



Use marinades for flavor, tenderizing

How long should beef and poultry be marinated?

That's a question that has no firm answer. For one thing, marinades are used both for flavor and for tenderizing, so it depends on what your goal is. For another, different experts will give you different guidance (just do a web search and you'll know what I'm talking about) and there's no clear answer to who's right.

The basic idea behind using marinades to tenderizing meat is this: The marinade contains some sort of acid — vinegar, wine, tomato products, fruit juice, or even buttermilk or yogurt. The acid will eat away at the muscle tissue, tenderizing tough meats. The theory is that the longer you let the marinade work, the more tender the meat will be. Marinades also include herbs or spices for flavor, and oil to help the meat absorb the flavors.

However, food scientists who have examined the issue, including authors Harold McGee and Herve This, say that no matter how long you marinate meat, the marinade just doesn't soak in very far. Cutting very tough cuts of meat into thin slices would help because that exposes more surface area to the marinade.

A basic stew is a good example of what marinade can do. Stew beef tends to be lean. Because it doesn't have much fat, it can be tough to eat. But when it's cooked for a long time in a liquid with wine, tomatoes or other acidic sauce, the fibers in the meat separate, making it more tender. Interestingly, cooling the dish allows the

meat to soak up even more moisture — as well as the flavors in the herbs and spices in the marinade — which is one reason why people often say that stews taste better the next day.

Some marinades call for the juice or puree of fresh pineapple, kiwi or other fruits to tenderize meat. They work, but they don't use acid like in a traditional marinade. They use enzymes that digest protein in the meat: actinidin in kiwi, bromelain from pineapple, or papain from papaya (which is often used in powdered meat tenderizers). Keep in mind, though, that high heat, even for a brief period, inactivates the enzymes.

The U.S. Department of Agriculture says that chicken can be marinated up to two days and beef for up to five days — always in the refrigerator, not at room temperature. But marinating meats for much shorter periods often produces great results. This is just something you have to experiment with.

One more note: Even very briefly basting meat with a marinade before cooking it under high heat, such as on the grill or under the broiler, is a healthful thing to do. Cooking meat at high temperatures tends to produce carcinogenic compounds called heterocyclic amines, but a coating of marinade appears to reduce the risk substantially.

Chow Line is a service of Ohio State University Extension and the Ohio Agricultural Research and Development Center. Send questions to Chow Line, c/o Martha Filipic, 2021 Coffey Road, Columbus, OH, 43210-1044, or filipic.3@cfaes.osu.edu.



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