



The Physiologist

Towards a Strategic Plan: Summary of APS Strategic Planning Meeting January 24-25, 2011

INSIDE

APS Membership
Survey Analysis
p. 121

164th Business
Meeting
p. 126

Experimental
Biology 2011
p. 137

APS Launches New
Online Professional
Skills Training
Course
p. 153

NIH Reconsiders
New Lab Animal
Guide
p. 158

Introduction

In 2010, the American Physiological Society (APS) set out to develop a comprehensive strategic plan to identify specific opportunities the Society should pursue over the next five years. The Society convened a strategic planning meeting, held January 24-25, 2011, with representation from Council, Section Advisory Committee, Trainee Advisory Committee, and APS staff. To facilitate this meeting and, more broadly, the development of the strategic plan, APS engaged the strategy consulting firm AltshulerGray.

In preparation for the meeting, a comprehensive set of background materials was compiled, covering all of the major components of APS's operations. In addition, the consultants conducted and analyzed a survey of the Society's membership (see page 121). This analysis was combined with a closer look at the financial state of the organization, membership demographics, and trends to provide a comprehensive view of the current state of the Society. This was presented at the start of the strategic planning meeting to inform the group's subsequent discussions (<http://www.the-aps.org/about/2010SurveyAnalysis.pdf>).

This document summarizes the output from that meeting and reflects the strategic priority areas and potential initiatives identified by attendees. Additional discussions will be undertaken by the Council, committees and task forces to determine which of the many ideas discussed at the meeting

are worthy of further exploration, how best to develop and flesh out these preliminary ideas, and to identify additional ideas for development. For proposed new initiatives deemed to merit further consideration, additional work will be required to evaluate the potential impact and feasibility of pursuing them, and to delineate the specific tactics that should be employed. As well, it may be necessary to reprioritize existing activity in light of these new opportunities. This work will position APS to identify and implement the top priorities for the Society as defined by the strategic plan.

Current state of the APS

The state of the APS is strong. The Society currently has strong financial reserves and has largely been able to recover from the investment losses incurred during the recent economic downturn. The Society continues to generate a steady revenue stream, driven largely by its portfolio of journals, which covers its annual operating costs. APS also benefits from an active and increasingly diverse membership, with female and international members each representing approximately 25% of the total and minority members accounting for over one fifth. Satisfaction among all members is high, with nearly 90% of those surveyed indicating they are likely to renew their membership. Members give APS publications and meetings particular praise, citing both their importance and high quality. In addition

(continued on page 116)

Get Ready to Party in San Diego!

It seems like only yesterday that I became the Society's Executive Secretary-Treasurer, participating in the celebration of our Centennial in 1987 in Washington, DC. The focus of the meeting was the role played by the United Kingdom, Germany, and France in the development of physiology in America. Sir Bernard Katz (UK), Irene Schulz (West Germany), and Pierre Dejourns (France) were the keynote speakers, speaking in recognition of the Society's founders, all of whom were trained in physiology in Europe.

"After the opening session, attendees gathered for a festive wine and cheese reception that provided scientists, young and old, an opportunity to reflect on the past and look to physiology's future. The foreign guests invited by the Society to participate in the week's festivities mingled freely with the attendees, providing many with a unique opportunity to meet and talk with leading physiologists from abroad." (1)

Well, I am still here, but with the title of Executive Director, as we prepare to celebrate the Society's 125th Anniversary during Experimental Biology 2012 scheduled for April 21-25 in San Diego, CA. One lesson we learned from the Centennial Celebration is that very few people collect medallions that are distributed or sold in association with scientific meetings. As a consequence, there will be no 125th anniversary medal for meeting attendees to take home with them (assuming you even wanted to purchase one).

Our plan for the 125th Anniversary meeting is to use the celebration as an opportunity to reflect on the historical role that the Society has played globally for our discipline. Just as our founding members were trained in the laboratories of Europe, many of today's international physiology leaders were trained in the laboratories of the United States thanks to the generous support of US funding agencies. In

order to celebrate the international nature of our science, the Society has extended invitations to the 53 IUPS member societies to participate in the meeting. In so doing, we intend to make this meeting a truly outstanding international event by providing the best forum possible for the exchange of knowledge in the physiological sciences among colleagues from all over the world. The goal is to make the 125th Anniversary celebration an opportunity for physiologists to converge in a single place and define the important role of this discipline in the complex realm of science. Importantly, the meeting will also provide a unique opportunity for physiologists from around the world to view the most recent research advances and meet some of the scientific leaders in our discipline.

In order to help make the 125th Anniversary meeting a truly international celebration, the Society has also launched a fund raising effort to raise \$200,000 or more to provide travel assistance to emerging physiologists from throughout the world. The goal is to greatly increase the funds available to bring young scientists to our annual celebration of physiological research.

The Society is also planning several special events in conjunction with the 125th Anniversary meeting. On Saturday, April 21, following the welcome and Walter B. Cannon Lecture to be presented by L. Gabriel Navar of Tulane Univ., the Society will hold a Beach Party on the North Embarcadero. The event will include food, drink, music, and games, all designed to make the start of the meeting an enjoyable opportunity to mingle with colleagues from around the world. The event will have a modest cost of \$15 per person, which will assure us that the opening reception for the 125th Anniversary is not a repeat of the Centennial Celebration where the Society over ordered and wine flowed liberally because the servers opened all the bottles expecting a larger crowd.

Because we have a full day of meetings on Wednesday including a Nobel Prize Laureate speaker at the end of the meeting, the Society will also have a special closing event as a culmination of the celebration of 125 years of physiological discovery. The closing dinner will be held at the San Diego Marriott Marquis Hotel and will include food, drink, and music. This event will also have a modest cost of \$15 per person so we can anticipate how many will attend the event. It will be an opportunity to recognize the contributions of many to the success of the Society, especially to all the Presidents who are able to attend the meeting in San Diego.

Throughout the week, the Society will be offering outstanding sessions designed to advance our discipline and to contribute to our understanding of the function of the living organism. The theme of the Physiology InFocus program organized by APS President Joey Granger will be "Physiology in Medicine," highlighting the role physiology plays in the understanding of disease processes and the development of treatments and cures for disease. In addition, many of the sessions will include brief historical snippets designed to highlight the history of the discipline and the role early discoveries have played in current physiological understanding.

The 2012 celebration of the Society's 125th Anniversary will be a special event, but only if each of you joins us in San Diego. So plan on attending the meeting, bring your best science, and be prepared to party like it was 1887, or how about 2012. ❖

Reference

1. Centennial Celebration, *The Physiologist* 30(4): 66, 1987

Martin Frank
APS Executive Director

(continued from page 113)

tion, a majority of members value APS's role in fostering a community of scientific colleagues and providing up-to-date news on research and trends in physiology. APS staff also receive high praise from both members and elected leadership.

In order to perpetuate this success and build upon the Society's many strengths, the APS recognizes it must continue to address both internal and external challenges that will confront the Society in the coming years. One challenge is the fact that while APS has enjoyed steady membership numbers over the last decade (~10,000-11,000 members), member turnover has reached 10% per year. The Society has also witnessed some attrition among graduate student members without subsequent growth in regular membership, thus, leading to a slow aging of the Society. Financially, the trend toward open access journals with minimal peer review coupled with declining institutional library budgets may challenge the Society's publication portfolio, an asset that today accounts for nearly 80% of total revenue. To address these developments, APS must continue its current efforts to reposition its subscription model

(e.g., actively shifting from print to online-only subscriptions and developing open access fee models). To ensure the success of its meetings in spite of scientists' reduced travel budgets, the Society must continue to innovate in the area of scientific meetings, developing more opportunities for presenting and interacting at EB and responding to members' expressed desire for smaller meetings focused on cutting-edge topics.

The APS also recognizes a number of external challenges confronting both the Society and the discipline of physiology more broadly. There is a perception within academia that physiology is losing its place as a distinct discipline as universities and medical schools subsume it within other departments or marginalize it in favor of new "hot topic" areas (e.g., systems biology). More broadly, physiologists are affected by the poor economic climate and uncertain future for public research funding. Compounding these issues are the efforts by animal rights activists to influence public perceptions of research involving animals.

The Society is eager to address these challenges, to fulfill its mission to promote the science of physiology, and to continue to foster the unified, engaged

community of physiologists that have been the foundation of the Society's success to date. By building on its current efforts and preparing for the changing landscape for both scientific societies and physiology more broadly, APS will be well-equipped to remain ahead of these trends and continue to be the authoritative voice for the physiological community.

APS Mission Statement

At the start of the strategic planning meeting, attendees reviewed APS's current mission statement and concluded that, while concise and descriptive, it does not clearly articulate why the Society exists nor whom it serves. To address these shortcomings, the group brainstormed a list of key concepts and ideas to be included in the Society's mission.

The revised mission statement based on meeting input is as follows:

The APS mission is to promote the discipline of physiology and thereby enhance human and animal health by disseminating research discoveries, facilitating research and scientific interaction, educating the public and enabling future generations of physiologists.

Strategic priorities and potential initiatives

In order to ground the group's discussion of strategic priorities in a data-driven fact base, AltschulerGray presented the outputs of its current-state analysis including: an overview of the external context in which APS operates; an examination of APS's membership informed by the membership database and member survey; and an analysis of APS performance, both financially and organizationally (<http://www.the-aps.org/about/2010SurveyAnalysis.pdf>.)

Informed by this background research, attendees brainstormed a list of potential ideas for addressing opportunities and challenges, in the form of "wishes," to identify priority focus areas for the Society. The group then prioritized this list and 12 topics were identified for further exploration at the meeting. Groups of seven to eight attendees were assigned to explore

APS Strategic Planning Meeting Attendees

Linda Allen
Jill Altschuler
Amy Arnold
Ken Baldwin
Kim Barrett
Melissa Bates
David Brooks
John Buckwalter
Pam Carmines
John Chatham
Mark Chapleau
Eric Delpire
Linda Dresser
Martin Frank
William Galey
David Goldstein
Joey Granger
J.R. Haywood
Bryan Helwig
Robert Hester
Donna Krupa
Ida Llewellyn-Smith
Ronald Lynch
Marsha Matyas
Marilyn Merker

Gordon Mitchell
Frank Powell
Scott Powers
Thomas Pressley
Robert Price
Alice Ra'anan
Hershel Raff
Usha Raj
Jane Reckelhoff
James Rose
Sue Sabur
Linda Samuelson
Jeff Sands
Jenny Sasser
Rita Scheman
Ann Schreihofner
Gary Sieck
Curt Sigmund
Grant Simmons
Chris Streeter
Alan Sved
Jerrold Turner
Peter D. Wagner
Erica Wehrwein
William Welch

each topic in more depth in a series of two breakout sessions. Based on the work of these groups, five key strategic priority areas emerged:

- increase efforts to ensure awareness of, and advocacy for, the discipline of Physiology;
- actively work to attract, meet the needs of, engage and retain membership subgroups;
- develop strategies to strengthen the Society's publications in a changing world;
- enhance opportunities for scientific interaction and exchange; and
- increase the visibility of physiology in life sciences and health sciences education.

Attendees also identified two themes that cut across all five strategic priority areas. These were:

- physiology as critical in translational research; and
- chapters as an underutilized resource for the strategic directions.

Below we summarize this set of strategic priorities and some of the potential initiatives proposed to address them.

Increase efforts to ensure awareness of, and advocacy for, the discipline of Physiology

Throughout the strategic planning discussions, participants expressed concern that the public does not understand or appreciate the value of the field of physiology, and that some biomedical scientists view the field as a discipline in decline. This is not a new concern; it was highlighted in the last strategic plan and has been much discussed in other venues. The current national emphasis on translational medicine provides a major opportunity for physiologists to make a case for the discipline as a critical bridge from basic discoveries to practical application for human health. This will require dialogue with policy-makers and a redoubling of efforts to increase public awareness of physiology.

By increasing efforts to better educate the public about the critical role physiology plays in scientific discovery, with its subsequent impact on human and animal health, the APS will help to ensure continued public support for physiological research. To address

these priorities, attendees felt APS should engage on two fronts: redoubling efforts to build an increased public awareness of physiology and mobilizing members to advocate for the discipline both nationally and locally.

Redouble efforts to build increased public awareness:

To raise public awareness for physiology, attendees recommended the Society develop a targeted and coordinated media campaign, with potentially new and novel outreach opportunities. A number of such potential ideas were generated via brainstorming; these would need to be evaluated for cost, feasibility, and likely impact. Among these ideas were opportunities for the APS to have a physical presence at both national and community events and venues. For example, the APS could sponsor an informational booth at local zoos or museums to highlight the role physiology plays in scientific discovery. To support these efforts, APS could create public educational materials including informational pamphlets, podcasts, and the like. Additionally, the APS might consider opportunities to leverage its portfolio of journals to publish papers of public interest, building on efforts such as that undertaken in the *Journal of Applied Physiology* in 2008 to create content relevant to the Olympics. The Society could also seek the support of celebrity spokespeople (e.g., professional athletes) to help publicize its message. Much greater consideration needs to go into whether these, or other ideas, are likely to achieve the APS's goals for public awareness.

Finally, attendees suggested the APS consider convening one or more public opinion focus groups to gain a better understanding of the public's perception of physiology and the humane use of animals in research. This effort would allow the Society to craft a more targeted and effective message.

While the increasing attention to translational medicine presents an opportunity for the field, budgetary problems and the increasingly vocal animal rights movement presents ongoing risks. The animal rights movement has become increasingly adept at casting aspersions on research involving animals to buttress its efforts to place leg-

islative and regulatory restrictions on such research. At the same time, public funding for physiological research is increasingly threatened by the current budget crisis that affects not only the Federal government but also state programs of support for research. Animal research and funding support received considerable attention in previous strategic plans, and attendees believe that these challenges remained core strategic issues for the APS.

Mobilize members to advocate for the discipline of physiology:

Attendees recommended that the Society enhance its efforts to mobilize its members to become advocates at both the national and local level on behalf of research funding as well as laws and regulations that support scientific discovery. The Society can develop materials to help its members in this pursuit, including talking points, research success stories, etc. Attendees suggested Society chapters be leveraged as focal points for this effort, spearheading the recruitment of member-advocates and encouraging them to interact with their representatives both on Capitol Hill and at home. The APS should continue to identify opportunities to populate NIH study sections and other decision-making bodies with members to increase physiology's representation in these groups.

Actively work to attract, meet the needs of, engage, and retain membership subgroups

The strategic planning discussions highlighted four key constituencies that merit particular attention in terms of membership strategy: trainees, women and minorities, international members, and clinician scientists. In the case of women, minority, and international members, APS has seen commendable growth in recent years, but it was felt that more needed to be done to meet their particular needs and to engage them more in APS activities and leadership. For trainees and clinicians, the challenges are both to make the case for the value of joining the APS, as well as to find ways to actively engage them in Society activities. By focusing on all four of these groups, the APS will continue to broad-

en its reach at all career stages, both nationally and internationally, and will be able to attract the full spectrum of researchers doing work critical to physiological discovery.

Trainees: Trainees represent not only the future of the Society, but they are also the key to physiology's continued success in the years to come. To attract and better meet the needs of this critical subgroup, attendees recommended targeting trainees at all levels, from undergraduates to early stage investigators. At the undergraduate level, APS could develop resources to attract undergrads to the field of physiology and work with educators to distribute these materials to their students, an effort that could tie into the curricula development proposal described below. To encourage trainees at all levels to become APS members, the Society could streamline the membership process, removing the requirement for sponsorship and making the process a simple, one-click procedure. Additionally, new membership categories could be created to attract trainees at more senior levels.

To better meet the needs of trainees, APS could leverage its meetings to provide more opportunities for trainees to interact with the Society. This could include a trainee-only topic session at EB and more trainee involvement in featured topic sessions overall, opportunities for trainees to co-chair symposia, and the development of trainee presentation platforms at chapter meetings and conferences. The Society could also support trainee career development by creating additional online courses and materials for professional skills training (e.g., a short workshop on peer review). Finally, attendees suggested the Society encourage the active participation of trainees at all levels, including reserved space for trainee editorials in the journals, opportunities for trainees to serve on APS committees, and a concerted effort to leverage sections and chapters to disseminate trainee-specific information created by the Trainee Advisory Committee and the Society more broadly.

Women and minorities: Though APS

already enjoys a diverse membership, attendees felt still more could be done to attract women and minorities and encourage them to play more active roles in the Society. APS could actively recruit women and minority members by targeting organizations and institutions where these groups are concentrated (e.g. HBCUs, Hispanic-serving institutions, the Association of Women in Science). Current members could also be encouraged to actively seek out female and minority colleagues and urge them to join. Attendees also suggested the Society promote the participation of women and minority members in leadership roles (e.g., by establishing a mentoring group to help guide members to leadership positions). These efforts would be monitored by Council with the preparation of a yearly report on the number of women and minorities on Council, on committees, on journal editorial boards, in section leadership, etc.

Additionally, attendees recommended providing resources targeted specifically to the unique needs of women and minority members. At meetings, these could include the availability of childcare and sessions on issues such as work-life balance, trailing spouses, and reentering academia after family leave. The Society could also work to create mentoring opportunities for women and minority scientists (e.g., mentoring awards). Finally, attendees suggested making the Women in Physiology committee the central hub for all resources related to both women and minorities.

International members: International membership in APS is growing and international members now represent nearly 25% of the Society. In addition, about 50% of APS journal papers are authored by international scientists, not all of whom are members of the Society. In order to continue to attract this group, attendees suggested the Society streamline the membership process (as discussed with trainees, above) by removing the need for sponsorship and creating a simple, one-click membership process. APS could also explore additional opportunities to engage with foreign societies and possi-

bly create joint membership agreements. To better meet the needs of this group, attendees proposed offering specialized workshops at EB on issues of particular interest to international scientists while also encouraging international members to participate in symposia. The Society could also develop new media resources (e.g., live streaming and webinars) so APS meeting content could reach international members who are unable to attend in person. Additionally, the Society could develop workshop content to present at international meetings, increasing the APS's profile abroad. Finally, attendees recommended the Society explore either the creation of international chapters or partnerships with local branches of international societies to create a dedicated avenue for directly disseminating APS materials to international members.

Clinician scientists: A number of the attendees felt the Society should aspire to become "the" society for translational research. In order to pursue this goal while simultaneously enhancing the Society's exposure to clinical physiological research, attendees proposed a concerted effort to increase the representation of clinician-scientists within APS's membership. This effort could build on many of the proposals outlined elsewhere in this document. To recruit clinician scientist members, APS could engage clinician scientists at all levels, particularly focusing on medical trainees by targeting MSTP programs and providing travel grants and mentoring opportunities to this group. Clinician scientists could be invited to speak at EB and could be actively recruited to help plan both the proposed fall translational meeting (see below) and translational conferences. As mentioned below, the Society could also feature translational content in all its journals and encourage clinician-scientists to submit. Attendees felt APS could also engage with clinical societies and organizations (e.g., AFMR, ASCI, ACSM) to explore partnership opportunities. Finally, to give clinician-scientist members a home in the Society, attendees proposed either the creation of a new Physiologist in

the Clinic committee or an active effort to involve clinician scientists in the current Membership Committee.

Develop strategies to strengthen the Society's publications in a changing world

The importance of the Society's publications portfolio cannot be understated. It accounts for the vast majority of APS revenues and is also the main conduit by which the Society disseminates scientific knowledge. Additionally, members cite the journals as both the most important and highest-quality resource the APS provides. Yet, though the journals are well-respected within the physiological community and are supported by a talented staff, their success may be threatened by the growing strength of open access, the erosion of peer review, and the continued reduction of institutional library budgets. To prepare for these changes in the publications landscape, the APS must strengthen its already-rich publications portfolio by increasing the number and quality of journal submissions (and, subsequently, improving impact factors).

Increase number and quality of submissions: Survey feedback suggests that less than half of all members have submitted manuscripts to APS journals. This figure improves only slightly when trainees are excluded. In order to improve these numbers and, thus, attract even more, high-quality submissions, attendees proposed the Society make a concerted effort to target specific groups and create incentives for those who become frequent contributors. Particularly important will be increased submissions from more senior members currently serving as journal reviewers and editors. By submitting their own work to the journals they oversee, this group will set the example for the membership and readership at large. At the same time, the Society should recognize the service of reviewers and editors to the journals both through Society-wide communications (e.g., newsletters) and by offering incentives (e.g., free membership).

Additionally, the APS could leverage its sections, urging the section leadership to encourage members to submit

to their respective publications. The Society could also target its growing international community and make connections with the organizers of international meetings to advertise APS publications as forums to publish meeting content. Finally, attendees suggested the Society make a concerted effort to increase the publication of translational science in all journals, attracting both cutting-edge research and clinician-scientists to its publications. This effort could include the preparation of a virtual translational journal, comprised of relevant articles collected from all APS publications and delivered electronically to members.

To enhance the visibility of APS journals, attendees recommended the Society enhance journal marketing both within and outside the Society. This effort would serve not only to support the above efforts, but would strengthen the Society's scientific branding more broadly. To achieve this, top papers could be recognized at meetings and in newsletters and their full text could be actively distributed to the membership. The Society could also explore opportunities to partner with organizations like the Faculty of 1000 to highlight APS journal content in publications read by the scientific community at large.

Enhance opportunities for scientific interaction and exchange

APS meetings provide critical venues for the dissemination of scientific knowledge and serve as primary forums for building a strong community of physiologists. Members rate the quality and value of meetings highly and the meetings can be a source of profit for the Society. To build on this success and continue to strengthen the value of meetings to members, attendees proposed that APS explore opportunities in three key areas: improving the value of EB, particularly for younger members; offering smaller conferences on more focused topics of interest; and creating a new fall meeting focused on translational research.

Improve the value of Experimental Biology (EB) for younger members: The Experimental Biology meeting has

recently been restructured to allow for clustering of sectional programs. For many, the new structure has proven to be advantageous. However, there remains a need to further improve the value of this meeting, particularly for younger members. APS could explore opportunities to further enhance the meeting's format and opportunities for interaction. To address the criticism, particularly from trainees, that member research often gets lost in large poster sessions, attendees suggested the adoption of a poster-symposia format to supplement these larger sessions. These symposia would feature fewer posters, grouped around common themes, with each presenter given a few minutes to orally present the highlights of his work. To further enhance interactions, particularly between trainee and established scientists, APS could sponsor events that bring these groups together, such as student lunches with distinguished lecturers and a designated trainee hospitality room to promote networking amongst trainees and senior scientists. Other opportunities include decreasing the number of symposia (to reduce attendee fatigue) and increasing the number of featured topic sessions organized by section members.

Offer smaller conferences on more focused topics of interest: The member survey highlighted a strong interest among members for smaller, more focused meetings and conferences which offer the potential to become key venues for expanding the Society's audience, attracting new members, and forging strategic partnerships with other organizations to promote interdisciplinary interactions. However, the Society has not yet hit on a successful financial approach to mounting conferences, despite significant effort to do so. More work will clearly be required to address this problem, but one approach attendees felt was potentially promising was to mobilize APS chapters to generate proposals for, plan, and execute these conferences. The Society could provide the needed organizational expertise and resources to aid chapters in this effort (e.g., helping chapters think strategically about ways to combine chapter meetings and confer-

ences). Chapter leaders would also be well-positioned to identify other local organizations and societies as potential partners in the development of these meetings. By forming these strategic alliances, APS would increase its visibility, while also benefiting from cost-sharing and economies of scale.

The Society could also explore the use of new media to broaden the reach of conferences and increase attendance. This could include live streaming of conferences on platforms that allow interactive participation, distributing conference video on DVD, and creating conference-related podcasts. To test these technologies, APS could use EB as a test bed and, if remote attendance is successful, begin implementing new media solutions at the conference and chapter levels.

Create a fall meeting focused on translational research: The importance of translational research within the scientific community continues to grow, as evidenced by NIH's announcement of a new center (NCATS) devoted to the topic. To capitalize on this trend and build upon the success of the Society's former fall meeting, attendees recommended the creation of an APS-branded fall translational meeting. This meeting could position APS at the forefront of translational research and help the Society promote the critical links between physiology and translational medicine. The new fall meeting would also provide an ideal venue to target clinician-scientists, a group key to APS's membership strategy (see above). To promote the meeting, APS could explore opportunities to partner with NCATS, the national network of CTSA's, and clinical societies. This meeting would also be an opportunity to educate the public by inviting them to presentations highlighting the essential links between physiology and human health. Additionally, these presentations and others could be live-streamed and/or archived for rebroadcast at chapter meetings and conferences. Finally, attendees suggested the Society engage the translational research interest group to further develop these ideas and brainstorm possible topics for a translational meeting.

Increase the exposure to physiology in life sciences and health sciences education

Today, physiology education is threatened at all levels. Physiology is disappearing from many undergraduate curricula and the discipline is losing its identity within medical education as schools subsume physiology departments within others or eliminate them altogether. Attendees recognized APS's critical role in reversing these trends, in training the next generation of physiologists, and in having the discipline recognized for the key role it plays in human and animal health research. In order to accomplish these aims, attendees suggested the Society leverage its already-strong portfolio of educational resources to enhance the presence of physiology at both the undergraduate and professional health sciences levels.

Develop comprehensive undergraduate physiology curricula: To strengthen the presence of physiology at the undergraduate level, attendees proposed APS explore opportunities to develop comprehensive undergraduate physiology curricula which leverage the resources already developed within the education department. These curricula could be tailored to different types of institutions and programs (e.g., different approaches for pre-med programs vs. environmental programs). These curricula and related resources (such as teaching modules) could be placed online and made available free of charge to undergraduate educators. Additionally, the Society could leverage chapters as centers for disseminating these curricula by offering local workshops and courses to undergraduate educators. In turn, these educators would be encouraged to become APS members and become partners in the continued development of educational resources. As a first step in this process, attendees recommended the Society catalogue successful curricula already in place and identify opportunities to build upon them. The APS could also begin a dialogue with undergraduate institutions to build relationships with

educational leaders and create enthusiasm for these new resources.

Mobilize members to advocate for physiology in professional medical education: To reaffirm physiology's place within graduate and post-graduate medical education, attendees felt APS should mobilize its members to advocate for physiology education at two levels. First, members should be encouraged to engage decision-makers at their home institutions, reminding them of the importance of both basic science and physiology in their medical curricula. Members could work with these leaders to identify opportunities to engage physician teachers and explore ways to retain physiology within residency programs (e.g., integrating physiology into all grand rounds). The Society could support these grassroots efforts by developing informative materials for members to use in these conversations.

Second, attendees suggested the APS explore opportunities to get members more involved with policy-making boards (e.g., AAMC, MCAT, USMLE). The Society could identify members to become advocates for physiology within these organizations and could develop materials stressing physiology's critical role in professional medical education. More broadly, APS could explore opportunities to work directly with these organizations in a coordinated way, building on and strengthening existing relationships. ❖

Link to the APS Survey Compendium



APS Membership Survey Analysis

The 2010 APS membership survey was sent to a 10,437 members, and a total of 2,647 members replied; 73% male and 27% female. This is the same gender response rate as the 2005 membership survey. Of the 2,647 respondents, 724 are age 39 or under. Most APS members (71%) work in the United States however, 29% of the Society's members work outside of the US.

Slightly more than half the respondents (58%) indicated that their primary work is research (70% or more of their time), while 20% of the respondents indicated that the majority of their time is spent teaching. Only 4% indicated that the majority of their work is clinical area.

Respondent Demographics

Profession

Research Scientist	4%
Associate/Assistant/Professor	70%
Instructor	1%
Undergrad./Grad. Student	8.5%
Postdoc	8%
Other	8%

Primary Institution

Academic Institution (college or university)	51%
Academic Institution (med. school/professional school)	38%
Industry	2%
Independent Research Institution	3%
Government	3%
Other	3%

Type of Degree

PhD	69%
MD	9%
MD/PhD	13%
DVM	2%
BS/BA	4%
MS/MA/MPH	3%
Other	10%
None	5%

Note: The percentages in the tables in this article are based on the total number of respondents in that particular age category.

Sections

The largest section affiliation of the respondents is the Cardiovascular section (24%), while the Cell & Molecular Physiology Section and Environmental & Exercise Section ranked second with 10% of the respondents. The next three largest sections

Figure 1. Academic Appointment by Gender (percent).

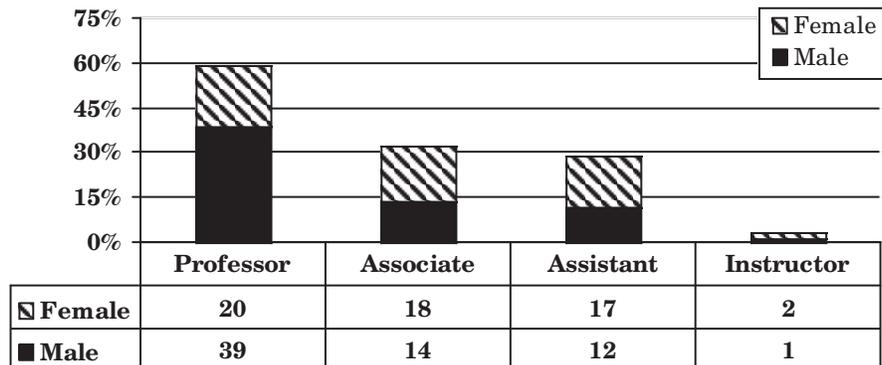


Figure 2. Professor by Age and Gender (percent).

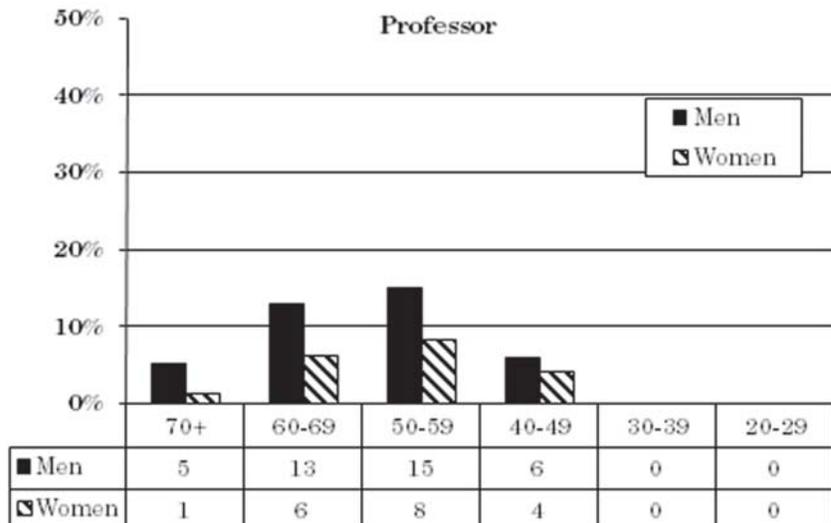
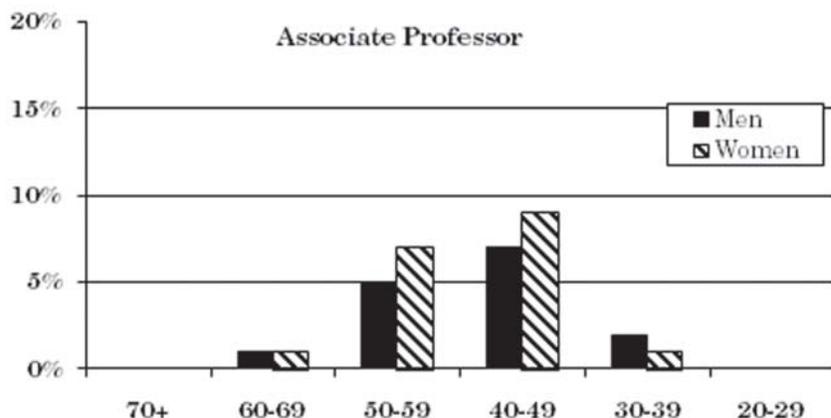


Figure 3. Associate Professors by Age and Gender.



are the Central Nervous System Section, the Endocrinology & Metabolism Section, and the Respiration Section. Only 1% of the respondents did not know their section affiliation, or did not respond.

Overall, the APS membership is satisfied with the activities of the sections. Most indicated that they are extremely satisfied with how they receive news regarding their section, and how research is programmed at the EB meetings. However, many respondents indicated that they feel there is a reduced understanding of members' needs by the section leadership.

Services and Products Membership Satisfaction

Overall, the membership is very pleased with APS, with members from all types of institutions and both international and U.S., likely to renew their membership. These are a few samples of membership comments:

- The APS is an amazing resource for me that I will continue.
- APS is important! Worth worrying about!
- You are doing a great job!!!
- Very happy with my APS membership. This is the most excellent scientific non-profit organization. Love the web site and all the science career opportunities created or maintained by APS. (Post doc)
- I think overall that APS is doing a good job. I would just keep doing what you have been doing!

Other Services

The survey respondents cited community and access to up-to-date news as the most valuable features of their APS membership. The least valued features cited were the opportunity to serve on APS committees and mentoring opportunities.

Meetings and Conferences

More than half of the U.S. members (73%) and international member (63%) rated the Experimental Biology meeting highly as an APS meeting. Most, however, ranked the chapter meetings low in terms of importance as an APS meeting. Most respondents like the changes made to the EB meeting, but feel even more can be done to improve it. The APS website and email messages were cited as the most common source of meeting information.

Figure 4. Assistant Professor by Age and Gender.

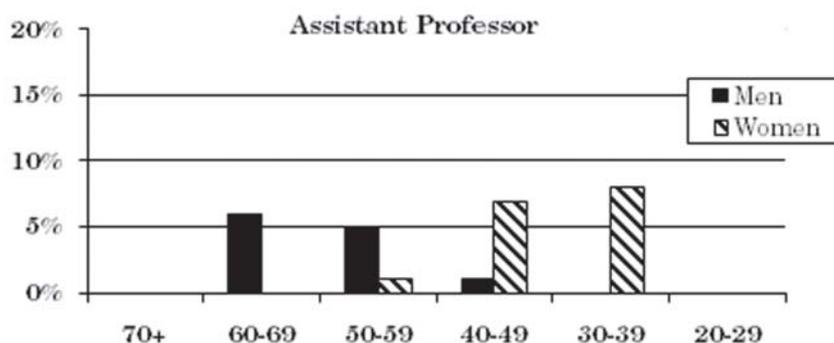


Figure 5. Instructor by Age and Gender (actual numbers).

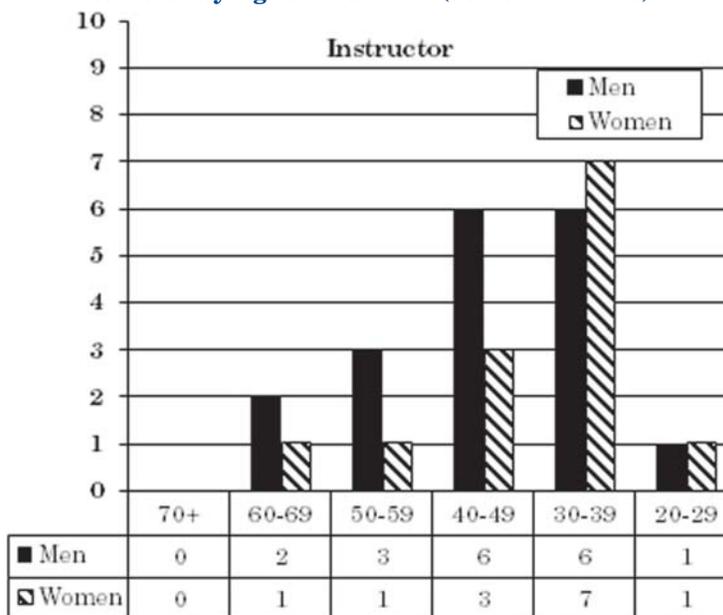
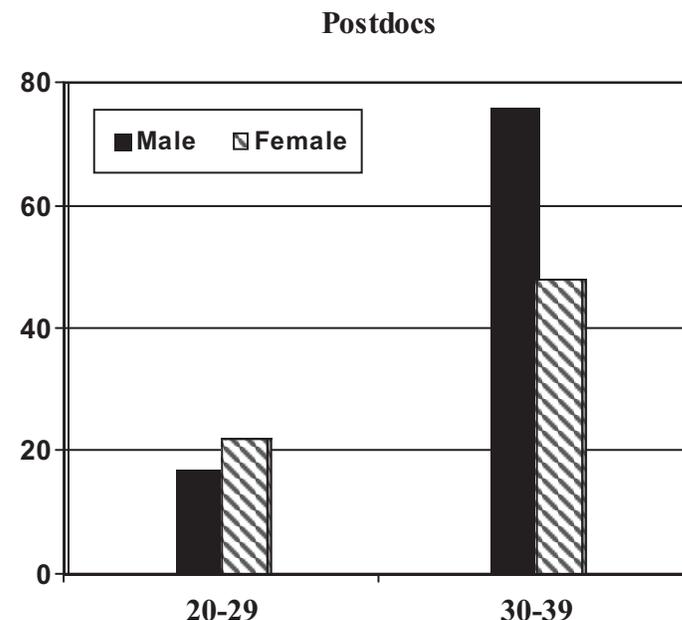


Figure 6. Postdocs age 20-39 (actual numbers).



Scheduling change seen as a positive step:

- Having section meetings at EB scheduled in two or three day blocks instead of throughout the meeting is a great improvement.

- Improving EB meeting, the new format with extra sessions is a very good first step. Now need to balance the meeting over the entire week.

Meeting still feels too big and expensive for some:

- The annual meeting is spread out too long with too high a cost. Researchers can no longer afford the time and expense. But the APS keeps spreading a topic over the whole con-

ference length.

- I feel that the conferences are getting too big. I appreciate that there is not much you can do about this.

Many of the respondents thought there should be more opportunities at EB for young investigators:

- More opportunities for students to present orally at EB. Students get discouraged when they only present posters and wind up with a Ph.D. having never defended their work on a national platform.

- More interaction opportunities for young investigators at conferences. Limited number of talks allowed and very few people attended the poster

sessions- promote more interest for distinguished investigators in attending these sessions.

- Programs that allow young investigators to present their research in more intimate settings that allow a better interaction with their peers and senior colleagues for meaningful feedback from the audience. So, more talks and less poster presentations.

APS Journals

The majority of respondents cited the APS publications as the most important resource offered by APS, with meetings and conferences cited as the second most important resource. This holds true for respondents ranging

Figure 7. Section Affiliation.

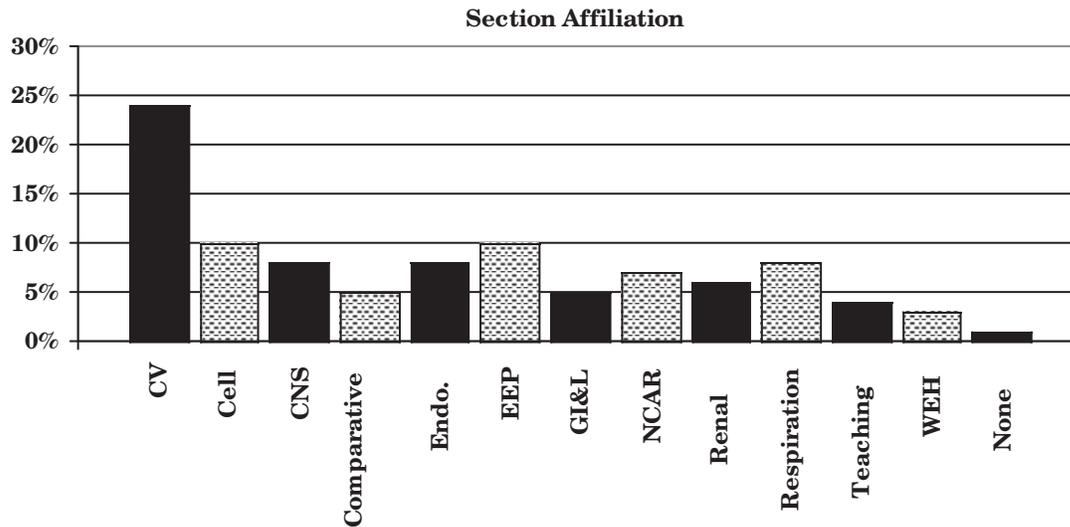
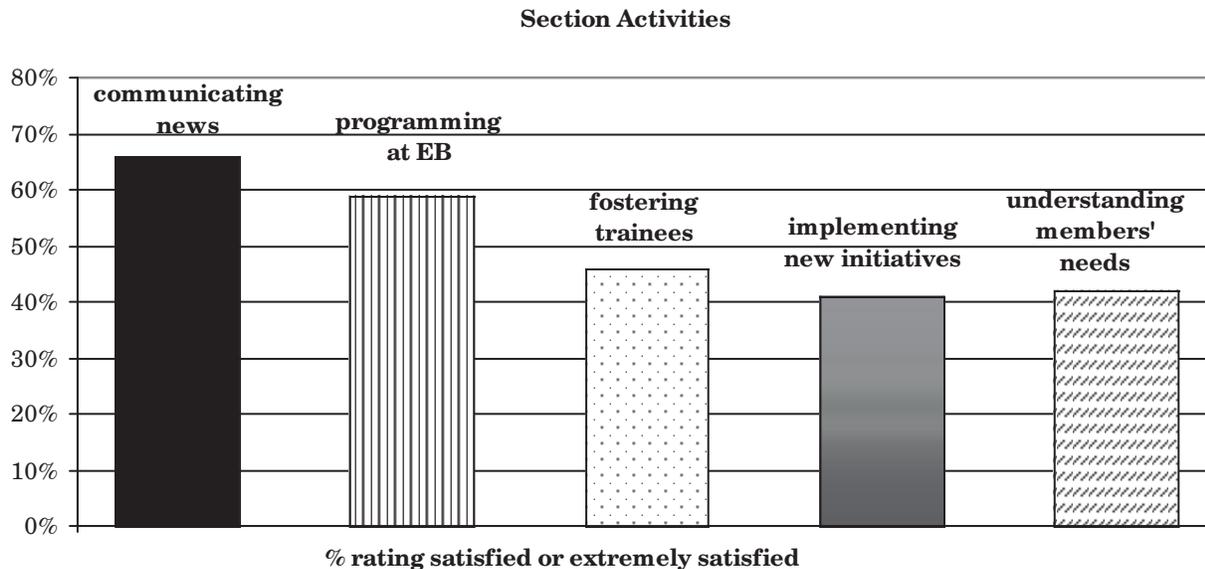


Figure 8. Section Activities.



from graduate students to established investigators.

Respondents ranked *AJP Heart and Circulatory Physiology* and *Journal of Applied Physiology* as the Society's most important APS journals. However, these rankings could be influenced by respondents' areas of interest with CV members being the largest group. Graduate students ranked the *Journal of Applied Physiology* as the most important APS journal. A majority of the respondents indicated that their institutions subscribe to the APS journals, although 17% did indicate that their institution did not subscribe, or did not know if their institution subscribed.

The majority of respondents indicated that they do access the APS journals online and more than half of the respondents indicated that the print version of the journal was not important. In 2005, 75% of the respondents indicated that APS should continue publishing printed versions of the journals. There is also little interest in accessing the journals on mobile devices. The majority of respondents accessing the journals online do so primarily through PubMed (65%), their institutional libraries (61%), or through the APS website (5%). Accessing the journals online is preferred by both US and international members.

Slightly less than half of all the respondents indicated that they have submitted at least one manuscript to an APS journal. However, more than half of the respondents that self-identified as a professor (all) have submitted at least one manuscript to an APS journal.

When comparing the APS journals against competing journals, the broader-interest journals were ranked higher than the competing journals, as compared to the system-specific journals.

While satisfied with the publications program, many respondents suggested that APS try to improve the impact factor, which some see as tied to review.

Respondents also rated highly the quality of the peer review system and the copy-editing services. The lowest ranked quality for the journals was the impact factor.

Comments reflect desire for higher impact factor

- Improving journals impact factor
- I'd like to see the impact factor of AJP journals higher. It seems too much mediocre work is being published
- Increasing AJP/JAP impact factors
- Journal impact factors need to be greater than 4 to be relevant in Europe and Asia

Some respondents feel improved quality of reviews would help

- Improved reviews by referees, resulting in fewer trivial papers, fewer uninteresting and/or redundant papers
- Improve the quality of journals by choosing better reviewers
- Improve quality of review. Editors should be more active in quality of review.

Education and Careers Program

Overall, the education activities were rated of equal importance, with only developing new teaching resources for undergraduate and graduate physiology being ranked slightly higher than the other programs. Both graduate stu-

dents and postdocs ranked career resources as the top education/career related activity.

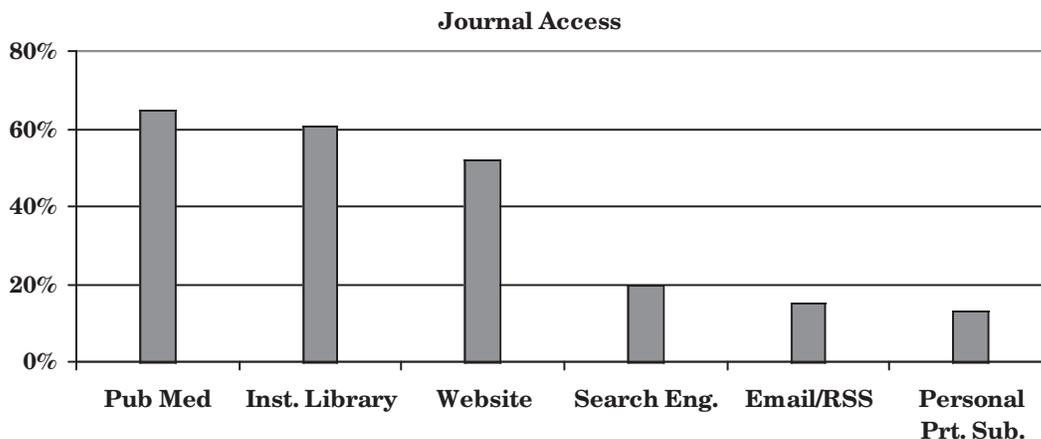
Respondents made the following suggestions regarding undergrad/graduate education:

- We need to support undergraduate physiology teaching more. There is tremendous pressure to reduce animal use in undergraduate teaching labs, and APS is not doing much to help us fight this
- Research grants for undergraduate research projects (outside of what is already offered) via the undergraduate summer research fellowships, which are *excellent*
- Outreach to the community teaching undergraduate physiology (and not just in Physiology Departments) as that is the source of the next generation
- Recognize undergraduate research even more than done already now by the summer fellowships
- More resources to help with undergraduate physiology teaching
- Development of an undergraduate award program for best physiological research project/ poster within a university setting similar to HS science fair winners
- The trend to giving educational support to undergraduate and even High School teachers and students is critical and should be continued and expanded

Science Policy

More than a third of respondents ranked support for training the next generation of scientists as the top science policy priority. The next two highest ranking priorities are addressing

Figure 9. How members access journals online.



structural changes at funding agencies that may disadvantage physiology as a research priority and promoting the formulation of federal policies and guidelines to minimize regulatory burden. However, about 14% of the respondents ranked monitoring the effectiveness of agency peer review procedures as a top priority.

The overall issue of animal use in research is important to the respondents at all career levels, with 68% indicating that increasing public understanding of the importance of animals in research is a top priority. Educating Congress on legislative proposals affecting research with animals ranked much lower at 14%.

NIH was the largest source of funding for members (41%), while the second largest source was listed as "other." NSF funded only 7% of respondents, while the VA funded only 3% and NASA only 2%.

Communications

Most of the respondents rated the Public understanding of the use of animals in research as the most important communications issue. The next two highest ranked issues were the accurate reporting of physiological research in the public media and public understanding of physiology.

Most of the respondents see less value in "new media services (video, podcasting, social networking)".

Views on APS as a whole

Although many respondents indicated that APS is doing a good job in meeting their professional needs, others offered recommendations on what APS could do better.

Broaden member involvement in leadership, meetings

- It seems that the APS committees and leadership are the same persons, year after year....simply recycled to different positions (i.e., a small club)

- Improve ability of young faculty to participate in section/APS committees. Seems difficult if you are not part of the "old boys" group

Opportunity to broaden meeting speakers

- Many meetings have the same

people speaking over and over—try to either generate other lists of speakers or other topics

- I sometimes have the feeling that in the conferences the talks are always given by the same US labs (heads and students) while the other labs abstracts are presented as posters. I would prefer to see more variety in the presentations

Increase involvement of women, minorities, younger faculty

- Like to see the Society support women and minorities in leadership positions and in their scientific careers. There's work still to be done in this area

- APS needs to continue and strengthen its efforts at inclusiveness. It has done an excellent job of engaging members at all career levels and without regard to gender, race, and ethnicity. Engaging even more in APS governance can only enhance the society

- We need new ways to include our female and minority members. We need to find ways to include women & minority nominees in the awards selection process. We need to encourage featured topic & symposium organizers to include women & minority speakers

- Provide more opportunities for junior members to get involved in leadership. Be aware that it's very unlikely a junior member will get elected on a ballot with a very active, senior APS member also running for the same position

Other comments highlight opportunity to better serve the international community

- I would like to see development of international chapters to promote and retain society membership. This would raise awareness of the Society, its publications and meetings. Chapters could provide some travel support for meritorious trainees

- As a Canadian member I don't see much content that is tailored towards the academic community here. This is a pity since there is a lot going on north of the border

- Wider international exchange programs focused on the corresponding

sections. The current idea with Latin America is going in the right directions, more like this is required. Also improve access for people from less favored regions to society resources

- Improve international attendance and benefits. For example, provide awards for people traveling from more remote areas and also provide international attendees with the same conference materials (e.g. program DVD abstracts etc) as US based attendees

- More outreach to graduate students outside of the US and recognition of the contributions of foreign APS members. Hardly ever does one see the name of a foreign member as the winner of an award.

Members would like to see more emphasis on interdisciplinary and translational science

- Promote Physiology as a discipline. Physiology should become synonymous with translational medicine. There is no substitute for assessment of function in determining translational ability.

- I'd like to see more topic meetings that are interdisciplinary. I'd like APS to be synonymous with interdisciplinary science--fostering more connections with engineers, mathematicians, clinical sciences, and public policy.

- Interaction of physiology with Translational research. Defining translational research and how a working knowledge of physiology would impact this type of NIH mandated research

- Increased emphasis on "translational" physiology at meetings. Bring the basic sciences into focus for systemic physiology - visa versa

- I would improve the physiology-medicine interaction, for instance promoting translational symposia under the topic "Clinical Physiology"

- Clinical and translational symposia at EB

The complete membership survey responses can be found at: <http://www.the-aps.org/about/2010SurveyAnalysis.pdf>. ❖