

## ICEE2019 AMSTERDAM NEWSLETTER 4 – January 2019

In this newsletter you will find information about:

- Registration
- Hotels
- Call for abstracts
- Symposium sessions
- Sponsors in the spotlight: b-Cat, Royal Society to Rescue People from Drowning

### Registration

Registration is now open for the conference. Please visit [www.icee2019.com](http://www.icee2019.com) to register. The conference fee is:

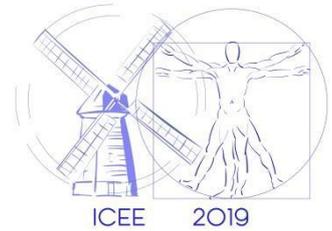
**550 Euro** for seniors (for early birds, 600 Euro after March 1<sup>st</sup>, 2019) and  
**300 Euro** for students.

#### Student definition:

You must have completed your terminal degree (e.g., PhD, MD, etc) within a 5 year period prior to the abstract deadline or are currently registered as an undergraduate/graduate student. A document of eligibility will be needed, to be uploaded during registration. A copy of your student ID or a letter of recommendation, provided by your professor, or head of department.

#### The fee includes:

- Welcome reception
- Access to the conference and poster sessions
- Coffee, tea and special cookies (<https://koeckebackers.nl/>) prior to the daily conference start
- Coffee, tea and apple cake, chocolate truffle cake, white chocolate cake or lemon cheese cake during the morning breaks
- Lunch, with homemade soup, orange juice and other juices, biological milk, a mix of several sandwiches, wraps and bread pudding with meat, cheese, fish, crab salad, smoked salmon, Quinoa salad with grilled vegetables, salad of tomato and mozzarella, quiches of Pom Pie, spinach feta, curry, tai chicken and Guinness beef (we have to find out what this is) and different fruits (apple, banana, pears and mandarin)
- Drinks with Kummel-cheese cookies, nuts and vinegar and sea salt chips during the afternoon break
- Abstract book will be send to you via email
- Conference dinner on Thursday evening



### Payment:

Registration is complete after payment. The payment options are on the website [www.icee2019.com](http://www.icee2019.com). For Dutch attendees the preferred method of payment is iDeal. The transactions costs are low for this type of payment. You will receive a receipt after the payment.

## Hotel information

There is a hostel next to the conference venue which has good reviews. This may be a suggestion for students or the investigators who are young of heart:

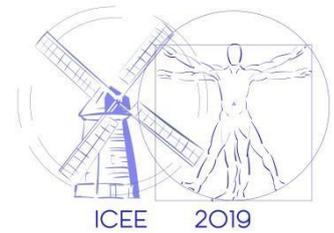
Generator Hostels, Mauritskade 57, 1092 AD Amsterdam, Netherlands, tel: +31 20 708 5600

We also have a limited number of rooms available in the Amsterdam Tropen Hotel ([www.amsterdamtopenhotel.nl](http://www.amsterdamtopenhotel.nl)) next to the conference center KIT for 120-130 Euro per night including VAT excluding 5% tourist tax. Please contact Stefan de Graaf ([s.de.graaf@vu.nl](mailto:s.de.graaf@vu.nl)) for more info and for reservation enquiries. Rooms within this hotel will be available on a first come, first serve base. Apart from these hotels there are plenty, plenty, plenty of accommodation options in Amsterdam including many excellent AirBnB options. However, Amsterdam is a popular tourist destination in summer, so don't wait too long to make a reservation.

## Call for abstracts

The deadline for abstract submission is the **1<sup>st</sup> of March 2019**. Visit <https://easychair.org/cfp/ICEE2019> to submit your abstract. The word template for the abstract can be found in the upper right corner:

A screenshot of the 'ICEE2019 (author)' submission page. The page has a dark navigation bar with links for 'New Submission', 'Submission 4', 'Templates', 'ICEE2019', 'Program', 'CFP', 'News', and 'EasyChair'. The main content area is titled 'New Submission for ICEE2019' and includes instructions for authors. A prominent blue arrow with the text 'Submission Templates' points to a link labeled 'Submission templates' in the top right corner of the page. Below the instructions, there is a section for 'Author Information' with a list of requirements and a form for entering the author's name.



Please use this template to write your abstract. Please limit the abstract to 300 words. When you are finished, please convert the word file with the abstract to a pdf file.

For final submission, please go again to the Easychair website, fill in the required data on the authors, title and abstract, keywords and select a relevant topic from the list. If none of the topics applies, please leave the boxes open. Hereafter, your paper can be uploaded in the pdf format. Then you can push the SUBMIT button and you will receive a notification by email to confirm your submission.

## Symposium sessions

We received several interesting proposals for symposia and were able to fit them all in the tight schedule. Please find the schedule below:

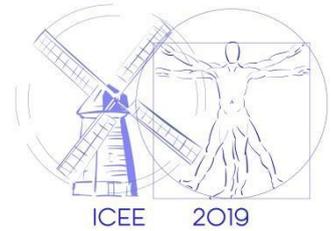
time	Sunday 7-7-2019	Monday 8-7-2019	Tuesday 9-7-2019	Wednesday 10-7-2019	Thursday 11-7-2019	Friday 12-7-2019
8:00 - 8:30		Reception	Reception	Reception	Reception	Reception
8:30 - 9:00		Opening				
9:00 - 9:30		Cryotherapy for recovery: time for the cold shoulder or a warm welcome?	Heat acclimation for special populations	Occupational heat strain in a warming world	The Application of Menthol in Sport, Exercise and Occupational settings: to apply, ingest or discard?	Drowning
9:30 - 10:00		break	break	break	break	break
10:00 - 10:30						
10:30 - 11:00		Presentations 1	Presentations 3	Presentations 5	Presentations 6	Presentations 8
11:00 - 11:30						
11:30 - 12:00						
12:00 - 12:30		Lunch	Lunch	Lunch	Lunch	Lunch
12:30 - 13:00						
13:00 - 13:30		The Ins and Outs of Heat Stroke: Examining Novel Risk Factors of Susceptibility	Impact of Cold Exposure on Individuals with Clinical Disease		Thermal modeling and soldier load	Presentations 9
13:30 - 14:00		Posters 1	Posters 2		Posters 3	
14:00 - 14:30		break	break		break	break
14:30 - 15:00		Presentations 2	Presentations 4	Social program	Presentations 7	End of meeting
15:00 - 15:30						
15:30 - 16:00						
16:00 - 16:30						
16:30 - 17:00						
17:00 - 17:30						
17:30 - 18:00						
18:00 - 18:30	Welcome reception - Vrije Universiteit		Student program		Conference Dinner	
18:30 - 19:00						
19:00 - 19:30						
19:30 - 20:00						
20:00 - 20:30						

### Short summary of the symposia:

#### **Cryotherapy for recovery: Time for the cold shoulder or a warm welcome?**

*Speakers: David Low (chair), Chris Abbott, Robert Allan, Joseph Costello*

The accumulated stresses of training and/or competition may temporarily cause impairments in physiological and/or muscular function leading to suboptimal performance. A balance therefore exists between training/competition and recovery to maximize athletic performance. The application of cryotherapy to previously exercised limbs has become a widely used recovery method. Cryotherapy is also typically used in the immediate treatment and management of soft tissue injuries. The proposed benefits of acute cryotherapy exposure are related to enhanced recovery of performance and reductions in body/local temperatures, microvascular blood flow, oedema, perceived soreness and



possibly muscle damage. Furthermore, repeated cryotherapy bouts have been shown to accentuate endurance training-induced metabolic adaptations but abrogate resistance training-induced metabolic adaptations. The aim of this symposium is to critically examine the vascular, metabolic and performance implications of cryotherapy recovery for sport and exercise performance. Using an integrated approach, this symposium will address the current state of knowledge pertaining to proposed mechanisms of cryotherapy use in sport and exercise settings. Such information has important implications for academics and scientists in a range of fields, including, cardiovascular, metabolism, exercise physiology, as well as exercise science/rehabilitation guidelines for sport and exercise science practitioners working with the public through to the elite athlete.

### **The Ins and Outs of Heat Stroke: Examining Novel Risk Factors of Susceptibility**

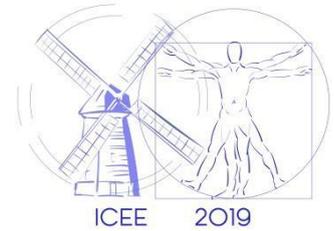
*Chairs: Lisa R. Leon and Craig Crandall, Speakers: Julien Périard, Matthew Cramer, Michelle King, Elizabeth Proctor*

Within the United States thousands of individuals are treated each year for heat-related injuries, with the most severe cases being among the leading cause of death in athletes. Heat-related injuries are also relatively common in non-athletic settings such as the military and in select occupations. The focus of this symposium is to present novel findings pertaining to environmental and individual risk factors (from the human to the molecule) that increase the susceptibility to a heat-related injury. Dr. Julien Périard will first present research on the protective effects of heat acclimation in mitigating heat-related injuries, while also addressing when heat acclimation may not prove beneficial towards this end. Dr. Matthew Cramer will then present research on the challenges that burn survivors face with thermoregulation, resulting in a heightened risk for a heat-related injury. He will also present data on the interaction between biophysical factors and burn injury in affecting a burn survivor's risk for a heat-related injury and how heat acclimation could mitigate that risk. Dr. Michelle King's presentation will change the focus to a mouse model of heat stroke, addressing the effects and associated mechanisms of a prior viral illness as a significant risk factor that increases heat stroke severity. Dr. Elizabeth Proctor will conclude the session addressing molecular and cellular signatures of heat stroke, with an objective of identifying diagnostic and prognostic tools to assess heat stroke severity, as well as to identify the mechanism(s) of action by which prior viral illness changes susceptibility to a heat stroke. From this "human to molecular" approach, the audience will obtain important information regarding the impact of novel risk factors on susceptibility to a heat-related injury (Author views not official US Army or DoD policy).

### **Heat acclimation for special populations**

*Chairs: Hein Daanen and Hannah Pallubinsky. Speakers: Julien Périard, Ben Stephenson, Andrew Garrett, Hannah Pallubinsky, Gregor Eichhorn.*

Repetitive heat exposure has an adaptive response to exercise and this has mainly focused on the theme of increasing human performance. However, a 'one size fits all' approach may not be appropriate for special populations. In this symposium, there will be discussion on recent work on



heat acclimation with elite athletes, Paralympic competitors and females. Heat therapy for metabolic disease and heat stress on an aging population will be examined.

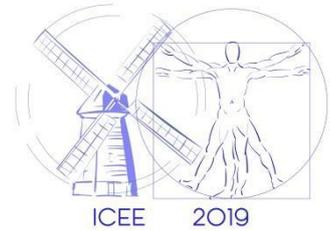
Elite athletes adhere to regimented training cycles. Therefore, traditional heat acclimation approaches require manipulation to ensure that heat exposures fit properly into the training program for optimal benefits. This presentation will explore how this may be implemented. Paralympic athletes are a population at heightened risk of thermoregulatory strain due to their range of physical impairments. This study aims to provide the first evidence of heat acclimation responses in this group compared to physiologically matched, able-bodied athletes. The effectiveness of short-term heat acclimation (STHA) with a dehydration stimulus have been reported using male participants. The aims of this work were to investigate the effectiveness of STHA (with dehydration) in females controlling for menstrual cycle status versus a matched male cohort.

Regular heat exposure as a form of heat therapy may elicit beneficial cardiovascular and metabolic adaptations in humans. This presentation will address the effect of passive heat acclimation on cardiometabolic factors in an overweight and middle-aged population. The potential detrimental health issues of heat stress on an aging population is receiving growing attention worldwide. This work will investigate the genotypic and physiological measures during heat acclimation in the elderly. Furthermore, an alternative heat acclimation approach will be considered. In summary, this symposium will provide the audience with an insight into the use of heat acclimation for special populations from a human performance and health perspective.

### **Impact of Cold Exposure on Individuals with Clinical Disease**

*Speakers: John Castellani (chair), Tiina Ikäheimo, Mariann Sandsund, Michiel Moonen.*

Most studies examining physiological responses to cold have been conducted in healthy populations. Less research has focused on individuals who suffer from various diseases. Epidemiological studies show that mortality/morbidity rates are higher in winter compared to summer with increases in death due to ischemic heart disease, stroke, and respiratory disease. Are the cold exposure responses in individuals with clinical disease different from healthy individuals? Does cold exposure pose a greater risk? Should occupational cold exposure guidance be different for people with known health problems? Conversely, data suggest that cold exposure may provide a potential therapeutic effect on disease progression. One question currently being asked is, can chronic cold exposure be used to attenuate metabolic disease? This symposium will present recent findings examining the physiological effects of cold exposure and exercise in individuals with coronary artery disease, respiratory disease, and diabetes. Dr. Tiina Ikäheimo will provide information on the cardiovascular effects of cold exposure among persons having hypertension or coronary artery disease. She will also describe how exercise in the cold and medication modifies those responses. Links between observed pathophysiological responses of cardiovascular diseases and cold related morbidity and mortality will be addressed. Dr. Mariann Sandsund will address respiratory responses to cold exposure, focusing on individuals suffering from exercise- and cold-induced asthma in different occupations as well as in elite



athletes. Pharmacological and non-pharmacological treatment and guidance will be discussed related to health and performance. Mr. Michiel Moonen will present metabolic responses to cold exposure, focusing on individuals suffering from diabetes mellitus type 2. The effects of cold acclimation on lipid- and glucose metabolism will be discussed. This symposium will highlight what we do not currently know with regard to acute and chronic cold exposure in individuals with clinical disease and pose questions to be answered in future research efforts.

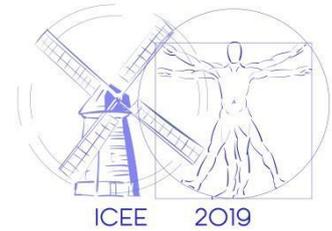
### **Occupational heat strain – public and individual health perspectives**

*Speakers: Glen Kenny (chair), Lars Nybo (chair), Andreas Flouris, Sean Notley, Leonidas G. Ioannou, Marco Morabito*

Environmental heat stress is a societal challenge projected to increase in severity with global warming. High death rates during extreme heat-waves signifies the ultimate outcome for vulnerable groups, but equally important daily occupational heat stress has important health implications and it affects productivity for billions of workers with derived socio-economic impact. General guidelines and limits for heat stress designed to protect the average worker have been recommended by occupational safety institutes for some time. However, heat stress continues to compromise health and recent reports suggest that this is largely explained by the inability of existing guidelines to consider individual factors that cause extensive variability in a worker's physiological response to a given level of heat stress. A worker's physiological response to a given heat stress is modified independently by inter-individual factors (age, sex, body composition, disease, others) and intra-individual factors both within (fitness, acclimation and hydration state, others) and beyond their control (work duration, days with exposure, medication use, others). For instance, relative to their younger counterparts, older workers display a reduced capacity to dissipate heat, resulting in a greater heat strain during work in the heat. Physically demanding work in the heat can also cause next-day effects (fatigue, fluid depletion, others), that augment core temperature increases on the next workday and further increase the risk of heat-related illness especially in older workers. In conditions that do not exceed the recommended limits, this 'one size fits all' approach to heat stress management can lead to reductions in productivity in more heat-tolerant workers, while compromising safety in less heat tolerant workers who may develop heat-related illness. In this symposium, we examine the consequences of applying a generalized heat exposure limit for all workers that does not consider the extensive inter- and intra-individual variation in thermoregulatory function. Further, we discuss future directions to occupational heat stress management that consider this individual variability to create a multi-level heat protection strategy providing maximum protection to all workers against the detrimental effects of heat spurred by a warming planet. Also, the following general areas will be covered: 1) Defining high risk conditions for heat-vulnerable workers, 2) New strategies for real-time monitoring of heat strain in workers, 3) Scenario-specific and individualized heat management solutions and 4) Protective measures to optimize worker performance and health.

### **The Application of Menthol in Sport, Exercise and Occupational settings: to apply, ingest or discard?**

*Speakers: Martin Barwood (chair), Russ Best, Jason Gillis, Owen Jeffries*



The cold-receptor agonist menthol has been utilised to improve performance by imparting feelings of coolness and freshness to alleviate thermal discomfort. Menthol activates thermoreceptors in a similar manner to thermal changes within an ambient temperature range of 8-28°C. These effects are mediated by peripheral cold-sensitive neurons and trigeminal nerves of the face and oral cavity via activation of TRPM8 channels by either applying, ingesting or swilling menthol solutions. The forcing function exerted by topically applied menthol is probably influenced by a combination of factors, including the percentage of body surface area (BSA) exposed, body region, and dose, but the weighting of each requires clarification, as do factors influencing oral administration. Topically, a greater menthol-mediated forcing function has been shown to alter thermoregulation resulting in heat gain, but the precise mechanisms require clarification. It is unknown whether there is a similar effect when menthol is administered orally, but higher concentrations are reportedly preferred. Consequently, menthol has the potential to improve thermal perception but evoke heat gain responses placing biophysical and behavioural thermoregulation in conflict. Nevertheless, there is a growing body of literature that supports the efficacy of menthol application to improve endurance performance and, more recently, muscular performance.

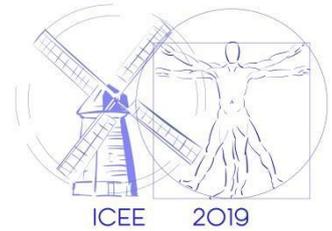
Oral menthol application has been shown to improve time to exhaustion and time trial performance with emerging evidence in power based activities. Independently of the heat storage response, topically applied menthol has also been shown to improve endurance performance and enhance recovery from exercise-induced muscle damage, possibly due to increased motor unit activation. Both methods of application have consistently been shown to ameliorate subjective measures of thermal strain during exercise.

Accordingly, the aim of this symposium is to present key literature on the perceptual, thermoregulatory and performance effects of menthol and actively debate the merits of: the medium of application, advised protocols for menthol use during these modalities, the timing of application and the resultant thermoregulatory effects. This symposium will culminate in a consensus statement on menthol use in sporting and occupational settings.

### **Thermal modeling and soldier load**

*Chairs: Xiaojiang Xu and Maurice van Beurden. Speakers: Wendy Sullivan, Maurice van Beurden, Jacob Pill, Xiaojiang Xu, Boris Kingma, Ollie Jay, Steven Eckels*

In modern day operations, soldiers are required to carry out a wide range of complex (physical and cognitive) tasks under life-threatening conditions and high-pressure situations. For example they carry high loads, up to 80 kg or more, they wear personal protective clothing, they constantly assess and appraise the situation, process information and make decisions. This symposium focuses on the use of (thermal) modeling to optimize human performance (or Soldier performance), through predicting health threats from extreme environment, physical and cognitive challenges and protective ensembles. Thermal modeling often includes modeling (thermoregulation simulation) and manikins



(physical simulation). Thermoregulatory models predict human response to heat, cold, physical activity and clothing. In addition there is an increasing interest in the aversive effects of thermal load on cognitive performance. Based on this knowledge, user-friendly tools, such as Decision Aids or Apps, are developed to help Soldiers predict and assess their physiological status and cognitive load, and to determine appropriate strategies to mitigate the multiple stressors they face.

This symposium will include seven speakers and will be organized as following: opening presentation 15 minutes, the remaining six presentations 10 minutes and questions/discussion 15 minutes.

### **Drowning**

*Speakers: Joost Bierens, Mike Tipton*

“Drowning” remains amongst the top three causes of accidental death around the globe, with over 1,000 people a day losing their lives to drowning. The actual figure for world-wide drowning deaths is probably two or three times higher than this figure; low- and middle-income countries, where most drownings occur, have incomplete recording of drowning events. Furthermore, and sadly topical, drowning as result of flooding, ferryboats accidents and accidents with boats carrying refugees and migrants are not reported in the standard drowning statistics. Although the focus is on mortality, for every death caused by drowning many more suffer life-long morbidity. As such, drowning-related problems rank amongst the largest associated with the environment and, with global warming increasing flooding and water levels, this threat is only set to increase. As an example, in 2016 there were 19,000 drowning deaths in Bangladesh 16,000 of them were children.

Although the term “drowning” is in common parlance, immersion and submersion in water evoke a wide range of physiological response that can result in death other than by “the process of experiencing respiratory impairment from submersion or immersion in liquid” (Drowning). For example, recent research has suggested cardiac mechanisms that can result in death on immersion, previous research has identified thermally-related neuromuscular and hypothermic mechanisms. As such, a more accurate term for deaths occurring in water would be “immersion-related deaths” rather than simply “drowning”, and there are many physiological pathways leading to these deaths.

Finally, recent considerations have included regarding drowning as a process, with an associated “drowning chain of survival”, that starts with knowledge and prevention in the local community and runs through recognition, protective equipment, rescue and treatment (Fig.1). This model underpins efforts to improve drowning prevention policies and thereby reduce the number of drowning-related deaths.

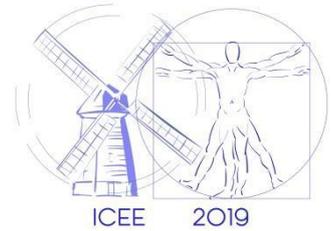


Figure 1 - Shows the graphic result of the Drowning Chain of Survival.

The following topics related to drowning will be covered in this symposium:

- Physiological and pathophysiological responses evoked by immersion and submersion (including the relationship to brain physiology/protection);
- Protective clothing/equipment (PPE); advanced search and rescue equipment;
- Mathematical modeling of survival times in cold water;
- Prevention: from lab to public awareness campaign.

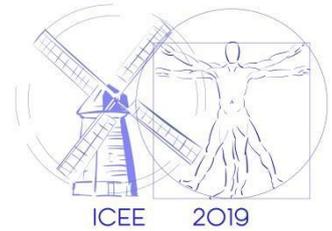
## Sponsors in the spotlight

### b-Cat

The company b-Cat sponsors the reception. B-Cat constructed the combined climatic/hypoxic chamber at Vrije Universiteit Amsterdam where the reception will be held.



b-Cat ([www.b-cat.nl](http://www.b-cat.nl)) is market leader in Controlled Atmosphere Technology solutions. They use this CA technology in four different branches; sports & health, insect treatment, fire prevention and preservation of cultural heritage. The company is located in the center of The Netherlands. They have installed systems in over 55 countries worldwide.



Their system can control oxygen levels, humidity and temperature, and is safe, effective, widely applicable and above all, 100% natural. Customers of b-Cat are ensured to receive a service that will exceed their expectations.

#### The Royal Society to Rescue People from Drowning

The mission of the Royal Society to Rescue People from Drowning is to prevent drowning as much as possible. This is achieved by education, research and honoring the rescue heroes in The Netherlands. The topic of drowning is also addressed in an international context.



For centuries, drowning was a certainty after water immersion. In Amsterdam alone more than 10 people could drown on a single day. Therefore, the society was founded in 1767. Thanks to the society, The Netherlands has a good track record in prevention and treatment of drowning. Most Dutch adults received swimming lessons when they were young. Still, about 220 people drown yearly in The Netherlands. Therefore, the Society keeps playing an important role.

The Society gave a big impulse to science through the organization of the World Conference on Drowning in 2002 and supporting the writing of the book Drowning (Springer).