Promoting a Central Role for Physiology in Research and Education Worldwide

In recent years, the molecular and genomic revolutions have overshadowed the more traditional discipline of physiology and its focus on functions within living organisms. As the scientific world has been deluged with information, the importance of interpreting this information in a functional context has been rediscovered, and physiology has been reinvented, albeit with new names such as functional genomics, systems biology, and bioinformatics. Although there has been a rediscovery of the essential need for functional interpretation, the preeminent position of physiology in biology and medicine still needs to be further promoted and recognized. Although members of the American Physiological Society (APS) and the societies that comprise the International Union of Physiological Sciences (IUPS) have never lost sight of the central role of physiology in biology and medicine, we must now assume our responsibility to promote physiological research and education around the world.

The APS membership represents the largest single group of scientists working in the area of physiology. Although the majority of APS members are from the United States, Canada, and Mexico, an ever-increasing number come from countries outside of North America. Moreover, we now have a member from Australia on the APS Council, international members on committees, and several international colleagues with editorial responsibilities with APS journals. Fifty-five percent of papers submitted to APS journals, 25% of the membership, and 17% of attendees at our annual meeting (Experimental Biology) are international. Thus the APS is becoming an international society with a focus on international outreach.

For a number of years, the APS has reached out to Latin America to help fund scientific meetings and workshops for our colleagues in Latin America. The APS has also provided funds for an International Early Career Physiologist Travel Award designed to help our international colleagues, including those from Latin America, to participate in the annual Experimental Biology meeting. More recently, the APS has partnered with the Brazilian Physiological Society and the Association of Latin American Physiological Societies to initiate plans for a Pan American Physiological Congress in 2014. The APS has also reached out to physiologists in other areas of the world. In 2008, the APS partnered with a number of international physiological societies to support a very successful Physiological Congress in Beijing, China. Similarly, the APS is currently considering formal participation in the 2012 Association of African Physiological Societies (AAPS) Congress in Alexandria, Egypt. The APS also has continued close interactions with The Physiological Society (UK), formalizing these ties with a memorandum of understanding that includes a process for hosting joint symposia at each others’ meetings as well as an annual meeting of our leadership.

It is clear that the APS shares many common goals with the IUPS, particularly in the role of the IUPS as the “umbrella organization” for the world’s physiological societies. The time has come for the APS and other larger physiological societies to enhance our partnerships with the IUPS, not just in planning and organizing scientific meetings every four years but in other areas as well. It is clear that the IUPS can help promote physiological research around the world. However, the APS recognizes that many parts of the world do not have adequate resources to fund physiological research, so this cannot be the sole mission of our societies. The APS strongly believes that physiology education is a common mission that is shared by physiological societies around the world and that together with the IUPS we can play an essential role in coordinating and facilitating physiology education. The APS believes that there are many unrealized opportunities for outreach in the area of physiology education, especially to developing countries. Through the efforts of APS, IUPS, and many of our sister societies, it is our goal to address these unrealized opportunities to enhance physiology globally.

Currently, the APS has a variety of exemplary physiology educational programs that span across the age spectrum. For students from kindergarten through high school, our APS educational activities focus on building networks between physiologists and teachers. Toward this end, the APS provides a variety of resources including educational curricula, courses for professional development of teachers, and resources for physiologists to participate in their local communities. For example, the APS sponsors the Frontiers in Physiology program that brings together middle and high school teachers with APS researchers and educators for workshops and hands-on experiences. Another example is the Society’s Physiology Understanding (PhUn) Week held early in November, which encourages our members to take physiology into classrooms throughout the country. For undergraduates, the APS sponsors a program for both undergraduate students and faculty to gain research experience in the labs of APS members. The APS also provides an assortment of resources to facilitate undergraduate education about physiology. At the annual Experimental Biology meeting, the APS sponsors a special session for undergraduates to present their research posters, get feedback from APS members, and explore opportunities to pursue further physiological research in graduate school. For graduate students and postdoctoral fellows, the APS has organized a highly successful professional skills course where students receive critical feedback on papers they are preparing for submission. At the annual Experimental Biology meeting, the APS funds a variety of travel awards for graduate students and postdoctoral fellows to help them attend and present their research. The APS also schedules continuing education programs designed to assist with career development and to provide resources to help physiology educators teach physiology more effectively.

The APS is proud of its achievements in physiology education. However, the Society believes it can do more and expects to identify additional opportunities as it goes through the Strategic Planning process early next year, drawing on the suggestions offered in a
recent member needs survey. The goal is to strengthen our educational efforts both nationally and internationally. The Society recognizes that it can contribute to the efforts of IUPS in the latter's coordination of physiology education endeavors around the world. There is a need for IUPS, APS, and other societies to clearly define those efforts so there can be more efficient and effective allocation of resources to enhance the educational mission of our societies. We urge the IUPS leadership to lead the way, bringing together the world's physiological societies to enhance physiology education, especially in the underserved areas of the world.