

Medical focus: the kidneys

Discuss the following questions.

- How important is the role of the kidneys in our overall health?
- Have you had experience of caring for a patient with a kidney problem? If so, how did you manage his/her condition?

How do your kidneys work?

Unfiltered blood enters the kidney for filtration through the renal artery from the heart. Blood passes to the kidneys in large quantities so that it can be filtered well and have most of the waste products removed. Renal veins carry the cleaned blood away from each kidney. Renal veins are wider than renal arteries because they transport blood towards the inferior vena cava of the heart. The blood returned from the heart through the renal artery contains a toxic product, called urea and also high levels of salt and large amount of water. The kidney's function is to filter out these unwarranted materials. In addition, the kidney also reabsorbs any products the body needs and secretes waste materials as urine.

Blood enters the kidney through the hard outer layer, or cortex. The filtration units of the kidney, called nephrons, are found in the renal cortex. The nephrons help to filter out waste from the blood, leaving a filtrate of important salts and glucose. The next section of the kidney is called the renal medulla. This is where the level of salt and water in urine is produced. Any excess water and waste products are then secreted as urine. The urine collects in the renal pelvis, which is the fan-shaped section at the narrowest part of the kidney that joins onto each ureter. The ureters are the two tubes which transport the urine from the kidney to the bladder, or storage section. From the bladder there is another tube called the urethra which is where the urine passes to the outside.

Answer the following questions:

- What are the functions of the kidneys?
- What are the filtration units of the kidney called?
- Which part of the kidney controls salt and water concentration levels?
- Which part of the urinary system stores urine?
- What is the tube that carries urine outside the body called?

Match the medical terms (1-13) to their meanings (a-m).

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| 1.) Urinalysis | a.) the measurement of how acidic or alkaline a solution is |
| 2.) Urine | b.) a toileting receptacle which is used by bed-bound patients |
| 3.) Urinal | c.) a sample, usually of urine or blood |
| 4.) Bed pan | d.) protein in the urine, also called albuminuria |
| 5.) Renal | e.) the process of analyzing urine using physical or chemical tests |
| 6.) pH | f.) blood in the urine |
| 7.) Proteinuria | g.) also called bottle; used by male patients to pass urine into |
| 8.) Hematuria | h.) relating to the kidneys |
| 9.) Specimen | i.) the fluid that is excreted by the kidneys |
| 10.) Oedema | j.) no urine output |
| 11.) Anuria | k.) excessive accumulation of fluid in the tissues |
| 12.) Nephrons | l.) low urine output |
| 13.) Oliguria | m.) filtering units of the kidney |