

Elvera Freeman
INTERESTING ANATOMY OF THE KIDNEYS
Kharkiv national medical university, human anatomy department
Scientific leader – Polyakova A., PhD

The kidneys are paired retroperitoneal structures that are normally located between the transverse processes of T12-L3 vertebrae, with the left kidney typically somewhat more superior in position than the right. The upper poles are normally oriented more medially and posteriorly than the lower poles.

The kidneys serve important functions, including filtration and excretion of metabolic waste products (urea and ammonium); regulation of necessary electrolytes, fluid, and acid-base balance; and stimulation of red blood cell production. They also serve to regulate blood pressure via the renin-angiotensin-aldosterone system, controlling reabsorption of water and maintaining intravascular volume. The kidneys reabsorb glucose and amino acids and have hormonal functions via erythropoietin, calcitriol, and vitamin D activation.

The kidneys are surrounded by three layers of tissue: The renal fascia surrounds each kidney (and the attached adrenal gland) and fastens it to surrounding structures. The adipose capsule is a middle layer of adipose (fat) tissue that cushions the kidneys. The renal capsule is an inner fibrous membrane that prevents the entrance of infections. Inside the kidney three major regions are distinguished: The renal cortex borders the convex side. The renal medulla lies adjacent to the renal cortex. It consists of striated, and unstriated regions called renal pyramids, whose peaks face inward, and renal columns. The renal sinus is a cavity that lies adjacent to the renal medulla. The other side of the renal sinus, bordering the concave surface of the kidney, opens to the outside through the renal hilus.