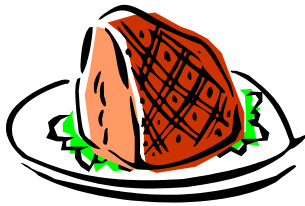


Minimum Safe Internal Cooking Temperatures



Pork, Ham and Bacon

NYS TEMPS
150°F
(for 15 seconds)

FEDERAL TEMPS
145°F
(for 15 seconds)



Poultry, stuffed meats, and stuffed pastas

165°F
(for 15 seconds) with
no interruption in the
cooking process.

165°F
(for 15 seconds) cook
stuffing and meat first,
then stuff the food



Ground Beef, Ground Pork, and Sausage

158°F
(for 1 second)

155°F
(for 15 seconds)

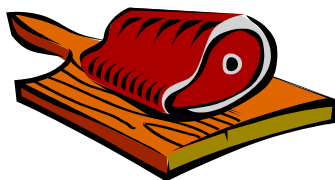


Fish, eggs and all other
potentially hazardous foods not
listed on this page

145°F
Fish & Eggs

145°F
(for 15 seconds)

140° F
all other foods not
listed on this page



Beef Roasts

130°F
(maintained for 112
minutes)

145°F for 3 mins;
140°F maintained for
12 minutes; or
130°F maintained for
112 minutes.

Microwave cooking: Heat to a temperature of 165°F in all parts of the food and let sit 2 minutes

When meat or fish is served raw, (ie. steak tartar or sushi) the consumer is to be notified.

<CMc2012>

Temperatures, Times and Numbers to Remember

Match the correct answer from column B with column A

Column A

- _____ 1. Bi-metallic thermometer range
- _____ 2. The temperature danger zone
- _____ 3. pH range that bacteria grows well in
- _____ 4. Receiving and storing temp. for most (cold) potentially hazardous foods
- _____ 5. Ideal temperature for dry storage
- _____ 6. Cook temperature for poultry, stuffed meats or foods cooked in microwave
- _____ 7. Cook temperature for ground meat, eggs that will be held for service later, or injected meats
- _____ 8. Cook temperature for pork, beef, veal, lamb, fish, and eggs for cooked immediate service
- _____ 9. Hot holding temperature
- _____ 10. Final rinse temp for a high temp. dish machine
- _____ 11. Water temperature for hot-water immersion sanitizing (3-bay sink)
- _____ 12. Body temperature (ideal for bacteria growth)
- _____ 13. Cold hold temperature
- _____ 14. Sushi grade fish parasite destruction temperature (held one week)
- _____ 15. Minimum time to be spent on scrubbing hands and nails during hand washing
- _____ 16. Number of days to keep clam tags
- _____ 17. Distance off the floor that food should be stored
- _____ 18. Water activity that supports bacterial growth
- _____ 19. Recommended amount of chlorine necessary for sanitizing

Column B

- A. 180 °F
- B. 98.6 °F
- C. 41° F or less
- D. 0-220°F
- E. 4.6 -7.5
- F. 41-135°F
- G. -4°F
- H. 90 days
- I. 155°F (for 15 seconds)
- J. 41°F or less
- K. 15 seconds
- L. 50-70°F
- M. 171°F
- N. 145°F
- O. 135°F
- P. 50 ppm
- Q. 6 inches
- R. .85 or greater
- S. 165°F

Answers: D, F, E, C, L, S, I, N, O, A, M, B, J, G, K, H, Q, R, P

Agents that Cause Foodborne Illness

BACTERIAL INFECTIONS

<i>Pathogen</i>	<i>Foods commonly involved</i>	<i>Typical symptoms</i>	<i>Onset</i>
Salmonella*	Raw poultry, eggs, raw meat, untreated milk and dairy products, fresh fruit	<i>abdominal pain, diarrhea, nausea, vomiting, fever</i>	12-36 hrs
Campylobacter	Raw poultry, raw meat, untreated milk	<i>diarrhea (often bloody) abdominal pain, nausea, fever</i>	48-60 hrs
Listeria	Untreated milk, dairy products such as soft cheeses, cooked luncheon meats and hotdogs, raw vegetables, protein based salads	<i>flu like symptoms, complications in pregnancy, stillbirths</i>	1 day to 3 wks.
Shigella*	Foods prepared with human contact: ready to eat salads, raw vegetables, milk and dairy products, non-potable water	<i>bacillary dysentery, diarrhea, fever, abdominal cramps, dehydration</i>	1 to 7 days
Vibrio	Raw or improperly cooked fish and shellfish	<i>headache, fever, chills, diarrhea, vomiting, dehydration</i>	2- 48 hrs.

BACTERIAL INTOXICATION

Bacillus cereus	Rice, starchy foods, grains, cereals	<i>abdominal cramps, diarrhea, vomiting</i>	8-16hr (diarrhea) 30 mins. – 6 hrs.
Clostridium botulinum (<i>botulism</i>)	Improperly canned food, vacuum-packed fish, garlic or onions stored in oil	<i>Double vision, difficulty breathing, and swallowing, paralysis</i>	12-36 hrs.
Staphylococcus aureus	Foods prepared with human contact: ready to eat foods luncheon meats, deli salads, ham, poultry, milk, cheese	<i>nausea, vomiting, abdominal cramps, headache</i>	1-6 hrs.

BACTERIAL TOXIN-MEDIATED INFECTION

Clostridium perfringens	Improperly cooled foods, especially gravy and meats	<i>abdominal pain and severe diarrhea</i>	12-18 hrs.
Escherichia coli* (E.coli 0157)	Raw or undercooked red meat (especially ground beef), improperly pasteurized milk, unpasteurized apple cider, lettuce and other leafy greens	<i>bloody diarrhea followed by kidney failure and hemolytic uremic syndrome (HUS) in severe cases</i>	12-72 hrs.

VIRUSES

Hepatitis A*	Raw or lightly cooked seafood harvested from polluted waters, ready to eat foods prepared by bare hands	<i>fever, nausea, vomiting, jaundice, liver disease, fatigue</i>	15 to 50 days
Norovirus* (Cruise Ship Illness)	Contaminated water, salad, raw clams, oysters; foods contaminated by infected food workers	<i>nausea, projectile vomiting, diarrhea, low grade fever, headache</i>	24-48 hrs.
Rotovirus	Contaminated water, raw vegetables, salads, seafood	<i>vomiting, diarrhea, dehydration</i>	24-36 hrs.

PARASITES

Anisakis	Raw or undercooked seafood	<i>coughing, vomiting, pain, fever</i>	1hr to 2 weeks
Cryptosporidium parvum	Contaminated water or food	<i>diarrhea</i>	Within 1 week
Giardia lamblia	Contaminated water or food	<i>watery diarrhea</i>	Within 1 week
Trichina Spiralis	Pork and wild game meat	<i>nausea, abdominal pain, vomiting diarrhea, muscle pain, fever</i>	2-28 days

TOXINS

Ciguatoxin	Warm-water fish	<i>vertigo, nausea, hot/cold flashes, diarrhea, vomiting, shortness of breath</i>	30 min. to 6hrs.
Shellfish toxins PSD, DSP DAP, NSP	Contaminated mussels, oysters, clams, scallops	<i>numbness of lips, tongue, arms, legs neck; lack of muscle coordination</i>	10 to 60 mins.
Mycotoxins	Moldy grains: corn, corn products, peanuts, pecans walnuts, and milk	Acute onset: severe bleeding, fluid <i>build-up, possible death</i> Chronic: cancer from small doses over time	Varies

* denotes reportable diagnosis

The person in charge (owner or manager) shall notify the Regulatory Agency (local or state Health Department) when a food employee is

- (1) Jaundice
- (2) Diagnosis with a reportable disease



Technical Word Review

1. **Sanitize**: reduce microbes to a safe level (99% destruction)
2. **Sterilize**: is a term referring to any process that eliminates (removes) or kills all forms of life, including transmissible agents (such as [fungi](#), [bacteria](#), [viruses](#), spore forms, etc.) present on a surface.
3. **Pasteurize**: a heat treatment used to destroy disease causing organisms (milk, liquid eggs, juices)
4. **Botulism** (toxin): a type of food intoxication caused by C. Botulinum (canned or sealed foods)
5. **Chlorine** (bleach): chemical sanitizer
6. **Quaternary ammonium** (quat): a chemical sanitizer that is relatively safe for contact with skin
7. **Iodine**: a water soluble disinfectant, non-corrosive, kills microbes quickly, may stain equipment
8. **Antiseptic**: (hand sanitizers) any substance that prevents or decreases the growth of microorganisms
9. **Spore**: an inactive or dormant state of some rod-shaped bacteria
10. **Microbes/ Microorganisms**: bacteria, viruses, molds and other tiny organisms that are too small to be seen without a microscope
11. **Aerobic**: requiring oxygen
12. **Anerobic**: no oxygen required or can only live without oxygen
13. **Toxins** : a poisonous substance that is capable of causing disease (not killed by cooking)
14. **Allergens**: a substance that causes the human body to produce histamines/ an allergic reaction. (milk, peanuts, shellfish, tree nuts, eggs, fish, soy, wheat)
15. **Cross Connections** : any physical link that can cause contamination to the potable water supply
16. **Cross Contamination** : transfer of harmful organisms between items by direct or indirect contact
17. **Cross Contact** : refers to crossing allergens from one surface to another
18. **Aseptic**: a method in which food is sterilized and then placed in a sterilized container
19. **Hermetically sealed**: a container completely sealed by heat against the entry of bacteria, molds, yeast and other filth as long as the seal stays intact
20. **Sewage** : liquid waste matter
21. **Hept. A Virus** : a foodborne virus that causes a foodborne illness (causes jaundice and affects the liver)
22. **Noro Virus**: a common foodborne virus. "Cruise Ship Illness"
23. **Rodent** : mouse or rat
24. **Thaw**: to change from a frozen solid state to a cold state; melt
25. **Potable**: fit to drink; drinkable water



FOOD SAFETY ACRONYMS

HACCP	Hazard Analysis Critical Control Point
CCP	Critical Control Point
PHF	Potentially Hazardous Food
TCS	Time & Temperature Controlled for Safety
RTE	Ready to Eat
IPM	Integrated Pest Management
FIFO	First in First Out
MSDS	Material Safety Data Sheets
PPM	Parts per Million
MAP	Modified Atmosphere Packaging
ROP	Reduced Oxygen Packaging
NSF	National Safety Foundation
FDA	Food and Drug Administration
USDA	United States Department of Agriculture
FAT TOM	Food Acidity Time Temperature Oxygen Moisture