IAEA/ESNM Webinar Series on basic NM
The (Patho)physiology of Bone turnover

Self-assessment questions

Q1: Which statement on bone modelling is correct?
1. Occurs only during embryonal development
2. Results in an increased bone mass
3. Is characterized by coupled bone formation and resorption
4. Is driven by osteoclast function

Answer: 2

Q2: Which statement on bone remodelling is correct?
1. Occurs on opposite sides of bone surface
2. Results in an increased bone mass
3. Is characterized by coupled bone formation and resorption
4. Is independent of mechanical loading

Answer: 3

Q3: Which statement is not correct?
1. Osteoblasts derive from mesenchymal stem cells
2. Osteocytes derive from osteoclasts
3. Osteoclasts derive from hematopoietic stem cells
4. Osteocytes derive from osteoblasts

Answer: 2

Q4: Which statement on RANKL (receptor activator of nuclear factor kappa B ligand) is not correct?
1. RANKL is the most important activator of osteoblasts
2. RANKL is mainly produced by osteoblasts and osteocytes
3. RANKL is the most important activator of osteoclasts
4. RANKL is inactivated by OPG (osteoprotegerin)

Answer: 1

Q5: The three consecutive phases of fracture healing are:
1. Enchondral stage, inflammatory stage, coupled remodelling stage
2. Coupled remodelling stage, inflammatory stage, enchondral stage
3. Coupled remodelling stage, enchondral stage, inflammatory stage
4. Inflammatory stage, enchondral stage, coupled remodelling stage

Answer: 4

**Q6: What is not an effect of ageing on bone?**
1. Reduced bone remodelling
2. Decrease in the number of osteoblasts
3. Decrease in osteoclast function
4. Increase in RANKL expression

Answer: 3

**Q7: Which process is not implicated in the pathophysiology of rheumatoid arthritis:**
1. Loss of interleukin 17 (IL-17) secretion
2. TH17 driven inflammatory response
3. Up regulation of matrix degrading enzymes
4. Activation of synovial fibroblasts

Answer: 1

**Q8: The osteoblast response in osteomyelitis is characterized by:**
1. Detection and internalization of bacterial products
2. Secretion of chemo-attractants
3. Antigen presentation to T cells
4. All of the above

Answer: 4