

## Original Article

# Mid-term evaluation of "Health Japan 21": focus area for the nutrition and diet

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This paper provides a review of the mid-term evaluation of "Health Japan 21" and discusses the status of progress towards the goals of items within the "Nutrition and diet" area. Among 14 items investigated, an improving trend was observed in eight items, though there was no improvement in five items. Whilst the percentage of obese individuals significantly increased during the 25 years from 1976 to 1999, secular trend showed that it has become unchanged since 2000, when "Health Japan 21" was enacted, regardless of gender and age. Another favorable finding was a decreasing trend of salt intake especially in the age group of 50-59 years. Besides, the analyses of the proportion of the persons "who have interest in dietary improvement" among the ones "who believe there are problems in their diet" showed that an increased awareness of inappropriate diet and also in the motivation to improve it, especially among males aged 50-59 years. On the other hand, some items showed worsening trend; e.g. decrease in vegetable intake, decrease of persons who are aware of their own optimal weight and practice weight control. Thus, the progress within Health Japan 21 was assessed as not necessarily satisfactory. In order to ensure the progress of "Health Japan 21" towards 2010, it is now crucial to effectively incorporate "Japanese Food Guide Spinning Top" and a new strategy of non-communicable diseases prevention focusing on the control of metabolic syndrome, which will be launched in April 2008, into the national health promotion program.

**Key Words:** national health promotion policy, Health Japan 21, mid-term evaluation, nutrition and diet, Japan

## BACKGROUND AND PURPOSE OF THE ESTABLISHMENT OF "HEALTH JAPAN 21"

In 1978, an international conference of the World Health Organization (WHO) proposed the Declaration of Alma Ata, which encouraged a shift in focus from advanced medical care to the concept of "primary health care," which places emphasis on primary prevention.<sup>1</sup> In the same year, a national health promotion program was launched in Japan. Major activities of the first National Health Promotion Program included; 1) promotion of the programs focusing on nutrition, exercise and resting for health promotion throughout ones' lives, 2) establishment of municipal health centers for enhancement of personal health services at the community level, 3) establishment of health promotion councils in all municipalities across the country and also the Japan Health Promotion Foundation. In this way, a great effort has been made to disseminate and enlighten the concept of health promotion.

In 1988, the Second National Health Promotion Program (Active 80 Health Plan) was initiated, with a further emphasis on primary prevention. The Active 80 Health Plan was intended to address the upcoming super-aging society in the 21st century, by supporting the elderly to become active, so that they could take care of themselves and participate in society, even at the age of 80. The second program aimed to emphasize primary prevention and enhance active health promotion utilizing the private sector, in addition to the focus of the first one, that is, the

establishment of a balanced lifestyle in terms of nutrition, exercise and rest.

In Japan, however, lifestyle-related diseases still remain a major cause of death. With a rapid aging of society as a result of the declining birth rate, Japan faces with the fear that lifestyle-related diseases may increase healthcare costs and the burden of nursing care of the elderly people in the 21st century. Since it is expected that the aging society would further increase morbidity and the burden of nursing care, and also that economic growth may not continue, it will become important to reduce social burdens related to disease prevention/treatment, and nursing care. Under this circumstance, the Ministry of Health, Labour and Welfare established the "National Health Promotion in the 21st Century (Health Japan 21)" in March 2000, as the Third National Health Promotion Program, in order to create a vital society where all nationals can live healthy and fulfilling lives.<sup>2</sup>

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The missions of "Health Japan 21" are to reduce late-middle-age deaths, to extend healthy life expectancy and to improve quality of life (QOL).

These missions constitute the concept of health promotion, and objectives with target values to be achieved have been established for several focus areas lifestyles and specified diseases. Conventionally, various surveys have proposed their own indicators, but the establishment of "Health Japan 21" clarified goals which can be monitored in a systematic way. "Health Japan 21" also encourages the involvement of the society as a whole in the program, making suggestions to health-related organizations etc. in order to improve each individual's awareness of health promotion and facilitate each to address the issue independently. "Health Japan 21" was initiated in 2001 as a 10-year plan, which places even greater emphasis on "primary prevention" than the secondary program.<sup>3</sup>

### OVERALL TRENDS OF "HEALTH JAPAN 21"

To realize its ultimate goals, "Health Japan 21" comprises four basic policies: 1) placing emphasis on primary prevention, 2) creating a supportive environment for health promotion, 3) establishing and assessing goals, etc., and 4) promoting effective, well-coordinated activities by the various implementing bodies.

Based on these basic policies, 70 specific goal items have been established in nine focus areas: (1) Nutrition and diet, (2) Physical activity and exercise, (3) Rest and Mental Health, (4) Tobacco, (5) Alcohol, (6) Dental health, (7) Diabetes, (8) Cardiovascular diseases, and (9) Cancer.<sup>4</sup> These areas are divided into two; the areas related to lifestyle (1) - (6)), and the ones directly related to disease, such as the secondary prevention of disease (7) - (9)).<sup>5</sup>

In 2002, the Health Promotion Law was enacted to enhance these health promotion measures, focusing on "Health Japan 21." The Health Promotion Law stipulates that each prefecture/municipalities should establish health promotion plans, under the basic policies of "Health Japan 21".<sup>6,7</sup>

In response to enactment of the law, the National Nutrition Survey, which was previously conducted under the Nutrition Improvement Law, renamed the National Health and Nutrition Survey in 2003,<sup>8</sup> where the role of monitoring the progress of "Health Japan 21" was clearly demonstrated.<sup>9,10</sup> Moreover, it is stipulated that efforts must be made to implement measures for the prevention of environmental Tobacco smoke. Furthermore, a 10-year strategy (Health Frontier Strategy),<sup>11</sup> starting from the 2005 fiscal year, was established, which focused on the "promotion of the measures against lifestyle-related diseases" and the "promotion of prevention of the need for nursing care" under the basic goal of extending people's healthy life expectancy.

In the 2008 fiscal year, a new disease control program will be started, mainly based on the high-risk approach, with the focus on control of metabolic syndrome (visceral fat syndrome). It is also expected that this new program will further promote "Health Japan 21", formulating the basis to control lifestyle-related diseases.<sup>12</sup>

### TRENDS IN THE FOCUS AREA FOR "NUTRITION AND DIET"

This paper focuses on the focus area for "Nutrition and Diet", which is closely related to many lifestyle-related diseases and also with one's QOL. The goal within this area is to develop a physically, mentally, and socially favorable diet to improve health and quality of life. Fourteen specific goal items have been established for individual behavior modification and for the creation of a supportive environment.

To realize these goals, various efforts are being made, including (1) implementation of the National Health and Nutrition Survey, and the accumulation and organization of scientific evidence for establishment of the "Dietary Reference Intakes"; (2) dissemination and enlightenment of such resources as the "Dietary Guidelines" and the "Japanese Food Guide Spinning Top",<sup>13</sup> as well as the improvement of food environment; (3) establishment of the "Basic Plan for Promotion of Shokuiku" for the purpose of promoting dietary education to develop a well-rounded character in a comprehensive and systematic manner; and (4) development of human resources such as registered dietitians and volunteers (e.g. dietary improvement promotion staff).

Moreover, for health promotion planning, "knowledge and attitude (that would motivate individuals)", "resources and skills (that is needed to take action)", and "support from surrounding people" are regarded as the influencing factors on behavioral change, and "environment" is regarded as the one on health and QOL. Therefore, with considering all these factors comprehensively, the goals were set using the data from the National Nutrition Survey (currently, the National Health and Nutrition Survey) in three levels: "nutritional status and nutrient (food) intake level", "knowledge, attitude and practice level" and the "environment level".<sup>3,14</sup>

### BACKGROUND AND PURPOSE OF THE MID-TERM EVALUATION

The purposes of the mid-term evaluation of "Health Japan 21" are to establish the new goals and to appropriately assess the outcome of the specific activities to attain these goals, as well as to obtain the necessary information to enhance the measures for health promotion so that the information can be reflected in future measures. In particular, the main purpose is to identify the problems that remain to be solved for improvement of the goal items in "Health Japan 21", by examining the current achievement status and the related promoting and inhibiting factors.

The mid-term evaluation of "Health Japan 21" was therefore undertaken in 2005-2006 (five years after its enactment), where the reviews were implemented at the national and prefectural levels concerning the issues such as; the analysis of the mid-term achievement values of the 70 goal items in the nine areas, evaluation of measures in each area, establishment of numerical targets for newly introduced goal items, selection of representative goal items and establishment of the new goal items. The trends of indicators, the current activities and their problems were reviewed to evaluate the measures taken in each area and discuss the future strategies to achieve the final goals in 2010.<sup>15</sup>

**OVERVIEW OF THE MID-TERM EVALUATION**

The main findings of the overall evaluation at the national level are summarized below:

1. The introduction of numerical targets has made it possible to incorporate the data obtained in the various other surveys into the annual National Health and Nutrition Survey, by which it is now possible to monitor and evaluate such information both systematically and

continuously.<sup>9,10</sup>

2. All prefectures have established own prefectural plans. Out of all 1,859 municipalities, 1,001 (about 54%) have established their own plans as of July 2006.<sup>6</sup>

3. The mid-term achievement values indicated a decreasing trend in the age-adjusted mortality rates of stroke and ischemic heart disease and a halt in the increases in the percentage of energy from fat in adult diet and

Table 1. Goals regarding "Nutrition and Diet" Area and Status (Mid-term evaluation, 2006)<sup>15</sup>

Goal items (guidelines for indicators)	Target	Baseline value	mid-term achievement value	Target value
<b>Relationship to disease and health: nutrition status and nutrition (food) intake level</b>				
1.1 Increase the proportion of persons maintaining optimal weight (Percentage of obese individuals)	obese schoolchildren (more than 20% above standard weight based on the Hibi method)	10.7%	10.2%	7% or less
	underweight (BMI<18.5) problems among females aged 20–29 years	23.3%	21.4%	15% or less
	obese (BMI≥25.0) problems among males aged 20–69 years	24.3%	29.0%	15% or less
	obese (BMI≥25.0) problems among females aged 40–69 years	25.2%	24.6%	20% or less
1.2 Reduce average daily fat energy ratio (Percentage of average daily intake)	persons aged 20–49 years	27.1%/day	26.7%/day	25% or less
1.3 Reduce average daily salt intake (Percentage of average daily intake)	adults	13.5g/day	11.2g/day	less than 10g
1.4 Increase average daily vegetable intake (Percentage of average daily intake)	adults	292g/day	267g/day**	350g or more
1.5 Increase average daily intake of calcium-rich foods in adults (Percentage of average daily intake)	milk and dairy products	107g/day	101g/day**	130g or more
	beans	76g/day	65g/day**	100g or more
	deep-colored vegetables	98g/day	89g/day**	120g or more
<b>Factors contributing to behavior change: knowledge, attitude, and behavior</b>				
1.6 Increase the proportion of persons who know their proper weight and practice weight control (Percentage of individuals who practice weight control)	males aged 15 years or over	62.6%	60.2%	90% or more
	females aged 15 years or over	80.1%	70.3%	90% or more
1.7 Reduce the proportion of persons who skip breakfast (Percentage of individuals who skip breakfast)	junior high school / high school students	6.0%	6.2%	0%
	males aged 20–29 years	32.9%	34.3%	15% or less
	males aged 30–39 years	20.5%	25.9%	15% or less
1.8 Increase the proportion of persons who eat balanced meals in term of quality and saize (Percentage of individuals who eat proper meals, in the company of 2 or more persons, such as family members, taking at least 30 minutes per meal, at least once a	adults	56.3%*	61.0%	70% or more
1.9 Increase the proportion of persons who read nutrition labels when dining out or purchasing food (Percentage of individuals who refer)	males aged 20–69 years	20.1%	18.0%	30% or more
	females aged 20–69 years	41.0%	40.4%	55% or more
1.10 Increase the proportion of persons who know the appropriate size of meal for maintaining optimal weight	adult males	65.6%*	69.1%	80% or more
	adult females	73.0%*	75.0%	80% or more
1.11 Increase the proportion of persons who desire dietary improvement among those who believe there are problems in their (Percentage of individuals who have the motivation)	adult males	55.6%	59.1%	80% or more
	adult females	67.7%	67.3%	80% or more
<b>Environment-building for support of behavioral change: environment level</b>				
1.12 Increase the availability and user of healthy menus in cafeterias at workplaces etc., restaurants, and food retailers (Number of available menus, and percentage of users)	males aged 20–59 years	34.4%	—	50% or more
	females aged 20–59 years	43.0%	—	50% or more
1.13 Increase the opportunities to obtain information on health and nutrition in the community and at the work place and increase the number of people (Number of opportunities for study, and percentage of participants)	males aged 20 years or over	6.1%	7.4%	10% or more
	females aged 20 years or over	14.7%	15.3%	30% or more
1.14 Increase the number of voluntary groups involved in study and activities related to health and nutrition in the community and at the workplace	males aged 20 years or over	2.4%	3.5%	5% or more
	females aged 20 years or over	7.8%	7.4%	15% or more

\* The survey that provided the baseline value at establishment is different from the survey that provided the interim result value.

\*\* Conversion of weight change ratio is required due to the revision of the Tables of Food Composition in Japan.

the percentage of obese females. On the other hand, there was no improvement in the morbidity of lifestyle-related diseases, such as hypertension and diabetes, especially among middle-aged and older males. Some items even showed worsening trend; e.g. increased percentage of obese males, decreased number of steps taken during daily living activities. Overall, the achievements were not necessarily satisfactory.

The goals in the focus area for "Nutrition and diet" and their current status are shown in Table 1. Of the 14 items, a careful consideration is needed for five items when the secular changes are examined, and new target values were set for four items. Although an improving trend was observed in eight items, there was no improvement in five items (For the remained one item, there was no mid-term achievement value) (Table 1). In the present paper, we aim to examine the indicators especially at the "nutritional status and nutrient (food) intake level" and the "knowledge, attitude and practice level" which can be improved by enhancing individual awareness.<sup>15</sup>

**ASSESSMENT OF THE "INDICATORS AT THE NUTRITIONAL STATUS LEVEL"**

Overweight (obesity) is used as an indicator of the nutritional status that reflects the unbalance between the energy intake and energy expenditure.<sup>16,17</sup> For which, the current and target values are demonstrated.

Regarding the goal item "increase the proportion of persons maintaining optimal weight", there was almost no change between the baseline value (10.7%) and the mid-term one (10.2%) in terms of the percentage of obese children, defined by Hibi's methods for the school-aged children (more than 20% above standard body weight) (Table 1-1.1).<sup>15</sup> As for adults, whilst the proportion of obesity, defined as those with a BMI  $\geq$  25, had decreased in females aged 40-69 years (baseline value 25.2% vs.

mid-term value 24.6%), it increased in males aged 20-69 years (baseline value 24.3% vs. mid-term value 29.0%)(Table 1).<sup>15</sup> These figures were derived from the data of the survey results in 1997 and 2004. Secular changes in the proportion of obesity among children indicated a significant increasing trend from 1976 to 1990, after which it remained unchanged. Similar trend was also observed among females aged 40-69 years. Secular changes in the percentage of obese males aged 20-69 years are shown in Figure 1. During the 25 years from 1976 to 1999, the rate of increase in the percentage of obese individuals was significant in all age groups. However, since 2000, when "Health Japan 21" was started, the rate of increase has decreased or became unchanged, especially among younger people.

These results suggest that the increase in the percentage of obese individuals has not been as significant as before the enactment of "Health Japan 21", regardless of gender and age.

**ASSESSMENT OF THE "INDICATORS AT THE NUTRIENT AND FOOD INTAKE LEVEL"**

Lifestyle-related diseases closely associated with nutrition and diet include hypertension, hyperlipidemia, ischemic heart disease, stroke, cancer, diabetes and osteoporosis. The possible dietary factors would be excessive energy intake, excessive intake of fat and sodium, and insufficient intake of dietary fiber, antioxidant vitamins and calcium. Therefore, specific target values have been set for the goal items such as; "increase the proportion of persons maintaining optimal weight", "decrease the proportion of obesity in school-aged children", "Reduce fat energy ratio in adults", "Reduce salt intake in adults", "Increase vegetable intake" and "Increase intake of calcium rich foods".

In this chapter, we examines the data on salt intake,

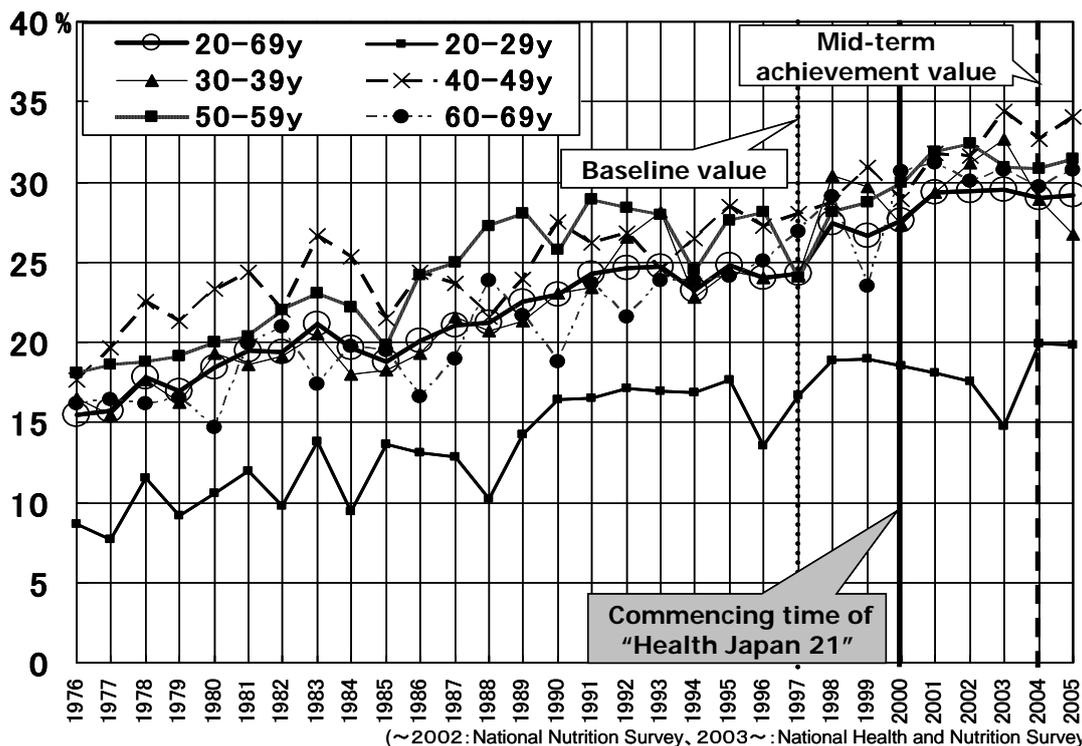


Figure 1. Secular changes in the percentage of obese(BMI  $\geq$  25) adult males

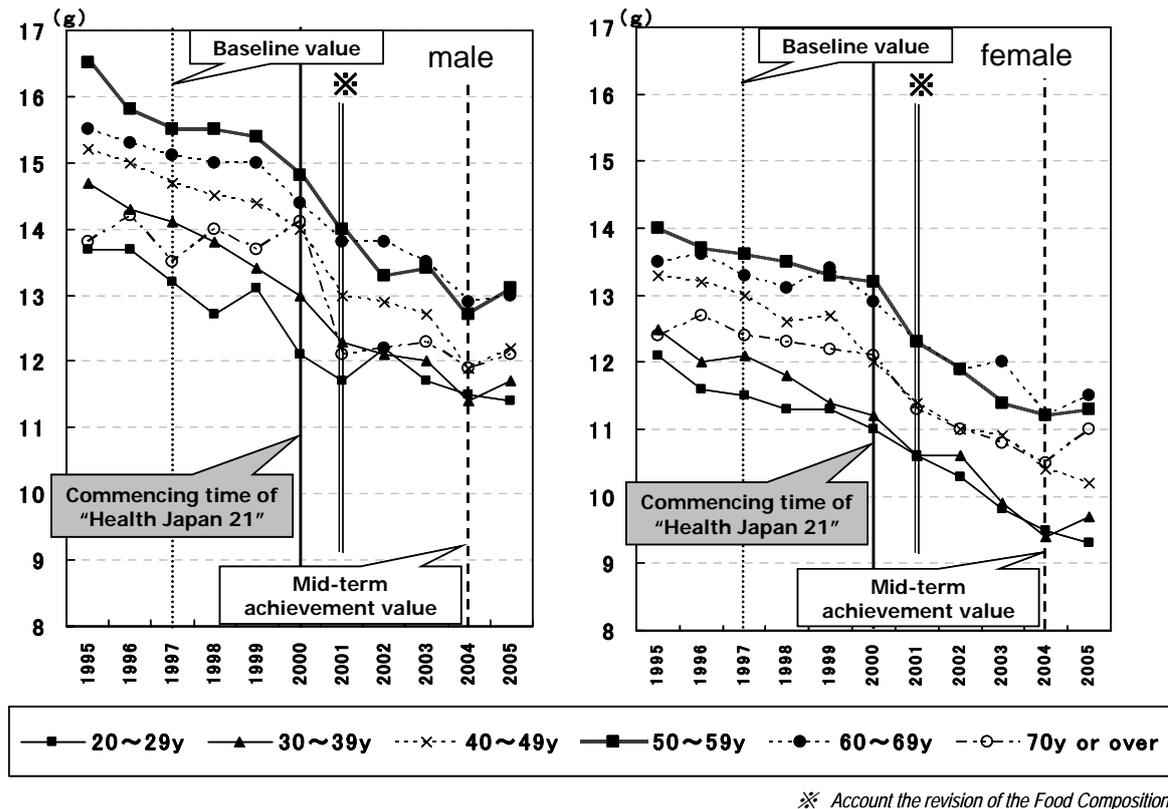


Figure 2. The secular changes in salt intake in adults (sex and age group)

which is associated with the risk of hypertension as one of the important health problems in the Japanese population, and those on vegetable intake, which is an important component for prevention of lifestyle-related diseases especially for control of cardiovascular diseases, cancer and obesity.

Regarding salt intake, from the perspective of prevention of hypertension, the recommended value is 6 g or less overseas in Western populations. In 1997, the average daily intake of salt in adults in Japan was still at an excessive level (13.5 g), and the tentative target value of the population average was set as less than 10 g.

Regarding the goal item "Reduce salt intake," the baseline value in 1997 was 13.5 g and the mid-term achievement value in 2004 was 11.2 g, indicating a decrease of 2.3 g (Table 1-1.3).<sup>15</sup> However, a special attention must be paid to the comparison of data on salt intake, partly because the Food Composition Table in Japan was revised in 2001. Figure 2 shows the secular changes in salt intake in adults. Taking into account the revision of the Food Composition Table in Japan as well as the changes in the survey method, Figure 2 shows a decreasing trend of salt intake in both sexes and across all age groups. Most favorable finding was that a particularly significant decreasing trend was observed in males in the age group of 50-59 years, who have high risks of lifestyle-related diseases (Figure 2). Such improvements were observed possibly as a result of "Shokuiku (food education)" and health education incorporated in the activities of local governments, which provide health services directly to the communities, as well as in those of various organizations that implement projects related to health promotion.

It is regarded that the intake of potassium, dietary fiber, and antioxidant vitamins is effective for prevention of cardiovascular diseases and cancer. When the analyses were performed to examine the association with the amount of food intake, it was found that vegetable would greatly contribute to the intake of these nutrients.<sup>18</sup> Since the consumption of 350-400 g of vegetables is known to be required to take sufficient amounts of potassium, dietary fiber, and vitamin C, the target value has been set at an average intake of 350 g or more in adults.

Regarding the goal item "increase vegetable intake," the baseline value in 1997 was 292 g and the mid-term achievement value in 2004 was 267 g, showing a decrease (Table 1-1.4).<sup>15</sup> Figure 3 shows the secular changes in vegetable intake in adults. From 1997 to 2003, the vegetable intake in all adults remained almost unchanged. A comparison of vegetable intakes in 2003 and 2004, however, indicated a decrease of about 20 g in both sexes and across all age groups. The decreased intake may be resulted from the price rise of fresh vegetables, which were substantially higher in November 2004 than the average year, due to the decreased agricultural products as a result of bad weather conditions (e.g. typhoons). The fact that vegetable intake returned in 2005 to the previous level suggests that the decrease in 2004 was a temporary phenomenon. In addition, large differences were observed among generations. The average vegetable intake in the age group of 20-29 years was about 70 g lower than that in the age group of 60-69 years. Whilst the increase of vegetable intake is particularly expected in young population ( $\leq 39$  years old), no increasing trend was observed in their vegetable intake (Figure 3).

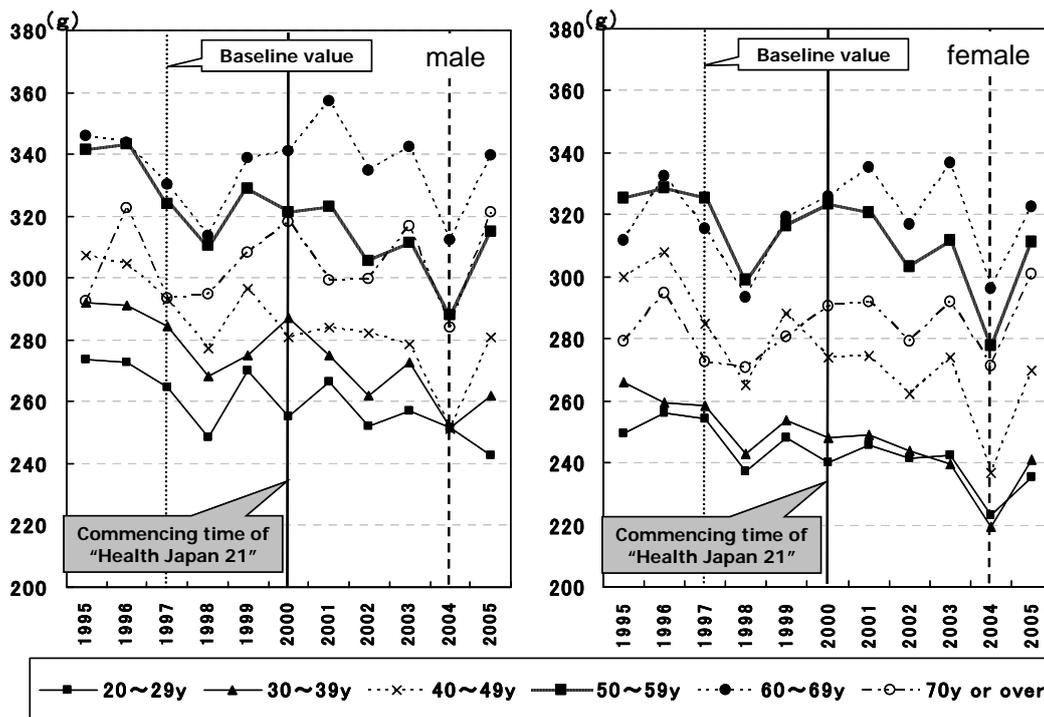
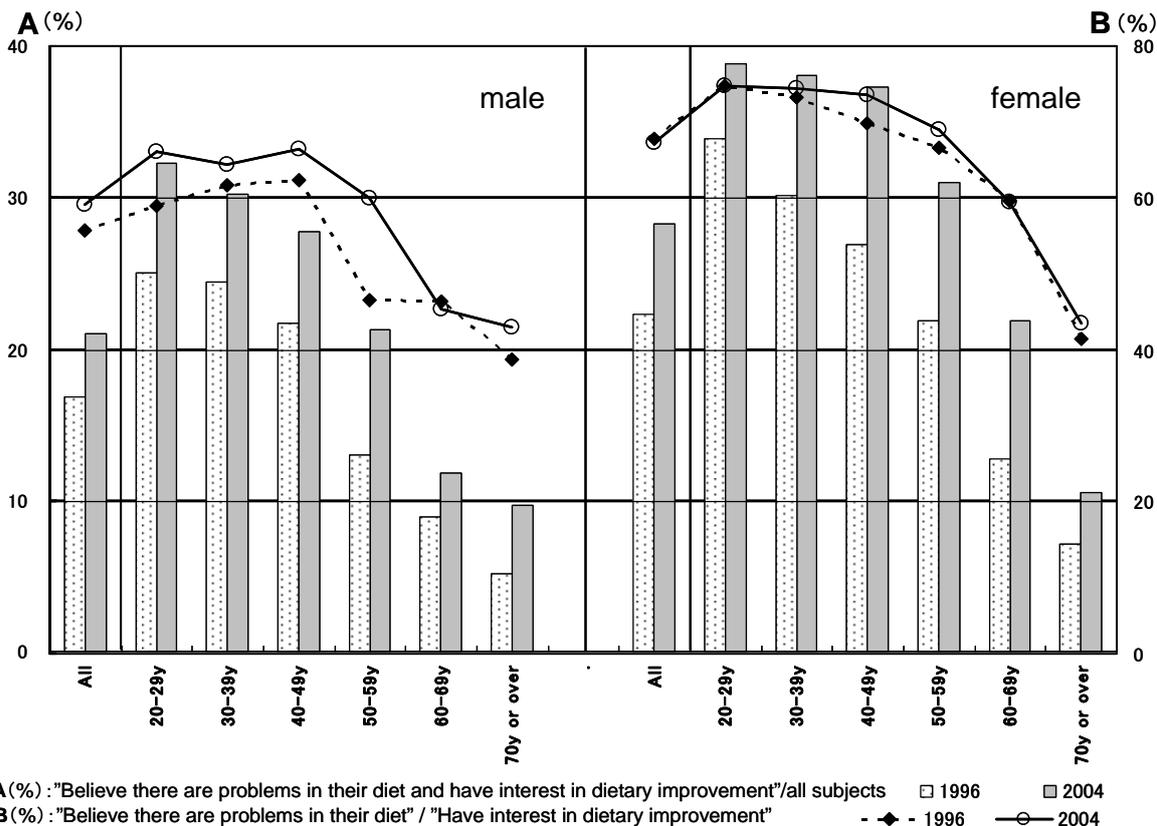


Figure 3. The secular changes in vegetable intake in adults (sex and age group)



A (%): "Believe there are problems in their diet and have interest in dietary improvement"/all subjects  
 B (%): "Believe there are problems in their diet" / "Have interest in dietary improvement"

Figure 4. Percentage of the proportion of persons who show interest in dietary improvement among those who believe there are problems in their diet (sex and age group)

The above findings would indicate that the amount of vegetable intake remained unchanged as a whole. Since the effect of prices and the differences among generations constitute major factors associated with vegetable intake, it may be important to implement measures with respect to food environment. In other words, future actions

should be placed on the price control of vegetable, the dissemination and enlightenment of the "Japanese Food Guide Spinning Top" and the activities at the restaurants and convenience stores for people who have less interest in diet or those whose vegetable intake is low so as to increase vegetable intake.<sup>19,20</sup>

## ASSESSMENT OF THE "INDICATORS AT THE KNOWLEDGE, ATTITUDE AND PRACTICE LEVEL"

In order to improve one's nutritional status and nutrient intake, it is crucial to modify his/her knowledge, attitude and practice.

Established specific goal items include: "increase persons who are aware of their own optimal weight and practice weight control", "decrease the proportion of persons who skip breakfast in the young adults aged 20-39 years", "Increase persons who read nutrition labels when eating at restaurants or purchasing food", "increase persons who know size of meal for maintaining optimal weight" and "increase the proportion of persons who show interest in dietary improvement among those who believe there are problems in their diet".

At the practice level, in order to decrease the proportion of obesity, each individual should undertake appropriate weight control. As for the goal item "increase persons who are aware of their own optimal weight (Height(m)<sup>2</sup> × 22 (standard BMI)) and practice weight control," the proportion was 62.6% for males and 80.1% for females among individuals aged 15 years or older in 1998, and the target value was set at 90% or more. However, the mid-term achievement value in 2004 was 60.2% for males and 70.3% for females (Table 1-1.6).<sup>15</sup> Although it was merely a comparison of data obtained in two survey periods, 1998 and 2004, and detailed changes were not ascertained, the values for males were rather unchanged and the values for females showed a decreasing trend (Table 1).<sup>15</sup>

At the knowledge level, it would be needed to acquire knowledge about the quantity and content of meals, and it is particularly important to know how much one should eat to maintain optimal weight. Another goal item, "increase persons who know the appropriate size of meal for maintaining optimal weight" was established. Its baseline value in 1997 was 65.6% for males and 73.0% for females, and the mid-term achievement value in 2004 was 69.1% and 75.0% respectively, showing a slight increase. In particular, a favorable finding was that its proportion has increased among males in the age group of 30-39 year, who are at the life stage with the risk of developing obesity (Table 1-1.10).<sup>15</sup>

At the attitude level, it is important for individuals to have the motivation to improve their diet when they recognize the problems in their diet. In 1997, the percentage of individuals who believed there were problems in their diet was 31.6% for adult males and 33.0% for adult females. Among them, the proportion of persons who show interest in dietary improvement was 55.6% for males and 67.7% for females, and the target value was set at 80% or more. For the goal item "increase the proportion of persons who show interest in dietary improvement among those who believe there are problems in their diet", the mid-term achievement value in 2004 was 59.1% for males and 67.3% for females, indicating an increasing trend in males whereas it was rather unchanged in females (Table 1-1.11).<sup>15</sup> Figure 4 shows the results of self-assessment of diet and the proportion of persons who show interest in dietary improvement according to sex and age group. "A" represents the percentage of individu-

als who "believe there are problems in their diet and have interest in dietary improvement" among all subjects, and "B" represents the percentage of individuals who "have interest in dietary improvement" among those who "believe there are problems in their diet".<sup>3</sup> Although "A" showed an increasing trend in both sexes and across all age groups, an increasing trend of "B" was observed in males only, not in females. In particular, males in the age group of 50-59 years showed significant increases in both "A" and "B" (Figure 4). These results suggest that there is an increased awareness of inappropriate diet and also in the motivation to improve it. Having the motivation to improve diet and also controlling diet is required particularly for males aged 20-59 years, from the view of prevention and control of lifestyle-related diseases and metabolic syndrome. Therefore, the increase in proportion of persons who show interest in dietary improvement indicates a favorable trend.

## SUMMARY AND PROBLEMS TO BE SOLVED

This paper discussed the goal items in the "Nutrition and diet" area that should be noted in the mid-term evaluation of "Health Japan 21". Some other goal items that were not reviewed in this paper also showed no trend towards improvement from the baseline value obtained at the establishment of "Health Japan 21." Therefore, the overall progress of "Health Japan 21" has been evaluated as "not necessarily satisfactory".

The findings on the goal items at the actual "nutritional status level" indicate a slowdown in the increasing trend in the proportion of obesity, especially among middle-aged males, who have a high risk for metabolic syndrome. Yet, these percentage values remain still at high level. The results of the items regarding "knowledge, attitude and practice" indicate improving trends in awareness and behavior, such as an increase of persons who are aware of their own optimal weight and practice weight control, though the actual food choice and dietary behavior have not yet been modified adequately.

Under this circumstance, a new strategy of non-communicable diseases prevention will be launched from April 2008, focusing on the control of metabolic syndrome. By which, the "high-risk approach" will be enhanced, in addition to the "population approach" where individuals' efforts are supported by the society through a national health promotion program. It is expected that combining these two approaches would bring synergistic effects. In response to the mid-term evaluation of "Health Japan 21," it is now required to further promote "Health Japan 21" and the "The Medical Expenditure Optimizing Plan"<sup>21</sup> in a well-coordinated manner through the structural reform of the healthcare system.

It is well acknowledged that various factors, such as genetics, environment, and lifestyle, are associated with development and progress of lifestyle-related diseases. In particular, dietary habit is a major factor associated with these diseases. There is a concern that westernized and simplified/convenient diet, increase in the frequency of eating out and also in consumption of processed foods, breakfast skipping, frequent eating alone, and inappropriate dietary intake (e.g. excessive intake, unbalanced diet) would also lead to the increase in prevalence of

lifestyle-related diseases. Based on the mid-term evaluation of "Health Japan 21," it is now required to effectively enhance national health promotion through dissemination and enlightenment of the "Japanese Food Guide Spinning Top" and the effective implementation of a new strategy of non-communicable diseases prevention focusing on the control of metabolic syndrome.

#### AUTHOR DISCLOSURES

Udagawa K, Miyoshi M, and Yoshiike N, no conflicts of interest.

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