*This is the **Foundation Separate** version — Higher Tier content has been removed.*

During exercise, the body adjusts several physiological processes to meet the increased energy demands of working muscles.

Required Practical: Investigating the effect of exercise on pulse rate and breathing rate — record before, during and after exercise. Repeat at different intensities.

- Heart rate increases: delivers more O■ and glucose to muscles via blood, and removes CO■ and lactic acid faster.
- Breathing rate and depth increase: takes in more O■ and removes more CO■.
- Vasodilation of blood vessels supplying muscles: increases blood flow to working muscles.
- At low-moderate intensity: aerobic respiration meets energy demands.
- At high intensity: aerobic respiration cannot supply O■ fast enough → muscles switch to anaerobic respiration → lactic acid builds up.
- After exercise: heart rate and breathing rate remain elevated until oxygen debt is repaid and lactic acid is broken down.

Key Terms

Vasodilation	Widening of blood vessels — increases blood flow to muscles during exercise

■ **Exam Tip:** When asked to explain why heart rate increases during exercise: 1) muscles use more O■ for respiration; 2) CO■ and lactic acid build up; 3) heart rate increases to deliver more O■ and remove CO■/lactic acid faster. Give the REASON, not just the observation.