

## Review

# School lunch program for health promotion among children in Japan

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In Japan, the present school lunch program has been implemented under the "School Lunch Act" enacted in 1954. The main purpose of the school lunch program is to promote healthy development of the minds and bodies of school children. Later, "The School Lunch Act" was revised in 2008 and its aim was changed to "promoting *Shokuiku*". As of May 2009, approximately 10 million school children participate in the school lunch program. This program itself is an educational activity. School children are responsible for serving lunch and clearing the dishes. They could also learn proper manners, by having meals together with classmates. Furthermore, understanding of balanced diet and food culture can be enhanced through learning the menu of each meal. Recently, as eating disorders and obesity increase among adults and school children, there is rising concern on development of lifestyle-related diseases. Under this circumstance, the Basic Law on *Shokuiku* was enacted in 2005. Besides, in order to enhance *Shokuiku* to school children, the Ministry of Education, Culture, Sports, Science and Technology established the Diet and Nutrition Teacher System in April 2007. It is reported that, in those schools with Diet and Nutrition Teachers, a positive impact has been observed in terms of awareness and interest in diet among teachers and guardians. It is also reported that proportion of children skipping breakfast has decreased, and quality of life has been improved. In this way, the Japanese school lunch program system is essential for fostering healthy mind and bodies for the next generation.

**Key Words:** school lunch program, The School Lunch Act, *Shokuiku*, Diet and Nutrition Teacher, Japan

## INTRODUCTION

As of May 2009, over 10 million schoolchildren in 32,400 schools (94.3% of all elementary schools, junior high schools, special needs schools, and evening high schools in Japan) participate in the school lunch program, according to the Ministry of Education, Culture, Sports, Science and Technology (MEXT).<sup>1</sup>

Japanese school lunch program aims to promote healthy mental and physical development of school children, and to contribute to improvement of their dietary habits by providing balanced meals. Not only serving nutritional food, school lunch program also serves as an important educational method for school children to acquire proper dietary habits and its knowledge, and a sense of gratitude in children. School children are responsible for arranging and cleaning the tables and serving meals in their classrooms. They could also learn proper mealtime greetings and manners, by having meals together with classmates. Furthermore, understanding of balanced nutrition, food culture and history can be enhanced through learning the menu of each meal.

## HISTORY OF JAPANESE SCHOOL LUNCH

The earliest Japanese school lunch program was initiated in a school in Yamagata prefecture in 1889. The monks who built the local school began offering rice balls, grilled fish and pickles to children from poor families.

This idea spread across the country, though it was temporarily suspended during the food shortages of World War II (WWII). It was reinstated in December of 1947 with the aid by Licensed Agency for Relief in Asia (LARA), United Nation's International Children Energy Fund (UNICEF), and other organizations. Through their activities, approximately 2.9 million children benefited from school lunch programs in 1947. The School Lunch Act was enacted in 1954, officially making school lunch as a part of education system in Japan with the aim to enrich school life and promoting a spirit of cooperation by instilling proper dietary habits and its knowledge. Later, this system expanded to all the Compulsory Education Schools in 1956.

Following the WWII, bread was the staple food of school lunch over two decades. After which, they officially introduced rice in school lunch in 1976.

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Manuscript accepted December 12, 2011.

**Table 1.** Implementation of school lunch with rice<sup>2</sup>

	2009	2008
Number of Schools	30,958	31,094
Executing Rate	99.9%	99.9%
Average frequency (per week)	3.2	3.1

They aimed to foster ideal dietary habits among school children by introducing rice in school lunch, as rice is basic traditional food in Japan. Besides, there was increasing effort to incorporate locally produced ingredients into school lunch. The use of local ingredients would ensure freshness, and also play a vital role in food education fostering the sense of links with the local community and appreciation for foods. Under this movement, they came to recognize importance of rice, rather than bread from western diets. Nowadays, rice is served around three times a week in school lunch (Table 1).<sup>2</sup>

### CURRENT APPROACHES

Recently, as eating disorders such as anorexia and obesity increase among school children, there is a rising concern of development of lifestyle-related diseases. In order to sort out these problems, the Basic Law on *Shokuiku* (*Food and Nutrition Education*) was enacted in 2005. Under this law, *Shokuiku* is defined as acquisition of knowledge about food and nutrition, as well as the ability to make appropriate food choices through various experience related to food, in order to develop people in the ability to practice a healthy diet.<sup>3</sup> Registered dietitians and dietitians have been playing important roles to promote *Shokuiku* program in various settings. And, in order to enhance *Shokuiku* in particular at school setting, the MEXT established the Diet and Nutrition Teacher System in 2007. This system aims to promote the placement of Diet and Nutrition Teachers in public elementary schools and junior high schools in accordance with the needs of local communities. Having both educational qualifications and nutritional expertise, Diet and Nutrition Teachers supervise school lunch programs, formulate menus, and ensure hygiene standards. Besides, in cooperation with homeroom teachers, they provide extensive instruction in class as well as homeroom activities. They also deal with dietary education issues in collaboration with families, teachers, school doctors or dentists and other nutrition experts (e.g. registered dietitian, dietitian). In

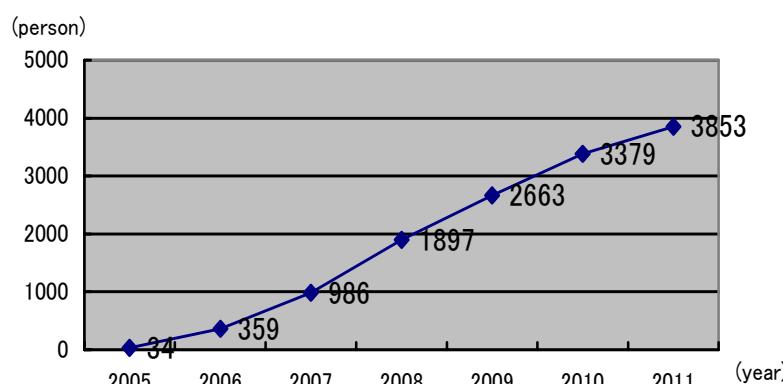
addition, as a nutrition expert, they provide tailor-made guidance for children and families on obesity, faddy eating, food allergies and other important issues on diets. As of April 2011, 3,853 Diet and Nutrition Teachers are currently assigned in schools all over the country (Figure 1).<sup>2</sup> In these schools, several positive impacts have been reported in terms of health and dietary habits among school children, such as a decrease in the number of absent students, an increase of the number of children who eat breakfast, a reduced amount of leftover at lunch.<sup>4-6</sup>

However, there still remains a problem of manpower shortage; only about 12% of schools have Diet and Nutrition Teachers. MEXT recognizes the importance of this problem, and takes it as primary task to increase Diet and Nutrition Teachers, so as to promote *Shokuiku* effectively.

### THE REVISED SCHOOL LUNCH ACT

In 2008, the School Lunch Act was revised to change its aim from "improvement of dietary habits" to "promotion of *Shokuiku*". There are four main goals: 1) develop a proper understanding of diets and healthy eating habits in daily life; 2) enrich school life and nurture sociability; 3) aim at rationalization of diets, nutritional improvement and health promotion; and 4) enhance a sound understanding on food production, distribution and consumption. The act also emphasizes three points in terms of *Shokuiku*: 1) nourish a right judgment on food; 2) foster an understanding of traditional food culture; and 3) cultivate an attitude to respect life and nature through food. Other highlights of this act include "School Lunch Practice Standard" and "School Lunch Hygiene Control Standard". The former stipulates proper management of school lunch including reference intake values of energy and each nutrient (Table 2).<sup>7</sup> Application of these values could be flexible, considering health situation and daily activity of each children and local circumstances. The latter regulates hygiene and preparation, and distribution, ensuring school lunch is provided with adequate nutrients and under proper hygiene management processes.

According to the revised "School Lunch Act", municipalities bear the costs of facilities and manpower (e.g. cooks), whereas guardians cover the cost of ingredients. The average monthly fee for school lunch per student, which his/her guardians would cover, is approximately 4,000 yen.<sup>8</sup> The places for school lunch preparation can be largely divided into two types; one is the school's own

**Figure 1.** Assignment status of Diet and Nutrition Teachers (April 2011)<sup>2</sup>

**Table 2.** Reference intake values for energy and each nutrient for school lunch (October 2008)<sup>7</sup>

	Nutrient contents			
	6-7 yrs	8-9 yrs	10-11 yrs	12-14 yrs
Energy (kcal)	560	660	770	850
Protein (g)	16	20	25	28
Range <sup>3</sup>	10-25	13-28	17-30	19-35
Fat (%)		20-30% of the total energy from school lunch		
Na (sodium chloride equivalent) (g)	Less than 2	Less than 2.5	Less than 3	Less than 3
Ca (mg)	300	350	400	420
Target value <sup>4</sup>	320	380	480	470
Fe (mg)	3	3	4	4
Vitamin A ( $\mu$ gRE)	130	140	170	210
Range <sup>3</sup>	130-390	140-420	170-510	210-630
Vitamin B-1 (mg)	0.4	0.4	0.5	0.6
Vitamin B-2 (mg)	0.4	0.5	0.5	0.6
Vitamin C (mg)	20	23	26	33
Dietary fiber (g)	5.5	6.0	6.5	7.5

\*1. Other than those above, we need to satisfy the suggested amount of each under mentioned nutrient: Mg 70 mg (6-7 yrs), 80 mg (8-9 yrs), 110 mg (10-11 yrs), 140 mg (12-14 yrs); Zn 2 mg (6-7 yrs), 2 mg (8-9 yrs), 3 mg (10-11 yrs), 3 mg (12-14 yrs).

2. This shows the average of ideal amount of each nutrient. It shall be flexibly applied according to the health and daily activity of each student and local circumstances.

3. Range: Ideal if one intakes a nutrient within the defined amount

4. Target Value: Ideal amount of intakes

kitchen (43.4%), and the other is a food service center that prepare and deliver lunch to multiple schools (54.8%).<sup>1</sup>

## TOWARDS THE FUTURE

In recent years, there have been dramatic changes in children's lifestyle and the environment surrounding them. Diet-related problems including skipping breakfast, obesity, and anorexia have been increasing among school children. The Japanese school lunch program is essential tools to solve these problems and to foster healthy minds and bodies among school children. It emphasizes importance of diet, its role to maintain mental and physical health, selection of safe food with high quality, acquisition of spirit to appreciate foods and social manners. Diet and Nutrition Teachers who have specialized experiences and knowledge are responsible with the future of school lunch programs in Japan. It is therefore necessary to increase the number of schools with Diet and Nutrition Teachers so as to implement effective school lunch programs.

## AUTHOR DISCLOSURE

Tanaka M and Miyoshi M, no conflicts of interest.

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## 日本學童午餐健康促進計畫

目前日本已根據 1954 年的學校午餐法案，執行學校午餐計畫。學校午餐計畫的主要目的為促進孩童心智及體位健康發展。稍後學校午餐法案在 2008 年根據促進飲食營養教育(Shokuiku)之目的而改版。在 2009 年 9 月，大約一千萬名學童參與學校午餐計畫。此計畫本身是一種教育活動，孩童必須負責午餐服務及清潔餐具，同時讓孩童與同儕共進午餐，學習適當的用餐禮儀。此外，也透過每一餐的菜單，加強孩童了解均衡飲食及食物文化的重要性。近年來，成人與孩童飲食失調及肥胖的情況有增加的情況，因此與生活型態相關疾病的發生越來越受到關切。這樣的情況下，日本於 2005 年制定飲食與營養教育基本法案。更為了加強學校孩童飲食營養教育，文部科學省在 2007 年 4 月建立飲食與營養教師系統。根據報告，學校有飲食與營養教師後，提升了學校教師與孩童監護者對飲食的注意及興趣。另外也發現，不吃早餐的孩童比例有下降的趨勢，其生活品質也得到改善。因此，日本學校午餐計畫系統被認為有益於下一代健康的心智及體位發展。

**關鍵字：**學校午餐計畫、學校午餐法案、飲食營養教育、飲食與營養教師、日本