

## **Effects of bee bread supplementation on endurance running performance and total antioxidant status in recreational athletes**

### **ABSTRACT**

This study was carried out to investigate the effects of bee bread supplementation on running performance and antioxidant status in athletes. Twelve male recreational athletes were recruited in this randomized double blind; placebo-controlled crossover study. The participants were supplemented with 20 g of bee bread (BB) or placebo (P) daily for 8 weeks. After the first experimental trial, there was a wash-out period of 4 weeks. Then, the participants were supplemented with the other supplement for another 8 weeks before the second experimental trial was conducted. During the experimental trials, participants ran at 60% of VO<sub>2</sub>max for 90 min and followed immediately by a 20-min time trial. Heart rate, oxygen uptake, tympanic temperature, rate of perceived exertion (RPE), room temperature and relative humidity were recorded during the trials. Blood samples were collected to determine plasma glucose, free fatty acid and total antioxidant status. Distance ran in the BB trial was significantly further compared to the P trial ( $3.41 \pm 0.2$  km vs  $3.28 \pm 0.2$  km). Heart rate, oxygen uptake, tympanic temperature, RPE and plasma glucose were not significantly different between trials but plasma free fatty acid in the BB trial was significantly higher than the P trial. Total antioxidant status was also significantly higher at post-supplementation, immediate post-exercise and 24 h post-exercise in the BB trial. Supplementation of bee bread seemed to enhance running performance and increased the total antioxidant status in recreational athletes. Industrial relevance. A few studies have reported ergogenic effects of honey on sports performance but no studies have investigated the ergogenic effects of bee bread on sports performance. Furthermore, some researchers have reported the antioxidant properties of bee bread but apparently, there is no scientific data on the potential effectiveness of its antioxidant properties on sports performance. Thus, a study is warranted to investigate the potential ergogenic effects of bee bread on sports performance.