

Dry Heat: Baking, Roasting, and Broiling¹

M. Arick, K. Zamojski, and A. Simonne²

This publication is the first in a series of documents to complement A Healthy Table Virtual Cooking School. The purpose is to educate the general public on how to safely prepare healthy meals at home.

Research suggests there are many health benefits to preparing meals at home. For example, it is possible to use healthier recipes that include more wholesome ingredients lower in saturated fats, sodium, and sugar. Healthier recipes that include more fruits and vegetables make more nutrient-dense meals. Portion sizes are more easily controlled at home. By embracing food safety as well as healthy meal preparation and practices, home-prepared meals can lead to better health outcomes.

Recognizing the differences among various cooking methods is an important step in meal preparation. The preparation method used varies by recipe. The term “baking” is commonly applied to cooking food in the oven. Although the terms “baking” and “roasting” seem to be used interchangeably, there are a few differences. Broiling is a distinct cooking method. All three cooking methods use dry heat.

Baking takes a food product from one state to another. A good example would be cake batter transforming into a cake. Baking browns the outside of the product while also cooking the inside.

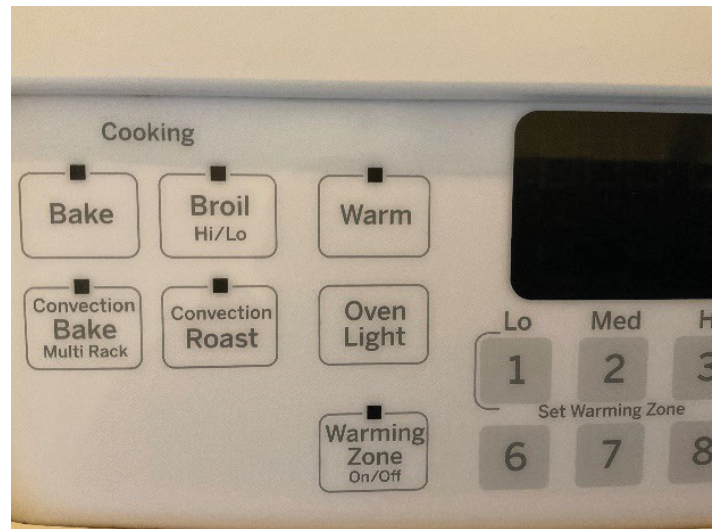


Figure 1. Cooking technique selection display on an oven.

Credits: Marie Arick

With roasting, the food product holds its basic shape. Roasting uses a higher heat than baking, leading to a crispier exterior while also cooking the inside of the food. Some foods that are often roasted include vegetables, chicken, and various beef and pork cuts.

Broiling uses the top oven element and high heat to cook or sear food quickly. It crisps the outside while keeping the inside of the food moist. Broiling is generally used for leaner and thinner cuts of meat, fish, and vegetables. The broiler setting is versatile; it can be used to brown an already cooked food such as a casserole or melt cheese for toast or nachos.

1. This document is FCS3362, one of a series of the Department of Family, Youth and Community Sciences, UF/IFAS Extension. Original publication date November 2021. Visit the EDIS website at <https://edis.ifas.ufl.edu> for the currently supported version of this publication.
2. M. Arick, Extension director, 4-H agent, UF/IFAS Extension Liberty County, and family and consumer sciences agent, UF/IFAS Extension Liberty and Calhoun Counties; K. Zamojski, regional specialized agent, family and consumer sciences, UF/IFAS Extension Northwest District; and A. Simonne, professor, Department of Family, Youth and Community Sciences; UF/IFAS Extension, Gainesville, FL 32611.

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Cooking Method	Cooking Temperature	Heat Source	Impact on Food Product
Baking	375°F or less	Heat from the bottom of the oven	Basic food form changes
Roasting	400°F to 475°F or more	Heat comes from the bottom and top of the oven	Food retains basic shape
Broiling	500°F to 550°F	Heat from the top of the oven	High heat, fast cooking; ideal for thinner foods, searing, melting

Additionally, there are two types of ovens. The chart below describes the differences between a conventional oven and a convection oven.

Oven Type	Cooking Time	Advantages	Disadvantages
Conventional	Standard to most recipes.	Delicate baked goods are not disturbed by the fan.	Heat is provided by the element under the food and can cook unevenly.
Convection	Shorter cooking time; must adjust cooking times on recipe unless convection is specified.	Fan utilized to distribute heat more evenly to provide an even cooking of the food.	Can interfere with the rise of cakes or other baked goods.

Cooking to the appropriate internal temperature ensures food is safe for consumption. Utilize a calibrated food thermometer to ensure appropriate doneness.

Food	Optimal Internal Cooking Temperature
Breads—yeast-cruste	210°F
Soft rolls	190°F
Quick breads, cakes, biscuits	200°F–210°F
Casseroles	165°F
Fish and shellfish	145°F
Eggs	160°F
Ground meats except poultry	160°F
Ground poultry	165°F
Ham	145°F
Steak, chops, roasts—beef, pork, veal, and lamb	145°F

Remember to include a variety of fruits and vegetables in your main dishes and side dishes. Preparing and eating meals together is not only a fun way to teach healthy eating habits and cooking skills, but it is also a great way to connect with each other at the end of the day.

Resources

USDA Safe Minimum Internal Temperatures: https://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/get-answers/food-safety-fact-sheets/safe-food-handling/safe-minimum-internal-temperature-chart/ct_index

Baking Food Safety 101: <https://www.homebaking.org/wp-content/uploads/2019/07/bakingfoodsafety101-1.pdf>

“Health and Social Determinants and Outcomes of Home Cooking: A Systematic Review of Observational Studies”: <https://www.sciencedirect.com/science/article/pii/S0195666316309576>

“Cooking at Home: A Strategy to Comply with U.S. Dietary Guidelines at No Extra Cost”: https://www.sciencedirect.com/science/article/pii/S0749379717300235?casa_token=9YWtpm-q2ooAAAAA:fqy1NuW45UCcTVK50y-5j6AfW33kB9Y_RZXVpUTIHd0BstxCdidp48NsuzfkHwH0Iby9bA7DXQ

Cooking Foods with Dry Heat (Dieticians of Canada): <https://www.unlockfood.ca/en/Articles/Cooking-Food-Preparation/Food-Dictionary--Cooking-Foods-with-Dry-Heat-Methods.aspx>