The biological basis of heart disease

Atheroma

- If damage occurs to the endothelium of capillaries white blood cells and lipids clump to form a fatty streak.
- The progression of this and addition of connective tissue and deposition of calcium ions causes within the endothelium a formation of an atherosclerotic plaque.
- Constricts the blood vessels.

Atheroma aneurysm

- The ballooning of the artery as a result of weakness in vessels coupled with high b.p.
- The endothelium and middle wall (tunica media) of artery split, leaving the out layer intact – weakened vessel.
- Vessel can be weakened by atheroma plaques, which constrict vessels, which increases blood pressure.
- Bursts – haemorrhage.

Thrombosis

- Fatty deposits develop under the endothelium.
- Endothelium becomes rough and sticky.
- Can lead to blood clot – thrombosis.
- Arteries can be blocked, restricting circulation (ischemia).

Myocardial infarction – heart attack

- Result of interruption to blood flow to the heart muscle.
- Heart cells can become ischemic and die, these areas are replaced by non-contractile tissue.

Risk factors of CHD

- CHD – coronary heart disease, the build up of atheroma in the coronary arteries that supply blood to the heart muscles.
  - Diet – saturated fats, high salt
  - Blood cholesterols (LDLs) – main constituent of atheroma.
  - Smoking – arteries constrict, reducing blood flow and increases blood pressure.
  - High blood pressure – can damage artery wall, increases risk of atheroma, aneurysm and stroke.
  - Exercise
  - Weight
  - Age