

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

Eradication: Infected farm animals are destroyed.	Regulations: Animal products containing brain or central nervous system tissue aren't used as livestock feed.	Consumers: 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.
----------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------