

## FLUID BALANCE AND SWEAT SODIUM LOSSES OF RUGBY SEVENS PLAYERS

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### **Introduction**

Guidelines for fluid replacement during exercise promote the development of fluid intake plans that are sport-specific and individualized to the needs of each athlete (1). While brief in duration, the intensity of a single rugby sevens match may induce considerable changes in hydration status and contribute to substantial fluid and sodium losses over a two-day tournament. The aim of this study was to describe the fluid loss characteristics of competitive rugby sevens players.

### **Methods**

Fluid balance and sweat electrolyte losses were measured in eight male national-level players ( $21.3 \pm 1.5$  y,  $184 \pm 7$  cm,  $92 \pm 8$  kg) engaged in domestic rugby sevens matches (2 x 7-10 min halves) played in ambient temperatures of 23-25°C (relative humidity 60-65%). Each player was monitored once over the course of a tournament day in which they played a total of three matches. Sweat composition was estimated from absorbent patches applied to forearm sites for the duration of the warm up and subsequent match (total: 37-47 min). Wearing playing shorts, towel dried body mass was recorded before the warm up and immediately following the match. Fluid intake was estimated from changes in fluid bottle mass. Upon-waking urine samples were measured for specific gravity (USG).

### **Results & Discussion**

On average, players were euhydrated upon waking (USG  $1.015 \pm 0.006$ ; mean  $\pm$  SD). Players' fluid loss over the measurement period was  $1040 \pm 314$  mL, while fluid intake was  $402 \pm 199$  mL, which was equivalent to  $38 \pm 13\%$  of fluid losses. A net loss of  $0.7 \pm 0.2\%$  of body mass was recorded over a single match, inclusive of warm up. Sweat sodium concentration was  $39 \pm 7.5$  mmol/L, with estimated sweat sodium loss during a match being  $0.8 \pm 0.3$  g, equivalent to approximately 2 g salt (recommended daily intake: 2-5 g).

### **Conclusion**

Individual variability in fluid losses and drinking behaviors exist in competitive rugby sevens players. Although losses incurred in a single match appear small to moderate, under tournament conditions with up to six matches played in two days, players require an aggressive rehydration plan for the short periods between matches to recover fluid and electrolyte losses.

### **References**

1. Sawka, M. N. et al. (2007). *Med Sci Sports Exerc*, 39: 377-390.