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Editorial

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Beneficial Effect of Retuning to "Japan Diet" for the Japanese

Shinji Yokoyama

Institute for Biological Function, Chubu University, Kasugai, Japan

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Chizuko Maruyama and her colleagues reported the results of taking the "Japan Diet" for 6 weeks as focusing on changes of fatty acid composition in plasma lipoprotein phospholipid in 34 Japanese males[1]. A significant finding was the increase of (n-3) fatty acids and the decease of (n-6)fatty acids, likely caused by the increase in fish intake and the decrease in meat intake. Increase in delta-5-desaturase was implicated along with the increase in fish intake as being indicated by the increase of C20:4(n-6)/C20:3(n-6) ratio. Nutritional intervention is one of the most difficult clinical trials and it is more so in Japan owing to their "already healthy" eating habit as the baseline. Thus, this work should be praised as one of such efforts by Japanese nutritional scientists.

A substantial part of the background for low prevalence of atherosclerotic vascular diseases in Japan is believed to be associated with environmental factors, and we perhaps all agree that their unique food composition is considered as the top reason, which is high fish and low meat content. According to National Health & Nutrition Survey of Japan (NHNSJ)[2], drastic changes in eating habits of the Japanese took place after the World War II primarily by a marked increase in fat intake along with a moderate increase in protein intake, which were seemingly caused by the increase of meat, eggs, and dairy products (**Fig. 1**). The changes, however, reached saturation and more or less stabilized by the late seventies. Total calorie intake has been rather on the decrease because of the decrease in carbohydrate intake thereafter. Fish intake has been constant throughout these periods so that the major changes in animal protein sources appears as fish/meat ratio. Food and Agriculture Organization of United Nations Statistics (FAOSTAT) food consumption data, however, show that this ratio of the Japanese is still markedly high even after these post-war changes

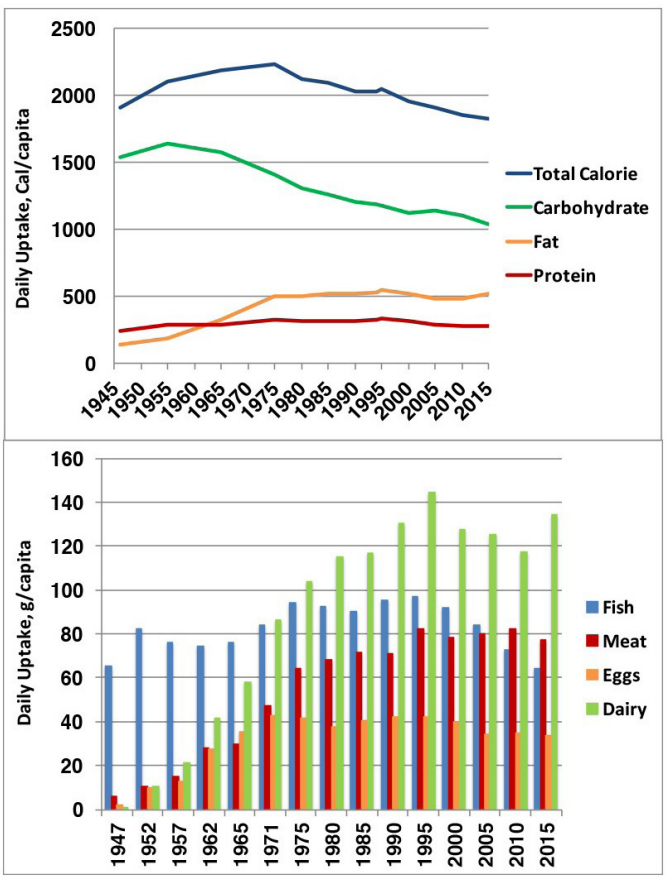

Fig. 1. Change of nutritional parameters of Japanese in the post World War II period

The data were obtained from NHNSJ published by Ministry of Health, Labor and Welfare Japan.

even among other fish-eating countries (**Table 1**)[3]. This trend must have been reflected in the high levels of body (n-3)fatty acid in Japanese[4, 5]. However, it seems that insidious but very significant change is ongoing in the eating habit of Japanese in the most recent decades. Fish/meat ratio in the FAOSTAT data

Address for correspondence: Shinji Yokoyama, Institute for Biological Function, Chubu University, Kasugai 487-8501, Japan
E-mail: syokoyam@isc.chubu.ac.jp

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Table 1. Fish/meat ratio in food consumption statistics (kcal/capita/day) estimated according to FAOSTAT (Food and Agriculture Organization of United Nations Statistics)[3]

Country	2003-2005	2009-2011
Norway	0.29	0.30
Spain	0.21	0.23
Portugal	0.22	0.21
France	0.16	0.15
Italy	0.13	0.12
USA	0.08	0.09
Korea	0.45	0.44
Japan	0.99	0.77

decreased from 0.99 in 2003–2005 to 0.77 in 2009–2011 on kcal/capita/day basis while the ratio in other countries stayed the same or slightly increased (**Table 1**)[3]. This finding is confirmed in more detail in the NHNSJ data[2]. As shown in **Fig. 2**, the age profile of fish and meat intake significantly changed since the year 2000, and was characterized by a sharp drop in fish intake along with an increase in meat intake. The trend is more prominent in young generations, but the overall change is more rapid than generation turnover.

The major changes in food intake by the nutritional intervention by Maruyama and her colleagues were said to be achieved by the increase in fish intake from 49 g/day to 98 g/day and the decrease in meat intake from 143.3 g/day to 95.4 g/day in the study group of ages 30-49[1]. According to **Fig. 2**, this change is equivalent to bringing back the Japanese eating habit of this age group only from 2015 to 2000. In other words, Japanese food environment has been drifted toward the "atherogenic" direction very rapidly in the past 15 years with respect to fish/meat ratio, which must have brought a significant change in fatty acid composition in our body. Switching to "Japanese Diet" is thus already beneficial even for Japanese.

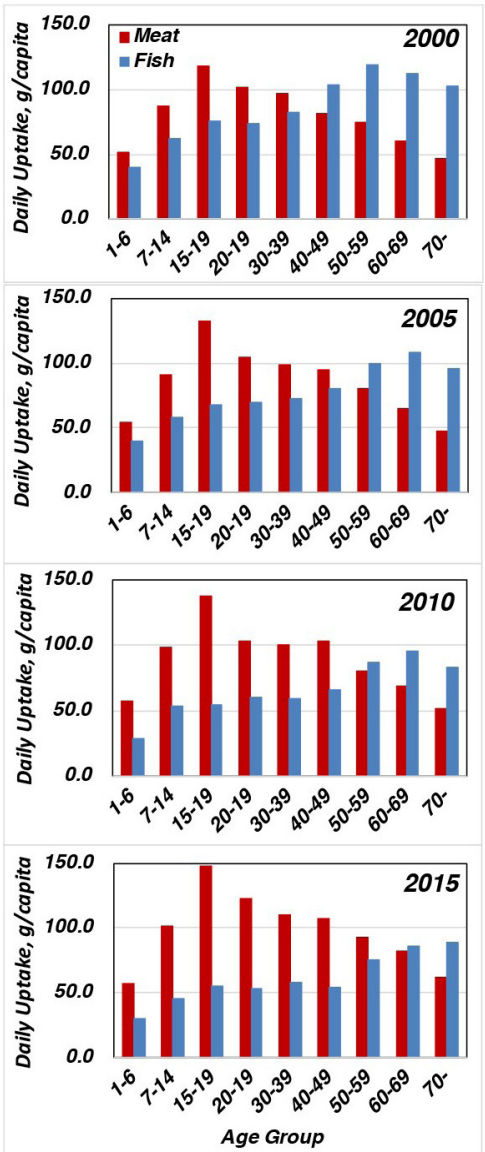

Fig. 2. Age profile of fish and meat intake of Japanese in the year 2000, 2005, 2010 and 2015

The data were obtained from NHNSJ published by Ministry of Health, Labor and Welfare Japan.

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3) http://www.fao.org/en/#data
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