

M507 – Health effects of hazardous substances – Revision questions

Section 5 – Basic toxicokinetics

1. What are the four main stages of toxicokinetics?
(Pages 48 to 56)
 - Absorption
 - Distribution and storage
 - Metabolism (or biotransformation)
 - Excretion
2. What are the possible routes of entry of a hazardous substance into the body?
(Pages 48 to 50)
 - Inhalation
 - Direct contact (skin absorption)
 - Ingestion
 - Injection through intact skin
3. How are hazardous substances transported and stored around the body?
(Pages 51 and 52)
 - Blood (circulatory) system
 - Lymphatic system
 - Some substances accumulate in specific tissues – carbon monoxide in haemoglobin, lead in bones.
4. What are the main objectives of xenobiotic metabolism?
(Page 52)
 - To detoxify the hazardous substance
 - To increase the water solubility of the substance to facilitate excretion via the kidneys
5. Why is the concept of ‘half-life’ of a substance important?
(Pages 55 and 56)
 - If substance rapidly excreted – less potential of causing toxic response
 - If long half-life substance likely to accumulate in the body and build up over a period of time – also level will fall only slowly after exposure stops
 - May be important where work periods are 12 rather than 8 hour shifts.
6. What are the four routes of excretion of hazardous substances from the body?
(Page 56)
 - Renal (via kidneys) – main route
 - Biliary (via liver and gastro-intestinal tract)
 - Pulmonary (exhalation via lungs)
 - Secretory (via sweat etc) – minor route