

Food Council News

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A Very Confused Chicken

Quick—what is the acceptable and safe cooking temperature for poultry? You may be surprised to know that there is no right answer, and it all depends on the province in which you live in Canada, or if you reside in the US.

In Canada, the CFIA recommends that chicken and turkey breasts, legs, thighs, and wings, and whole chicken and turkey be cooked to 85°C (185°F). This is much easier than the traditional USDA recommended cooking temperature based on the type of meat: Ground turkey and chicken 74°C (165°F), whole turkey and chicken 82°C (180°F), poultry breasts (roast) 77°C (170°F), and poultry thighs and wings 82°C (180°F).

Although CFIA's recommendation is more straight forward and easier to remember than the US's, it may come as a surprise to many that it is not universal. The Canadian *Fight-bac* Program and the Canadian Partnership for Consumer Food Safety Education, recommends the following cooking temperature for poultry: 82°C (180°F) for whole chicken and turkey (stuffed or un-stuffed), and 77°C (170°F) for chicken turkey pieces, similar to the US's. The Public Health Agency of Canada has no fact sheets on food safety, but for *Campylobacter*, the Agency recommends "poultry should be cooked

thoroughly until juices run clear". If one conducts searches within provincial health department web sites, one will find a variety of recommendations:

- BC *HealthFile on Salmonella*: 74°C (165°F);

- Alberta Health & Wellness *Food Retail & Foodservices Code 2003*: 74°C (180°F) (typo in the manual) for 15 seconds (how do you measure 15 seconds when cooking in an oven?);

- Manitoba Health, *Keeping Foods Safe and Handling Food At Home* (2003): 85°C (185°F);

- Ontario Ministry of Health & Long-Term Care, *Safe Food Handling* (no date): chicken and turkey (whole) 82°C, breasts 74°C, thigh and wings—cook till juice runs clear;

- Newfoundland Department of Health and Community Services (2001), *Food Safety Tips*: poultry 85°C (185°F) for 15 seconds; and

- Nova Scotia Department of Health, *CDC Manual*, chicken and turkey pieces 77°C (170°F) and whole at 82°C (180°F).

There does not seem to be any cooking temperature recommendations on provincial health department web sites in Saskatchewan, PEI and New Brunswick. However, Regina Health Region recommends 85°C while Saskatoon Health Region recommends 77°C for unstuffed turkey.

The US Food Safety and Inspection Services (FSIS) reviewed the latest information, and will be recommending in April 2006 a single minimum temperature for poultry at which consumers can be confident that pathogens and viruses will be destroyed—74°C (165°F). Canadians will now continue to be confused not only by provincial differences, but different messages through US media.

So, will someone please tell me, as one of the people who is responsible for providing information to the public, what is the cooking temperature for chicken and turkey in Canada?



**74°C in Alberta and BC,
77°C in Nova Scotia, 82°C
in Ontario, 85°C in New-
foundland and Manitoba**

Special points of interest:

- A 7-log *Salmonella* inactivation will provide a 50-log *Campylobacter* reduction
- Avian influenza virus can be inactivated at 70°C
- Some poultry meat will remain pink even though properly cooked

Capital Health News

* Tom Chung, the long-serving Food Manager, retired in January after 34 years of service. Mr. Rick Dimock was the successful candidate and assumed the position of Manager, Safe Food Program in February.

* The Safe Food Disease Control Specialist was accompanied by a reporter and photographer from *Our Health Magazine* through two food establishments and gave them a detailed perspective of one day in the life of an EHO.

* A District EHO found cracked and

filthy eggs being used in a food facility. Further investigation found that the eggs came from a Hutterite colony which does not have a grading station license from Alberta Agriculture. The operator of the food establishment was advised that only eggs from an approved source could be used.

* An inspection of a farmers' market found a vendor deep frying spring rolls. This vendor had been previously told on more than one occasion, that without proper ventilation, deep frying was not allowed.

* The operators of a restaurant who were charged for opening after a Closure Order had been issued proceeded by way of a guilty plea. Two accused were fined \$5,980. A third accused could not be located to serve the summons and a warrant for public interest was issued.

* Improperly sealed and labeled products were seized from various food stores. The owner of the food manufacturing operation has been avoiding all attempts by EHO to contact her.

General Food News

* An organic farmer supplied up to 200L of unpasteurized milk to five local shops in the UK. The local health department told him to stop the distribution of milk, but he won an appeal with the Food Standards Agency. The FSA considered his operation as a 'small producer' and therefore entitled to sell his product through retailers. This also means the raw milk operation will no longer need to be registered as a food business.

SOURCE: EH News March 3

* An environmental group took samples from six top sushi restaurants in the Los Angeles area to determine the mercury level in tuna. A typical sushi order of a pair of nigiri sushi or a single sushi roll is around 2 ounces of tuna. Consumers often eat two or more orders of sushi in a single meal. An order of sashimi can be as much as 6 to 8 ounces. Overall, the mercury levels of all the tuna sampled was an average of 0.721 ppm total mercury. 25% of samples were about 1 ppm, at the actionable level set by US FDA. All samples were above the safety limit of 0.4 ppm set by the Japanese government. The organization suggested that women and children should not eat tuna served as sushi or sashimi.

SOURCE: gotmercury.org March 6

* In order to ensure the consumer that their product is safe, a grocery store in California launched the nation's first line of low-mercury fresh fish. The fish products are certified to have mercury concentrations well below the USFDA limit of 1 ppm.

SOURCE: latimes.com Feb 27

* A grade seven student in Tampa Florida won the local science fair by examining the amount of bacteria in ice served at fast food restaurants. Ice used in the drinks was compared to the water from toilet bowls in the same restaurants, and 70% of the time, the ice had more bacteria than the toilet water. Ice from three of the five restaurants tested positive for fecal coliform or *E. coli*.

SOURCE: tampabay online, Feb 13

* Dirty shopping carts are in the news again. The Korean Consumer Protection Board tested six consumer items and found shopping-cart handles to be the dirtiest—1,100 bacteria cfu/10 sq. cm, followed by a mouse for computers in internet cafes. Hand straps on buses were next with 380, followed by bathroom doorknobs at 340. In the US many grocery stores are placing sanitizing wipes by shopping carts to allow



Sushi found to be high in mercury in Los Angeles

customers to clean the carts prior to using. One company in the US is marketing a low-pressure chemical mist spraying of the whole cart to 'enhance the shopping experience for our customers'.

SOURCE: groceryheadquarters.com Mar; and National Post Feb 22.

* According to Earth First! Journal, there are 1,462 recorded species of edible insects. The journal claimed that bugs "are a more efficient and sustainable food source and just as functional in a multitude of recipes", with 70% of the people in the world eating some sort of insects. A "Bugfeast" has been created in Ontario where thousands of screeching, disgusted kids are expected to pass through to sample cuisine made with prepackaged dead bugs such as cricket-laced damper and grub soup.

SOURCE: theglobeandmail.com Mar 17

70% of the people in the world eat some type of insects

The Science Behind the Numbers

The US National Advisory Committee on Microbiological Criteria for Foods (NACMCF) found that foodborne pathogens such as *Salmonella*, *Campylobacter* and the avian influenza virus are destroyed when poultry is cooked to an internal temperatures of 165°F. The US FSIS has therefore set the new single temperature recommendation for all poultry products to be 165°F (74°C), with no required hold time.

In order to ensure poultry products are safe, the risk assessment process requires a 7-log reduction of *Salmonella*, the acceptable level of lethality in poultry. A process sufficient to control *Salmonella* will also control *Campylobacter*. A 7-log *Salmonella* reduction would correspond to greater than 50-log *Campylobacter* reduction. Although *Listeria* is more heat resistant than *Salmonella*, it is considered a hazard from post-process contamination rather than from under-cooking. Avian influenza virus is ex-

pected to be inactivated at 70°C.

At 160°F, 7-log *Salmonella* reduction can be achieved within 15 seconds. Since it will take more than 15 seconds for the cooking temperature to reach 165°F, cooking to that temperature will provide the needed inactivation without a holding temperature requirement.

The FSIS still recommends that consumers may still wish to cook poultry to a higher temperatures (180°F for whole chicken or turkey or whole muscle thigh meat, or 170°F for whole muscle breast meat) in order to remove the pink appearance and rubbery texture in poultry that is cooked only to 165°F. However, cooking to 165°F will ensure safety, and meat that is not overcooked can be juicier and more tender if handled properly.

The committee found that a single endpoint temperature rather than a time and temperature combination is a bet-

ter suggestion for the consumer. Since proper cooking temperature and methods are required on the display panel of the package in the US, the manufacturers must therefore take into consideration the product condition or state before cooking. The display panel must provide guidance on thawing procedures for frozen products. The consumer should also be informed that a longer cooking time is needed if the product is frozen before cooking and that microwaving a product from the frozen state is not an acceptable cooking method unless a sufficient number of temperatures are measured throughout the product to ensure the product is properly cooked. Regardless, FSIS recommends that the single endpoint temperature rather than a time-and-temperature combination be recommended to the consumer.

SOURCE: NACMCF, March 2006

Redness in Chicken

Consumers are often concerned when the poultry they are served shows pinkish colour, even though the processor followed the right directions and cooked the meat to the proper temperature. It should be noted that regardless of the cooking temperature, sometimes the inside of the chicken stays red. There are a few reasons that cause the meat to stay pink even though it has been properly cooked.

Bone marrow growth:

Chickens today are bred to eat continuously and therefore grow extremely rapidly. This puts undue stress on their bone development. If the diet of the bird is not perfectly controlled, a low phosphorus condition may result, which will increase bone porosity. Backyard flocks are not bred to eat as much and grow more slowly. For example, it would take on average 16 weeks for backyard flocks to reach 6 lbs live weight, as compared to a commercial bird which can get to 7 lbs in about 6.5 weeks. This quick growth results in poor bone deposition and bone darkening in commercial birds. During cooking, a little of the bone marrow and myoglobin migrates to the surface of the bones as the chicken is heated and

adds to the dark appearance. This darkening is more noticeable around the bones themselves (bone sheaths).

Some of this bloody material also migrates out onto the meat giving it a reddish or pinkish appearance near the bones and some customers assume this is under-cooked meat.

Chemical reactions:

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. A component of hemo-protein in the turkey meat, cytochrome c, requires a much higher temperature (212°F) to lose its pink colour than does myoglobin. Because turkey is tender and done at 180°F, heating it to above 212°F to change the pink colour of cytochrome would make it dry and tough.

Age of birds:

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 colour. Young birds or animals also lack the shield of a fat cov-

Heme leached out of the bone marrows of young chicks, giving a reddish appearance

ering. The bones in the young birds have not yet matured and are still somewhat soft and porous. As a result, there can be seepage of bone marrow through the soft bone and into the surrounding meat. When a young chicken is deep chilled, frozen ice crystals form inside the bone. They expand and force the heme out of the marrow through the soft porous bones. During the cooking process, the tissue will darken in colour.

Raw poultry that has been frozen and thawed and then cut up will contain a blood red discoloration of particularly the long leg bones and sometimes the breast bones and adjacent flesh. It is not observed in the major wing bone which has yellow bone marrow.

The colour of cooked meat and poultry is therefore not always a sure sign of its degree of doneness. Some turkey meat gives a slight pink colour even though it has been properly cooked.



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In the business of protecting the public's health

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DID YOU KNOW.....

* The average Canadian consumed 30.3 kg of chicken in 2001

* There are more chickens in the world than humans

* The waste produced by one chicken in a lifetime can supply enough electricity to run a 100 watt bulb for 5-hours

SOURCE: www.vfr.net and www.cahi-icsa.ca

Notifiable Enteric Diseases for January and February

AGENT	Month/ YTD
<i>Amebiasis</i>	4/4
<i>Campylobacter</i>	21/21
<i>Cryptosporidium</i>	1/1
<i>E. coli</i> O157:H7	2/2
<i>Giardia</i>	21/21
<i>HUS</i>	0/0
<i>Salmonella</i>	32/32
<i>Shigella</i>	5/5
<i>Vibrio parahaem.</i>	0/0
<i>Yersinia</i>	0/0
Others	0/0

Outbreaks Summary

* A catered Christmas party resulted in at least 36 cases of gastroenteritis. Clinical presentation was consistent with *Clostridium perfringens* infection. One food sample (turkey) had infectious levels of the pathogen.

* Another Christmas function held at a hotel resulted in 7 individuals ill. No clinical or food samples were available and case-control study provided only limited information as information was only col-

lected from 21% of the attendees.

* Two confirmed *Salmonella* cases were traced to tourists staying at the same Mexican resort.

* Twenty-one confirmed/suspected norovirus outbreaks were reported in Jan and February. Most outbreaks occurred in continuing care facilities.

