

A-07 Relationship of Alcohol Intake to Risk Factors for Adult Diseases

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It is known that adult diseases based on hyperalimentation tend to be induced by excessive alcohol intake. However, it has not yet been elucidated to the full how alcohol intake produces an influence on adult diseases. The present study was therefore undertaken to assess the relationship of alcohol intake to obesity, blood pressure, and hematological parameters. Since only the influence of alcohol intake was to be assessed, 465 male non-smokers in their forties to fifties were admitted to this study. They matched with each other in eating habit and had a BMI of 21.0 to 23.9. They were classified into non-drinkers, mild-drinkers, and heavy-drinkers. As a result, DBP, BMI, GOT, γ -GPT, TC, UA, HDL-C, and OGTT (2 hours) were found to increase significantly with increasing alcohol intake in the subjects in their forties and fifties. These results suggest that alcohol intake itself produces an adverse influence on blood pressure, serum lipids, hepatic function, and blood sugar.

A-08 Effects of Dietary and Exercise Therapies in a Course of Diabetes in Local Inhabitants

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Local inhabitants received dietary and exercise therapies during a three-month course of diabetes. The influence of such therapies on blood sugar control and mental state was investigated in the present study. The subjects were 15 patients (nine men and six women) who were diagnosed as having diabetes in mass screening. Informed consent was obtained in all of them. They were divided into two groups by the number of steps per day, that is, exercise (7000 steps or more) and control (less than 7000 steps) groups. In the exercise group, dietary balance was improved and W/H ratio, blood sugar, and fructosamine showed a significant decrease. In the control group, calorie intake per kilogram body weight, body weight, and W/H ratio showed a significant decrease. Maximum oxygen intake remained unchanged in both groups. The results presented suggest that blood sugar control is improved by a balanced diet and moderate exercise in the absence of body weight loss. Further, the results of emotional profile suggest that exercise makes a large contribution to mental health.

A-09 Effects of Dietary and Exercise Therapies in Middle-Aged and Elderly Women

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The effects of slight calorie limitation (about 200 kcal) and light exercise were assessed in middle-aged and elderly obese women. The subjects were 22 women (mean age: 57.7 \pm 7.5 years) who attended an about six-month course of health laboratory tests, measurement of physical fitness, and nutritional survey were performed at the initiation of the course and three and six months after its initiation. As a result, body weight, BMI, TC, and LDL-C were found to show a significant decrease, while HDL-C, maximum oxygen intake per kg body weight ($\dot{V}O_{2\max}/wt$) were found to show a significant increase. In the nutritional survey, nutritional balance was favorable, but the energy sufficiency rate was significantly decreased. The intake of nutrients or nutritional proportion showed no significant change. $\dot{V}O_{2\max}/wt$ increased significantly, presumably because body weight decreased significantly. Since body weight and BMI decreased without a decrease in physical fitness, the course of health in the present study was found effective on obesity.

A-10 Relationship of Smoking to Risk Factors for Coronary Heart Disease

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The present study was carried out to assess the relationship of smoking to risk factors for coronary heart disease (CHD). The subjects were 998 male non-drinkers in their forties and fifties with a body mass index (BMI) of 21.0 to 23.9. Persons with a poor eating habit were excluded from the subjects. Seven parameters of serum lipids and blood pressure were measured as CHD risk factors. The subjects were divided into three groups by the degree of smoking. The significance of differences in mean values was assessed by the analysis of variance. If a significant differences was noted, the significance of differences among individual groups was assessed by Duncan's multiple range test. As a result, HDL cholesterol was found significantly lower, but other lipids were found significantly higher in smokers than in non-smokers. Furthermore, blood pressure was significantly lower in the smokers.

A-11 Blood Properties and Nutritional Intake of Female Soccer Players

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A study was conducted to evaluate blood properties and nutritional intake in female soccer players. 11 trained players were compared with an untrained control group. The results were as follows: 1) %Fat of female soccer players and control group were 19.4 \pm 3.0% and 22.8 \pm 2.4%, respectively. $\dot{V}O_{2\max}$ for them were 38.3 \pm 3.7 ml/kg \cdot min and 31.3 \pm 3.0 ml/kg \cdot min, respectively. There were significant differences between them. Training of soccer effected the body composition and aerobic capacity. 2) Serum LDH and CPK of female soccer players had higher values than those of the control group. That suggests that during training which includes anaerobic power, their muscles were damaged by the training. 3) Serum HDL-C was higher in the female soccer players than that of the control group. Training of soccer had good effects on serum lipid. 4) Although Hb and Ht values were lower in the female soccer players, both group's values ranged within standard values. 5) Female soccer players were wanting in their intake of total energy, carbohydrate, protein, calcium, and iron. Their nutritional status has to improve as athletes who regularly perform vigorous training.

A-12 Nutritional Intake and Biochemistry Data in Male Intercollegiate Karate Players

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The present study was carried out for purposes of investigating nutritional intake and biochemistry data in male intercollegiate karate players. The subjects were members of Fukuoka University Karate Club. Of them, 12 (group R) were regular players, while 14 (group NR) were non-regular players. Furthermore, they were classified by the level of karate skill and the relationship of the level of karate skill to biochemistry data was assessed. As a result, fulfillment of nutritional requirements was inadequate. In biochemistry, all of GOT, GPT, LDH, and CPK were significantly higher in group NR than in group R. This was presumably related to the strength and frequency of karate blows which were higher in group R than in group NR. This was also suggested by the fact that the lower the level of karate skill, the higher the degree of muscular damage.

A-13 The review on the study of hypobaric hypoxia as a construction space.

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Recently, there have been several constructors that have proposed plans for Super High-Rise Buildings (SHB) which in some cases would exceed 1000 meters. However it remains to be seen whether or not such a building is ideal or even suitable environment for human. It may become possible to construct such a building, but first it is necessary to conduct a study of the SHB environmental effects on the human. The proposed height of these SHBs as a daily utilized space is 1000-2000 meters. In the upper space of the SHB, there are different environmental factors such as hypobaric hypoxia, strong radiation, low frequency vibration, which are unlike those at sea level. As a first step in the SHB study we focused on hypobaric hypoxia and reviewed past studies results and findings. Many of the past studies have focused on high altitude mountain or aviation medicines. The experimental conditions and the actual SHB environmental factors differ in altitude, experimental subject etc. It however has been suggested that there are some people who would be affected by the hypobaric hypoxia in the SHB environment. It would come from a individual differences based on a wide range of people and a oscillation in the physical condition. The former is the difference in people from infants to the elderly and patients. The latter is the effect of fatigue, lack of sleep, and biological rhythms etc. This variety in human behavior may complicate problems such as mental work, physical work, sleep and utilization of high speed elevators. Therefore further studies are necessary to examine specific factors of SHB and the individual differences.

A-14 Effects of Inhalation of High Concentration of Oxygen on Physiological and Subjective Responses, and Work Performance during Work Performed throughout the Night

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The purpose of the study was to investigate the effects of high concentrations of oxygen on physiological and subjective responses, and work performance during vigilant work throughout the night. Subjects were twelve (7 young and 5 middle-aged) males. They sat up all night and performed a deriving simulation test for 30-minute periods from 9 p.m. to 6 a.m. at intervals of 2 hours. During the tests, air with 30% (high O₂) or with 21% (normal O₂) of oxygen was inhaled using a nose cannula. Electroencephalogram (EEG), heart rate, blood pressure, critical flicker frequency (CFF), body temperature, oxygen concentration in the blood, etc. were measured during the tests. Sleepiness and subjective fatigue sensation were asked. Reaction times and errors during the test were recorded. The results obtained were as follows:

1. A decrease in work performance and an increase in sleepiness or fatigue occurred due to sitting up all night and intensified with the passage of time.
2. A high O₂ inhalation suppressed the decrease in work performance and occurrence of sleepiness or fatigue in the first and second tests. However, during the third and fourth tests, its effect were little.
3. Effects of high O₂ inhalation were greater in the middle-aged than the young.
4. Effects of high O₂ inhalation were found only in EEG; the other physiological parameters showed no remarkable changes.