



## HOSPITALITY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

670 Transfer Road, Suite 21A • Saint Paul, Minnesota 55114 • USA • TEL: (651) 646-7077 • FAX: (651) 646-5984  
e-mail: osnyder@hi-tm.com • web site: <http://www.hi-tm.com>

### COOKING TURKEY FROM THE FROZEN STATE

O. Peter Snyder, Jr., Ph.D.

#### Introduction

A common problem on Thanksgiving is waking up on Thanksgiving morning and realizing that the turkey has not been thawed, and there is not enough time to thaw the turkey in the refrigerator or in flowing water at 70°F, which takes hours.

However, there is a very simple solution – cook the entire turkey from the frozen state. The FDA Food Code allows this, and turkey hotlines suggest it. The following is a HACCP-based procedure for cooking a 12-to-13-lb. frozen turkey.

#### Method



Figure 1. Frozen

Start 5 to 5 1/2 hours before you want to serve the cooked turkey. Set the oven temperature at 325°F. It is much better that the turkey be done 30 minutes before mealtime than to rush and serve an undercooked turkey. Remove the wrapping from the turkey and put the turkey on a rack on a pan that has been covered with foil to make cleaning easy (Fig. 1). You can also cook the turkey in a covered roasting pan if you have one.



Figure 2. Frozen, in oven, start

Put the turkey in the oven (Fig. 2). Do not worry about the paper bag with the heart, liver, etc. in the neck cavity or the neck in the center of the turkey. They can be removed during cooking, after the turkey thaws or simply left in the bird to cook. There will be *Salmonella* spp. and *Campylobacter jejuni* on the turkey. However, because it is frozen, there is no drip, and transfer to hands or counter is not a significant risk.

Cooking the turkey on a shallow pan on a rack assures even cooking. Cooking in a pan with sides shields the bottom of the turkey from heat, and the cooking on the bottom will be non-uniform.

## Results



**Figure 3. Partially thawed**



**Figure 4. Turkey is done**

In the first 2 to 2 1/2 hours, the legs and thighs get up to approximately 100°F. The breast, about 1 inch into the flesh, is still at the soft ice point, about 25°F. At this point, begin to monitor breast temperature with a tip-sensitive digital thermometer as it thaws. You may also use a dial roast thermometer. Insert it into the breast, because it is the slowest cooking part.

After about 3 1/2 hours, the legs and thighs will be around 150 to 160°F, and the breast, about 40 to 50°F. The bag of heart, liver, etc. and the neck can be removed at this time, to be made into stock, if desired (Fig. 3).

At 4 1/2 to 5 hours, the turkey is nicely cooked. Check the temperature. The leg and thigh should be tender and at a temperature of 175 to 185°F, while the breast will be moist at a temperature of 160 to 170°F. The pop-up timer (if there is one) should have popped. Cooking turkeys to these temperatures is adequate to assure the reduction of *Salmonella* and *Campylobacter jejuni* to a safe level. (Fig. 4).

## Discussion and Conclusion

This is an excellent way to cook turkey. Actually, cooking a turkey from the frozen state has benefits over cooking a thawed turkey. Cooking can be done in a roasting pan, but it is unnecessary. If one thaws a turkey in a home refrigerator, there is a significant risk of raw juice with pathogens at high levels getting on refrigerator surfaces, other foods in the refrigerator, countertops, and sink, thus creating a hazard and a need for extensive cleaning and sanitizing.

The second benefit is that, because the breast has greater mass, it takes longer to thaw. Therefore, the thigh and leg are well cooked and tender, while the breast is not overcooked and dried out. The breast will cook to a juicy 160-to-165°F endpoint without difficulty.

## Summary

Cooking turkey from the frozen state produces an excellent, juicy, tender, and safe product. There is no need to remember to thaw the turkey four days ahead of time, and cooking a frozen turkey minimizes risk of pathogen cross-contamination from juices from the raw bird.

To assure a quality and safe turkey, monitor the final temperature with a tip-sensitive digital thermometer, and always wash your hands before touching and handling the cooked turkey.

## Reference:

FDA. 2005. Food Code. U.S. Public Health Service, U.S. Dept. of Health and Human Services. Washington, D.C. <http://www.cfsan.fda.gov/~dms/fc05-toc.html>.