

Nutrition

5.

Nutrition and Average Life Expectancies

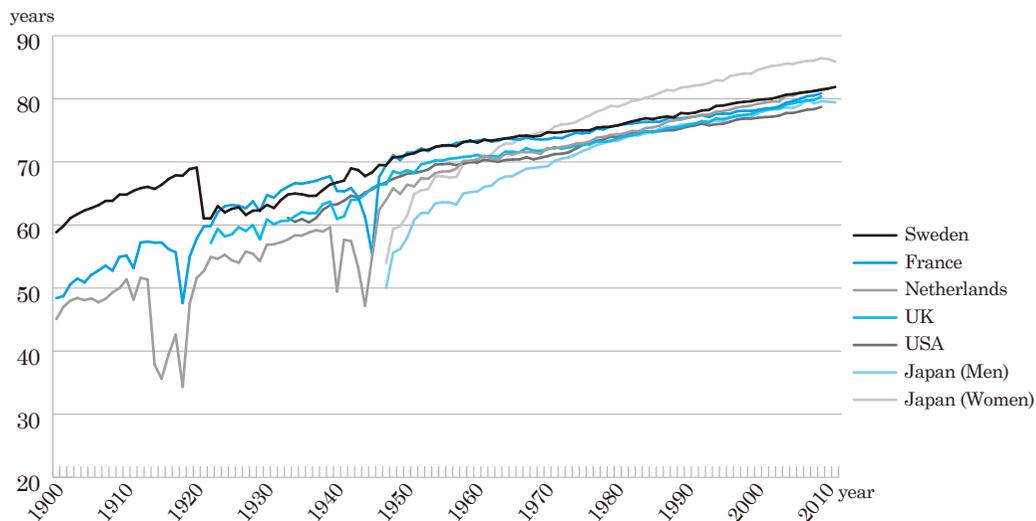
In the beginning of the 20th century, starting with Sweden, many Western countries broke the 50-year average life expectancy barrier one after another. The average life expectancy for Japanese people then was only 43 years for men and 44 years for women. In 1947, a half-century after Western nations, the average life expectancy for Japanese finally exceeded 50 years. One of the reasons for the shorter life was nutrition; their main diet consisted of only rice, soy products, and small amount of pickles which lacked animal protein and fat.

After World War II, Japanese people started to eat less rice and consume more animal foods such as dairy products and meat; consequently the mortality rate by cerebrovascular disease dropped drastically and the average life expectancy increased dramatically. In the 1980s, 50% of the entire protein intake was from animals and the average life expectancy for Japanese people finally became the world's longest in 1985.(5-1) (5-2)

On the other hand, in Western countries, although the mortality rate by cerebrovascular disease has decreased, ischemic heart diseases as represented by myocardial infarction increased drastically after World War II due to the excess intake of total calories and fat, which plateaued the average life expectancy.

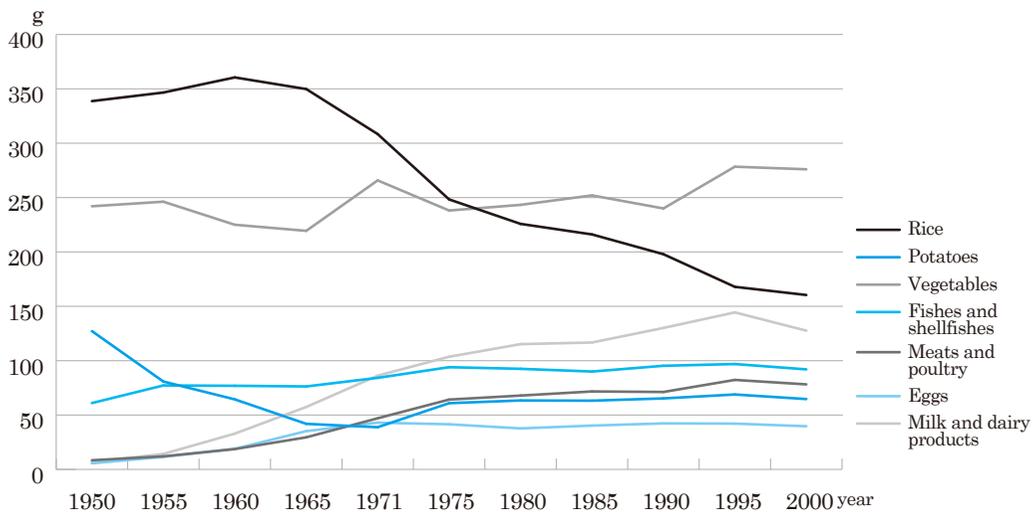
Japan became the country with the highest life expectancy in the world because westernization of their diet did not go too far and they have kept a well-balanced diet among fish, meat, milk, eggs and soy bean without increasing total caloric intake.

5-1 Life expectancy at birth by country



Source: University of California, Berkeley and Max Planck Institute for Demographic Research, *Human Mortality Database*, Japan: Ministry of Health, Labour and Welfare, *Abridged Life Table*

5-2 Nutrition Consumption by food group in Japan (1950-2000)



Source: Ministry of Health, Labour and Welfare, *National Health and Nutrition Survey*

Dietary Reference Intakes for Older People

In the 21st century, the idea has been widely accepted that the Body Mass Index (BMI)^{*3} is best at 22 to prevent metabolic syndrome. Actually, however, various study results suggest that the level around 24 to 27, seeming a little over-weight, is the best BMI for older people to live longer. It was also found that the higher the BMI index, the stronger the immune system grows against infection, and the ageing process will not accelerate.

Although total calorie required for old people is lower than that for younger people, staple nutrients such as protein are almost equally required for old people and for younger people. Regarding the three major nutrients, the recommended amounts of protein for men is 60g and 50g for women, which are the same amounts for people over 18 years old. For all people over 30, the percentage of energy intake from fat should be 20-25%. Similarly the proportion of energy intake from carbohydrates is 50-70% in all the age groups.(5-3) It is said the best ratio for animal protein and vegetable protein is 1:1.

The average nutrient intakes for those aged 70 and over in 2010 was sufficient; 1,720 kcal for energy, 64.3g for protein, of which 48.7% is animal protein, 22.5% for calories from fat and 62.5% for calories from carbohydrates.^{*4}

5-3 Reference Diretary Intakes for The Japanese

Age	Estimated Energy Requirement (kcal/day)		Recommended Protein Intake (g/day)		Target Amount (%) for Calories from Fat (Note 1)	Target Amount (%) for Calories from Carbohydrates (Note 2)
	Men	Women	Men	Women		
18-29	2,650	1,950	60	50	20-30	50-70
30-49	2,650	2,000	60	50	20-25	50-70
50-69	2,450	1,950	60	50	20-25	50-70
70+	2,200	1,700	60	50	20-25	50-70

*For people at physical activity level II (normal)

(Note:1) % of energy intake from fat = $\text{Fat(g)} \times 9 / \text{Total energy(kcal)} \times 100$

(Note:2) % of energy intake from carbohydrates = $\text{Carbohydrate(g)} \times 4 / \text{Total energy(kcal)} \times 100$

Source:Ministry of Health, Labour and Welfare, *Diretary Reference Intakes for Japanese, 2010*

*3 Underweight: <18.5, Normal weight: 18.5-24.9, Overweight: 25-29.9, Obesity: ≥ 30

*4 Ministry of Health, Labour and Welfare, *National Nutrition Survey, 2010*

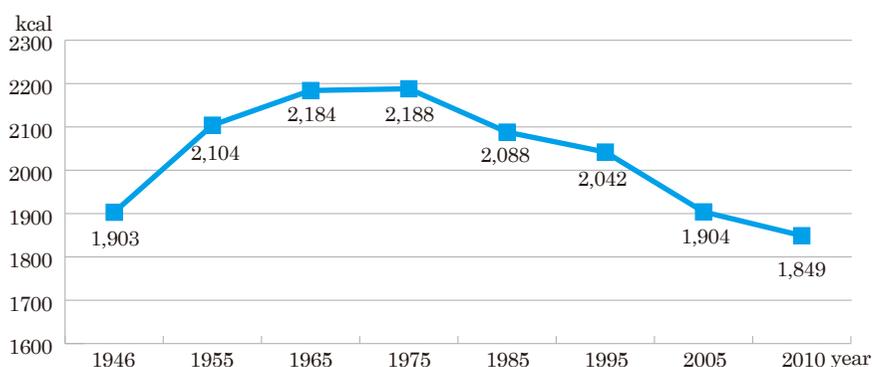
Declining Nutrient Intakes among Japanese People

In 2010, the energy intake of the Japanese people was lower than in 1946, right after World War II. It has always been low (about 2,000 kcal per day) and it never increased during the 100 years of the 20th century, but it is even decreasing at the moment.(5-4)

In comparison to the nutrient consumption of Western nations, the Japanese consume less for every category; energy, protein and fat. In particular, energy consumption is around the world average which includes developing countries. (5-5) Similar to South Korea, the obesity rate among Japanese adults is exceedingly low, at 4.3% for men and 3.5% for women. This is 1/3 of France, 1/8 of the U.K. and 1/10 of the U.S.(5-6)

This low obesity rate is probably due to the excessive measures against metabolic syndrome, the preference for skinny bodies, and the influence of commercialism of supplements business, etc. There has been a decrease in Japanese consumption of milk and eggs as well as rice which used to be the main resource of energy. The key reason behind the decrease may be that they are worried those contain too many calories or too much cholesterol.

5-4 Trend in Energy Consumption (1946-2010)(kcal/day)



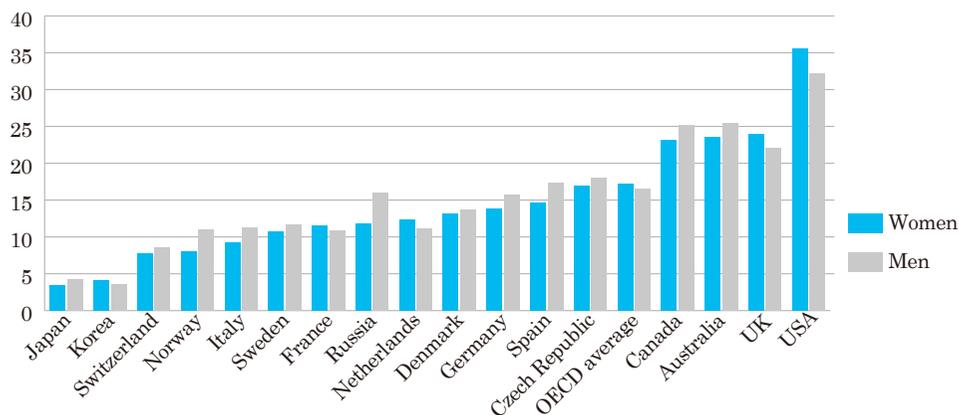
Source: Ministry of Health, Labour and Welfare, *National Nutrition Survey*

5-5 Dietary Energy, Protein and Fat Consumption (2006-2008)

Countries	Energy(kcal)	Protein(g)	Fat(g)
Japan	2,800	92	90
USA	3,750	114	161
France	3,530	113	164
UK	3,450	104	145
Sweden	3,110	107	123
Korea	3,040	88	86
World	2,720	85	79

Source: FAO, Statistics Division

5-6 Obesity, percentage of women, men and adult populations with BMI ≥ 30 kg/m² (2009)



Source: *OECD Health Data 2011*

In the last 15 years, the nutrient intakes have tended to decrease in all age groups however, changes in 70 years and over have been small. (5-7)

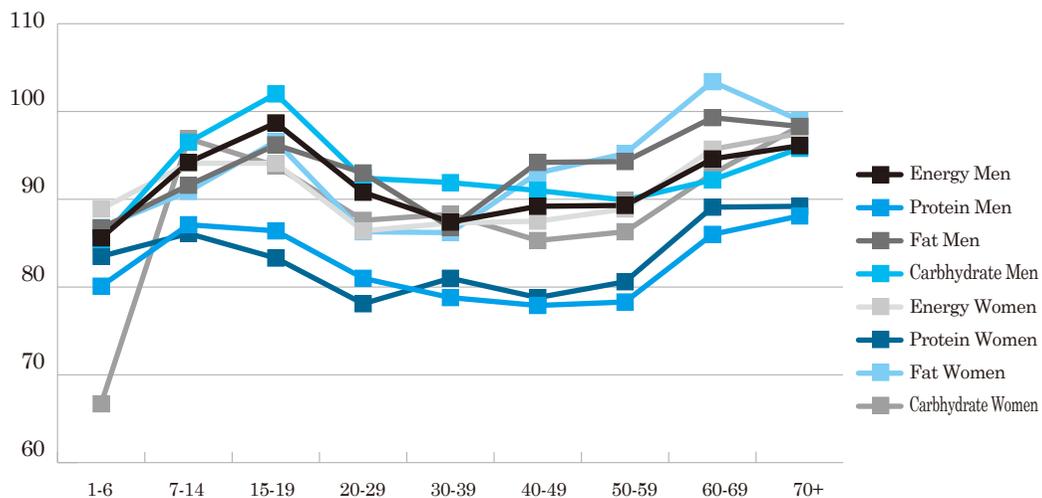
The decrease in the rate for energy consumption stands out among children between 1 through 6 years old and adults between 20 through 59 years old. Trying to prevent metabolic syndrome is the reason for the decrease in nutrient intakes among adults and the middle aged.

Regarding fat, according to the research on Japanese-Americans in Hawaii, the total mortality rate and the mortality rate from stroke increased significantly when the consumption of fat was less than 40 grams.*5

Regarding animal products, there is not marked decrease in consumption of meat but there have been clear drops in fish/shellfish, milk/dairy products, and egg consumption.(5-8) The intake of milk/dairy products especially increased after World War II and contributed to Japanese people's improved physique and pushed up the average life expectancy. Nonetheless consumption of milk/dairy products was still less than 1/4 of Western countries. Japanese people should be warned about the further decrease in dairy products consumption over the past 15 years, and it is striking Japanese women are already at high risk for osteoporosis.

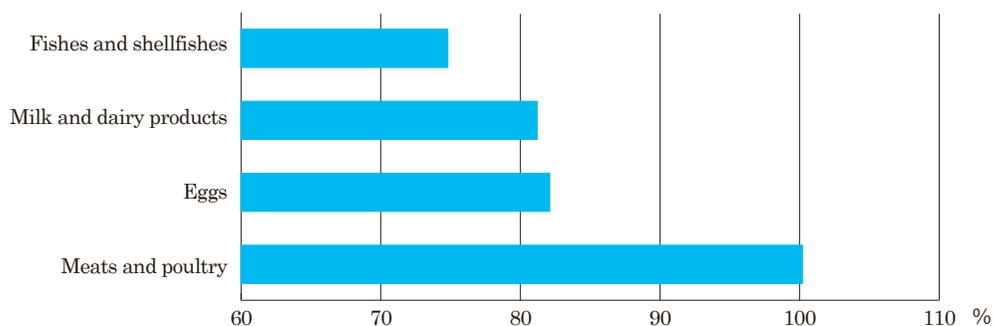
*5 McGee D et al: International Journal of Epidemiology 14: 97, 1985

5-7 Daily Nutritional Intakes per Person by Age Group in 2010 Comparisons to 1995 (Data in 1995=100)



Source: Ministry of Health, Labour and Welfare, *National Nutrition Survey*

5-8 Daily Animal Protein Intakes per Person in 2010: Comparison to 1995 (Data in 1995=100)



Source: Ministry of Health, Labour and Welfare, *National Nutrition Survey*

Conclusion

Declining Nutrient Intakes among Japanese people have also been deleterious for younger generations' health. Strangely enough, however, this decline is not seen as much among older people aged 70+. This is probably due to their wisdom accumulated over the years and the result of raising public awareness by researchers and activists.

In order to pass healthy longevity they have accomplished to the next generation, older people are strongly encouraged to become leaders in educating younger generations about the importance of appropriate eating habits and nutrition intake, as a part of their social contribution.

Dietary Guideline to Prevent Malnutrition

1. Have a balanced diet of 3 meals a day and never miss a meal.
2. Consume enough animal protein.
3. Consume the same amount of fish and meat.
4. Eat various kinds of meat.
5. Consume enough fat.
6. Drink more than 200ml of milk every day.
7. Eat various kinds of vegetables every day such as green and yellow vegetables as well as root vegetables. You can eat more amounts by cooking them.
8. When you have little appetite, eat side dishes first and skip rice.
9. Be familiar with how to cook and preserve foods.
10. Use enough vinegar, spices, and herbs in cooking.
11. Enjoy eating by using adequate seasoning.
12. Try various dishes; Japanese, Chinese or Western.
13. Have occasions to dine together with other people.
14. Have dentures checked regularly to maintain good chewing.
15. Be open to incorporate health information.

Source: Tokyo Metropolitan Institute of Gerontology