

I-11 Effects of the menstrual cycles on metabolic response to prolonged aerobic exercise

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A study was conducted to clarify the effect of the menstrual cycle on metabolic response to prolonged aerobic exercise in regularly menstruating healthy young women aged 22 to 24 years. Determination of the luteal phase was based on blood progesterone levels (mean \pm SD; follicular phase 0.66 ± 0.23 ng/ml; luteal phase 10.2 ± 5.5 ng/ml). In the follicular phase and luteal phase, six of the women (mean \pm SD; body fat $23.7 \pm 4.6\%$; $\text{VO}_{2\text{max}}$ 37.1 ± 4.8 ml/kg/min) were subjected to 40 min of cycle ergometer exercise at an intensity representing 55% of their measured $\text{VO}_{2\text{max}}$. Venous blood samples obtained before and during exercise (10, 20, 30 and 40 min) were analyzed for levels of substrates (glucose, FFA, acetoacetic acid) and hormones (LH, FSH, E_2 , progesterone, insulin, adrenaline, noradrenaline, leptin). Exercise-induced changes were compared in both phases. The present results demonstrate that most of the substrates and endocrine responses to prolonged aerobic exercise are similar in the follicular and luteal phases of the menstrual cycle. However, in the follicular phase, several unexpected responses occurred: 1) the respiratory exchange ratio was significantly lower, 2) no exercise-induced glucose or insulin increment was observed, 3) there was a greater FFA response.

I-12 The Effects of Form of Sandals on Walking

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Since about 1995, the platform-sandals have been in fashion among women's college students. These sandals are lacking in stability, and the wearers often lose their balance when they walk with them on. Then we conducted investigations on women's junior college students about their sandals through a questionnaire in 1998 and 2000. As a result, we grasped findings as follows; The platform-sandals they wear in 2000 have higher heels as compared with them in 1998. And 19.7% of answers felt they were in bad physical condition by wearing platform-sandals for long time. Then, we measured pressure on the sole of the foot in order to examine the human walking with platform-sandals. As a result, we obtained the findings as follows; they have the difference between right and left of pressure on the sole of the foot when they go down the stairs.

I-13 Relationship of cigarette smoking with serum lipids in collegiate women

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This study compared serum lipids, estradiol (E_2) and lecithin: cholesterol acyltransferase (L-CAT) activity of 21 collegiate women, who had cigarette smoking (CS) experience more than 1 year, with those of age, body mass index and physical activity matched controls. All blood samples were taken between days 7 and 9 of the menstrual cycle when E_2 levels were relatively low. We observed that smokers had significantly lower high-density lipoprotein₂ cholesterol and L-CAT activity compared with controls. This study observed unfavorable serum lipids changes associated CS in collegiate women.

I-14 Nutrient Intakes and Body Composition in High School Karate Players

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The purpose of this study was to investigate the nutrient intakes and body composition in 30 male and 20 female high school karate players. The mean iron and vitamin A intakes in women did not reach the recommended dietary allowances. The PFC ratios were 13.2 : 26.7 : 58.1% in men and 13.2 : 30.0 : 55.0% in women. The respective protein intakes were 1.6 g/kg in men and 1.4 g/kg in women. Although the mean intakes of meat, fish and egg were adequate, vegetables and fruits were very low. The 70% of women were not satisfied with their diet and considered themselves to be overweight. We thought the subjects need individual nutrient education.

I-15 Nutrient Intakes and Body Composition in Collegiate Karate Players

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The purpose of this study was to investigate the nutrient intakes and body composition in male and female collegiate karate players. The results indicated that the mean percent body fat in male and female subjects were $12.4 \pm 3.0\%$ and $24.1 \pm 5.5\%$, respectively, and the nutrient intakes of the subjects were inadequate expect for Vitamin A, Vitamin B₁, and Vitamin C.

I-16 Basic Study on Bone Densitometry

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The properties of Benus II (Ishikawa Co.) were evaluated. The subjects were 15 female students, the mean foot length was 218.7 ± 6.4 mm. The position of probe moved gradually by piling plastic plates (thickness: 4mm) one by one. AD (absolute distance, mm) was the distance between the center of probe and medial malleolus point. RD (relative distance, %) was defined as $\text{AD}/(\text{distance between the heel point and medial malleolus point}) \times 100$. There were seen the significant correlations between the bone density (Y) and measurement point (X).

$$Y = -0.533 X + 120.3 (r=0.321) \dots \text{for AD}$$

$$Y = -0.639 X + 128.1 (r=0.347) \dots \text{for RD}$$

Present study suggested that the measurement point was important for bone densitometry.