The purpose of this study was to determine whether high-school football players showed risks of fluid deficits during two-a-day training (Part 1), and whether implementing a drinking strategy could acutely improve the markers of hydration (Part 2). In Part 1, pre-training urine specific gravity (USG) and pre- and post-training body weight were measured at the morning session for 5 consecutive days of two-a-day practices to monitor the hydration status of 13 varsity players. The mean pre-training body weight was consistently lower (mean decrease of 0.5 kg, p<0.05) following the first day of measurement. Pre-training USG values remained consistently high each day (range for daily means: 1.022 ± 0.003 to 1.024 ± 0.005). Part 2 consisted of assessing hydration status in 46 varsity and junior varsity players prior to morning training during two-a-day training before and following implementing a drinking strategy. In association with the strategy, mean body weight increased 0.5 kg (p<0.01) and mean USG decreased from 1.021 to 1.016 (p<0.01) following the drinking protocol. The slight decline in body weight and consistently high USG (Part 1) suggested that standard fluid replacement strategies were less than optimal for a majority of the players. Implementing a drinking strategy appeared to improve hydration status based on changes in body weight and USG (Part 2).