

Maillard Burger

No, not duck

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Editor



You've seen claims for the ultimate burger recipe. Usually they are just a variation on an existing theme, or involve the addition of "zany" ingredients. Never have you seen a truly new take on the traditional American burger — until now.

This isn't a recipe, it's a method of preparing meat for whatever burger recipe you have in mind. Its two main advantages are improving flavor, and reducing the risk of foodborne illness caused by harmful bacteria in meat cooked rare.

If we had lawyers, they'd say this: *If starting with wholesome whole cuts of meat from herbivorous ruminants like deer or cattle, this technique should reduce the risk of bacterial illness resulting from consuming such meats not cooked to USDA recommended minimum temperature.*

"Reduce" is the key word. Do not presume the risk is eliminated — especially if serving the very young, the very old, pregnant women, anyone with a compromised immune system, or anyone in poor health.

This technique in no way reduces the risk of parasitic illness. *Meat from omnivores and carnivores like hogs (especially wild), bear, and many fish, may have parasitic contaminants such as trichina. These are distributed throughout the meat—not concentrated on the surface. All such meats should never be consumed unless cooked all the way through to at least USDA minimums.*

All raw meat likely has at least some bacterial contamination. On a solid piece of fresh, wholesome meat that bacteria is normally limited to the surface. Typical cooking temperatures kill those surface bacteria. That's why a restaurant can safely serve you a rare steak.

Grinding, however, distributes surface bacteria all throughout the meat, multiplying the effective surface area. Bacteria LOVE this. That is why many restaurants that will happily serve a rare steak refuse to serve a rare burger.

If you prepare and serve the the same day, with this technique you should be able to serve a rare burger as safely as you can serve a rare steak. As a bonus you add great flavor! It does take more time and hassle than your normal burger. Trust me, it is worth it.

There are three main elements to reduce the risk:

- Start with wholesome well chilled large pieces of raw venison or beef.
- Brown all surfaces using a very hot source.
- Immediately chill again.
- Grind the well chilled meat
- Prepare and serve same day, as rare as you like.

That browning — the beautiful delicious crust on any properly prepared steak or burger — is caused by the "Maillard reaction". It was discovered by cave men but first scientifically described in 1912 by Louis-Camille Maillard, a French physician and chemist. Multiple pronunciations are considered correct. I favor my-'yard.

The reaction reliably does two things — sterilizes the surface, and adds great flavor.

The effect needs two conditions: a high heat source, and a relatively dry surface. The point is to get the surface really hot, really fast. Moisture slows it down.

What do you need:

- Large pieces of well chilled meat. Two inches thick is good, more even better. It must not be rolled or folded — all surfaces must be directly exposed to the heat source. A venison round or sirloin roast is perfect. If you don't have venison handy, a beef roast is great too.
- A nice hot heat source, the hotter the better. Best is something like the "Searzall" (google it). You can also use a hot pan or your oven broiler—but those are not as hot and should only be used for very large cuts. On smaller pieces the time it takes to get the surface well browned will cook too much of the interior. You want everything but the surface to remain pretty raw.
- A meat grinder. This is a small job - any grinder should do. Or you can cut the chilled meat into cubes and pulse it in a food processor a few times. Some burger aficionados actually prefer chopped to ground.

- Salt

Directions:

Remember this mantra: Clean surfaces, clean tools, clean hands. Because you are using higher heat than usual, be careful and be prepared. Keep the kids and pets and other distractions away while you're working with the heat.

1. Blot the surface dry using a clean cloth or paper towels until they come away clean.
2. Rub some salt onto all meat surfaces.
3. Wrap the meat pieces in paper towels, place them on a rack and move them to the fridge. Do NOT put them in ziplocks or cling wrap or do anything to block evaporation. You want to wick away as much moisture as possible, and have that liquid evaporate away.
4. Leave meat in fridge for a while. At least 2 hours, up to 2 days. Check periodically and change the paper towels if they show much color.
5. Prepare your heat source, and brown all surfaces as quickly as possible. Don't miss any spots, but try to do it as quickly as you can. You want to sterilize the surface, NOT cook the interior.
6. IMMEDIATELY move the meat to the freezer on a clean rack for a few minutes — long enough to firm but not to freeze.
7. Remove the chilled pieces from the freezer and slice into rough inch-wide strips or chunks - discarding discarding any bones (or saving them for stock) but keeping any fat. If they are not firm, return to the freezer for another 15 minutes or so.
8. It's also useful to stage the detachable metal parts of your grinder in the freezer. Grinding works best if you control the natural heat generated by grinding. A grinder cuts cold meat but smears warm meat. You can guess which provides better texture on the plate.
9. If you want any spices distributed through your burger (pepper? Garlic powder?) add them to the meat. Run it all through the grinder.

Relax, the hard part is done. Now you have a nice batch of flavorful burger, safe to use for even rare burgers.

But don't get cocky. Time and ground meats are natural enemies. Even if you take great care, it's wisest to use or freeze ground meats right away. Bacteria — opportunists who never pass up a free meal — are everywhere.

Prepare the burger according to your usual recipe, though if you brown it using a high heat method you will bring even more of Dr. Maillard's magic to the party. Double down on that great flavor!

Depending on how lean the meat is, patties may not hold together as well as you are used to, so you may need to pat them tighter than normal. Some folks mix a little olive oil in the meat to help with that. Other options are diced fresh mushrooms cooked until they are softened and starting to give off liquid (microwave works fine for this), or some caramelized onion. Chill them well then add them to the meat just before grinding. Those come with the side benefit of having very few calories but bringing even more flavor.

If you don't mind the calories, adding 10-20% beef or pork fat (before grinding) to lean meats adds flavor, improves texture, and helps the patties hold together better. BUT keep in mind that added fat was not processed by Dr. Maillard, and nothing has been done to reduce the surface bacteria it may carry. One way around that problem is to include a pork butt or beef chuck roast or fatty beef brisket (point, not flat) along with your original lean meat pieces, browning them all at the same time as your lean pieces—then grinding them all together. A ratio of a third to half of your lean meats should be good.

One other safety-nazi warning: when browning, keep in mind that you are messing around with very high heat. Burns that result from an accident might require more than bactine and a band-aid. Pay attention to what you are doing, and keep the kids and pets away while you are at it.

Heat sources:

- An expensive new toy known as the "Otto Wilde Griller". <https://www.ottowildegrillers.com/en/> If you know what a "salamander" is (the restaurant appliance, not the amphibian) think of this as a consumer sized salamander.
- A "Searzall" (google it) with a Bernzomatic TS8000. It uses standard disposable camping style propane bottles for fuel. This thing is VERY hot, and fun to use (but be careful!).
- A kamado style grill (e.g. big green egg) can be brought up over 800F without much trouble. Get it up to temp then brown the meat with the lid up, using the hottest part of the grill.
- In a pinch you can use your oven's broiler, or a smoking hot cast-iron pan, but it is real easy to do too much cooking before you get enough browning.
- For a cheap and effective MacGyver-like solution, use a chimney starter and lump charcoal. Google "Dry Aged Chimney Porterhouse" for the details (and video), as invented by Alton Brown. It's also a fine technique for cooking burgers or steaks. Do keep a fire extinguisher handy, and maybe wait till after you're done to open that second beer.

To see some of the above in action, view <https://www.youtube.com/watch?v=JB1x0O-bhrw>

Optional Science Summary — Skip if you get drowsy:

This says "summary" because it is not comprehensive. Use the google if you want the full story.

For beef or venison (or any meat from herbivorous ruminants), the interior of a piece of meat—like a steak or roast—is fairly free of harmful bacteria. Some folks use the word "sterile".

But during the field dressing, skinning and butchering bacteria is inevitably spread to the meat surface. Some of those bacteria may be harmful (e.g. e coli, salmonella, listeria). It is impossible to completely avoid — but if using good practices it's usually a very small amount, posing little risk.

In the case of wild game, poor field care and sloppy butchering are not unusual - typically due to lack of knowledge or skill or suitable conditions. Doing it right is not rocket surgery, but shortcuts or mistakes can significantly increase the bacteria load in the meat. Even then, unless allowed to run rampant by failing to chill the meat properly, most bacteria will remain on the surface.

If the meat is promptly and adequately chilled and processed, and consumed relatively fresh, most folks rarely have any issues. More caution is needed for the usual "at risk" suspects (the very old, very young, pregnant women, people with compromised immune systems). The risks go up if meat is kept around too long before cooking, or stored above 40°F.

Grinding spreads surface bacteria all the way through the meat, multiplying the effective surface area. Bacteria LOVE this. Mechanical "tenderizing" does the same thing, though to a lesser degree.

Here's a quote from [a safety source](#):

"...ground beef must be thoroughly cooked all the way through to the centre to a temperature that will kill the bacteria, which is 170°F (77°C). Because patties are too thin to accurately measure them with a thermometer, they should be cooked until the juices run clear. Cut them open to see inside. If they are still pink, they need to be cooked longer."

Doesn't THAT sound nummy... but they have a point.

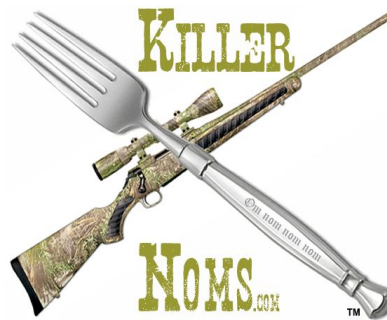
Sure, plenty of us have eaten rare burger all our lives and never had a problem. But In the case of the "at risk" group listed above, or with meat that was poorly handled before grinding, or poorly stored afterwards—there is a true elevated risk. And a real downside.

THAT is why many restaurants will sell you a rare steak but not a rare burger. And also why many of us don't trust game meats we did not handle ourselves at every step from the shot to the plate.

Poultry is a whole different story. Just follow USDA recommendations. Though few want to serve gallinaceous birds rare (chicken, turkey, pheasant etc.), it is common to serve waterfowl rare—especially wild duck or goose. That may not be safe, especially if served to the usual suspects mentioned above. But if it was processed and handled properly, it appears the risk is low.

PAY ATTENTION: For carnivores and omnivores such as bears, mountain lions and hogs (especially feral hogs), parasitic contamination present all through the meat should be presumed—the most common being trichinae, which cause trichinosis. So don't mess around with those meats - cook them all the way through to at least 160°F. Yeah, trichinae has been almost eliminated from commercial pork—you may get away cheating a bit with the grocery store pork. Just don't try it with pork from a feral hog.

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