

The World Is NOT NECESSARILY Your OYSTER



Understanding the Food
Safety Risks of Oysters

People enjoy oysters because they are tasty and nutritious. Uncooked oysters, however, are high-risk foods, and there are occasional reports of food poisoning outbreak related to the consumption of raw oysters in Hong Kong.

Through this pamphlet, the Centre for Food Safety (CFS) aims to provide the public with information on the food safety risks of oysters, raw ones in particular. The public is urged to take necessary precautions to avoid food poisoning, and, make informed choices to minimise food safety risks when choosing to consume oysters raw.



Food Safety Risks of Oysters

Oysters are filter feeders. They constantly draw in water and accumulate substances from it, including disease-causing microorganisms such as **Vibrio bacteria, norovirus and hepatitis A virus**, as well as **chemical contaminants and natural toxins**.

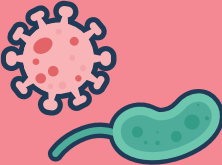



Eating raw oysters carries inherent food safety risks as there is no heat treatment to kill foodborne pathogens.

Food poisoning cases related to raw oysters are reported locally from time to time. Although most of the patients suffer from mild symptoms such as diarrhoea, abdominal pain and vomiting, and recover on their own, raw oysters can also cause severe health consequences, especially in susceptible individuals.

Further, people are more likely to contract **microorganisms with antimicrobial resistance ('superbugs')** through eating raw or undercooked oysters. Whether or not 'superbugs' can cause illnesses, they may transfer their antimicrobial resistance genes to other bacteria inside the human body, therefore affecting the effectiveness of future use of antibiotics when needed.



The risks and preventive measures are summarised below:

Risks	Types	Common symptoms	Preventive measures
Pathogens 	<ul style="list-style-type: none"> <i>Vibrio parahaemolyticus</i>, <i>Vibrio cholerae</i> (O1 and O139), <i>Vibrio vulnificus</i> 	Gastroenteritis characterised by diarrhoea, vomiting, etc. People with liver disease, diabetes or a suppressed immune system are more at risk for its severe complications like septicaemia.	‘Five Keys to Food Safety’, including cooking oysters thoroughly
	<ul style="list-style-type: none"> Norovirus 	Gastroenteritis characterised by diarrhoea, vomiting, nausea and abdominal cramps as well as headache and low-grade fever.	
	<ul style="list-style-type: none"> Hepatitis A and E viruses 	An abrupt onset of fever, malaise, anorexia, nausea, abdominal pain, dark urine and jaundice, which is more severe in susceptible populations.	
Natural toxins 	<ul style="list-style-type: none"> Marine biotoxins 	Intoxication including diarrhoeic, paralytic and neurotoxic shellfish poisoning which cause gastrointestinal and/or neurological problems such as abdominal pain, diarrhoea, tingling and numbness, etc.	Avoid overindulgence in oysters and maintain a balanced diet
Chemical contaminants 	<ul style="list-style-type: none"> Persistent organic pollutants (POPs) 	Adverse effects depend on the nature of individual POP, amount and duration of exposure. Possible health effects include potentially disrupting immune and reproductive systems and diminishing intelligence.	Avoid overindulgence in oysters and maintain a balanced diet
	<ul style="list-style-type: none"> Heavy metals (e.g. Cadmium) 	Acute toxicity of cadmium due to dietary exposure is very unlikely. However, kidney functions may be affected by chronic intake.	
Physical hazards 	<ul style="list-style-type: none"> Sharp edges of oyster shells and cracks of shells resulting from opening oysters 	Injuries; there is a chance to be infected with <i>Vibrio vulnificus</i> (commonly known as ‘flesh-eating bacteria’) in oysters through wounds.	Dress wounds properly and use gloves before handling oysters

Oysters in Shells and Shucked Oysters

There are two types of oysters available on the market: in shells or shucked, which are preserved in a chilled or frozen state.



Frozen oysters




Chilled oysters pre-shucked at origin



Live in-shell oysters

Different types of oysters present different potential food safety risks depending on where they are grown and how they are handled. Despite the inherent risks, some people may still choose to eat oysters raw. Therefore, the CFS adopts a risk-based principle and draws the following recommendations for specific types of oysters:

Type of Oysters	To be eaten after cooking	To be eaten raw	Remarks
Live in-shell oysters intended for raw consumption	✓	✓	<ul style="list-style-type: none"> • Thorough cooking is the most effective way to reduce the risk of foodborne illness. • Follow the instructions on Page 7, when choosing to eat oysters raw.
Chilled oysters that need to be cooked before eating	✓	✗	<ul style="list-style-type: none"> • Raw oysters may be caught or grown in waters contaminated with disease-causing microorganisms.
Chilled oysters pre-shucked at origin 	✓	✗	<ul style="list-style-type: none"> • Raw oysters die immediately after being shelled, and are prone to spoilage, especially when there is improper temperature control during long-haul transportation. • Physical and microbiological contamination may occur during shucking.

Legends : ✓ Yes ✗ No

Type of Oysters	To be eaten after cooking	To be eaten raw	Remarks
Oysters frozen at origin intended for raw consumption	✓	✓	<ul style="list-style-type: none"> • Thorough cooking is the most effective way to reduce the risk of foodborne illness. • Follow the instructions on Page 7, when choosing to eat oysters raw.
Frozen oysters to be cooked before eating	✓	✗	<ul style="list-style-type: none"> • Raw oysters may be contaminated with microorganisms. • Oysters should be safely thawed in the refrigerator at 0°C to 4°C, in running cold water, or in the microwave. • Do not thaw frozen oysters at room temperature.
Locally grown oysters	✓	✗	<ul style="list-style-type: none"> • Due to the pollution of Hong Kong waters, locally farmed oysters are prone to bacterial and viral contamination. • Additional purification is still not effective in removing pathogens such as norovirus.

Legends : ✓Yes ✗No

Steps for Eating Oysters Safely

Whichever type of oyster is purchased, consumers can ensure food safety by always following the steps below when choosing, storing, preparing, cooking and consuming oysters.

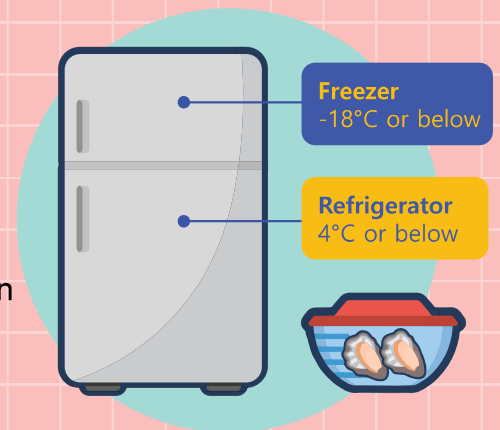
Choose

- Shop from reliable sources, and choose fresh oysters with intact shells and without abnormal odour.
- When the shell of a live oyster is tapped, it should close tightly.
- As a best practice, keep the receipt, which should include information about the origin and variety of the purchased oysters.
- Check the expiry date of prepackaged shucked oysters, and ensure they are stored properly:
 - at **4°C or below** for chilled products;
 - at **-18°C or below** for frozen products.



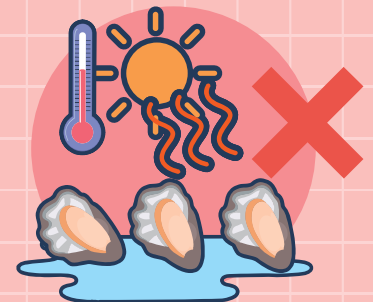
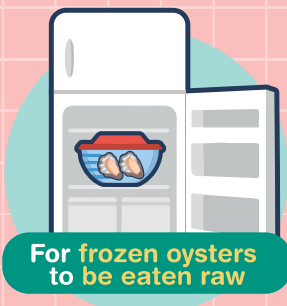
Store

- Head home as soon as possible after making purchases to minimise the time of exposing oysters to room temperature.
- Once arrived at home, cook the oysters as soon as possible. Store the shucked chilled and frozen oysters properly at or **below 4°C and -18°C** respectively if not consumed immediately.
- Consume chilled oysters within one to two days; cook frozen oysters before consumption.
- Oysters in shells should be **placed in covered containers** to prevent cross-contamination in the refrigerator.



Prepare

- To prevent cross-contamination between raw oysters and cooked or ready-to-eat food, wash hands thoroughly with liquid soap and running water for 20 seconds before and after handling raw oysters.
- If there is any wound on the skin, it should be properly dressed first.
- Use gloves when touching oyster shells to reduce the chance of injury or infection.
- Use different cutting boards and utensils to handle raw oysters and cooked or ready-to-eat food separately to prevent cross-contamination.
- Thaw frozen oysters in the **refrigerator**.
- While both the **microwave oven** and **running water** are generally safe for thawing oysters that require further cooking, they are more likely to expose raw oysters to dangerous temperatures for some time or create 'hot spots' that promote bacterial growth. Therefore, using either of these methods for thawing oysters to be eaten raw is not recommended.
- Wash shucked oysters thoroughly before cooking.
- For oysters in shells, scrub the shells under water.



Thaw frozen oysters properly

Do not thaw oysters at room temperature

Cook

- It is best to **cook oysters thoroughly** to minimise the risk of foodborne diseases.
- For better heat penetration, remove the shell carefully and preferably with a specially designed oyster knife with short and stout blade.
- To avoid uneven heating, cook the oysters in small pots with small portions each time.
- Cook molluscan shellfish, including oysters, to an internal temperature of 90°C for 90 seconds to minimise the risk of bacterial or viral infections. The following are some tips on cooking duration for preparing oysters:



Boiling	Frying	Steaming	Baking
3-5 minutes at 100°C	At least 3 minutes at 190°C	4-9 minutes at 100°C	At least 10 minutes at 230°C

- Oyster is also popular in hotpot cooking. Use two different sets of chopsticks and eating ware to handle raw and cooked foods separately. Add food of the same type at a time, as different foods require different cooking temperatures and duration. After topping up with water, wait for reboiling before adding more food.

Consume

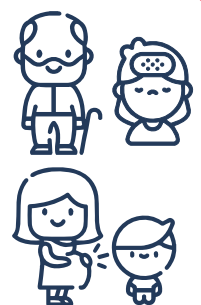
- Eating raw oysters with hot sauce, lemon juice, vinegar or alcohol does not kill the pathogens - only thorough cooking can destroy them.
- Avoid overindulgence in oysters and maintain a balanced diet for minimising the excessive exposure of chemical contaminants or natural toxins from a small range of food items.



Susceptible populations should avoid raw oysters!

Eating raw oysters carries inherent food safety risks as there is **no heat treatment to kill pathogenic bacteria in the food**. If you choose to eat raw oysters:

- Do not eat raw oysters that require cooking before consumption.
- Raw oysters pre-shucked at origin are not recommended to be eaten raw.
- Make sure that the purchased oysters are not re-immersed in water for wet storage.
- Susceptible individuals such as **pregnant women, young children, the elderly and people with a weakened immune system*** should avoid eating raw or half-cooked oysters.



Susceptible individuals

* People with weakened immune systems include but are not limited to those with chronic diseases such as diabetes, liver or kidney diseases, patients infected with HIV/AIDS, patients undergoing organ transplants, patients undergoing chemotherapy or radiation therapy, or patients taking medications such as antibiotics, antacids, etc.

Susceptible populations should avoid eating oysters raw!

Eating raw oysters in restaurants

- Raw oysters are a high-risk, restricted food. **Not all licensed restaurants or premises can sell oysters intended for raw consumption.**
- Consumers who wish to go out to eat raw oysters should go to food premises with relevant licences/restricted food permits (from the Food and Environmental Hygiene Department (FEHD)).



Eating raw oysters at home

While purchasing oysters intended for raw consumption from shops holding a licence/restricted food permit issued by the FEHD, pay particular attention to the following:

- Only purchase fresh and intact oysters intended for raw consumption, or frozen oysters intended for raw consumption.
- After purchasing, put the oysters in a cooler or an insulated bag with a cold source (such as ice packs), and go home as soon as possible.
- Eat oysters as soon as reaching home. **Store chilled oysters and frozen oysters at 4°C and -18°C** or below respectively if not consumed immediately.



- Raw oysters should be properly refrigerated before shucking; once they are opened, they should be eaten as soon as possible.
- Frozen oysters intended for raw consumption should be thawed in the refrigerator to avoid exposure to dangerous temperatures.

Ordering raw oyster delivery

In addition, many food premises also provide door-to-door delivery of raw oysters through physical or online stores. Special attention should be paid to the following measures when ordering oysters:



- Patronise reliable food business premises or online stores with a licence/restricted food permit when ordering. The licensing conditions require such premises or online shops to **provide relevant information on their premises/websites, online platform accounts and promotional prints.**
- Check the general condition of the food upon receipt, such as the temperature, the integrity of the food container and the hygiene condition. Before ordering, consumers may also approach the supplier for a prior understanding of whether the storage and transportation of food are properly arranged.
- Consume delivered oysters as soon as possible upon receipt.

