Undergraduate Designed Investigations in the Human Physiology Laboratory

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Extended Abstract

In spring 2013, Human Physiology Laboratory (Biol. 2151) course was created as a requirement for majors in nursing, athletic training, and exercise & sports science at the University of Tulsa. Biol 2151 replaced a one-semester Human Anatomy & Physiology Laboratory for which physiology experimentation was limited due to the emphasis on the anatomical component of the course. With a course completely dedicated to the study of human physiology, I was able to incorporate many of the lessons in human physiology from the BIOPAC Student Lab®, a hardware and software data acquisition system which employs students themselves as the test subjects. It was also possible for students to design their own investigations. This poster is a report of the student-designed physiology experiments which included: differences in motor unit recruitment between athletes and non-athletes (Fig. 1); effectiveness of soothing music and hand warmers as biofeedback treatments (Fig. 2); differences in reaction times between gamers vs. non-gamers and musicians vs. non-musicians (Fig. 3); the influence of temperature on the diving reflex (Fig. 4); and the effect of exercise on pulmonary volumes (Fig. 5). The student-designed approach was enthusiastically received and has empowered students in the planning of their coursework in the laboratory.

Figure 1. Maximum clench strength in athletes and non-athletes.
Figure 2. a) Effectiveness of music and b) handwarmers as biofeedback techniques.

Figure 3. a) Reaction times in gamers and non-gamers and b) musicians and non-musicians.

Figure 4. Effect of temperature on the diving reflex

Figure 5. Effect of exercise on pulmonary volumes.
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Literature Cited

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