

## **Effects of acute supplementation of caffeine and Panax ginseng on endurance running performance in a hot and humid environment**

### **Abstract**

Acute supplementation of Panax ginseng (PG) is known not to impose any significant effect on endurance performance of recreational Malaysian runners, while caffeine augments the ergogenic property of some herbs. The present study was aimed to examine the effects of acute supplementation of caffeine and PG on endurance running performance in a hot and humid condition. Nine heat adapted Malaysian recreational runners (age :  $25.4 \pm 6.9$  years, body mass :  $57.6 \pm 8.4$  kg; body height :  $168.3 \pm 7.6$  cm) ingested either placebo or combined dose of  $5 \text{ mg} \times \text{kg}^{-1}$  of body weight of caffeine and 200 mg of PG one hour before the running on treadmill at 70% of  $\text{VO}_2(\text{max})$  in this placebo-controlled double blind randomised study in a laboratory environment of 31 degrees C and 70% relative humidity. They drank  $3 \text{ ml} \times \text{kg}^{-1}$  of body weight of cool water every 20 minutes during the exercise to prevent dehydration. Blood samples were withdrawn and oxygen uptake was recorded every 20 minutes while heart rate, core body temperature, skin temperature and ratings of perceived exertion (RPE) were recorded every 10 minutes during the trials. Endurance time was significantly different ( $P < 0.05$ ) between experimental and placebo trials. Heart rate, skin temperature, core body temperature, oxygen uptake, RPE, plasma insulin, glucose, free fatty acid and lactate levels during the endurance exercise did not show any significant difference between the trials. Thus, we conclude that combined and acute supplementation of caffeine and PG in the said doses improved the endurance running performance of the heat-adapted male recreational runners.