

# Listeriosis

caused by the bacterium *Listeria monocytogenes*

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*Listeriosis is an infection of human and animal importance. It is caused by Listeria monocytogenes, a bacterium widely distributed in the environment. In particular it can be found in soil, water, a variety of foodstuffs, and feces of healthy animals and people. It is capable of causing disease in humans, animals and birds. The bacterium can survive in soil or silage for up to two years. It is capable of growing in a wide variety of foods under a number of different environmental conditions such as high salt concentration, acid environment, and refrigerator temperatures. However, it cannot survive the pasteurization process. Because of the prevalence of L. monocytogenes in the environment and its ability to cause disease in humans and animals, knowledge about this organism is important to the agricultural community.*

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## The disease in humans

- Opportunistic infection of:
  - Elderly
  - Pregnant women
  - Unborn
  - Neonates
  - Immunosuppressed
- Pregnant women may experience a mild infection (flu-like symptoms) which can spread to the fetus and lead to intrauterine death or a severe neonatal infection.
  - Infections early in pregnancy are treatable
  - Infections in late pregnancy may cause death of the fetus or problems in the development of the nervous system
  - Surviving infants show long-term problems
  - Some neonates develop late onset blood infections in 10-12 days
  - Most often the bacteria affects:
    - \* Pregnant uterus
    - \* Central nervous system
    - \* Bloodstream
- Non-pregnant individuals can develop meningitis or septicemia.
- Adult mortality varies with conditions.

## The disease in ruminants (cattle, sheep and goats)

- Encephalitis (infection of the central nervous system).
  - “Circling disease” – caused by brain involvement
- Abortion (infection of the uterus or the fetus).
  - Generally during the last two months of gestation because of production practices
  - Occurs in winter
  - Associated with consumption of spoiled silage or spoiled hay
  - Animals that abort are resistant to reinfection
- Septicemia (infection of the blood).
  - Primarily occurs in young animals
  - Can be exhibited by sudden death
- Conjunctivitis (infection of the tissues around the eye).
- Mastitis (infection of the mammary gland).
  - The bacteria can be shed in milk
  - Shedding can persist for more than three years
- Pneumonia (infection of the lung).

## The disease in monogastric animals (pigs, dogs, cats, rabbits, small mammals)

- Usually see a septicemia and/or sudden death.
- May see uterine infections and abortions as well.

## The disease in birds

- More severe in young birds.
- Septicemia
  - Clinical signs of emaciation, diarrhea
- Encephalitis
  - Clinical signs of central nervous system disease

### EXPOSURE POINTS!

- Food-borne (oral) — *primary means of transmission.*
  - Foods with high water content and neutral pH
    - \* Soft cheeses, dairy products
    - \* Pâtés, sausages, smoked fish
    - \* Salads
    - \* Ready to eat products (contaminated after pasteurization)
  - Contaminated milk (raw or contaminated after pasteurization)
    - \* Bacteria excreted by ruminants with *Listeria* mastitis
- Direct contact with infected tissues — veterinarians and livestock producers at risk.
  - Ruminant abortion cases
  - Sudden death in neonatal ruminants
  - Central nervous system disease in adult ruminants
  - Mastitis (milk) samples
  - Contaminated ocular (eye) swabs
  - Infection during the neonatal period due to use of contaminated equipment between neonates/infected animals

## Prevention

Individuals who may be at risk should take appropriate food safety precautions.

- Ensure safety of food of animal origin.
  - Pasteurize or cook raw products (milk)
- Wash raw vegetables before eating.
- Thoroughly cook beef, pork and poultry.
- Wash hands, knives and cutting boards (do not cross contaminate).
- Avoid use of untreated manure on vegetable crops.
  - Bacteria may be excreted by ruminants
- Take precautions in handling aborted fetuses, sick or dead animals.

For more information on this and other topics, see: [www.ag.ndsu.nodak.edu](http://www.ag.ndsu.nodak.edu)

