

# WISCONSIN MEAT FACTS AND ANALYSIS

## MAKING BEEF JERKY AT HOME

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Before refrigerators and freezers were available, the only way to preserve meat for a long time in warm climates was through drying or salting. These methods remove or tie-up water present in the meat, and make it difficult for most spoilage microorganisms to grow. Jerky is a dried form of meat which was used by Indians of the Southwest, and Central and South America. They would cut muscles of buffalos and other animals into long, thin, flat strips, and dry them in the sun and wind, or over a fire. This would preserve the meat for later use. The Indians of Central and South America called this type of dried meat "charqui" (pronounced sharkey), and this name was probably altered to the similar sounding "jerky" by early explorers. Jerky, or jerked-beef as it is sometimes called, was used by early pioneers as they traveled west.

Although drying is no longer a major means of preserving meat today, jerky is still enjoyed by many people. Jerky is a chewy, highly nutritious food, which keeps well without refrigeration. It makes a good between-meal snack for camping and hiking trips. Today a variety of spices or flavorings may be incorporated to produce many different tastes. Below is a simple procedure which can be used to make jerky in the home.

### Preparation of Beef Jerky

1. Use lean beef such as flank steak, round steak, sirloin tip or rump. Jerky can also be made from lean venison.
2. For ease of slicing, freeze the meat until it is firm (but not solid). Trim off visible fat with a sharp knife, as this fat can become rancid during later storage.
3. Cut the meat into long strips about an inch wide and 1/8 to 1/4 inch thick. The cuts are usually made along the grain of the meat, producing a typically chewy product. If the strips are cut across the grain, a less-chewy, more tender jerky will result.
4. Soak the strips in a brine solution to add salt and flavoring ingredients. Two brine recipes are given below. Recipe No. 1 produces a lightly seasoned jerky in which the flavor of the meat, pepper and liquid smoke predominate. Recipe No. 2 produces a highly seasoned product. Adjust recipes to suit your tastes.

[Recipe continues on next page .....]

Brine Recipe No. 1

For 2 lbs. of beef strips:

1/2 gallon water  
3/8 cup salt\*  
1/4 cup sugar  
3 Tbsp. liquid smoke  
1/2 tsp. black pepper

Source: Red Arrow Products

Place meat strips in brine in refrigerator overnight. Pour off brine and soak in cold tap water for 1 hour. Drain and pat dry.

\*Morton's Tender Quick Salt (containing nitrate and nitrite) may be used instead of regular salt.

Brine Recipe No. 2

For 2 lbs. of beef strips:

1/4 cup soy sauce  
1 Tbsp. Worcestershire sauce  
1/4 tsp. black pepper  
1/4 tsp. garlic powder  
1/2 tsp. onion powder  
1 tsp. liquid smoke

Stir until seasonings are dissolved. Mix meat strips with brine until all surfaces are coated. Let stand 1 hour, or cover and refrigerate overnight.

5. Place flat strips of meat directly on cleaned oven racks. Strips can be close together but not overlapping. To allow for air circulation in the oven, do not completely cover the entire oven rack.
6. Place the filled racks in the oven, but not within 4 inches of the heat source. It may be convenient to place foil on a lower rack in the oven to catch any drips from the meat strips. Dry at 150-175°F for 6 to 10 hours until dry and almost crisp. Keep the oven door open about 1 inch during the first few hours or frying to allow moisture to escape.
7. When suitably dry, remove from oven and allow to cool on absorbent paper. Pat off beads of accumulated fat. Dried weight will be about 25-45% of original meat weight.
8. Store in airtight plastic bag or in a jar with a tight-fitting lid. Although jerky will not spoil at room temperature, it's advised to refrigerate it if it is to be stored for a longer period of time.

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### Making Beef Jerky in a Microwave Oven

- 1 1/4 to 1 1/2-pound beef flank steak or top round steak
- 1 1/2 teaspoons salt
- 1/2 teaspoon garlic salt
- 1/4 teaspoon freshly ground black pepper

1. Remove visible fat from steak; cut lengthwise (with the grain) into thin strips 1/8 inch or less in thickness. Partially freeze steak to facilitate slicing.
2. Combine salt, garlic salt and pepper; sprinkle over strips and mix to distribute evenly.
3. Arrange 1/2 the strips, flat and close together, on microwave-safe bacon rack. Cover with waxed paper and microwave at MEDIUM LOW 21 minutes; invert strips, placing drier strips in center of rack, rotate rack 1/2 turn and continue microwaving at MEDIUM LOW 21 minutes until dry but slightly pliable. (Meat Board's definition of MEDIUM LOW is 30% of full power, or about 200 watts.)
4. Remove to absorbent paper. Repeat with remaining strips. Cover with absorbent paper and let stand 24 hours. Store in a covered container. Makes about 30 strips.

Note: The strips can be microwaved at MEDIUM 24 minutes or at HIGH 12 minutes. Keeping quality is improved and strips are cooked more evenly on MEDIUM LOW power.

### Experience With This Recipe:

I recently made some jerky following the above procedures, using an older GE microwave set on LOW power. I thought the recommended 42 minutes excessively cooked and dried the product. I would recommend carrying out the initial 21 minutes of cooking as specified, but then after inverting the strips and rotating the dish, monitor cooking to achieve desired degree of drying ("dry but slightly pliable"). The jerky will lose a little more moisture upon standing overnight at room temperature. Since microwaves differ greatly in power output, you will have to adapt procedure to oven being used.

The recommended level of seasonings produced a product which I thought was somewhat bland. You could adjust the garlic salt and pepper to suit your tastes (or use other flavors which you enjoy). This microwave procedure produces a somewhat different texture and flavor than conventional jerky which is usually dried at low to moderate temperatures (120-150°F).

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### Restructured Jerky

Jerky can also be made by grinding the meat, mixing in appropriate seasonings, and forming the batter into strips. This kind of product is often referred to as restructured, extruded or ground and formed jerky, and it is being produced by many of our small processing plants around the state.

Begin with lean meat, well-trimmed of external fat. Too much fat left on the meat can make the finished product greasy, and may lead to rancid flavors. The meat can be ground or chopped to a reasonably fine texture. If purchasing ground beef to make restructured jerky, ground round would be the best choice.

Thoroughly mix salt and seasonings into the ground meat. The ingredients called for in recipes for whole muscle jerky can also be added to the ground meat to make restructured jerky. An example of one recipe calls for the following to be added to 10 lbs. of meat:

.5 oz. black pepper (5 tsp.)  
 .5 oz. garlic powder (5 tsp.)  
 1.5 oz. sugar (3 Tbsp.)  
 5.0 oz. salt (7.5 Tbsp.) --Morton's Tender Quick Salt may be used as the salt source to add nitrite/nitrate to the mixture

Various methods can be used to flatten the batter to a thickness of about 1/4 to 1/3 inch, and then divide it into strips. One way is to flatten a quantity of batter between two pieces of wax paper with a rolling pin. Then use a knife to cut the flattened batter into strips of desired width (usually 1 to 2 inches) and length. Place the strips on a mesh rack and dry overnight in a food dehydrator or oven set at 150-175°F (see notes about making jerky in the oven). The finished product can be uniform in shape, reasonable chewy in texture, and seasoned in any manner to suit tastes.

Well dried jerky (50-60% moisture loss) should be placed in an air tight container to prevent moisture pick-up from the air. It is shelf stable and may be stored in a cool place in the kitchen, or kept in the refrigerator or freezer.

### Ground Beef/Ground Venison Jerky

1# ground beef or ground venison  
 1/4 tsp. Cayenne pepper  
 1/4 tsp. white pepper  
 1 tsp. onion powder  
 1/2 tsp. garlic powder  
 1 tsp. dry mustard  
 3 Tbsp. brown sugar  
 1/2 tsp. Liquid Smoke  
 2 tsp. salt --may substitute 2-1/2 tsp. Morton Tender Quick Salt to include nitrite in product

Mix seasonings with meat, form into strips and dry, following the directions above.

Recipe from Howard Reiter, Eau Claire County Master Food Preserver.