

Natural Poison

Food Poisoning from Animals (Toxin Name)

Blowfish poison (Tetrodotoxin)
Blowfish liver and ovaries
Caution! Different kinds of blowfish have different poisonous parts (Some kinds of blowfish have poison in skin, testes, and muscle.)

Paralytic shellfish poison (Saxitoxin, etc.)
Bivalves including Japanese clams and ark shells that have eaten toxic plankton (*1) and have its toxin accumulated in their bodies

Diarrhetic shellfish poison (Okadaic acids)



*1: Some of the plankton eaten by bivalves contain poisons that cause food poisoning such as Alexandrium tamarense. These kinds of plankton that cause food poisoning are safe to eat as adequate measures are taken to prevent contaminated shellfish from being distributed in the market.
Note 1: Shellfish sold at stores are safe to eat as adequate measures are taken to prevent contaminated shellfish from being distributed in the market.
Note 2: If toxic plankton populations decrease, the poison contained in shellfish's body gradually decreases and even disappears.

Food Poisoning from Plants (Toxin Name)

Mushroom poison (Illudin S, muscaridin, etc.)


Chemical Substance Food Poisoning

Chemical Substance Name

Histamine

● Tuna, Mackerel, Sardin, Pacific saury, etc.
● Processed products with these kinds of fish such as dried fish

Parasite Food Poisoning

Parasite Name

Anisakis
(A white or semitransparent linear parasite with a length of 1-4 centimeters)


Symptoms and Characteristics<Incubation period>

● Numbness in lips and tongue, weakness of limbs, clouding of awareness, etc. (Some cases result in death)
● Cooking with heat does not detoxify it due to its heat-resistance
● The toxin is not removed by rinsing the food in water <20 minutes-3 hours after eating>

● Numbness in tongue, lips, face, hands and feet, inability to coordinate muscles, etc. (Some cases result in death)
● Cooking with heat does not detoxify it due to its heat-resistance <Around 30 minutes after eating>

● Diarrhea (watery stool), stomachache, vomiting, nausea, etc.
● Cooking with heat does not detoxify it due to its heat-resistance <30 minutes-4 hours after eating>

Symptoms and Characteristics

● Toxic substances contained in the mushrooms cause various symptoms including gastrointestinal symptoms and nervous symptoms (Some cases result in death)

Symptoms and Characteristics<Incubation period>

● Face flush, fever, hives, etc.
● Cooking with heat eliminates little of it due to its heat-resistant feature
● Histamine is formed from an amino acid (histidine) contained in fish meat
● Red-meat fish contains an especially large amount of histidine, which often causes histamine food poisoning <A few minutes to 30 minutes after eating>

Symptoms and Characteristics<Incubation period>

● Upper abdominal pain, diarrhea, hives, vomiting of blood, etc. (Gastric anisakiasis)
(Anisakis may get into the intestinal tract and other organs and cause various symptoms other than gastric anisakiasis.)
<A few hours to over 10 hours after eating>

Points to Prevent Food Poisoning

- Do not eat blowfish' liver or ovaries
- Nonprofessionals must not cook blowfish
- Do not collect bivalves in coastal and sea areas that have poison shellfish occurrences
- *Poison shellfish frequently occur in early spring. Osaka Prefecture inspects bivalves to alert people about the poisons according to inspection results. Please check information regarding the occurrence of poison shellfish on Osaka Prefecture's website or other similar websites when you go gathering shellfish.

Points to Prevent Food Poisoning

- Never eat wild mushrooms on your own judgment as differentiation of wild mushrooms is very difficult

Points to Prevent Food Poisoning

- Store fresh fish and fresh fish-processed products in a refrigerator or a freezer
- Avoid storing them in the refrigerator for a long time
- Do not leave them at room temperature for a long time when cooking
- Do not freeze and defrost them repeatedly

Points to Prevent Food Poisoning

- Cook seafood with heat
- Store them by freezing for at least 24 hours at -20°C
- *Anisakis live in fresh fishes' organs. When the fish are no longer fresh, anisakis move into their muscles, and so remove organs from fish and other seafood while they are fresh as much as possible.



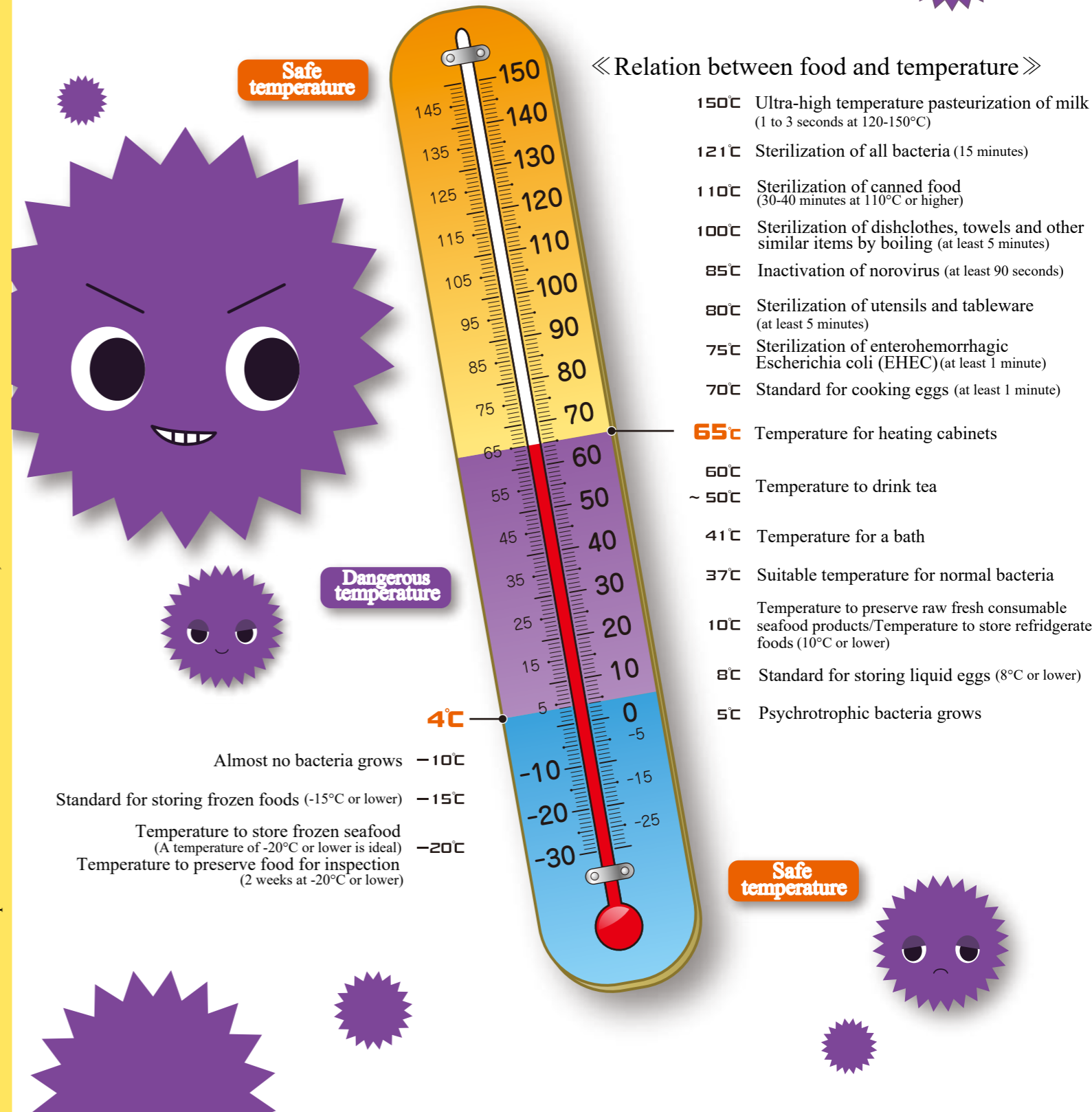
Food Safety Promotion Division, Environmental Health Management Office, Department of Public Health and Medical Affairs, Osaka Prefectural Government



How to Prevent Food Poisoning

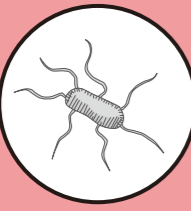
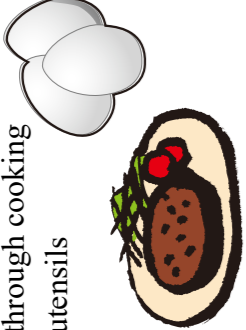




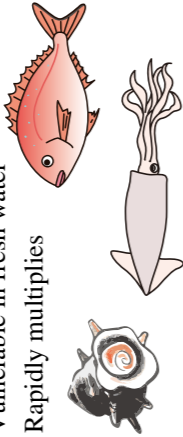






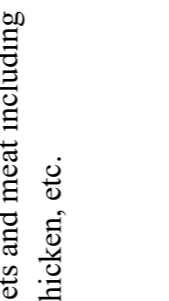

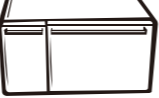


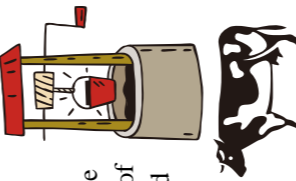



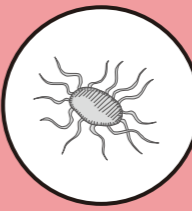

Food Sanitation Training Booklet

Separate Booklet

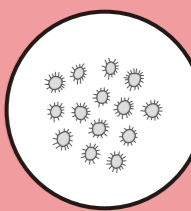




Outline of Most Food Poisoning

Bacterial Food Poisoning

Name of Bacteria	Food Poisoning Food Causes	Bacteria Characteristics	Symptoms <Incubation period>	Points to Prevent Food Poisoning
Salmonella 	Egg as well as processed egg products, meat, and food contaminated through cooking utensils 	<ul style="list-style-type: none"> Exists in animals' intestinal tract. Mice, flies, cockroaches and pets could also be a contamination source Egg contaminated by Salmonella enteritidis (SE) often causes food poisoning. It is known that food poisoning is caused by a small amount (around 100) of the bacteria. 	Diarrhea, stomachache, high fever (38°C or higher) <12-48 hours>	<ul style="list-style-type: none"> Babies, infants and the elderly should avoid eating raw eggs and raw meat Heat food to a core temperature of 75°C for at least 1 minute How to handle chicken (Countermeasures against SE) <ul style="list-style-type: none"> Check the label Expiration dates, directions for raw consumption or for cooking with heat, etc. Preserve shelled eggs at 10°C or lower and liquid eggs at 8°C or lower Wash hands after cracking an egg, wash and disinfect cooking utensils 
Vibrio parahaemolyticus 	Fresh seafood as well as processed seafood products, and food contaminated through cooking utensils (Mostly food containing salt) 	<ul style="list-style-type: none"> Likes salt, grows well in an environment where the salt percentage is 2% to 5% Vulnerable in fresh water Rapidly multiplies 	Severe stomachache, diarrhea, vomiting < About 12 hours>	<ul style="list-style-type: none"> Preserve raw fresh consumable seafood products at 10°C or lower (Preserving sashimi and other similar foods at 4°C or lower is ideal) Eat food within 2 hours after taking it out of the refrigerator Heat food before eating it when possible Use cooking utensils that are for seafood only Wash seafood thoroughly with fresh water 
Golden staph 	Boxed meals, rice balls, Japanese cakes, etc. 	<ul style="list-style-type: none"> Widely exists in humans' and animals' wounds and nose or throat mucosa Produces a heat-resistant toxin when it grows in food 	Nausea, vomiting, diarrhea, stomachache <30 minutes-6 hours>	<ul style="list-style-type: none"> Do not touch food directly when you have a cut on your finger Wash and disinfect hands thoroughly 
Campylobacter 	Food and drinking water contaminated through pets and meat including chicken, etc. 	<ul style="list-style-type: none"> A small amount of the bacteria can cause food poisoning Can survive also in water Exists in animals' intestinal tract, and the contamination sources include chickens, cows, pets, wild birds, and mice 	Cold-like symptoms including diarrhea, stomachache, and fever, headache <1-7 days /The incubation period is long>	<ul style="list-style-type: none"> Heat the core of meat including beef liver and chicken adequately Store meat and other foods separately Prepare cooking utensils that are only for meat to prevent them from contaminating other foods Thoroughly wash the sink if used to defrosted chicken with running water 
Enterohemorrhagic Escherichia coli (EHEC)(O-157, etc.) 	Beef liver, meat such as beef, hamburger steak, well water, etc. 	<ul style="list-style-type: none"> Exists in cows' and other animals' intestinal tract Produces a verotoxin in the body and a small amount of the bacteria can cause food poisoning Group infection could be caused by contaminated water 	Stomachache, diarrhea (bloody stool), fever, HUS (hemolytic uremic syndrome) <4-8 days /The incubation period is long>	<ul style="list-style-type: none"> Children and the elderly should take extra care to avoid eating raw meat such as yukhoe Heat the core of beef liver adequately Heat food to a core temperature of 75°C for at least 1 minute Wash and disinfect cooking utensils and hands thoroughly Use separate chopsticks for raw meat *Selling and serving beef liver for raw consumption has been prohibited since July 2012.
Clostridium perfringens 	Curry, stew, soup, simmered food, etc. 	<ul style="list-style-type: none"> Easily creates heat-resistant spores Tends to occur at large-scale meal preparation facilities such as facilities for mass feeding Widely exists in the natural world and intestinal tract of humans and animals 	Diarrhea, stomachache, fever <6-18 hours>	<ul style="list-style-type: none"> Do not leave cooked food at room temperature Divide food into small portions to store it Heat food adequately before eating it 
Bacillus cereus 	Fried rice, spaghetti, etc. 	<ul style="list-style-type: none"> Easily creates heat-resistant spores The symptoms can be divided into two types: vomiting type and diarrhea type Exists in soil and adheres to grains, etc. 	(Vomiting type) Nausea, vomiting <0.5-6 hours> (Diarrhea type) Stomachache, nausea <8-16 hours>	<ul style="list-style-type: none"> Do not reheat meals including fried rice and spaghetti that were made in large amounts on the previous day Do not leave food at room temperature (Example: Do not store cooked rice and other similar foods at room temperature)

Viral Food Poisoning

Name of Virus	Food Poisoning Food Causes	Characteristics of Viruses	Symptoms <Incubation period>	Points to Prevent Food Poisoning
Norovirus 	Bivalves such as oysters and Japanese clams, drinking water, and unheated food affected by secondary contamination 	<ul style="list-style-type: none"> Exists in bivalves including oysters and Japanese clams Food poisoning occurs frequently in winter Food poisoning is caused by a small amount of the virus It does not multiply in food but multiplies only in humans' intestinal tract It may adhere to food through a cook who has been infected by the virus Secondary infection sometimes occurs at care homes or schools through patients' stool and vomit, which may result in mass infection 	Vomiting, diarrhea, stomachache, fever <24-48 hours>	<ul style="list-style-type: none"> Wash and disinfect hands thoroughly Do not partake in cooking when you have diarrhea or other symptoms Cook bivalves such as oysters and Japanese clams whenever possible (At least 90 seconds at 85-90°C) Wash and disinfect cooking utensils adequately Chlorinated disinfectant and some types of ethanol disinfectant are effective (Check the instructions of the product before using disinfectant to learn the appropriate concentration and how to use it.) 

(Note) Incubation period: Time from the point when a pathogen gets into one's body to the point when symptoms appear