

Meat Preservation: Jerky, Sausage, and Meat Sticks

Wendy Becker sums up the different processes available to preserve meat.

Sausage is a tale as old as time. The word comes from the Latin word *salsus*, meaning salted. Salting is one of the oldest methods of food preservation. When we first learned that salt was effective to preserve meat, sausages, jerky, and meat sticks all took on new life. In history, Homer wrote about smoking and salting meat in *The Odyssey* around 830 B.C. Many regions developed their own variety, often named for the village they originated from, such as Frankfurt, Salami, Genoa, Vienna, Bologna, and others. Any meat that has been changed from its original form (processed) and seasoned is considered sausage.

WHAT FOODS CAN BE MADE INTO SAUSAGE?

Sausage is generally made from beef, veal, pork, lamb, poultry, buffalo, wild game, or any combination of meats. It is a good way to utilize all animal trimmings for less waste. Jerky can be made from whole muscle or ground meat, and should be made from lean whole muscle cuts like beef round roasts or pork loins. This is more suitable because fattier cuts can become rancid during storage.

THERE ARE SIX BASIC CLASSIFICATIONS OF SAUSAGE:

Fresh sausage is made from fresh ground meat and not cured or smoked. It needs to be kept refrigerated and cooked

before consuming and then should be eaten within three days or frozen. (Breakfast sausage, Italian sausage)

Uncooked smoked sausage is initially smoked and not cooked. It needs to be kept refrigerated and cooked thoroughly before eating. Once cooked, it should be eaten within seven days or frozen soon after cooking. (Country style, kielbasa, mettwurst)

Cooked smoked sausage is fully cooked to an internal temperature of 155°F and smoked during the process. It needs to be kept refrigerated and eaten within seven days after opening the vacuum-sealed package. (bologna, cotto salami, frankfurter)

Cooked meat specialty sausages are made from a variety of ingredients and need to be kept refrigerated and consumed within three days after opening the vacuum-sealed package. (Head cheese, olive loaf, foie gras)

Dry sausage is seasoned, cured, smoked, and air-dried. It does not require refrigeration when finished. (Genoa salami, pepperoni)

Semi-dry sausage has a tangier flavor and should be kept refrigerated for the best quality. (Summer sausage, thuringer, cervelat)

EQUIPMENT, INGREDIENTS AND GUIDELINES

Equipment needed to make sausage, jerky, or meat sticks includes: a thermometer, scale, meat grinder, sausage stuffer, cutting





boards and knives, packaging, optional smoker, and optional dehydrator or oven.

The ingredients should include high-quality, fresh meat because the final product is only as good as its components. The proper lean-to-fat ratio should be followed in a recipe to produce good binding quality as well. A cure (sodium nitrite) is needed for smoked products as it inhibits production and growth of botulism toxins. Curing also gives the characteristic color to sausages and can improve flavor. Directions need to be followed for specific cure formulations. Federal regulations permit a maximum of 0.25 oz of sodium nitrite per 100 pounds of chopped meat. Other ingredients needed are salt or a premix, spices, optional smoke powder for flavor, optional hi-temperature cheese, and casings. Specialty recipes may also call for starter culture, encapsulated acids, binders, reducing agents, mold inhibitors, or antioxidants.

Some food safety guidelines to follow include: wash hands before starting and throughout prep; use clean equipment and clean surfaces; sanitize and air dry equipment. Keep raw meat separate from any ready-to-eat food or produce. If meat is frozen, thaw in a refrigerator, in cold water, or in a microwave, never on the counter at room temperature. Marinate raw meat in the refrigerator and keep the meat as cold as possible when working with it. If dehydrating, use a calibrated thermometer and one with temperature control.

THE PROCESS OF SAUSAGE MAKING

- Prepare recipe ingredients. First, mix precisely the base mix and cure. Then mix other flavoring ingredients. Taste test ingredients and adjust accordingly before adding base mix and water to mixture. Create a slurry with base mix, cure, spices, and water.
- Cut up meat in small chunks to fit into the grinder and grind the meat through a course plate of ¼” or 3/8”.
- Thoroughly mix slurry with coarse ground meat.
- Grind the meat mixture a second time through a finer plate at 1/8” or 3/16”
- Prepare natural hog casings. Soak them in lukewarm water for 30 minutes and flush the inside of the casings two times to remove the salt preservative.
- Fit the casings on a stuffer and fill the stuffer with meat. Stuff the meat carefully into the casing.

- Thermally process the casing, either cooking it for fresh meat, or smoking the meat according to smoker directions (usually 155°F).
- Package the final product with a vacuum sealer or butcher paper. Use a double-fold insulating wrap to keep the product fresh. Remember to label and date the final product.

If making meat sticks, they will be stuffed into smaller, dry collagen casings. Storage of sausage can be in the refrigerator for up to three days or in the freezer for up to three months.

Ground jerky can be made similarly. It should be pressed and laid in a dehydrator, following the dehydrator directions. For safety, the meat needs to be cooked to 160°F after the drying process because most dehydrators won't reach that temperature.

Whole-muscle jerky should be thinly sliced (the colder the meat, the better for slicing) to no more than ¼ inch strips. If the dehydrator reaches 160°F, meat strips can be placed in the dehydrator to finish drying. Otherwise, they should be placed in a boiling marinade to reach 160°F to destroy bacteria, and then smoked or dehydrated. Do not smoke jerky at lower temperatures and finish it off at a higher temperature; there is a potential that bacteria can survive during this drying process.

Home sausage and jerky making has become more popular as a family activity. And sausage and jerky are convenient foods that provide a great source of complete protein, vitamins, and minerals. The Dietary Guidelines for Americans suggest that individuals need between 10%–35% of daily calories from protein sources, which are necessary for the growth, maintenance, and repair of body tissue and organ function.

MSU Extension offers some sausage-making workshops in Montana. To find out if a program will be offered, contact your local MSU Extension office, www.msuextension.org.

Wendy Becker is the MSU Extension Agent in Roosevelt County.

