



**The products of fatty acid oxidation reduce pyruvate dehydrogenase and TCA cycle activity.** Garland et al. (1968) showed that fatty acid addition lead to a reduction in  $CO_2$  production rates (red) in isolated mitochondria fueled by TCA cycle substrates. The listed products of beta-oxidation (blue) inhibit pyruvate dehydrogenase, citrate synthase and isocitrate dehydrogenase. This is in part due to product inhibition of TCA cycle enzymes by ATP, NADH, and  $FADH_2$  (red arrows and blue products). While not shown by Garland et al., it is possible that succinate oxidation to fumarate and malate dehydrogenase are also inhibited due to the reduced state (high NADH/ $NAD^+$  and  $FADH_2/FAD^+$ ) generated by coupled beta oxidation.