

One Cycle

- CoA is released to bind another Acetyl group
- One TCA removes TWO Carbon Atoms $\therefore$ 4-Carbon chain is regenerated
- Several steps involve more than one reaction or enzyme
- H_2O molecules tied up in two steps
- CO_2 is a waste product
- **PRODUCT:** ONE ATP

The Electron Transport Chain

- Generation of ATP
- In inner Mitochondrial membrane
- In a reaction requiring coenzymes and O_2
- Produces more than 90% of ATP used in body
- Result: $2H_2 + O_2 \rightarrow 2H_2O$
- Key Reaction

Step 1:

- Coenzyme strips 2 hydrogens from substrate molecule:
- glycolysis occurs in cytoplasm
- NAD is reduced to NADH

In mitochondria:

- NAD and FAD in TCA cycle

Step 2:

- NADH and $FADH_2$ deliver H to coenzymes in inner mitochondrial membrane:
- Protons are released
- Electrons are transferred to ETS

Step 3:

- CoQ releases protons and passes electrons to Cytochrome b