

High humidity and exercise

Due to high humidity in the air there is a lot of moisture content the sweat cannot evaporate as there is no concentration gradient and this will lead to an increase in body temperature causing dizziness

Method of energy transfer

Conduction – When energy is transferred from one object to another Solid → Solid

Convection – When energy is transferred from Liquid → Liquid or Gas → Gas

Radiation – When energy is radiated to an object from an object through air or vacuum as electromagnetic radiation

EXERCISE AND THE IMMUNE SYSTEM

Benefits of exercise

- Increase HDL (good) and decreases LDL so there is less risk of coronary heart disease.
- Reduces the risk of obesity, type 2 diabetes and cancer.
- Increases bone density, less risk of osteoporosis (weak bones)
- Exercise can improve your immune system because it increases
 - Number of T helper cells, B cells and T killer cells
 - Producing more antibodies
 - Number of natural killer cells which are used in the non-specific immune response against virus and cancer cells.

Treatment of joints

1. RICE
 - Rest
 - Ice
 - Compression
 - Elevation
2. Anti-inflammatory drugs (Pain killers – ibuprofen)
3. Key hole surgery
4. Prosthesis (prosthetics)

The effect of vigorous exercise

- Excess exercise can release more adrenaline and cortisol which can suppress your immune system.
- Due to the less number of T helper cells less B cells are activated so less antibodies are being produced and also the number of natural killer cells decreases and of a higher risk of getting UVRTI (upper respiratory tract infection)
- Cartilage can wear off, so bones will grind against each other causing pain and inflammation.
- Patellar tendonitis -When the patella (knee cap) rubs against the femur (thigh bone) causing inflammation from the cartilage wearing.
- Bursitis – Bursae is a lubricant filled cushion around tendons and ligaments and it swells up due to excess fluid causing inflammation.

Key hole surgery

Key hole surgery on joints are known as arthroscopy. It is mainly used to repair cruciate ligaments in the knee.

During surgery a very small incision is made through which a camera and surgery tools are inserted.

Advantages of key hole surgery

- Less pain, less blood, less recovery time, less chance for infection
- Local anaesthetic, less are time
- Cheaper as only a few staff are needed

Cruciate ligament

Ligaments attach the knee to the femur to the tibia (lower leg) preventing dislocation of the knee.

Anterior Cruciate – ensures the knee doesn't bend too far forward.

Posterior Cruciate – ensures the knee doesn't bend too far backwards.

Prosthesis

Artificial body parts are used to regain normal function

1. Replace joints in arthritis such as hip joints
2. Replace the entire knee cap and insert titanium and poly-ethene as cartilage
3. Prosthetic feet are articulated meaning better friction on uneven surfaces used for running or climbing.

