Menstrual cycle phase does not influence resting energy expenditure of collegiate Japanese female athletes

Motoko Taguchi¹, Shiori Ouchi², Kazuko Ishikawa-Takata³, Noboru Mesaki⁴
¹Faculty of Sport Sciences, Waseda University
²Japan Institute of Sports Sciences
³National Institute of Health and Nutrition
⁴University of Tsukuba

In order to manage nutritional status of athletes, estimated energy requirement (EER) should calculated using the estimation equation based on resting energy expenditure (REE). The menstrual cycle is one of the important factors which influence REE in women. The aim of the present study was to examine whether there is a difference on REE during the different menstrual cycle phases in female collegiate athletes with normal menstrual cycle. Eight subjects were participated in this study (height 165.4 ± 5.1cm, body weight (BW) 58.1 ± 4.5kg, and fat-free mass (FFM) 45.5 ± 3.5kg). REE was measured by indirect calorimetry using Douglas bag technique, and body composition was estimated by dual energy X-ray absorptiometry. All measurements were collected at follicular and luteal phases for the duration of one complete menstrual cycle in all subjects. REE of each phases were not different in terms of kcal/day adjusted by BW and FFM. Shorter luteal phase and lower production of progesterone (P4) level, due to the earlier gynecological age of our subjects (<10 years), may consequently resulted in no significant difference in REE between the follicular and luteal phases. In conclusion, REE for female collegiate athletes with normal menstrual cycle were not different between the two menstrual phases. To assess the EER of collegiate female athletes, consideration of gynecological age would be required.