

Effects of Combined Aerobic Dance Exercise and Honey Supplementation on Bone Turnover Markers in Women

Marhasiyah Rahim¹, Foong Kiew Ooi¹ and Wan Zuraida Wan Abdul Hamid²

¹Sports Science Unit, School of Medical Sciences, Universiti Sains Malaysia, Malaysia

²Immunology Department, School of Medical Sciences, Universiti Sains Malaysia, Malaysia

Abstract

Although combination of physical activity with supplementation has been investigated on its effects in maintaining and enhancing bone health, little is known about the effectiveness of combination of aerobic dance exercise with honey supplementation on bone metabolism markers in women. This study investigates the effects of 8 weeks of combined aerobic dance exercise and honey supplementation on bone metabolism in women. Forty four healthy sedentary women (25-40 year-old) were age and weight matched, and subsequently being assigned into four groups with n=11 per group: Control (C), honey supplementation (H), aerobic dance exercise (Ex) and combined aerobic dance exercise with honey supplementation (HEX) groups. Aerobic dance exercise was carried out for one hour /session, three times/week for eight weeks. Honey drink was consumed by H and HEX groups, in a dosage of 20g of honey diluted in 300ml of plain water, for 7 days/week for 8 weeks. In HEX group, the subjects were required to consume honey drink 30 minutes before performing exercise. Before and after 8 weeks of experimental period, blood samples were taken to determine the concentrations of serum total calcium, bone osteocalcin (bone formation marker) and serum C-terminal telopeptide of type 1 collagen (ICTP) (bone resorption marker). After 8 weeks of experimental period, there was significant greater serum total calcium in post test than pre test in H group. Serum ICTP concentration was significant greater in post test than pre test in Ex group. The percentage increment in ICTP was the highest in Ex group, and the percentage increment in this parameter was the lowest in HEX group among all the experimental groups. The results of present study suggest that combination of aerobic dance exercise and honey supplementation may elicit effects on reducing the increment in bone resorption resulting from exercise in sedentary women.

INTRODUCTION

To date, many treatments have been developed with the aim of preventing bone loss and increasing bone mass, these include involvement in physical activity programmes (Morris *et al.*, 1997) and through adequate nutritional intake (Craciun *et al.*, 1998; Kehoe, 2006).