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Developing Hands-On Physiology Labs for the Department of Biology at the University of Kentucky

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Ann Cooper
**Developing Hands-on Physiology
 Labs for the Department of Biology
 at the University of Kentucky**

To help maintain a university as a top research institution, the university must continuously find ways to improve research and have top-ranking education at an undergraduate and graduate level. Most upper level life science courses at top universities have hands-on laboratory components. For the past 20 years, the Animal Physiology course at the University of Kentucky has offered a recitation instead of a laboratory. Recently, the university invested funds in developing some hands-on exercises. This spring and summer, a group of six students and mentor Dr. R. L. Cooper created 13 experiments that will be executed by future students in Animal Physiology. Bonnie Leksrisawat and I created 4 of these labs which cover neurophysiology, osmoregulation, and gastrointestinal physiology, which integrate chemistry, physics, mathematics and pharmacology. We and the other students wrote a protocol with detailed background and created a movie. Videos of the dissection techniques and setup of equipment are available freely online for students worldwide. Four of the laboratory experiments are currently in press for publication in the Journal of Online Visual Experimentation (JOVE). Two of these are exercises Bonnie and I created which dealt with osmoregulation in crayfish and the gastrointestinal experiment. Future students will leave the class with a better understanding of physiological experimentation, dissection techniques, statistical analysis and the ability to discuss and write their results in journal format.

Works Cited

- Leksrisawat, B., Cooper, A.S., and Cooper, R.L. (2010) Response properties of muscle receptor organs in the crayfish abdomen: A student laboratory exercise in proprioception. (In Review for Journal of Visualized Experiments (JoVE). Jove.)
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