

## Lifestyle and Health

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**Abstract** The total environments to which individuals have been exposed throughout the lifestages from birth to the present time have been composing the individual and community lifestyles. Such lifestyles are known to determine the risks for developments of cancers, circulatory diseases, and other chronic diseases.

To establish new theory and practice programs for disease prevention and health promotion in the environmental and preventive medicine, we have quantitatively investigated correlations of lifestyles, or ways of daily living, to comprehensive health potentials in the cohort of industrial workers. The total lifestyles were evaluated by the originally-designed 8 health-practices such as smoking, alcohol-drinking, physical exercise, and working and sleeping patterns. The data indicate that individuals having good lifestyles showed much younger health ages calculated based on the health-check-up data, and lower risks for developing lifestyle-related diseases than those with poor lifestyles.

The physical health potentials were assessed by the biomarker-measurements such as lymphocyte chromosome-DNA alterations, natural-killer activities and serum IgE levels. The psycho-mental health potentials were evaluated by both the quality-of-life-related questionnaires and the stress-related hormonal and cytokine levels such as cortisol and interleukines. The comprehensive health potentials have been shown to be significantly lower in poor-lifestyle people than in good-lifestyle ones. The changes in poor to good lifestyles through health education and learning were also shown to result in promotion of such health potentials.

Jpn J Hyg 2000; 54: 572-91

## Effects of Ramadan Fasting on the Health of Muslims

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**Abstract** The fasting month of Ramadan is the ninth lunar month of the Islamic calendar. It is the most important month for Muslims because in which the Qur'an was revealed, and they abstain from food and drink from dawn to sunset to express their gratitude to God. Eating and drinking is permitted only at night, and Muslims typically eat two meals each day, after sunset and just before dawn. People tend to stay up late watching TV with the family, praying or reading the Qur'an.

Ramadan teaches Muslims self-restraint and reminds them of the feelings of the impoverished. On the other hand, the biological effects of changes in lifestyle during Ramadan may also be expected.

Some studies have reported substantial weight loss, signs of dehydration, raised serum concentrations of uric acid and cholesterol, etc. during Ramadan. However, these changes are unlikely to have much effect on healthy individuals, because generations of Muslims have undertaken fasting year after year. In conclusion, the observance of the Ramadan fast may produce some ill-effects in patients with some disease, e.g. hypertension, hypercholesterolaemia, hyperuricaemia, hyperglycaemia, and heart, liver and kidney disease.

Jpn J Hyg 2000; 54: 592-6

## A Japanese Language Version of the Health-Promoting Lifestyle Profile

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**Abstract** The development and initial psychometric evaluation of a Japanese version of the Health-Promoting Lifestyle Profile II (HPLP II) is described. The 52-item instrument was translated into Japanese and was found to be culturally relevant and reliable in a pilot study. The Japanese version was then administered to a diverse but predominantly Japanese group of 337 subjects residing in northern Japan. The Japanese version of the HPLP II was evaluated using factor analysis and reliability measurement. Six factors similar to those isolated previously during psychometric assessment of the English language version were extracted. Those six dimensions comprise the HPLP II subscales of: 1. Health responsibility, 2. Spiritual growth, 3. Physical activity, 4. Interpersonal relations, 5. Nutrition, and 6. Stress management. The alpha reliability coefficient for the total scale was 0.94 and the 2-week retest reliability was 0.91; the alpha coefficients for the subscales ranged from 0.70 to 0.87. The Japanese language version of the HPLP II appears to have sufficient validity and reliability for use by researchers who wish to describe the health-promoting components of lifestyle among the Japanese population and to explore differences and similarities in the health-promoting lifestyle of Japanese and American subjects or those of other ethnic groups. Further evaluations of measurement with different populations appears warranted. This instrument will enable researchers to investigate patterns and determinants of health-promoting lifestyle, as well as the effects of interventions to alter the lifestyle.

Jpn J Hyg 2000; 54: 597-606

## Effects of Protein Intake or Exercise on 24h Urinary Solute Excretion

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**Abstract** The effects of protein intake or exercise on 24h urinary solute excretion, were evaluated in 10 female 18-19yr of age.

This study was performed during four periods: a low-protein diet (30g × 5 days), a normal-protein diet (control, 60g × 5 days), a high-protein diet (90g × 5 days), and exercise loading with a normal-protein diet. (The amount of plant protein was kept constant to be 24g/day)

The following results were obtained:

1. In the case of exercise loading, urinary potassium (K) and nitrogen (N) excretions decreased significantly, while urinary sodium (Na), chlorine (Cl), calcium (Ca), and phosphate (P) excretions showed no significant differences compared with control values.
2. With the low-protein diet, urinary Ca excretion decreased significantly compared with those in normal or high-protein diet.
3. The apparent fractional absorption of Na, Cl, and Ca in the female on the high-protein diet was significantly higher than that in those on the low-protein diet.

These results suggest the following:

- ① The amount of urinary K excretion is not only directly influenced by K intake, but also by K metabolism, such as K<sup>+</sup> transport between extra- and intracellular spaces.
- ② Although urinary Ca excretion was not increased by the increment in protein in the diet from 60g/day to 90g/day, it is necessary to evaluate both quantity and quality of a protein diet.
- ③ Protein intake of more than 60g/day is necessary for an effective increase in Ca and NaCl absorption.

Jpn J Hyg 2000; 54: 607-14

# The Public Health Significance of the Measurement of Cytokines in Serum

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**Abstract** As variable functions of cytokines have been proved in recent years, cytokine levels in biological fluids such as serum, plasma, and synovial fluid of patients with every kind of disease have been enthusiastically measured. As a result, many studies have shown an increase or decrease in the production of cytokines or abnormal cytokine levels in biological fluids. However, the relationship between the abnormal levels of cytokines and the intensity of the clinical symptoms or the prognosis remains unclear. The significance for the measurement of cytokines depends on whether it should be valid for detecting a preclinical status such as AST or ALT used for health checks or for disease screening such as some tumor markers. The purpose of this study is to know whether or not some cytokine levels in serum could be biomarkers for preventive purposes. Serum cytokine levels (IL-4, 6, 8, 12, and IFN-gamma) were measured in three different types of cohorts (nursery school infants, manufacturing workers and middle and old aged women) with chemiluminescence ELISA. The results showed no differences with atopic status in infants, pulmonary fibrosis in workers or with the decrease in bone stiffness. These results are mainly due to a great inter-individual variability of serum cytokine levels. This study concludes that serum cytokine levels are inappropriate as biomarkers for preventive purposes. However, a further detailed evaluation in healthy people with high serum cytokine levels may be necessary.

Jpn J Hyg 2000; 54: 615-21

# Trends in Variation within the Day and between Days of Subjective Symptoms of Fatigue in Adolescent Males

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**Abstract** The purpose of this study was to clarify the trends in the variation within the day, and between days, of subjective symptoms of fatigue (SSF) in the daily life of male students.

A SSF questionnaire (54 items) with guaranteed validity and reliability was administered to 104, 15-16 year-old healthy students, 3 times a day, in the morning (about 08:50), mid-day (about 12:10) and afternoon (about 16:10) for 5 days from Monday to Friday. As the main statistical analysis, two-way (day and week) ANOVA and post-hoc t tests were used.

The SSF questionnaire was considered to have very high reliability because Cronbach's alpha coefficients in each survey point of time were .967-.977. SSF complaints between days were low on the whole, but complaints of drowsiness were relatively high. The trends in variation of SSF between days were greater than those within the day. The trends in variation within the day were noticeable in complaints regarding drowsiness and loss of vigor. Complaints regarding languor became high from the middle of the week to the weekend. On the other hand, SSF complaints except for languor, were high at the beginning of the week, especially on Monday and became lower after Tuesday. There is a trend in variation within the day for symptoms regarding drowsiness and loss of vigor.

The trend in variation between days was confirmed for many SSFs, and was noticeable as compared to those within the day. Complaints regarding languor were high on the weekend, and SSF complaints except for languor were high at the beginning of the week, especially on Monday.

Jpn J Hyg 2000; 54: 622-30

# A 5 year Follow-up Study on the Relationship between Changes in Serum Lipids and Blood Pressure, and Changes in Exercise Habits in Subjects 30 Years of Age

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**Abstract** A 5 year follow-up study was conducted to investigate the relationships between %changes in serum lipids and blood pressure and corresponding changes in exercise habits in the middle - aged . The subjects were 152 males and 169 females who received a health check-up at 30-years-old during the period between 1990 - 1992 and then at 35-years-old during the period between 1995 - 1997.

The results are as follows:

1. In multiple regression analysis , %  $\Delta$  triglyceroid (TG) and %  $\Delta$  AI(atherogenic index) ratio were associated significantly with changes in exercise habits in males ( $P<0.05$ ) and %  $\Delta$  high density lipoprotein cholesterol (HDLC) was associated with changes in exercise habits in females ( $P<0.05$ ). %  $\Delta$  TG and %  $\Delta$  HDLC were affected by changes in exercise habits adjusted for BMI, smoking , and drinking. But changes in TC and blood pressure were not affected by changes in exercise habits.
2. In males , %  $\Delta$  TG was significantly lower in those subjects who started their exercise habit than in the no exercise group and than in those within the ceased exercise group who ceased their exercise during the study period( $P<0.05$ ). %  $\Delta$  AI was significantly lower in the started exercise group than in the no exercise group. Also, the continued exercise group had a signigicantly ( $P<0.05$ ) lower %  $\Delta$  AI as compared to the ceased exercise group. In females , %  $\Delta$  TG was significantly lower in the started exercise group than in the no exercise group( $P<0.05$ ). %  $\Delta$  HDLC was higher significantly in the continued exercise group than in the ceased exercise group( $P<0.05$ ).

From the results obtained , it is recommended that the no exercise subjects should have exercise more than once time per week and those with more than 1 time per week maintain their exercise habits.

Jpn J Hyg 2000; 54: 631-6

## Environmental Health and Preventive Medicine

Official Journal of the Japanese Society for Hygiene

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