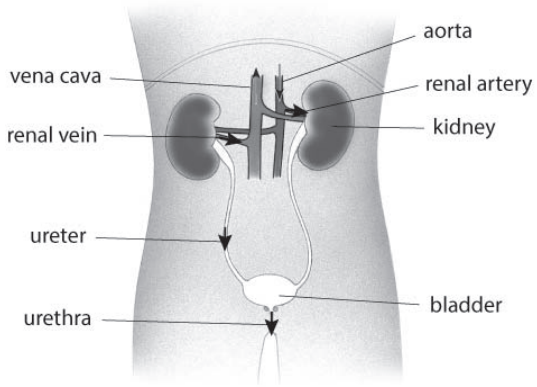
Answers to Workbook exercises Chapter 12

Exercise 12.1 The human excretory system

a, b



c The liquid contained in the ureter does not contain red blood cells, white blood cells or platelets. It contains more urea and less oxygen than the liquid in the renal artery.

Exercise 12.2 Dialysis

a Blood in the artery might be at too high a pressure, and would be pulsing. It would be better for the blood to flow smoothly from the patient to the pump. It might also be dangerous to the patient to have blood taken from an artery.

b This increases the surface area across which diffusion can take place, speeding up the process.

c The concentration of glucose will remain unchanged, as there is no diffusion gradient for it. The number of glucose molecules moving in each direction will be roughly equal.

d The concentration of protein will remain unchanged. Protein molecules are too large to get through the holes in the dialysis tubing, so they will all stay in the blood.

e The concentration of urea in the blood will fall (but it will not become 0). There is a higher concentration of urea in the blood than in the dialysis fluid, so it will diffuse down its concentration gradient, through the dialysis membrane.