

2023  **NAA**  CONFERENCE

# LIFE IN THE VASC(ULAR) LANE

Arterial Health Across the Lifespan and in Special Populations

WELCOME TO THE 2023 NORTH AMERICAN ARTERY  
11<sup>TH</sup> ANNUAL MEETING  
JUNE 16-17, 2023 • IOWA CITY, IA



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# GENERAL INFORMATION

## WHO IS THE NAA?

A professional society dedicated to the encouragement, support, and understanding of vascular structure and function and its application to clinical medicine, research, and pharmaceutical and medical device development. (Founded in 2009)

### Sister Societies

- Artery Society ([www.arterysociety.org](http://www.arterysociety.org))
- Pulse of Asia ([www.pulseasia.org](http://www.pulseasia.org))
- Latin American Artery (LATAM)

## MEETING VENUE/HOTEL ACCOMMODATIONS

### The Graduate Iowa City Hotel

210 Dubuque St

Iowa City, IA 52240

Phone: 319.337.4058

Sleeping Room Rate ~ \$139 plus taxes

The cut-off date is June 6, 2023 for the discounted rate.

**Book your hotel today!**

The 2023 NAA Conference will take place in the meeting space in the Ballroom located on the Lower Level of The Graduate Hotel. The hotel is located in the Pedestrian Mall and a twenty-minute walk from Kinnick Stadium, which is home to the Iowa Hawkeyes, just across the river from campus.

## MEETING REGISTRATION

Registration includes attendance to all sessions, poster presentations, exhibit areas, and all food functions; including the Welcome Reception. Registrants will receive a Program Syllabus and a supplemental program packet

that includes all accepted abstracts. Registration Fees are: Members at \$200 and Non-Members at \$300, Trainees/Students Members at \$115.00 and Non-Members at \$150. All conference materials including badges can be picked up from the registration desk during the following hours: June 16, 2023 from 7:00 AM to 5:00 PM and June 17, 2023 beginning at 7:30 AM.

## POSTERS ON DISPLAY

### The Graduate Hotel – Ballroom/Exhibit Hall

Posters will be on display throughout the conference. Presenters will be available to discuss their posters during scheduled time. Please look at schedule on Page 9-12 in this program.

## PRACTICAL HANDS-ON PRODUCT DEMONSTRATIONS

Exhibiting sponsors will provide practical hands-on demonstrations of their devices during the breaks on Friday, June 16 and Saturday, June 17. Join ATCOR on Friday, June 16th for a product demonstration from 3:40pm – 3:50pm.

## WELCOME RECEPTION

The Welcome Reception will be held at the Wilder Bar located on the 1st Floor at The Graduate Hotel from 6:30pm to 7:30pm. All participants are invited to network. Dinner will be held on your own.

## TRANSPORTATION

The Eastern Iowa Airport (CID) is located approximately 25 miles from The Graduate Hotel.

# Welcome Reception

FRIDAY JUNE 16, 2023 | 6:30-7:30PM | WILDER

Graduate  
IOWA CITY



# MEET THE NAA EXECUTIVE COMMITTEE



**Elaine Urbina, MD, MS**  
President



**Julio Chirinos, MD, PhD**  
Vice President



**Gary Pierce, PhD, FAHA, FAPS**  
Treasurer



**Stella Daskalopoulou, MD, PhD**  
Secretary



**Raymond Townsend, MD**  
Past President

# 2023 CONFERENCE COMMITTEE

**Gary Pierce, PhD**  
University of Iowa (NAA Treasurer & NAA Co-Chair)

**Bo Fernhall, PhD**  
University of Massachusetts Boston (NAA Co-Chair)

**Elaine Urbina, MD, MS**  
Cincinnati Children's Hospital Medical Ctr (NAA President)

**Julio Chirinos, MD, PhD**  
University of Pennsylvania (NAA Vice-President)

**Stella Daskalopoulou, MD, PhD**  
McGill University (NAA Secretary)

**Raymond Townsend, MD**  
University of Pennsylvania (NAA Past-President)

**David Edwards, PhD**  
University of Delaware

**Tina Brinkley, PhD**  
Wake Forest University

**Kerrie Moreau, PhD**  
University of Colorado Anschutz Medical Campus

**Demetra Christou, PhD**  
University of Florida

**Kevin Heffernan, PhD**  
Syracuse University

**Diana Jalal, MD**  
University of Iowa

**Thais Coutinho, MD**  
University of Ottawa

**Ashley Walker, PhD**  
University of Oregon

**Lee Stoner, PhD**  
University of North Carolina Chapel Hill

**Michael Nelson, PhD**  
University of Texas at Arlington

# PRESIDENT'S WELCOME

Dear Colleagues,

It is with great pleasure that I invite you to participate in the Eleventh Annual Meeting of North American Artery that will take place on June 16-17, 2023 at the University of Iowa, Iowa City, IA. The theme for the 2023 conference is **"Life in the Vasc(ular) Lane: Arterial Health Across the Lifespan and in Special Populations."**

We have a great line-up of national and internationally renowned speakers who will be discussing cutting edge basic, clinical and population research. Topics include validation of new cuffless BP devices, arterial stiffness and aortic aneurysms, Disparities in vascular and brain health, Lifestyle interventions for vascular aging, pre-eclampsia and maternal health, Sex differences in pulsatile hemodynamics, ending with a vigorous debate on the best method for out of office BP assessment. There will be ample early career development sessions including posters, an abstract competition and networking with senior investigators. There will also be demonstrations of the most up-to-date devices for measuring vascular parameters by our sponsors.

This is the premier meeting to interact with international experts in the field of arterial structure and function in health and disease.

Thank you for joining us.



Elaine M. Urbina, MD, MS  
President,  
North American Artery



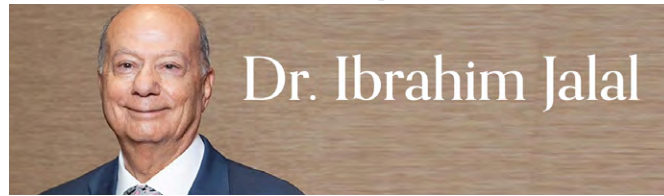
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# WELCOME FROM THE CO-CHAIRS

Dear Colleagues,

It is with great pleasure that we welcome you to the 11th Annual Meeting of North American Artery (NAA) society on June 16-17, 2023, at the Graduate Hotel in Iowa City, Iowa, home of the University of Iowa. The theme for the 11th annual meeting is **"LIFE IN THE VASC(ULAR) LANE: ARTERIAL HEALTH ACROSS THE LIFESPAN AND in SPECIAL POPULATIONS"**.

NAA 2023 will focus on the basic, clinical and population implications on arterial health across the lifespan as it relates to cardiovascular disease risk. This year's opening Plenary lecture will feature Dr. Stephen Juraschek from Beth Israel Lahey Health/Harvard Medical School discussing the hot topic of "Validating Cuffless Continuous Blood Pressure Monitors". The major Symposia will focus on a variety of contemporary and important topics including preeclampsia and maternal vascular health, clinical and basic science of sex differences in arterial stiffness and hemodynamics, aortic aneurysms and arterial stiffness, racial/ethnic disparities in vascular and cognitive health, and novel lifestyle interventions for vascular aging. We welcome the career development award winner from the October ARTERY meeting in Nancy, France **Dr. Ryan Pewowaruk**, who will give a lecture on **"Simple Models of Complex Mechanics: Learning to De-Stiffen Arteries"**. The popular NAA debate, which was named after the late Dr. Stanley Franklin, a long time NAA colleague and frequent debate participant, will feature **Dr. Raymond Townsend vs. Dr. Joseph Schwartz debating whether 24-hour ambulatory or home blood pressure monitoring is the better 'out of office' blood pressure assessment**. Lastly, we welcome back our trusted ARTERY colleague and international expert from Sydney, Australia, **Dr. Alberto Avolio**, who will give the AtCor Medical Diamond Sponsored Lecture named **"Empowering Patients in the Transition to the Digital Revolution"**.

The meeting will also continue to feature oral and poster abstract presentations by students/trainees as an integral part of the Annual Meeting. We will continue this year with an increased number of oral abstract presentations from trainees and practical 'hands-on' demonstrations given by our valuable sponsors. We will also have a student/trainee career development breakfast to give our trainees an opportunity to discuss career development topics with established investigators in the field.

Our sessions and exhibit hall, located in the Graduate Hotel ballroom, will be hubs of discussion, with numerous opportunities to network with basic, clinical and population scientists and practicing clinicians from a wide range of disciplines from the United States, Canada, Europe and Australia. In addition, there will be ample opportunities for interactions with sponsoring firms displaying their latest innovative technologies and devices for assessing vascular function, blood pressure, autonomic function and other cardiovascular risk related outcomes.

We encourage you to help make the NAA 2023 Annual Meeting a valuable and successful experience by actively taking part in the education of the participants while supporting our efforts to raise awareness of the importance of how arterial structure and function changes with aging across various populations of individuals including women, different racial/ethnic groups, and person with clinical disease.

You can follow and retweet live updates from the meeting on Twitter **@NAASociety**. Please tweet your photos from the meeting using **#NAA2023**. Thank you.



Gary Pierce, PhD  
NAA Conference Co-Chair  
North American Artery



Bo Fernhall, PhD  
NAA Conference Co-Chair  
North American Artery



TIME	EVENT
7:30-8:45 am	<b>Registration and Breakfast</b> The Graduate Lower Level
8:30-8:45 am	<b>Welcome and Opening Remarks</b> Gary Pierce, PhD, University of Iowa (NAA Co-Chair) Bo Fernhall, PhD, University of Massachusetts Boston (NAA Co-Chair) Elaine Urbina, MD, Cincinnati Children's Hospital Medical Center (NAA President)
8:45-9:15 am	<b>Opening Plenary Lecture - Validating Cuffless Blood Pressure Monitoring Devices</b> Moderator: Gary Pierce, PhD, University of Iowa Speaker: Stephen Juraschek, MD, PhD, Beth Israel Deaconess Medical Center/Harvard Medical School
<u>9:15-10:40 am</u>	<b>Symposium: Aortic Aneurysms and Arterial Stiffness</b> Moderator: Thais Coutinho, MD, University of Ottawa
9:15-9:40 am	<b>Guidelines in Aortic Aneurysms Assessment and Treatment</b> Speaker: Maen Aboul Hosn, MD, University of Iowa/Iowa City VA Vascular Surgery
9:40-10:05 am	<b>Aortic Aneurysms and Aortic Stiffness: Sex Differences</b> Speaker: Thais Coutinho, MD, University of Ottawa
10:05-10:30 am	<b>Applied Genomics of the Aorta</b> Speaker: Jack DePaolo, MD, PhD, University of Pennsylvania
10:30-10:40 am	<b>Panel Discussion</b>
10:40-11:30 am	<b>Coffee Break, Poster Session, Vendor Exhibit</b>
<u>11:30-12:55 pm</u>	<b>Symposium: Racial/Ethnic Disparities in Vascular and Cognitive Risk</b> Moderator: Tina Brinkley, PhD, Wake Forest University
11:30-11:55 am	<b>Arterial Stiffness and Brain Health in Racially/Ethnically Diverse Populations</b> Speaker: Michelle Meyer, PhD, MPH, University of North Carolina
11:55-12:20 pm	<b>Racial Differences in Health Behaviors on Blood Pressure and Vascular Function</b> Speaker: Austin Robinson, PhD, Auburn University
12:20-12:45 pm	<b>Racial Differences in Micro- and Macrovascular Function Among Young Women</b> Speaker: Melissa Witman, PhD, University of Delaware
12:45-12:55 pm	<b>Panel Discussion</b>
1:15-2:15 pm	<b>Sponsored Lunch (Diamond Sponsor: AtCor, a Cardiex company)</b> <b>Empowering Patients in the Transition to the Digital Revolution</b> Speaker: Alberto Avolio, PhD, Professor Emeritus, Macquarie University, Sydney, Australia
<u>2:15-3:30 pm</u>	<b>Symposium: Novel Lifestyle Interventions for Vascular Aging</b> Moderator: Julio Chirinos, MD, PhD, University of Pennsylvania
2:15-2:40 pm	<b>Mechanisms of Vascular Endothelial Insulin Resistance and Therapeutic Targets for Intervention</b> Speaker: Jaume Padilla, PhD, University of Missouri
2:40-3:05 pm	<b>High-Resistance Inspiratory Muscle Strength Training: A Time-Efficient Strategy for Improving Cardiovascular Aging</b> Speaker: Daniel Craighead, PhD, Univ of Colorado Boulder
3:05-3:30 pm	<b>Gut Microbiome, Vascular Function, and Hypertension in Aging: Novel Targets for Intervention</b> Speaker: Vienna Brunt, PhD, University of Colorado Anschutz Medical Campus

TIME	EVENT
3:30-3:40 pm	Panel Discussion
3:40-4:00 pm	Coffee Break, Poster Viewing, Vendor Exhibits
3:40pm – 3:50pm	<b>ATCOR Booth: 10 Minute Demonstration</b> Ric Ruffhead, ATCOR Director of Academic and Clinical Research Partnerships
4:00-5:30 pm	<b>(7) Oral Abstract (12 min each) presentations for trainees</b> Moderators: Bo Fernhall, PhD, University of Massachusetts Boston   Ashley Walker, PhD, University of Oregon <b>4:00pm – 4:12pm</b> Abstract #OR-01: Colin Gimblet, MS, Graduate Student, University of Iowa <b>4:12pm – 4:24pm</b> Abstract #OR-02: Matthew Armstrong, PhD, University of Iowa <b>4:24pm – 4:36pm</b> Abstract #OR-03: Skylyn Ferguson, BS, University of Oregon <b>4:36pm – 4:48pm</b> Abstract #OR-04: Krista Reed, MS, Iowa State University <b>4:48pm – 5:00pm</b> Abstract #OR-05: Sophia Mahoney, MS, University of Pennsylvania <b>5:00pm – 5:12pm</b> Abstract #OR-06: Seavimeyin Kun, University of Pennsylvania <b>5:12pm – 5:24pm</b> Abstract #OR-07: Lyndsey DuBose, PhD, University of Colorado Anschutz Medical Campus
5:30-5:50 pm	<b>Career Development Lecture: NAA Co-Sponsored with Artery Society</b> <b>Simple Models of Complex Mechanics: Learning to De-Stiffen Arteries</b> Moderator: Julio Chirinos, MD, PhD, University of Pennsylvania Speaker: Ryan Pewowaruk, PhD (Career Development Award Winner- ARTERY 21 Meeting) William S. Middleton Memorial Veterans Hospital, Division of Cardiovascular Medicine, Department of Medicine, University of Wisconsin School of Medicine and Public Health
5:50-6:00pm	<b>NAA Lifetime Achievement Award in Hemodynamics and Hypertension, Raymond Townsend, MD</b>
6:30-7:30 pm	<b>Cocktail/Hors D'oeuvre Reception: The Wilder Bar, Main Level</b>
7:30 pm	<b>Dinner on your own</b> Options: <a href="https://downtowniowacity.com/listing_categories/restaurant/">https://downtowniowacity.com/listing_categories/restaurant/</a>

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TIME	EVENT
7:30-8:45 am	<b>Breakfast (Lower Level Lobby)</b>
8:00-8:45 am	<b>Career Development Breakfast</b> Trainee opportunity to meet and talk with senior faculty (Kevin Heffernan, PhD, Tina Brinkley, PhD)
<u>9:00-10:15am</u>	<b>Symposium: Preeclampsia and Maternal Vascular Health: Translational Implications of Basic, Clinical and Population Science</b> Moderator: Stella Daskalopoulou, MD, PhD, McGill University
9:00-9:25 am	<b>Arterial Stiffness for the Prediction of Preeclampsia: Can We Do Better?</b> Speaker: Stella Daskalopoulou, MD, PhD, McGill University
9:25-9:50 am	<b>Circulating Cell-Free Mitochondrial DNA and Preeclampsia</b> Speaker: Stella Goulopoulou, PhD, Loma Linda University
9:50-10:15 am	<b>Physical Activity and Sedentary Behavior and Risk of Hypertensive Disorders of Pregnancy</b> Speaker: Kara Whitaker, PhD, MPH, University of Iowa
10:15-10:30 am	<b>Panel Discussion</b>
10:30-11:30am	<b>Coffee Break, Poster Viewing, Vendor Exhibits</b>
<u>11:30-12:20 pm</u>	<b>Symposium: Sex Differences in Arterial Stiffness and Pulsatile Hemodynamics: From Basic to Clinical Science</b> Moderator: Demetra Christou, PhD, University of Florida
11:30-11:55 am	<b>Basic Science of Sex Differences in Arterial Stiffness and Hemodynamics: Animal Models</b> Speaker: Ashley Walker, PhD, University of Oregon
11:55-12:20 pm	<b>Clinical Insight into Sex Differences in Arterial Stiffness and Hemodynamics: Humans</b> Speaker: Kerrie Moreau, PhD, University of Colorado Anschutz Medical Campus
12:20-12:30 pm	<b>Panel Discussion</b>
12:30-2:00 pm	<b>Lunch, Poster Session</b> Poster presenters: 1:15-2:00pm
2:00-3:30 pm	<b>(7) Oral Abstract (12 min each) Presentations for Trainees and Faculty</b> Moderators: Kevin Heffernan, PhD, Syracuse University Kerrie Moreau, PhD, University of Colorado Anschutz Medical Campus <b>2:00pm – 2:12pm</b> Abstract #OR-08: Emily Reeve, MS, University of Oregon <b>2:12pm – 2:24pm</b> Abstract #OR-09: Denis Wakeham, PhD, The University of Texas Southwestern Medical Center <b>2:24pm – 2:36pm</b> Abstract #OR-10: Marie-Joe Dib, PhD, University of Pennsylvania <b>2:36pm – 2:48pm</b> Abstract #OR-11: Brooks Hibner, BS, CES, University of Illinois at Chicago <b>2:48pm – 3:00pm</b> Abstract #OR-12: Zachary Clayton, MS, PhD, University of Colorado Boulder <b>3:00pm – 3:12pm</b> Abstract #OR-13: Seth Holwerda, PhD The University of Kansas <b>3:12pm – 3:24pm</b> Abstract #OR-14: Wesley Lefferts, PhD, Iowa State University

TIME	EVENT
3:30 -4:15 pm	<p><b>NAA Stanley Franklin Debate: Better Method for Out of Office BP Assessment is .....!</b></p> <p>Moderator: Elaine Urbina, MD, Cincinnati Children's Hospital Medical Center</p> <p>"Pro" Position: 24-hr Ambulatory BP Monitoring is the Better Method for Out-of-Office BP Assessment</p> <p>Speaker: Raymond Townsend, MD, University of Pennsylvania</p> <p>"Con" Position: Home BP Monitoring is the Better Method for Out-of-Office BP Assessment</p> <p>Speaker: Joseph E. Schwartz, PhD, Center for Behavioral and Cardiovascular Health, Columbia University Medical Center, NY</p>
4:15-4:20 pm	<p><b>Trainee Awards</b></p> <p>Oral abstract presentation awards (1st and 2nd place)</p>
4:20-4:25 pm	<p><b>Concluding Remarks and Adjourn Meeting</b></p>

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# MEET THE SPEAKERS

## ALBERTO AVOLIO, PhD MACQUARIE UNIVERSITY



### **Empowering Patients in the Transition to the Digital Revolution**

Professor Alberto Avolio is Professor Emeritus at Macquarie Medical School, Faculty of Medicine, Health and Human Sciences, Macquarie University, Sydney, Australia. He has acquired international recognition in the field of cardiovascular haemodynamics. He has taught in the fields of cardiovascular dynamics and in the broad area of engineering in medicine and biology and has extensive experience in PhD supervision and in examination of national and international higher degree theses. His research experience has been in the fields of pulsatile relationships between blood pressure and flow, characterization of pressure-dependent indices of vascular function, cellular and molecular mechanisms of arterial stiffness, pulse wave analysis, non-invasive estimation of central aortic pressure, cardiovascular modelling and biological signal processing. He is on the editorial board of several international journals of cardiovascular research and hypertension and is a reviewer for over forty international scientific journals. He has been Past President of the Pulse of Asia Society. He is active in the emerging areas of cuffless measurement of blood pressure and is on committees for formation of international standards for validation of cuffless blood pressure devices. He has over 300 publications including a book, 17 book chapters and peer reviewed articles. Professor Avolio had held positions of Visiting Professor at international academic institutions and is currently Visiting Professor at Northeastern University, Shenyang China. He has received professional Lifetime Achievement recognition from Pulse of Asia and Society for Artery Research.

## TINA BRINKLEY, PhD WAKE FOREST UNIVERSITY



### **Career Development Breakfast**

Tina Brinkley, PhD is an Associate Professor in the Department of Internal Medicine, Section on Gerontology and Geriatric Medicine at Wake Forest University School of Medicine (WFSM) with formal training and extensive experience in exercise physiology and aging research. Dr. Brinkley's research is focused on investigating the effects of exercise, diet and weight loss on adiposity, cardiovascular function, cardiometabolic risk factors, and brain health in older adults, with more recent efforts devoted to understanding the role of obesity in the development and progression of Alzheimer's disease and related dementias. Her work has been funded by the NIA, NHLBI, American Heart Association, and Alzheimer's Association, and she is currently the PI of two R01s that aim to test the neurovascular and metabolic effects of lifestyle interventions in older adults at risk for Alzheimer's disease. She also co-directs an NIA-funded program designed to increase diversity in aging research by providing education and research training for under-represented undergraduate students. Dr. Brinkley has served on the Program Committee for the North American Artery Society since 2014 and regularly participates in a variety of initiatives that support mentorship, research training, diversity and inclusion, and scholarly service both locally and nationally.

## VIENNA E. BRUNT, PhD UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS



### **Gut Microbiome, Vascular Function, and Hypertension in Aging: Novel Targets for Intervention**

Vienna E. Brunt, Ph.D. is an Assistant Professor in the Division of Renal Diseases and Hypertension at the University of Colorado (CU) Anschutz Medical Campus. She received her Ph.D. at the University of Oregon in Human Physiology in 2016 and completed postdoctoral training at CU Boulder. The broad focus of her research is on interventions to improve cardiovascular function, with hopes of thereby reducing, preventing, or delaying risk of cardiovascular and other age-associated diseases. Her projects over the last 6 years have focused on establishing the role of the gut microbiome in modulating vascular function and developing novel dietary and supplement-based interventions that target the gut microbiome. She conducts both mechanistic studies in mice to understand links between the gut microbiome and vascular function, and clinical studies to translate this work to humans. Another research interest of Dr. Brunt's is passive heat therapy (repeated regular use of hot baths or saunas) for improving blood pressure and cardiovascular health as an alternative or adjunctive therapy to exercise training in individuals with limited exercise capabilities. In her spare time, she enjoys hiking, climbing, and skiing among Colorado's many amazing mountains, and spending time with her dogs, Daisy and Freyja.

## THAIS COUTINHO, MD UNIVERSITY OF OTTAWA



### **Aortic Aneurysms and Aortic Stiffness: Sex Differences**

Dr. Thais Coutinho received her medical degree from the Universidade Federal do Rio de Janeiro, in Brazil, in 2004, and completed residency and fellowship training in Internal Medicine, Cardiology, Vascular Medicine, advanced Echocardiography and Research at the Mayo Clinic in Rochester, MN, in 2013. Upon graduating, Dr. Coutinho joined the University of Ottawa Heart Institute as a Clinician-Scientist. In 2017, she was appointed Chief of the Division of Cardiac Prevention and Rehabilitation and Chair of the Canadian Women's Heart Health Centre. She is also an Associate Professor of Medicine at the University of Ottawa. She focuses her clinical practice on Preventive Cardiology, Vascular Medicine, Women's Heart Health and Echocardiography. Her research program focuses on arterial health, with a special emphasis on aortic stiffness and central hemodynamics, and their role in the pathogenesis and risk assessment of cardiovascular diseases. She applies a sex- and gender- lens to all her projects. To pursue these investigations, she has secured over CAD\$3 million in research grants as a principal investigator, including a Project Grant from the Canadian Institutes of Heart Research and a Design grant from the Public Health Agency of Canada. Dr. Coutinho has received numerous awards, including the American Heart Association's Young Investigator Award (2011), the Mayo Clinic's Summerskill Research Award and Cardiovascular Division Outstanding Achievement Award - Clinical (2013), the Canadian Cardiovascular Society's Young Investigator Award (2015), the University of Ottawa Heart Institute's Global Impact Award (2019), the Women as One Research Award (2021), and most recently The Ottawa Hospital Department of Medicine 2021 Jeff Turnbull Healthcare Advocacy Award and the 2022 University of Ottawa Faculty of Medicine Early Career Researcher of the Year Award – Clinical. Dr. Coutinho is also very active in education and knowledge translation, having addressed numerous audiences nationally and internationally. To further knowledge translation in women's heart health topics, she has served as Co-Chair of the first (2016), second (2018) and third (2021) Canadian Women's Heart Health Summit, the largest conference in the world dedicated exclusively to the cardiovascular health of women, in addition to launching and Chairing the Canadian Women's Heart Health Alliance, a national network focused on bridging knowledge and practice gaps pertaining to women's cardiovascular health issues. She is frequently invited to speak nationally and internationally on topics related to diseases of the aorta and women's cardiovascular health.

## STELLA DASKALOPOULOU, MD, PHD MCGILL UNIVERSITY



### **Arterial Stiffness for the Prediction of Preeclampsia: Can We Do Better?**

Dr. Stella S. Daskalopoulou is an Internist with special interest in Vascular Medicine. She is a tenured Associate Professor of Medicine, Department of Medicine (Divisions of Internal Medicine and Experimental Medicine), Faculty of Medicine, McGill University. Dr. Daskalopoulou's research program centers around the identification of early markers of vascular impairment and maintenance of vascular health, with a focus on cardio-metabolic diseases, women's health, and vascular disease prevention. She performs research in hypertension, arterial stiffness in subjects with different cardiovascular risk factors, including pre-eclampsia, hypertension, diabetes, and smoking, as well as in atherosclerotic disease where she is working towards the identification of novel pathways of atherosclerotic plaque instability. Dr. Daskalopoulou has established and directs the Vascular Health Unit at the McGill University Health Centre (MUHC), which includes a clinical and a wet-bench lab, and where she is conducting her vascular research projects. She has been co-Leader of the Cardiovascular Health Across the Lifespan (CHAL) Program of the Research Institute of the MUHC, and the Director of the Scholarly Activity Rotation for McGill Internal Medicine Residents at the Montreal General Hospital. She has over 200 high-quality peer-reviewed publications, and over 6500 citations for her work, with an h-index of 47. She has received research funding from several agencies, including the Canadian Institutes of Health Research, Heart and Stroke Foundation of Canada, and Fonds de recherche du Québec - Santé (> \$8 million as a Principal/co-Principal Investigator). She is the co-Chair of the Hypertension Canada Guidelines, and the Chair of the Central Review Committee of the Hypertension Canada Guidelines. She is also the secretary of the North American Artery Society. She holds several personal awards, including, among others: the Heart and Stroke Foundation of Quebec Award of Excellence - John J. Day M.D., the Department of Medicine Early Career Staff Research Award; the Hypertension Canada Jacques-de-Champlain New Investigator Award for significant dedication and contributions to research and health services in Canada; the Department of Medicine, McGill University Early Career Staff Research Award; the Young Researcher Award of Excellence from the HSFQ; the Canadian Foundation for Women's Health Research Award; the Bourse FRSQ - La Société Québécoise d'Hypertension Artérielle Jacques-de-Champlain; and the Canadian Society of Internal Medicine New Investigator Award.

## DANIEL CRAIGHEAD, PhD UNIVERSITY OF COLORADO BOULDER



### High-Resistance Inspiratory Muscle Strength Training: A Time-Efficient Strategy for Improving Cardiovascular Aging

Daniel Craighead, PhD., is an Assistant Research Professor in the Department of Integrative Physiology at the University of Colorado Boulder. His research focuses on testing interventions, particularly novel forms of physical activity, for lowering blood pressure and improving vascular function, while also elucidating potential mechanisms of action. Much of Dr. Craighead's recent work has been focused on investigating the efficacy of inspiratory muscle strength training, a time-efficient form of respiratory exercise, for improving cardiovascular health in adults with hypertension. Dr. Craighead's research in this area has been supported by awards from the National Institutes of Health and the American Heart Association.

## JACK DEPAOLO, MD, PhD UNIVERSITY OF PENNSYLVANIA



### Applied Genomics of the Aorta

Jack DePaolo, MD, PhD, is a General Surgery Resident at the Hospital of the University of Pennsylvania School and a postdoctoral researcher in the Penn Cardiovascular Institute. After a post-baccalaureate fellowship at the National Institutes of Health in Dr. Ellen Sidransky's lab in the National Human Genome Research Institute, he went on to complete his combined MD/PhD at Louisiana State University Health Sciences Center in New Orleans, Louisiana where his research focused on genetic changes affecting androgen receptor signaling in prostate cancer. While Jack initially decided on a career in Pediatric Cardiology and matched at the Children's Hospital of Philadelphia, he decided to change directions and rematched in General Surgery at Penn. It has been during this time in General Surgery, and especially now in his two years of protected research, that he has focused on the genomics of cardiovascular disease to prepare him for a career in academic cardiovascular surgery. Working closely with Drs. Scott Damrauer and Julio Chirinos, Jack has investigated the genetic risk factors of cardiovascular disease, and particularly aortic dilation and aneurysmal degeneration, to anticipate individual level risk and optimize medical treatment and surgical planning. He has presented his research at numerous national meetings and has also been awarded a postdoctoral fellowship grant from the American Heart Association.

## STELLA GOULOPOULOU, PhD LOMA LINDA UNIVERSITY



### Circulating Cell-Free Mitochondrial DNA and Preeclampsia

Dr. Stella Gouloupoulou is an Associate Professor of Physiology at the Lawrence Longo Center for Perinatal Biology at Loma Linda University in Loma Linda, California. Dr. Gouloupoulou was born and raised in Greece, where she studied Kinesiology and Physical Education in the National and Kapodistrian University, in Athens, Greece. In the early 2000s, Dr. Gouloupoulou moved to Syracuse, New York, where she completed her MS degree in exercise physiology and her PhD in science education and exercise physiology. At the end of her graduate studies, she decided to continue her training in cardiovascular physiology but wanted to gain more experience in basic science experimental approaches and models. She did a 4-year postdoctoral training in vascular physiology in the laboratory of Dr. Clinton Webb at the Medical College of Georgia, in Augusta, Georgia. Dr. Gouloupoulou's research program focuses on women's health with emphasis on maternal vascular physiology of pregnancy. Current research at the Gouloupoulou lab addresses molecular interactions between the placenta and the maternal vascular system in pregnancies with preeclampsia. Dr. Gouloupoulou's research and trainees have been continuously funded by the American Heart Association, the Preeclampsia Foundation, and the National Institutes of Health. According to Dr. Gouloupoulou, opportunities for collaborations and mentoring of new scientists are the most exciting and challenging aspects of doing science. A considerable part of Dr. Gouloupoulou's professional service and leadership are dedicated to advocacy for equity in science and for policy changes that support women's health and funding for biomedical research.

## KEVIN HEFFERMAN, PhD SYRACUSE UNIVERSITY



### Career Development Breakfast

Kevin Hefferman, PhD is an Associate Professor and the Director of the Human Performance Lab (HPL) housed with the Department of Exercise Science at Syracuse University. The HPL is an experiential learning lab that engages undergraduate and graduate students in the scientific exploration of vascular structure and function across the human life course with an emphasis on exercise and vascular aging.

## **MAEN ABOUL HOSN, MD** UNIVERSITY OF IOWA, IOWA CITY VA VASCULAR SURGERY



### **Guidelines in Aortic Aneurysms Assessment and Treatment**

Dr. Maen Aboul Hosn is a Clinical Assistant Professor of Surgery in Vascular Surgery, serving as the Associate Program Director for Vascular Surgery Residency and Fellowship at the University of Iowa Hospitals and Clinics. He is also the Chief of Surgery, Chief of Vascular Surgery and the Medical Director of the Peripheral Vascular Laboratory at the Iowa City VA Medical Center. He was born in Lebanon and received a Bachelor of Science and Medical Doctorate from the American University of Beirut before completing residency in General Surgery at the American University of Beirut Medical Center. He then completed his residency in Vascular Surgery at the University of Iowa Hospitals & Clinics in Iowa City, Iowa. He holds several board certifications and licenses, including the American Board of Surgery in Vascular Surgery, Registered Physician in Vascular Interpretation (RPVI), and is a European Board of Surgery certified surgeon. He has a special interest in aortic and carotid pathology and their treatment modalities. He is dedicated to advancing the field of vascular surgery through teaching, research, and clinical practice.

## **STEPHEN JURASCHEK, MD, PhD** BETH ISRAEL DEACONESS MEDICAL CENTER, HARVARD MEDICAL SCHOOL



### **Validating Cuffless Blood Pressure Monitoring Devices**

Dr. Juraschek is a physician investigator at Beth Israel Deaconess Medical Center, an Assistant Professor at Harvard Medical School, and the Research Director of the AHA-certified Hypertension Center of Excellence at Healthcare Associates. His research involves clinical trials and epidemiologic studies focused on hypertension, nutrition, and cardiovascular disease prevention. He is an internationally recognized expert in orthostatic hypotension and was an invited expert on NHLBI's 2017 Working Group on blood pressure measurement. He also currently serves on the American Medical Associations' Validate Blood Pressure committee, AAMI's Sphygmomanometer Committee, the American Heart Association's Nutrition Council, a KDIGO guideline writing group on blood pressure measurement, and the editorial board of the American Journal of Hypertension. His current work focuses on translational interventions to improve access to healthy foods as well as blood pressure measurement in aging cohorts.

## **MICHELLE MEYER, PhD, MPH** UNIVERSITY OF NORTH CAROLINA



### **Arterial Stiffness and Brain Health in Racially/Ethnically Diverse Populations**

Dr. Michelle Meyer is an Associate Professor and Associate Chair of Research in the Department of Emergency Medicine and an adjunct Associate Professor in the Department of Epidemiology at the University of North Carolina at Chapel Hill (UNC). Dr. Meyer is a cardiovascular epidemiologist with expertise in cardiometabolic risk factors and non-invasive measures of vascular disease. Dr. Meyer is dedicated to understanding early impairments in vascular structure and function and their role in end-organ damage to the heart and brain. Her research aims to identify at-risk individuals and to inform targeted cardiovascular disease prevention and management strategies. She is co-PI of the Mother and Infant Determinants of vascular Aging Study (MIDAS) to estimate cardiovascular disease risk in 840 healthy and medically complicated pregnant women and their infants from birth to 12 months postpartum. Additionally, she is involved in large, population-based studies including the Hispanic Community Health Study/Study of Latinos (HCHS/SOL), the Jackson Heart Study (JHS), and the Atherosclerosis Risk in Communities (ARIC) Study.

## **KERRIE MOREAU, PhD** UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS



### **Clinical Insight into Sex Differences in Arterial Stiffness and Hemodynamics: Humans**

Dr. Moreau is a Professor of Medicine in the Division of Geriatric Medicine at the University of Colorado Anschutz Medical Campus, and is the Director of the School of Medicine Cardiovascular Biomedicine Core. She is also a research health scientist in the VA Eastern Colorado Geriatric Research, Education and Clinical Center. Dr. Moreau's research focuses on the mechanisms underlying cardiovascular aging, and how changes in gonadal function and sex hormones during the menopause transition in women, and andropause in men, contribute to cardiovascular aging. More recently, she has been investigating how gender affirming treatments in transgender persons impacts cardiovascular aging, as well as how cardiovascular aging in general, contributes to sex/gender differences in brain aging. An emerging focus of her lab's research is examining the impact of early life stress, trauma and PTSD on sex differences and cardiovascular and brain aging.



## **JAUME PADILLA, PhD** UNIVERSITY OF MISSOURI



### **Mechanisms of Vascular Endothelial Insulin Resistance and Therapeutic Targets for Intervention**

Dr. Jaume Padilla is an associate professor in the Department of Nutrition and Exercise Physiology at the University of Missouri with a joint appointment at the Harry S. Memorial VA Hospital. His research program focuses on understanding the mechanisms linking metabolic and cardiovascular disease. A primary focus is the study of mechanisms causing endothelial insulin resistance and vascular dysfunction associated with physical inactivity, obesity, and type 2 diabetes. A detailed understanding of the precipitating factors and mechanisms underlying the defects in vascular insulin actions is critical for the development of therapeutic strategies aimed at improving glycemic control and cardiovascular outcomes. Dr. Padilla's research, funded by NIH and VA, is integrative and incorporates biochemical and molecular techniques, in vitro cell and tissue culture models (e.g., study of isolated arteries), in vivo studies in genetic mouse models and large animals, as well as clinical studies in human participants using non-invasive vascular imaging modalities including Doppler and contrast-enhanced ultrasound under a myriad of experimental conditions. Dr. Padilla has over 175 peer-reviewed publications, serves on the editorial board of Journal of Applied Physiology and American Journal of Physiology Heart and Circulatory Physiology, is a standing member of the Integrative Vascular Physiology and Pathology NIH study section, and is the recipient of the 2023 Impact Award by the APS Environmental and Exercise Physiology Section.

## **RYAN PEWOWARUK, PhD** UNIVERSITY OF WISCONSIN



### **Simple Models of Complex Mechanics: Learning to De-Stiffen Arteries**

As a postdoctoral researcher at William S. Middleton Memorial Veterans Hospital, Ryan Pewowaruk studied the mechanisms of how arteries stiffen in VA clinical studies and the Multi-Ethnic Study of Atherosclerosis. The long term goal of this research is to provide more personalized care for individuals with high blood pressure.

## **AUSTIN ROBINSON, PhD** AUBURN UNIVERSITY



### **Racial Differences in Health Behaviors on Blood Pressure and Vascular Function**

Austin Robinson, Ph.D. is an Assistant Professor in the School of Kinesiology and Director of the Neurovascular Physiology Laboratory (NVPL) at Auburn University. Austin obtained his Ph.D. from the University of Illinois at Chicago and then completed a postdoctoral fellowship at the University of Delaware prior to starting his faculty position at Auburn in 2019. As a trainee, Austin secured funding from industry, multiple NIH diversity supplements (predoc and postdoc), and an AHA postdoctoral Fellowship. He is currently funded by an NHLBI career development award and R15 award and has secured a number of internal grants and extramural pilot awards in establishing his laboratory. His research interests are examining the impact of lifestyle, mainly nutrition and physical activity, on cardiovascular physiology in health and disease. He is particularly interested in investigating strategies to counteract the cardiovascular consequences of high dietary salt. He is also interested in racial disparities in cardiovascular health and the underlying social determinants and physiological mechanisms that contribute to these disparities. His K award ties together his interests as it is focused on potential racial disparities in the cardiovascular consequences of high dietary salt and determining whether social determinants or health behaviors play a role in mediating the disparities. He has contributed to over 45 peer-reviewed publications and is actively involved in service for the American Physiological Society, the American Heart Association, and American College of Sports Medicine. He also serves on the editorial board for multiple physiology journals. Outside of work, he likes to exercise, read, garden, hanging out with his wife, and their dog, Chaos.

## JOSEPH E. SCHWARTZ, PhD CENTER FOR BEHAVIORAL AND CARDIOVASCULAR HEALTH COLUMBIA UNIVERSITY MEDICAL CENTER, NY



### **“Con” Position: Home BP Monitoring is the Better Method for Out-of-Office BP Assessment**

Joseph E. Schwartz, Professor of Psychiatry and Behavioral Health at Stony Brook University and Lecturer in Medicine at the Center for Behavioral Cardiovascular Health at Columbia University Irving Medical Center, earned his PhD in Sociology at Harvard University. For over three decades, his primary area of interest has been cardiovascular behavioral medicine, with a focus on the psychosocial and behavioral determinants of blood pressure, hypertension, and cardiovascular disease and the measurement properties of alternative methods of assessing blood pressure. He led the Work Site Blood Pressure Study (1985-2003) and Masked Hypertension Study (2005-2017), and co-directed the Neighborhood Study on Race, SES, and Diurnal Blood Pressure Rhythms (2003-2008) and the Improving the Detection of Hypertension Study (IDH, 2010-2015), all supported by a NIH-NHLBI Program Project Grant (PIs: Thomas Pickering/Joseph Schwartz), and has over 500 peer-reviewed publications. Currently, he is a co-investigator on studies with Daichi Shimbo and Paul Muntner investigating 1) alternative approaches to assessing nighttime BP, 2) whether 24-hour ambulatory BP (ABP) and/or home BP predict risk of falls better than clinic BP in older individuals with treated hypertension, and 3) whether the results of the IDH study replicate in a larger, more representative sample that includes those taking antihypertensive medications. Dr. Schwartz is a member of the American Heart Association and North American Artery Association, and a Fellow of the New York Academy of Medicine, the American Psychosomatic Society, and the Academy of Behavioral Medicine Research.

## RAYMOND TOWNSEND, MD UNIVERSITY OF PENNSYLVANIA



### **“Pro” Position: 24-Hour Ambulatory BP Monitoring is the Better Method for Out-of-Office BP Assessment**

Raymond R. Townsend, MD, is a Professor of Medicine and an Associate Director of the Clinical and Translational Research Center at the University of Pennsylvania. He is currently a Co-Investigator on a 7-center U01 grant (DK-060984) studying factors in the progression of chronic kidney disease and the development and progression of cardiovascular disease in patients with CKD. His formal certifications are in internal medicine (ABIM), nephrology (ABIM), clinical pharmacology (ASCP) and hypertension (ASH). He is a Fellow in the American Heart Association and the Council for High Blood Pressure Research. Research interests include the role of vascular dynamics in CKD progression and the incidence/development of CVD in CKD, and the role of Renal Denervation in hypertension therapy. He was an empaneled member of JNC 8, is a current member of the Hypertension Canada Guidelines Committee and was the AHA Physician of the Year awardee for 2016.



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## ASHLEY WALKER, PhD UNIVERSITY OF OREGON



### Basic Science of Sex Differences in Arterial Stiffness and Hemodynamics: Animal Models

Dr. Ashley Walker's primary area of expertise is vascular aging. Her research seeks to determine the causes of vascular dysfunction with advancing age and the consequences of these impairments. A focus of her current research is to understand the effects of vascular aging on the brain and Alzheimer's disease risk. Dr. Walker's recent studies demonstrate that age-related increases in arterial stiffness have negative effects on cerebrovascular and cognitive function. Dr. Walker earned her BS in Exercise and Sport Science from Oregon State University and her PhD in Integrative Physiology from

the University of Colorado Boulder. She performed postdoctoral fellowships at Cedars Sinai Medical Center and the University of Utah. She is currently an Assistant Professor at the University of Oregon.

## KARA WHITAKER, PhD, MPH UNIVERSITY OF IOWA



### Physical Activity and Sedentary Behavior and Risk of Hypertensive Disorders of Pregnancy

Dr. Kara Whitaker is an Assistant Professor and Director of Graduate Studies in the Department of Health and Human Physiology at the University of Iowa. She also has a secondary appointment in the Department of Epidemiology in the College of Public Health at the University of Iowa. Dr. Whitaker received the Early Career Scholar of the Year Award at the University of Iowa in 2022. She is a fellow of the American Heart Association (FAHA) and the American College of Sports Medicine (FACSM). Dr. Whitaker received a BS in Kinesiology from the University of Michigan and an MPH and PhD in

Exercise Science from the University of South Carolina. She also completed a postdoctoral fellowship in Cardiovascular Disease Epidemiology and Prevention at the University of Minnesota. Dr. Whitaker's research examines the relations of sedentary behavior, physical activity, and sleep (24-hour activity) with cardiovascular disease and related health outcomes. The primary goal of her research is to build an evidence base to inform interventions to reduce sedentary behaviors and promote physical activity and appropriate sleep to improve population health. She is particularly interested in working with women during pregnancy as this is a critical period where interventions have the potential to positively impact the health of both the mother and child. Dr. Whitaker is the principal investigator of the ongoing NIH-NHLBI funded multi-site Pregnancy 24/7 cohort study, which examines the associations of 24-hour activity with hypertensive disorders of pregnancy and other adverse pregnancy outcomes.

## MELISSA WITMAN, PhD UNIVERSITY OF DELAWARE



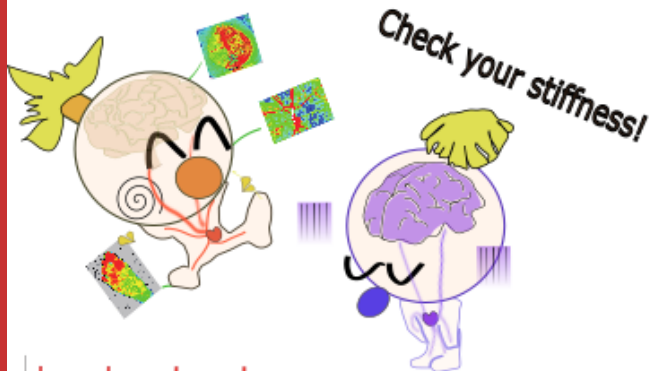
### Racial Differences in Micro- and Macrovascular Function Among Young Women

Melissa Witman is an Associate Professor in the Department of Kinesiology and Applied Physiology at the University of Delaware where she directs the Vascular Function and Chronic Disease laboratory. Dr. Witman obtained her PhD in Exercise Physiology at the University of Utah and completed her postdoctoral research training in Internal Medicine - Geriatrics at the Salt Lake City VA Medical Center. Her current research is focused on cardiovascular health throughout the lifespan as well as understanding the cardiovascular consequences of Duchenne and Becker Muscular Dystrophy.

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# ORAL PRESENTATIONS

FRIDAY, JULY 16 | 4:00PM – 5:30PM

- OR-01**     **Resveratrol Supplementation Improves Endothelial Function in Chronic Kidney Disease**  
Author: Colin Gimblet, MS, University of Iowa
- OR-02**     **Central Pulsatile Hemodynamic Load and Carotid Artery Structure**  
Author: Matthew Armstrong, PhD, University of Iowa
- OR-03**     **Impact of Amyloid Beta and APOE4 Genotype on Cerebral Artery Stiffness**  
Author: Skylyn Ferguson, BS, University of Oregon
- OR-04**     **Effect of Aerobic Exercise Training on Cerebral Pulsatility and Large Artery Hemodynamics in At-Risk Middle-aged Adults**  
Author: Krista Reed, MS, Iowa State University
- OR-05**     **Humoral Factors Contribute to Age-Related Arterial Dysfunction: A Novel Ex Vivo Approach**  
Author: Sophia Mahoney, MS, University of Colorado Boulder
- OR-06**     **COVID-19 Hospitalization and Subsequent 24-Hour Blood Pressure Parameters**  
Author: Seavimeyin Kun, University of Pennsylvania
- OR-07**     **Influence of Low Testosterone on Large Artery Stiffness in Middle-Aged and Older Men**  
Author: Lyndsey DuBose, PhD, University of Colorado Anschutz Medical Campus

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# ORAL PRESENTATIONS

SATURDAY, JULY 17 | 2:00PM – 3:30PM

- OR-08**     **Effect of Alagebrium Chloride Treatment on Arterial Stiffness, Cerebral Artery Endothelial Function, and Cognitive Function in Aged Mice.**  
Author: Emily Reeve, MS, University of Oregon
- OR-09**     **Exaggerated exercise blood pressure in individuals at high-risk for Heart Failure and preserved ejection fraction: The importance of normalizing blood pressure to oxygen uptake**  
Author: Denis Wakeham, PhD, The University of Texas Southwestern Medical Center
- OR-10**     **Causal associations between pulse pressure and target organ damage: A Mendelian Randomization approach**  
Author: Marie-Joe Dib, PhD, University of Pennsylvania
- OR-11**     **Ventricular-Vascular Coupling Before and After Maximal Exercise Testing in Individuals with and without Multiple Sclerosis**  
Author: Brooks Hibner, BS, CES, University of Illinois at Chicago
- OR-12**     **The Natural Senolytic Fisetin Protects Against Doxorubicin Chemotherapy-Induced Endothelial Cell Senescence and Arterial Dysfunction in Mice**  
Author: Zachary Clayton, MS, PhD, University of Colorado Boulder
- OR-13**     **Microvascular constriction via fatty acid-mediated oxidative stress in humans**  
Author: Seth Holwerda, PhD, The University of Kansas
- OR-14**     **Exaggerated Increases in Middle Cerebral Artery Pulsatility During Midlife in Women Compared to Men**  
Author: Wesley Lefferts, PhD, Iowa State University



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# POSTERS

- PO-01**     **Proteome-wide associations of large artery stiffness**  
Author: Marie-Joe Dib, University of Pennsylvania Perelman School of Medicine
- PO-02**     **Is Cardio-ankle vascular index (CAVI) independent of blood pressure in some populations but not others?**  
Author: Weiyang Ding, MS, University of Massachusetts Boston
- PO-03**     **Descending Aortic vascular strain as a novel measure of arterial stiffness attainable from Cardiac MRI**  
Author: Denis Wakeham, PhD, The University of Texas Southwestern Medical Center
- PO-04**     **Effect of a Mitochondrial Ubiquinone (MITOQ) on Resting Arterial Hemodynamics in Patients with Heart Failure with Preserved Ejection Fraction: Results from the Mito-Preserved Pilot Trial**  
Author: Natalie Bohmke, MS, CEP, Virginia Commonwealth University
- PO-05**     **Greater 24-hour blood pressure variability is associated with higher retinal microvascular resistance and smaller lumen diameter in healthy normotensive adults**  
Author: Jackson Ernst, University of Iowa
- PO-06**     **Arterial Stiffness in Persons with Multiple Sclerosis and Controls: Does Fitness Account for Group Differences?**  
Author: Noah DuBose, University of Illinois at Chicago
- PO-07**     **Middle-aged females but not males exhibit increases in cerebral blood velocity, despite sex-independent increases in cerebral pulsatility after high-intensity resistance exercise**  
Author: Joao Maroco, MS, University of Massachusetts Boston
- PO-08**     **Individuals with Multiple Sclerosis Demonstrate Poor Blood Flow Regulation to Inactive Limbs During Dynamic Handgrip Exercise**  
Author: Sara Sherman, MS, PhD, University of Illinois Chicago
- PO-09**     **SEX DIFFERENCES IN VASCULAR FUNCTION IN RESPONSE TO PROLONGED SITTING**  
Author: Michael Allen, MS, University of Nebraska at Omaha
- PO-10**     **Validation Status of Blood Pressure Monitors for Sale Online in the United States**  
Author: Hailey Hakes, The University of Iowa
- PO-11**     **Intermittent vs. Continuous Handgrip Exercise and Peripheral Endothelial Function: Impact of Shear Rate Fluctuations**  
Author: Brady Hanson, University of Iowa
- PO-12**     **Systemic Arterial Hemodynamics and Quality of Life after COVID-19 Infection**  
Author: Seavmeiyin Kun, University of Pennsylvania Perelman School of Medicine
- PO-13**     **WAVELET-BASED ANALYSIS FOR ARTERIAL ULTRASOUND IMAGES**  
Author: Cody Anderson, BS, University of Nebraska of Omaha
- PO-14**     **Hypertension is a primary correlate of physical function in multiple sclerosis**  
Author: Brenda Jeng, PhD, University of Illinois Chicago
- PO-16**     **INVERSE ASSOCIATION BETWEEN PERCEIVED FATIGUE AND ARTERIAL STIFFNESS IN MULTIPLE SCLEROSIS**  
Author: Sydney DeJonge, MS, University of Chicago
- PO-17**     **Area Deprivation Index, Clinical Hypertension and Cardiometabolic Risk Factors Among Postpartum Women.**  
Author: Samalya Thenuwara, BS, University of Iowa
- PO-18**     **CAROTID ARTERY STIFFNESS AND MIDDLE CEREBRAL ARTERY BLOOD VELOCITY IN WOMEN WITH A HISTORY OF MIGRAINE**  
Author: Kevin Heffernan, PhD, Syracuse University

# POSTERS

- P0-19** **Regional Contributions of the Elastogenic Proteins, Fibulin-4 and Fibulin-5, to Arterial Integrity**  
Author: Carmen Halabi, M.D., PhD, Washington University School of Medicine
- P0-20** **Impaired endothelial function via fatty acids and the potential role of oxidative stress**  
Author: Seth Holwerda, PhD, The University of Kansas
- P0-21** **Development of a generalized abdominal-to-thoracic canine transfer function for application in drug development**  
Author: Julia Hotek, PhD, Merck & Co, Inc.
- P0-23** **The Impact of Gender on Vascular Stiffness: A Model-Based Analysis of Cavi and Start Indices**  
Author: Cristina Leon, PhD, M&S Decisions
- P0-24** **The Impact of Brachial Artery Pressure versus Central Aortic Pressure on Myocardial Oxygen Consumption**  
Author: Lawrence Mulligan, PhD FAHA, Cooper University Hospital and CMRSU
- P0-25** **Impact of Vascular Aging on Mechanical and Myocardial Efficiency: A Computational Model Assessment**  
Author: Lawrence Mulligan, PhD FAHA, Cooper University Hospital and CMRSU

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# ABOUT NORTH AMERICAN ARTERY

## MISSION STATEMENT

The Mission of North American Artery Society is to:

- Support education on arterial structure and function appropriate to the various medical communities, such as scientific researchers, clinical specialists, primary care specialists, medical students, and pharmaceutical researchers, as well as the patient community;
- Develop mechanisms and venues for disseminating information on the understanding and application of arterial structure and function and its measurement among the various medical communities;
- Participate in and encourage the study of improved application of technologies in the measurement of arterial structure and function;
- Participate in and encourage clinical trials that develop the understanding of how arterial structure and function and its measurement can guide and inform patient selection and treatment;
- Guide and support efforts to standardize arterial structural and functional measurements in appropriate national guidelines;
- Direct efforts to include arterial structure and function measurements in appropriate national guidelines;
- Formulate a consensus statement regarding what is known in regards to arterial structure and function.

## SOCIETY OBJECTIVES

North American Artery is a non-profit, non-partisan professional society dedicated to the encouragement, support, and understanding of vascular structure and function and its application to clinical medicine, research and pharmaceutical and medical device development.

The Society Objectives are to:

- Support education on arterial mechanics appropriate to the various medical communities, such as scientific researchers, clinical specialists, primary care specialists, and pharmaceutical researchers, as well as the patient community;
- Develop mechanisms and venues for disseminating information on the understanding and application of arterial mechanics and its measurement among the various medical communities;
- Participate in and encourage the study of arterial mechanics in basic and applied research to further especially the clinical applications derived from an improved understanding of arterial mechanics;
- Participate in and encourage clinical trials that develop the understanding of how arterial mechanics and its measurement can guide and inform patient treatment;
- Guide and support efforts to standardize arterial mechanics measurements for clinical practice and clinical/scientific studies;
- Direct efforts to include arterial mechanics measurements in appropriate national guidelines;
- Provide the knowledge for the critical understanding and application of technologies to measure arterial mechanics.

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## JOIN OUR ORGANIZATION TODAY!

An active membership to this growing and influential research community is extremely beneficial to anyone associated with or interested in arterial research. As a member of North American Artery, you can view our member database, participate in our forum, as well as enjoy a host of other benefits.

Membership is open to all individuals and organizations that have a research, clinical, or scientific interest in arterial mechanics and hemodynamics. There are three (3) classes of membership:

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### **Sponsor Member Organizations - \$500.00**

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This membership is open to all individuals who are currently still in training (residents, fellows, post-doctoral candidates). Student Members are non-voting members. A letter from the training director is required to be submitted with the application for membership. Membership in NAA is based on a calendar year (July 1 – July 30). Payments of dues at any time during the year are considered dues for that calendar year. Membership renewal invoices are sent on June 1 and due by July 1.

## MEMBERSHIP BENEFITS

**Be an active participant.** NAA is active in developing a multi-disciplinary approach to research in and applications of arterial structure and function. We recognize the value of many voices, opinions, and disciplines, and invite you to get involved.

**Enjoy reduced fees.** Membership in NAA provides you with significant savings on registration fees for all NAA sponsored events.

**Join the Forum.** Membership in NAA makes you part of the conversation on artery research and applications. You can contribute to and learn from presentations, in workshops, seminars, on-line videos, and other avenues of sharing information.

**Make key connections.** Participation in NAA provides a focal point for developing working relationships with others active in the field.

**Lead the pack.** NAA will be leading the development of consensus positions on a number of related issues, and participating in the design of upcoming studies in the field of artery research.

**Become a decision maker.** NAA is an organized voice in the development of clinical applications of arterial research, including setting validation standards and application guidelines. As a member, you can be part of our voice to both the pharmaceutical as well as device manufacturing industries.

# A WORD FROM OUR SPONSORS

## DIAMOND - ATCOR

**ATCOR Medical develops innovative medical devices and digital solutions for precision patient care, anywhere.**

ATCOR focuses on improving cardiovascular health through precision monitoring of central blood pressure and digital vascular biomarkers. SphygmoCor® technology enables in-clinic and remote patient monitoring to personalize therapeutic treatment decisions and improve blood pressure management. Early detection of cardiovascular risk with Pulse Wave Analysis and Pulse Wave Velocity SphygmoCor® technology assists clinicians in prescribing strategies designed to reduce target organ damage risk and manage cardiovascular disease, Alzheimer's, kidney failure, and other vascular diseases.

Researchers and clinicians choose ATCOR for the comprehensive suite of clinically relevant digital vascular biomarkers that provide insight into pathophysiologic changes in the arterial system and can be used to demonstrate efficacy as well as adverse effects of clinical trial therapies for chronic vascular diseases.

ATCOR's digital vascular biomarkers provide prognostic and diagnostic information to target interventions that are both complementary and additive to standard brachial blood pressure measurements across multiple therapeutic areas: cardiovascular, oncology, women's health, nephrology, sports medicine, metabolism, infectious disease, respiratory, neuroscience, and more.

For over twenty years, major medical and research institutions have been using SphygmoCor® systems to improve therapeutics and treatment strategies for the world's most devastating chronic diseases. Leading pharmaceutical companies have utilized ATCOR devices to collect primary, secondary, and safety endpoint data across all phases of global clinical trials. Playing an integral role in over 4000+ studies to date, our technology has been referenced in over 7,000 citations in leading medical journals.

ATCOR Medical ([www.atcormedical.com](http://www.atcormedical.com)) is a subsidiary of the Australian listed company CardieX Limited (ASX:CDX) [www.cardiex.com](http://www.cardiex.com).

## GOLD - Alf

The ABPMpro monitor distributed by ALF Distribution GmbH may be considered a multi-sensor recording unit, including the measurement of ambulatory (24h) blood pressure. Besides the gold standard of cuff-based oscillometric recordings, the monitor will additionally measure data on continuous, beat-to-beat blood pressure, 3-lead ECG, accelerometry, body position, sleep arousals and pulse wave forms. The signal data can be exported in ASCII files for post-processing analysis, allowing for an in-depth analysis of 100+ million data points obtained over the 24h monitoring period. The recording unit is attached directly to the upper-arm cuff, allowing for an increased patient acceptance to the test.

## GOLD - Cardiovascular Engineering

Over the past 25 years, Cardiovascular Engineering, Inc., has designed and manufactured the Noninvasive Hemodynamics (NIHem) family of workstations, which are used at research centers around the world to perform comprehensive assessments of vascular function. The NIHem-USB and NIHem-BT systems are compact research solution that provide ECG and tonometry data via USB or Bluetooth to a tablet, laptop or desktop computer. The DICOM option allow images to be imported and analyzed. The devices allow for rapid and robust assessment of carotid-femoral pulse wave velocity, central pressure waveform analysis and central pressure-flow relations using the gold standard direct tonometry approach.

## GOLD - Fukuda

The new-generation VaSera VS-2000 provides fast and accurate, bilateral measurements of ankle-brachial index (ABI), and cardio-ankle vascular index (CAVI), and heart-to-femoral pulse wave velocity (hfPWV) for arterial stiffness. The stiffness measurements are based on whole-aorta pulse wave velocity (PWV), starting from the heart. An abnormal CAVI test result is strongly associated with the presence of coronary plaque burden and coronary stenosis. The VS-2000 system is designed with test efficiency improvements and greater flexibility for use in clinics and research studies. VaSera is very easy to use, reducing operator error through automated, highly reproducible measurements. Start from the heart with VaSera.

## GOLD - GE

The Venue family of point of care ultrasound systems delivers simple, fast, and precise ultrasound for every moment. With AI-enabled tools that help increase efficiency and drive consistency from user to user,

Venue family:

- Enable rapid assessments
- Support life-saving decisions
- Help monitor patient progress even in unpredictable, chaotic environments

Whether you're looking for an adaptable model that goes from cart to table to wall, or a console system with a large screen, there is a versatile, robust, easy-to-use Venue family made for your point of care.

## GOLD - Softcare Co

Softcare's Laser Speckle Flowgraphy can help visualize the distribution of blood flow in the retina and observe dynamic changes in retinal and choroidal blood flow using 2-D color coded maps. Unlike OCT-A, this equipment can evaluate the actual quantity of dynamic change in blood flow rather than just the structure of blood vessels. We can provide waveform parameters of the retinal artery to respond to stiffness. If you're interested, please check your waveform parameters with the exhibited equipment.

## GOLD - USCOM

Uscom Limited is an Australian founded, ASX listed, innovative medical technology company specialising in development and global marketing of premium non-invasive cardiovascular and pulmonary medical devices. Uscom has a mission to demonstrate leadership in science and create non-invasive devices that guide clinicians to improved clinical care and patient outcomes.

Uscom BP+ is a dual blood pressure monitor non-invasively measuring central aorta and upper-arm blood pressure and waveforms; information only previously available using invasive cardiac catheterization. Supra-systolic measurements record accurate and repeatable measurements using a familiar upper arm cuff. Uscom BP+ is a stand-alone device. Optional 'BP+ Reporter' software supports archiving patient examinations, viewing waveforms and trend data, and generate customised reports.

## GOLD - 80 Beats

Our mission is to elevate the standard of care, advance our understanding of cardiovascular disease and improve our ability to prevent and treat it. The VICORDER® has been used in numerous studies to understand cardiovascular impact and to explore novel applications. The system is operator independent, fast, and portable. Parameters include Flow-Mediated-Slowing (FMS) for Endothelial Function Testing, Pulse Wave Velocity (PWV), and Pulse Wave Analysis (PWA).

Visit [www.80beatsmedical.com](http://www.80beatsmedical.com) or drop by our booth at the 2023 NAA Conference to learn more and see a demo.

# JOIN US IN PRESENTING THE Lifetime Achievement Award

IN HEMODYNAMICS AND HYPERTENSION

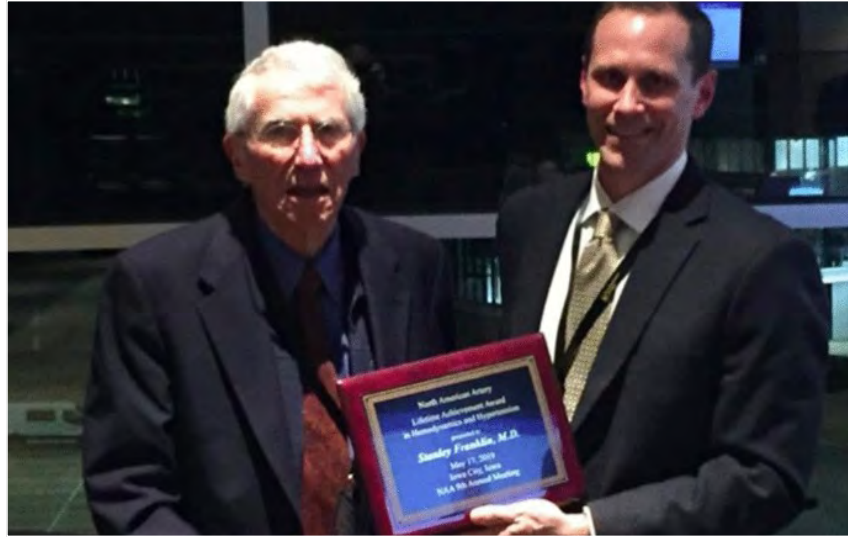
- TO -

**Raymond Townsend, MD**  
University of Pennsylvania



# STANLEY S. FRANKLIN, M.D.

On behalf of the Artery Society, it is with great sadness that we report the death of Stanley Franklin at the age of 91 years, and our deepest sympathies go out to his wife, Ruth, and family. Stan was a Gentle Giant with a charming and unassuming manner and was always happy to interact with his peers and young investigators alike, who all held him in great esteem. He received a BA degree in biology and chemistry Summa Cum Laude from the University of California at Los Angeles, his M.D. degree from Harvard Medical School, and did his post-graduate training in nephrology at Peter Bent Brigham in Boston and in clinical pharmacology at Royal Postgraduate Medical School in London. He served his country as a captain in the U.S. Air Force Medical Corps, in Wiesbaden, Germany, from 1959 to 1961.



He had a long-term affiliation with UCLA Medical School and Cedars-Sinai Medical Center as a practicing nephrologist from 1963 to 1991. Unlike many of his peers, Stan started his true academic career late in life. Through his collaborations with investigators at the Framingham Heart Study, he gained experience in epidemiology and statistics. That collaboration resulted in his many seminal publications, based on data from the Framingham study, which examined the contribution of individual components of blood pressure to cardiovascular disease risk and how these relations change with advancing age. Many of these studies have had a major impact on the diagnosis and treatment of hypertension and were published when Stan was in his 70s and beyond...!

Stan was a great supporter of ARTERY and attended many of our early meetings, often accompanied by his charming wife, Ruth. At the ARTERY 9 meeting held in Cambridge, England in 2009, Stan gave the McDonald Lecture on "Isolated systolic blood pressure and the diastolic J-curve of cardiovascular disease risk." Stan was subsequently awarded the Lifetime Achievement award at ARTERY 13 in London in 2013. While Stan continued to support ARTERY, he also played a major role in establishing our sister Society, North American Artery, which awarded him a second well-deserved Lifetime Achievement Award in 2019.

Although Stan will be greatly missed, he will not be forgotten, as figures from many of his seminal papers will be shown by academics in their presentations at meetings around the world for many years to come.

In memory of Dr. Stanley Franklin,  
the North American Artery Association has named their annual debate . . .

**The NAA Stanley Franklin Debate**

# NAA Stanley Franklin Debate: BETTER METHOD FOR OUT OF OFFICE BP ASSESSMENT

Con Position: "Home BP Monitoring  
is the Better Method for Out-of-Office BP Assessment"



**Joseph E. Schwartz, PhD**

Center for Behavioral and Cardiovascular Health  
Columbia University Medical Center, NY

Pro Position: "24-hr Ambulatory BP Monitoring  
is the Better Method for Out-of-Office BP Assessment"



**Ray Townsend, MD**

University of Pennsylvania



## WE WANT TO HEAR FROM YOU!

Do you have feedback on the 2023 NAA Conference?

Let us know at  
[naartery.org/conference-feedback](https://naartery.org/conference-feedback)







**DIAMOND SPONSOR**

**Join our Diamond Sponsor for the following events on Friday, June 16, 2023**

**1:00pm – 2:15pm** Lunch

**1:15pm – 2:15pm** “Empowering Patients in the Transition to the Digital Revolution”  
by Alberto Avolio, PhD,

Professor Emeritus, Macquarie University, Sydney Australia

**3:40pm – 3:50pm** Hands on Demonstration in the ATCOR Booth

### Event Contact Information

Karen Woods | Creative Occasions  
319.981.7499 • karen@creativeoccasions.net

### NAA Contact Information

Gary Pierce | University of Iowa  
319.335.9487 • info@naartery.org

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**THE NAA WOULD LIKE TO THANK THE GRADUATE HOTEL!**