

8

The Flow of Food: Preparation

Chapter Overview

Chapter 8 guides students through the flow of safely preparing, cooking, and cooling food.

Learning Objectives

- 8-1** State correct ways for prepping food to prevent cross-contamination and time-temperature abuse
- 8-2** Describe safe methods for thawing food
- 8-3** State the minimum internal cooking temperatures for TCS food
- 8-4** Summarize the requirements to inform consumers of risks when serving raw or undercooked food
- 8-5** Describe the requirements when cooking TCS food in a microwave and when partially cooking TCS food
- 8-6** State methods and time-temperature requirements for cooling and reheating TCS food

Opening Case Study

1. What could have prevented this outbreak?

Simply browning the outside of the meatballs was not enough to reduce the *Salmonella* on them to a safe level. The only way to do that is to cook them to a minimum internal temperature of 165°F (74°C) for 15 seconds. To be sure that the meatballs had reached this internal temperature, the chef should have checked them with a thermometer.

Chapter Breakdown

Pages 150 to 159**8.1 Preparation**

Resources

PowerPoint Slides 3 to 10

Reinforce and Review:

- Prevent cross-contamination and time-temperature abuse when preparing food. General practices include prepping food in small batches; keeping workstations, cutting boards, and utensils clean and sanitized; only removing as much food from the cooler as you can prep in a short period; returning prepped food that is not going to be cooked immediately to the cooler; following guidelines for the use of additives; and thawing food correctly. Follow additional guidelines for prepping specific food items, when handling ice, and when using preparation practices that require a variance.
- Throw away food when it has become unsafe and cannot be safely reconditioned. Also throw it away if it has not been presented honestly.
- Thaw frozen food in the cooler, under running water, in a microwave oven, or as part of the cooking process. Never thaw food at room temperature.

Key Terms

- **Slacking:** Process of gradually thawing frozen food in preparation for deep-frying.
- **Pooled eggs:** Eggs that are cracked open and combined in a common container.
- **Variance:** Document issued by a regulatory agency that allows a regulatory requirement to be waived or changed.

Knowledge Check Answers

1. All food—especially ready-to-eat food—should be thrown out in the following situations:
 - When it is handled by staff who have been restricted or excluded from the operation because of illness
 - When it is contaminated by hands or bodily fluids, for example, from sneezing
 - When it has exceeded the time and temperature requirements designed to keep food safe
2. The guidelines for thawing food under running water are:
 - Submerge food under running, drinkable water at 70°F (21°C) or lower. The flow of the water must be strong enough to wash loose food bits into the drain.
 - Always use a clean and sanitized food-prep sink when thawing food this way.
 - NEVER let the temperature of the food go above 41°F (5°C) for longer than four hours. This includes the time it takes to thaw the food plus the time it takes to prep or cool it.

Chapter Breakdown

Pages 160 to 164**8.2 Cooking Food**

Resources

PowerPoint Slides 11 to 14

Reinforce and Review:

- Some operations partially cook food during prep. Operations that parcook food must have written procedures to explain how food cooked this way will be prepped and stored. These procedures must be approved by the regulatory authority.
- Cook and reheat food to required minimum internal temperatures for a specific amount of time. Cooking temperatures and times vary from food to food. Reheat TCS food that will be hot held to an internal temperature of 165°F (74°C) for 15 seconds. Make sure the reheated food reaches this temperature within two hours.
- Meat, seafood, poultry, and eggs that you cook in a microwave oven must be cooked to 165°F (74°C). Cover the food, rotate or stir it halfway through the cooking process, let the food stand for at least two minutes, and check the temperature in at least two places.
- Your menu must tell guests when a TCS food is served raw or undercooked. You must also advise guests who order food that is raw or undercooked of the increased risk of foodborne illness. You can do this in different ways. The FDA advises against offering raw and undercooked food on children's menus. Operations that mainly serve high-risk populations should never serve raw seed sprouts; raw or undercooked eggs, meat, or seafood; or unpasteurized milk or juice.

Key Terms

- **Minimum internal temperature:** The required minimum temperature the internal portion of food must reach to sufficiently reduce the number of pathogens that might be present. This temperature is specific to the type of food being cooked. Food must reach and hold its required internal temperature for a specified amount of time.
- **Partial cooking (parcooking):** Intentionally stopping the cooking process to cool a food item, so cooking can be finished just before service or sale.

Knowledge Check Answers

1. The FDA recommends cooking the following items to a minimum internal temperature of 145°F (63°C) for 15 seconds:
 - a. Seafood—including fish, shellfish, and crustaceans
 - b. Steaks/chops of pork, beef, veal, and lamb
 - c. Commercially raised game
 - d. Shell eggs that will be served immediately
2. The FDA advises against offering raw or undercooked meat, poultry, seafood, or eggs on a children's menu. This is especially true for undercooked ground beef, which may be contaminated with Shiga toxin-producing *E. coli*.

Chapter Breakdown

Pages 164 to 167**8.3 Cooling and Reheating Food**

Resources

PowerPoint Slides 15 to 17

Reinforce and Review:

- TCS food must be cooled from 135°F to 70°F (57°C to 21°C) within two hours. Then it must be cooled from 70°F to 41°F (21°C to 5°C) or lower in the next four hours.
- Food will cool faster if you reduce its size. Cut large food items into smaller pieces. Divide large containers of food into smaller ones. Use an ice-water bath, stir food with ice paddles, or use a blast or tumble chiller to cool food safely.

Key Terms

No key terms for this section

Knowledge Check Answers

1. When cooling food, first cool the food from 135°F to 70°F (57°C to 21°C) within two hours. Then, cool it from 70°F to 41°F (21°C to 5°C) or lower in the next four hours.
2. Reheat commercially processed and packaged ready-to-eat food to an internal temperature of at least 135°F (57°C). This includes items such as cheese sticks, precooked corn dogs, and deep-fried vegetables.

CLASSROOM ACTIVITY: Recipe Roadmap

LO: 8-1 State correct ways for prepping food to prevent cross-contamination and time-temperature abuse

8-3 State the minimum internal cooking temperatures for TCS food

8-6 State methods and time-temperature requirements for cooling and reheating TCS food

Materials: Recipes, blank paper

1. Before class, ask students to bring in a family recipe or to find one online. The recipe should contain 2–4 TCS foods.
2. Tell students to imagine that their recipe will be a new dish on a restaurant's menu.
3. Give them 10 minutes to create a step-by-step plan for their recipe, including prepping, cooking, cooling, and reheating.
4. Ask for student volunteers to share their plans with the class and provide opportunities to give feedback.

Instructor Notes: Optionally, you could provide one recipe for the class and ask students to create and compare plans.

End of Chapter

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Discussion Questions

1. What are the minimum internal cooking temperatures for poultry, fish, pork, and ground beef?

The minimum internal cooking temperatures are:

- Poultry: 165°F (74°C) for <1 second (instantaneous)
- Fish: 145°F (63°C) for 15 seconds
- Pork: 145°F (63°C) for 15 seconds (roasts for four minutes)
- Ground beef: 155°F (68°C) for 17 seconds

2. What are the four correct methods for thawing food?

The four correct methods for thawing food are:

- Thaw it in a refrigerator at a product temperature of 41°F (5°C) or lower.
- Submerge it under running, drinkable water at a temperature of 70°F (21°C) or lower.
- Thaw it in a microwave oven if it will be cooked immediately afterward.
- Thaw it as part of the cooking process as long as the product reaches the required minimum internal cooking temperature.

3. What methods can be used to cool cooked food?

There are a number of methods that can be used to cool food, including:

- Using ice-water baths
- Stirring food with an ice paddle
- Using a blast chiller or tumble chiller
- Adding ice or cold water as an ingredient

4. What actions should an operation take when a guest asks for an undercooked item, such as a rare hamburger?

You must cook TCS food to required minimum internal temperatures listed in this chapter unless a customer requests otherwise. Some operations will not provide raw or undercooked items. If an operation does choose to offer undercooked menu items such as rare hamburgers upon customer request, there are additional steps to take. If your menu includes TCS items that are raw or undercooked, you must note it on the menu next to these items or by placing an asterisk next to the item that points guests to a footnote. The footnote must include a statement that indicates the item is raw or undercooked, or contains raw or undercooked ingredients.

You must advise guests who order TCS food that is raw or undercooked, such as animal products, of the increased risk of foodborne illness. One way to do this is by posting a notice in your menu. You can also provide this information using brochures, table tents, signs, or other approved alternative methods.

The FDA advises against offering raw or undercooked meat, poultry, seafood, or eggs on a children's menu.

5. For operations that serve high-risk populations, what special care must be taken when serving eggs?

Undercooked, unpasteurized shell eggs must not be served to high-risk populations. Operations that primarily serve high-risk populations should use pasteurized eggs or egg products when dishes containing eggs will be served raw or undercooked. Shell eggs that are pooled must also be pasteurized. Unpasteurized shell eggs may be used if the dish will be cooked all the way through, such as in an omelet or a cake.

Page 169 to 170

Apply Your Knowledge

Something's Fishy

1. What did Nicole do wrong?

Here is what Nicole did wrong:

- She failed to wash her hands before starting work and between the different prep tasks.
- She failed to thaw the shrimp correctly. When food is thawed under running water, the temperature of the water should be 70°F (21°C) or lower.
- She took out more whole salmon from the walk-in cooler than she could prepare in a short period of time. She also left the salmon out while she prepped the shrimp. These mistakes subjected the salmon to time-temperature abuse.
- She failed to clean and sanitize the knife, cutting board, and worktable correctly after cleaning and filleting the fish. Pathogens that may have been on the fish could have been transferred to the shrimp that Nicole prepared with the contaminated knife and cutting board. Allergens may have also been transferred between the fish and shellfish.

Chicken on the Fly

1. What did Aiden do wrong?

Here is what Aiden did wrong:

- He prepared a large batch of batter.
- He added new batter to old batter.
- He overloaded the fryer baskets.
- He did not allow the fryer oil temperature to recover before lowering the next basket of chicken into the fryer.
- He failed to use a thermometer to check the oil and food temperatures.

2. What should Aiden have done differently?

Here is what Aiden should have done differently:

- Aiden should have prepped the batter in smaller amounts. This would help prevent time-temperature abuse of both the batter and food being coated during preparation.
- He should have thrown out the unused batter at the end of the shift.

- He should have placed an amount of chicken in the fryer basket that would maximize cooking efficiency while still allowing the fryer oil to maintain the correct temperature.
- He should have allowed the fryer oil temperature to recover between batches.
- He should have used a thermometer to check the fryer oil and food temperatures.

Pages 170 to 171**Study Questions**

1. C. 70°F (21°C)
2. B. Cook it
3. B. To prevent cross-contamination
4. D. Time-temperature abuse
5. C. Time-temperature abuse
6. D. Rare hamburger
7. B. 60 minutes
8. A. 165°F (74°C) for <1 second
9. B. sink of ice water.
10. A. 165°F (74°C) for 15 seconds