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Criteri di valutazione degli ambienti severi caldi: dall'indice WBGT al modello PHS (*predicted heat strain*)

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KEY WORDS
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SUMMARY
«Criteria for assessment of hot environments: WBGT index and PHS (predicted heat strain)». Background: *The present study deals with the main methods for assessment of hot environments: i.e., WBGT, SW_{req} and PHS. It is stressed how the WBGT index, which is strictly empirical, although a very practical tool for the assessment of the hot environments, can only be used for a rough evaluation of heat stress, and especially for a not very high metabolic rate ($M<175\ W/m^2$). On the contrary, the SW_{req} method, which is based on both subject-environment heat exchange and the effect of clothing, allows a better assessment of the work situation with a general reduction of the exposure limits with respect to WBGT, especially in non-uniform environments ($t_o \neq t_r$). However, it should be noted that application of SW_{req} is required by the ISO standard 7243 when the WBGT limit values are exceeded.* Methods: *In this study interest was extensively focused on the "Predicted Heat Strain" method, highlighting via a special software the differences in heat stress assessment related to this new approach, which will be adopted by the ISO in the next revision of standard 7933.* Results: *The PHS method, unlike SW_{req}, allows the prediction of the time-response of the main physiological variables of interest (i.e., skin temperature, core temperature and sweat rate). Moreover thanks to better modelling of heat exchanges, the PHS method allows account to be taken of both movement and clothing effects, resulting in even more reduced exposure.*

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