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Using APS Classic Papers in Physiology for Class Discussions

Patricia A. Halpin

University of New Hampshire, Manchester, Patricia.Halpin@unh.edu

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Using APS Classic Papers in Physiology for Class Discussions

By adding class discussions on APS Classic Papers students are presented with a historical prospective of the current knowledge that is taught today. Of great interest to students is how primitive the techniques that were used and yet how much was learned from these early experiments. Each student is assigned a classic paper in physiology that is related to the lecture topic of the week. They are expected to read the paper and all the associated papers. As discussion leader the student is expected to prepare discussion questions to engage their fellow classmates in a robust discussion of the paper. The methods should be explained and discussed. The current technology used today to study these concepts should also be noted. The classmates are expected to raise their hand and not wait to be called on. They need to be actively involved with the discussion and come to class prepared. The discussion leader grades each student participant with a rubric and the grade is part of their final course grade. By providing students with this student centered active learning activity they become more engaged in the material and gain a deeper understanding. In the process of this investigation into history respect and admiration for the pioneers of physiology is also achieved.

There are many APS Classic Papers to choose from and they are all freely available. If a class size is large students could be broken into smaller groups of 5-6. Depending on the length of the lecture more than one paper could be discussed per class. Allow 30 minutes for the discussion. For the first week of class the instructor should model the role of discussion leader so the students can understand the expectations of their role.

Learning Objectives- Students will

Describe and discuss the techniques used in the original discoveries and identify current techniques to obtain similar information today.

Identify the historical perspective of the work that was done.

Evaluate the significance of the discovery and the impact it has on the physiology knowledge of the present.
1. Membrane Transport  The Basis for Transport Across Epithelial Cells-Marshall Montrose


3. Nervous System  What Do Dendrites and Their Synapses Tell the Neuron?- Idan Segev


5. Circulatory system  Alpha and Beta Adrenergic Receptors: Ahlquist’s Landmark Hypothesis of a Single Mediator with Two Receptors-David B. Bylund

6. Renal system  Micropuncture: Unlocking the Secrets of Renal Function-Jeff M. Sands

7. Respiratory system  Teaching the Physiology of Adaptation to Hypoxic Stress with the aid of a classic paper on high altitude by Houston and Riley- Etain A. Tansey
*Advanc Physiol Edu* 32:11-17, 2008. doi:10.1152/advan.00005.2007

8. Digestion  Teaching Basic Gastrointestinal Physiology Using Classic Papers by Walter B. Cannon-Paul P. Bertrand and Rebecca L. Bertrand

9. Skeletal Muscle  The Exercise Dose Response Key Lessons from the Past- Marcas M. Bamman

10. Thermoregulation  Hypothalamic control of body temperature: insights from the past-Gary W. Mack

| Student Name | Answered presenter’s question and effectively demonstrated they read and understood the paper. | Gave vague answer that demonstrated they read the paper but may not have a full understanding of the material. | Demonstrated they are unprepared and did not read the paper. | Added additional comments that demonstrated they understand the historical significance of the work or technologies used. | Additional comments did not effectively demonstrate they understand the historical significance of the work done or technologies used. | No additional comments to the discussion. | 6 points | 4 points | 0 points | 4 points | 2 points | 0 points |