



# MAD COW DISEASE

## What is mad cow disease?

Mad cow disease is officially known as bovine spongiform encephalopathy (BSE). It is a disease that kills cows by destroying the animal's brain. It has mainly been found in dairy cows, though scientists are not exactly sure why. Mad cow belongs to a class of diseases called transmissible spongiform encephalopathies (TSEs), which can also be found in sheep, deer, elk, mink and humans.

## Is mad cow contagious?

No, mad cow cannot be spread from animal to animal, or to humans, like a virus or a cold. The human equivalent of mad cow disease, variant Creutzfeldt-Jakob Disease or vCJD, is not contagious either. The only known way a human can become infected with mad cow is through the transmission of the deformed proteins that cause the disease, which can happen by eating infected meat. In animals, mad cow has also been transmitted through blood transfusions, which leads many scientists to believe it can also be transmitted to humans in the same way. The Red Cross will not accept blood from individuals who have lived in most parts of Europe for more than six months (three months in England).

## Can I get mad cow?

You can get the human form of mad cow disease, called variant (or new variant) Creutzfeldt-Jakob Disease (vCJD), several ways. The first is by eating contaminated meat. In Europe, over 150 teenagers and young adults have died from vCJD after eating tainted meat products. Because of the large number of infected animals (over 180,000 confirmed cases in the UK alone) and relatively small number of vCJD cases, some researchers believe it is difficult to get the disease. Others believe the incubation period in humans (up to 40 years) is too long for us to know yet how many people are or will be infected. Other scientists believe that some patients are being misdiagnosed, or cases are not being reported properly.

One can contract vCJD through contaminated surgical instruments and most believe also through contact with infected blood. Researchers do not know if cosmetics or dietary supplements containing infected cow remains can cause vCJD in humans.

There are still many questions surrounding vCJD and the related disease older individuals can contract, called CJD – Creutzfeldt-Jakob Disease. Some researchers believe a certain number of CJD cases are being misdiagnosed as Alzheimer's, and that there is a link between mad cow, vCJD and CJD.

vCJD and CJD are not "reportable" diseases.

Doctors do not have to alert the government about cases, so there is no way to know how much of a problem we might have.

Because so little is known about the disease, many questions remain. Also,

because of the long incubation time, no one knows how serious the disease is, or how many people will eventually be infected.



## How do cows get the disease?

The agent responsible for mad cow (and vCJD) is called a prion (pronounced pree-on). It is a type of protein found in all mammals. When deformed, the prion creates tiny, sponge-like holes and eats away the cow's brain, which ultimately results in death. In 1997, Dr. Stanley Prusiner won the Nobel Prize for his discovery of the prion.

Scientists are not sure how the prions become deformed, but they do know that the mad cow prion causes other normal prions to become deformed, thus spreading the disease. As little as 10 milligrams (about half a grain of uncooked white rice) has been shown to infect animals.

Scientists have proven that mad cow can be transmitted through infected feed and blood, and most believe the disease can also happen spontaneously in an animal.

### *Infected feed and blood*

Cows are by nature vegetarians, but the animal industry – especially large dairy operations – frequently supplement the animals' diet with meat and bone meal. In addition, calves in these large factory farm dairy operations are often separated from their mothers at birth so the milk can be used for human consumption. The calves are fed a milk replacer that often contains cow's blood.

In 1997, the government banned the practice of feeding ruminant protein to other ruminants (cows are ruminants), but loopholes and enforcement problems allowed cow remains to still be fed back to cows. For example, "plate waste" from restaurants was permitted, so an unfinished steak could be fed back to cows. (Cooking does not destroy mad cow disease, nor does chemical disinfection or irradiation.)



Cows could be fed ground up pigs and chickens, and those animals could have been given feed containing cow. Poultry litter, containing material such as chicken feces, feathers, sawdust and uneaten feed containing cow parts, was exempt from the feed ban and continued to be fed to the animals.

In January 2004, the Food and Drug Administration (FDA) issued a ruling that closed most of these loopholes, such as plate waste and poultry litter, though as of February 2004, the rules still have not gone into effect. Currently, calves are still being fed blood as a milk replacer, and cows are still being fed poultry litter. Concern has been raised that the new rules will not be properly enforced, and that the rules recently issued might be weakened before they go into effect.

*Spontaneously*

Scientists are unsure how mad cow originated, but most believe the disease can happen spontaneously in a small percentage of animals. (By spontaneous, they mean the prion protein could simply become deformed in the animal, with no known cause.) Even though the number of animals that could become infected is small, if you factor in the feeding practices used today, one infected cow could infect hundreds of other cows, who in turn could infect thousands of other cows, and so on. This also means that mad cow could happen anywhere in the world and that there could be undetected cases in the U.S.

In addition, one infected cow could be fed to many different people, increasing the chances that many people might become infected with the disease.

**How can we stop mad cow?**

There is no known cure or vaccine for mad cow or vCJD, and it always kills its victims.

Because mad cow can happen spontaneously, we can't stop the disease from occurring, but we can certainly stop it from spreading. One way to stop mad cow from spreading to humans is to test every animal before slaughter. Any animal to be killed for human consumption or animal feed (including pet food) needs to be tested, including animals that will be used in cosmetics and dietary supplements.

In order to stop mad cow from spreading between animals, no animal remains should be fed to cattle, including pigs and chickens. Cows can get the disease from eating very small quantities of infected material, and feed can easily get mixed up or mislabeled. It is extremely difficult, if not impossible, to enforce partial restrictions.

We must also look at the industrial agricultural system responsible for spreading mad cow and other deadly diseases like e.coli and salmonella, and take action to stop corporate agriculture from ruining our food supply.

**What can I do to protect myself and my family?**

Know where your meat comes from. If you choose to continue eating beef, your best protection is to know how the animal was raised. Buy from a local farmer, if you can, and visit the farm. At the very least, phone the farmer and ask how they raise their animals. Look for sustainable farmers who raise their animals on pasture and do not feed them animal products. If you can't find a name or phone number for the farmer who raised your meat, odds are the meat was not raised sustainably.

**Questions to ask include:**

- ❖ How are the animals raised? Do they graze on pasture or are they confined indoors or in a feedlot? (Feedlots are confined outdoor areas covered with mud and the animals' feces, where animals are crowded together and fed unnatural products.)
- ❖ What are they fed? Are they given any animal products or animal by-products?
- ❖ Are any antibiotics put into the feed or water?
- ❖ Are hormones given to the animal?
- ❖ Ask if you can visit the farm. If the person on the other end of the phone is not friendly and welcoming, you might want to try another farmer.

Organic meat has to follow strict guidelines, but the guidelines do not adequately cover animal welfare issues. For safety, organic meat is a good choice, though there are many sustainable farmers who raise their animals as carefully as organic producers. Again, knowing how your meat was raised and who is raising it is very important.

**For more information:**

Eat Well Guide – [www.eatwellguide.org](http://www.eatwellguide.org). A national online directory of sustainably-raised meat. Includes stores, farms and restaurants.

For more information on mad cow disease, visit the GRACE Factory Farm Project's Mad Cow page at [www.factoryfarm.org](http://www.factoryfarm.org).

For more information on sustainable food, and things you can do, please visit Sustainable Table at [www.SustainableTable.org](http://www.SustainableTable.org).

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