

論文の欧文要旨

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(Title)

Weight management and the menstrual cycle: the effect of appetite-regulating hormones and energy intake on female athletes

(Abstract)

Weight management is an important factor for athletes to enhance their athletic performance. It has been shown that appetite and energy intake change throughout the female menstrual cycle, but the mechanisms thereof are unclear and it may affect the weight management of female athletes. Epidemiological and physiological approaches were conducted to investigate the relationship between menstrual cycle and energy intake to provide a scientific basis for the development of a weight management strategy that considers the menstrual cycle in female athletes.

In chapter 2, the survey conducted looked at the effect of menstrual status on weight loss experience in collegiate female athletes and para-athletes. Increased subjective appetite before menstruation was reported by 51.9% and 74.7% of para-athletes and collegiate athletes, respectively. In both collegiate athletes and para-athletes, the rate of regular menstrual cycle was significantly lower in those with weight loss than in those without weight loss. Among collegiate athletes, stress fractures were found significantly more often in those with weight loss than those without weight loss. To prevent menstrual dysfunction and stress fractures related to energy deficiency in female athletes on a weight management, menstrual status must be considered.

In chapters 3 and 4, The relationship between appetite-regulating hormones and the menstrual cycle was investigated by examining the effects of fasting and acute endurance exercise on acylated ghrelin, peptide YY, and cholecystokinin. Between the early follicular and mid luteal phases, no changes in appetite-regulating hormones were observed during fasting or after acute endurance exercise. In the mid luteal phase, estradiol and progesterone were temporarily elevated by acute endurance exercise, but there was no effect on subjective appetite or energy intake. Further research in this area should clarify the relationship between the menstrual cycle and appetite-regulating

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hormones in female athletes, which may lead to the development of a weight management strategy that takes the menstrual cycle into account.