

You should be able to:

- Cite the overall equation for aerobic respiration and relate the reactants and products to the three metabolic pathways of cellular respiration.
  - Associate the structure of the mitochondria with the Krebs cycle and respiratory chain.
  - Tell how many ATP are produced by each of the three pathways.
  - Discuss the function of the Krebs cycle as a metabolic mill.
- Describe the process of anaerobic respiration, relating it to glycolysis and indicating its advantages and drawbacks.

Review Questions:

- The equation  $ADP + P_i \rightarrow ATP$  is energy (requiring or releasing) requiring
- When cells require energy for synthetic reactions, they "spend" ATP
- In the pathway  $A \xrightarrow{1} B \xrightarrow{2} C \xrightarrow{3} D \xrightarrow{4} E$ , the letters stand for reactants and the numbers stand for enzymes. Each and every reaction in a cell requires an enzyme. If this pathway represented glycolysis, what molecule would E represent? Pyruvic acid. The letter A in relation to number 1 is a substrate, and the letter C in relation to number 2 is a product.
- The first pathway in glucose metabolism is glycolysis. The transition reaction leads to the next pathway, called the Kreb's cycle or the citric acid cycle.
- NAD carries electrons to the ETC where most of the ATP of cellular respiration is formed.
- Which pathway in question 4 contributes the most electrons to the respiratory chain (the electron transport system)? Kreb's
- When NAD accepts electrons from a substrate (while accepting hydrogen ions), it is reduced. When NADH donates its electrons to the ETC, (and therefore loses its Hydrogen ions) it becomes oxidized

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