



Foodborne Illness

Life-Altering and Life-Threatening in the Aging

NUTRITION CONNECTION



OLDER ADULTS ARE AT HIGHER RISK FOR FOODBORNE ILLNESS COMPLICATIONS

Foodborne illness—also known as foodborne disease or food poisoning—is any disease that enters the body through eating or handling food. There are more than 250 different foodborne diseases, and they can be caused by bacteria, viruses, parasites, or harmful toxins and chemicals that have contaminated food. Every person is at risk for foodborne illness, but for the aging there is increased risk that a foodborne illness can be life-threatening. With aging it becomes more challenging to fight off microbes and can result in long-term consequences or even death. Chronic health conditions, like diabetes or kidney disease, also increase the chances of getting sick from eating foods that are unsafe. So, for the aging, preventing foodborne illness is critical.

This article addresses some of the factors specific to the aging population that increases their vulnerability. Also discussed are some long-term consequences that may result when a foodborne illness occurs.

FOOD SAFETY—ESPECIALLY IMPORTANT FOR THE AGING

As we age, it is normal for the body not to work as well as it did when we were younger. Sense of taste or smell may be altered with taste dysfunction or olfactory impairment. Changes in organs and body systems occur as one grows older. These changes often make the senior population more susceptible to contracting a foodborne illness. For example, with aging there are altered gastrointestinal



Brenda Richardson, MA, RDN, LD, CD, FAND is a lecturer, author, and owner/president of Brenda Richardson, LLC.

functions and the stomach and intestinal tract may hold on to foods for a longer period of time. Stomach acids which help reduce intestinal bacteria decrease, and the liver and kidneys may not readily rid the body of toxins.

Adults 65 and older are at a higher risk for hospitalization and death from foodborne illness. For example, older adults residing in nursing homes are 10 times more likely to die from bacterial gastroenteritis than the general population. Food safety is particularly important for adults 65 and older.

By age 65, many have been diagnosed with one or more chronic conditions, such as diabetes, arthritis, cancer, or cardiovascular disease, and are taking at least one medication. The side effects of some medications or the chronic disease process may weaken the immune system, causing older adults to be more susceptible to foodborne illness. After age 75, many adults having a weakened immune system are at an even higher risk for contracting a foodborne illness.

Essentially, with aging, the immune system and other organs become slower and less active in

recognizing and ridding the body of harmful bacteria and other pathogens that cause infections, such as foodborne illness. Should older adults contract a foodborne illness, they are more likely than the general population to have a lengthier illness, undergo hospitalization, or even die.

To avoid foodborne illness, it is critical that food is safe when purchased and then is handled, stored, prepared, and served in a safe manner.

COMPLICATIONS OF FOODBORNE ILLNESS IN THE ELDERLY

If an elderly person contracts food poisoning, the symptoms are likely to be much worse than for a younger person. Short-term symptoms and conditions may be experienced such as dehydration or lactose intolerance. The older person will experience a severe form of this illness which may then lead to other complications. Recent research has shown that the following long-term health conditions are associated with several known foodborne diseases: high blood pressure, irritable bowel syndrome, reactive arthritis, diabetes, kidney dysfunction, urinary tract infections, neurological conditions (such as Guillain-

Barré Syndrome), mental retardation, schizophrenia, and visual impairment.

Dehydration is serious in any situation, but it's particularly dangerous for the elderly. Severe dehydration can result in a drop in blood pressure which affects blood supply to essential organs such as the kidneys. This results in kidney failure which can be fatal.

When someone does not drink enough fluids to replace those that are lost through vomiting and diarrhea, dehydration can result. When dehydrated, the body lacks enough fluid and electrolytes—minerals in salts, including sodium, potassium, and chloride—to function properly. Infants, children, older adults, and people with weak immune systems have the greatest risk of becoming dehydrated.

Signs of dehydration may include:

- Excessive thirst
- Infrequent urination
- Dark-colored urine
- Lethargy, dizziness, or faintness

Lactose Intolerance.

Foodborne illness inflames the lining of the gut (digestive system) which

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prevents lactase from being produced. Lactase is an enzyme which is needed to help with the absorption of lactose.

People who have undergone abdominal surgery or suffer from celiac disease can develop lactose intolerance as can anyone who has experienced gastroenteritis, however it may occur when someone has experienced diarrhea, often as a result of foodborne illness.

This is because cells within the small intestine have become damaged as a result of this infection, which prevents them from producing lactase. Once the lining of the intestine heals, lactase is produced and this condition disappears of its own accord.

Research suggests that acute foodborne illnesses may lead to chronic disorders, including the following.

Reactive arthritis is a type of joint inflammation that usually affects the knees, ankles, or feet. Some people develop this disorder following foodborne illnesses caused by certain bacteria, including *C. jejuni* and *Salmonella*. Reactive arthritis usually lasts fewer than six months, but this condition may recur or become chronic arthritis.

Irritable bowel syndrome (IBS) is a disorder of unknown cause that is associated with abdominal pain, bloating, and diarrhea or constipation or both and may result in being a long-term consequence of food poisoning. In fact, the version known as 'post-infectious irritable bowel syndrome (PI-IBS)' can occur following a bout of bacterial food poisoning.

The reason for this is that the infection caused during food poisoning affects the function of the gastrointestinal tract and increases its sensitivity. This, combined with a change in the immune system, results in an increased amount of inflammatory chemicals. This predisposes the infected person to IBS.

Guillain-Barré syndrome is a disorder characterized by muscle weakness or paralysis that begins in the lower body and progresses to the upper body. This syndrome may occur after foodborne illnesses caused by bacteria, most commonly *C. jejuni*. Most people recover in six to 12 months.

The Center for Foodborne Illness Research & Prevention (www.foodborneillness.org) has produced a report which argues that more research



OLDER ADULTS AND PEOPLE WITH SUPPRESSED IMMUNE SYSTEMS OR CHRONIC ILLNESS

may become severely dehydrated when they lose more fluids than they can replace. In that case, they may need to be hospitalized and receive intravenous fluids.



is needed into the long-term effects of food poisoning (or foodborne illness) which can lead to chronic health issues such as high blood pressure, diabetes, kidney failure, and irritable bowel syndrome.

TREATMENT FOR FOODBORNE ILLNESSES

The only treatment needed for most foodborne illnesses is replacing lost fluids and electrolytes to prevent dehydration.

Fluids and electrolytes — minerals such as sodium, potassium, and calcium that maintain the balance of fluids in the body — lost to persistent diarrhea need to be replaced. Some adults with persistent diarrhea or vomiting may need hospitalization, where they can receive salts and fluids through a vein (intravenously) to prevent or treat dehydration.

If the specific cause of the foodborne illness is diagnosed, a healthcare provider may prescribe medications, such as antibiotics, to treat the illness.

Antibiotics may be used for certain kinds of bacterial food poisoning and if symptoms are severe. Food poisoning caused by listeria may be treated with intravenous antibiotics during hospitalization.

Antibiotics will not help food poisoning caused by viruses. Antibiotics may actually worsen symptoms in certain kinds of viral or bacterial food poisoning.

Older adults and people with suppressed immune systems or chronic illnesses may become severely dehydrated when they lose more fluids than they can replace. In

that case, they may need to be hospitalized and receive intravenous fluids. In extreme cases, dehydration can be fatal.

EATING, DIET, AND NUTRITION

The following steps may help relieve the symptoms of foodborne illnesses and also prevent dehydration in adults:

- Drinking plenty of liquids such as fruit juices, sports drinks, caffeine-free soft drinks, gelatin, sherbet, soup or broth, and fruit ices to replace fluids and electrolytes
- Sipping small amounts of clear liquids or sucking on ice chips if vomiting is still a problem
- Reintroducing food gradually, starting with bland, easy-to-digest foods such as rice, potatoes, toast or bread, cereal, lean meat, applesauce, and bananas
- Avoiding fatty foods, sugary foods, dairy products, caffeine, and alcohol until recovery is complete
- Providing access to fluids at all times to include water pitcher and cup at the bedside, water bottle on a wheelchair, travel mug, offering a hydration cart, or providing beverages every few hours

CONCLUSION

Prevention is the first step in combatting foodborne illnesses. Guidelines for safely handling and preparing food should be followed regardless of the setting in which food is consumed, however it's important to remember that the impact of foodborne illness for the aging can be life-threatening and/or life-altering. Proper training, education, and monitoring of food safety for staff and family/guests is essential in providing safe food to this vulnerable population. ■

REFERENCES AND RESOURCES

- National Institute of Diabetes and Digestive and Kidney Diseases <https://www.niddk.nih.gov/health-information/digestive-diseases/foodborne-illnesses>
- FoodSafety.gov <https://www.foodsafety.gov/risk/olderadults/index.html>
- Am Fam Physician. 2015 Sep 1;92(5):358-65. Diagnosis and Management of Foodborne Illness. Switaj TL1, Winter KJ2, Christensen SR1.
- Partnership for Food Safety Education <http://www.fightbac.org/>
- United States Department of Agriculture <https://www.usda.gov/topics/health-and-safety>
- Centers for Disease Control and Prevention <https://www.cdc.gov>

CE Questions | NUTRITION CONNECTION



This Level II article assumes that the reader has a foundation of basic concepts of the topic. The desired outcome is to enhance knowledge and facilitate application of knowledge to practice.

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1. Chronic health conditions like diabetes or kidney disease _____ the chances of an individual getting sick from eating unsafe foods.
A. Decrease
B. Increase
C. Do not alter
2. As one ages, the stomach and intestinal tract may hold on to foods for a _____ period of time, increasing susceptibility of acquiring a foodborne illness.
A. Reduced
B. Longer
C. Predetermined
3. With aging, stomach acids which help _____ intestinal bacteria decrease, thus increasing susceptibility of acquiring a foodborne illness.
A. Reduce
B. Feed
C. Transmit
4. Recent research has shown there are _____ health conditions associated with several of the known foodborne illnesses.
A. No
B. Long-term
C. Positive
5. Reactive arthritis may occur for some individuals following foodborne illness and usually lasts fewer than _____ months, but may recur or become chronic arthritis.
A. Two
B. Four
C. Six
6. Generally, the only treatment for most foodborne illnesses is replacing lost _____ and _____ to prevent dehydration.
A. Fluids, electrolytes
B. Kcalories, protein
C. Pitchers, mugs
7. The impact of foodborne illness for the aging can be life-_____ and/or life-altering due to acute and/or long-term effects.
A. Enriching
B. Empowering
C. Threatening

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