

THE Physiologist MAGAZINE

MAY 2021

SCIENTISTS AND
INSTITUTIONS
ADAPT OUTREACH
PROGRAMS
DURING PANDEMIC
LOCKDOWN **22**

HOW TO
OVERCOME
IMPOSTER
SYNDROME **28**

LEARN BY HEART

Meet Jennifer Pollock: cardiovascular
researcher, collaborator, optimist
and 94th president of APS.



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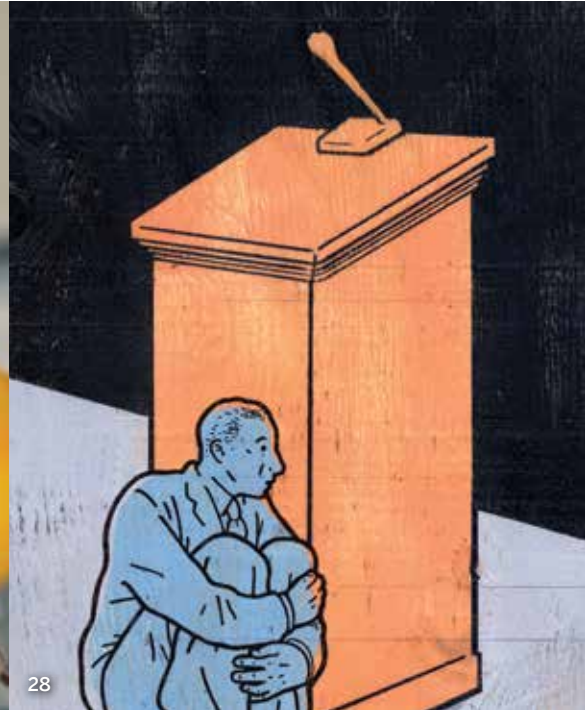
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[physiology.org/member-directory](https://www.physiology.org/member-directory)

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of excellence.

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Springing into the Future

BY SCOTT STEEN, CAE, FASAE



With Experimental Biology 2021 behind us, the APS staff is shifting focus to a host of new programs and initiatives now underway. Driven by our 2020 strategic plan (www.physiology.org/strategicplan), these efforts will benefit nearly every part of the physiology community. Here's a sneak peek of what's to come:

APS Career Gateway

In late fall, we will introduce the APS Career Gateway—a suite of curated, high-quality tools and courses focused on helping you better navigate career transitions and refine your professional skill set. Components will include resources and content that address critical issues affecting physiologists at every career stage, with resources focusing on topics such as leadership development, personal branding, career advancement, team-building and personnel management.

Center for Physiology Education

Physiology educators are central to APS and the future of the discipline. In 2022, APS will launch the Center for Physiology Education—a dynamic new home within the Society for undergraduate and postgraduate physiology educators. APS members and staff are collaborating with the wider physiology educator community to create and curate resources and learning experiences that will inform and support the vital work of this community.

Greater Outreach to International Physiologists

With nearly 25% of our members living and working outside the U.S., APS is, unquestionably, an international society. We are committed to reducing barriers and expanding opportunities for our international community of members and researchers. This will be done

by engaging more international physiologists in the governance of the Society, building out our virtual offerings to enable participation of overseas researchers, and strengthening partnerships and collaboration with other international physiology and related science organizations, to name just a few strategies.

An Expanded Focus on Diversity, Equity and Inclusion in STEM

Realizing that creativity, innovation and research are better when all voices are represented, we want the principles of diversity, equity and inclusion (DEI) to be weaved into the fabric of APS. We are working with leading DEI experts to help us examine the state of diversity, equity and inclusion within the Society and our broader community, and we are making changes to our processes and policies to ensure that DEI is intrinsic to the way we operate. This starts with our leadership. Voting is underway to make a bylaws change that would make the chair of our DEI Committee an ex officio member of the APS Council.

A Transition to Open Science

Over the past few years, the scientific publishing and funding landscape has moved rapidly toward increasing open science, generally, and toward open access publishing, in particular. APS has long offered open access options such as Author's Choice, but as funder mandates continue to change across the globe, we will need a more dramatic shift. Because of this, we are increasingly likely to transition to a completely open access publishing model within the next five years. The implications of this move are great, and we are already making the necessary strategic moves to prepare us for growth in the future.

You can learn more about these and other upcoming initiatives by reading our strategic plan. As always, I invite you to share your thoughts and suggestions with me or with your colleagues on the APS Council. You are at the center of our efforts, and we truly value your feedback. Happy spring! ☺

Scott Steen, CAE, FASAE, is executive director of the American Physiological Society.

THANK YOU to our 2021 Experimental Biology award sponsors!



THE Physiologist MAGAZINE

VOL. 64 | MAY 2021

The Physiologist Magazine is published bimonthly and distributed by the
American Physiological Society (APS).
6120 Executive Boulevard, Suite 600, Rockville, MD 20852-4911

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DESIGN

Latham Creative, LLC

SUBSCRIPTIONS

The Physiologist Magazine (ISSN 0031-9376) is distributed to members as part of their membership. Nonmembers in the U.S. (print only):
Individuals \$260. Nonmembers international: Individuals \$315. Tier definitions/custom pricing: www.physiology.org/tiers.
The American Physiological Society assumes no responsibility for the statements and opinions advanced by contributors to
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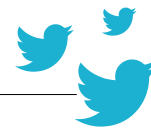
2021

Science of Aging: A Physiological and Translational Perspective

Dive into the latest research and discoveries relating to the physiological mechanisms of the aging process and aging-related disease. Join us for the latest American Physiological Society webinar series and attend the following sessions:

- The challenges of sarcopenia: Definition, underlying mechanisms, interventions and outcomes—May 19
- Experimental muscle mechanisms in aging and disease—June 2
- Aging and bone health—June 22
- Neurodegeneration and Alzheimer's disease—July 28
- Muscle atrophy and aging—September 29
- Cardiac inflammation and repair following myocardial infarction—October 13

Register today at:
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The celebration of science continues, along with some fun and cheekiness from researchers. Enjoy these tweets and let us know what you're up to in physiology.

Share your story with us and it may appear in the next issue of *The Physiologist Magazine*. Email your thoughts—and links to your tweets and posts—to tphysmag@physiology.org.



Rajan Pandit
@Pandit_Physiol

Physiologist at high altitude: 3842m from sea level, Kalinchowk Bhagawati Temple, to explore and feel the physiological changes at extreme environment.



7:33 AM · Mar 1, 2021



Julie Bastarache
@JulesBass6

How come I still remember every lyric to every single 80s song but I can't remember the difference between the RTAs no matter how many times I try?!?
[#MedTwitter](#) [#NephrologyIsHard](#)

8:53 PM · Mar 11, 2021



JDr. Peying Fong
@PeyingFong

Seen during today's walk through The Gardens [@KState](#).



7:25 PM · Mar 8, 2021



Dave Blake, PhD
@_stah

My best guess is that before May is out, the US NATION will have a WEEK of fewer than 1000 new COVID positives. (140 per day or so).

10:31 AM · Mar 12, 2021



Edelblum Lab
@EdelblumLab

Rocking our 🍌👨🍳 while processing #gut biopsies! #IBD #crohnsdisease #ulcerativecolitis @RutgersResearch @nbgolovchenko

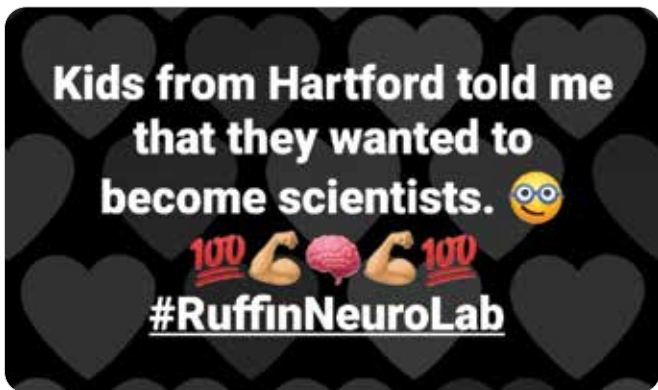


3:51 PM · Mar 11, 2021



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#dope #representationmatters #Diversity #STEM #stemeducation #Hartford #science #neuroscience #blackinneuro #blackinphysiology #RuffinNeuroLab



8:01 AM · Feb 26, 2021



Zam Kassiri, PhD
@ZamKassiri

How awesome is it when an ASTRONAUT thanks the SCIENTISTS for the vaccine?!



Chris Hadfield @Cmdr_Hadfield · Mar 13

Vaccination Day! Huge thanks to the scientists and organizers solving this global threat.



3:06 PM · Mar 15, 2021



Jaclyn Welles, PhD
@JaclynE_x8

I can't believe that this was 5 years ago! I know hindsight is 20/20 but I can't believe I'm finally finished with my PhD! What a journey! Meet a Scientist: Jaclyn Welles [https://lions-talk-science.org/2015/07/14/meet-a-scientist-jaclyn-welles/...](https://lions-talk-science.org/2015/07/14/meet-a-scientist-jaclyn-welles/) via @wordpressdotcom.



Meet a Scientist: Jaclyn Welles

This is the fourth post in our "Meet a Scientist" series. Next up is Jaclyn Welles, who will be starting her graduate ...
lions-talk-science.org

1:05 PM · Mar 16, 2021

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LAB NOTES

MENTORING Q&A YOUR QUESTIONS ANSWERED
POLICY IQ PHYSIOLOGY ON THE HILL AND IN THE HALLS
RESEARCH FIZZ BUZZ-WORTHY RESEARCH
STATS & FACTS PHYSIOLOGY BY THE NUMBERS
UNDER THE MICROSCOPE OUR MEMBERS, UP CLOSE
PUBLISH WITH POLISH BUILD A BETTER RESEARCH PAPER

STATS & FACTS

60%

The portion of APS presidents over the past 10 years who were women.

American Physiological Society
Governance webpage

RESEARCH FIZZ



Pregnancy and COVID-19

This review explores current knowledge of COVID-19 in pregnancy and highlights areas for further research to minimize its impact during pregnancy and childbirth.

Physiological Reviews, January 2021

<https://doi.org/10.1152/physrev.00024.2020>

STATS & FACTS

1975–1976

The administration of the first woman president of APS, Bodil Schmidt-Nielsen.

History of the American Physiological Society: The First Century, 1887–1987



MENTORING Q&A | EARLY CAREER

Let's Get It Started

How to transition to a faculty member and build your own lab.

Each issue, we'll ask a trainee to pose their career questions to an established investigator and mentor. Here, Bryce Balmain, PhD, a postdoctoral research fellow at the Institute for Exercise and Environmental Medicine in the Department of Internal Medicine at the University of Texas Southwestern Medical Center, asks Keisa W. Mathis, PhD, assistant professor at the University of North Texas Health Science Center at Fort Worth, for advice on a critical moment for early-career researchers: starting your own lab.

Q: During the transition from postdoctoral fellow to a faculty position, there is likely going to be a significant decrease or halt in research output/productivity. How is this typically viewed when applying to major grant funding bodies? Do you have any strategies to help mitigate the impact of this?

A: My strategy was to state the transition period as a delay in productivity in the personal statement

“I had about an eight-month delay in getting my lab up and running because I literally had to start from scratch. ... It was a process, but in the end, so rewarding.”

of my biosketch. Briefly, I had about an eight-month delay in getting my lab up and running because I literally had to start from scratch. I had to work with architects; I had to purchase every bit of furniture, from lab benches to chairs. I had to order all equipment, stock the lab and obtain animal research approval. It was a process, but in the end, so rewarding. Now, I have so much pride in the lab because I know I built it from scratch.

I have applied for many grants, and although my productivity has been debated, I don't think the transition period is

considered. That may be because it is now somewhat expected. I still think it is OK to remind them about this somewhat unavoidable delay, so this is why I put the information in my biosketch.

Q: Are there any tips or suggestions you could offer to early-career researchers who are looking to start their own independent laboratories in the near future?

A: Take pictures of everything! Visit as many labs as you can. Take pictures of equipment you use and would like to buy for your own lab. Document company names, product numbers, etc. Also, take pictures of different setups in the lab just in case you want to use a similar setup in your own lab. There is no use in reinventing the wheel, especially if you already know what works. You can print the pictures and make a photo album for easy access.

Q: Are there things from your own experience that you would highly

recommend to others, or alternatively, are there things that you wish you had done differently?

A: Before purchasing equipment, decide if there is equipment you can save money on by sharing with someone else. Don't be impressed by the “bells and whistles” that some companies offer on their products. For example, I purchased a plate reader with a touch screen because I thought it would be cool to have. Well, the touch screen, which was a basic Surface, went out within three years of purchase. The company wanted to charge nearly \$5,000 to replace it, although it was worth less than \$1,000. Needless to say, I had to settle for attaching a laptop to the plate reader and having a non-functional touch screen! 📧

Got a career question you'd like to submit? Email it to tphismag@physiology.org. We may use it in an upcoming Mentoring Q&A.

RESEARCH FIZZ



Minireview: effect of the ketogenic diet in excitable tissues

This mini review summarizes recent knowledge about how ketone bodies affect the heart, muscles and nervous system.

American Journal of Physiology-Cell Physiology, January 2021

<https://doi.org/10.1152/ajpcell.00458.2020>

STATS & FACTS

70%

The portion of people expected to experience at least one episode of imposter syndrome during their lifetime.

Journal of Behavioral Science

RESEARCH FIZZ



Is GLUT4 translocation the answer to exercise-stimulated muscle glucose uptake?

Glucose transporter type 4 intrinsic activity increases in the muscles during exercise, which could be due to increased muscle temperature.

American Journal of Physiology-Endocrinology and Metabolism, February 2021

<https://doi.org/10.1152/ajpendo.00503.2020>

STATS & FACTS

~400

The number of agency citizen science and crowdsourcing coordinators—these are federal employees responsible for advancing crowdsourcing and citizen science.

Office of Science and Technology Policy

RESEARCH FIZZ



Neuropathic pain: from mechanisms to treatment

This review highlights recent advances in understanding neuropathic pain, including clinical presentation, physiological mechanisms and treatment.

Physiological Reviews, January 2021
<https://doi.org/10.1152/physrev.00045.2019>

STATS & FACTS

133,425

The number of social media engagements for articles about imposter syndrome published between March 28, 2018, and March 18, 2019.

Journal of General Internal Medicine



POLICY IQ | FUNDING INCREASES

Thinking Big for Science in 2022

Even as the nation continues to deal with the coronavirus pandemic and the aftermath of political upheaval earlier this year, attention in Washington, DC, has turned to the regular budget and appropriations process. Traditionally, the president submits a budget request to Congress in early February, and this becomes the starting point for congressional deliberations through the spring and summer. But with a new administration and Congress in place in 2021, this process was significantly delayed.

Despite the delay in the release of the president’s budget, advocates for science have been making the case for robust funding levels at federal research agencies. APS endorsed the following fiscal year (FY) 2022 funding recommendations that were developed in cooperation with other research advocacy groups. These recommendations will feature prominently in the APS advocacy agenda this year. In addition to

making requests for regular appropriations, advocates continue to make the case for Congress to provide additional funds to address urgent needs in the scientific community as a result of COVID-19–related disruptions. (See “APS Endorses Research Relief” on next page.)

NATIONAL INSTITUTES OF HEALTH (NIH)

Following a period of strong growth, the FY 2021

budget increase for NIH was relatively modest. Therefore, APS joined other advocacy partners in requesting \$46.1 billion for NIH in FY 2022 to provide a 7.4% increase over FY 2021. This would allow the agency’s budget to keep pace with the rate of inflation for biomedical research while also providing resources to take advantage of new scientific opportunities.

NATIONAL SCIENCE FOUNDATION (NSF)


Despite its critical role in the nation’s scientific enterprise, budget growth at NSF has been modest for several years. Advocates for NSF are hoping to take advantage of the current spotlight on science to make a bold recommendation for the agency. The community is recommending \$10 billion for NSF in FY 2022, an increase of 18% over FY 2021. This funding boost will enable NSF to maintain and expand current programs while also moving in new directions envisioned by its newly appointed director, Sethuraman Panchanathan, PhD.

VA MEDICAL AND PROSTHETICS RESEARCH PROGRAM

The VA Medical and Prosthetics Research Program supports research into problems that disproportionately affect the nation’s veterans, but the results of this cutting-edge research benefit all

Americans. In FY 2022, APS recommends that the program receive \$902 million, an increase of 10.7% over FY 2021. This level of funding is needed to support and expand research efforts while also making necessary investments in physical infrastructure and information technology.

NASA LIFE SCIENCES RESEARCH AND HUMAN RESEARCH PROGRAM

Life sciences and human research activities are funded from various parts of the NASA budget. For that reason, APS broadly recommends that the agency increase funding for its various programs that support life sciences research and efforts to ensure the health and safety of humans during spaceflight. 

POLICY IQ | STEM DIVERSITY AND INCLUSION

STEM Legislation Would Advance Federal Diversity Initiatives

To address longstanding inequities in the scientific workforce, U.S. House of Representatives Science, Space and Technology Committee Chair Eddie Bernice Johnson (D-TX) and ranking member Frank Lucas (R-OK) introduced the STEM Opportunities Act (H.R. 204) in January 2021. The legislation seeks to increase diversity, equity and inclusion through a multi-pronged approach that includes:

- Comprehensive collection and reporting of demographic information about applicants for merit-reviewed research grants from federal agencies.
- Reporting on the demographics of STEM faculty by field and type of institution.
- Funding research to analyze this demographic data and study the impact of policies intended to improve recruitment and retention of scientists from underrepresented groups.
- Implementing recommendations for reducing implicit bias in merit review from "Reducing the Impact of Bias in the STEM Workforce," a 2016 report from the Office of Science and Technology Policy.

APS has joined other scientific organizations in supporting this legislation and urging Congress to provide the necessary funding to accomplish the stated goals.



POLICY IQ | RESEARCH DISRUPTIONS

APS Endorses Research Relief

Researchers at institutions across the country have experienced significant delays and disruptions due to the COVID-19 pandemic. Without additional funds to extend research and training grants, many scientists will face difficulty renewing their grants or moving on to their next position. Congress has passed a number of bills that have


provided funds for urgently needed COVID-19 research and development efforts, but to date it has not provided funds to help researchers recover from these unprecedented disruptions.

The House Science, Space and Technology Committee has recognized that coronavirus-related disruptions have a

disproportionate impact on early-career researchers. In January, Committee Chair Eddie Bernice Johnson (D-TX) and ranking member Frank Lucas (R-OK) introduced the Early-Career Researchers Act (H.R. 144), which would authorize a two-year \$250 million pilot program at the National Science Foundation (NSF) to provide grants to

highly qualified early-career researchers.

In February, a bipartisan group of lawmakers introduced the Research Investment to Spark the Economy (RISE) Act (H.R. 869/S. 289), which would provide \$10 billion for research relief at the National Institutes of Health and another \$3 billion for research relief at NSF.

APS endorsed both pieces of legislation and continues to remind Congress why research relief is necessary. 

RESEARCH FIZZ



77 Carrageenan containing over-the-counter nasal and oral sprays inhibit SARS-CoV-2 infection of airway epithelial cultures

This article recommends further study of the suggested finding that nasal and mouth sprays containing the seaweed-derived additive carrageenan may reduce the risk of SARS-CoV-2 infection.

American Journal of Physiology-Lung Cellular and Molecular Physiology, February 2021

<https://doi.org/10.1152/ajplung.00552.2020>

STATS & FACTS

1,200+

The number of scholarly publications returned in Google Scholar for impostor phenomenon since the term was first described in 1978.

Frontiers in Psychology

UNDER THE MICROSCOPE

Rapid Fire Q&A

Damian G. Romero, PhD, shares techniques he's mastered, his favorite parts of his job and Twitter accounts we should all follow.

Q: Ever had a "eureka" moment?

A: When I learned that amino acids are synthesized within the cells when I was an undergraduate student. After that, I wanted to study biochemistry and molecular biology.

Q: Who inspired you to become a scientist?

A: My late father, Bernardo, who did not attend college, inspired me to become a scientist. He always told me: "Ask whatever you want. Almost surely I will not know the answer, but I will help you to find it." My mother always supported me and never pushed me to be a physician like her.

Q: How has the pandemic changed the way you work?

A: The bad: not having face-to-face scientific discussion

with colleagues, even the ones with offices close to mine, for months. The good: attending and delivering seminars at institutions all around the world.

Q: Most challenging laboratory technique you've learned to use?

A: Old fashioned cDNA-spotted microarrays. Wet-lab was challenging, working for days in a row without knowing if the experiment was working. However, that was nothing compared to manually placing tens of thousands of spot identifiers by hand. The "automatic" software usually misplaced a large number of the spots so they have to be corrected one by one.

Q: Items on your lab bench that you were most possessive of?

A: My pipettes, just because I knew for sure that they were clean.

Q: Best "MacGyver" moment in the lab?

A: More than "MacGyver," it was "Mission: Impossible." Doing laser capture microdissection (LCM) 200 miles from my lab. Bringing samples and reagents in tens of pounds of dry ice to last for four days. Capturing cells with a manual LCM (serial #3, one of the first in the U.S.) using a joystick to fire the laser where a misfire means starting the process all over again. After four days, put everything again in the car and drive back to the lab before running out of dry ice.

Q: If you could meet any scientist (living or dead) who would it be and why?

A: Louis Pasteur, one of the greatest scientists to ever walk on Earth.

Q: Favorite musician?

A: Taylor Swift. In 2018, we went to her concert in New Orleans—all parents were accompanying their kids, but I made my kids accompany me!



Romero out of the escape room (with some help!) with his wife, Licy, and their daughters, Emma and Patricia.

Top left: iStockphoto; Under the Microscope photos, courtesy Damian G. Romero, PhD.



Romero with his wife and daughters at the Holi Hindu festival (Festival of Colors).

Q: If you were a model organism, which model organism would you be?

A: A mouse or a rat, to be fair with them.

Q: What do you wish the general public understood about science or research?

A: That science is a learning process and our knowledge changes over time. There is no clearer example than COVID-19, where scientific knowledge is literally changing week by week.

Q: Favorite book about science (fiction or non-fiction)?

A: “Microbe Hunters” by Paul de Kruif. It is a general audience book on the history of microbiology. After reading it, it is impossible to not get inspired to change the world doing your best science.

Q: Favorite science-related TV show or movie?

A: “Hidden Figures.” A truly inspirational story about minority scientists; it’s difficult not to be touched by such an amazing story.

Q: Favorite part of your job?

A: A thrilled trainee making an exciting discovery. The best of both worlds, science and mentoring.

Q: Notable scientists you follow on Twitter?

A: Drs. Eric Topol and Ashish Jha. Both are a “must” to follow

to keep track of the COVID-19 pandemic research and public health status. I also follow APS Twitter accounts, including APS journals—it’s a great way to get updated with the Society and the science.

Q: How would you describe your job to a child?

A: Understanding how our body works when we are healthy or sick, to try to make everybody healthier.

Q: Go-to snacks to get you through long days working from home?

A: Cheese and salami—greatest humankind inventions!

Q: City, suburb, country? (Favorite place to live)

A: Suburb. I lived for 30 years in a big city (Buenos Aires, Argentina). It was nice to have many options just in one block, but I do not miss the three-hour commute to the lab!

Q: The question we didn’t ask that we should have?

A: Are you proud and happy to be an APS member? YES!!! 🎉

Damian G. Romero, PhD, is a professor of cell and molecular biology at the University of Mississippi Medical Center. He is the chair of the APS Endocrinology & Metabolism Section, a member of the APS Diversity, Equity & Inclusion Committee and a member of the editorial board of the American Journal of Physiology-Endocrinology and Metabolism. He has been an APS member since 2004.

PUBLISH WITH POLISH | JOURNAL UPDATES

APS Journals Change Reference Ordering

As many readers of APS journals may have noticed (and as discussed in previous Publish with Polish articles), APS journals have undergone some significant stylistic changes in 2021. Among these changes, and perhaps the most significant for authors, is the updating of reference lists to be arranged by order of in-text citation and numbered serially, instead of being arranged alphabetically by author name. The change is in effect for all APS in-house journals, including the *Journal of Neurophysiology*. The former style was actually atypical and created some technology issues. By introducing this change, we hope to make future updates to our proofing system to provide enhanced features to authors.

For example, for an article where Villalbos is the first cited reference and Ruebel is the second cited reference, the reference list would begin:

1. **Villalbos AR, Parmelee JT, Renfro JL.** Choline uptake across the ventricular membrane of neonate rat choroid plexus. *Am J Physiol Cell Physiol* 276: C1288–C1296, 1999. doi:10.1152/ajpcell.1999.276.6.C1288.
2. **Ruebel ML, Zambelli F, Schall PZ, Barragan M, VandeVoort CA, Vassena R, Latham KE.** Shared aspects of mRNA expression associated with oocyte maturation failure in humans and rhesus monkeys indicating compromised oocyte quality. *Physiol Genomics*. In press. doi:10.1152/physiolgenomics.00155.2020.

A link to download the revised APS 2021 EndNote template—as well as more information on the changes to reference ordering with examples of formatting styles for various different source types (e.g., books, articles, online content, etc.)—is available in the “References” section of the Instructions for Authors at <https://journals.physiology.org/author-info/references>. 🎉

APS’ experienced publishing staff share their tips and know-how to help you improve the polish of your scientific manuscripts. Got a scientific publishing or style question that you want us to weigh in on? Email it to tpysmag@physiology.org.



Learn by
Heart



Meet Jennifer Pollock:
cardiovascular researcher,
collaborator, optimist and
94th president of APS.

BY MELANIE PADGETT POWERS

In April 2021, Jennifer Pollock, PhD, FAPS, became the 94th president of the American Physiological Society (APS). She holds an endowed professorship in nephrology in the Department of Medicine, Division of Nephrology, at the University of Alabama at Birmingham (UAB). She is also the co-director of the Department of Cardio-Renal Physiology and Medicine and co-director of the Center for Clinical and Translational Sciences TL1 Predoctoral Training Program at UAB. She is also the director of the Kidney Pipeline Programs, which include the PRIME T32 training program, UAB KURE R25 summer undergraduate research training program and UAB PROMOTE R25 team science research training program.

The Physiologist Magazine interviewed Pollock about her career, the collaborations that she loves and what she is focused on as APS president.

Photo by Randal Crow

“All my PhD work was strictly biological chemistry, but when I started my postdoc, doing research with a focus on physiology was more exciting, and I gravitated toward physiology moving forward in my career.”



How did you become interested in science?

I cannot remember a time when I wasn't interested in science. When I was little I wanted to have

an ant farm. I had a garden and experimented with where to put the seeds. I was always fascinated with anything about science. Nobody in my family had a medical or science

career. My mother was a secretary at an elementary school, and my father was a salesman at Sears. I was the aberration.

How did you get interested in physiology?

I was a biology major, chemistry minor. Then, my husband, David, and I met in undergrad and decided to get married after graduation. I was always going to get my PhD in biological chemistry, and he was getting a PhD in physiology. We had absolutely no money, so we had to live on our stipends, and it became very clear that we could not live on two graduate school stipends—stipends were about \$3,000 a year at that time. So, I decided to quit the PhD program and took a position as a research assistant, which



Pollock and her husband, David, second from right, with students in the UAB KURE R25 summer undergraduate research training program.



Above, Pollock and her husband on their 40th wedding anniversary trip to Paris.

surprisingly helped me to focus on what I wanted for a career.

In the meantime, the university had a non-thesis master's degree program in chemistry at night for those working full time. So, I worked full time as a research assistant and completed the requirements for a master's in chemistry at night. Then, David accepted a postdoc position at the University of North Carolina (UNC) at Chapel Hill, so I decided to apply to the PhD program in the chemistry department at UNC. I was very focused on chemistry and biological chemistry, not physiology at the time. All my PhD work was strictly biological chemistry, but when I started my postdoc, doing research with a focus on physiology was more exciting, and I gravitated toward physiology moving forward in my career. So, I was coming from a very basic science background and moving into biomedical science, if you will, for physiology, and I really connected with this more.

Tell me about your current research.

I have several collaborative projects. Science is more fun with collaborations when you bring different perspectives to the same question. My personality is such that I don't want to do science by myself. That is absolutely no fun at all.

One of the projects I've been working on, going on 20 years now, is this concept of how things that

happened to you early in your life can change your susceptibility to different diseases later in life. We look at how early-life stress can influence your risk for cardiovascular disease. We use an animal model to decipher mechanisms, but we also have translational collaborations to determine the consequences of early-life stressors in adolescents and young adults on the risk for cardiovascular disease and hypertension. We found that individuals exposed to childhood adversities have elevated blood pressures much earlier in their life course.

We are now deciphering mechanisms for how the long-term detrimental effects of early-life stress may occur. One thing we found was that it has something to do with abnormal function of their blood vessels. We found that young adults and adolescents exposed to childhood adversity have blood pressure changes and aortic stiffness compared to individuals with no exposure to adversity. Those are major risk factors for cardiovascular disease later in life. If you're already having those risk factors when you're an adolescent, we want to know what we can do to try to prevent it. So now, that's a big

“Science is more fun with collaborations when you bring different perspectives to the same question. My personality is such that I don't want to do science by myself. That is absolutely no fun at all.”



While attending a U.K. physiology conference, Pollock and her husband took a side trip to Harlaxton Manor, the British campus for the University of Evansville, the Pollocks' alma mater.

question we hope to answer. If you're a person that has exposure to early-life stress, could we influence you then to change your lifestyle?

Another project stems from my postdoc work, which was related to nitric oxide and whether it's a vasodilator. My postdoc adviser, Ferid

Murad, MD, PhD, won the Nobel Prize for this, so I've always maintained that as a major research interest of mine. This project combines my interest in nitric oxide signaling, blood pressure regulation and the kidney. We have found that a high salt diet activates nitric oxide production in kidney

tubules to mediate sodium excretion, but a high salt diet also disrupts nitric oxide production in the endothelium of blood vessels. We are now studying the different pathways for nitric oxide production in the kidney tubules versus the endothelium. It's very exciting.

The other big project is focused on circadian rhythms and time of day feeding. While my laboratory is focused on the blood vessels, we also have collaborations with labs focused on the kidney, liver and brain. We fed mice a long-term high-fat diet for five months, but in the last two weeks of that treatment, we allowed them to have food only during their active period. When we took out their blood vessels, the ones that had been eating high-fat for five months had fatter aortas and other vascular problems along with a lot of fibrosis in the kidneys. Then when we compared those animals to the ones that had two weeks of the time-restricted feeding, it was striking. The mice with two weeks of time-restricted feeding had normal aortas and kidneys with very little fibrosis. It's really something. The timing of when these mice eat is a big deal.



Pollock with her daughter, Michaela, far right, and her two daughters-in-law, Kristin and Blair, at a family wedding reception.

What about your work fascinates you?

The excitement of learning or discovering new knowledge, but also being a part of all these collaborations. The other part of what fascinates me is working with students and fellows—how a student will come up and you chat about the research and then the lightbulb goes off. That is the coolest thing to happen, to be a part of that. Or they bring an idea and it flourishes. Or they get so excited about the research. I just love being a part of that—where they are all excited for their careers and being scientists themselves.

Tell us how you got involved with APS and what it has meant to you.

After I got involved in physiology, a colleague in another department, maybe 30 years ago, asked me to get involved in their APS section. It was someone coming and talking to me about getting involved in the Society. That's the lesson I learned—that people just want to be asked. Once I got involved in APS, it was an amazing adventure because I learned so much about leadership opportunities. I was able to fine-tune those skills. I learned how to motivate folks and get people involved in career development. I'm also involved in other scientific societies, but no other society has been so welcoming.

As APS president, how do you want to advance and expand the community?

The major thing for my year as president is to make sure that we have a well-structured, organized physiology meeting; that's going to be premiered in 2023. And, of course, there's the pandemic and "post-pandemic" transition for our Society. I want to make sure the membership is involved, that members feel like the Society is working for them.

What do you do for fun?

Pre-pandemic, David and I traveled quite a bit and have many great friendships from our travels to conferences. The fun part was that we would always take an extra day or two of personal time to absorb the local culture. So, I miss this fun part since the pandemic.

Now, I have a new granddaughter and a grandson on the way, so that has changed my priorities a little bit. Luckily, our kids like us to come and visit, and we've enjoyed being able

to have that during the pandemic.

I was vigilant to make sure I did not somehow get exposed to the coronavirus because I didn't want to miss visiting my granddaughter.

What's on your bucket list?

Definitely on my bucket list for science is that I want to know the answer to some of the research questions I've been working on for so long. It drives my husband crazy. He tells me that there's no way I will retire because I keep asking more questions! 🐶

FASTFACTS

Legacy of APS Service & Physiology Leadership

- APS member since 1997
- Fellow of APS since 2016
- Fellow of the American Heart Association (AHA) and the Council for High Blood Pressure Research since 2001
- APS Council, 2016–2019
- APS Bodil Schmidt-Nielsen Distinguished Scientist and Mentor Award
- APS Ernest Starling Distinguished Lecturer
- AHA Lewis K. Dahl Memorial Award and Lecture
- AHA Harriet Dustan Award for Outstanding Hypertension Research
- AHA Established Investigator Award
- Medical College of Georgia School of Graduate Studies Outstanding Faculty Award
- Medical College of Georgia School of Medicine Distinguished Faculty Award for Basic Science Research
- University of Arkansas Biomedical Graduate Student Choice Speaker Award
- Georgia Health Sciences University College of Graduate Studies Distinguished Teacher Award
- *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*, current editorial board member
- *American Journal of Physiology-Renal Physiology*, current editorial board member
- *Physiology*, current editorial board member
- APS Science Policy Committee, former member
- APS Education Committee, former member
- APS Water & Electrolyte Homeostasis Section, past chair

Education

PhD, Chemistry, University of North Carolina at Chapel Hill

MS, Chemistry, University of Cincinnati

BS, Biology, University of Evansville in Indiana



SCIENCE



Researchers bring science to the people, even amidst the limitations of lockdown.

BY GLORIA J. CHANG

Liz Roth-Johnson, PhD, was only two months into her new role as curator of life sciences at the California Science Center in Los Angeles when the coronavirus pandemic shut down the center. Normally, the state-funded center—the largest science center west of the Mississippi—welcomed 2.2 million visitors a year, seven days a week with no admission fees. Quick action was required to reach the grade schoolers that normally came to visit.



“We had to rethink hands-on exhibits,” says Roth-Johnson, the 2014 APS-sponsored AAAS Mass Media Fellow. Her role is to design, develop and build exhibits for the World of Life Gallery, which covers the science of humans and other living things. “We pivoted to online content like many others.”

With a mission to stimulate curiosity and inspire science learning, the center created “Stuck at Home Science” (<https://californiasciencecenter.org/funlab/stuck-home-science>), a series of videos for children and families who were, well, stuck at home. These YouTube videos ran the gamut of live DNA extractions to balloon rockets to animal visits—all with an activity that children could do at home. As reopening delays continued, the center built on its online offerings, which now include blogs, virtual field trips and sold-out virtual summer camps (the center distributed 2,100 summer camp kits to participants last summer).

Above, Liz Roth-Johnson, PhD, films a DNA extraction video from her house for a “Stuck at Home Science” video from the California Science Center. She’s using a chopstick to show a small glob of DNA she extracted from a lemon. Right, a mom raves on Instagram about the center’s pandemic videos.

Across the U.S., the pandemic forced scientists and institutions to reach their audiences in unexpected and new ways. As the entire world seemed to go virtual in 2020, so too did museums, learning centers and universities. But with a little creativity and brainstorming, the scientists were able to provide “science to go” and meet families where they were—at home.

For Roth-Johnson and her colleagues, that meant figuring out technology they had never



used before. She spearheaded Ever Wonder?, a podcast delving into the world of science. She started with interviews with staff members, who presented their hands-on exhibits as audio experiences. The podcast later expanded to interviewing scientists outside the science center.

“None of us had made a podcast,” she says. “None of the staff creating ‘Stuck at Home Science’ were professional video creators.” Her takeaway? “Don’t be afraid to just try things.”

‘MORE THAN JUST A PHYSICAL BUILDING’

In the Midwest, Frederic Bertley, PhD, CEO of Ohio’s Center of Science and Industry (COSI), was under added pressure in the weeks leading up to the center’s pandemic shutdown. “We were going from millions in revenue to zero. How the heck are we going to survive?” he remembers thinking.

As a science center that depended mostly on ticket sales for its budget, a shutdown threatened its very existence. As a physiologist and immunologist who researched vaccines at Harvard Medical School before shifting his primary focus to public outreach, Bertley knew the virus wasn’t going away soon. After laying out a strategy to decrease operating expenses and increase revenues independent of physical visits, he then ramped up plans already underway.

“Prior to the pandemic, we launched our new strategic plan,” he says. With the spread of cellphone use and digital everything, “we knew we had to be more than just a physical building.” Like the work on the coronavirus vaccine, the pandemic only accelerated what was already in the works.

COSI launched a variety of programs independent of physical visits. COSI Connects (<https://cosi.org/connects>)



GRASSROOTS OUTREACH

Nine years ago, after explaining what he did as a physiologist at his daughter's fifth grade class on Career Day, Patrick J. Mueller, PhD, associate professor of physiology at Wayne State University's School of Medicine in Detroit, decided to continue making annual visits. In 2021, that visit went virtual after the cancellation of last year's visit. "What is

science? What is a scientist? This is the question to answer and to show people," he says.

"Outreach to me is about making people aware of opportunities for themselves, but also how certain things work, which all leads to a better society," says Mueller, who describes his outreach efforts as grassroots and believes any interaction is a chance to do outreach. As just one example, after meeting a group of students while participating at Brain Day at the Science Center in

Detroit in 2017, he invited them to a meeting with the Michigan chapter of APS. One of the students is now about to enter a postbaccalaureate program at the National Institutes of Health doing research.

"It's a two-way street," Mueller says. "They get introduced to areas they love. You get the reward and satisfaction of seeing someone find their niche."

UNDERSTANDING YOUR AUDIENCE

Alicia Schiller, PhD, associate professor and director of combat casualty care medicine at the University of Nebraska Medical Center in Omaha, learned early how to connect with young students. In 2017, she and colleague Bryan Becker, PhD, published a study on an outreach event that specifically targeted Native American middle and high schoolers, who are underrepresented in STEM. They brought in 275 local students to participate in a day-long, 10-station event that taught them about physiology.

"It's easy to say, 'I'm a professor, a postdoc student, a physiologist,' but students connected none of

includes a suite of online activities such as videos, virtual visits to an exhibit and a variety of hands-on STEM kits that contain five experiments. Families waited in a line of more than 300 cars to pick up the popular kits.

Partnerships with various governments, associations and corporations were another key to success, allowing the center to exceed fundraising goals that had been set before the pandemic. "We showed our donors what exactly their dollars were doing and their impact on the end user," Bertley says.

There's also a new TV show called "QED with Dr. B" made in partnership with a PBS affiliate, with plans to develop accompanying online educational content. COSI is now gearing up for its third annual science festival in May 2021, which will be virtual two years in a row. "The pandemic has forced everyone to be innovative in real time," Bertley says.

Above, Frederic Bertley, PhD, became "Dr. B" in his center's new TV show called "QED with Dr. B." Right, former Wayne State University graduate students Anthony Anzell, left, and Timothy Bryson, right, teach elementary students about the brain-heart connection at a pre-pandemic Physiology Understanding Week event. In 2021, the researchers took their outreach virtual.





these roles with being a scientist,” Schiller says. “That was incredibly useful for us because all we had to do was change how we introduced ourselves: ‘I’m a scientist and I do research on the heart or the lungs.’”

The most interactive activities were also the most effective. “One of the fun things we did was an activity we called ‘What does a scientist look like?’ We provided a skeleton, clothes and miscellaneous costume items. The schoolchildren dressed it up and took selfies to share.”

Their study assessing the impact of their outreach event showed an increased understanding of what a physiologist is and increased enthusiasm toward scientific career opportunities. They can take the knowledge with them as they get back to outreach post-pandemic.

WHEN VIRTUAL BEATS IRL

At the University of Texas, El Paso, Alvaro N. Gurovich, PT, PhD, turned twice-yearly informational in-person visits for the physical therapy doctoral program into an online visit during the pandemic.

Above, a physical therapy doctoral student and members of the Clinical Applied Physiology (CAPH) Lab at the University of Texas, El Paso, teach and assess middle schoolers’ reaction time during a 2018 outreach program. Right, students learn about skeletal muscle recruitment and electromyography from a CAPH Lab member.

“It went so well it looks like we’re going to do it virtually instead of face-to-face moving forward after the pandemic,” he says. “El Paso is so far away from everything, so doing it face-to-face, we had 100 people showing up, making their way from areas up to eight hours away. When we did it virtually, we had 300-plus people attending via Zoom because it was more accessible.” In fall 2021, a student from Australia will join the virtual program.

To ensure the event was both engaging and relevant, the four-hour session started with an icebreaker and included a video created by current students in the program to appeal to their own age group and an informal question period with them. Then faculty had breakout rooms for prospective students to ask questions.

With his lab now open again—with restrictions—Gurovich is focused on returning to his K–12 student outreach, but also virtually. “Now that we know how to deal with the pandemic, we can start thinking outside the box to bring science to middle schoolers next academic year,” says Gurovich, who believes this is the perfect age to do outreach. “A lot of studies show that middle school, grades 5 to 7, is when kids make the decision to go to college.”



PANDEMIC SPOTLIGHTS NEED FOR SCIENCE OUTREACH

No doubt, the pandemic created challenges, but it has offered some improvements that will continue long after it’s over.

“It’s really been an opportunity to expand our offerings, to grow and create new ways to fulfill our mission to stimulate curiosity and inspire science learning,” Roth-Johnson says. The podcast, for example, will continue after the center reopens. And the online content expanded the center’s audience nationally and internationally. “Stuck at Home Science” had participation from all over the world, including Italy, Germany and the Middle East. Roth-Johnson has also been working on a new COVID-19 exhibit that will open when the doors do.

If anything, the pandemic has shined a light on the importance of science literacy and competence.

“I think if it wasn’t clear to people, it made it very clear that science matters in our everyday lives,” Bertley says. “The pandemic has shown us science really affects and influences our daily lives in ways we don’t realize, and it can offer solutions to get out of this pandemic. To see all the scientists from around the world get together with such incredible speed to come up with several candidate vaccines, and at least four in clinical use that have high efficacy, that’s exciting. And science made it happen.”



2021

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- Aging and inflammation

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DO I BELONG HERE?

How to overcome imposter syndrome,
a common mental roadblock.

BY CANDACE Y.A. MONTAGUE

Ninette Shenouda, PhD, had some awkward moments during her time in graduate school. She quietly examined the achievements of her fellow classmates and had a feeling that she just didn't belong.

"It started as soon as I got to grad school," she says. "All of a sudden, you're in an environment with all these very intelligent people, mentors and colleagues. And there were several different factors that gave me the feeling that somehow I snuck through the cracks. Like somehow they must have made a mistake letting me in."

But there was no mistake. Shenouda, now a postdoctoral researcher in the Vascular Physiology Laboratory at the University of Delaware, was experiencing imposter syndrome.

According to *Harvard Business Review*, "Imposter syndrome can be

defined as a collection of feelings of inadequacy that persist despite evident success. 'Imposters' suffer from chronic self-doubt and a sense of intellectual fraudulence that override any feelings of success or external proof of their competence. They seem unable to internalize their accomplishments, however successful they are in their field. High-achieving, highly successful people often suffer, so imposter syndrome doesn't equate with low self-esteem or a lack of self-confidence. In fact, some researchers have linked it with perfectionism, especially in women and among academics."

“In science you’re taught to be a critical thinker. What that means is you look for the gaps and flaws. You focus on what is not working, which means you’re very critical about everything, including yourself. So, you turn that back on yourself and you say, ‘I’m not as clever as I should be.’ ... So, in scientists it’s quite common because that’s the way your brain is working.”

—Hugh Kearns

In science, imposter syndrome can grow swiftly due to the competitive nature of the field. People who experience imposter syndrome tend to overlook their achievements and undermine their qualifications and thus pass up opportunities for career advancement.

It’s rare for people to reveal that they feel out of place, but imposter syndrome has affected some of the most successful people, including scientists, from time to time. The syndrome was first dubbed “imposter phenomenon” by two clinical psychologists, Pauline Rose Clance, PhD, and Suzanne Imes, PhD, when they explored it in 1978 at Georgia State University during a study of high-achieving women.

Recent studies have estimated that at least 20% of college students and approximately 70% of the U.S. population wrestle with this syndrome. It robs talented, qualified people of the chance to not only explore new opportunities but also the chance to relish in their own success. So, how can highly qualified people defeat this problem and advance in their careers? We tapped a few experts to break down how this issue holds back so many people—

including many in scientific careers—and what steps can be taken to keep it from interfering with growth.

‘IT THRIVES IN SILENCE’

Imposter syndrome can erode confidence and cause people to shy away from golden opportunities that they are more than suited to get. It happened to Gia Storms, founder and executive coach in leadership development at Storms Coaching and Consulting in Los Angeles. Storms found those inner voices chipping away at her when she changed career paths.

“When I left the corporate space to start my own business, there was a lot of critic activity and imposter syndrome that told me I had no business being a coach,” she says. “I had no business being out there on my own or charging certain fees for my work. And, of course, I knew at the time that it was a signal that I was moving bravely beyond the realm of the known. It thrives in silence. Like most shame-based behaviors, imposter syndrome thrives when you don’t speak it out loud.”

Shenouda says that much of the syndrome comes from comparison. “A lot of it is a comparison game. In science you’re compared against

your colleagues for publications, scholarships and grants. It’s very easy to see someone’s successes, their publications and funding and see your own rejections and struggles and feel like you don’t measure up.”

Hugh Kearns, a researcher at Flinders University in Adelaide, Australia, says science fields are a breeding ground for imposter syndrome. Kearns is also director of ThinkWell, an organization based in Australia that provides coaching for PhD students and professionals.

“In science you’re taught to be a critical thinker,” he says. “What that means is you look for the gaps and flaws. You focus on what is not working, which means you’re very critical about everything, including yourself. So, you turn that back on yourself and you say, ‘I’m not as clever as I should be.’ You’re constantly finding fault. So, in scientists it’s quite common because that’s the way your brain is working.”

Ultimately, Shenouda confronted her feelings and found ways to move beyond this obstacle. “As I progressed through my graduate studies and career, I came to realize that the people I looked up to, whether it was my mentor

or colleagues, also had their own struggles and weaknesses,” she says. “Nobody gets to the top in a direct path. And the more I became aware of that, the more I felt at ease with my own struggles.”

THE GENDER DIVIDE

Data on imposter syndrome often point to women experiencing it more often than men. But imposter syndrome is not a construct that affects one gender more than the other, according to a 2021 *Harvard Business Review* article (see <https://hbr.org/2021/02/stop-telling-women-they-have-imposter-syndrome>). Behind the scenes, many people suffer from it. The difference is that women talk about their experiences while men largely go silent.

“If you look at the background of impostor syndrome as it’s first described in the ’70s in the U.S., it was really looking at women in academia because that’s where the researchers were looking. But if you look deeper, you’ll see many men were included as well,” Kearns says. “For men, it’s not cool to talk about it. You’re supposed to be this confident, successful person. Yet, you feel inadequate in some ways. So, men are more likely to bottle it up.”

Storms confirms that men are often reluctant to share their feelings in competitive spaces. “In my experience working with men, it’s a lot harder for them to share openly about feelings of inadequacy—those feelings being out of their depth. And the way men are socialized, they can be incredibly criticized about feeling vulnerable and admitting they were nervous. So, generally those feelings exist in men; they are just less encouraged to talk about it.”

HOLDING BACK RACIAL MINORITIES

Imposter syndrome’s negative effects can be more pronounced for non-white people, who are

already contending with oppression, underrepresentation and being underestimated. In turn, that can affect school admissions, academic performance and recruitment efforts of companies trying to diversify and be more inclusive. In a study conducted at the University of Texas at Austin in 2017, at least 70% of the minority students surveyed experienced imposter syndrome. In addition, imposter syndrome can exasperate preexisting depression and anxiety that some minority students are already dealing with in isolation.

In the workplace, imposter syndrome can be rubberstamped by comments and microaggressions. In a 2019 *HuffPost* article, Jolie Doggett, a Black journalist, explains that many Black Americans already experience negative thoughts of not belonging in certain workspaces. And then, negative workplace interactions seem to confirm their doubts. “Imposter syndrome isn’t just an imaginary voice in our heads,” Doggett writes. “We can hear it loud and clear when we receive almost daily messages from society that we truly don’t belong.”

GETTING OUT OF YOUR OWN WAY

Imposter syndrome can be defeated so it doesn’t continue to derail a person’s success. Experts agree that talking about imposter syndrome more; finding support through coaches, mentors and affinity groups; and writing down accomplishments and celebrating successes can help terminate those awkward feelings.

“Role models and mentors are essential,” Storms says. “They can provide a safe space to say out loud, ‘I’m not sure I can do this’ and admit the scary thought. They become your network who can reflect back at you that you can absolutely do this.”



Shenouda credits her “phenomenal” mentor for showing her how to internalize accomplishments. “She found a way to celebrate our achievements. If someone completed their data analysis or data collection or got a scholarship, she would find a way to celebrate in the lab. By celebrating our achievements, she taught me to celebrate the milestones along the way.”

Shenouda also notes that taking time to understand imposter syndrome is a way for leaders and supervisors to show compassion. “When that student or employee comes to you about their feelings, you’re going to be a little more understanding,” she says. “You can at least assure them that this is normal and they shouldn’t let it hinder their career advancement or performance.”

Focusing on the endgame and not the failures and setbacks is crucial for warding off imposter syndrome. It will come back again and again, but as Kearns suggests, don’t let it rule you. “Have a goal; don’t let it hold you back, because that’s the real scary thing about imposter syndrome—it stops people from doing things. If you think you can do it, off you go and do it.” 📌



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Severin Receives Physical Therapy Association Emerging Leader Award



Richard Severin, PT, DPT, is a 2021 recipient of the American Physical Therapy Association (APTA) Academy of Cardiovascular & Pulmonary Physical Therapy Emerging Leader Award. The award recognizes Severin's "passion, expertise and dedication to the Academy and cardiovascular and pulmonary physical therapy,"

along with his well-established research and service to APTA. Severin is a visiting clinical instructor in the Department of Physical Therapy at the University of Illinois at Chicago (UIC) and part-time clinical assistant professor in the doctor of physical therapy program at Baylor University in Waco, Texas. He is pursuing a PhD in rehabilitation science at UIC.

Gonzales Recognized with University of Arizona Mentoring Award

Rayna Gonzales, PhD, an associate professor and block director in the Department of Basic Medical Sciences at the University of Arizona College of Medicine-Phoenix, has been awarded the Excellence in Graduate Student Mentoring Award. This award recognizes exceptional dedication and work as a faculty mentor in a graduate program. Gonzales' research lies in the field of vascular physiology and sex steroid biology. She has been an APS member since 1992 and is a past Porter Fellow.



Wehrwein Honored with Undergraduate Teaching Award



Erica A. Wehrwein, PhD, associate professor of physiology at Michigan State University (MSU), is the 2020 recipient of the Donald F. Koch Quality in Undergraduate Teaching Award. The award recognizes educators who are committed to quality undergraduate teaching and show continued involvement in undergraduate

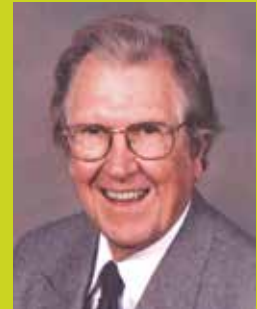
education. Wehrwein is honored for her use of a progressive learning style and active, hands-on participation. Her capstone in physiology course has received recognition as a best course at MSU. She has been a member of APS since 2000.

Paul C. Johnson, PhD, FAPS

BY WILLIAM H. DANTZLER, MD, PHD, FAPS, AND NICHOLAS A. DELAMERE, PHD

Paul C. Johnson, PhD, distinguished cardiovascular physiologist and APS Fellow, passed away at the age of 93 on February 21, 2021. Dr. Johnson was professor emeritus and founding head of the Department of Physiology at the University of Arizona College of Medicine in Tucson.

Dr. Johnson studied physics and physiology at the University of Michigan and received his PhD in 1955. After two years as an instructor at Case Western Reserve University, he joined the physiology faculty at Indiana University. He was recruited to the University of Arizona in 1967 as a professor when the dean of the newly established College



of Medicine charged him with creating a Department of Physiology. Dr. Johnson recruited faculty members with research interests in neurophysiology, muscle physiology, renal and transport physiology, endocrinology and comparative physiology. Under his leadership, the faculty established a tradition of excellence in research and teaching that continues to this day.

Dr. Johnson studied the microcirculation and mechanisms that regulate flow in small vessels. He helped develop the dual-slit method for measuring blood flow and was a pioneer in studies on autoregulation and myogenic regulation. His contributions were recognized by the Eugene M. Landis Award of the Microcirculatory Society, the APS Carl Wiggers Award and an honorary MD from the University of Limburg in the Netherlands. The Arizona microcirculation group thrived, and Tucson became home to leading figures in the field. Dr. Johnson led the Department of Physiology for 20 years. He retired in 1994, moved to San Diego and continued research at the University of California, San Diego.

Dr. Johnson was active in APS throughout his career. He served as councilor and Publications Committee chair and was elected to the first class of APS Fellows. He is survived by a daughter, Ciri; sons Philip and Christopher; and a grandson. His wife, Genevieve (Genny), passed away in 2017.

William H. Dantzer, MD, PhD, FAPS, is professor emeritus and former head of the Department of Physiology at the University of Arizona College of Medicine. Nicholas A. Delamere, PhD, is professor and current head of the department.

APS MEMBER BENEFITS

APS Launches New Member Directory

On April 1, APS launched an enhanced member directory. This exclusive benefit is designed to allow members to find and network with colleagues by institution, region, section affiliation(s) and interest group(s). The APS member directory will help you build lasting professional and personal relationships with colleagues in your field. Log on to your My APS Dashboard at www.physiology.org/MyAPS to access the directory.

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Your personalized My APS Dashboard contains new APS Section, Committee and Interest Group Hubs.

Features of the Hubs include:

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- links to section award opportunities for APS members;
- full listings of award winners;
- donation links so you can give directly to your section; and
- document libraries, which contain
 - steering committee and leadership rosters,
 - statement of organization and procedure documents to learn more about the governance of your section and interest group,
 - and more!

Check out your Hubs today at www.physiology.org/MyHubs and subscribe to stay in touch with your section and interest group communities.

CHAPTER NEWS

Kentucky Physiological Society Develops Virtual Teaching Modules

During the COVID-19 lockdown, members of the Kentucky Physiological Society were able to maintain outreach and educational activities. The chapter ran two high school teacher workshops with the National Science Teaching Association that included an engaged group of teachers.

Recordings of the sessions are available online. Access the video recording of the skeletal muscle session at <http://bit.ly/KYSkeletalMuscle>. The recording of the "Forensics for the Body Farm" session is available at <http://bit.ly/KYForensics>.

The modules were created by Robin Cooper, PhD, a chapter board member and chapter co-director of professional development, program and education. Cooper is the Chellgren Endowed Professor at the University of Kentucky.

In addition, the chapter developed a few educational research modules with students in a neurophysiology course. All the students in the class were engaged in the active learning of addressing authentic research questions. The students published their findings in an undergraduate neuroscience research journal, *IMPULSE*. The students planned to present their educational modules at the APS annual meeting at Experimental Biology in April and at the Association for Biology Laboratory Education virtual conference in June.



AWARDS

Solomon A. Berson Distinguished Lectureship of the APS Endocrinology & Metabolism Section (Deadline: May 15)

John F. Perkins Jr. Research Career Enhancement Awards (Deadline: May 31)

Teaching Career Enhancement Awards (Deadline: May 31)

Claude Bernard Distinguished Lectureship Award (Deadline: June 1)

Ernest H. Starling Distinguished Lecture of the APS Water & Electrolyte Homeostasis Section (Deadline: July 1)

Teaching Experiences for Bioscience Educators (TEBioED) Fellowship Program (Deadline: July 15)

Local Undergraduate Research Awards in Physiology (Applications accepted on an ongoing, year-round basis)

More details: www.physiology.org/awards



WEBINARS

APS-MILTENYI BIOTEC WEBINAR SERIES

CRISPR-Enhanced Adipocyte Browning: A Cell Therapy Approach to Treat Metabolic Disease
May 11, 2021

APS-ADI WEBINAR SERIES

Optogenetic activation of selective cardiac autonomic neurons
May 20, 2021

SCIENCE OF AGING WEBINAR SERIES

The Challenges of Sarcopenia: Definition, Underlying Mechanisms, Interventions and Outcomes
May 19, 2021

Experimental Muscle Mechanics in Aging and Disease
June 2, 2021

DIVERSITY, EQUITY AND INCLUSION (DEI) WEBINAR SERIES

DEI Town Hall
May 25, 2021

Creating an Inclusive Work and Lab Environment
June 22, 2021

More details: www.physiology.org/webinars



CALLS FOR PAPERS

American Journal of Physiology-Cell Physiology (June 30, 2021)

- Making Cell Culture More Physiological
- Virus-host Cell Interactions and the Viral Life Cycle: Basic Science to Therapeutics

American Journal of Physiology-Lung Cellular and Molecular Physiology (June 30, 2021)

- Lung Diseases in Reverse Translation: Bedside to the Bench

American Journal of Physiology-Renal Physiology (June 30, 2021)

- Neural Control of Renal Function in Hypertension and Kidney Disease
- Mechanisms of Renal Electrolyte Transport and Ion Channel Regulation in Honor of Dr. Gerhard Giebisch

Journal of Neurophysiology (JNP) (June 30, 2021)

- The Neurophysiology of Consciousness
- Society for the Neural Control of Movement
- Spinal Networks and Spinal Cord Injury: A Tribute to Reggie Edgerton

- Vestibular and Oculomotor Function in Health and Disease: A Tribute to W. Michael King, PhD
- Visual, Vestibular and Somatosensory Interactions for Visuomotor Responses: A Tribute to Jerry Simpson

Physiological Genomics (June 30, 2021)

- Extracellular Vesicles: Role in Physiology and Pathophysiology
- Precision Medicine and Complex Disease
- Physiological Genomics of Cell States and Their Regulation and Single Cell Genomics

Physiological Genomics (July 1, 2021)

- Comparative Physiological Genomics

More details: www.journals.physiology.org/calls



Make a Difference— Get Involved

BY DAVID MATTSON, PHD, FAPS

As I write this, we are all hopeful that the worst of the COVID-19 public health crisis will soon be behind us. Many of us have avoided the virus and appreciate our good fortune, but too many others have not been as lucky. The loss of lives, disruption of families, economic insecurity and other hardships resulting from this crisis will continue to resonate for years.

None of us have remained unaffected, and we all yearn for a sense of pre-2020 normalcy. It is therefore understandable that many of us are now

focused upon the opportunity to reengage in personal activities and renew personal relationships.

We should also take time to reflect on our professional lives. More than a year of isolation cannot help but provide us with a broader perspective and a consideration of the numerous opportunities that we have previously taken for granted or put off until a later time. As members of the physiology scientific and teaching

community, we have likely postponed or been unable to complete the experiments we wanted to conduct, the papers we were going to write, the courses we were going to develop and the grants we wanted to submit.

Interestingly, the ability to participate in these everyday tasks was not fully appreciated until they were out of our reach. This time

of change also presents each of us with the additional opportunity to engage in activities that benefit our colleagues, our scientific discipline and ourselves. Importantly, we can each be a force to effect positive change in the scientific community. Now is the time to act.


While it is often easy to identify opportunities within our communities to participate in, the chance to influence matters on a wider scale may seem out of reach. However, for physiologists,

a readily available outlet is participation as a member or member-leader in APS activities. As a champion of our discipline, APS is committed to creating an environment where individuals can

exchange ideas and be safe, accepted and respected.

Moreover, members who participate in Society activities find that the benefits far exceed the energy expended. The relationships that are formed, the added insight into the world of science and the personal satisfaction from helping

guide our field forward are well worth the time and effort. For those disillusioned by our national political conversation, the Society provides an ideal platform to make a positive difference in the world.

As we each evaluate our future professional activities, please consider participation in the many opportunities available in the APS sections, interest groups and committees. As a member-driven scientific society, participation permits each of us to serve our scientific community and enact change in our world. APS members are asked to take a stand for change and commit to inclusion, respect and equality and to foster the open-mindedness that is the staple of discovery and creativity. Through APS participation, we can each help shape the future. 

David Mattson, PhD, FAPS, is a professor and chair of physiology at the Medical College of Georgia in Augusta. He is an outgoing APS councilor.



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with the American
Physiological Society.



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