HUMAN & ENVIRONMENTAL PHYSIOLOGY RESEARCH UNIT

NEWSLETTER

HOME OF OPERATION HEAT SHIELD CANADA

Generating the knowledge to help Canadians adapt and prepare for rising temperature extremes

SEPTEMBER 2026 • VOLUME 5 • ISSUE 2

THE SUMMER EDITION

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SPOTLIGHT FEATURE

HOW LONG CAN YOU WORK IN THE HEAT BEFORE YOU NEED A BREAK?

It sounds like a simple question but for many years, occupational heat guidelines did not provide a clear answer. Think about the people who build our homes and roads, maintain our electrical systems, work on farms or in mines and factories, or respond to emergencies. Many of these jobs cannot simply stop when temperatures rise. Yet performing demanding physical work for too long in the heat can cause the body to store excessive heat, increasing strain on the heart and the risk of heat-related illness. To protect workers, heat-safety guidelines have traditionally used work-rest schedules.

SPOTLIGHT FEATURE

HOW LONG CAN YOU WORK IN THE HEAT BEFORE YOU NEED A BREAK?

When conditions become sufficiently hot, workers alternate between periods of work and rest. But our research team at the University of Ottawa recognized an important gap in this approach:

When should those work-rest cycles actually begin? Should workers start taking scheduled rest breaks from the moment their shift begins? Or can they initially work continuously and then transition to work-rest cycles when additional protection from the heat becomes necessary?

This was not simply an academic question. Starting work-rest cycles too late could expose workers to excessive heat strain. Starting them earlier than necessary could unnecessarily interrupt work, with important consequences for workers and employers. Yet there was limited scientific evidence to tell us where that transition should occur.

Our research team at the University of Ottawa set out to solve this problem. We developed and tested an approach called the Initial Stay Time, or IST. The idea is simple. IST identifies the initial period that a worker can perform continuous work in the heat before transitioning to additional heat-protection measures, such as scheduled work-rest cycles. To establish these times scientifically, we brought workers and research participants into our specialized heat-stress laboratory and studied how their bodies responded while performing work under carefully controlled conditions. We examined different temperatures and levels of physical work and measured physiological responses, including core body temperature. In our studies, IST has been defined by the time required for core temperature to reach approximately 38°C or increase by 1°C from its starting value. These limits have long been used by major occupational health organizations as protective thresholds intended to safeguard workers from excessive heat strain and continue to underpin heat-stress guidance used in workplaces today. Although these thresholds have become widely accepted, the scientific evidence supporting their use as precise physiological limits is surprisingly limited.

What we learned was important. We showed there is no single IST that works for everyone. How long a person can initially work depends on the heat and humidity, how physically demanding the job is, the clothing being worn and characteristics of the worker, including age and sex. Our research has helped develop age- and sex-specific IST recommendations across different workloads and environmental conditions, demonstrating why a "one-size-fits-all" approach has important limitations.

SPOTLIGHT FEATURE

HOW LONG CAN YOU WORK IN THE HEAT BEFORE YOU NEED A BREAK?

Why does this matter?

Imagine that the person working through the next heat wave is your parent on a construction site, your son or daughter working a summer job, your neighbour repairing an electrical line, or your friend working inside a hot factory. How long should they continue working before additional heat-protection measures are needed? That is the question our Canadian research is helping to answer.

For workers, IST-based guidance could provide better protection by identifying when continuous work should transition to greater heat protection. For employers, it could provide practical, scientifically based guidance that considers the conditions, the demands of the job and the people doing the work. This is particularly relevant for Canada's construction, mining, agriculture, manufacturing, electrical utility and emergency-response sectors, where demanding work may need to continue even during periods of high heat. And the challenge is growing. As Canadian workers increasingly face hotter conditions and more frequent periods of extreme heat, we need heat-protection strategies that are not only protective but also based on how the human body actually responds during work. That is what our IST research is designed to provide.

The HEPRU Team

Dr. Glen P. Kenny
Jeffrey Kummer
Sarah Johnson
Archana Weerasooriya

SPOTLIGHT FEATURE

SOME LIKE IT HOT

Much of our research focuses on the dangers of heat. We study what happens to the body during hot weather, heat waves and exercise in the heat, and how we can better protect people when temperatures climb. So, it might seem surprising that heat can also have another side. When heat exposure is controlled, relatively brief and followed by an opportunity to cool and recover, it may provide a physiological stimulus that has potential health benefits. In fact, deliberately getting hot is hardly new.

For centuries, cultures around the world have incorporated heat into daily life and traditions of relaxation and well-being. The Finnish sauna is perhaps the best-known example, but Turkish baths, Japanese hot springs and hot-water bathing have long histories as well. More recently, far-infrared saunas and other forms of "heat therapy" have become increasingly popular. Scientists are now asking an interesting question: Could some of these practices actually be good for us?

What happens to the body when we get hot?

Even when we are sitting perfectly still, heating the body sets off a remarkable series of responses. As our skin and internal body temperature rise, blood vessels near the skin widen. This allows warmer blood to travel from inside the body toward the skin, where heat can be released to the surrounding environment. We also begin to sweat, providing another important way of losing heat. Moving all that blood to the skin means the cardiovascular system has to respond. The heart begins beating faster and pumps more blood each minute. During sufficiently intense passive heating, skin blood flow can increase by several litres per minute, and the amount of blood pumped by the heart can approach twice its resting level.

That is one reason scientists have become interested in heat as a possible therapy. Some of the changes produced by heating, including increases in heart rate, blood flow and the work performed by the cardiovascular system, resemble responses that occur during moderate exercise. Of course, sitting in a sauna is not the same as exercising. Exercise produces many effects that passive heating cannot reproduce. But repeatedly increasing blood flow and challenging the body's temperature-control system may provide a stimulus that leads to beneficial adaptations.

Could repeated heating improve health?

Research examining repeated sauna bathing and hot-water immersion has reported potential improvements in cardiovascular function, blood pressure and the function of our blood vessels. Scientists are also studying possible effects on blood sugar regulation, inflammation and immune function. There is even evidence from long-term observational studies in Finland that people who use saunas regularly tend to have lower rates of some cardiovascular diseases. However, these studies cannot prove that sauna use itself caused those health benefits. People who use saunas frequently may differ in many other ways from those who do not. That distinction is important.

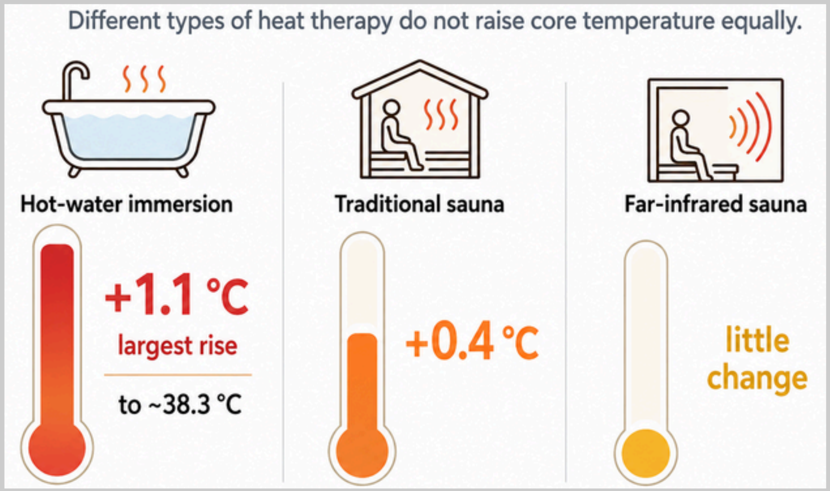
SPOTLIGHT FEATURE

SOME LIKE IT HOT

Heat therapy is an exciting area of research, but it is not a replacement for physical activity, nor do we yet know the ideal "dose" of heat for improving health. And just as different types of exercise challenge the body differently, different ways of getting hot do not necessarily produce the same response.

A sauna or a hot bath: does it matter?

A recent study provides a fascinating example. Researchers asked healthy young adults to complete three different types of passive heating: 45 minutes immersed to approximately chest level in hot water, repeated periods in a traditional sauna, and 45 minutes in a far-infrared sauna. The researchers measured internal and skin temperatures, heart rate, blood pressure and how much blood the heart pumped, along with several markers related to immune function. Despite all three being forms of "heat therapy," the body did not respond to them in the same way.



Hot-water immersion produced the greatest rise in internal body temperature. After 45 minutes in water at approximately 40.5°C, core temperature had risen by about 1.1°C, reaching approximately 38.3°C. Core temperature increased by only about 0.4°C during the traditional sauna protocol and changed very little during the far-infrared sauna used in the study. The cardiovascular differences were also striking. During hot-water immersion, heart rate increased by about 39 beats per minute, and the amount of blood pumped by the heart increased from approximately 5 to 9 litres per minute. Blood pressure also fell as blood vessels widened.

Traditional and far-infrared sauna produced cardiovascular responses too, but they were generally smaller. Hot-water immersion was also the only one of the three conditions to produce measurable changes in some of the immune and inflammatory markers examined by the researchers.

SPOTLIGHT FEATURE

SOME LIKE IT HOT

How can 40°C water be more challenging than much hotter air?

It sounds counterintuitive. A traditional Finnish sauna can be 70-100°C, while a hot bath might be only around 40°C. The answer is that temperature alone does not tell us how much heat reaches the body. Water transfers heat far more effectively than air. When much of the body is immersed in hot water, heat is transferred directly from the water to the skin over a large surface area. At the same time, the submerged skin cannot use evaporation of sweat to cool itself.

In a dry sauna, the air may be dramatically hotter, but air transfers heat much less effectively than water. Sweating and evaporation can also continue to remove some heat from the body. Sauna users typically spend relatively short periods in the heat, often taking cooling breaks between exposures. In the study above, for example, participants completed three 10-minute periods in the traditional sauna separated by five-minute breaks. A thermometer reading of 80°C does not necessarily mean that the body receives twice the thermal challenge of sitting in 40°C water. What matters is the heat actually transferred to and stored by the body.

Then how can heat be both helpful and harmful?

This is perhaps the most interesting part of the story. During a heat wave, exposure is not a short, controlled treatment. People may spend many hours, and increasingly, several consecutive days and nights, in hot conditions. The body must continually work to dissipate heat, often while a person is performing normal daily activities. Opportunities to cool and recover may be limited. For some people, particularly older adults and individuals with certain health conditions or taking medications that affect the body's response to heat, this prolonged physiological strain can become dangerous. A sauna or hot bath is a very different type of exposure. It is normally planned, relatively brief and voluntary, and the person can leave the heat and cool down afterward. That difference illustrates one of the fundamental principles of physiology - the dose matters.

A controlled heat exposure that challenges the body for a limited period and allows adequate recovery may stimulate adaptation. Too much heat, for too long, particularly when the body cannot adequately cool itself or recover, can lead to excessive physiological strain and ultimately heat-related illness. Age, health, medications, hydration and previous exposure to heat can also affect how an individual responds. What represents a tolerable heat exposure for one person may be much more demanding for another.

SPOTLIGHT FEATURE

SOME LIKE IT HOT

There is still much to learn.

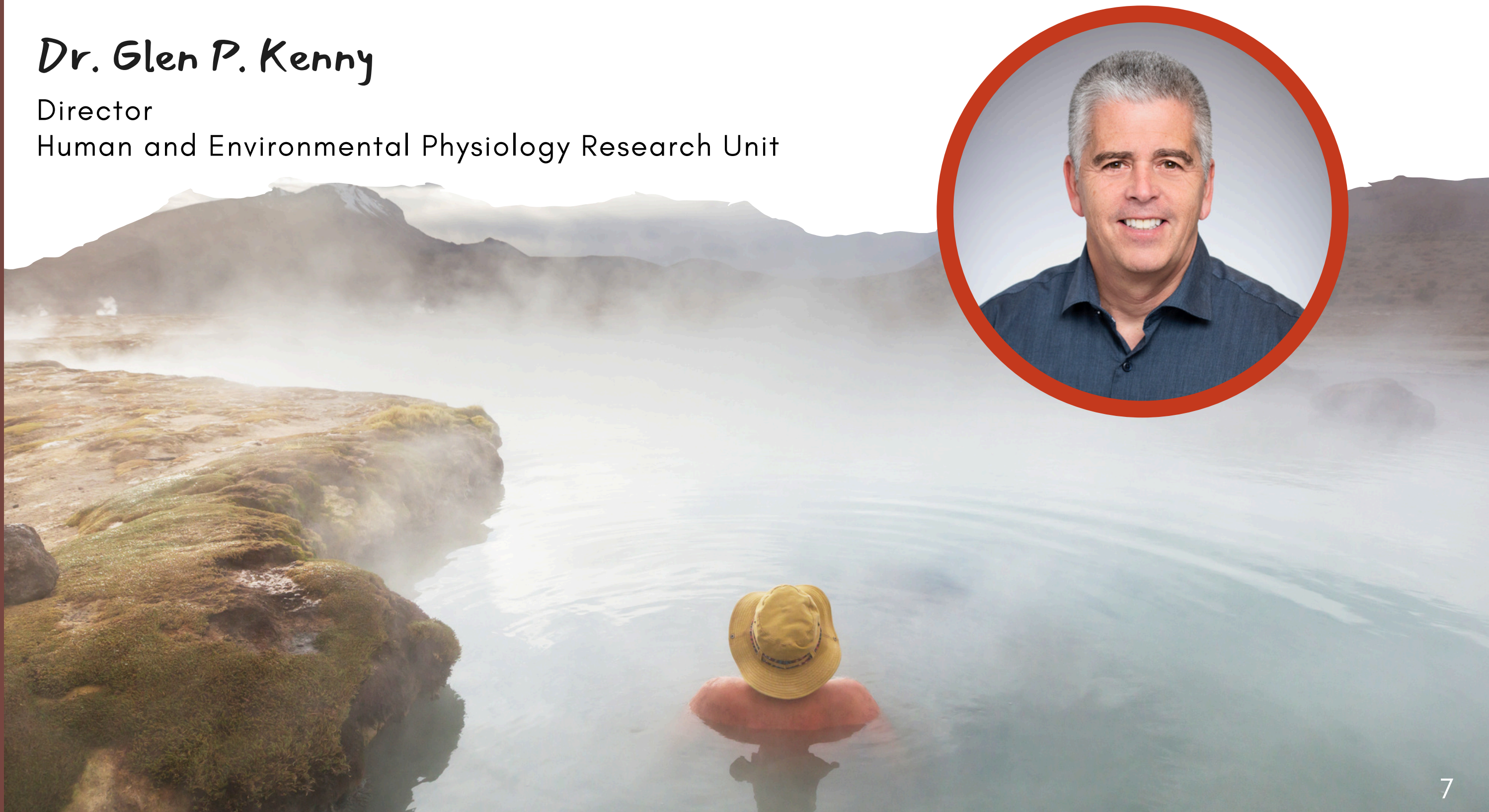
Scientists including our research team are trying to determine whether passive heat therapy can be used safely and effectively to improve health. Important questions remain. How hot do we actually need to become? How long should an exposure last? How often should it be repeated? Is raising skin temperature enough, or does internal body temperature also need to rise? Are hot baths more effective than saunas? And do younger adults, older adults and people living with chronic health conditions respond in the same way?

The recent comparison of different heating methods highlights why these questions matter in that the magnitude of the body's response depends strongly on the type, intensity and duration of heating. These questions also provide an interesting complement to the heat research many of you have helped us conduct over the years. Much of our work asks how we can protect people when heat exposure is unavoidable. Heat-therapy research approaches the problem from the opposite direction. What happens when we deliberately give the body a carefully controlled amount of heat? Both ultimately ask the same fundamental question: how does the human body respond when it gets hot?

As our summers become hotter, understanding when heat changes from a manageable physiological challenge to a threat to health has never been more important. But heat has more than one story to tell. Under the right circumstances, and in the right dose, **some really may like it hot**.

Dr. Glen P. Kenny

Director
Human and Environmental Physiology Research Unit



A MESSAGE FROM THE DIRECTOR

Dear Friends,

As we prepare another edition of our newsletter, I want to begin with a very sincere thank you.

Over the years, hundreds of you have given your time to participate in our studies. You have exercised in the heat, spent long days in our temperature-controlled chambers, swallowed temperature sensors, provided blood samples and completed countless measurements – all to help us better understand how heat affects the human body. This year, we have had the privilege of seeing some very tangible results of those contributions.

In June, Health Canada released new national guidance recommending that indoor temperatures be maintained at no higher than 26°C to protect older adults during hot weather. The guidance draws directly on Health Canada-funded research conducted in our laboratory showing that physiological strain increases as indoor temperatures rise above 26°C. Health Canada also specifically acknowledges the Human and Environmental Physiology Research Unit for its contribution to developing the guidance.

Soon afterward, Public Health Ontario released its own report on elevated indoor temperatures and health, similarly identifying 26°C as a reasonable health-protective guideline while highlighting the risks posed by indoor overheating. These recommendations are increasingly informing discussions about how we design buildings, protect vulnerable people and respond to extreme heat.

This is your research too. Without the tremendous commitment of our study participants, we simply could not have generated the evidence needed to help move the science from our laboratory into public-health guidance. And the work is far from finished.

One of the important questions raised by the new Health Canada guidance is whether the same temperature limit protects everyone. Health Canada specifically identifies children and people living with chronic illness among the populations for whom more research is needed, and points to ongoing research in educational and occupational settings as important for developing future indoor temperature limits. Public Health Ontario has similarly highlighted children and people living with mental health conditions as important populations requiring greater attention.

That is where some of our newest work begins. We are launching studies to determine safe indoor temperature limits for children and youth, including conditions similar to those experienced in schools without air conditioning. We are also extending our work to people living with mental health disorders and beginning new studies examining indoor overheating and occupational heat stress in workers. These questions are becoming increasingly urgent. As Europe and other regions of the world experience increasingly severe periods of extreme heat, Canada is not far behind. Health Canada notes that extreme heat events here are expected to become more frequent, more intense and longer-lasting. The science that all of you have helped us build is therefore becoming more important, not less.

A MESSAGE FROM THE DIRECTOR

So, once again, thank you. Your contribution does not end when you walk out of our laboratory. The information you have helped us collect is being translated into recommendations intended to keep people safe, and it is helping us identify the questions we need to answer next.

We also hope we can continue to count on your help. Please share our studies with your family, friends and colleagues. We are particularly looking for children and youth to participate in our new school heat studies. And for those of you who might like to come back yourselves, we have several new studies underway, including occupational heat-stress studies. If you enjoy exercising and don't mind getting a little hot, we would love to hear from you!

Thank you for continuing to be such an important part of our research community.

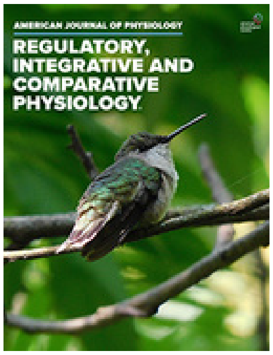
Dr. Glen P. Kenny

Director
Human and Environmental Physiology Research Unit

FRESH OFF THE PRESS

The impacts of common chronic disease on autophagy and cellular stress during exertional heat stress in peripheral blood mononuclear cells of older males

James J. McCormick, Kelli E. McCormick, Nicholas Goulet, Kate P. Hutchins, and Glen P. Kenny



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Regional cutaneous vasodilatory responses to local heating in post-menopausal females with and without hormone replacement therapy

Caroline Li-Maloney, Gregory W. McGarr, Sarah J. I. Johnson, Naoto Fujii, Tatsuro Amano, and Glen P. Kenny

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Postmenopausal vasomotor symptoms are associated with heightened cutaneous vasodilation despite preserved nitric oxide-mediated endothelial function

Caroline Li-Maloney, Gregory W. McGarr, Naoto Fujii, Tatsuro Amano, and Glen P. Kenny

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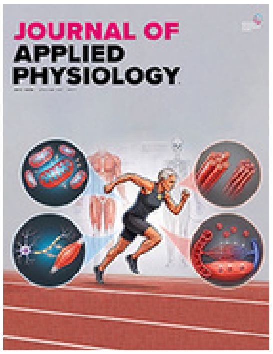
Heat vulnerability across the lifespan during prolonged heat exposure

Glen P. Kenny



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Assessment of initial stay time and work-rest scheduling over consecutive moderate-intensity workdays in hot environments in young and older males and females

Glen P. Kenny, Katie E. Wagar, Roberto C. Harris-Mostert, Kristina-Marie T. Janetos, James J. McCormick, Kelli E. King, Leonidas G. Ioannou, Ronald J. Sigal, W. Shane Journeay, and Fergus K. O'Connor

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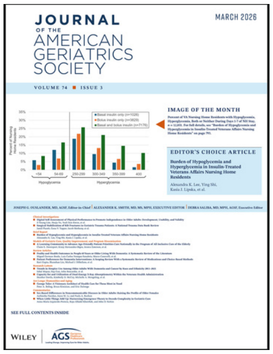
Effects of ceiling fans on self-reported symptoms and mood-state in bed-resting older adults exposed to indoor overheating

Gregory W. McGarr, Fergus K. O'Connor, and Glen P. Kenny



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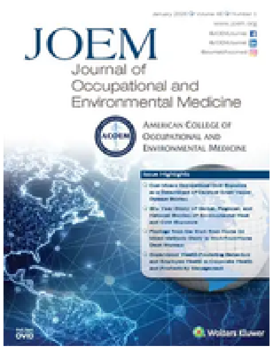
FRESH OFF THE PRESS

Labor productivity beyond output: The role of work time loss

Leonidas G. Ioannou, Lydia Tsoutsoubi, Konstantinos Mantzios, Georgios Gkikas, Gerasimos Agaliotis, Yiannis Koutedakis, David García-León, George Havenith, Jack Liang, Costas Arkolakis, Jason Glaser, Glen P. Kenny, Igor B. Mekjavic, Lars Nybo, and Andreas D. Flouris



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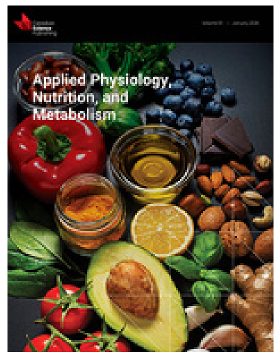
Influence of sleep deprivation on the relation and agreement between indices of objective and subjective strain in young and older males during simulated occupational heat stress—a randomized trial

Fergus K. O'Connor, Nicholas J. Koetje, Nathalie V. Kirby, and Glen P. Kenny



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Practical and accessible cooling strategies for mitigating exertional hyperthermia in low-resource workplaces

Fergus K. O'Connor, Zhiwei Xu, Kate P. Hutchins, Margaret C. Morrissey-Basler, Norman R. Morris, Connor Forbes, Mehak Oberai, Shannon Rutherford, Glen P. Kenny and Aaron J.E. Bach

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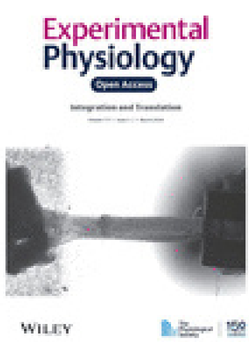
Seven days of warm-water immersion enhances resting irisin and BDNF, but not klotho, in older men

Joel M. Garrett, James J. McCormick, Kelli E. King, Kristina-Marie T. Janetos, Nathalie V. Kirby, Fergus K. O'Connor and Glen P. Kenny



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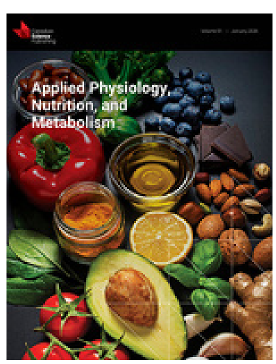
Effect of cooling centres on BDNF and HSP70 responses during a simulated heatwave exposure in older adults

Joel M. Garrett, James J. McCormick, Kelli E. King, Fergus K. O'Connor, Robert D. Meade, and Glen P. Kenny



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Phase-dependent autonomic responses to electric fan use during a prolonged 8-hour heat exposure in older adults

Andres E. Carrillo, Fergus K. O'Connor, Meghan N. Cuza-Berry, Christophe L. Herry, Andrew J. E. Seely, James J. McCormick, and Glen P. Kenny

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CONFERENCE PRESENTATIONS

This year, our team attended the Annual Meeting for the American College of Sports Medicine (ACSM) in Salt Lake City, Utah. This event is a major annual meeting for exercise science, where experts share new research on health, fitness, and human performance.

Our team presented nine posters focusing on how heat stress affects human health and physiological function, covering topics like the effects of wearing a hijab in hot climates, how heat stress in women and older adults with common chronic diseases impacts cellular cleanup processes like autophagy, cooling methods for older workers, and how aging impacts exercise safety.

Our Award Winners

- **Farah Mourad** won the Undergraduate Award for her project on how wearing a hijab impacts heat exchange during exercise.
- **Tasfia Hussain** received the Emergency Responder Human Performance Lab Master's Student Award for her study on warm water acclimation in older adults.
- **Sarah Johnson** took home the ACSM International Student Award.

CLICK HERE TO SEE MORE!

Congratulations to our team and all of our winners for their hard work, dedication, and the excellence they bring to our community!

HEPRU TEAM HIGHLIGHT

MEET SITHARTH PARTHEEPAN

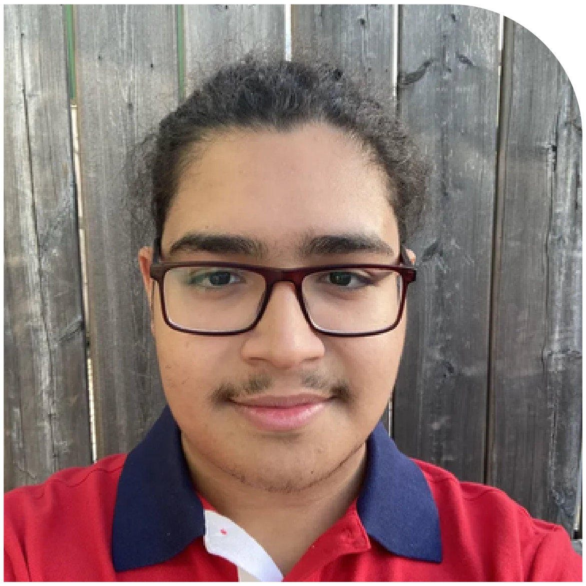
Sitharth Partheepan is a fourth-year student at the University of Ottawa, completing a Bachelor of Health Sciences with a specialization in Technologies and Innovations in Healthcare. Drawn to the clinical side of his specialization, he sought out laboratory work early, preferring to understand the human element behind health technologies rather than approach the field through theory alone.

Sitharth joined the Human and Environmental Physiology Research Unit (HEPRU) in the summer of 2025, processing blood samples and isolating cells in the wet lab for studies running across the unit. He then moved on to assisting with the unit's Hypoxia study, examining the interplay of heat and hypoxic stress on the human body; and its RIPC study, investigating the effects of remote ischemic preconditioning on skin blood flow. Across these projects he has gained hands-on experience with laser-Doppler flowmetry, the preparation and perfusion of pharmacological agents through microdialysis fibres, and a working understanding of how physiological responses shift under combined stressors.

Outside the lab, Sitharth has worked with the Pickering Reading Circle since 2019 to support the youth and young adults in his hometown. Additionally, for the past year he has volunteered with the Wabano Centre for Aboriginal Health, supporting the health and well-being of Indigenous older adults in Ottawa through its Diabetes Wellness Program. Both roles have shaped how he thinks about health beyond the research setting and are a large part of Sitharth's motivation for his continued work at HEPRU.

HEPRU TEAM HIGHLIGHT

MEET MOHAMMAD AL-RODHAN



Mohammad Al-Rodhan is an undergraduate student in the Honours Bachelor of Health Sciences (French Immersion Stream) program at the University of Ottawa and a member of the Human and Environmental Physiology Research Unit (HEPRU). Throughout his undergraduate studies, he has developed a strong interest in human physiology, environmental health, and clinical research, while building a diverse background across laboratories within the Faculty of Medicine at the University of Ottawa and healthcare settings. His experiences have strengthened his commitment to advancing evidence-based research that improves health outcomes for vulnerable populations. As a Canadian of Malaysian and Iraqi heritage, Mohammad brings a multicultural perspective to his work and is passionate about conducting research that addresses the needs of diverse communities.

At HEPRU, Mohammad contributes to research examining the physiological effects of environmental stressors, assisting with participant testing, data collection, and laboratory procedures. He will be completing his honours thesis project studying occupational heat stress in vulnerable populations with the ongoing aging workforce and extreme environmental stressors. Beyond his research, Mohammad has been actively involved in healthcare, student organizations, and community initiatives throughout his undergraduate studies. Following graduation, Mohammad hopes to pursue a career in medicine while remaining actively involved in clinical and translational research.

HEPRU TEAM HIGHLIGHT

MEET LUISA ZAPATA

Luisa Zapata is finishing an Honours Biomedical Science degree at the University of Ottawa and will complete her Honours research project at the Human and Environmental Physiology Research Unit (HEPRU). Luisa started volunteering in the lab this summer to deepen her understanding of how environmental and physiological stressors affect the human body and to gain hands-on experience in human physiology research. Since joining, she has learned new wet lab techniques, observed human physiological trials, and developed a better understanding of participant testing, research methods, and the application of scientific findings to real-world health issues.

Coming from a Colombian background, Luisa visits family back home each year, where she has witnessed firsthand the challenges that vulnerable communities face during periods of extreme heat, particularly where access to air conditioning and sufficient cooling is limited. These experiences have deepened her interest in using science to improve human health through research that informs public health strategies and helps protect vulnerable populations from the impacts of environmental stressors worldwide.

RECRUITMENT CORNER

ASSESSING CHILDREN AND YOUTH IN THE HEAT

Extreme heat is an increasing concern for children's health and well-being, particularly in schools and childcare settings without adequate cooling. As climate change progresses, children are being exposed more frequently to hot indoor environments, where their vulnerability to heat stress is heightened by less efficient thermoregulation, increased heat production during activity, and reliance on adults to recognize early signs of overheating.

Heat stress can negatively affect children's physical health and cognitive functioning, including concentration, memory, and problem-solving, and may also disrupt mood, behavior, sleep, and daily routines. Despite growing awareness of these risks, our understanding of how heat exposure physiologically affects children remains limited, making it difficult to develop clear, evidence-based guidelines to protect them in educational and home settings.

To address this gap, researchers at the Human and Environmental Physiology Research Unit, led by Dr. Kenny, are recruiting children aged 9-16 years to participate in a study examining how indoor heat exposure affects children's physiological and cognitive responses. In this series of studies, we are simulating a school day in indoor heat (22°C to 36°C) to test how children tolerate heat stress with and without additional cooling strategies (e.g., a fan or air conditioning). We also aim to assess the capacity of children to lose heat during low- to vigorous-intensity exercise conditions, to simulate active play. During these studies, researchers will monitor body temperature, heart rate, blood pressure, hydration, and complete brief cognitive tasks. Findings from this research will help inform evidence-based recommendations for indoor temperature limits in schools and childcare facilities to better safeguard children's health in a warming climate.

We are looking for individuals who meet the following criteria:

- Children 9-16 years of age
- Males and Females

All participants will visit our lab for
1 preliminary session and
2-4 experimental sessions

Please contact Dr. Glen Kenny at gkenny@uottawa.ca to participate.

RECRUITMENT CORNER

HOW DOES OVERNIGHT RECOVERY INFLUENCE WORK IN THE HEAT?

Many occupations require physically demanding work in hot environments over several consecutive days. While current occupational heat guidelines are largely based on a single day of heat exposure, workers often return home to indoor environments that remain warm overnight, particularly during heat waves. It is currently unknown whether these overnight conditions influence recovery and the body's ability to safely perform physical work the following day.

To address this important question, we are recruiting participants for a study examining how overnight recovery temperature affects physiological recovery and work tolerance during consecutive days of work in the heat. Participants will complete two simulated workdays in a warm environmental chamber (35°C), separated by an overnight stay in a climate-controlled apartment maintained at either 26°C or 31°C. Throughout the study, we will monitor body temperature, heart rate, hydration, whole-body heat loss, cardiovascular strain, and perceptual responses to heat.

The findings from this research will improve our understanding of how repeated heat exposure affects older workers and may help inform future occupational heat health and safety recommendations as periods of extreme heat become more frequent.

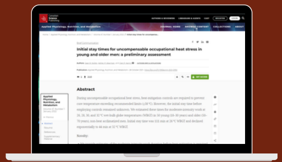
We are looking for individuals who meet the following criteria:

- Males aged 50-69 years
- Healthy, habitually active (not endurance trained)

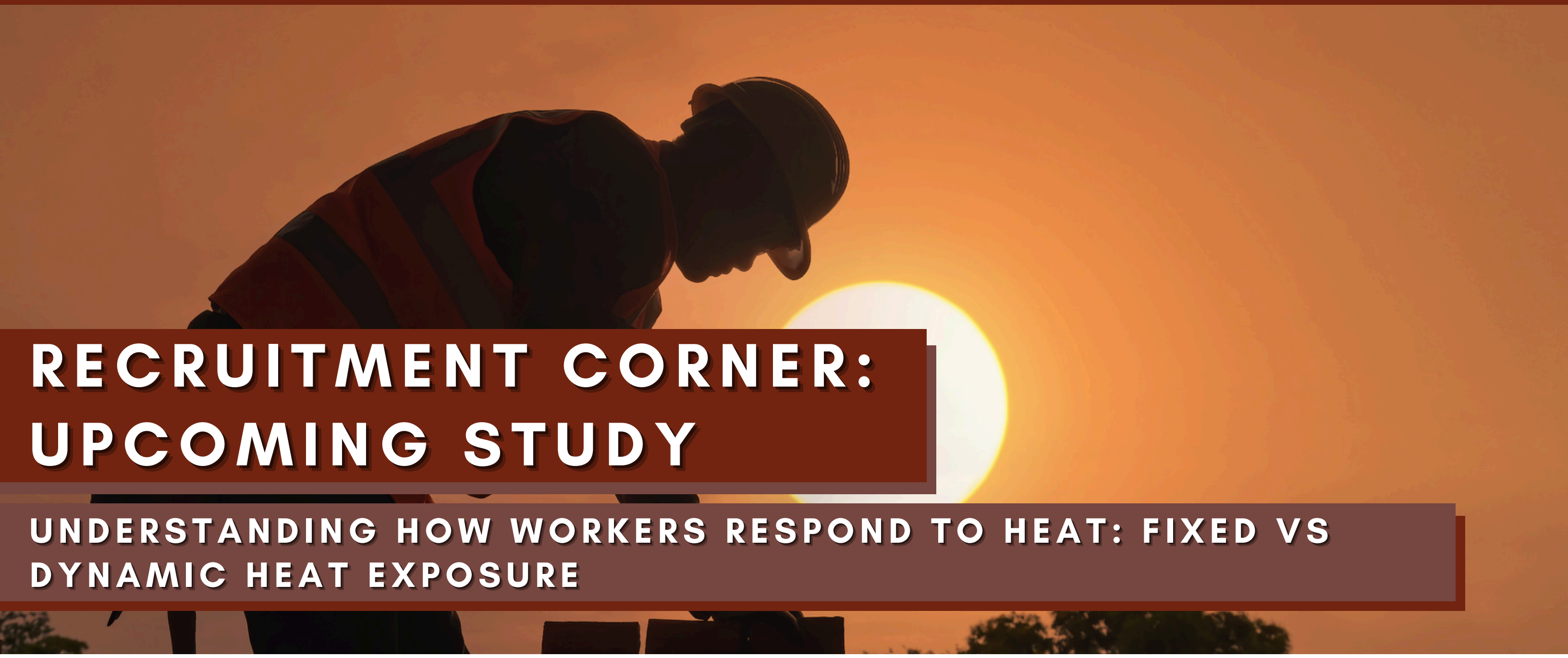
Please contact Sarah Johnson at sjohn202@uottawa.ca to participate.

Learn more about our occupational heat stress research at www.hepru.ca

Heat tolerance and the validity of occupational heat exposure limits in women during moderate-intensity work



Initial stay times for uncompensable occupational heat stress in young-to-older men: a preliminary assessment

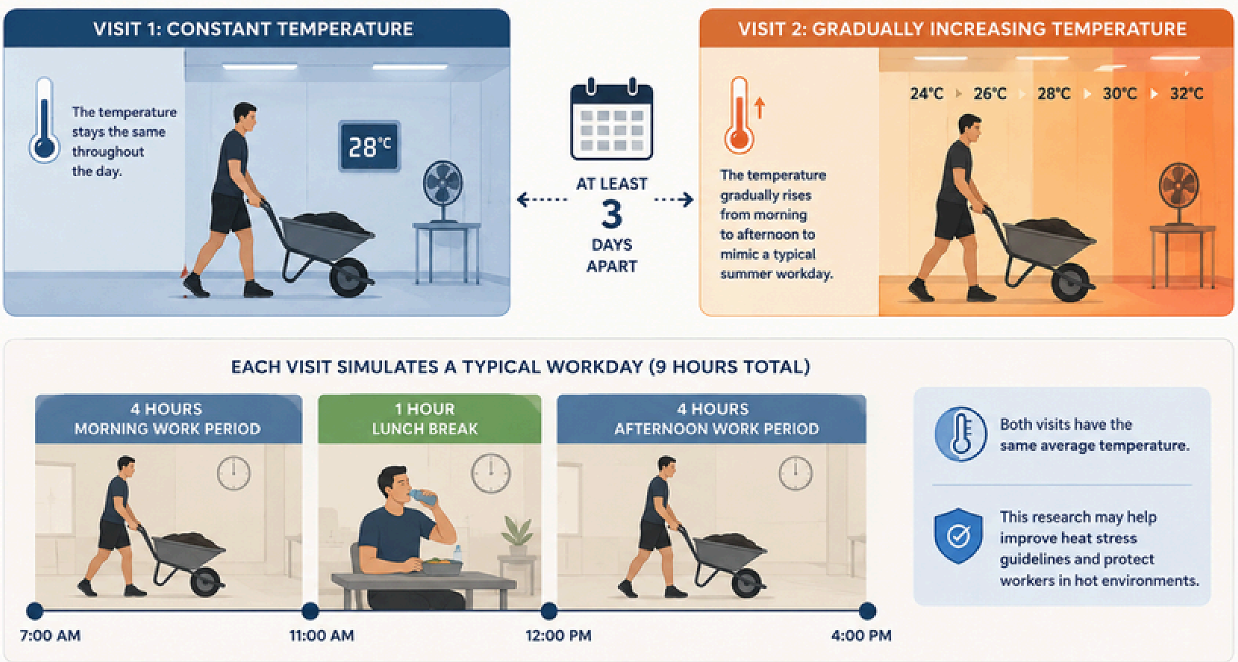


RECRUITMENT CORNER: UPCOMING STUDY

UNDERSTANDING HOW WORKERS RESPOND TO HEAT: FIXED VS DYNAMIC HEAT EXPOSURE

As our climate continues to warm, many workers are spending more time performing physically demanding jobs in increasingly hot conditions. In the real world, temperatures typically rise throughout the day, yet most laboratory studies have examined heat stress under constant environmental conditions. Researchers at HEPRU are investigating whether these different patterns of heat exposure influence how the body responds to heat. The findings may help improve future workplace heat stress guidelines and contribute to safer working conditions for people who work in hot environments.

Participants will complete two full-day laboratory visits, each designed to simulate a typical workday with a four-hour morning work period, a one-hour lunch break, and a four-hour afternoon work period. One study visit will take place in a fixed-temperature environment, while the other will simulate a typical summer workday by gradually increasing the temperature from morning to afternoon. Although both trials will have the same average temperature, the pattern of heat exposure will differ.



In this upcoming study, we will be looking for individuals who meet the following criteria:

- Males aged 45-65
- Physically active

Please contact Jeffrey Kummer at jkumm035@uottawa.ca to learn more.

RECRUITMENT CORNER: UPCOMING STUDY

UNDERSTANDING HOW EXTREME HEAT AFFECTS PEOPLE LIVING WITH CHRONIC LUNG DISEASE

Hot weather is not experienced equally. As Canadian summers warm, some people face far greater health risks indoors than others, and among those most affected are people living with chronic lung conditions such as chronic obstructive pulmonary disease (COPD). Public health guidance already recognizes this, but the physiological reasons behind it remain surprisingly poorly understood.

The doctoral research of Nicholas Goulet at the University of Ottawa's School of Human Kinetics, supervised by Dr. Pascal Imbeault and Dr. Glen Kenny, works to close that gap. The overall aim is to investigate the effects of heat across several levels at once: what happens inside individual immune cells when they are exposed to heat stress, how the whole body responds to spending a long day in a warm indoor environment, and how these findings connect to public health messaging and heat alerts in Canada.

Bringing these levels together matters because guidance about safe indoor temperatures still rests largely on population-level evidence. Recent laboratory work conducted here in Ottawa has helped address this gap, including day-long and multi-day simulated indoor heat exposures in older adults that have shown how physiological strain develops during prolonged indoor heat exposure.

In this upcoming study, we will be looking for individuals who meet the following criteria:

- Males and females aged 60-80 years
- Diagnosed with any type of COPD

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