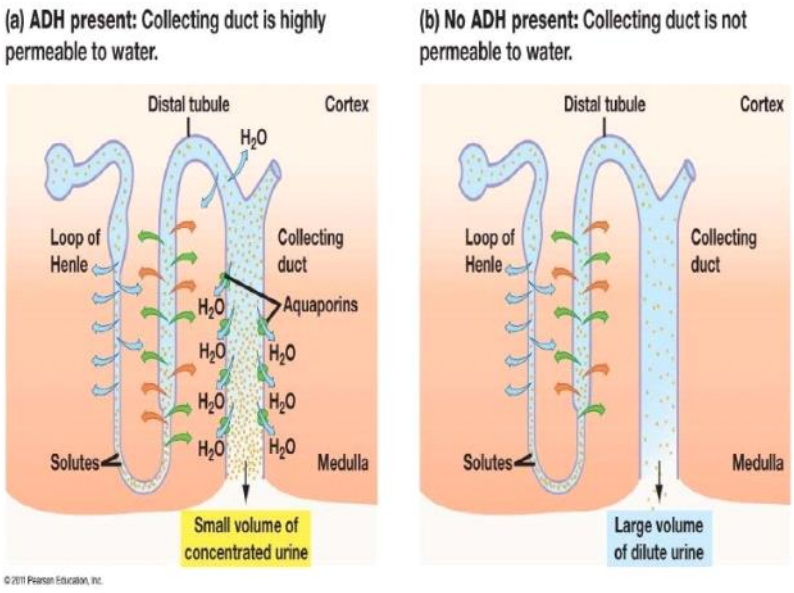
into the bladder.



The effects of ADH on the reabsorption of water from urine in the collecting ducts.

What happens when you have more than enough water in your body – for example, after enjoying a large volume of your favourite drink?

When there is an **increase** in the water potential of the blood, the osmoreceptors in the hypothalamus are **no longer** stimulated and the neurones in the posterior pituitary gland **stop** secreting ADH.

With no stimulus from ADH, the aquaporins are moved out of the cell surface membrane of the collecting duct cells, back into the cytoplasm as part of the vesicles.

The collecting duct cells are now impermeable to water. The fluid flows down the collecting duct without losing any water, so a dilute urine collects in the renal pelvis and flows down the ureter to the bladder.

Under these conditions, you tend to produce large volumes of dilute urine, losing much of the water you drank, in order to keep the water potential of the blood constant.

Collecting duct cells **do not respond immediately** to the **reduction in ADH** secretion by the posterior pituitary gland. This is because it takes some time for the ADH already in the blood to be broken down; approximately half of it is destroyed every 15–20 minutes.

However, once ADH stops arriving at the collecting duct cells, it takes only 10–15 minutes for aquaporins to be removed from the cell surface membrane and taken back into the cytoplasm until they are needed again.