Bulletin n°27

Veille thermique
Période : juin 2025

Objectifs :

L'INRS est de plus en plus sollicité sur des questions concernant les activités en entreprise par forte chaleur : les activités en extérieur, l'été en période de canicule, mais aussi les activités en intérieur, dans des lieux aux conditions thermiques extrêmes. L'objectif de cette veille est de se tenir informé sur ces thématiques, dans une période où la problématique thermique croît avec les changements climatiques.

La bibliographie extraite de la base de données INRS-Biblio, permet la consultation des ressources en version PDF.

Les liens mentionnés dans le bulletin donnent accès aux documents sous réserve d'un abonnement à la ressource.

La validation des informations fournies (exactitude, fiabilité, pertinence par rapport aux principes de prévention, etc.) est du ressort des auteurs des articles signalés dans la veille. Les informations ne sont pas le reflet de la position de l'INRS.

Sommaire :

EPI, matériaux protecteurs/refroidissants

P. Miskiewicz, A. K. Puszkarz and A. Nosal.

CFD modeling of heat transfer through composites for protective gloves containing aerogel and Parylene C coatings supported by micro-CT and thermography.

AUTEX RESEARCH JOURNAL. 2025;25(1).

https://doi.org/10.1515/aut-2025-0042

The research presented in this article concerns the modeling of physical processes occurring in protective clothing that determine the ergonomics and thermal balance between its user and the work environment. In the first part, three-dimensional models of real composites based on cotton fabrics and aerogel were designed using the original method of Parylene C deposition in the chemical vapour deposition (CVD) process, which have potential application in thermal protective gloves. The models included geometric parameters of real textiles calculated based on high-resolution X-ray tomography. This technique also allowed for the accurate determination of the porosity of the tested materials and the inclusion of the exact air content in the models without the need to reproduce the complex geometry of fibers in the fabric and microgranules in the aerogel. The results of heat transfer simulations performed using the finite volume method, correlating with the results of the experiment verifying them using thermography, showed that the designed models allow for the prediction of heat transfer with high accuracy despite the use of a lot of simplifications in the geometry. The differences between the modeling results and the experiment range from 0.7 to 5.5% depending on the complexity of the model geometry.

M. Georgievska, S. Odhiambo, C. Copot, B. Malengier, L. Van Langenhove and H. Wullens.

Enhancing thermophysiological comfort in defense clothing for hot climate: A comprehensive evaluation and introduction of passive cooling vests as a solution.

JOURNAL OF INDUSTRIAL TEXTILES. 2025;55.

https://doi.org/10.1177/15280837251349943

Protective clothing systems pose significant heat stress challenges in hot climate, limiting natural cooling through sweat evaporation. In such conditions, passive cooling systems could offer lightweight, silent, and energy-efficient solutions. However, their effectiveness and their physiological and psychological impact are influenced by specific operational conditions, including the type of clothing system used. This study assessed the thermophysiological effects of three passive cooling vests - Phase Change Material (PCM), Waterfill (WF), and Watersoak (WS) - worn under Belgian Defense clothing system with ballistic protection during wear trials at 30 degrees C, 48% RH, 4 km/h, 120 min. The PCM vest with a transition temperature of 29 degrees C provided the most effective cooling, significantly reducing torso microclimate temperature for 60 min. Over the total test duration, the torso microclimate temperature was lowered by an average of 1.5 degrees C, accompanied by reduced cardiovascular strain, sweating, and enhanced thermal and wetness perception. Thus, the PCM can be a better solution than active cooling for operations up to 2 hours. Water-based cooling vests delivered mild cooling, with significant effect at 30 min, but temporary duration. They still showed reduced microclimate temperature by 0.5 degrees C at 60 min, but became a thermal burden thereafter, confirming their limited performance under restrictive clothing. The results also showed that subjective experience did not fully align with objective data, confirming the importance of individual perception in comfort-related studies.

J. N. Wang, Q. Wang, M. Tian, Y. Y. Wang and J. Li.

Experimental investigation of heat transfer and thermal protective performance of flame-resistant fabrics exposed to different intensities of fire.

INTERNATIONAL JOURNAL OF OCCUPATIONAL SAFETY AND ERGONOMICS. 2025.

https://doi.org/10.1080/10803548.2025.2509392

This study focused on the three-dimensional heat transfer process between flame-retardant fabrics and the air gap beneath the clothing under varying flame intensities. Thermal protective performance testing as well as fabric appearance and heat shrinkage measurements were conducted on single and multilayer fabrics at two heat flux levels. The impact of the heat source, fabric layers and air gap was investigated. Through the two-dimensional visualization of temperature distribution, the distribution was uneven due to local heat sources, affected by the heat source density and fabric layers. Multilayer fabrics demonstrated superior thermal protective properties to single-layer fabrics, and exhibited higher temperatures and stored more heat. The air gap thickness significantly influenced the thermal protection of the fabric system ($p < 0.01$), and opening the boundary did not always enhance thermal protective performance, as this depended on the internal heat transfer mechanism of the air gap.

L. Linssen, L. Klous, J. Reinten, A. Psikuta, M. Catoire and B. Kingma.

Impact of a ventilated vest on cardiac recovery and thermal perception of soldiers during an intermittent activity in a warm environment.

INTERNATIONAL JOURNAL OF BIOMETEOROLOGY. 2025.

https://doi.org/10.1007/s00484-025-02962-z

In this study, we examine the effects of a ventilated vest worn under a ballistic vest on thermophysiological and perceptual outcomes during an intermittent activity. Eight male soldiers (age:21 +/- 2 years, height:184 +/- 8 cm, weight:77.5 +/- 10.1 kg) performed an intermittent 50-10-20-10 min walk-rest-walk-rest treadmill protocol in a climatic chamber (32 & ring;C, 33% relative humidity, 5 km/h walking speed). Two conditions were evaluated: control (clothing + ballistic vest) and ventilated vest (clothing + ventilated vest + ballistic vest). Local static thermal insulation and evaporative resistance of the control condition were (0.485 m(2)KW(-1) and 176 m(2)PaW(-1)) and for the Ventilated vest configuration (0.242 m(2)KW(-1) and 38 m(2)PaW(-1)). Heart rate (HR), core temperature (Tc), mean skin temperature (Tsk), and thermal perceptual scores were collected. Compared with the control condition, the ventilated vest resulted in an attenuated increase in Tc (-0.3 +/- 0.2 degrees C, $p = 0.008$) and faster HR recovery (-9 +/- 12 BPM, $p = 0.009$). Moreover, significantly cooler thermal sensation and significantly lower thermal discomfort were observed in ventilated vest vs. control conditions ($p < 0.034$). A ventilated vest has the potential to facilitate a faster cardiac recovery during an intermittent walking protocol in dry-warm environment. The findings of this study contribute to our understanding of potential use of ventilated vests in high-performance settings and offer practical applications in military and occupational contexts.

E. Irzmanska, M. Jurczyk-Kowalska, A. Boczkowska, K. Salasinska, K. Strycharz, O. Olejnik and W. Sygocki.

Thermal Analysis of Polyurethane Coatings Modified with Graphene and Modification Influence on Mechanical Properties of Hybrid Textile Materials Dedicated to Personal Protective Equipment.

COATINGS. 2025;15(6).

https://doi.org/10.3390/coatings15060705

This paper is focused on the modification of polyurethane coating applied to the outer layer of hybrid textile materials dedicated to personal protective equipment. For this purpose, graphene with various weight fractions, i.e., 0.25 and 0.5 wt.%, was introduced into the polyurethane matrix. The prepared pastes were applied to meta-aramid fabric as coating. The results of the thermogravimetric analysis of polymer coating showed a shift in the onset temperature of the polymer coating to higher values after graphene addition, which indicates an improvement in thermal stability. Considering mechanical properties, the implementation of the coating on meta-aramid fabric reduces tear resistance but this may be improved by the addition of 0.5 wt.% of graphene. Such a hybrid textile material meets the tearing force requirements for protective clothing for firefighters according to EN 469:2020.

V. U. Somkuwar, A. K. Gupta, H. Garg, A. Tamboli and B. Kumar.

Thermal Protective Performance of Plated Weft-Knitted Structures Using Para-Aramid and FR Polyester Under Different Thermal Exposures.

FIBERS AND POLYMERS. 2025.

https://doi.org/10.1007/s12221-025-01030-y

Firefighters operate in environments with intense thermal hazards, necessitating clothing that offers both flame resistance and thermal comfort. This study reports the development and evaluation of double-faced plated weft-knitted fabrics using inherently flame-resistant para-aramid yarn on the outer surface and varied proportions of FR polyester and para-aramid on the inner surface. The effects of yarn composition and arrangement on thermal resistance, air permeability, and flame retardancy were systematically assessed. Thermal protective performance was evaluated under radiant, convective, and contact heat exposures in accordance with ASTM and ISO standards. The results indicated that plated structures enhanced thermal insulation due to increased fabric density and trapped still air, while the plain knit structure showed slightly better flame resistance due to its compact loop formation. Among all samples, the 70/30 para-aramid/FR polyester composition demonstrated the best balance between flame resistance and thermal comfort. This study establishes plated knitted fabrics as a promising design strategy to achieve both thermal protection and comfort, offering valuable insights for the development of firefighter suits and other heat-protective garments.

Outils et capteurs de mesure

N. A. Richard, S. S. Cheung, V. E. Claydon, M. S. Koehle and A. T. Coté.

Accuracy and Precision of the SlateSafety BandV2 and CORE Devices in Estimating Resting and Moderate Hyperthermic Exercise Temperature in Eumenorrheic Females.

INTERNATIONAL JOURNAL OF SPORTS PHYSIOLOGY AND PERFORMANCE. 2025.

https://doi.org/10.1123/ijspp.2025-0034

Purpose: Core temperature (T-core) monitoring is used in the prevention of heat illnesses and for heat-acclimation purposes. We examined the accuracy and precision of 2 commercially available devices (BandV2 and CORE) that estimate T-core versus rectal temperature. Method: Eight eumenorrheic females ((center dot)VO(2)max: similar to 41 mL<middle dot>kg(-1)<middle dot>min(-1)) completed 60 minutes of cycling in the follicular phase and the luteal phase over 2 separate cycles, wearing a minimally permeable clothing ensemble to amplify thermal load. Results: Both devices proved to be precise at rest and during exercise. Between duplicate follicular and luteal tests, the CORE device bias was 0.1400 (0.33) degrees C and 0.0331 (0.42) degrees C, and the BandV2 device bias was 0.0418 (0.18) degrees C and -0.0171 (0.21) degrees C. Compared with rectal temperature, accuracy was below our preestablished criterion of +/- 0.27 degrees C. At rest, the devices underestimated T-core: BandV2, -0.2735 (0.25) degrees C, and CORE, -0.2746 (0.28) degrees C, and at the 55-minute time point, both devices overestimated T-core: BandV2, +0.5117 (0.37) degrees C, and CORE, +0.3319 (0.43) degrees C. The delta increase in T-core did not differ between menstrual-cycle phases. Conclusions: The BandV2 and CORE indirect sensors currently offer precise but not accurate estimates of T-core.

P. Li, J. Zhou, Y. Y. Cui, J. Y. Ouyang, Z. Y. Su, Y. Q. Zou, J. Liang, F. H. Wang, K. D. He, Y. H. Liu, Z. H. Zeng, F. Fang, C. Hou, N. Zhou, T. H. Peng, Q. Yuan and G. M. Tao.

A scalable, robust and high-sensitivity fiber sensor for real-time body temperature monitoring.

SOFT SCIENCE. 2025;5(2).

https://doi.org/10.20517/ss.2024.60

The fibrous temperature sensor with excellent flexibility, comfort, and ease of integration into fabrics is particularly suitable for body temperature monitoring. However, the detection stability of existing fibrous temperature sensors is greatly affected by external factors such as pressing, bending, twisting, pH, humidity, and human movement. Here, we propose a fibrous temperature sensor based on an optimized scalable ionic liquid immersion process. The proposed sensor exhibited excellent temperature response characteristics, good linearity, a high sensitivity of 2.61%/degrees C, and can resist disturbances caused by pressing, bending, and twisting deformation. Moreover, it can work normally in acidic and alkaline environments with good reliability and stability. To demonstrate its application potential, we successfully integrated the sensor into firefighter suits, sports wristbands, and infant suits for realtime temperature monitoring and early warning.

T. English, J. Barton, N. Vargas, M. Barnett and O. Jay.

Toward isolating perceptual and physiological contributors to heat sensitivity in multiple sclerosis: insights from a new experimental model.

EUROPEAN JOURNAL OF APPLIED PHYSIOLOGY. 2025.

https://doi.org/10.1007/s00421-025-05838-7

PurposeTo determine if reductions in whole-body thermal sensation (WBTS) with localised skin cooling mitigate heat-induced visual performance decrements in people with multiple sclerosis (MS), optic neuritis, and heat-sensitive visual symptoms, independent of core temperature increases.MethodsThirteen participants (7 relapsing-remitting MS (MS) patients with unilateral (left) optic neuritis and heat-sensitive visual symptoms; 6 controls) underwent visual performance testing on each eye at baseline and during passive heating (0.6 degrees C rise in gastrointestinal temperature (Delta TGI) via a hot water-perfused suit) under two counterbalanced crossover ordered conditions: 1) cold packs (0 degrees C-CLD) or 2) hot packs (50 degrees C-HOT) applied to the lower back. WBTS, visual symptoms, multifocal visual evoked potentials (mf-VEPs) amplitude/latency, and contrast sensitivity were assessed.Results Delta TGI was consistent across trials (p = 0.213; eta p2 = 0.21). WBTS was only marginally lower (p = 0.017; eta p2 = 0.42) in CLD than HOT for MS (CLD: 5.8 +/- 0.9 a.u.; HOT: 6.4 +/- 0.7 a.u.) and controls (CLD: 5.0 +/- 0.9 a.u.; HOT: 5.9 +/- 0.7 a.u.). Passive heating worsened (p = 0.027; eta p2 = 0.59) visual symptoms in the affected eye similarly (p = 0.356; eta p2 = 0.14) for HOT and CLD conditions. Heating reduced mf-VEPs amplitude in the left (affected) eye (p = 0.007; eta p2 = 0.50) similarly (p = 0.332; eta p2 = 0.09) across groups and conditions. For the unaffected (right) eye, reductions in mf-VEPs amplitude were greater in MS than controls (p = 0.031; eta p2 = 0.36), with no difference between conditions (p = 0.339; eta p2 = 0.08). mf-VEPs latency and contrast sensitivity were unaffected by heating.ConclusionLocalised skin cooling during passive heating to a moderate core temperature produces only a modest reduction in WBTS and does not mitigate heat-induced visual performance decrements. The limited perceptual difference achieved suggests the localised skin cooling was insufficient to meaningfully isolate the effects of skin temperature from core temperature.

Travail dans une ambiance thermique extrême

L. G. Ioannou, L. Tsoutsoubi, K. Mantzios, G. Gkikas, G. Agaliotis, Y. Koutedakis, D. García-León, G. Havenith, J. C. Liang, C. Arkolakis, J. Glaser, G. P. Kenny, I. B. Mekjavic, L. Nybo and A. D. Flouris.

The Impact of Workplace Heat and Cold on Work Time Loss.

JOURNAL OF OCCUPATIONAL AND ENVIRONMENTAL MEDICINE. 2025;67(6):393-9.

https://doi.org/10.1097/JOM.0000000000003332

ObjectiveWe investigated the impact of workplace heat and cold on work time loss.MethodsField experiments in different industrial sectors were conducted in multiple countries across all seasons between 2016 and 2024. Hundreds of workers were video recorded, and their full shifts (n = 603) were analyzed on a second-by-second basis (n = 16,065,501 seconds). Environmental data were recorded using portable weather stations. The Workplace Environmental Labor Loss (WELL) functions were developed to describe work time loss due to workplace temperature.ResultsThe WELL functions revealed a U-shaped relationship whereby the least work time loss is observed at 18 degrees C (64 degrees F) and increases for every degree above or below this optimal temperature.ConclusionsThe WELL functions quantify the impact of workplace temperature on work time loss, extending to temperatures previously believed to be unaffected.

E. Latimer, A. Georgas, A. McGlynn and M. Troncoso.

A Multi-Pronged Approach to Shipyard Heat Stress Injury Prevention.

WORKPLACE HEALTH & SAFETY. 2025.

https://doi.org/10.1177/21650799251345842

Background: Heat stress injury (HSI) is an occupational hazard for industrial workers. For active-duty Sailors, shipyard conditions of high ambient temperatures, confined spaces, and increased fire-fighting training exacerbate those risks. This evidence-based practice project aimed to decrease Sailor HSI cases on a U.S. Navy ship undergoing multi-year shipyard maintenance after high numbers of HSI events over 5 months.Methods: Three mitigation efforts augmented existing guidelines to decrease HSI rates among Sailors: (1) distribution of oral rehydration solution (ORS) and hydration protocol; (2) scaled personal protective equipment (PPE) wear during firefighting training based on wet-bulb globe temperature; (3) targeted education about HSI risk factors, identification, first aid, and prevention. HSI-related medical response team activations data were collected from ship's logs at baseline and for 2 years following implementation.Findings: 1,700 Sailors received education, 185 drills occurred with scaled PPE, and 35,500 servings of ORS were distributed. Sailor HSI events at baseline were higher (n = 10) than civilians (n = 6; p = .046). After implementation, Sailor HSI events decreased in years 1 (n = 5) and 2 (n = 2) and were not significantly different from civilian HSI rate in years 1 (n = 3, p = .112) and 2 (n = 5, p = .101) who were excluded from interventions. Estimated HSI odds for 2023 Sailors were 70% lower (OR = 0.3, 95% CI [0.02, 4.06]). Application to Practice: Shipyard-specific, multi-pronged interventions effectively reduced HSI events over multiple years, which may be adapted to other occupational environments.

Travail par fortes chaleurs et périodes de canicule

Q. Ding and B. H. Gao.

Heat Stress-Mediated Multi-Organ Injury: Pathophysiology and Treatment Strategies.

COMPREHENSIVE PHYSIOLOGY. 2025;15(3).

https://doi.org/10.1002/cph4.70012

With global warming in recent years, humans have been subjected to the impact of thermal environments on both work and life. Improving the body's ability to withstand heat is an urgent task. Accordingly, we summarize the signaling pathways in response to heat and the effects of heat stress on related physiological processes, such as mitochondrial health, inflammation, oxidative stress, and apoptosis, which provide a theoretical basis for understanding the damaging effects of a thermal environment. Based on this, we further summarize the multi-organ injury caused by heat stress and its specific pathophysiological mechanisms to provide advice on coping strategies for people who need to perform physical activity or sports in a hot environment. In summary, this study provides research targets for future clinical research and ideas for practical application by summarizing the physiological and pathological processes and current coping strategies under heat stress.

M. Y. W. Yeo, M. Paganini, L. Ragazzoni and M. Valente.

Impact of Heatwaves on Emergency Departments in Singapore: A Qualitative Study on Perceptions of Health Care Workers.

DISASTER MEDICINE AND PUBLIC HEALTH PREPAREDNESS. 2025;19.

https://doi.org/10.1017/dmp.2025.10065

Objectives To assess the current state of knowledge and perceptions towards heatwaves of emergency department (ED) health care workers in Singapore and investigate potential strategies and solutions to improve the knowledge and readiness.Methods A qualitative study conducted in Khoo Teck Puat Hospital in Singapore, using semi-structured, face-to-face interviews with an open-ended interview guide on emergency physicians and registered nurses of various lengths of work experience actively working in the ED. Thematic analysis was employed involving memo-writing, coding, and theme-development with constant comparison.Results Six themes- (1) Knowledge and understanding of Extreme Weather Events, (2) Knowledge and risk-assessment of Heatwaves, (3) Impressions of increased vulnerability to heatwaves, (4) Preventive measures for acute heat related illness, (5) Heatwave impact on the emergency department, and (6) Potential strategies and solutions-emerged and were presented in an interactive framework. Overall, it emerged that there is basic foundational knowledge, with more education and training required, especially targeting the knowledge gaps identified. There is also a need to increase awareness of heatwaves and their impact on health, and to develop comprehensive extreme heat response plans.Conclusions The findings provide a framework for emergency departments to guide their preparations for inevitable heatwaves and their associated health impacts.

W. S. W. Tang and C. S. H. Ho.

A systematic review on the impact of climate change on occupational mental health: a focus on vulnerable industries.

SOCIAL PSYCHIATRY AND PSYCHIATRIC EPIDEMIOLOGY. 2025.

https://doi.org/10.1007/s00127-025-02936-x

Aims: This systematic review aims to examine how climate change and its related stressors may affect the mental health of workers in industries vulnerable to climate change. The review also seeks to evaluate coping strategies used by affected workers, as well as potential interventions to mitigate and prevent these mental health effects. MethodA literature search was conducted in June 2024 in databases such as PUBMED, EMBASE, PsycINFO and Web of Science, using a combination of keywords about climate change, mental health or illness, and vulnerable industries. Results: A predominance of accessed literature was related to the agricultural industry, with a minority pertaining to the aquaculture, construction and aviation industries. They suggest an increased vulnerability of workers to mental health-related problems, including increased depression, anxiety, psychological distress and suicidality in response to stressors such as increased temperatures and prolonged drought conditions. Besides socioeconomic effects resulting from reduced productivity, climate-related stressors may contribute to increased uncertainty, isolation, a perceived lack of control, and challenges to their sense of identity. Coping methods varied and influenced outcomes of mental wellbeing, with community wellbeing and social connectedness in the agricultural setting being observed to have beneficial effects on levels of psychological distress. Interventions that promoted mental health literacy, the availability of mental health first aid, social cohesion, and adaptability to climate stressors were deemed helpful.ConclusionEnvironmental stressors interact with mental health in an intricate manner, exerting influence on biological and socioeconomic aspects of a person's well-being. In an occupational setting, such stressors may also affect social cohesion and one's personal sense of identity or self-esteem. Building strong social networks and structures to enable self-efficacy and adaptability towards climate change may be key towards promoting mental health resilience amongst workers in vulnerable industries.

Actualités juin 2025

- **Travail par fortes chaleurs et périodes de canicule**

La protection des agents publics contre les risques liés à la chaleur. Lagazettedes communes.com, 02 juin 2025

Le monde du travail réservé face aux préconisations contre la canicule. Libération Champagne (Presse), 04 juin 2025

Les risques professionnels liés à la canicule davantage pris en compte dans le code du travail. Franceinfo.fr, 04 juin 2025

Bâches anti-uv, gourdes isothermes : à Poitiers, les travailleurs du bâtiment s'organisent face aux fortes chaleurs. Francebleu.fr, 11 juin 2025

Canicule et fortes chaleurs au travail - Communiqué de presse. Inrs.fr, 13 juin 2025

Canicule, cette loi impose de nouvelles obligations, voici ce qui va changer au travail dès juillet 2025. Maison-travaux.fr, 15 juin 2025

Concilier chaleur et travail. Lanouvellerepublique.fr, 18 juin 2025

"On crève" : la vague de chaleur en Provence relance le débat du short au travail. Francebleu.fr, 19 juin 2025

"Éviter l'absentéisme et fidéliser ses salariés": ces entreprises qui prennent déjà des mesures face à la chaleur. Bfmtv.com, 19 juin 2025

Deux-Sèvres « De l'aération sous le genou » : les éboueurs de Niort peuvent travailler en short pendant la vague de chaleur. Ledauphine.com, 20 juin 2025

Au centre-ville, la canicule redessine les journées de travail. Ladepeche.fr, 20 juin 2025

Chaleur au travail : voici vos droits sur la température minimale, le temps de pause et le droit de retrait. Droit-finances.commentcamarche.com, 20 juin 2025

« À la fin de journée, on est KO, on n'avance plus » : à Rennes, les travailleurs face à la chaleur. rennes.maville.com, 20 juin 2025

Canicule au travail et à l'école : ils racontent la surchauffe au quotidien. Nantes.maville.com, 21 juin 2025

Employeurs et salariés face aux fortes chaleurs au travail : « J'aimerais savoir à partir de quelle température il y a danger ? » Lemonde.fr, 23 juin 2025

Vaucluse Vague de chaleur, canicule : comment s'adapter quand on travaille en extérieur ? Ledauphine.com, 25 juin 2025

Chaleur au travail : comment bien s'adapter ? Bienpublic.com, 28 juin 2025

Canicule : un syndicat inquiet des conditions de travail. Francebleu.fr, 29 juin 2025

Travail et canicule : « Je préfère perdre du salaire que la vie ». Humanite.fr, 29 juin 2025

Bloomfield chemical plant explosion was triggered by extreme heat and humidity in CT, DEEP says. *Ctpost.com, 27 juin 2025*

- **EPI, matériaux protecteurs/refroidissants**

What Employers Must Know About the Dangers of Working in Confined Spaces. Ehstoday.com, 06 février 2025

Flame off: Getting the best flame-resistant clothing for your workforce. Thesafetymag.com, 06 janvier 2025

On a testé un drôle de climatiseur de dos, à placer sous la chemise. 20minutes.fr, 20 juin 2025

Coup de chaud au travail. Aujourd'hui en France (Presse), 30 juin 2025

- **Maladies liées à la chaleur**

Massachusetts firefighters transported to hospital for heat exhaustion as temps hit 100+. Bostonherald.com, 25 juin 2025

Over half of adults in the East Midlands can't tell heat stroke from heat exhaustion, St John Ambulance warns. Derbyshiretimes.co.uk, 20 juin 2025

What are the heat exhaustion and heatstroke symptoms? Bbc.com, 19 juin 2025

UConn's Korey Stringer Institute leads fight against deadly heat illnesses with new $1M lab. Ctpost.com, 13 juin 2025

How do I know if I have heat stroke? Signs and symptoms for heat-related injury. Commercialappeal.com, 11 juin 2025

Firefighters treated for heat exhaustion after fire destroys TN workshop. Wsmv.com, 6 juin 2025

14th Heat Exhaustion and Disease Prevention Campaign to begin in Sharjah next month. Bignewsnetwork.com, 19 juin 2025