Title: The value of the ventilatory threshold in examining respiratory response to exercise.

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Summary: The respiratory center in the brain is very sensitive to changes in pH which are directly linked to changes in CO₂ which in turn are linked to the energy system the body relies on to perform exercise. This exercise will show the student that as exercise intensity increases O₂ consumed and CO₂ produced rise linearly, until the aerobic systems can no longer provide the needed energy to continue exercising. At this point, the ventilator threshold (VT), CO₂ expired rises more rapidly than the O₂ consumed.

Context for use: Sophomore to junior students, studying human physiology. Can be used as an in class assignment as long as students have access to a computer or as a take home assignment.

Learning outcomes: Ability to Graph two data sets in excel
                    Ability to identify the ventilatory threshold from the graph
                    Ability to use the buffering equation to explain why it is logical that the volume of CO₂ rises more quickly during exhaustive exercise compared to the volume of O₂ being consumed

Quantitative Skills: Graphing, Percent

Background/skills: Familiarity with excel

Materials needed: Computer and calculator

Assessment plan: Completion of all required components of the assignment will demonstrate whether or not he student is able to obtain the outcomes