

### 5.1.2 Excretion as an example of homeostatic control

- (a) the term *excretion* and its importance in maintaining metabolism and homeostasis
- To include reference to the importance of removing metabolic wastes, including carbon dioxide and nitrogenous waste, from the body.
- (b) (i) the structure and functions of the mammalian liver
- To include the gross structure and histology of the liver **AND** the roles of the liver in storage of glycogen, detoxification and the formation of urea (the ornithine cycle covered in outline only).
- (ii) the examination and drawing of stained sections to show the histology of liver tissue
- PAG1**  
HSW4
- (c) (i) the structure, mechanisms of action and functions of the mammalian kidney
- To include the gross structure and histology of the kidney including the detailed structure of a nephron and its associated blood vessels **AND** the processes of ultrafiltration, selective reabsorption and the production of urine.
- (ii) the dissection, examination and drawing of the external and internal structure of the kidney
- M0.1, M0.3, M1.1, M1.3, M2.1, M3.1* **PAG1, PAG2** HSW4, HSW6, HSW8
- (iii) the examination and drawing of stained sections to show the histology of nephrons
- (d) the control of the water potential of the blood
- To include the role of osmoreceptors in the hypothalamus, the posterior pituitary gland, ADH and its effect on the walls of the collecting ducts.
- HSW8
- (e) the effects of kidney failure and its potential treatments
- To include the problems that arise from kidney failure including the effect on glomerular filtration rate (GFR) and electrolyte balance **AND** the use of renal dialysis and transplants for the treatment of kidney failure.
- HSW7, HSW9, HSW12
- (f) how excretory products can be used in medical diagnosis.
- To include the use of urine samples in diagnostic tests, with reference to the use of monoclonal antibodies in pregnancy testing and testing for anabolic steroids and drugs.
- PAG9 HSW7, HSW9, HSW11, HSW12