinary Bladder
* Urethra

1. Describe the location of the kidneys in the body. (Use landmarks and anatomical directions)
2. What is the structural and functional unit of the kidney?