

Study material:

Paper: Animal Physiology and Biochemistry: Life Sustaining System (409T)
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Topic: Cortical Nephrons and Juxtamedullary Nephrons

The basic structural and functional unit of the kidneys is called nephron. Each human kidney contains more than 8 million nephrons.

The distinguishing characters between cortical nephrons and juxtamedullary nephrons are given below: --

- **Cortical nephron** is a microscopic structural and functional unit of the kidney with a short loop of Henle while **juxtamedullary nephron** is a microscopic structural and functional unit of the kidney with a long loop of Henle.
- **Cortical nephrons** penetrate only into the outer renal medulla while **juxtamedullary nephrons** extend deep into the renal medulla.
- **Cortical nephrons** occur in all vertebrates while **juxtamedullary nephrons** occur only in birds and mammals.
- The Malpighian corpuscles of the **cortical nephrons** are located in the outer part of the renal cortex while those of **juxtamedullary nephrons** are close to renal medulla.
- About 85 % of the nephrons in the human kidney are **cortical** and about 15% are **juxtamedullary**.
- The major part of the regulatory and excretory functions of the human body is carried out by the **cortical nephrons** while the juxtamedullary nephrons help to concentrate or dilute urine.
- **Cortical nephrons** have **small** vasa recta while **juxtamedullary nephrons** have **large** vasa recta.