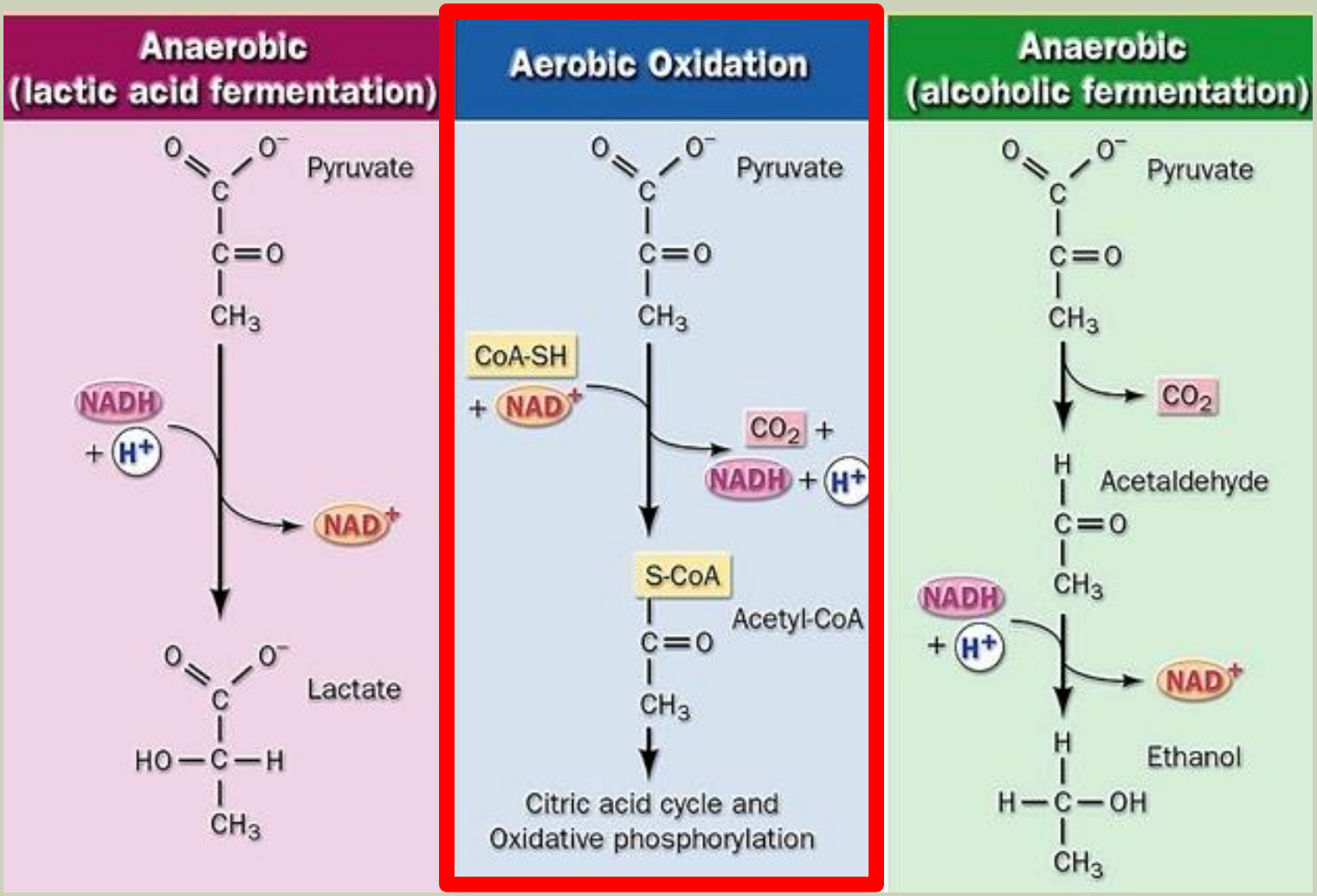
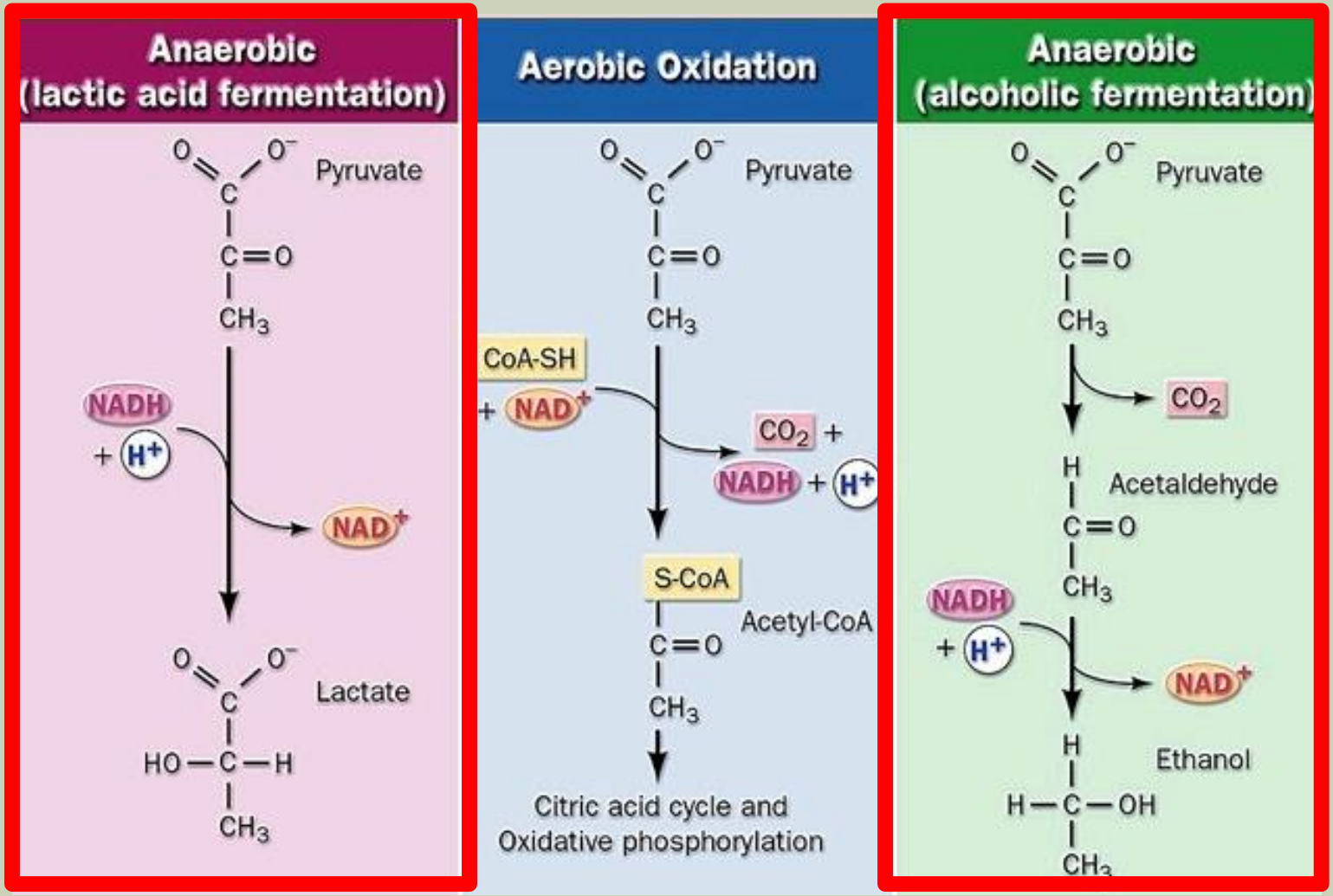
THE FATE OF PYRUVATE

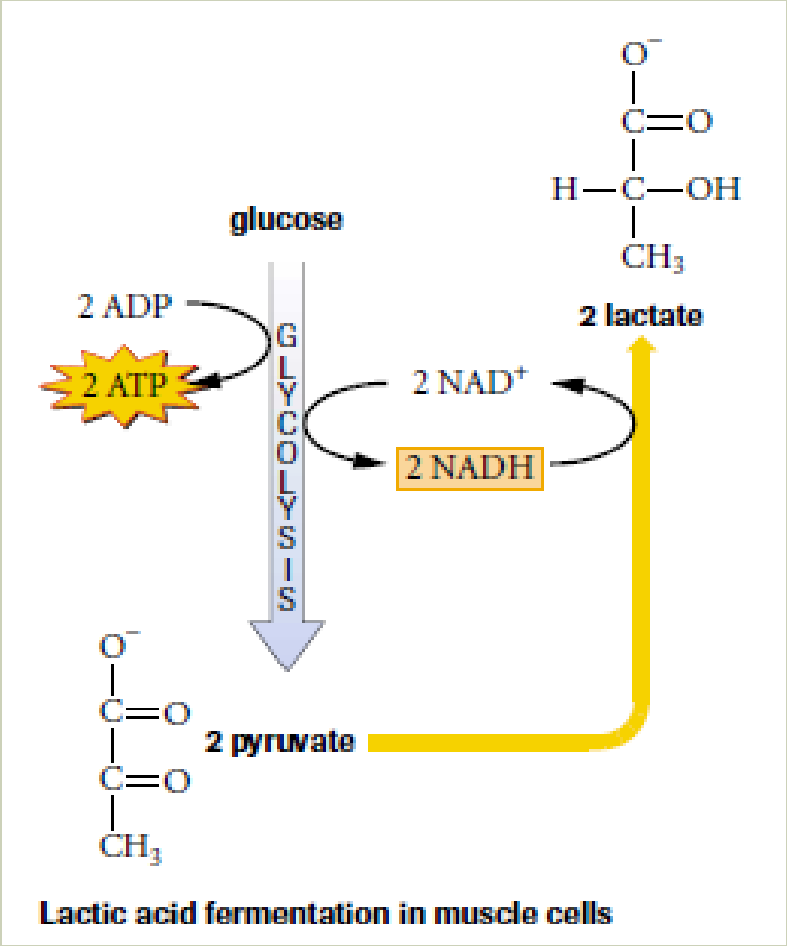
3 FATES OF PYRUVATE PRODUCED BY GLYCOLYSIS



ANAEROBIC PATHWAYS



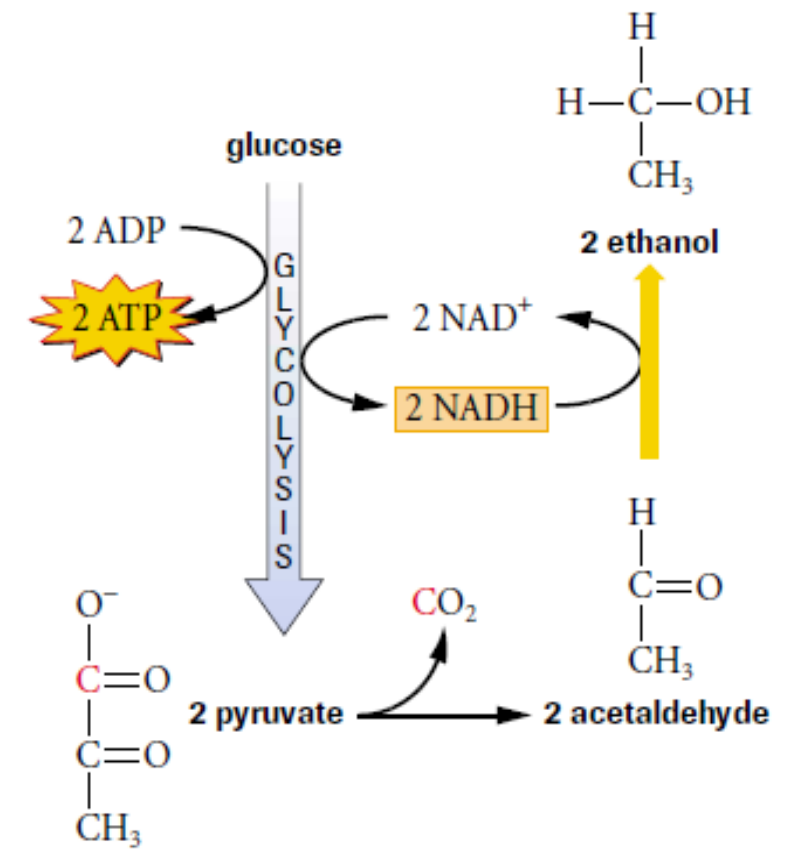
LACTIC ACID FERMENTATION



- Occurs in humans & mammals
- Pyruvate into lactate to oxidize NADH
- Allows continuation of glycolysis
- Lactate responsible for stiff, sore muscles & fatigue

ALCOHOL FERMENTATION

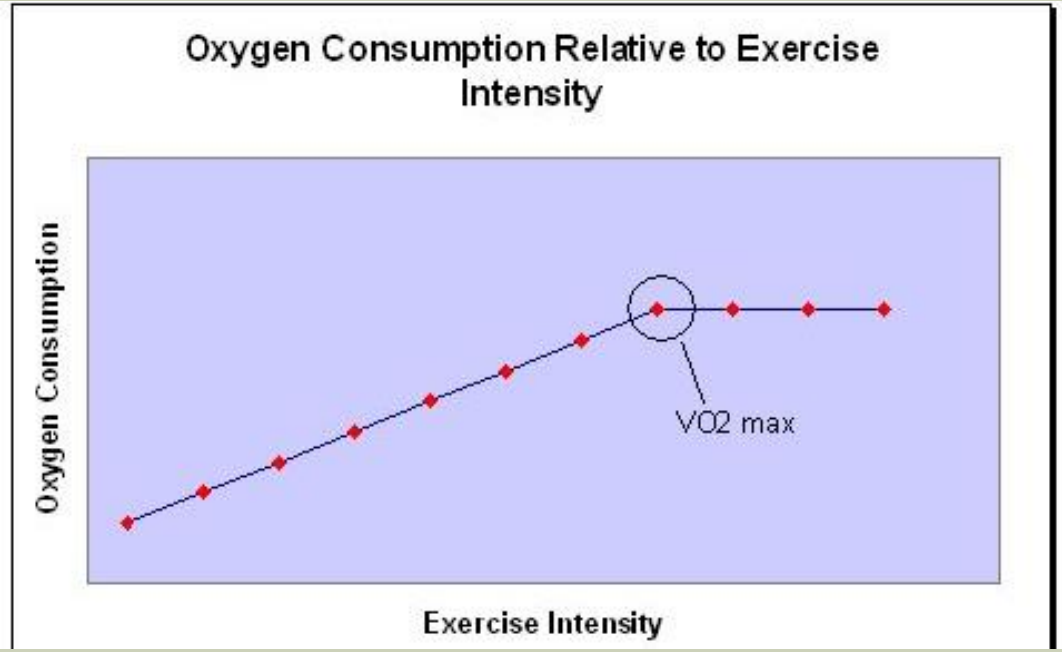
- Occurs in yeast, fungi, bacteria & plants
- Pyruvate becomes acetaldehyde
- Produces CO_2
- Acetaldehyde into ethanol oxidizes NADH
- Allows glycolysis to continue



Alcohol fermentation in yeast

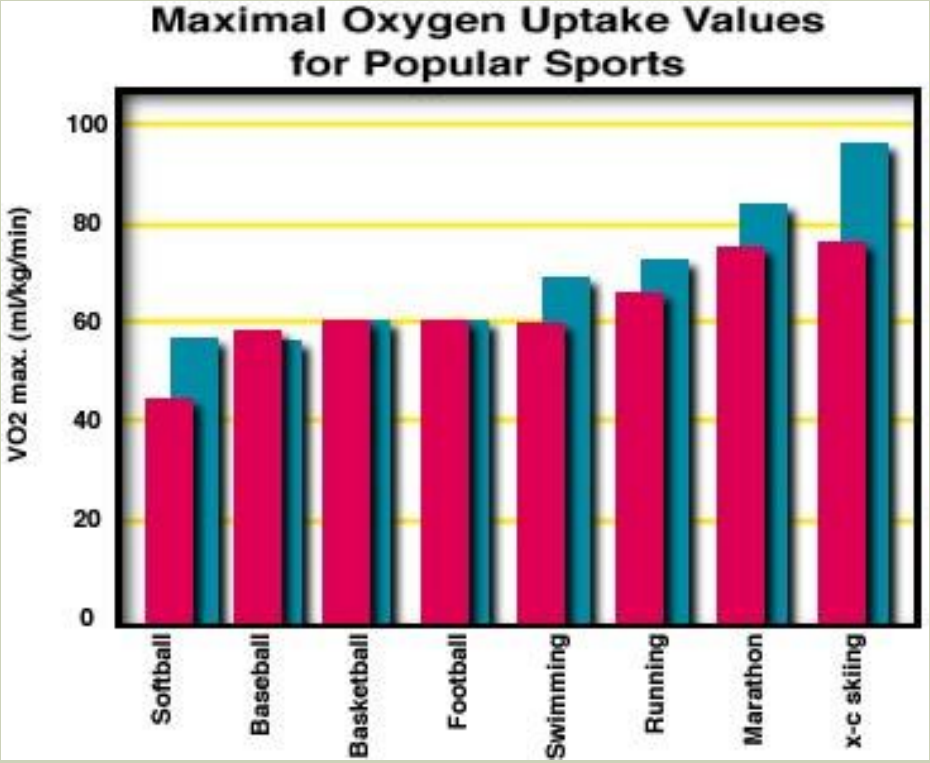
VO_2 MAX

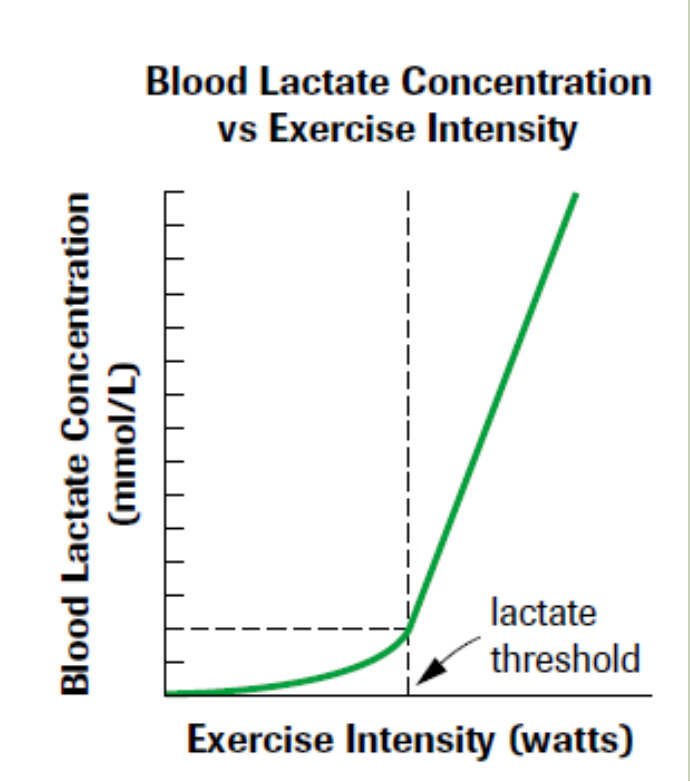
- Maximum volume of oxygen that body can consume during exercise
- ml/kg/min
- Oxygen consumption linearly related to energy expenditure



VO_2 MAX

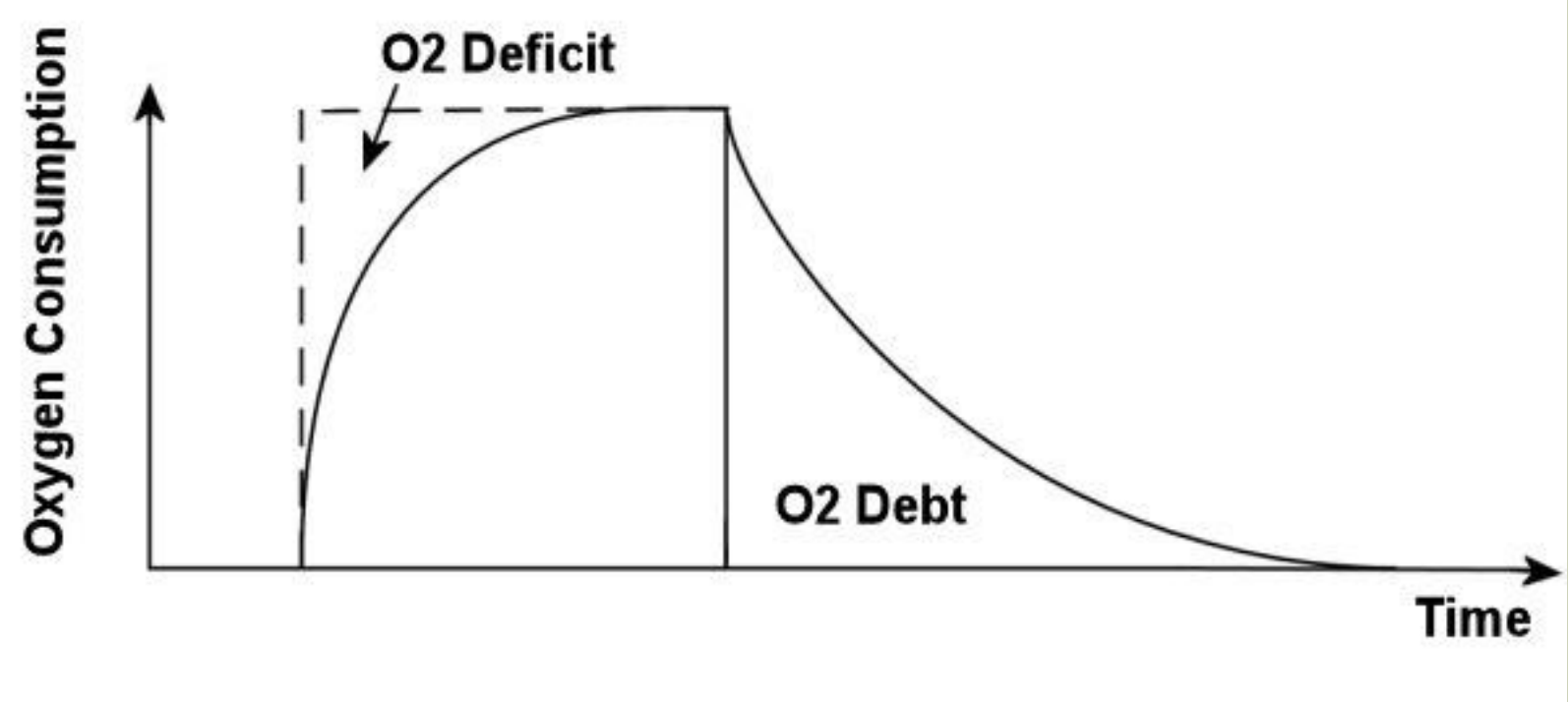
- Aerobic fitness – ability of heart, lungs & bloodstream to supply oxygen to cells during activity
- Average 20 mL/kg/min – 90 mL/kg/min





OXYGEN DEBT

- Extra oxygen needed to catabolize lactate to CO2 & H2O



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PROKARYOTES

- Electron transport chains in plasma membrane
- Some use O_2 as final electron acceptor
- Other use sulfate, nitrate, iron ion as electron acceptors