

# Mad cow disease

March 1, 2023

**In news**— Brazil halted beef export to China after a case of mad cow disease was confirmed in the northern state of Para.


## **What is Mad Cow Disease?**

- Mad Cow Disease, **also known as Bovine Spongiform Encephalopathy (BSE), is a deadly and slowly progressive infection affecting adult cattle's central nervous system.** It is **degenerative** and **can be transmitted to humans** who consume contaminated meat products.
- **It can be contracted by a cow if it eats feed that has been contaminated** with parts of another cow that was infected with BSE.
- **BSE is a result of an abnormal protein called a prion,** which typically exists on the surface of cells.
- **This prion transforms into a harmful form that harms the nervous system, including the brain and spinal cord.**
- The presence of this altered protein is undetected by the affected cow's body, making it impossible for the cow to fight off the disease.
- **The disease leads to neurological symptoms.** One of the most common symptoms of BSE in cows is **incoordination,** which means the **cow has difficulty walking and standing up.**
- The cow may also show signs of **nervousness or aggression.** These symptoms typically appear when the cow is in the final stages of the disease.
- The incubation period of BSE, which is the time from when a cow is infected with the prion to when it shows symptoms, can range from four to six years. During this period, there are no visible signs of the disease.
- **Once a cow starts showing symptoms of BSE, it progressively gets worse until it dies.** The duration of the disease can range from two weeks to six months.

- **There is no cure for BSE**, and infected cows are typically euthanized to prevent the spread of the disease to other cows and humans.
- **It has no known treatment and there is no vaccine available to prevent it.**

**What is mad cow disease?**


Mad cow disease, or bovine spongiform encephalopathy, is a neurological disorder in cattle. It is caused by an abnormal protein called a prion that infects a cow's central nervous system and causes brain and nerve cells to die. Prions are passed to humans through consumption, and that can trigger the human form of the disease.



**Prion molecule**

**How it spreads from cows to humans**

- 1** Person eats contaminated food. Prions are found primarily in brain or spinal cord tissue from infected animal.
- 2** After a person ingests infected meat, prions spread to the brain through the body's lymph nodes and immune system, where they can remain dormant for years.
- 3** Disease attacks nervous system. Outer layer of brain develops tiny holes, looks spongy. Host goes into seizures; death may occur.



**Prevention**

<b>Eradication:</b> Infected farm animals are destroyed.	<b>Regulations:</b> Animal products containing brain or central nervous system tissue aren't used as livestock feed.	<b>Consumers:</b> Avoid beef that contains parts of the cow's main nervous system. Prions are heat resistant, so cooking the meat will not reduce the risk.
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