

Bacteria and viruses that cause food poisoning



In a nutshell: Bacteria and viruses are the most common causative agents of foodborne illnesses. Bacteria grow rapidly in foods that are warm, rich in moisture or protein and low in acidity. Milk, shell eggs, poultry, fish, meat and shellfish are common foods susceptible to bacteria growth. Although viruses cannot grow in food or water, a small number of viral particles can cause sickness when consuming the contaminated food.

Information on some of the most common bacteria and viruses that cause foodborne illnesses is provided below:

Bacteria		
<i>Salmonella</i>	Foods involved: <ul style="list-style-type: none">● Raw or undercooked eggs and egg products● Undercooked poultry● Raw meat	Control measures: <ol style="list-style-type: none">1. Cook food thoroughly.2. Wash hands thoroughly before and after handling food.3. Separate raw food from cooked food.4. Use pasteurised eggs for raw or lightly cooked egg dishes.
<i>Vibrio parahaemolyticus</i>	Foods involved: <ul style="list-style-type: none">● Raw or undercooked seafood● Ready-to-eat foods contaminated by raw seafood	Control measures: <ol style="list-style-type: none">1. Cook food thoroughly.2. Undercooked seafood should not be placed in a food preparation area that also handles cooked and ready-to-eat foods.3. Raw seafood should be covered and stored separately from ready-to-eat food in separate refrigerators.4. Wash hands thoroughly before and after handling

		food.
<i>Listeria monocytogenes</i>	<ul style="list-style-type: none"> ● Foods involved: Unpasteurised milk and dairy products (e.g. soft cheeses) ● Unprocessed fruits and vegetables (e.g. seed sprouts) ● Refrigerated ready-to-eat foods (e.g. cold cuts, sausages, smoked seafood, meat / liver pâté or spreads) 	Control measures: <ol style="list-style-type: none"> 1. Wash hands thoroughly before and after handling food. 2. Prevent cross-contamination or direct contamination by food handlers. 3. Cook food thoroughly.
<i>Staphylococcus aureus</i>	Foods involved: <ul style="list-style-type: none"> ● Ready-to-eat foods ● Foods contaminated during manual handling after cooking and then kept at ambient temperature for a prolonged period of time, such as sui-mei, lo-mei, sandwiches and bakery products with cream (e.g. Swiss roll) 	Control measures: <ol style="list-style-type: none"> 1. Wash hands thoroughly before and after handling food. 2. Avoid handling cooked food with bare hands and cease handling food when suffering or suspected to be suffering from an infectious disease. 3. Raw food or cold dishes should be kept at 4°C or below and hot food at above 60°C, and should be consumed as soon as possible.
<i>Clostridium perfringens</i>	Foods involved: <ul style="list-style-type: none"> ● Beef ● Poultry ● Gravy ● Foods left at ambient temperature for a prolonged period of time and at dangerous time or temperature zone. 	Control measures: <ol style="list-style-type: none"> 1. Cook food thoroughly. 2. Keep hot food at above 60°C if not immediately served. 3. If chilling of cooked food is required, blast chilling or the conventional two-stage cooling method is applied, keep food refrigerated after cooling.

		4. Divide food (e.g. a large pot of stew meat or curry) into smaller portions, put them in shallow containers and store in the refrigerator.
<i>Bacillus cereus</i>	Foods involved: <ul style="list-style-type: none"> ● Rice ● Soybean products, cereals and other foods rich in starch, meat and vegetables ● Unpasteurised milk stored at ambient temperature for an extended period of time 	Control measures: <ol style="list-style-type: none"> 1. Wash hands thoroughly before and after handling food. 2. Keep food and utensils clean. 3. Separate raw food from cooked food. 4. Keep hot food at above 60°C. It should be rapidly cooled to 4°C or below within 90 minutes using the blast chilling method. If the conventional two-stage cooling method is applied, food should be cooled from 60°C to 20°C within two hours and then from 20°C to 4°C or lower within two to four hours.

<i>Escherichia coli</i>	Foods involved: <ul style="list-style-type: none"> Contaminated foods, especially undercooked minced beef, unpasteurised milk and juice, soft cheeses made from raw milk, and raw fruits and vegetables (e.g. lettuce, other leafy greens and seed sprouts) 	Control measures: <ol style="list-style-type: none"> 1. Wash hands thoroughly before and after handling food. 2. Separate raw food from cooked food. 3. Cook food thoroughly including minced meat.
Virus		
Norovirus	Foods involved: <ul style="list-style-type: none"> Seafood, shellfish (e.g. raw oysters) Ready-to-eat foods touched by infected food handlers (e.g. salads, sandwiches, edible ice cubes, cookies and fruits) Any other foods contaminated with the vomitus or faeces from an infected person 	Control measures: <ol style="list-style-type: none"> 1. Wash hands thoroughly before and after handling food. 2. Avoid touching ready-to-eat food directly with bare hands. 3. Clean and disinfect surfaces contaminated by vomitus or faeces with 1:49 diluted bleaching solution. 4. Clean and disinfect food preparation equipment and surfaces. 5. Wash and cook food thoroughly.

Hepatitis A virus	Foods involved: <ul style="list-style-type: none"> ● Raw or undercooked shellfish from contaminated waters ● Raw produces ● Contaminated drinking water ● Foods touched by an infected food handler without subsequent thorough reheating 	Control measures: <ol style="list-style-type: none"> 1. Wash hands thoroughly before and after handling food. 2. Avoid touching ready-to-eat food directly with bare hands. 3. Clean and disinfect surfaces contaminated by vomitus or faeces with 1:49 diluted bleaching solution. 4. Clean and disinfect food preparation equipment and surfaces. 5. Wash and cook food thoroughly.
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