

Summary Report

A preliminary report on voluntary fluid intake of adolescent elite athletes during training: a cause for concern?

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The intuitive response of athletes generally is to drink copious amounts of fluids containing electrolytes and carbohydrates developed by the sports drink manufacturers. The consequence of this behaviour is the increased risk of developing exercise associated hyponatremia (EAH); a condition which develops from over drinking and is potentially lethal. The death of Dr Cynthia Lucero in 2002 following her collapse in the Boston Marathon and the subsequent inquest which confirmed that she developed *hyponatremic encephalopathy* from ingesting large volumes of Gatorade, provides the catalyst for studying this potentially lethal condition and its prevention. Finally, a recent finding confirms that athletes over-drink as 12.5% of 88 athletes competing in the 2006 London Marathon were found to have developed EAH even though the race conditions were favourable (9-12 °C, 73% relative humidity). As far as we are aware there are no available studies which have examined the attitudes and knowledge base of young athletes about the use or misuse of hydration for exercise performance. Thus, the purpose of this study was to ascertain junior athletes' knowledge about, and attitudes towards voluntary drinking; compare these data against junior athletes' observed voluntary drinking behaviour and; determine what proportion of junior athletes are in danger of under and/or overdrinking.

The participants were recruited from the Western Region Academy of Sport in NSW across a Netball, Basketball, Hockey. The number of participants was 67 comprising 45 females aged 14.8 ± 0.9 years and 22 males aged 14.3 ± 0.7 years. The training day lasted approximately 6 h starting at 0900 and ending at 1500 with scheduled minor breaks throughout. In total the squads completed ~ 5 hours of training which included specific skill drills and small sided games. At each training venue the researchers provided all fluid to be consumed; plain water or commercially available sports drinks, which were available *ad libitum*.

Both males and females commenced the training sessions in a well hydrated state as confirmed by the body mass and the urine specific gravity which was within normal hydration ranges. However, by the end of the training session, both males and females had gained body mass (approx. 1kg) rather than losing it; as would be the usual expectation after 5 hours of exercise. This was coupled with a reduction in USG which suggests that the athletes were mildly hyponatremic or at risk of fluid overload or "water intoxication" The interview data suggests that these athletes drink as a matter of habit rather than necessity. Educational strategies need to be designed in order to safeguard the health of young athletes from developing either a heat related illness or the development of exercise associated hyponatremia.