



# Is Pink Turkey Meat Safe?

*The color pink in cooked turkey meat raises a "red flag" to many diners and cooks. Conditioned to be wary of cooked fresh pork that looks pink, they question the safety of cooked poultry and other meats that have a rosy blush.*

Numerous callers to the USDA Meat and Poultry Hotline report being alarmed when seeing "pink." To them, it means "unsafe" or "under-done."

"I cooked my turkey until done according to the directions, but when I sliced the breast meat, it was still pink near the bone," said an Oklahoma caller. "Is it safe?"

"We had a big family argument at Thanksgiving dinner. Aunt Mildred wouldn't eat the turkey because it looked pink," reported the beleaguered cook from a Wisconsin family.

The color of cooked poultry is not always a sure sign of its safety. Only by using a food thermometer can one accurately determine that poultry has reached a safe minimum internal temperature of 165 °F throughout the product. Turkey can remain pink even after cooking to a safe minimum internal temperature of 165 °F. The meat of smoked turkey is always pink.

To understand some of the causes of "pinking" or "pinkening" in fresh turkey, it's important to know first what gives meat its natural color.

## Why is Poultry Lighter in Color Than Beef?

The protein *myoglobin* is the major pigment found in all vertebrates and can exist in various forms which determine the resulting meat color. The major reason that poultry meat is much lighter in color than beef is that it is dramatically lower in myoglobin. Also, as an animal becomes older, its myoglobin content usually increases. Turkeys today are young -- 4 to 5 months old -- at the time of slaughter.

## Why Are White and Dark Meat of Poultry Different Colors?

The pink, red, or white coloration of meat is due primarily to oxygen-storing myoglobin which is located in the muscle cells and retains the oxygen brought by the blood until the cells need it. To some extent, oxygen use can be related to the bird's general level of activity: muscles that are exercised frequently and strenuously -- such as the legs -- need more oxygen, and they have a greater storage capacity than muscles needing little oxygen. Turkeys do a lot of standing around, but little if any flying, so their wing and breast muscles are white; their legs, dark.

## What Causes Well-Done Meat to Be Pink?

### 1. Chemical Changes During Cooking.

Scientists have found that pinkness occurs when gases in the atmosphere of a heated gas or electric oven react chemically with hemoglobin in the meat tissues to give poultry a pink tinge. They are the same substances that give red color to smoked hams and other cured meats.

The presence of high levels of myoglobin, or some of its redder forms due to incomplete denaturation during heat processing, can account for poultry having a pink to red color similar to that of an undercooked product.

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### 2. Natural Presence of Nitrites.

Nitrites are commonly used to produce a desired pink color in traditionally cured meats such as ham or bologna. So it follows that the natural presence of nitrates and nitrites, either in the feed or water supply, used in the production of poultry are a factor in nitrite levels in the birds.

One study found that during 40 hours of storage at 40 °F, naturally occurring microorganisms converted nitrate to nitrite. It also found that the local water supply had nitrate and, thus, could serve as a nitrate source during processing.

### 3. Young Age of Meat.

Often meat of younger birds shows the most pink because their thinner skins permit oven gases to reach the flesh. The amount of fat in the skin also affects the amount of pink color. Young birds or animals also lack the shield of a fat covering.

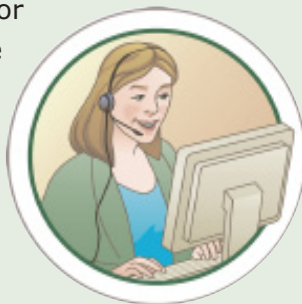
### 4. Grilling.

Meat and poultry grilled or smoked outdoors can also look pink, even when cooked to 165 °F. There may be a pink-colored rim about one-half-inch wide around the outside of the cooked meat. The meat of commercially smoked turkeys is usually pink because it is prepared with natural smoke and liquid smoke flavor.

## Food Safety Questions?

### Call the USDA Meat & Poultry Hotline

If you have a question about meat, poultry, or egg products, call the USDA Meat and Poultry Hotline toll free at **1-888-MPHotline (1-888-674-6854)**. The hotline is open year-round



Monday through Friday from 10 a.m. to 4 p.m. ET (English or Spanish). Recorded food safety messages are available 24 hours a day. Check out the FSIS Web site at

[www.fsis.usda.gov](http://www.fsis.usda.gov).

Send E-mail questions to [MPHotline.fsis@usda.gov](mailto:MPHotline.fsis@usda.gov).

### Ask Karen!

FSIS' automated response system can provide food safety information 24/7 and a live chat during Hotline hours.



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