Carbohydrate affects natural killer cell redistribution but not activity after running


This randomized, double-blind, placebo-controlled study was designed to determine the influence of carbohydrate supplementation on the natural killer cell response to 2.5 h of high-intensity running (76.7 ± 0.4% VO2max). Thirty experienced marathon runners (VO2max 53.4 ± 1.0 ml·kg^-1·min^-1, age 41.5 ± 1.4 yr) were randomized into carbohydrate supplement (N = 17) and placebo (N = 13) groups. Subjects rested for 10-15 min before a blood sample at 0715, and then ingested 0.75 L of carbohydrate beverage (Gatorade) or placebo. At 0730, subjects began running at 75-80% VO2max for 2.5 h and drank 0.25 L of carbohydrate or placebo fluid every 15 min. immediately after the 2.5 h run (1000), another blood sample was taken, followed by 1.5 h, 3 h, and 6-h recovery samples. Carbohydrate supplementation versus placebo had a significant effect on the pattern of change in glucose, cortisol, and the blood concentration of natural killer cells ([F(4.25) = 3.79, P = 0.015], but not natural killer cell activity following 2.5 h of intensive running.