

The Effects of Cooling during Baseball Games on Perceived Exertion and Core Temperature

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Abstract : Baseball is usually played outdoors in the warmest months of the year. Therefore, baseball players are susceptible to the influence of the hot environment. It has been shown that hitting performance is increased in games played in warm weather, compared to in cold weather, in Major League Baseball. Intermittent cooling during sporting events can prevent the risk of hyperthermia and increase endurance performance. However, the effects of cooling during baseball games played in a hot environment are unclear. This study adopted a cross-over design. Ten Division I collegiate male baseball players in Taiwan volunteered to participate in this study. Each player played two simulated baseball games, with one day in between. Five of the players received intermittent cooling during the first simulated game, while the other five players received intermittent cooling during the second simulated game. The participants were covered in neck and forehead regions for 6 min with towels that were soaked in icy salt water 3 to 4 times during the games. The participants received the cooling treatment in the dugout when they were not on the field for defense or hitting. During the 2 simulated games, the temperature was 31.1-34.1°C and humidity was 58.2-61.8%, with no difference between the two games. Ratings of perceived exertion, thermal sensation, tympanic and forehead skin temperature immediately after each defensive half-inning and after cooling treatments were recorded. Ratings of perceived exertion were measured using the Borg 10-point scale. The thermal sensation was measured with a 6-point scale. The tympanic and skin temperature was measured with infrared thermometers. The data were analyzed with a two-way analysis of variance with repeated measurement. The results showed that intermitted cooling significantly reduced ratings of perceived exertion and thermal sensation. Forehead skin temperature was also significantly decreased after cooling treatments. However, the tympanic temperature was not significantly different between the two trials. In conclusion, intermittent cooling in the neck and forehead regions was effective in alleviating the perceived exertion and heat sensation. However, this cooling intervention did not affect the core temperature. Whether intermittent cooling has any impact on hitting or pitching performance in baseball players warrants further investigation.

Keywords : baseball, cooling, ratings of perceived exertion, thermal sensation

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