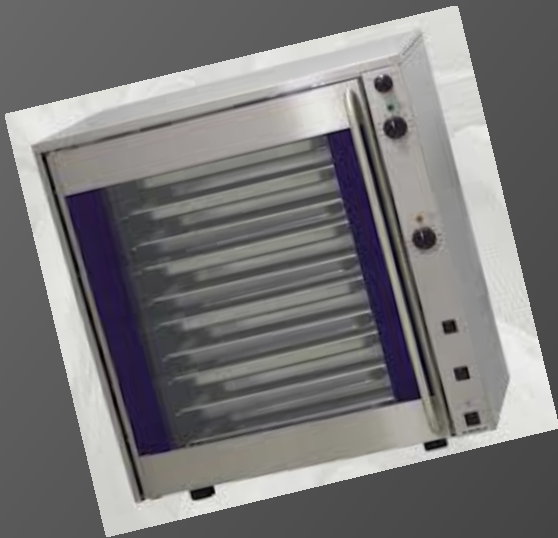


CHAPTER 5

COOKING

METHODS



Heat Transfer



Heat is a type of energy. When two items of different temperatures have contact, energy, in the form of heat, *transfers* from the warmer item to the cooler until they both reach the same temperature.

- **Conduction** is the transfer of heat from one item to another when the items come into direct contact with each other.
- **Convection** is the transfer of heat caused by the movement of molecules (in the air, water, or fat) from a warmer area to a cooler one.
- **Radiation** does not require physical contact between the heat source and the food being cooked. Instead, heat moves by way of microwave and infrared waves.
- **Infrared** heat is created when the heat from a source is absorbed by one material and then radiated out to the food.

Dry-Heat Cooking Methods



In **dry-heat cooking**, food is cooked either by direct heat, like on a grill, or by indirect heat in a closed environment, like in an oven.

- **Broiling** is a rapid cooking method that uses high heat from a source located above the food.
- **Grilling** is a very simple dry-heat method that is excellent for cooking smaller pieces of food.
- **Roasting** and baking are techniques that cook food by surrounding the items with hot, dry air in the oven.
- **Griddling** is cooking a food item on a hot, flat surface (known as a griddle) or in a relatively dry, heavy-bottomed fry pan or cast-iron skillet.
- The **sautéing** method cooks food rapidly in a small amount of fat over relatively high heat. The fat adds to the flavor.

Dry-Heat Cooking Methods (cont.)



- ◉ **Stir-fry** is a cooking method closely related to sauté. Like sauté, it is a quick-cooking, dry-heat method.
- ◉ To **pan-fry** food, cook it in an oil over less intense heat than that used for sautéing or stir-frying.
- To **deep-fry** food, bread or batter coat it, immerse (completely cover) it in hot fat, and fry it until it is done:
 - A **breadcrumbing** has the same components as batter, but they are not blended together. A standard breadcrumbing would be seasoned all-purpose flour and an egg and buttermilk dip.
 - The “**float**” of the item, the point when the item rises to the surface of the oil and appears golden brown, indicates doneness.
 - **Recovery time** is the amount of time it takes oil to reheat to the correct cooking temperature once food is added.
 - The **smoking point** is the temperature at which fats and oils begin to smoke, which means that the fat has begun to break down.

Moist-Heat Cooking Methods



Moist-heat cooking techniques produce food that is delicately flavored and moist, which can be served as a separate course or used as a sauce base.

- ◉ When **simmering**, completely submerge food in a liquid that is at a constant, moderate temperature.
- ◉ When **poaching**, cook food between 160°F and 180°F. The surface of the poaching liquid should show some motion, but no air bubbles should break the surface.
- ◉ **Blanching** is a variation of boiling. When blanching, partially cook food and then finish it later.
- ◉ **Steaming** is cooking food by surrounding it in steam in a confined space such as a steamer basket, steam cabinet, or combi-oven. Direct contact with the steam cooks the food.

Combination-Cooking Methods



When the best method for preparing certain food is a combination of dry-heat and moist-heat cooking methods, it is called **combination cooking**.

- ⦿ In **braising**, first sear the food item in hot oil, and then partially cover it in enough liquid to come halfway up the food item. Then cover the pot or pan tightly and finish the food slowly in the oven or on the stovetop until it is tender.
- ⦿ When **stewing**, first cut the main food item into bite-sized pieces, and either blanch or sear them. As with braising, cook the food in oil first, and then add liquid. Stewing requires more liquid than braising. Cover the food completely while it is simmering.

Sous Vide and Microwave Cooking



- **Sous vide** is a method in which food is cooked for a long time, sometimes well over 24 hours. *Sous vide* is French for “under vacuum.” Rather than placing food in a slow cooker, cooks place food in airtight plastic bags and then place the bags in water that is hot but well below boiling point.
- Many foods can be baked or roasted in a **microwave** oven. However, microwave ovens do not give the same results as convection or conventional ovens because they cook food with waves of energy or radiation—microwaves—rather than with heat.

Section 5.3 Summary



- Heat is transferred to food in three ways:
 - Conduction
 - Convection
 - Radiation
- Types of cooking methods include dry-heat cooking, moist-heat cooking, and combination-cooking methods.
- Broiling, grilling, roasting, baking, sautéing, pan-frying, stir-frying, and deep-frying are kinds of dry-heat cooking.
- Simmering, poaching, blanching, and steaming are techniques used in moist-heat cooking.
- Braising and stewing are types of combination cooking.
- To determine when food is done cooking, identify if the product has its desired texture and minimum internal temperature.