



e<sup>-</sup> carriers resume activity, and fermentation products are converted to pyruvate. Respiration continues as before.

Once O<sub>2</sub> becomes available again,

**BUT,** if no O<sub>2</sub> ... this grinds to a halt!

Why??

The e<sup>-</sup> carriers cannot "unload" their e<sup>-</sup>s and therefore cannot pick up any new e<sup>-</sup>. As a result, all redox reactions stop due to a lack of available carriers!!

Now, the only option is **anaerobic**. Everything backs up to glycolysis.

For a simplified animation linking glycolysis, Krebs, & ETC – well done!!

<http://www.qcc.cuny.edu/BiologicalSciences/Faculty/DMeyer/respiration.html>

**So, what is the point of fermentation??**

Without this process, there could be no "recycling" of the e<sup>-</sup> carrier NAD<sup>+</sup>. In either of these pathways, the pyruvate is reduced by reaction with NADH - resulting in either lactic acid (your muscle cells - ouch!) or ethanol and CO<sub>2</sub> (yeasts - making bread or wine). More importantly, this allows the NAD<sup>+</sup> to be available for use in glycolysis so that ATP can be continuously made!! This doesn't release much energy as ATP - but it's better than nothing at all!

