

# COOKING WITH PRESSURE



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## Objectives

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  - Understand the basic principles of cooking with pressure
  - Identify features of electric pressure cookers
  - Understand food safety principles for electric pressure cookers

## Materials (available from <http://teea.tamu.edu>)

- “Pressure Cooking” PowerPoint; laptop and projector to show PowerPoint
- “Recipes” Handout
- “Food Safety Tips for Electric Pressure Cookers” Handout
- “Cooking with Pressure” Evaluation



## FOOD SAFETY TIPS FOR ELECTRIC MULTI-COOKERS

Article written by Cami Wells, MS, RD ([cami.wells@unl.edu](mailto:cami.wells@unl.edu)) Extension Educator.

Have you jumped on the electric multi-cooker (such as an Instant Pot®\*) craze? These appliances are used for slow-cooking, searing, sautéing, simmering, steaming, and much more. Probably the most talked-about use for electric multi-cookers, is the pressure cooking feature.

When looking online for electric pressure-cooking information, a variety of cooking times are listed for foods such as meat, poultry, and fish. The cooking time needed varies with the size and model of the multi-cooker, size/cut of meat, amount of liquid, pressure release used, and other factors. However, the most important step is often left out—use of a food thermometer to ensure food has reached a safe minimum internal temperature.

Using a food thermometer is the only reliable way to ensure safety of meat, poultry, and egg products. Place the food thermometer in the thickest part of the food, making sure not to touch bone, fat or gristle. According to USDA, food should be cooked to the following minimum internal temperatures as shown in the chart below. For personal preference, you may choose to cook food to higher temperatures.

If food has not reached the proper temperature after pressure cooking, it is important continue the cooking process. Whether it is going back to pressure cooking, using the sauté feature on your multi-cooker or switching to using the stovetop or oven, make sure a safe temperature is reached.

Product	Minimum Internal Temperature
<b>Beef, Pork, Veal &amp; Lamb</b> (steaks, chops, roasts)	145°F (62.8°C) and allow to rest for at least 3 minutes
<b>Ground Meats</b> (beef, pork, veal, lamb)	160°F (71.1°C)
<b>Ham</b> , fresh or smoked (uncooked)	145°F (62.8°C) and allow to rest for at least 3 minutes
<b>Fully Cooked Ham</b> (to reheat)	140 °F (60 °C) for ham packaged in USDA plants 165 °F (73.9 °C) for all other hams
<b>All Poultry</b> (whole birds, parts, ground poultry and stuffing)	165 °F (73.9 °C)
<b>Eggs</b>	160°F (71.1°F)
<b>Fish and Shellfish</b>	145°F (62.8°F)
<b>Casseroles</b>	165°F (73.9°F)

Source: Safe Minimum Internal Temperatures, USDA, <https://go.unl.edu/o5ny>

\*Reference to commercial products or trade names is made with the understanding that no discrimination is intended of those not mentioned and no endorsement by University of Nebraska—Lincoln Extension is implied for those mentioned.



### Super Quick Brown Rice Pilaf

2 cups uncooked brown rice  
2 ½ cups low-sodium chicken broth  
2 Tablespoons minced onion  
2 teaspoons dried parsley  
1 teaspoon garlic powder  
Salt and pepper to taste

1. Add brown rice, chicken broth and minced onion to multi-cooker. Set device to 22 minutes of pressure cooking time.
2. When time is up, open the multi-cooker after a 10-minute natural pressure release. Add spices; salt and pepper to taste. Stir to combine and serve. Makes 8 servings (1/2 cup each). Each serving contains 123 calories, 0.8 g fat, 174 mg sodium, 24 g carbohydrate and 2 g fiber.

**Cook's Notes:** Fresh onions, garlic and parsley would be delicious if available. Dried fruits or nuts could be added after cooking the rice along with a few vegetables such as cooked carrots or peas.

Check out more Food Fun for Young Children Newsletters at: <http://go.unl.edu/chi>

# PRESSURE COOKER HONEY SESAME CHICKEN

**Prep Time:** 5 minutes

**Cook Time:** 3 minutes

**Additional Time:** 17 minutes

**Total Time:** 25 minutes

## INGREDIENTS

- 4 large boneless skinless chicken breasts, diced (about 2 lbs.)
- Freshly ground pepper and salt
- 1 tablespoon vegetable oil
- 1/2 cup diced onion
- 2 cloves garlic, minced
- 1/2 cup reduced sodium soy sauce
- 1/4 cup ketchup
- 2 teaspoons sesame oil
- 1/2 cup honey
- 1/4 teaspoon red pepper flakes
- 2 tablespoons cornstarch
- 3 tablespoons water
- 2 green onions, chopped
- Sesame seeds, toasted

## INSTRUCTIONS

1. Season chicken with freshly ground pepper. Preheat pressure cooking pot using the sauté setting. Add oil, onion, garlic, and chicken to the pot and sauté stirring occasionally until onion is softened, about 3 minutes.
2. Add soy sauce, ketchup, and red pepper flakes to the pressure-cooking pot and stir to combine. Pressure cook on high for 3 minutes. When timer beeps, turn pressure cooker off and do a quick pressure release.
3. Add sesame oil and honey to the pot and stir to combine. In a small bowl, dissolve cornstarch in water and add to the pot. Select Sauté and simmer until sauce thickens. Stir in green onions. Add salt to taste.
4. Serve over rice sprinkled with sesame seeds.

## NUTRITION INFORMATION:

YIELD: 6                      SERVING SIZE: 1

*Amount Per Serving:* Calories: 322 Total Fat: 9g Saturated Fat: 2g Trans Fat: 0g Unsaturated

Fat: 7g Cholesterol: 68mg Sodium: 1418mg Carbohydrates: 34g Fiber: 1g Sugar: 26g Protein: 28g

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# GARLIC AND PARMESAN PRESSURE COOKER ASPARAGUS

## INGREDIENTS

- 1 bunch of asparagus
- 3 cloves of garlic
- 1 cup of water
- 3 tablespoons butter
- 3 tablespoons parmesan cheese

## INSTRUCTIONS

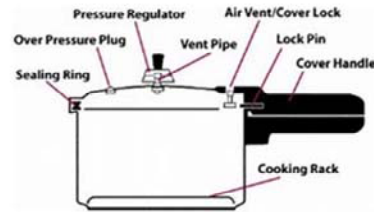
1. Place 1 cup of water and trivet in the bottom of your electric pressure cooker.
2. Place asparagus on a large piece of aluminum foil with whole cloves of garlic and butter. Curve the edges of the aluminum foil so no butter leaks out.
3. Place your pot on high pressure for 8 minutes. I like my asparagus soft, if you like it crispy only do 4 minutes.
4. Do a quick release, sprinkle with parmesan cheese and serve.



Pressure Cooking  
TEEA Educational Program 2019-2020



*Remember  
When?*



Remember when...do any of you have memories of the pressure cookers we used on the stove? Cook a chicken in no time, make beans quickly? What memories do you have? Do you still have a pot at home?

# Pressure Cooking

- ▶ Objectives:

- ▶ Understand the basic principles of cooking with pressure
- ▶ Identify features of electric pressure cookers
- ▶ Understand food safety principles for electric pressure cookers

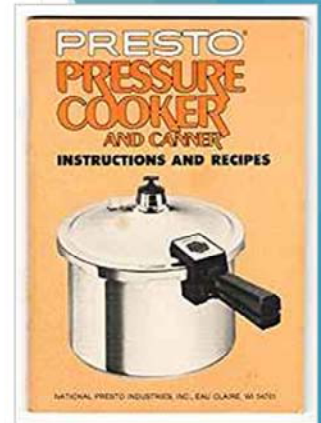
So today we are going to talk about the new craze in electric appliances...the electric pressure cooker. I hope by the end of the program, you will understand a little about how they work, know what kind of things they can do, and understand what you need to do to keep your food safe.



## A Little History

- ▶ In 1679 a French physicist invented an airtight cooking vessel that used internal pressure to allow water to boil at a higher temperature thus reducing cooking time.
- ▶ 1939 the pressure cooking became a hit. Presto unveiled a pot at the World's Fair that women loved. It had a modern "saucepan-style pressure cooker" that "featured an easy-to-close interlocking cover, eliminating the need for awkward lug nuts and clamps"

▶ <http://www.discoverpressurecooking.com/history.html>



Let's look at some of the history around the pressure cooker. As early as 1679, a scientist discovered that if you put food in a small amount of water under pressure, the water would boil hotter. A regular pot boils at a temperature of \_\_\_?\_\_\_ (212 degrees F). SO if you make the water hotter, the food cooks quicker. It wasn't until 1939, at the worlds fair, that women saw the "new modern" pressure pot and fell in love with it. It was sleek, easy to open and close, and did not use any lugs and nuts like the heavy old pressure canners did. The pot was made by Presto. In the United States, "Presto" soon became the name synonymous with pressure cooking."

After the depression ended, the pressure cooker was the most purchased household appliance. There were 11 suppliers and stores could not keep them in stock.

How many of you have a Presto Pressure cooker or Canner? Other brands?

## Fast Forward....

### One use electric appliances

- ▶ Slow Cooker
- ▶ Steamer
- ▶ Rice cooker
- ▶ Yogurt maker
- ▶ Warming pot

### One Pot Wonder

- ▶ Electric Pressure Cooker



Things have certainly changed over the years. Now we can buy a number of small electric kitchen appliances designed to make life easier.

We can buy:

- A crockpot to slow cook
- A rice cooker to make fluffy rice
- A yogurt maker for homemade yogurt
- A warming pot

But the new electric pressure cookers are designed to replace all those appliances in one pot. They have gained favor, especially with younger cooks who were scared to use a stove top model of a pressure cooker or were not familiar with how to operate it.

With an electric pressure cooker, you push a button and can walk away. You don't have to watch the pot or worry about adjusting the temperature of the burner.

(Did any of you ever tell stories or hear stories of pressure cookers blowing up or being hard to use? )

## Advantages of an Electric Pressure Cooker

- ▶ Foods retain most of their nutrients and are tastier.
- ▶ Saves energy.
- ▶ Saves time in preparing meals.
- ▶ The kitchen is cooler.
- ▶ Less cleaning is required.
- ▶ Need few counter top appliances.
- ▶ Cooks with little or no fat.
- ▶ Can fit family size.



## So What is Pressure Cooking?



- A FOOD-PREPARATION METHOD USING TRAPPED STEAM
- RETAINS THE FLAVORS AND NUTRIENTS OF THE FOOD
- SAVES ENERGY COMPARED TO OTHER COOKING METHODS

- It's simple really. The Pressure raises the temperature higher than boiling, so food cooks quicker....
- It seals the food inside a pot with liquid, using heat to create steam, which increases the pressure in the vessel.
- The appliance then traps or releases steam to control the level of pressure.
- With more pressure, the boiling point of the liquid rises, and the food cooks faster at a higher temperature.
- Pressure cooking retains the flavors and nutrients of your food while also creating moist and delicious results and saving energy in the process.
- For instance:
  - Most meat will cook in 30 minutes
  - Poultry in 15-20 minutes
  - Soups and stews in 30 minutes

## The parts of an electric pressure cooker



- **INNER POT:**
  - The inner pot fits inside the base unit
  - It is removable for washing
  - It is essential for cooking - Do Not operate your Electric Pressure Cooker without the inner pot

## The parts of an electric pressure cooker



- **SILICON/INNER RING:**
  - This is on the lid of the Electric Pressure Cooker and helps to seal in the pressure

Exactly like a gasket on a stove top model, the silicon ring helps seal in the pressure. And like a stove top model, it needs to be cleaned after each use and replaced if it gets weak or damaged.

## The parts of an electric pressure cooker



- Floating Valve and Shield:
  - Shield prevents food from getting trapped in the release valve
  - Float valve pushes up and seals cooker when pressure is sufficient

- The shield prevents food from getting trapped in the pressure release valve and the float valve is designed to be pushed up once there is sufficient pressure inside the cooker.
- Once pushed up, the silicone band seals the pressure cooker and the pin of the float valve serves as a lock, preventing the lid from being opened before the pressure has been released.

## The parts of an electric pressure cooker



- **CONDENSATION CUP:**
  - Plastic cup collects any moisture/condensation that leaks out during the cooking process
  - Most common during the cooking of stews or stocks

Steam or condensation may collect under the rim. The condensation cup catches the liquid that may collect.



## How do I use the settings?



- Some pressure cookers have multiple program buttons
- Each button refers to a different cooking method with preset cook time

- The front of your Electric Pressure Cooker can look pretty complicated, with all the different buttons denoting different programs. But once you understand what all the buttons mean, it's very straight-forward.
- Basically, each button refers to a different cooking method and has a preset cook time and pressure setting to make things more user-friendly.

## More about the settings



- Know what you want to use your electric cooker for
- Each brand has different setting.
- Instant Pot is just a particular brand.
- Shop for a brand that meets your needs.

- The Instant Pot has a lot of settings. Be sure you know what you want to cook with your pot. You can cook basically anything you want with just the pressure level buttons.
- Under the pressure setting column, you'll see "high," "low," and "normal." A high-pressure setting indicates the Pressure Cooker is cooking at high pressure, and the lid is sealed to keep the pressure trapped. A low-pressure setting indicates lower pressure, but the appliance is still pressure-cooking. A normal setting shows that the appliance is functioning as a slow cooker and is not sealed or using pressure.
- The Keep Warm setting will automatically turn on when cooking is done. Most cookers will need to be turned off or unplugged to end the Keep Warm setting.

From *Good Housekeeping*



Examples of different brands of electric pressure cookers.

Button	Pressure Setting	Cook Time
Slow Cook	Normal	4 Hours
Pressure	Low or High	Manual
Soup	High	30 minutes
Meat/Stew	High	35 minutes
Bean/Chili	High	30 minutes
Poultry	High	15 minutes
Rice	Low	Auto
Multigrain	High	40 minutes

\*table based on Instant Pot brand Pressure Cooker

Here is an example of a table that shows cooking times for various program buttons as featured on the Instant Pot brand pressure cooker. Each brand will have their own instructions and times included. Be sure to use the instruction sheets and manuals that come with your brand of cooker.

## Altitude adjustments

- Increase cooking time by 5% for every 1,000 ft above 2,000 ft

ALTITUDE	COOKING TIME
3,000 ft	+5%
4,000 ft	+ 10%
5,000 ft	+15%
6,000 ft	+20%
7,000 ft	+25%
8,000 ft	+30%

- As with any type of cooking method, you need to make an adjustment for your altitude. Water boils at a lower temperature the higher you get above sea level, so adjustments must be made for your food to cook properly in your pressure cooker. Again, each brand will include their own directions for altitude adjustment.

## Natural release



- NATURAL RELEASE (NR) LETS PRESSURE DISSIPATE ON ITS OWN
  - 10-30 minutes
  - More liquid=longer time to depressurize
  - Foods stay intact
  - Best for foamy foods or dishes with lots of liquid

- How to release pressure  
Remember that your pot builds up steam to cook with. Before you can open your pot safely, you must release the pressure.
- Natural Release (NR) lets the pressure slowly dissipate on its own, depressurizing as heat gets released from the metal parts of the cover.
- Depressurizing can take between 10 and 30 minutes, depending on how much liquid is in the cooking pot.
- Recipes with more liquid will take longer to depressurize than dishes with less.
- The (NR) method lets food stay intact during the depressurization process, as there is less movement within the appliance.
- Foamy foods or dishes with lots of liquid are best left to the (NR) method.

## Quick release



- **QUICK RELEASE (QR) IS MANUALLY VENTING THE COOKER**
  - 1-2 minutes
  - Best for foods that might overcook (seafood or vegetables)
  - Not recommended for high starch foods
  - Wait until all steam is released before taking off the lid of the pressure cooker

- To utilize the quick release method (QR), you can manually turn the steam release valve to the “venting” position. This cools the cooker down faster and only takes 1 or 2 minutes to completely depressurize.
- The quick release method is ideal for foods like salmon and crab that you don’t want to overcook, or vegetables such as broccoli and bok choy that cook very quickly.
- However, keep in mind that it is not recommended when cooking recipes high in starch content, as the quick release method can result in food bubbling out of the handle.
- *Please Note:* It is crucial to wait until all the steam has been released from the Pressure Cooker before taking off the lid. NEVER try to force the lid open before depressurization is complete, as this can be very dangerous!

## Cooking Guidelines:



### DO NOT OVERFILL:

- Max Line printed on Inner Pot is not intended for Pressure Cooking
- For Pressure Cooking: maximum 2/3 full
- For Food that Expands During Cooking (such as grains, beans and dried vegetables): maximum 1/2 full



## Safety Tips:



### WHEN IN USE:

- Do not use an extension cord.
- Do not leave the house.

### TO SAFELY REMOVE THE LID:

- **Do not** remove lid until all the pressure has been released.
- Always **tilt lid away** when opening
- Wear waterproof, heat- resistant silicone gloves

## Think Food Safety

Use a thermometer to make sure your meat is cooked to the right temperature.

Avoid using the “preset” button. Remember food in the danger zone (as in a preset method) is not good to eat after 2 hours.



## Let's Consider...



- Not all electric pressure cookers perform all the functions equally well.
- Most don't slow cook as well as your slow cooker.
- You will have to tweak recipes to get them to work.
- The time it takes for the Electric Pressure cooker to heat up and cool down are not counted in the "recipe time."
- Where are you going to store it?
- How often will you use it?

While electric pressure cookers do perform a multitude of functions, not all perform equally well. Some also take a considerable amount of time to heat up and cool down. That time needs to be considered as well as the cooking time.

Converting your recipes can take some experimentation. You may even have to adapt recipes meant for electric pressure cooking if it did not come from your appliance manual or web site.

## How to clean

- Clean edges of pressure cooker, but be careful with moisture
- Follow the directions that come with your pot.



- Electric pressure cookers have been found to develop an odor and harbor bacteria under the silicone ring and around the top of the cooker. If they are not cleaned well, they will not be safe to cook with.
- Several things can be used to clean the area around the lip of the cooker; like a damp cloth, an old toothbrush, a new foam paintbrush, etc.

## How to clean

- Lid is Top-rack dishwasher safe
- Remove sealing ring and anti- block shield
  - Clean the silicone ring and dry completely before putting it back in place
- Prevent odors by placing lid upside down until completely dry
- Check steam release valve and float valve, as well as the anti block shield.



- One way to prevent the lid from retaining odors is to place it upside down on the pot until it has completely dried or you are ready to use it.
- Check steam release valve and float valve, make sure no food or debris is blocking the valves

## Accessories

### NEED VS WANT



And with anything, there are a lot of gadgets you can buy. Lots of colors, exciting looking things...but are you really going to make a cheese cake in your pot? Need an egg cooker for 12? Think about what you will really use. As with anything else, if you aren't going to use it, it will become a storage item. Use your pot awhile before you decide to spend on a lot of parts, pieces and gadgets.

# CANNING IN AN ELECTRIC PRESSURE COOKER? NO!!!!



According to the National Center for Home Food Preservation (NCHFP):

“food may end up under processed. Under processed foods are unsafe and can result in foodborne illness, including botulism poisoning, if consumed.”

Use the electric pressure cooker for making dinner, but leave canning to the stove top *pressure canner*.

- And before anyone asks – you can not use an electric pressure cooker to water bath or pressure can.
- In addition to holding too little water, pressure cookers have less metal, which means the time it takes to come to pressure is shorter than that of a pressure canner.
- The time it takes them to cool down is also shorter. That might seem like a good thing, but it actually means the food in the jars is heated for less time – and that means bacteria won't be fully killed during processing.
- According to the NCHFP “the food may end up under processed. Under processed foods are unsafe and can result in foodborne illness, including botulism poisoning, if consumed.”
- By the way, if you are looking for canning and food preservation information, National Center for Home Food Preservation is the best place to check online.



Questions?



## Recipe source ideas

- ▶ <https://www.pressurecookingtoday.com>, Pressure cooking today
- ▶ <https://www.yummly.com/recipes/pressure-cooker-chicken>, Yummly
- ▶ <https://instantpot.com/>, Instant Pot web site
- ▶ <https://www.gopresto.com/recipes/>, Presto web site
- ▶ <https://www.foodnetwork.com/recipes/photos/pressure-cooker-recipes>, Food Network web site
- ▶ <https://www.hippressurecooking.com/>, HIP Cooking

## Thanks to :

- ▶ Kathy Smith, Family and Community Health Agent, Parker County Extension for use of her presentation "Cooking Under Pressure"  
and
- ▶ Becky Hutchings, University of Idaho Extension Educator - Minidoka County for her presentation "Cooking under Pressure"

## References

- ▶ <http://www.discoverpressurecooking.com/history.html>
- ▶ <https://www.goodhousekeeping.com/appliances/pressure-cooker-reviews/g204/electric-pressure-cooker-reviews/>



Please take a moment to provide feedback on this program.

1. Regarding the **overall program/teaching** (rate your response by circling a number):

Statement	Scale (1= Worst, 5 = Best)				
The value of the lesson was	1 not valuable	2	3	4	5 very valuable
The overall teaching was	1 poor	2	3	4	5 excellent
The teacher's knowledge of the lesson was	1 poor	2	3	4	5 excellent

2. Regarding **what you know and actions you plan to take** (circle your response):

- I learned new information today. YES NO
- I plan to use the information I learned today. YES NO
- I understand basic principles of pressure cooking. YES NO
- I can identify features of electric pressure cookers. YES NO
- I understand food safety for electric pressure cookers. YES NO

3. This lesson was delivered by a(n) (check only one):

\_\_\_\_\_ TEEA Member. \_\_\_\_\_ Extension Agent/Specialist \_\_\_\_\_ Other Speaker.

4. Please tell us about yourself.

I am a \_\_\_\_\_ Woman. \_\_\_\_\_ Man.

I am in District: 1 2 3 4 5 6 7 8 9 10 11 12

I have been a member of TEEA for \_\_\_\_\_ years.

My age is \_\_\_\_\_ years-old.

5. Additional Comments.

Thank You For Completing This Form!