The Japanese Food Guide Spinning Top and mortality: the evidence and application to nutritional education

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Japan is a sovereign island nation in East Asia.

Now it is raining frequently.

The population of 127 million is the world's tenth largest.

Approximately 9.1 million people live in the city of Tokyo, the capital of Japan.
Japanese culture
Washoku was recognized by UNESCO as an intangible cultural heritage in 2013.

“Respect for nature”

1. Various fresh ingredients and using their natural tastes
2. Well-balanced and healthy diets
3. Emphasis of the beauty of nature in the presentation
4. Connecting to annual events
Foreigners & Washoku

Number of Japanese restaurants on abroad

- 2006: 24,000
- 2015: 89,000

Ranking of foods that foreigners like

- Japanese
- Italian
- Chinese
- Korean
- American
- French
- Thai
- India

Data from MAFF 2015 and JETRO 2014
**Ichiju Sansai**

“One Soup and Three Dishes”

- In addition to rice and pickles, there should be one soup (*ichiju*) and at least three other dishes (*sansai*).

- The defining flavor element in washoku, is dashi stock, rich in *umami* (sixth taste).
Mediterranean diet

- It was recognized by UNESCO as an intangible cultural heritage in 2010.
- It involves a set of skills, knowledge, rituals, symbols and traditions concerning crops, harvesting, fishing, animal husbandry, conservation, processing, cooking, and particularly the sharing and consumption of food.
- It emphasizes values of hospitality, neighbourliness, intercultural dialogue and creativity, and a way of life guided by respect for diversity.
Similarities between Japan and Spain

Food culture

Fish intake

School lunches

Spirit of Shokuiku
Similarities between Japan and Spain

Food culture

Fish intake

School lunches

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Similarities between Japan and Spain

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School lunches

Spirit of Shokuiku
Trend of intake of foods containing animal products in Japan

Data from National Health and Nutrition Survey in Japan
High amount of fish intake

The State of World Fisheries and Aquaculture 2016
Ranking of Prevalence of diabetes

1. China - 109.6 million
2. India - 69.2 million
3. United States of America - 29.3 million
4. Brazil - 14.3 million
5. Russian Federation - 12.1 million
6. Mexico - 11.5 million
7. Indonesia - 10.0 million
8. Egypt - 7.8 million
9. Japan - 7.2 million
10. Bangladesh - 7.1 million
The association between fish intake and type 2 diabetes in Japan

<table>
<thead>
<tr>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odds ratios</td>
<td></td>
</tr>
<tr>
<td>Q1 Low 1.00</td>
<td>Q1 Low 1.00</td>
</tr>
<tr>
<td>Q2 0.84</td>
<td>Q2 1.06</td>
</tr>
<tr>
<td>Q3 0.80</td>
<td>Q3 1.04</td>
</tr>
<tr>
<td>Q4 0.73</td>
<td>Q4 1.01</td>
</tr>
</tbody>
</table>

P for trend = 0.04
P for trend = 0.96

Covariates: age, area, BMI, smoking status, alcohol drinking status, physical activity, parental history of diabetes, history of hypertension, coffee consumption, calcium intake, magnesium intake, dietary fiber intake, vegetable intake, fruit intake, rice intake, and total energy intake

The association between fish intake and type 2 diabetes in Japanese men

Meta-analysis of the association between fish intake and type 2 diabetes

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Risk ratio IV, fixed, 95% CI</th>
<th>Risk ratio IV, fixed, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5.13.1 Oily fish</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nanri et al., 2011 [12]</td>
<td>0.86 [0.71, 1.04]</td>
<td></td>
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<tr>
<td>Patel et al., 2009 [16]</td>
<td>0.94 [0.78, 1.13]</td>
<td></td>
</tr>
<tr>
<td>Patel et al., 2012 [21]</td>
<td>0.87 [0.78, 0.97]</td>
<td></td>
</tr>
<tr>
<td>Van Woudenbergh, 2009 [18]</td>
<td>0.99 [0.71, 1.38]</td>
<td></td>
</tr>
<tr>
<td><strong>Oily fish</strong></td>
<td><strong>0.89 (0.82-0.96)</strong></td>
<td></td>
</tr>
<tr>
<td>Test for overall effect:</td>
<td>( Z = 2.84 ) (( P = 0.005 ))</td>
<td></td>
</tr>
<tr>
<td><strong>5.13.2 Lean fish</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nanri et al., 2011 [12]</td>
<td>1.04 [0.85, 1.27]</td>
<td></td>
</tr>
<tr>
<td>Patel et al., 2009 [16]</td>
<td>0.87 [0.73, 1.04]</td>
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</tr>
<tr>
<td>Patel et al., 2012 [21]</td>
<td>1.04 [0.88, 1.23]</td>
<td></td>
</tr>
<tr>
<td>Van Woudenbergh, 2009 [18]</td>
<td>1.30 [1.01, 1.67]</td>
<td></td>
</tr>
<tr>
<td><strong>Lean fish</strong></td>
<td><strong>1.02 (0.93-1.12)</strong></td>
<td></td>
</tr>
<tr>
<td>Test for overall effect:</td>
<td>( Z = 0.37 ) (( P = 0.71 ))</td>
<td></td>
</tr>
<tr>
<td><strong>Total fish</strong></td>
<td><strong>0.94 (0.88-1.00)</strong></td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: ( \chi^2 = 12.31, ) df = 7 (( P = 0.09 )); ( I^2 = 43% )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test for overall effect:</td>
<td>( Z = 1.92 ) (( P = 0.06 ))</td>
<td></td>
</tr>
<tr>
<td>Test for subgroup differences: ( \chi^2 = 4.51, ) df = 1 (( P = 0.03 )); ( I^2 = 77.8% )</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Zhang et al. *International Journal of Endocrinology*, 2013
Similarities between Japan and Spain

Food culture

Fish intake

School lunches

Spirit of Shokuiku
School Lunch Programs in Japan

1946
After the World War II, the 3 Ministries of Education, Health and Agricultures recommended a school lunch system, which was supported by Licensed Agency for Relief in Asia.

1949
UNICEF SCHOOL LUNCH began supplying milk to children in school.

1954
School Lunch Act was established.

1976
Rice was officially introduced in school Lunches
(Following the WWII, bread was the staple food of school lunches over two decades)
Reference values for school lunches were defined by Ministry of Education, Culture, Sports, Science and Technology


<table>
<thead>
<tr>
<th></th>
<th>Primary school</th>
<th>Junior high</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6-7 yrs</td>
<td>8-9yrs</td>
</tr>
<tr>
<td>Energy</td>
<td>530kcal</td>
<td>640kcal</td>
</tr>
<tr>
<td>Protein</td>
<td>20g</td>
<td>24g</td>
</tr>
<tr>
<td>Fat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Na (as salt)</td>
<td>&lt; 2g</td>
<td>&lt; 2.5g</td>
</tr>
<tr>
<td>Ca</td>
<td>300mg</td>
<td>350mg</td>
</tr>
<tr>
<td>Fe</td>
<td>2mg</td>
<td>3mg</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>150μgRE</td>
<td>170μgRE</td>
</tr>
<tr>
<td>Vitamin B₁</td>
<td>0.3mg</td>
<td>0.4mg</td>
</tr>
<tr>
<td>Vitamin B₂</td>
<td>0.4mg</td>
<td>0.4mg</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>20mg</td>
<td>20mg</td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>4.0g</td>
<td>5.0g</td>
</tr>
</tbody>
</table>

Cost for school lunch is paid by...

Food cost
⇒ by parents
(4,000yen ≈ €33/month)

Cost for staff and equipment
⇒ by local government

The role of school lunches in Japan

• In pre-war times, school lunches were seen as a form of nutritional supplement for schoolchildren and were *not* counted as part of the school curriculum.

• School lunches are the main component of foods and nutrition education at school, and are considered as the real learning materials..
Spanish cuisine at School Lunches in Japan

- School lunches give opportunities to students to learn about world meals.

- Grilled fish with Gazpacho sauce
- Sopa de ajo
Health and mental issues have been increasing especially in children and adolescents.

Prevalence of overweight in school children in Japan (Boys)

Definitions: Excess body weight > 20% of standard body weight

(Source: School Health Statistics, MEXT-Japan)
Increasing prevalence of obesity especially in middle aged men

National Health and Nutrition Survey, Japan 1976-2004
Prevalence rates of thinness (BMI < 18.5 kg/m²) among young Japanese women significantly increased over the 25-year period.

What’s Shokuiku?
(In Japanese, “Shoku” means diet, “iku” means growth and education)

“Shokuiku” is defined as acquisition of knowledge about food and nutrition and ability to make appropriate food choice through various experiences related to food in order to develop people with the ability to practice a healthy diet.

“Shokuiku” is important for people in all life stages.

“Basic Law on Shokuiku” was enacted in 2005.
Similarities between Japan and Spain

Food culture

Fish intake

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Spirit of Shokuiku
Basic concept of the Basic Law on Shokuiku

1. Promoting people’s health in body and in mind
2. Development of greater appreciation for and understanding of their diets
3. Nationwide, voluntary movements for promotion of Shokuiku
4. Promoting Shokuiku among children
5. Understanding of dietary issues
6. Awareness and appreciation of traditional Japanese food culture as well as food supply/demand situations
7. Appropriate information on food safety
The important **Shokuiku** points change with age

**Childhood – Adolescence**
Expanding food experience

**Infancy**
Developing good eating habits

**Adulthood**
Following a healthy diet to develop the next generation’s dietary life

**Seniorhood**
Using food to pass on food culture, knowledge and experience
Duties on Shokuiku promotion

• Cabinet Office is...
  – in charge of planning, formulation and coordination of *Shokuiku* policy/strategy
  – the leading office to implement *Shokuiku*, in collaboration with
    ○ Ministry of Health, Labour and Welfare
    ○ Ministry of Education, Culture, Sports, Science and Technology
    ○ Ministry of Agriculture, Forestry and Fisheries

From April 2016…
Duties on *Shokuiku* promotion was transferred to MAFF.
Multi-sectoral framework of *Shokuiku* promotion

*Shokuiku* Promotion Office in the Ministry of Agriculture, Forestry and Fisheries
The Basic Plan for Promotion of Shokuiku

- Following enactment of the “Basic Law on Shokuiku”, “Basic Plan for Promotion of Shokuiku” was formulated in March 2006.

Currently, the Third 5-year Plan (2016-2022) has been implemented

- Based on National “Basic Plan for Promotion of Shokuiku”, each prefecture sets “Prefectural Basic Plan for Promotion of Shokuiku”.

- Focusing on the young generation
- Responding to diverse living conditions
- Extension of healthy life span
- Considering circulation of foods
- Passing on food culture
Some Japanese young people have lunch in a toilet cubicle to avoid others
The role of farmers, fishermen and food-related businesses

• Offer opportunities for people to experience a variety of farming-, fishery- and forestry-related activities, in order to enhance their understanding of nature’s benefits and the importance of human activities in food production and distribution.

• Make sincere efforts to promote Shokuiku activities by collaborating with educators and other concerned parties.
Enforcement of Health Promotion Law

Basic Law on Shokuiku

Start “Health Checkup Specifically Programmed against Metabolic Syndrome Followed by Specific Health Counseling”


Japanese Food Guide Spinning Top (2005~)
Jointly established by the Ministry of Health, Labour and Welfare, Ministry of Agriculture, Forestry and Fisheries and Ministry of Education, Culture, Sports, Science and Technology
1. Enjoy your meals.
2. Establish a healthy rhythm by keeping regular hours for meals.
3. Learn your healthy body weight and balance the calories you eat with physical activity.
4. Eat well-balanced meals with staple food (Grain dishes), as well as main and side dishes.
5. Eat enough grains such as rice and other cereals.
6. Combine vegetables, fruits, milk products, beans and fish in your diet.
7. Avoid too much salt and fat.
8. Take advantage of your dietary culture and local food products, while incorporating new and different dishes.
9. Reduce leftovers and waste through proper cooking and storage methods.
10. Deepen the understanding on your diet and assess your daily eating.
Dietary Guidelines  (Partly revised in June 2016)

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What and how much foods should be eaten?

More specific guidelines were required!!
Characteristics of Japanese Food Guide Spinning Top

Jointly developed by the Ministry of Health, Labour and Welfare and Ministry of Agriculture, Forestry and Fisheries in June 2005

2000～2400kcal
For one day

Descending order of intake

5-7 SV Grain dishes
(Rice, Bread, Noodles, and Pasta)

5-6 SV Vegetable dishes

3-5 SV Fish and Meat dishes
(Meat, Fish, Egg and Soy-bean dishes)

2 SV Milk
(Milk and Milk products)

2 SV Fruits

Enjoy snacks, confectionaries and beverages moderately!

“koma”
This illustrates “koma” can be stable only by spinning (=exercise).

Water/tea is put on the axis of “koma”, thereby emphasizing the importance in one’s diet.
Grain dishes

Main ingredients of dishes are rice, bread and noodles

※ 1 SV = equivalent to about 40g of carbohydrate (100g of cooked rice)

5–7 SVs for 2000–2400kcal/day

【Example】

1 SV =
1 small serving of rice
1 rice ball
1 slice of bread
2 table rolls

1.5 SVs =
1 medium serving of rice

2 SVs =
1 udon noodle
1 soba noodle
1 spaghetti
Vegetable dishes

Main ingredients of dishes are vegetables, potatoes, pulses, mushrooms and seaweed as the source of vitamins and minerals.

※ 1 SV = Weight of the main ingredient should be about 70g

5–6 SVs for 2000–2400kcal/day

【Example】

1 SV =
- Lettuce, cucumber and tomato salad
- Vinegared cucumber and seaweed
- Boiled spinach
- Simmered hijiki
- Simmered beans
- Miso soup with many fillings
- Sauteed mushroom

2 SVs =
- Simmered vegetable
- Sauteed vegetable
- Simmered potato
Main ingredients of dishes are meat, fish, egg and soy-bean as the source of protein

※ 1 SV = equivalent to about 6g of protein
( one chicken egg )

3 - 5 SVs for 2000 - 2400kcal

【 Example 】

1 SV =

- tofu
- natto
- Fried egg
- One glass of soy milk

2 SVs =

- Grilled fish
- Fish tempura
- Sashimi

3 SVs =

- Hamburger stake
- Ginger-fried pork
- Deep-fried chicken
Milk and Milk products

Milk, yogurt and Cheese as the source of calcium

※ 1 SV = equivalent to about 100mg of calcium (100ml of milk)

2 SVs for 2000–2400kcal/day

【Example】

1 SV =

½ glass of milk

a piece of cheese

a cup of yogurt

2 SVs =

a bottle of milk (200ml)

1 slice of cheese
Fruits as the source of vitamin C and potassium

※ 1 SV = Weight of the main ingredient should be about 100g

2 SVs for 2000–2400 kcal/day

【Example】

1 SV =

Estimated amount

1 orange ½ apple 1 persimmon ½ pear ½ grape 1 peach

※ vegetable juice and fruits juice (100%) can be counted as half of the amount taken
Snacks, confectionery and beverages

Recommended amount is about **200kcal** per day.

【Estimated amount of 200kcal】
- 3-4 rice crackers
- Small size of strawberry cake
- 200ml of Japanese sake
- 500ml of beer
- A glass (260ml) of wine
- ½ glass (100ml) of distilled spirits

Enjoy snack, confection and beverage moderately!
Recommended daily intake based on the user’s characteristics

<table>
<thead>
<tr>
<th>Energy (kcal)</th>
<th>Grain dishes</th>
<th>Vegetable dishes</th>
<th>Fish and Meat dishes</th>
<th>Milk</th>
<th>Fruits</th>
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<tbody>
<tr>
<td>1400</td>
<td>4~5</td>
<td></td>
<td>3~4</td>
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<td>1600</td>
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<tr>
<td>1800</td>
<td>5~7</td>
<td>5~6</td>
<td>3~5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2000</td>
<td>6~8</td>
<td>6~7</td>
<td>4~6</td>
<td>2~3</td>
<td>2~3</td>
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<td>2200</td>
<td>6~8</td>
<td>6~7</td>
<td>4~6</td>
<td>2~3</td>
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<td>2400</td>
<td>6~8</td>
<td>6~7</td>
<td>4~6</td>
<td>2~3</td>
<td>2~3</td>
</tr>
<tr>
<td>2600</td>
<td>6~8</td>
<td>6~7</td>
<td>4~6</td>
<td>2~3</td>
<td>2~3</td>
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<tr>
<td>2800</td>
<td>6~8</td>
<td>6~7</td>
<td>4~6</td>
<td>2~3</td>
<td>2~3</td>
</tr>
<tr>
<td>3000</td>
<td>6~8</td>
<td>6~7</td>
<td>4~6</td>
<td>2~3</td>
<td>2~3</td>
</tr>
</tbody>
</table>

- 6–9 years male/female
- 10–11 years female
- Low amount of exercise 12–69 years female
- Over 70 years female
- Low amount of exercise over 70 years male
- 10–11 years male
- Low amount of exercise 12–69 years male
- Above average amount of exercise 12–69 years female
- Above average amount of exercise over 70 years male
- Above average amount of exercise 12–69 years male
Food-based dietary guidelines - Spain

- Enjoy a variety of foods.
- Breakfast is an important meal in your diet.
- Eat plenty of cereals, preferably wholegrain.
- Try and eat five portions of fruits and vegetables every day.
- Eat milk and dairy products every day.
- Eat fish two to four times a week.
- Eat small amounts of fat and high-fat foods.
- Use good fats.
- Prefer carbohydrates and fibre-rich foods.
- Limit salt intake to less than 5 g per day.
- Water is the best drink – drink at least 1.5 litres every day.
- Watch your weight and stay active. Do physical activity regularly.
United States

Food Guide Pyramid
1992 USDA released.
2000 Dietary Guidelines for American promoted to use.

MyPyramid
2005 USDA released.
2005 Dietary Guidelines for American was reflected.

MyPlate
2011 USDA released.
2015 Dietary Guidelines for American promoted to use.
Eating Well with Canada’s Food Guide

Recommended Number of Food Guide Servings per Day

<table>
<thead>
<tr>
<th>Age in Years</th>
<th>Girls and Ages</th>
<th>Boys and Ages</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-5</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6-8</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>9-11</td>
<td>7</td>
<td>7</td>
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<td>12-18</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>19-50</td>
<td>8-10</td>
<td>8-10</td>
</tr>
<tr>
<td>51+</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

What is One Food Guide Serving?

- Fresh, frozen or canned vegetables: 122 mL (1/2 cup)
- Leafy vegetables: 250 mL (1 cup)
- Fresh, frozen or canned fruits: 1 fruit or 125 mL (1/2 cup)
- 100% Juice: 125 mL (1/2 cup)
- Bread: 1 slice (35 g)
- Bagel: 1/2 (45 g)
- Flat breads: 1 half or 1/4 tortilla (35 g)
- Cooked rice, bulgur or quinoa: 125 mL (1/2 cup)
- Cereal: 38 g (1/2 cup)
- Canned milk: 120 mL (1/2 cup)
- Fortified soy beverages: 250 mL (1 cup)
- Yogurt: 170 g (6 oz)
- Kefir: 175 mL (6 oz)
- Cheese: 50 g (1 1/2 oz)
- Cooked fish, shellfish, poultry, lean meat: 55 g (1/4 lb) or 125 mL (1/2 cup)
- Cooked legumes: 175 mL (6 oz)
- Tofu: 115 mL (4 oz)
- Eggs: 2 eggs
- Peanut or nut butter: 30 mL (1 1/2 Tbsp)
- Shelled nuts and seeds: 60 mL (1/4 cup)

This chart shows how many Food Guide Servings you need from each of the four Food groups every day.

Tips for Canada’s Food Guide:
- Meet your needs for vitamins, minerals and other nutrients.
- Reduce your risk of obesity, type 2 diabetes, heart disease, certain types of cancer and osteoporosis.
- Contribute to your overall health and vitality.

Oils and Fats:
- Include a small amount (30 to 45 mL or 1 to 3 Tbsp) of unsaturated fat each day. This includes oil used for cooking, salad dressings, margarine and mayonnaise.
- Use vegetable oils such as canola, olive and peanut.
- Choose soft margarines that are free from saturated and trans fats.
- Limit butter, hard margarine, lard and氢化.
Australia

Canadian Guide to Healthy Eating

Enjoy a wide variety of nutritious foods from these five food groups every day.
Drink plenty of water.

Grains (cereal foods, mostly wholegrain and/or high cereal fibre varieties)
Vegetables and legumes/beans
Lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans
Milk, yoghurt, cheese and/or alternatives, mostly reduced fat
Use small amounts

Only sometimes and in small amounts

China

The Food Guide Pagoda for Chinese People

- Oils 25–30g
- Salt 6g
- Milk and milk products 300g
- Soybean and Nuts 30–50g
- Meat and Poultry 50–75g
- Fish and Shrimp 50–100g
- eggs 25–50g
- Vegetables 300–500g
- Fruits 200–400g
- Cereals, Tubers and Other beans 250–400g
- Water 1200mL

Chinese Nutrition Society
Comparison of Food Guides between Japan and other countries

• Food guides in many countries are food based guidelines, showing the recommended daily servings with ingredients.

• Japanese Food Guide Spinning Top shows the recommended daily servings using specific dishes.
  • This is easy to understand for people who do not normally cook or people who are not interested in food.

MAFF
Association between adherence to the Japanese Food Guide Spinning Top and mortality
## Average life expectancy and healthy life expectancy

<table>
<thead>
<tr>
<th></th>
<th>Average life expectancy (yrs)* (2013)</th>
<th>Average healthy life expectancy (yrs)** (2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>World</td>
<td>Japanese</td>
</tr>
<tr>
<td>Female</td>
<td>73</td>
<td>87.05 (Top 2)</td>
</tr>
<tr>
<td>Male</td>
<td>69</td>
<td>80.79 (Top 4)</td>
</tr>
</tbody>
</table>

Healthy life expectancy: Number of years that a person can live in "full health", without disease and/or injury.

*World Health Statistics 2015  
Reason of longevity in Japan

• Socio-economic factors
  e.g. income, education, occupation etc.

• Medical system
  e.g. universal coverage of health insurance

• Diet

Do people who diet adhering to the Japanese Food Guide Spinning Top live longer?
Japan Public Health Center-based prospective (JPHC) study

Information on the health related lifestyles was obtained from residents from 11 public health center areas across Japan. The participants were followed up for over 10 years, thereby identifying the association between one’s lifestyles and incidence of diseases.

Subjects for the data analyses
Among the participants of the five year follow-up survey, 36,524 males and 42,970 females aged 45-75 years who had no history of serious diseases.
Individuals with closer adherence to the Japanese Food Guide Spinning Top had a lower risk of deaths

Multivariable adjusted hazard ratios (HR)

- Total mortality: P trend P<.0001
- Cancer mortality: P trend P=0.053
- Cardiovascular disease mortality: P trend P=0.005
- Heart disease mortality: P trend P=0.21
- Cerebrovascular disease mortality: P trend P=0.002

Covariates: Age, sex, study area, BMI, smoking status, total physical activity, history of hypertension, history of diabetes mellitus, history of dyslipidemia, coffee consumption, green tea consumption, occupation

Kurotani et al. BMJ. 2016. 22;352:i1209
Individuals with closer adherence to the Mediterranean diet had a benefit on health.

Sofi et al. Am J Clin Nutr. 2010
Effects of intake of vegetable dishes and fruits

Lower mortality was observed for cardiovascular disease among those with a high score for vegetable dishes or fruits.

Consistent with the results of meta-analysis between high intake of vegetable and fruits and reduced risk of cardiovascular diseases (Wang et al. 2014)
However, the daily intake of 350g vegetables per day is not reached
Application of Japanese Food Guide Spinning Top
Development of leaflets by Life stage

For children

For adolescence

For middle-aged

For parents & children

For elderly
At Supermarkets
Eating behavior modification of company cafeteria users when healthy menus with information referring to the Japanese Food Guide Spinning Top were provided.

Intervention group

Control group

Provide Healthy Menus and Related Information in cafeteria

3 months

Provide usual menus

3 years

Continuously provide Healthy Menus and Related Information in cafeteria

Misawa et al. 2014 (in Japanese)
Improving eating behavior of company cafeteria users after continuously providing healthy menus and related information with reference to the Japanese Food Guide Spinning Top for 3 years.

**Recognition of Japanese Food Guide Spinning Top (%)**

**Intervention group**
- Baseline: 73.8%
- 3 months: 75.5%
- 3 years: 75.5%

**Control group**
- Baseline: 73.8%
- 3 months: 70%
- 3 years: 75%

**Intervention group**
- Baseline: Guided meal 2.7%
- 3 years later: Guided meal 7.6%

**Graphs**
- Comparison of recognition of Japanese Food Guide Spinning Top between intervention and control groups.
- Pie charts showing meal choices at baseline and 3 years later for intervention group.
Conclusions

Balanced consumption of foods adhering to the Japanese Food Guide Spinning Top can contribute to longevity, especially by encouraging the intake of vegetable dishes and fruits that are often insufficient.

Evidences suggest the benefits of the Japanese Food Guide Spinning Top.