



Beat the Heat

Appropriate and sufficient salt and fluid intake will enhance rehydration and fluid distribution throughout a player's body, so that heat cramps can be completely averted, even during long matches in the most challenging environments.

However, tennis players who drink only water in hot weather are risking their health, an American expert warns in a paper to be published shortly in the *Journal of Science and Medicine in Sport*, the scientific journal of Sports Medicine Australia.

To compete safely in extreme heat, regular and copious water intake is often not enough – in fact, excessive water intake can even be dangerous to a player's health.

The expert is Dr Michael Bergeron of the Medical College of Georgia.

His paper is entitled "*Heat cramps: fluid and electrolyte challenges during tennis in the heat*". The paper will appear in a special issue of the *Journal*, published with the support of Tennis Australia, which will feature tennis-related articles on issues ranging from playing tennis in the heat, the impact of strokes such as the serve on players' joints and limbs, and the effect (if any) on changes in string tension of the tennis racket.

The importance of hydration in the heat is well acknowledged, Dr Bergeron says, and most players make an effort to consume fluids regularly. But less emphasis is given to maintaining electrolyte balance and the consequences of insufficient electrolyte intake.

Insufficient salt replenishment increases the risk of heat cramps – "a progressive condition that can evolve from having merely a neutral effect on performance to leaving an afflicted player on the court writhing in excruciating and debilitating pain".

To avoid heat cramps, players are often encouraged to "drink more water" but complete rehydration requires sufficient fluid and sodium, Dr Bergeron says.

Dr Bergeron's paper includes a series of recommendations on correct hydration practice for tennis players competing in extreme heat.

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(Attached are extracts from Dr Bergeron's paper)

Further information: Dominic Nagle (Sports Medicine Australia) 02 6230 4650/0418 298 519

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IN PHYSIOLOGY: TRAINING TO PLAY

Heat cramps: fluid and electrolyte changes during tennis in the heat MF Bergeron

Abstract

Sweat losses during tennis can be considerable. And while most players make a genuine effort to stay well hydrated to maintain performance and reduce the risk of heat illness, regular and copious water intake is often not enough. Besides an extraordinary water loss, extensive sweating can lead to a concomitant large electrolyte deficit too – particularly for sodium. Although a variety of other mineral deficiencies and physiological conditions are purported to cause muscle cramps, evidence suggests that, when a tennis player cramps in warm to hot weather, extensive and repeated sweating during the current and previous matches and a consequent sodium deficit are usually the primary contributing factors. Heat cramps often begin as subtle “twitches” or fasciculations in one or more voluntary muscles and, unless treated, can rapidly progress to widespread debilitating muscle spasms that leave an afflicted player on the court writhing in pain. If sufficient preventive measures are taken well before and during play, such cramping is avoidable in most cases. Appropriate and sufficient salt and fluid intake will enhance rehydration and fluid distribution throughout a player’s body, so that heat cramps can be completely averted, even during long matches in the most challenging environments.

The Bergeron paper recommends that:

- Tennis players should arrive as early as possible to tournaments played in hotter and/or more humid conditions, so that they have the opportunity to acclimatise to the new environment (including conserving sodium).
- They should drink plenty of fluids (water, juice, sport drinks, etc.) throughout the day; but they should also be careful to not “over-hydrate”.
- Players prone to heat cramps should add some salt to their diet and possibly include additional salt in their on-court sports drink.
- Certain players should consider having their sweat rate and sweat electrolyte losses measured, so that specific and effective strategies can be developed and applied for sufficiently and appropriately maintaining fluid and mineral balance.
- If heat cramps persist, players should consult with their doctor about other potential causes related to medications, an underlying illness or metabolic disorder, or other predisposing factors.