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An overview of elite athlete preparation, knowledge/perceptions and real/perceived barriers to the implementation of evidence informed best practice for competition in the heat.

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INTRODUCTION:
At the 2015 IAAF Championships, in a manner not seen previously, elite athlete preparation for competition in the heat was explored. Increasing globalisation of sport and global temperatures mean elite sporting events are ever more likely to take place in extreme heat (e.g., Doha 2019 IAAF Championship, Tokyo 2020ne, etc.). Understanding elite athletes: (i) use of evidence informed best practice [i.e., heat acclimation/acclimatisation (HA)] to protect against heat induced health and performance decrements; (ii) knowledge/perceptions of exercise in the heat best practice; and (iii) the real/perceived barriers to implementing these, appears prudent. Therefore, this review aims to provide comprehensive insight into elite athlete preparation across three elite championships, regarding the above (i-iii).
METHODS:
Review survey data from three recent major championships in the heat: i) Doha 2019 World Championships (DOHA); ii) Tokyo Olympics 2020ne (TOKYO) and iii) Muscat World Team Race-walking Championships 2022 (MUSCAT). Specifically assessing elite athlete preparation, knowledge, perceptions and barriers to the use of evidence informed best practice prior to competition in the heat. Comparisons between sex [male (MALE) vs. female (FEMALE)] and climate athletes live/train in [hot (HOT) vs. temperate/cold (TEMP)] are made where appropriate.
RESULTS:
Across these championships there is an enduring disconnect between evidence and practice. HA strategies were used by ≤68% of athletes surveyed (MUSCAT: 57%, DOHA: 60% non-road race and 63% road race, TOKYO: 61% non-road-race and 68% road race). In the road race events at DOHA and MUSCAT those who HA prior to championships ranked higher than those who did not and were less likely to visit the medical tent. Athletes who live/train in HOT are more likely to HA. Limited knowledge of exercise in the heat best practice was exhibited at DOHA and MUSCAT; FEMALE exhibited significantly less knowledge at MUSCAT than MALE ($p \leq 0.024$). Access to facilities (including cost) were highlighted as the main barriers to implementing HA, particularly among those from TEMP, likely accounting for the lower uptake of HA in these athletes.
CONCLUSION:
HA use prior to competition in hot conditions has increased since 2015 (15% vs up to 68% in the data from this review) but is not yet universal, despite clear benefits for health/performance (i.e., higher ranking and less medical tent visits by those who HA). Knowledge of best practice among athletes is limited and is lower in FEMALE. Significant barriers to the use of HA exist. Significant efforts from sport governing bodies are required to provide continuously updated educational material to athletes to reduce the gap between evidence-based and real-world practice translation (particularly in FEMALE). Access to facilities should be a priority for federations of athletes in TEMP. Assessment of elite athlete practice must continue prior to competition in the heat.

Topic: Physiology

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