“Physiology in the News”: using press releases to enhance lay communication and introduce current physiology research to undergraduates

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Many physiology laboratory courses are focused around observable phenomena in the human body, specifically those that are well known. It is commonly observed that once these laboratory exercises are established, these laboratories do not typically change from semester to semester. This style of conducting laboratory courses may have merit in teaching classic physiology experiments; however, it can deprive students of understanding where the field is today. This style fails in presenting the cutting-edge research and discoveries in the field in the context of a laboratory-based course.

Another common shortcoming is that physiology students often lack the ability to communicate science to laypeople. Many laboratory courses list “public speaking,” “presentation skills,” or “scientific communication skills” as one of their goals for the course but only provide opportunities to speak in scientific mindsets to other scientists with jargon-laden dialogue. Improving public understanding of science is an important challenge for upcoming scientists, and exploration of media as community gatekeepers is especially relevant (2).

In Michigan State University’s senior-level undergraduate physiology capstone laboratory, we have used a simple exercise, termed “Physiology in the News,” to help students explore the current research within the field of physiology while also learning to communicate science in lay terms. “Physiology in the News” is an activity that charges the students with finding for themselves press release information on where the field of physiology is today. Students were asked to go to a layperson news source, such as Science Daily (http://www.sciencedaily.com/news/health_medicine/) or any popular media source (e.g., The New York Times, National Public Radio, etc.) and find a recent (within the past month) and interesting report on any topic in physiology.

Students were granted freedom to look into any cutting-edge research in any field in physiology, as they had already taken a full academic year of core physiology and therefore possessed a solid understanding of physiology. By opening the selection of topics, we were able to allow students to pursue their own interests and also increase the scope of the activity. Topics selected included genetic/cellular physiology, stem cells, medical devices, epidemiology, nutrition, clinical applications, and novel therapeutics, to name a few.

Three examples of recent articles selected by students were “Exercise boosts tumor-fighting ability of chemotherapy,” (4), “Higher dementia risk linked to more use of common drugs,” (1) and “Sitting for long periods of time increases risk of disease and early death, regardless of exercise” (3). These three articles briefly summarize the research done by their respective groups, including a short background or history of the subject and future directions, along with a citation to the journal article in which the research is published. Students were then asked to present a 30-s to 1-min presentation, with no slides required, in lay terms and submit a print out of the article. After questions from the class and instructor, the total class time taken was <10 min of each 2 h 50 min laboratory session. It is important to note that students generally performed well on this assignment, as it was essentially a completion grade. This was intentional as we did not want students to be intimidated by the activity.

The assignment was worth <1% of the total points in the class, which was the equivalent value of a daily quiz, and thus a low-risk assignment for students. To cover a whole semester’s worth of discoveries, two students presented each day at the beginning of class. Presentation dates were selected by students on the first day of class, and presentations started the following week.

In an exit survey on the last day of class, students were given a series of questions concerning their satisfaction and ideas about the course, in which the following question was included: “Did you find ‘Physiology in the News’ interesting/useful?” The survey was given in writing, and all identifying information was removed. Answers to the question were free response and analyzed for several criteria. The first criterion was simply a positive, negative, or neutral sentiment toward the activity. Next, one investigator analyzed the data for student thoughts regarding the specific choice of the words “useful” and “interesting” as prompted in the questions in “Physiology in the News.”

Of the 36 students polled in the spring of 2012, 86% responded positively, 8% responded neutrally, and 6% responded negatively. Further analysis of the answers to the free response question that were classified as positive revealed that 59% of students who responded positively specifically indicated that they found the presentations “interesting” and 33% specifically found them “useful” (interesting and useful are not mutually exclusive, and both represent a subset of the positive responses). Common dialogue that students used included “[Physiology in the News] introduced me to science in popular news,” “I didn’t realize [these news sources] were available,” and “good speaking practice.” An example of a negative response was “Not useful, maybe make people find articles relating to that week or previous week’s labs.”

While this was a low sample size of 36 students, these data indicate that students think that “Physiology in the News” is an engaging and worthwhile activity. Anecdotally, the instructors feel that this assignment helped students both understand what physiologists are doing in the laboratory and how science is communicated to the lay community. This is especially the
case where the instructor could lead further discussion on the topic presented and pose questions to the class on an area that may not otherwise be covered.

In the case where a professor has enough time and resources to lengthen this activity, it can be modified to incorporate more aspects of science discourse. For instance, students may be asked to go into the primary literature and find the article(s) that the lay journal references. The student would then be responsible for reading the primary article and forming their own opinions of the results and determine if the lay journal did a good job summarizing the article. On the other hand, students could find a primary article and write their own lay journal article for submission to the professor, perhaps as a second assignment after reading some lay journal articles. In addition, more elaborate presentations could be asked of the students, ranging from leading a discussion or putting together a formal PowerPoint presentation.

This activity ultimately provides physiology students several important skills required to be active and articulate physiologists. Importantly, this activity encouraged students to be well-informed scientific citizens and keep current on all areas of physiology.

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No conflicts of interest, financial or otherwise, are declared by the author(s).

AUTHOR CONTRIBUTIONS

REFERENCES