Learning Target: I can explain how ATP is used to help the body maintain dynamic homeostasis.

ATP-ADP Cycle Breakdown

Background Information

Organisms breakdown chemical bonds in the food they eat to convert it to chemical energy in order for them to live. This process largely occurs in the mitochondria. Cells use the energy provided by the chemical compound adenosine triphosphate (ATP). The key to ATP's energy lies in the chemical bond between the 2nd and 3rd phosphate. When the bond is broken, energy is released, and the ATP becomes ADP which is Adenosine Diphosphate. ATP is like a fully charged battery, while ATP is like a depleted or low battery.

Pre-Activity

1. What chemical compound do cells use to store and release energy?

2. What is the key to ATP's energy?

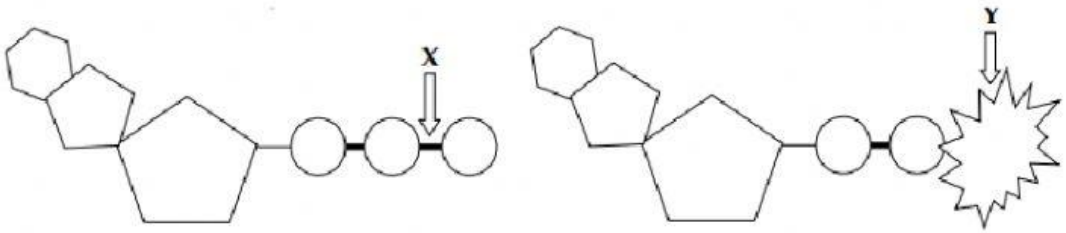
3. What is the difference between ATP and ADP?

4. What analogy can you make for ATP and ADP?

5. When you remove a _____ from ATP, _____ is released and ATP turns into _ _____.

6. When you add a _____ to ADP, _____ is added and ADP turns back into _____.

Label the following Parts of ATP and ADP.



A B

Nitrogenous base adenine **Ribose sugar** **3 phosphate groups** **Energy stored**

Energy released **ATP** **ADP** **Ribose sugar** **Nitrogenous base adenine**

2 phosphate groups

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