

NFL Hyperhydration

Pre-exercise hyperhydration is the intake of large quantities of fluids right before a strenuous (and often endurance) exercise task (Ross et al., 2012). Van Rosendal, Osborne, Fassett, and Coombes (2009) noted that glycerol is an osmotically active solute which is absorbed quickly and readily after ingestion, and it tends to disperse fairly evenly. This tends to increase the retention of the glycerol solution (fluid with the glycerol in it, due to increased osmolality) and also less urine output (van Rosendal et al., 2009). The theory is that this "enhanced" fluid retention may be an useful countermeasure to mitigate the body's fluid loss in a heat response (van Rosendal et al., 2009).

Fitzsimmons, Tucker, and Martins's (2011) study surveyed 32 NFL teams about their use of IVF hyperhydration. Hyperhydration (with glycerol) has been thought to help the body's response to heat stress, but in several studies the results have not been either reproducible nor conclusive either way (Fitzsimmons et al., 2011; Scheadler, Garver, Kirby, & Devor, 2010). However, many NFL teams still use IVF hyperhydration (administered by the team athletic trainer or other medical professional such as team orthopedist) with the most common reason being to avoid muscle cramps (Fitzsimmons et al., 2011). Other reasons for IVF hyperhydration were to prevent dehydration, at a player's request, to prevent heat sickness, and to aid the player's heat tolerance (Fitzsimmons et al., 2011).

Ross et al. (2012) studied the use precooling with and without the use of glycerol hyperhydration (non-intravenous) on a group of competitive male cyclists prior to cycling trials. The study observed the effects of ingesting an ice slushie made from a sports drink (PC for precooling), PC+glycerol (G), and a beverage without glycerol (no precooling, control) (Ross et al., 2012). Ross et al. (2012) study's results were inconclusive regarding the benefits of glycerol hyperhydration.

It seems that the use of pre-exercise glycerol hyperhydration is less of a proven benefit and more of an "it can't hurt" protocol.

References

Fitzsimmons, S., Tucker, A., & Martins, D. (2011). Seventy-five percent of national football league teams use pregame hyperhydration with intravenous fluid. *Clinical Journal Of Sport Medicine*, 21(3), 192-199.

Ross, M. R., Jeacocke, N. A., Laursen, P. B., Martin, D. T., Abbiss, C. R., & Burke, L. M. (2012). Effects of lowering body temperature via hyperhydration, with and without glycerol ingestion and practical precooling on cycling time trial performance in hot and humid conditions. *Journal Of The International Society Of Sports Nutrition*, 9(1), 55-65.

Scheidler, C., Garver, M., Kirby, T., & Devor, S. (2010). Glycerol hyperhydration and endurance running performance in the heat. *Journal Of Exercise Physiology Online*, 13(3), 1-11.

van Rosendal, S. P., Osborne, M. A., Fassett, R. G., & Coombes, J. S. (2009). Physiological and performance effects of glycerol hyperhydration and rehydration. *Nutrition Reviews*, 67(12), 690-705.