

6. Sports Nutrition

130 HYDRATION STRATEGIES FOR EXERCISE PERFORMANCE IN HOT ENVIRONMENT

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Maintaining fluid balance, or hydration, is an important factor in preserving various body functions and supporting exercise performance in hot environment. During exercise, fluids are lost, mainly through sweating (some water will also be attributable to respiratory water loss, which can be substantial during hard work in hot environments). Prolonged bout of exercise in hot environment, can lead to excess of 1 litre of body fluid per hour to be lost. Dehydration and hyperthermia can adversely affect mental and physical performance. Unless the athlete consumes fluid to replace these losses, a fluid deficit will occur. Meeting water requirements under hot environmental conditions that promote large losses is not easy. Furthermore, water intake during exercise is usually inadequate and 'voluntary dehydration' occurs. A competing athlete may be near exhaustion despite absence of thirst. Specific precautions must be taken to prevent chronic dehydration. Prior dehydration has a negative effect even on exercise of short duration where sweat losses are small. The athlete must begin exercise fully hydrated and regular ingestion of fluids is beneficial where the exercise duration exceeds 40 min in the hot environment. It is therefore pertinent to drink enough fluids before the game and at rest breaks to avoid dehydration and fatigue. Dilute carbohydrate-electrolyte drinks are best for fluid replacement, which also supply some substrate for the exercising muscles. Even after exercise, thirst may not be sufficient stimulus to ensure full rehydration. What is ingested during recovery, especially in the first 2 h, could also markedly influence the rate of recovery and performance in a subsequent athletic event. Athletes, especially in the tropics are advised to drink to replace their sweat losses rather than simply to satisfy their thirst. The rehydration fluid must contain sufficient sodium to maintain the thirst stimulus and to promote the retention of the ingested fluid.