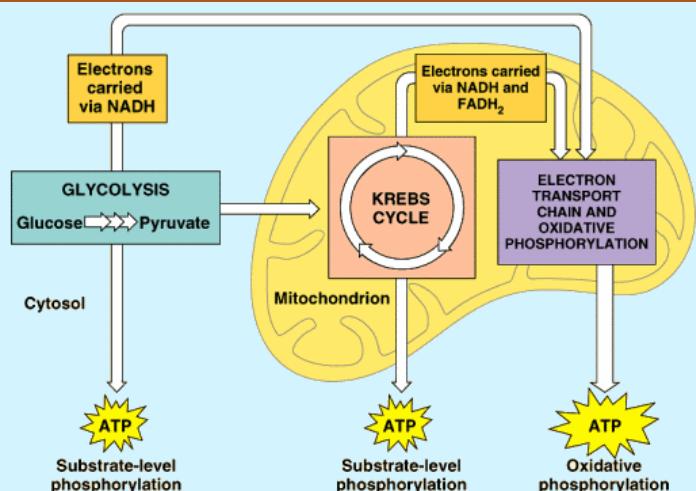
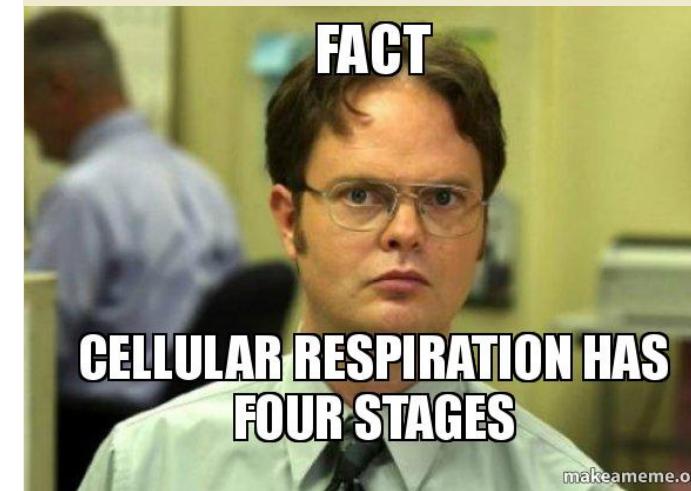


Cellular respiration in a nutshell



Made By:

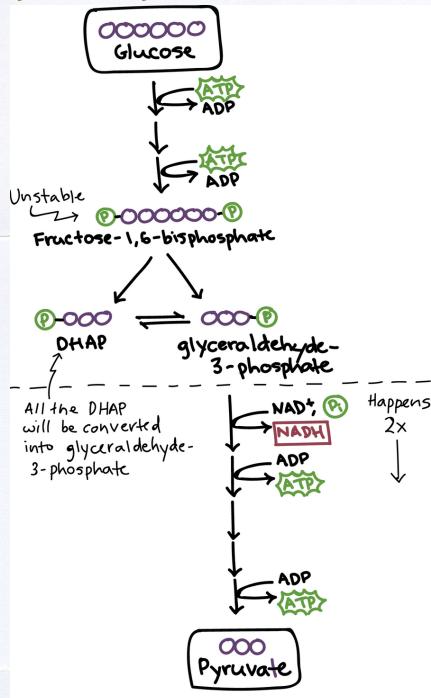
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Cellular Respiration

A GUIDE TO ATP CREATION

Glycolysis



Glycolysis is the metabolic pathway that converts glucose into pyruvate and hydrogen ions. This conversion releases energy, which is used to form ATP and NADH (high energy molecules).

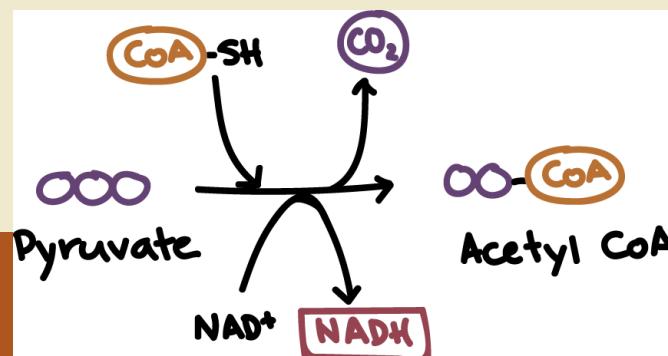
FUN FACT!

Glycolysis is universal to almost all types of cells, and as such biologists consider it to be the oldest and first developed part of cellular respiration. It is likely that it existed before oxygen became common in the atmosphere!

Pyruvate Oxidation

With the pyruvate produced from glycolysis, this step creates NADH and acetyl acid—which will be discussed in the Krebs cycle. Two carbons are also released in the form of carbon dioxide.

To sum up: two pyruvates are converted into two acetyl CoA, NAD⁺ generates NADH, and carbon dioxide is released



The Krebs Cycle is the third step in cellular respiration. The pyruvate that was transferred into the mitochondria reacts with different molecules over a process of eight steps to create energy. The cycle part of the name comes from the fact that one of the two starting substrates, oxaloacetate, is regenerated at the end of the cycle. However, the pyruvate that is transported into the mitochondria is consumed, which is why glycolysis and pyruvate oxidation are needed.

Electron Transport Chain

Electron Transport Chain, or ETC, moves electrons along a row of pumps. When reactions in this chain occur, stored energy is produced, which is then used to create lots of ATP from ADP.

While cellular respiration does require oxygen, it produces significantly more ATP than anaerobic methods of energy production.

Krebs Cycle

KREBS!

The Krebs cycle is named after Hans Krebs for his contributions in discovering the process.

