

## EFFECTS OF BEE PROPOLIS SUPPLEMENTATION ON NEUTROPHILS COUNT FOLLOWING PROLONGED RUNNING

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**Introduction:** Various nutritional supplementations have been found beneficial in improving immune system. However, to date, little is known about the effectiveness of bee propolis supplementation on immune system in male recreational runners. Thus, this study aims to investigate the effects of bee propolis supplementation on neutrophils count and physiological parameters following prolonged running in male recreational runners.

**Methods:** Eleven recreational athletes (age:  $21.0 \pm 1.5$  years; BMI:  $22.3 \pm 2.5$  kg/m<sup>2</sup>) were recruited in this study. Participants carried out 3 preliminary tests which involved a submaximal test, a maximum oxygen uptake (VO<sub>2max</sub>) test and a familiarisation trial. After a few days, participants performed Trial 1 which involved 90 min running at 60% VO<sub>2max</sub> after an overnight fast. After that, participants started consuming bee propolis tablets (500 mg/tablet) for 4 weeks with 2 tablets per day. After 4 weeks of the supplementation period, participants performed Trial 2 which was carried out similar as to Trial 1. During each running trial, blood samples were collected from the participants before, during, post-, and 1 h post-exercise for neutrophils count analysis. In addition, oxygen uptake (VO<sub>2</sub>), heart rate (HR) and rate of perceived exertion (RPE) were recorded before, during and after exercise during each trial.

**Results:** This study discovered that neutrophils count was significantly increased during exercise in both trials. However, neutrophils count was not significantly different between both trials. Oxygen uptake, HR and RPE of the participants were significantly increased during exercise in both trials but not significantly different between both trials.

**Discussion:** The non-significant effects of bee propolis on the measured parameters might be due to poor bioavailability of the bee propolis in human body and insufficient dosage and

supplementation period to promote positive effects of bee propolis on physiological and immune parameters in young male recreational runners.

**Conclusion:** Despite positive effects of bee propolis on immune function found in previous studies, this study found otherwise. Thus further studies with longer supplementation period and higher dosage are recommended.