

1. Mitochondria which are "tightly coupled" have intact membranes AND the only way protons get back into the matrix is by passing through Complex V. If you poke a hole in the membrane (using DNP or an uncoupling protein, such as found in brown fat), protons can leak back in without making ATP. This has the effect of generating heat AND burning up energy sources (like glucose and fat). As noted, DNP is a dangerous compound that killed people who tried to use it to lose weight.
2. When mitochondria are tightly coupled, metabolic (respiratory) control exists. This means that electron transport will stop if oxidative phosphorylation stops, since the protons don't come back in and the proton gradient gets very high, stopping the pumping of protons. When electron transport stops, NADH accumulates and the citric acid stops. Conversely, if one stops electron transport with cyanide, oxidative phosphorylation will stop very shortly because the proton gradient is lost when no protons are being pumped.
3. When mitochondria are uncoupled (by poking a hole in them to let protons leak back into the matrix without passing through Complex V), electron transport is no longer limited by oxidative phosphorylation and runs amok. That is why heat is generated. Protons are pumped, but they fall back in through the hole in the mitochondrial inner membrane. No ATP is made. NADH is rapidly converted to NAD⁺, so the citric acid cycle and other pathways run rapidly.
4. Things that affect these processes are ADP (necessary for the Complex V to function), oxygen (necessary for electron transport to function), NADH (source of electrons for electron transport), and NAD⁺ (needed for citric acid cycle).
5. NADH cannot cross the inner membrane of the mitochondrion, as there is no protein to move it. Electrons make it into the mitochondria by means of shuttles. Insect muscles use a glycerol-3-phosphate/DHAP shuttle that transfers electrons from NADH ultimately to FADH₂. Mammalian systems, by contrast, use a malate/aspartate system that converts oxaloacetate to malate (carrier of electrons) that then gets transported by a transport protein. Once inside the matrix, malate transfers electrons to NAD⁺, creating NADH and oxaloacetate.
6. You should review the video relative to the photosynthetic fish
7. Superoxides are reactive oxygen species generated as a byproduct of electron transport (among other things). They react with whatever they encounter, so can be damaging to DNA, proteins, etc. Superoxide dismutase is an enzyme employing a ping-pong mechanism that works in two steps to destroy two superoxide molecules, while producing hydrogen peroxide.