THE KIDNEYS AND DIALYSIS

Kidneys are one of the main organs which help to maintain homeostasis.

Your kidneys:

- regulate amount of water in your blood.
- regulates amount of ions in blood.
- removes all urea in the form of urine.

Blood vessels take blood through kidney, where unwanted substances end up in millions of tiny tubules. Tubules join to form ureter. Substances flow through tubules into ureter → bladder.

How do your kidneys work?

- filters blood so glucose, mineral ions, amino acids and water move into your kidney tubules by diffusion.
- Reabsorbs everything your body needs.
  - all the glucose and amino acids are reabsorbed by active transport against a concentration gradient.
  - mineral ions and water are selectively reabsorbed by active transport depending on the body's needs.

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Urea is produced in your liver when you break down excess amino acids. Amino acids come from protein and the breakdown of worn out body tissues. Is poisonous and is removed by the body through the bladder as urine.

Healthy person protein not present in urine as protein molecule too large for filter.

* Kidney failure is potentially life threatening because toxins like urea build up in the body and the salt and water balance of your body is lost. People with kidney failure have to control their intake of protein and salt as their kidneys can't control the ion concentration of their blood.

DIALYSIS MACHINE

- Kidney failure can be treated with regular treatments of dialysis
- concentration of solutes in blood is restored to normal levels as fluid has "ideal" amount
- Patients need to monitor diet closely and are restricted to do with holidays etc.
- Much more readily available