

Kikkoman's quarterly intercultural forum for the exchange of ideas on food



## THE JAPANESE TABLE

# Washoku and Health

## Soybeans, Longevity and Women's Health

by Yukio Yamori

*Our current Feature series examines washoku traditional Japanese cuisine and its correlation to health and quality of life. This third installment considers how soybean-based foods, which are fundamental to washoku, contribute both to longevity and to women's overall health.*

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# Washoku and Health

## Soybeans, Longevity and Women's Health



From left: Soybean pods; field of soybeans

The cause of death for more than 60 percent of people in the world today is associated with lifestyle diseases, which include two major vascular conditions, stroke and heart attack, both closely related to longevity. In the Cardiovascular Diseases and Alimentary Comparison (CARDIAC) study, which surveyed over 60 different regions around the world from 1985 until 2005 and involved 200 men and women in each region, it was found that those countries with high rates of myocardial infarction do not have high longevity. In this comprehensive long-term study, we collected 24-hour urine samples and found that those who consume foods rich in taurine and magnesium—fish, seaweed, soybeans, grains and vegetables—tend to die less frequently from heart attacks. These findings support the assertion that such foods, which are a regular part of the traditional Japanese diet, sustain longevity.

### Women's Health and Longevity

In most countries, the average lifespan of women is longer than that of men. For Japan, this disparity is significant, at about six years. Moreover, for the last 20 years, Japanese women have held the record for the longest

lives anywhere in the world. Why? One reason is that, in general, the death rate from coronary heart diseases causing heart attacks among women is 30 percent to 40 percent compared to that of men, and thus lower than men. The rate of heart-related deaths does, however, increase for women after menopause. We have found that women who live in areas where soybeans are not part of the diet have fewer isoflavones in the urine. Isoflavones are plant-derived compounds with estrogenic (female hormone-like) activity that are found in abundance in soybeans. Most significantly, these women had a greater rise in blood pressure at menopause than those in areas where soybeans are eaten regularly. It is thought that this disparity derives from the impact of soybean isoflavones on hormonal balance following menopause. So we can say that post-menopausal Japanese women are healthy because they are among the number-one consumers of soybean products such as tofu and *natto* fermented soybeans.

### Healthy Soybean Isoflavones

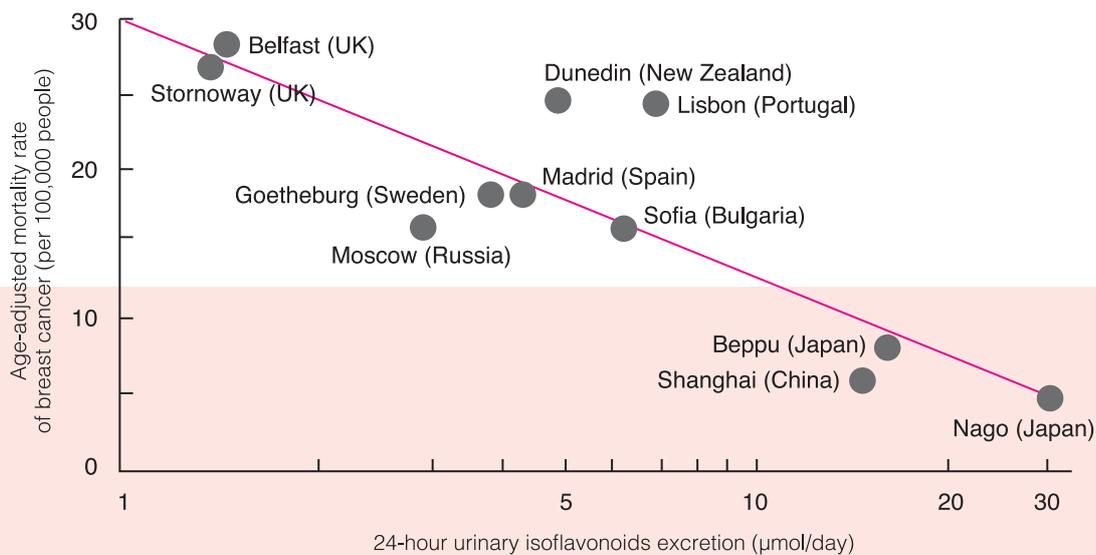
Soybeans are not part of the regular diet in Brazil, but in one CARDIAC investigation, we had menopausal women of Japanese

descent eat rice, soup and salads sprinkled with isoflavone-rich soybean hypocotyl powder for three weeks. We found that their blood pressure and cholesterol levels fell; we were thus able to demonstrate the benefits for menopausal women of the daily intake of soybean isoflavones equivalent to about 50 grams of *natto* fermented soybeans. When we measured isoflavones in 24-hour urine samples of both men and women from the many regions of the world where we held our studies, including in China and Europe, we found that lesser amounts of isoflavones correlated with higher death rates from coronary heart disease. Basic research shows that the female hormone estrogen activates the production of a substance in the endothelium which dilates blood vessels and enhances blood circulation. Isoflavones have the same effect, which is further



CARDIAC study of Aboriginal Australians, a population which does not generally consume soybeans.

Relationship Between 24-Hour Urinary Isoflavone Excretion and Age-Adjusted Mortality Rates of Breast Cancer



Graph courtesy Dr. Yamori (2001). Source: WHO CARDIAC Study, 1985-2001

strengthened by the abundant antioxidant nutrients found in vegetables and fruit.

Our CARDIAC study included three different populations that included both men and women: Brazilians of Japanese descent who did not ordinarily eat soybean products and had low vegetable intake; those living in Scotland, which has the highest rate of death by coronary heart disease in western Europe; and Aboriginal Australians, among whom lifestyle-related disease is the most prevalent among any native population in the advanced countries. When we had these participants eat bread containing 25 grams of soybean protein daily for five to eight weeks, we found that their blood pressure and cholesterol levels decreased.

### Cancer and Calcium Benefits

In Western countries, prostate and breast cancer are among the most common cancers. Our global study showed that death rates from these two cancers were lower in those populations whose urine showed greater amounts of isoflavones. The estrogenic activity of isoflavones suppresses the propagation of cancer cells in prostate cancer, and is thought to block the excessive impact of

estrogen by occupying estrogen receptors in breast cancer. We may surmise that the reason that rates of prostate and breast cancer are increasing among younger Japanese is that the custom of eating soybean products has become less widespread. Furthermore, we found from our study of elderly women of Japanese descent in Hawaii that isoflavones also help control the loss of bone calcium, and are therefore effective against osteoporosis, a complaint common in post-menopausal women. In general, protein intake is important for older people in order to prevent bone and muscle deterioration. This study of Japanese-American women in Hawaii, a population that in the 1980s had the world's highest longevity, showed few cases of dementia. Their salt intake was low at six grams per day, close to WHO recommended guidelines, and their levels of blood proteins were higher than in any group of elders that we had studied in Japan.

There are nearly seven billion people on earth. For all of us, protein intake is essential from childhood to old age—and yet only seven percent of protein-rich soybeans are used directly as human food. Most soybeans are made into cooking oil; the bean dregs are fed to cattle,

whose meat is then eaten. It takes eight servings of soybeans to produce one serving of beef. The consumption of more soybean-based foods would lead to healthier lives without lifestyle-related disease, while also protecting the environment. Soybean-based foods are an essential ingredient of *washoku*, which has been named a UNESCO Intangible Cultural Heritage. We should consider how this priceless heritage might be shared, by re-examining the role of soybeans within global food cultures from both a nutritional and an environmental standpoint. ◆

Translated by Lynne E. Riggs

### cover

A variety of soybean products including *natto*, *tofu*, *yuba* and soy sauce.

### Author's profile

Yukio Yamori, M.D., Ph.D.; born 1937 in Kyoto. Dr. Yamori is a pathologist specializing in preventative medicine and nutrition. After serving for many years as professor at the Graduate School of Human and Environmental Studies at Kyoto University, he is currently professor at Mukogawa Women's University, as well as Director of the Mukogawa Women's University Institute for World Health Development, President of the Hyogo Prefecture Health Promotion Association, and professor emeritus of Kyoto University. In 1998, he was awarded Japan's Medal with Purple Ribbon. He has authored many books, including *Choju no Himitsu* ("Secret of long life") and *Daizu wa Sekai o Sukuu* ("Soybeans will save the world").



## CLOSE-UP JAPAN

Traditions and trends  
in Japanese food culture



From above: *Onigiri* wrapped in dried bamboo sheath; assorted *onigiri*.

# Onigiri Rice Balls

*Onigiri* rice balls, also called *omusubi*, offer such an interesting variety of fillings and ingredients, they essentially embody a full meal. Fillings can be Japanese-style, such as *umeboshi* pickled Japanese apricot, grilled salmon or *katsuobushi* dried bonito flakes seasoned with soy sauce; or they may be Western-influenced, like tuna mixed with mayonnaise or cheese with *katsuobushi*. Other varieties include *takikomi-gohan* rice cooked with meat and vegetables, grilled soy sauce-seasoned *yaki-onigiri* or *onigiri* sprinkled with sesame seeds. Specialty

### Traditional *onigiri* take on new forms

shops at train stations and department stores sell *onigiri* made with regional or seasonal ingredients. In convenience stores, where many people grab an *onigiri* on the run, ingenious origami-like wrapping protects crispy dried *nori* from the moist rice; when removed, the *nori* settles perfectly around a triangular *onigiri*.

*Onigiri* have an ancient history. During the Heian period (794-1185), balls of rice called *tonjiki* were eaten on picnics and while traveling. *Onigiri* were used as troop provisions in the sixteenth century, and have been carried on journeys and picnics to this day, traditionally stuffed with *umeboshi*, whose antibacterial

properties help the rice stay fresh. Originally, *onigiri* were often wrapped in dried bamboo sheathes for handling while on the move; the custom of covering them in dried *nori* started around the mid-1800s.

The latest *onigiri* craze is the *onigirazu*, a hybrid *onigiri*-sandwich concoction whose origins arose from a manga comic book. Unlike traditional *onigiri*, *onigirazu* are not compressed or molded by hand, making them somewhat easier to prepare. Their fusion-type fillings are based purely on personal taste: warm rice is spread over a sheet of *nori*, then layered with unexpected ingredients like ham and cheese, stir-fried shrimp in chili sauce, salmon and cream cheese, or omelet and bacon. The *nori* is then folded into a square around the rice, and cut in half like a sandwich. Not only simple and fun to make, *onigirazu* are visually appealing—and allow for hefty fillings that would not normally fit inside a regular *onigiri*. ■



*Onigirazu* filled with ham and lettuce, and omelet, tomato and cucumber.



## Chopstick Rests

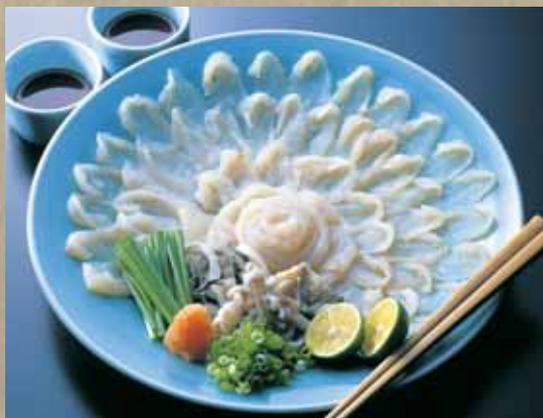
Chopsticks have always been accompanied by an unassuming, but very essential tool: the *hashi-oki* chopstick rest, which is sometimes also referred to as a *hashi-makura*, or chopstick pillow. Chopstick rests allow diners to eat and serve food without having to lay their chopsticks directly upon the table surface. In Japan, chopsticks are placed horizontally before one's plate, with the tips pointing to the diner's left. Traditional etiquette suggests that the tips protrude

by one *sun* (3.03 cm, a little over one inch), so as not to touch the *hashi-oki* directly. Chopstick rests evolved from small unglazed earthenware called *kawarake* used during the Heian period (794-1185) to cradle chopsticks during meals. These days, *hashi-oki* are made from many materials, including wood, bamboo, ceramics and glass. They come in countless designs and motifs, many of which reflect the seasons or special festive events. ●



Various chopstick rests; ideally, the tips protrude by one *sun*.

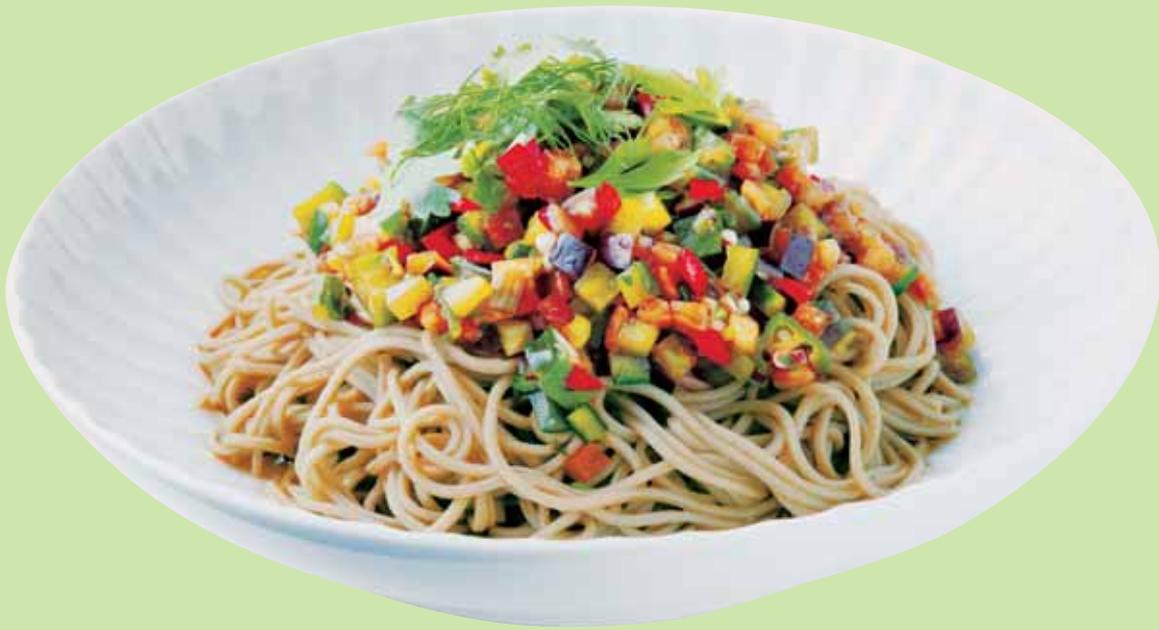
### TASTY TRAVEL



Thinly sliced *fugu* sashimi and soy sauce-based sauce with *kabosu*.

## Oita *Fugu*

In Oita Prefecture on Japan's southern island of Kyushu, the Bungo Channel is famous for its *fugu* blowfish, particularly tiger *fugu* (*tora fugu*), which are considered particularly delicious. Certain organs of the *fugu* are poisonous, thus specially qualified chefs must prepare the flesh. The entire fish is consumed in various ways: as sashimi, deep-fried, as a *nabe* one-pot meal, and in rice porridge made following the *nabe*—even the grilled fin is served in sake. High in protein and low in fat, *fugu* skin also boasts high levels of collagen. The mild sour taste and fresh smell of the citrus fruit *kabosu*, another Oita specialty, is a good match with *fugu* and is often used in a sauce to accompany sashimi and *nabe*. ●



## YAMAGATA-DASHI STYLE SOBA SALAD

Yamagata Prefecture's specialty *dashi*, unrelated to the stock of the same name, consists of finely chopped, marinated raw vegetables which include potherbs, *myoga* ginger and *shiso*. This recipe substitutes a variety of herbs, and the tomato extract may be used as vegetarian stock instead of *katsuobushi* dried bonito dashi stock.



● Eggplant

**Serves 2** 331 kcal Protein 17.2 g Fat 15.5 g (per person)

- Salt
- Japanese eggplant, trimmed, 100 g / 3.5 oz.
- Japanese cucumber, trimmed, 100 g / 3.5 oz.
- 1/4 red onion, 30-35 g / 1-1.2 oz.
- 4 okra, 40 g / 1.4 oz.
- 1 green onion, 10 g / 0.4 oz.
- Red bell pepper, 25-30 g / 0.9-1 oz.
- Roughly minced herbs, such as dill, Italian parsley, thyme, coriander
- Dried soba noodles, about 100-120 g / 4 oz.
- Wasabi paste to taste (optional)\*

### Dressing

- 4 T Kikkoman Soy Sauce
- 2 T tomato extract
- 2 T canola oil or any preferred cooking oil

### Tomato extract

- Ripe tomatoes, total 350-400 g / ¾-1 lb.
- Salt 1/4 t

- 1 Remove tomato stems; cut into chunks, add salt and puree in food processor.
- 2 Strain puree overnight or a half-day in refrigerator, using dampened paper coffee filter (see photo). Change filter as needed; squeeze gently to extract juice.



**1** Dissolve 2 t salt in a large bowl containing 4 ¼ C water; reserve 1 C of this salted water in a smaller bowl.

**2** Cut eggplant and cucumber in 5 mm (0.2 in.) cubes; as they are cut, place in the large bowl of salted water to soak at least 30 minutes. Cut red onion in 3 mm (0.1 in.) cubes, place in smaller bowl of salted water.

**3** Parboil the okra in lightly salted water; plunge into cold water, drain and cut in half lengthwise. Dice okra, green onion and red bell pepper into 3-4 mm (0.2 in.) pieces. Drain eggplant, cucumber and red onion; squeeze out excess water.

**4** In a bowl, place all the vegetables together with about 1-2 T of the minced herbs. Reserve some herbs for garnish.

**5** Combine all dressing ingredients; add about 3 T (more to taste) to the vegetables. Marinate in refrigerator for at least a half-day; vegetables will keep 2-3 days in refrigerator.

**6** Mix 2 T dressing and 4 T tomato extract.

**7** To serve, prepare soba following package directions. Serve noodles cold, sprinkle the mixture of dressing and tomato extract. Top with marinated vegetables and garnish with herbs.

\* A dab of wasabi may be added to individual plates, or mixed into the sauce.

Recipe by Michiko Yamamoto

1 C (U.S. cup) = approx. 240 ml; 1 T = 15 ml; 1 t = 5 ml



## IWASHI-NO-SHOGA-NI GINGER-SIMMERED SARDINES

Served hot or cold, *iwashi-no-shoga-ni* is a popular dish prepared at home that may also be made using saury or mackerel. The spicy tang of ginger and umami of soy sauce are perfect complements to the rich strong sardine flavor.



◆ Ginger

生姜

### Serves 4

351 kcal Protein 25.1 g Fat 16.6 g  
(per person)

- 8 medium-sized fresh sardines cleaned, scaled and gutted, 100 g / 3.5 oz. each
- 1 knob ginger 20 g / 0.7 oz.
- 120 ml / ½ C water
- 120 ml / ½ C sake
- 3 T Kikkoman Manjo Mirin
- 3 T Kikkoman Soy Sauce
- 2 T granulated sugar

- 1 If using whole sardines, cut off tails and heads.
- 2 Rinse both inside and outside of the fish with cold running water until the water runs clear. Pat the fish dry. Cut each sardine into three pieces.
- 3 Cut ginger into thin slices. Julienne half of these and set aside for use as garnish.
- 4 Place the sardines close together but without overlapping into a pot and add water, sake and sliced ginger.
- 5 Bring to a boil over medium heat, then skim off foam. Cover with a drop-lid or parchment paper (*see photo*) and continue to cook for about 5 minutes.
- 6 Remove parchment or drop-lid to add mirin and sugar. Rotate the pot and replace lid/parchment, and allow to cook for another 5 minutes over medium-low heat.
- 7 Remove cover again to add soy sauce; rotate pot and replace lid; cook an additional 5 minutes. Remove lid or parchment; continue to cook until the liquid has nearly evaporated.
- 8 Place the fish on a serving dish garnished with julienned ginger and serve.



Recipe by Kikkoman Corporation



## Kikkoman's Yuzaburo Mogi First to Receive Washoku Culture Kyoto Award



Mr. Mogi receiving the award from the chairman of the Washoku Association of Japan, Isao Kumakura, a representative of the Kyoto Washoku Culture Promotion Organization.

On April 1, 2016, Kikkoman Corporation's Honorary CEO and Chairman of the Board Yuzaburo Mogi was the first recipient to be given the newly established Washoku Culture Kyoto Award by the *Kyoto Washoku Bunka Suishin Kaigi* (Kyoto Washoku Culture Promotion Organization). Japanese food culture and *washoku* traditional Japanese cuisine have become increasingly popular around the world. "*Washoku* traditional



Mr. Mogi emphasized the importance of passing on traditional Japanese food culture.

dietary cultures of the Japanese" was added to UNESCO's Intangible Cultural Heritage list in 2013, thus enhancing global recognition of the country's traditional cuisine. The Kyoto Washoku Culture Promotion Organization was established in November 2014 to further promote *washoku* culture through the involvement of Kyoto citizens, organizations, corporations and government, and is dedicated to the preservation, succession and development of *washoku* culture in Kyoto. The organization's aim is to pass on the culture of *washoku* to future generations, and to contribute to healthy eating habits around the world. The organization established its annual Washoku Culture Kyoto Award in 2015 to honor each year a single individual or organization whose contributions have advanced the culture of *washoku*, not only in Kyoto, but throughout Japan

and abroad. Mr. Mogi was named as the recipient of this prize for his significant achievements, which include:

- Successful, longtime support in developing Japanese food culture through the soy sauce business, while introducing Japanese food culture to the world.
- Promoting *washoku* culture while serving as Chairman of the *Shokubunka Kenkyu Sokushin Kondankai* (Committee for Promotion and Research of Japanese Food Culture); formulating action plans in 2005 for global promotion of Japanese food culture.
- Promoting Japanese food products exports, supporting the international exchange of food cultures while serving as Chairman of the Japan Export Council for Agricultural Products since 2007.

At the award ceremony, Mr. Mogi remarked: "In addition to continuing our previous initiatives, we must actively find ways to interest children with *washoku* through *shokuiku* (food education) in order to pass it on to future generations." He stressed the importance not only of introducing *washoku* to the world, but also for Japanese to rediscover and learn about its various aspects. One of Kikkoman's management philosophies is to promote the international exchange of food cultures. While advancing Japanese food culture both at home and abroad, we are committed to contributing to society while encouraging meaningful exchange among international food cultures. ●