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Practical approaches to minimise the impact of dehydration on athlete performance

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For athlete hydration, much debate centres on how (mainly laboratory-based) research is translated into drinking recommendations for athletes, with strategies mainly described as falling into two categories: 'planned' or 'thirst driven/ad libitum' drinking. Whilst a 'thirst driven/ad libitum' approach will likely suffice in many settings; some specific situations may require a deliberate plan.

With elite athletes undertaking prolonged high-intensity exercise, particularly in the warm/hot environments likely at Paris 2024, sweat rates will be high and often far greater than the volume of drink feasible to ingest during exercise. For example, an elite runner weighing 60 kg and sweating at an average of 3 L/h over a marathon taking 2 h 10 min, would need to consume ≥5 L of drink during the race to prevent dehydration equivalent to 2% body mass. This means dehydration (sometimes significant) can develop, and performance may be negatively impacted. In contrast, it is important to recognise that in some settings, sweat rate will be low and fluid availability plentiful, meaning over-drinking, and exercise-associated hyponatraemia may present a risk to athlete health/performance.

Randomised cross-over experiments consistently demonstrate the negative impact of dehydration on athletic performance, particularly endurance performance. The mechanisms underpinning these impairments are multifactorial, likely acting in combination depending on the individual athlete, the athletic endeavour, and various environmental factors. Situations where dehydration is likely to develop should be carefully considered and planed for to give the athlete the best chance of minimising performance deficits. Even if the plan is simply to drink to thirst/ad-libitum. It must also be recognised that it may not always be possible to fully replace sweat losses or even maintain dehydration below a certain threshold. As such, athletes/support staff may consider other strategies during the short- and long-term pre-event preparation to minimise dehydration-induced performance deficits.

This presentation will outline how athletes' performances at Paris 2024 may be impacted by dehydration and cover practical approaches to allow athletes/support staff to make decisions about when and when not to plan fluid intake during exercise. Other potential strategies for minimising dehydration-induced performance impairments and considerations for overlap between hydration and other fuelling/nutrition strategies will also be considered.

Topic: **Nutrition**

Presentation **Invited**

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