

Japanese name

Kamaboko

Kamaboko (surimi seafood) has been processed as a ready-to-eat processed seafood while maintaining the taste and amount of protein of the fish. While Japanese food and health food are attracting attention, the consumption of kamaboko in Europe and America is increasing.

蒲鉾

History

The first time kamaboko products appeared in Japanese literature is 1115. At the time, it was in a shape similar to chikuwa (a surimi seafood in the shape of a thick tube), but after a few hundred years, kamaboko loaf on a wooden plate, which is the shape today, came about. Subsequently, various kamaboko products utilizing “local fish” by region were produced all around Japan. Then finally, the frozen surimi technology was established, and it had a revolutionary effect on kamaboko industry. With this, kamaboko spread all around the world, and the word KAMABOKO became part of the international language.

Manufacturing Method

By removing the bones and skin from the fish, it is soaked in water, and minced with salt. Then, the protein starts to dissolve and mesh together. Once it is heated and finished, the meshed structure becomes stronger and gives it the elastic texture. In addition, the major species of raw material surimi are as shown in the table below. Different fish are used according to the kamaboko product.



The major species of raw material surimi and final surimi products

Pollock	Sardine	Itoyori/Golden Threadfin Bream	White Croaker
steamed-kamaboko, chikuwa, fried-kamaboko	fried-kamaboko, tsumire (fish ball), chikuwa	Steamed kamaboko loaf on a wooden plate, chikuwa	chikuwa, steamed-kamaboko
Cutlassfish	Pike Conger	Brushtooth lizardfish	Blue Shark
fried-kamaboko	steamed/roasted kamaboko loaf on a wooden plate, shiroten (white fried-kamaboko)	Steamed-kamaboko, chikuwa	hanpen (floated kamaboko)

(i) Typical Kamaboko products and Classification

There are many types of kamaboko products, and there is a wide variety of shapes, tastes, and textures. Here, we classify the typical kamaboko products and introduce the features of each product.

Steamed Kamaboko



Steamed Kamaboko loaf on a wooden plate

Steamed Kamaboko loaf on a wooden plate

Seasoned surimi paste formed in to semicircular shape on a small wooden plate and steamed.

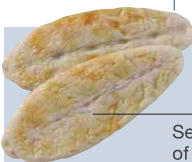
Steamed Kamaboko

Kamaboko Rolled with Kelp
Kamaboko Wrapped in a Bamboo Mat
Shinoda Roll
(Kamaboko Wrapped with Deep-fried Bean Curd)

Steamed and Roasted Kamaboko

Steamed and roasted Kamaboko loaf on a wooden plate
Steamed and roasted Kamaboko in square shape

Roasted Kamaboko



Roasted Kamaboko
Bamboo Leaf Kamaboko

Seasoned surimi paste shaped in the form of bamboo leaves and roasted. Its feature is the crisp softness.

Grilled-through Kamaboko loaf on a wooden plate

Shirayaki (Grilled without browning)
Kamaboko

Grilled-through Kamaboko

Grilled kamaboko loaf on a wooden plate without steaming.



Egg Yolk Grilled Kamaboko



Datemaki
(Rolled surimi Omelet)

Umeyaki
(Japanese apricot shape kamaboko)
Atsuyaki
(thick kamaboko)
Surimi Castella

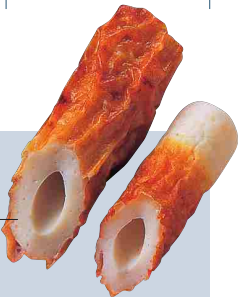
Chikuwa

Boiled Chikuwa White Chikuwa

Grilled Chikuwa Toyohashi Chikuwa

Seasoned surimi paste, formed cylindrically around bamboo stick and broiled.

Frying fish noyaki Chikuwa Chikuwa with skewer stick
Tofu Chikuwa Botanyaki Chikuwa Nigiri Chikuwa



Flavored Kamaboko



Crab Flavored Kamaboko

Crab flavored Kamaboko sticks which are shaped to resemble leg meat of crab.

Scallop Flavored kamaboko
Kamaboko

Shrimp Flavored kamaboko
Kamaboko

Boiled Kamaboko

Black Hanpen

Tsumire

Naruto Maki

Shinjo

Hanpen (Floated-kamaboko)



Using surimi paste and yam, it is mixed together with plenty of small air bubbles.

Fried Kamaboko



Tsuke-age

Shiroten

Chikiagi

Sastuma-age

Deep-fried surimi seafood. Some Satsuma-age contains pieces of seafood or vegetables as auxiliary materials.

(ii) Delicious! Healthy! Kamaboko Recipe

The kamaboko is healthy and fills you up. It is also low in calories, and matches also various western menu items. It can be enjoyed in various types of cuisine.



Kamaboko Sandwich

Steamed Kamaboko loaf on a wooden plate is characterized by its excellent elastic mouth feel. You can experience the unique, chewy texture by this Kamaboko sandwich recipe too.

Ingredients (Serves 4) and Recipe

(i) Cut 1/2 of the steamed kamaboko loaf on a wooden plate into widths of 5 mm. Slice the 2 pieces of crab flavored kamaboko in half. Take the 2 pieces of lettuce with curled leaves and tear it to the size of the bread. Cut the 1/2 tomato and 1/2 peeled avocado with the seeds removed into 5 mm width.

(ii) With 20 g of butter and a 1 teaspoon of mustard to 8 slices of rye bread as a yardstick, thinly spread the butter and mustard in that order on one side of the bread. On a slice of bread with the butter and mustard side up, place lettuce with curled leaves, 1 slice of cheddar cheese, avocado, tomato, kamaboko, and crab flavored kamaboko. Then sandwich it with the other slice of bread with its buttered side down.

Oden

Oden is a Japanese typical stewed food for wintertime. You can enjoy the harmony of the mild soy-sauce flavored soup stock and various Kamaboko such as Chikuwa, Hanpen floated-Kamaboko, and deep-fried Kamaboko.

Ingredients (Serves 4) and Recipe

(i) Cut 1/2 a daikon (Japanese white radish) into 2 cm round slices after peeling off the skin. Add the daikon to the pot, and add water in until it covers the radish. Heat it over medium heat, and once it boils, reduce the heat and cook it for 10 minutes. Take 1 piece of konnyaku (pre-boiled), cut it into 4 pieces, and cut the pieces diagonally once. Cut the 2 pieces each of chikuwa and satsuma-age with burdock in half in a way that rounds the cut. Cut 1 piece of hanpen into 8 pieces.

(ii) Add 8 cups of soup stock, 1/4 cups of sake and mirin, 2 large tablespoons of soy sauce, 1 teaspoon of salt, daikon, konnyaku, 4 boiled eggs, and 8 pieces of tied kelp, and heat it at strong heat. Reduce the heat to weak heat just before it is about to boil, and cook for 50 minutes. Add 4 pieces of chigiriage (bite size fried-kamaboko), chikuwa, satsuma-age with burdock, and hanpen, and cook for 5 minutes. Serve it on a dish and eat with the mustard paste as desired.



(ii) Delicious! Healthy! Kamaboko Recipe



Wrap Sushi with Crab Flavored Kamaboko

Wrap sushi is a type of sushi where ingredients of various colors are added to the red crab flavor kamaboko which is red. It can be made easily, and is made in cute bite-size pieces.

Ingredients (Serves 4) and Recipe

(i) To 500 g of cooked rice, add 1 bag of chirashizushi seasoning and 1 tablespoon of white sesame to prepare the sushi rice. Add 1 tablespoon of sugar and a small amount of salt to a beaten egg, and prepare the scrambled egg beforehand.

(ii) Cut the crab flavored kamaboko in half length and split them into thin strips, mix the white part of crab sticks with the sushi rice, and divide the sushi rice into 12 parts. Boil the 20 g of snow peas in salt water after removing the stems and cut into thin slices.

(iii) Arrange the red part of the crab flavored kamaboko, scrambled egg, and snow peas for each of 12 pieces on a plastic wrap. Add one of 12 portions of the sushi rice made in (ii) and wrap it into a drawstring-pouch-like ball. Prepare the rest in the same way.

Crab flavored Kamaboko Tortilla

A Spanish-style omelet where the good texture of the crab flavored kamaboko can be enjoyed. It comes in a big portion with various ingredients. It is also recommended for people who want a big breakfast.

Ingredients (for 5-6 People) and Recipe

(i) Cut the 8 pieces of crab flavored kamaboko in half, and roughly split the meat into strips. Cut 1 potato into quarter slices of 5 mm in thickness, soak them in cold water once, then wipe off the moisture. Thinly slice 1/4 of an onion, and cut the 1/4 bundle of spinach into 4 cm lengths.

(ii) Add 2 teaspoons of olive oil to a frying pan and heat it over medium heat. Add the potato and cook it for 2-3 minutes. Add the remaining vegetables, salt, and pepper, and cook it a little bit longer.

(iii) Take 4 beaten eggs, and add 1/2 a teaspoon of salt, a little bit of pepper, crab flavored Kamaboko, and (ii), and mix well.

(iv) Add 1 teaspoon of olive oil to a frying pan, heat at medium heat, add (iii), and mix gently. When one side is cooked, flip it over and cook the other side until it is browned.



(iii) Kamaboko Health Functions ~Nutrition~

The main component of kamaboko is protein. Protein becomes a base for the makeup of the body such as muscle, and it is also a source of enzymes, hormones, and neurotransmitters which keeps the body normal. These are indispensable substances for the increase of immune strength. Furthermore, let’ s look at the healthy components included in kamaboko products.

Components of Kamaboko Products (g/100 g) (crab flavored kamaboko sticks, kamaboko wrapped in a bamboo mat, steamed kamaboko, roasted kamaboko, grilled chikuwa)

Data: Standard Tables of Food Composition in Japan Seventh Edition/
Standard Tables of Food Composition in Japan Fatty Acid Components
Table Seventh Edition

Moisture	69.9～75.8
Protein	12～16.2
Carbohydrates	7.4～13.5
Fat	0.5～2.0
EPA	0.031～0.075
DHA	0.061～0.13
Energy	90～121(kcal)

High Protein, Low Calorie Rich in Indispensable Amino Acids

In comparison to other protein sources, the feature of the protein of kamaboko products is that it is low in calories. Protein raises the temperature of the body by giving off heat. It is said that in order to give off this heat, it takes 40% of the calories ingested in one day, however, with kamaboko products, this can be achieved easily. In addition, the content of the indispensable amino acids in kamaboko products is the ideal balance. This is the reason why the proteins in kamaboko are considered good-quality proteins. Furthermore, when the proteins of kamaboko products are digested and decomposed, substances called “peptides,” which are combinations of various amino acids, are created. The health functionalities of peptides, which are expected to be useful to prevent diabetes, cancer and dementia, are still being researched.

The Fat of Seafood Has a Good Physiological Effect on the Body

When mentioning “fat,” it is widely believed to cause lifestyle diseases, but the ratio of fat needed against the total amount of energy is more than 20% and less than 30% (25% for people over 30). It is a nutrient that is needed for concentration, memory, and maintaining hormone balance. In addition, the fat of kamaboko products has a good physiological effect. The main component is n-3 type fatty acid, which is healthy for the body. There is also the advantage of being able to expect health functions. In order to consume the appropriate amount of fat, let’ s wisely incorporate kamaboko products into staple foods, main dishes and side dishes.

DHA and EPA Included in High Health Functionality n-3 Type Fatty Acids

Lately, we often hear the words DHA (docosahexaenoic acid) and EPA (eicosapentaenoic acid). Both are part of the n-3 type fatty acid group, which is said to have high health functionality. DHA is related to the brain and neurotransmitters and it increases concentration and the ability to learn, while EPA cleans the blood and prevents blood clots and heart disease. The amount of content of these components differs by the type of kamaboko product, and deep-fried kamaboko and tsumire fish ball made from red fish surimi, contain a relatively high level of these components. So it’ s recommended that you plan menus including multiple types of Kamaboko products, to enjoy various Kamaboko tastes, and to ingest DHA and EPA effectively at the same time, for your healthy life.



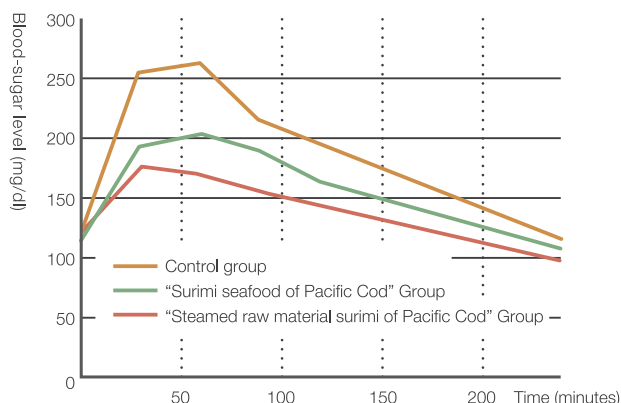
(iii) Kamaboko Health Functions ~Health Maintenance~

As a result of research conducted on nutrients of kamaboko products and health functions, the suppressing effects of lifestyle diseases such as metabolic syndrome are becoming apparent. Here, based on animal experiments on diabetes, obesity and dementia, we introduce the superior functions of kamaboko products. There has been a certain amount of results with regard to health maintenance.

Diabetes

It Prevents the Absorption of Sugar, and Suppresses the Rise in Blood Sugar

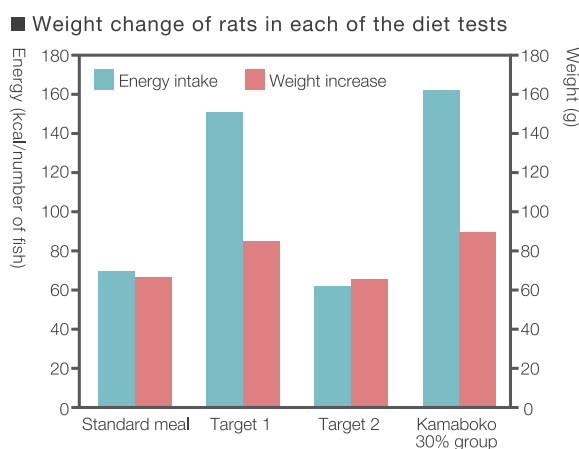
If untreated, diabetes can cause severe complications. As a result of research conducted on the impact of the digestion and absorption of sugar, cholesterol and fat, which are the causes of diabetes, with the ingestion of kamaboko products, the absorption of sucrose and glucose from the small intestines is suppressed, and it is now clear that it leads to the suppression of the rapid rise of blood sugar after meals. In addition, in a comparison experiment between raw minced fish and kamaboko products, there were no suppressing effects found with raw minced fish, and it has been discovered that the protein reforming due to the heating process of the manufacturing process of kamaboko products is related to the suppression of the rise in blood sugar.



Obesity

For suppression of body fat accumulation and weight loss

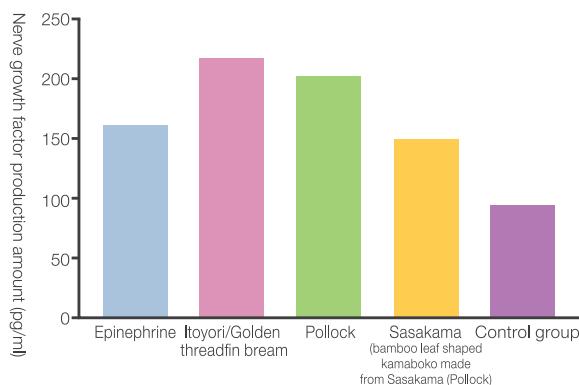
The animal testing data demonstrated that the peptide produced by enzymatic hydrolysis of Kamaboko products play an important role in suppression of cell differentiation to fat cells and fat accumulation. In addition, comparison research over a three-week period was conducted on obese rats ingesting kamaboko and konnyaku while continuing a high fat diet, and normal diet. The kamaboko group showed results of the least amount of body weight gain and energy intake, and it has been demonstrated that the expression of the gene related to energy metabolism of fat cells is directly related to the intake of kamaboko. Consequently, eating kamaboko products may prevent easy weight gain.



Dementia

It is Good for the Brain and Nerve Growth Factor

It is known that patients with Alzheimer's disease eat much less fish than a healthy person. The basis for the belief that one will become smarter when eating plenty of fish comes from the idea of ingesting n-3 type fatty acid such as DHA. Then, we focused on the research of proteins and not DHA, and peptides showed a certain level of effects. In animal experiments, the amount of nerve growth factor effectively increased when animals ate feed with peptides added, and it is starting to be known that the intake of kamaboko products helps with the prevention of dementia.



In a comparison between feed with kamaboko added and feed without (target group), the feed with kamaboko added showed a higher level of nerve growth factor, and its vitalization power is close to or stronger than epinephrine (=adrenalin, vasoconstrictor).