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高危人士的食物安全 Food Safety for Susceptible Populations

食物安全中心風險傳達組
科學主任游天頌先生報告

Reported by Mr. Arthur YAU, Scientific Officer,
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食物安全對所有人均非常重要，但高危人士感染食源性疾病的風險較高。孕婦、嬰兒、幼兒、長者及免疫力弱人士面對特別重大的健康挑戰。本文將探討這些獨特的風險，並就較安全的食物選擇和配製措施提供指引。

孕婦

孕婦經歷的荷爾蒙和免疫力變化令她們較容易感染食源性疾病。懷孕期間感染李斯特菌，可能會嚴重影響胎兒發育，甚至導致流產。由於體型較大的捕獵魚類或含有大量甲基汞，故計劃懷孕、懷孕和授乳的女性應該避免進食。甲基汞會損害胎兒和幼兒發育中的神經系統。然而，確保攝取足夠碘對成長健康和神經系統發育非常重要。

嬰幼兒

嬰幼兒的免疫系統尚在發育中，因此特別高危。他們的胃酸酸性較成年人為低，因此胃部抵禦食物中有害細菌的能力較弱。食物中毒可導致幼兒出現嚴重脫水，對於體型較小的他們會特別危險，有可能引致腎衰竭甚至死亡。因此，幼兒不應進食生或未煮熟的食物。

此外，不要給一歲以下的嬰兒餵食任何含有蜜糖的食物，因為可能含有肉毒桿菌的孢子。這些孢子可在嬰兒發展未成熟的消化系統內發芽，繼而釋出毒素，有可能導致肌肉嚴重無力，並能致命。

從菜泥等食物攝入過量硝酸鹽也可能構成風險。蔬菜中的硝酸鹽可經細菌或酶作用轉化為亞硝酸鹽，而亞硝酸鹽可引致罕見的藍嬰綜合症。為減低風險，建議嬰兒在六個月大時才開始斷奶。父母應為較大嬰兒妥善貯存和配製蔬菜，特別注意要在蔬菜切碎後盡快烹煮，並即時進食菜泥，以減低攝入過量亞硝酸鹽的風險。

幼兒的咀嚼和吞嚥能力較低，因此會有哽噎風險。緩解措施包括把食物切成小塊、把堅硬的蔬菜煮至軟化、監督用餐過程、鼓勵幼兒保持良好的進食姿勢和教導兒童充分咀嚼，慢慢吞嚥。

長者及免疫力弱人士

隨著人們年齡增長，免疫系統也可能會變弱。較年長的成人可能因患有糖尿病等慢性疾病或接受治療而變得較為高危。免疫力弱的其他人士（如肝病或腎病患者、自體免疫疾病患者、愛滋病毒感染者或接受化療或器官移植的病人）受感染的風險較高，使食源性疾病對他們而言更具危險性。

高危人士不宜進食高風險食物

要減低風險，高危人士應對高風險食物多加留神，因為進食後有機會危及生命。長者應注意

Food safety is crucial for everyone, but susceptible populations are more at risk from foodborne illnesses. Pregnant women, infants, young children, the elderly, and individuals with weakened immune systems face particular health challenges. This article will discuss these unique risks and provides guidance on safer food choices and preparation practices.

Pregnant Women

Pregnant women undergo hormonal and immune changes that increase their susceptibility to foodborne diseases. Listeria infection during pregnancy can seriously affect foetal development and may lead to miscarriages. Women planning to be pregnant, as well as those who are pregnant or breastfeeding, should avoid large predatory fish and their products, which may contain high level of methylmercury. Methylmercury can harm the developing nervous system of the foetus and young children. However, it is important to ensure adequate iodine intake for healthy growth and neurological development.

Infants and Young Children

Infants and young children are particularly vulnerable due to their developing immune systems. With less acidic stomach acid than that of adults, their stomachs are less effective in fending-off harmful bacteria from food. Food poisoning can lead to severe dehydration in young children, which is particularly dangerous given their smaller body size, and may result in kidney failure or even death. Therefore, they should not consume raw or undercooked food.

Additionally, infants under one year old should not be given any food that contains honey, as it may contain spores of Clostridium botulinum. The spores can germinate in an infant's underdeveloped digestive system, releasing toxins that may cause severe muscle weakness and can be fatal.

Excessive nitrate intake from foods like vegetable purees can also pose risks. Nitrate in vegetables can be converted to nitrite by bacterial or enzymatic actions. The resulted nitrite can cause the rare blue baby syndrome. To minimise the risk, it is recommended that weaning starts at six months of age. Parents should properly store and prepare vegetables for older infants, with emphasis placed on cooking vegetables soon after chopping and consuming purees immediately, to lower the risk of excessive nitrite intake.

Young children, with limited chewing and swallowing abilities, are also at risk of choking. Mitigation measures include cutting food into smaller pieces, softening hard vegetables by cooking, supervising mealtimes, encouraging good posture while eating, and teaching children to chew slowly and swallow carefully.

The Elderly and People with Weakened Immunity

As people age, their immune systems can weaken. Older adults may be more vulnerable due to chronic diseases, such as diabetes, or as a result of treatments. Others with weakened immunity (e.g., those with liver or kidney diseases, autoimmune

帶有**窒息**風險的食物。這些食物包括細小而難以溶化的食物（例如細小、堅硬、圓形或橢圓形的食物、有外皮或葉的食物、可壓縮的食物、厚稠糊狀的食物，以及含纖維並帶筋的食物）。有吞嚥困難的人士應徵詢相關專家的醫學意見，以安排特殊的飲食。

diseases, HIV infections, or those undergoing treatments like chemotherapy or organ transplants) are at heightened risk for infections, making foodborne illnesses particularly dangerous.

High-risk Foods are not for Susceptible Populations

To reduce the risks, susceptible populations should be cautious about [high-risk food](#),



圖1：高危人士應避免進食生或未煮熟的食物，或經長時間冷凍的食物

Figure 1: Members of susceptible populations should avoid consuming raw or undercooked food, or food that has been chilled for an extended period

高危人士較安全的選擇

高危人士應避免進食生或未煮熟的海產（包括壽司、煙三文魚）、蛋類（包括太陽蛋、炒滑蛋、半熟蛋、奄列或以生蛋製作的沙律醬和甜點）、未煮熟的肉類（包括豬肝和碎肉）、軟芝士（例如菲達、布里、卡門貝爾）、藍紋芝士及生乳製成的芝士。這些食物較大可能含有食源性致病菌。基於受**李斯特菌**污染的風險，孕婦也應避免進食冷凍的即食食物（例如凍食肉類、肝醬、已製成的沙律、芽菜）。

較安全的選擇，是選擇徹底煮熟的海產（包括罐頭海產）和肉類、全熟的蛋類（蛋黃已完全凝固或經巴士德消毒的蛋類）、經巴士德消毒奶類製成的芝士和剛清洗的蔬菜。只進食已徹底煮熟或翻熱的膳食、妥善預備的蔬菜和經巴士德消毒的乳製品，有助消除有害微生物帶來的風險。此外，在家亦要遵從「**食物安全五要點**」作為有效預防食源性疾病的方法。高危人士若能了解這些風險，並採取安全的食物處理措施，便能更有效地保障自身並確保能活得更健康。

as consumption may lead to life-threatening outcomes. The elderly should pay attention to foods with risks of [suffocation](#). These include food that are small and do not dissolve easily (e.g., small, hard, round, oval foods, foods with skins or leaves, compressible foods, thick pastes, fibrous and stringy foods). Individuals with swallowing difficulties should seek medical advice from relevant experts for special dietary arrangements.

Safer Alternatives for Susceptible Populations

[Susceptible populations](#) should avoid raw or undercooked seafood (including sushi, smoked salmon), eggs (including sunny-side-up eggs, scrambled eggs, partly boiled eggs, omelettes or dressings and desserts made with raw eggs), undercooked meats (including pork liver and minced meat), soft cheeses (e.g., Feta, Brie, Camembert), blue cheeses and cheeses made from raw milk. These items are more likely to harbour foodborne pathogens. Pregnant women should also avoid cold ready-to-eat foods (e.g., cold cuts, pate, prepared salads, seed sprouts) due to the risk of [Listeria](#) contamination.

Instead, opt for thoroughly cooked seafood (including canned varieties) and meats, fully cooked eggs (eggs with solid yolks or pasteurised eggs used), cheeses made with pasteurised milk, and freshly washed vegetables. Consume only thoroughly cooked and reheated meals, along with properly prepared vegetables and pasteurised dairy products to eliminate harmful microorganisms. In addition, practise [Five Keys to Food Safety](#) at home as an effective way to prevent foodborne illnesses. By being aware of these risks and following safe food practices, vulnerable groups can better protect themselves and ensure a healthier lifestyle.

確保非預先包裝冰凍甜點安全

Keeping Non-prepackaged Frozen Confections Safe

食物安全中心風險傳達組
科學主任葉景新先生報告

冰凍甜點是指任何通常以冰凍或冷藏狀態出售供人食用的甜點，如軟雪糕和冰凍乳酪。儘管部分人或會以為冰凍甜點因為貯存溫度低而認為必定安全，但這些食物在進食前並沒有進行熱處理以消滅致病菌，因此屬高風險食物。本文將重點講述冰凍甜點可能含有的食源性致病菌，討論零售點的食物安全挑戰、列舉減低食物安全風險的控制措施，並提供安全食用的提示。

冷藏無法消除微生物危害：病原體仍能存活

李斯特菌在環境中無處不在，也有可能存在於冰凍甜點中。從反芻動物養殖場的牛隻收集、用於產生冰凍甜點味道的奶類曾檢出李斯特菌。李斯特菌能在低溫下生存，甚至可在冷凍的食物內生長。進食受這種細菌污染的食物可引致李斯特菌病，患者會出現腸胃病徵，甚至敗血病等嚴重併發

Reported by Mr. Kenneth YIP, Scientific Officer,
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Frozen confection refers to any confection such as soft ice-cream and frozen yogurt commonly sold for human consumption in a frozen or chilled state. While some may assume that frozen confections are always safe due to low storage temperatures, the lack of prior heat treatment to eliminate pathogens before consumption makes them high-risk foods. This article will highlight foodborne pathogens that may be found in frozen confections, discusses the food safety challenges at points of sale, outlines control measures in reducing food safety risks, and offers tips for safe consumption.

Freezing Does Not Eliminate Microbiological Hazard: Pathogens Can Still Survive

Listeria monocytogenes is ubiquitous in the environment and may be present in frozen confections. The bacteria have been detected in milk harvested from cattle in ruminant farms used for producing the flavours of frozen confections. *Listeria monocytogenes* is able to survive at low temperatures, and can even grow in refrigerated food. Consuming food contaminated by the bacteria can result in listeriosis with gastrointestinal symptoms and even severe complications like septicaemia. *Listeria monocytogenes* infection is particularly

症。李斯特菌感染對孕婦的風險尤其高，有可能引致流產、死胎、早產及初生嬰兒敗血病或腦膜炎。

製造冰凍甜點時，蛋類是另一種能提供理想質感的配料。受感染雞隻生產的受污染蛋類可能含有沙門氏菌。使用未經巴士德消毒的蛋類配製食物可進一步增加微生物風險。受沙門氏菌感染的患者或會患上沙門氏菌病，症狀包括水狀腹瀉、胃痙攣和嘔吐等。

慎防清潔及消毒措施不足

拖地或沖洗等清潔程序的目的在於從表面去除細菌、污垢及異物，而消毒則能通過使用消毒劑殺死殘餘的微生物。一般來說，消毒前應先進行清潔。配製食物時，清潔及消毒沒有完成或處理不當是引致冰凍甜點受污染的因素，會增加食物安全風險。

配製非預先包裝冰凍甜點時會使用多種設備及用具，包括軟雪糕和冰凍乳酪調配分售機及舀雪糕的勺子。由於部分部件如噴嘴在設備運作時無可避免會在室溫下處於不是無菌的環境中，這些部件有可能受環境污染，或會加速分售機內殘留的微量冰凍甜點中的細菌生長。進行舀勺時，可能涉及重複的人手操作工序，以及勺子與各種容器多次接觸，因而增加不同表面之間的交叉污染風險。設備及用具的清潔及消毒措施沒有完成或處理不當，或會導致致病菌繁殖。

正確的衛生習慣對保障食物安全必不可少

《冰凍甜點規例》（第 132AC 章）規定，銷售冰凍甜點的食物業處所必須持有相關食物業牌照。任何供出售的冰凍甜點，每克不可含有多於 50 000 個細菌或多於 100 個大腸菌群。此外，每一組用以貯存冰凍甜點的冷凍裝置均應保持清潔和保養狀況良好。食用或處理冰凍甜點的用具必須保持清潔，免受污染風險。處理冰凍甜點的人員應保持良好個人衛生。

清潔程序可去除令微生物滋生的污垢和食物殘渣，因此對減低非預先包裝冰凍甜點的食物安全風險非常重要。軟雪糕和冰凍乳酪的調配分售機應按照供商的指示進行清潔，並應使用經批准的殺菌劑及食品級消毒劑清洗和浸泡部件。營業時間結束後應排出和丟棄未使用的食物配料。所有可拆除的部件應先拆解，以消毒劑清洗，並以飲用水沖洗。

對於舀勺的冰凍甜點，包括勺子在內的所有用具在使用前後及操作時，應定時清潔和消毒。冰凍甜點容器的上蓋應清洗、消毒並擦乾後才放回容器上。洗手和配製食物應分別使用不同的清洗設施，以減低交叉污染的風險。此外，食物業處所在製備食物時，應遵循良好衛生規範。下圖說明了一些可採取的主要衛生措施，以減低非預先包裝冰凍甜點的風險。

risky for pregnant women as it can lead to miscarriage, stillbirth, preterm birth and septicaemia or meningitis in the newborns.

When manufacturing frozen confections, eggs are another ingredient which provides the desirable texture. *Salmonella* can be found in contaminated eggs from infected hens. Using unpasteurised egg products for food preparation can further increase the microbiological risk. Patients infected by *Salmonella* can come down with salmonellosis with symptoms such as watery diarrhoea, stomach cramps and vomiting.

Be Vigilant to Inadequate Cleaning and Disinfection Practices

While cleaning such as mopping or rinsing aims to physically remove germs, dirt and foreign substances from surfaces, disinfection serves to kill the remaining microorganisms by disinfectants. In general, cleaning should be performed before disinfection. Incomplete or improper cleaning and disinfection during food preparation are contributing factors of contamination of frozen confections, which raise the food safety risk.

When preparing non-prepackaged frozen confections, various equipment and utensils are used. These include ice-cream or frozen yogurt dispensing machines and scoops for collecting ice-cream. Since some of the machinery parts such as nozzles are unavoidably exposed to non-sterile conditions at room temperature during operation, these parts are prone to environmental contamination and might promote bacterial growth in the trace amounts of frozen confections left in the machines. Scoop handling may involve repeated manual workflows and multiple contacts between the scoop and different containers, thus raising the risk of cross-contamination between different surfaces. Incomplete or improper cleaning and disinfection practices of equipment and utensils could lead to the proliferation of pathogens.

Proper Hygiene is Indispensable to Securing Food Safety

As stipulated in the Frozen Confections Regulation (Cap. 132AC), food premises selling frozen confections should possess relevant food business licences. Frozen confections for sale should not contain more than 50 000 bacteria per gram or more than 100 coliform bacteria per gram. In addition, every refrigerating device used for storing frozen confections should be kept in a clean condition and maintained in good order. Utensils used for serving or handling frozen confections are required to be kept clean and free from the risk of contamination. Staff handling frozen confections should keep good personal hygiene.

To reduce food safety risks of non-prepackaged frozen confections, cleaning is essential as it removes dirt and food residues which allow microorganisms to grow. Soft ice-cream and frozen yogurt dispensing machines should be cleaned and disinfected according to the manufacturer's instructions. [Approved bactericidal agents](#) and food-grade disinfectant solution should be used for washing and immersing the machine parts. The unused food ingredients should be drained and discarded after food business operation. All removable parts should be dismantled, washed by disinfectant and rinsed by drinking water.

For scoop serve frozen confections, clean and disinfect all utensils, including scoops, before and after use, as well as regularly during operation. Wash, disinfect and dry the lids of the frozen confection containers before placing them back on the containers. Separate washing facilities should be available for hand washing and food preparation to reduce the risk of cross-contamination. Food premises should also adhere to [Good Hygiene Practice](#) during food preparation. The figures below illustrate some salient hygienic measures that can be adopted to minimise the risks of non-prepackaged frozen confections.



圖2：減低非預先包裝冰凍甜點風險的衛生措施包括(i) 拆解部件(左)；(ii) 沖洗和消毒勺子(中)；及(iii)徹底清洗雙手(右)

Figure 2: Hygienic measures including (i) dismantle the machine parts (left), (ii) rinse and disinfect the scoop (middle), and (iii) wash hands thoroughly (right) minimise the risk of non-prepackaged frozen confections

在冰格安全貯存生肉的提示 Tips for Safe Storage of Raw Meat in Freezers

冷藏肉類應貯存於攝氏零下 18 度或以下，讓微生物處於不活躍的狀態。然而，冷藏食物的品質可能會在貯存三至六個月後下降。例如，長時間貯存可能影響品質，導致出現包括變乾、變色及與脫水和跟食物表面與雪櫃冰格的溫度差異相關的「肉結冰晶」的情況（[凍燒現象](#)）。

長時間貯存冷藏肉類也會造成食物安全問題。溶雪期間的溫度變化及經常打開冰格的門都有可能加速細菌生長。貯存冷藏肉類時，請參考以下要點。

- 查看冷藏肉類的食用期限，最接近食用期限的肉類應最先使用。
- 貯存非預先包裝食物時，應遵從“先入先出”原則。
- 接收冷藏肉類後，要貯存在冰格內。
- 不要再次冷藏已置於危險溫度範圍內（攝氏 4 至 60 度）超過 2 小時的冷藏肉類。
- 定時監察冰格溫度，以確保運作良好。
- 冰格門應時常保持關閉，並應把食物從溶雪中的冰格轉移到正常運作的冰格內。

Frozen meats should be stored at or below -18°C, a temperature that keeps microorganisms inactive. However, it has been reported that food quality may decline after three to six months. For instance, prolonged storage may cause food quality loss resulting in dry appearance, discoloration and "ice crystals" formation associated with dehydration and temperature differences between food surfaces and the freezer ([freezer burn](#)).

Storing frozen meat for prolonged periods also poses food safety concerns. Temperature fluctuations during defrosting and frequent door opening of freezer may promote microbial growth. Please refer to the key points as listed below when storing frozen meats.

- Check the expiry dates of prepackaged frozen meats, and those nearing expiration should be used first.
- Adhere to the "first-in, first out" principle when storing non-prepackaged products.
- Keep frozen meats in freezers upon receipt.
- Do not refreeze frozen meats exposed at Temperature Danger Zone (4°C to 60°C) for more than 2 hours.
- Maintain freezers properly with regular temperature monitoring.
- Always keep the doors of freezers closed and transfer the food from the defrosting freezer to a normal functioning one.

為新學年做好準備，保障學校食物安全 Get Prepared for the New School Year and Keep Food Safe in Schools

確保學校的食物安全至關重要。家長和校方應攜手合作，營造安全及健康的飲食環境。

選擇學校午餐供應商時，務必要選擇嚴格遵守食物衛生標準的供應商，並經信譽良好的持牌供應商採購食材。避免提供高風險食物，如壽司及未煮熟的蛋類。要向學生提供安全而營養豐富的小食，小賣部的角色尤為重要。家長和校方須特別注意幼兒噎嚥風險，食物應切成較小塊，硬的蔬菜則應烹煮至軟化。教導幼兒慢慢咀嚼並小心吞嚥。

食物安全中心（食安中心）的校園食安心專題網頁是一站式參考資料庫，提供實務指南，協助學校推行食物安全措施。此外，食安中心定期為學校和學校午餐供應商舉辦健康講座，並透過 Facebook 貼文和短片，以生動有趣的方式提高市民對兒童噎嚥風險的認識及關注。

Ensuring food safety in schools is paramount. It is important for parents and schools to work together to create a safe and healthy eating environment.

When selecting school lunch suppliers, it is essential to choose those who adhere to high food hygiene standards. Purchase food ingredients from licensed and reputable suppliers. Avoid serving high-risk foods like sushi and undercooked eggs. Tuck shops also play a vital role in providing students with safe and nutritious snacks. Special attention should be given to choking hazards for young children, whose food should be cut into smaller pieces and hard vegetables softened by cooking. Teach them to chew slowly and swallow carefully.

The Centre for Food Safety's Safe Food at School thematic webpage is a one-stop reference source, with a practical guide to support the implementation of food safety measures in schools. Furthermore, health talks are also regularly organised for schools and school lunch suppliers, while Facebook posts and short videos are released to raise public awareness on choking hazards for children in a fun way.



風險傳達工作一覽（二零二五年八月） Summary of Risk Communication Work (August 2025)

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