

TECHNICAL REPORT

D3.1: Report on solutions to mitigate heat stress of tourism sector workers



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SUMMARY (with overview of identified/screened solutions)

European workers in the tourism sector are seasonally exposed to heat stress levels that undermines individual health (mild hyperthermia and dehydration). This report is dedicated to provide guidelines with screened (effective, feasible and sustainable) solutions and strategies to mitigate or minimize negative effects of excessive heat exposure. Occupational heat stress is very relevant in the tourism industry because many tasks rely on manual work as the prevailing and, sometimes, only feasible method for performing complex tasks. Importantly, occupational heat stress is difficult to mitigate in tourism, as there is a wide range of jobs – with vastly different physiological and environmental specifications – included in this industrial sector.

Based on the data presented in this report, it is advisable that tourism companies, from large multinational corporations to small local businesses, consider/develop an appropriate heat adaptation plan to protect workers' health. This plan may be qualified by a designated person and benefit from consulting advanced warning weather systems to warn in advance when a period of hot weather is expected. Single or combined heat resilience methods appropriate/applicable for the specific work setting should be identified and translated into feasible actions and habits that workers can adopt during hot periods – with timely information at the beginning of the summer and regular follow-up reminders.

Staying hydrated is critical for maintained health in the tourism industry. Unfortunately, workers forget or fail to rehydrate from day-to-day. Thus, almost all tourism workers arrive at work at a dehydrated state. This means they start the day at an elevated risk for hyperthermia and acute kidney injury as well as low probability for performing at their best during their work shift. Tourism workers should drink 500-750 ml (2-3 cups of water) before starting work in the morning. During their work shift, they should drink 500-750 ml of water per hour. When working under heat stress, this strategy demonstrates the best results for maintaining hydration (reducing the risk for kidney disease or acute kidney injury). For this reason, it is important that strategies are put in place for workers to have access to cold/cool water throughout the day, even when working on different floors or remote areas. If such a strategy is followed regularly, day-to-day rehydration would be optimized and 500 ml per hour (2 cups of water) may be adequate for maintaining workers' hydration status to appropriate levels. During periods where workers are sweating profusely, healthy workers should add a larger amount of salt (electrolytes) to their diet. However, workers with heart, blood pressure, or other medical conditions should adopt this advice only when confirmed by their physician. If possible – and, particularly, during breaks – cooling the water by refrigeration will help lower the discomfort and heat stress experienced by the workers.

Clothing is important for tourism workers because it can lower the worker's thermal stress. Some tourism workers require special protective clothing (gloves, helmet, boots, etc.), while clothing is also beneficial for protecting the tourism workers from excessive sun exposure. However, clothing can also restrict heat loss as it provides a boundary layer that limits evaporation and convective/dry heat loss. To facilitate heat loss, clothing worn during the work shift should be selected based upon promoting air flow across the skin and improving sweat evaporation (reducing clothing evaporative resistance). This can be accomplished by reducing the total amount of skin covered by clothing by wearing a t-shirt vs long sleeve (if indoors), wearing looser fitting clothing which allows for greater air flow underneath the clothing, and wearing clothing with a wider knitting pattern which allows for more air flow to pass through the clothing. Additionally, lighter colours should be selected on sunny days in outdoor environments to increase the reflection of solar radiation. In situations where long, rigid clothing must be worn (e.g. coveralls), ventilation patches can be incorporated into more protected areas such as under the arms and between the legs to help promote air flow through the garment.

It is crucial to plan the workflow to allow workers time to adapt. Workers will acclimatize to heat during the first days of hot weather, however depending on the initial fitness and previous exposure it will take at least one week before workers get used (physiologically adapted) to the increased heat.