# Health-Care Center

Mikio Zeniya, *Professor and Director*
Takashi Wada, *Professor*
Kazumi Kawase, *Assistant Professor*

Yoichi Sakamoto, *Professor*
Takekazu Onda, *Professor*
Hiroki Takahashi, *Assistant Professor*

## General Summary

*Shimbashi Medical Checkup Office*

1. "Lung age," calculated from height, sex, and forced expiratory volume in 1 second, is a new index for expressing respiratory function with age. We assessed the differences in lung age among current smokers, former smokers, and nonsmokers.

2. Healthy habits are represented by Breslow's 7 healthy practices, Morimoto's 8 items, and Ikeda's 6 healthy habits. We assessed which of the 3 classifications of healthy lifestyle habits is the most closely associated with the prevention of metabolic syndrome. Of the 3 models tested, Ikeda's healthy habits were the most useful for decreasing the risk of metabolic syndrome.

## Research Activities

*Shimbashi Medical Checkup Office*

1. Lung age

We assessed the differences in lung age among current smokers, former smokers, and nonsmokers. The nonsmokers were further divided into 2 groups based on their exposure to second-hand smoke. The lung age minus the calendar age was $9.8 \pm 14.7$ years in current smokers, $4.8 \pm 17.8$ years in former smokers, and $-0.8 \pm 14.0$ years in nonsmokers. These data showed significant differences (p=0.0003). The smoking index was calculated by multiplying the number of years of smoking by the number of cigarettes smoked per day. The lung age of persons with a smoking index $-600$ was 13.2 years and was significantly greater than that (7.2 years) of persons with a smoking index<600 (p=0.003). In nonsmokers, the lung age minus the calendar age was $-0.5$ years among those exposed to second-hand smoke and $-1.0$ among those not exposed to second-hand smoke. In conclusion, smoking increases lung age.

2. Basic lifestyle

The predominant cause of metabolic syndrome is an unhealthy lifestyle. Healthy habits are represented by Breslow's 7 healthy practices, Morimoto's 8 items, and Ikeda's 6 healthy habits. The aim of this study was to determine which set of healthy habits was most likely to result in a reduced risk of developing metabolic syndrome. A total of 6,765 men and 2,789 women had medical checkups. They completed a lifestyle questionnaire based on the 3 classifications of healthy habits. The responses were divided into 3 groups (poor, moderate, and favorable) according to each of the healthy habit criteria. The incidence of metabolic syndrome was defined in participants who were newly diagnosed during follow-up. The Kaplan-Meier cumulative 7-year incidence was calculated. In women, the healthy habits of Breslow, Morimoto, and Ikeda showed

significant differences in the incidence between the poor and moderate groups and between the poor and favorable groups.　In men, a significant difference was observed among the poor, moderate, and favorable groups for Ikeda's healthy habits.　However, no significant difference was observed for Breslow's healthy practices.　Morimoto's items showed a significant difference only between the poor and moderate groups.　Among the 3 models tested, Ikeda's healthy habits were the most useful for decreasing the risk of metabolic syndrome in Japanese.

### Publications

*Oikawa T, Kamiya A, Kakinuma S, Zeniya M, Nishinakamura R, Tajiri H, Nakauchi H.* Sall4 regulates cell fate decision in fetal hepatic stem/progenitor cells. *Gastroenterology* 2009; **136:** 1000-11.

*WadaT, Fukumoto T, Ito K, Hasegawa Y*[1]*, Osaki T*[1] *(*[1]*Hitachi Ltd).* Relationship between the three kinds of healthy habits and the metabolic syndrome. *Obes Res Clin Prac* 2009; **3:** 123-32.

*Wada T, Fukumoto T, Ito K, Hasegawa Y*[1]*, Osaki T*[1]*, Ban H*[1] *(*[1]*Hitachi Ltd).* Of the three classifications of healthy lifestyle habits, Which One is the most closely associated with the prevention of metabolic syndrome in Japanese? *Intern Med* 2009; **48:** 647-55.