Characteristics of Low-Sodium Diets Found in Cooking Classes following the Great East Japan Earthquake

Yuri Kinoshita [1]   Kanako Sato [2]   Yuka Miura [3]   Natsumi Ishii [4]   Kayako Sakisaka [5]   Yoshiharu Fukuda [6]

[1] Tohoku Seikatsu Bunka Junior College   [2] Chukyo Gakuin Junior College   [3] The Ajinomoto Foundation
[4] Kashinoki Internal Medicine Clinic   [5] Kaichi International University   [6] Teikyo University Graduate School of Public Health

Objectives

Back Ground
- The Great East Japan Earthquake (GEJE) struck in March 2011, causing an immense earthquake and tsunami that killed 19,729 people and forced more than 470,000 to evacuate.
- Furthermore, the Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Plant (F1NPP) accident displaced 165,000 residents, 35,000 of whom are still unable to return home (as of April 2022) .

Outline of Project
- The "Fureai Red Apron Project" aims to support the mental and physical health of victims of the 2011 GEJE.
- Since 2011, The Ajinomoto Group, The Ajinomoto Foundation (TAF) and local partners has held 3,771 cooking classes in the Tohoku region (Iwate, Miyagi, and Fukushima Prefecture) with 54,434 participants over eight and a half years.
- The hands-on health and nutrition seminars "cook together and eat together" helped to improve the quality of life of residents and support the reconstruction of community.

The Study Aims
- In a survey targeting participants during 2020, approximately 90% of the respondents were more conscious of reducing their salt intake .
- This study aims to reveal the characteristics of low-sodium diets by analyzing the classes' recipes.

Materials & Methods
- Recipes from 3,588 cooking classes were analyzed based on the project's activity reports from 2012 to 2020.
- The analysis calculated the percentage of single-dish meals that contained 25 foods (other than seasonings) that supported low-sodium diets[1] and extracted ideas to reduce the use of salt during cooking.

Results
1. The number of menu creations was 625 by local partners and 2,963 by TAF. The percentage created by TAF was 24.9% in 2012, and more than 90% since 2016.
2. Four hundred and three recipes out of the 1,435 single-dish meals had known ingredients and were devised by TAF, which collectively used 254 different foods 62,221 times.
3. In descending order, the most frequently used low-sodium foods were mushrooms (22.6%), sesame oil (20.3%), black pepper (19.6%), ginger (17.6%), and sesame (15.9%).
4. The most frequently used foods in the following food groups were: vegetables: ginger 1,500 times, algae: wakame 485 times, and seasoning spices: "mentsuyu" (soy sauce and dashi) 2,400 times.
5. Ideas found in cooking included
   - applying potato starch on ingredients to moisturize and entangle the seasoning liquid
   - taking advantage of the ingredients' umami, sourness, and scent
   - baking to give the food a roasted fragrance
   - adding vinegar, red pepper and mustard just before eating
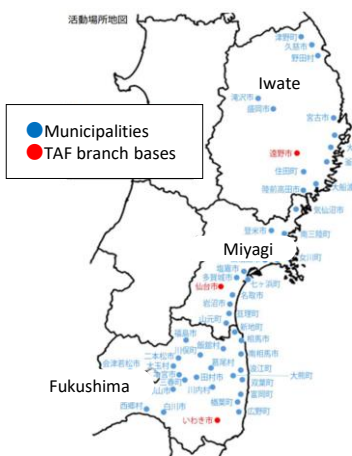6. The mean (SD) sodium intake per meal was 2.54 (0.50) grams.

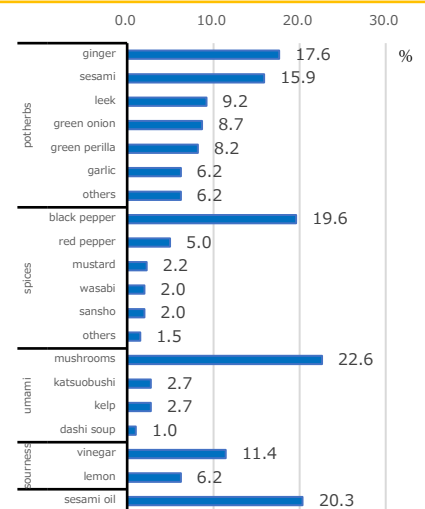
Fig 1 The areas where cooking classes were held.

- Municipalities
- TAF branch bases

Iwate

Miyagi

Fukushima

Fig 2 Scenery of cooking classes.

Fig 3 The ratio of using low-sodium foods

	food	%
potherbs	ginger	17.6
	sesame	15.9
	leek	9.2
	green onion	8.7
	green perilla	8.2
	garlic	6.2
	others	6.2
spices	black pepper	19.6
	red pepper	5.0
	mustard	2.2
	wasabi	2.0
	sansho	2.0
	others	1.5
umami	mushrooms	22.6
	katsuobushi	2.7
	kelp	2.7
	dashi soup	1.0
sourness	vinegar	11.4
	lemon	6.2
	sesame oil	20.3

Conclusion
The class recipes incorporated ingredients and ideas during cooking procedures that promoted low-sodium diets. The classes may have increased participants' awareness toward reducing sodium intake by preparing and cooking recipes that were tasty and required fewer seasonings.

Reference : [1] Japanese Society of Nephrology: Gridline Manual of Chronic Kidney Disease Lifestyle and Dietary for Doctors and Comedics. Toyo Igakusya. 2015.