

Effects of Energy Drink on Metabolic Response and Exercise Performance Post Basketball Game Simulation

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ABSTRACT

Intermittent sports are characterized by intermittent bursts of high-intensity exercise and are dependent upon a combination of anaerobic and aerobic energy systems, both of which rely on carbohydrate as an important fuel source. A potential reason for athletes to use energy drinks is due to the conception that energy drinks would promote improvement of performance and this practice has been common among athletes in recent history. **PURPOSE:** This study examined the effects of an energy drink on metabolic parameters and exercise performance following basketball game simulation (BGS). **METHODS:** Six female college basketball players, aged 21.5 ± 1.9 yrs, volunteered for this study which was designed by a randomized counterbalanced experimental design with repeated measures under two different trials: energy drink (ED, extrication glucose 20 g from corn, citrus juice 2% from pure Calamansi fruit, branched chain amino acid 600 mg and taurine 600 mg) and placebo (PO, aspartame) with a double-blind experiment. The drink, either ED or PO was provided for the participants right after BGS, and the participants had a 20 min recovery period (POST). The BGS consisted of major basketball movements such as walking, jogging, running, low and high shuffles, dribbling, jumping, sprinting, and passing which were all performed during 20 min. Height, body weight, blood pressure, heart rate, blood glucose (BG), and blood lactate (BL) were measured at a baseline (BASE). Vertical jump, 10 m \times 5 shuttle run and Wingate tests were performed prior to BGS and POST to evaluate muscular power, agility, and anaerobic power, respectively. BG and BL were measured immediately after BGS (PRE) and POST. Data was analyzed by two-way ANOVA with repeated measures. **RESULTS:** BG decreased significantly in PO (PRE: 106.5 ± 13.2 mg \cdot dL⁻¹, POST: 91 ± 5.1 mg \cdot dL⁻¹, $p = .018$) and BL decreased significantly in both ED (PRE: 5.5 ± 1.8 mmol \cdot L⁻¹, POST: 3.1 ± 1.4 mmol \cdot L⁻¹, $p = .0001$) and PO (PRE: 5.0 ± 0.9 mmol \cdot L⁻¹, POST: 3.5 ± 0.8 mmol \cdot L⁻¹, $p = .000$). Vertical jump (BASE: 58.0 ± 7.3 cm, POST: 55.5 ± 8.2 cm, $p = .012$) and anaerobic work (BASE: 12.3 ± 1.3 KJ, POST: 11.4 ± 1.5 KJ, $p = .035$) decreased significantly in PO. **CONCLUSION:** The results indicate that the energy drink may replenish a deficiency of fuel source and promote improvement of muscular and anaerobic power during a recovery period.