BSE: "Mad Cow Disease"

What is "Mad Cow Disease" (Bovine Spongiform Encephalopathy/BSE)?
Mad Cow Disease is the commonly used name for Bovine Spongiform Encephalopathy (BSE), a slowly progressive, degenerative, fatal disease affecting the central nervous system of adult cattle. Since 1990, the U.S. Department of Agriculture (USDA) has conducted aggressive surveillance of the highest risk cattle going to slaughter in the United States.

What Causes BSE?
The exact cause of BSE is not known but it is generally accepted by the scientific community that infectious forms of a type of protein, prions, normally found in animals cause BSE. In cattle with BSE, these abnormal prions initially occur in the small intestines and tonsils and are found in central nervous tissues, such as the brain and spinal cord and other tissues of infected animals experiencing later stages of the disease. These abnormal prions are resistant to common food disinfection treatments, such as heat, to reduce or eliminate their infectivity or presence.

Was BSE Identified in Cows in the U.S.?
The first known case of BSE in the U.S. was identified in December 2003 in an adult Holstein cow in Washington State, imported from Canada. On June 24, 2005, USDA confirmed BSE in a cow from Texas. On March 13, 2006, USDA confirmed BSE in a 10 year old, non-ambulatory cow on a farm in Alabama.

Did Meat & Meat Products From the BSE Cows Enter the Food Supply?
The system of multiple firewalls maintained by Federal agencies protects consumers from possible exposure to BSE. Scientific research indicates that muscle meat is not a source of infectious prions. As soon as the 2003 BSE case was identified, both the USDA and the U.S. Food and Drug Administration (FDA) activated their BSE Emergency Response Plans and USDA immediately recalled the meat. Meat that did enter the food supply was quickly traced and was removed from the market-place. Moreover, all the organs in which infectious prions occur were removed at slaughter and did not enter the food supply.

The June 2005 cow and the March 2006 cow were non-ambulatory and were not presented for slaughter. Therefore, in accordance with BSE regulations established by USDA and FDA the material from these animals did not enter the human food supply.

Does BSE Affect People?
There is a disease similar to BSE called Creutzfeldt-Jacob Disease (CJD) that is found in people. A variant form of CJD (vCJD) is believed to be caused by eating contaminated beef products from BSE-affected cattle. To date, there have been 155 confirmed and probable cases of vCJD worldwide among the hundreds of thousands of people that may have consumed BSE-contaminated beef products. The two reported cases of vCJD in the United States contracted the disease while residing outside the U.S. and developed symptoms after moving to the U.S.

What Measures are Being Taken to Ensure Food Safety in the U.S. From BSE?
Since 1989, the FDA and other federal agencies have had ongoing regulatory measures in place to prevent BSE contamination of U.S. food and food products. Following the identification in a Washington state dairy herd of the BSE-positive cow imported from Canada, the USDA issued four
new regulations containing additional safeguards to further minimize risk of introduction of the BSE agent into the U.S. food supply. These safeguards include:

1. A ban on use of live, but non-ambulatory cattle from entering the human food supply,
2. A ban on use of organs, from cattle older than 30 months, in which infectious prions occur and the tonsils and distal ileum of the small intestine of cattle of all ages for human food,
3. Restrictions on techniques to mechanically remove meat from bones, and
4. Meat from tested animals will not be certified as USDA-inspected until test results are final.

An enhanced surveillance program began in June 2004 as a one-time effort to determine the prevalence of BSE in the U.S. The analysis concluded that the most likely number of cases is between 4 and 7 infected animals out of 42 million adult cattle. As a result of the extremely low prevalence of the disease in the U.S., USDA announced on July 20, 2006 the transitioning from the enhanced to an ongoing surveillance program. The ongoing surveillance program will sample approximately 40,000 animals each year from a variety of sites and from the cattle populations where the disease is most likely to be detected. The new program provides testing at a level ten times higher than the guidelines set forth by the science-based World Animal Health organization (OIE).

When & How Did BSE in Cattle Occur?

BSE in cattle was first reported in 1986 in the United Kingdom (UK). The exact origins of BSE remain uncertain, but it is thought that cattle initially may have become infected when fed feed contaminated with meat-and-bone meal (MBM) from scrapie-infected sheep. Scrapie is a prion disease in sheep similar to BSE in cattle. The scientific evidence suggests that the U.K. BSE outbreak in cattle then was expanded by feeding BSE-contaminated cattle protein (MBM) to calves.

Is Cow's Milk a Source of BSE?

Scientific research indicates that BSE cannot be transmitted in cow's milk, even if the milk comes from a cow with BSE. Even though milk does not transmit BSE, the milk from a cow with BSE should be discarded. The Food, Drug, and Cosmetic Act and state milk safety regulations require that products from animals with any disease not be used for human use. This is consistent with actions taken in the U.K and with the World Health Organization recommendations on human use of products from BSE cows.

It is FDA's opinion, based on the totality of scientific data available to the agency, that milk from healthy cows from the same herd in which a BSE-positive cow was found does not present a BSE risk to consumers. Likewise, milk from healthy cows in other herds quarantined because one of the cows is identified as a previous herd mate of the BSE-positive cow does not present a BSE risk to consumers. If the cows in a herd are healthy and not clinically affected by BSE, there is no scientific basis for restricting that milk.

Does the Use of Bovine-Derived Ingredients in Dietary Supplements Mean That They Are Not Safe?

No. The risk to human health from BSE in the United States food supply, which includes dietary supplements, is extremely low. Since 1992, FDA has advised dietary supplement manufacturers and distributors that they should take steps to ensure that no dietary supplement ingredients come from cattle born, raised or slaughtered in any country known to have BSE or that has inadequate methods to detect and control it. We have also had import procedures in place since then to prevent the importation of bulk ingredients and finished dietary supplements that contain bovine-derived ingredients from so-called BSE-countries. Also, the vast majority of cattle-derived ingredients are obtained from U.S. sources or from countries not known to have BSE.

Since the BSE-Positive Cows were Discovered in the U.S., does that Mean that Dietary Supplements Made with Domestic Ingredients Might be Unsafe?

No. Like all foods that are made using bovine-derived ingredients, the procedures that FDA and USDA have had in place to ensure the safety of the food supply should give consumers confidence that their food, including dietary supplements, is safe.

The restrictions on the use of certain cattle and cattle tissues in human food that were recently announced by USDA will also reduce the risks that potentially infective tissue might be used in dietary
supplements. FDA is exploring what further safeguards may be needed to provide greater assurance to consumers that dietary supplements and other foods remain safe. Most ingredients used to produce dietary supplements and most other food ingredients come from cattle that are slaughtered when they are less than 30-months of age and, because of their age, present little risk of being BSE-positive.

Should Consumers be Concerned About Cosmetics Made Using Tallow from the Rendering Process?
No. The World Health Organization considers tallow to be a low risk for transmission of BSE. Specifically, the rendering process separates fats from proteins. Because the disease is transmitted by prions, which are a type of protein, they would be separated by the rendering process from the tallow or fat, which is the portion that goes into cosmetics. Additionally, the tallow is processed with excessive heat and pressure which may further minimize any risk of infectivity prior to use in cosmetics. Nevertheless, the agency has encouraged cosmetic manufacturers to acquire tallow from sources that do not include cattle with BSE.

What About the Use of Gelatin, Another Bovine-Related Material, in Cosmetics and Dietary Supplements and Other Foods?
Gelatin may be derived from cattle bones and hides, which are considered low-risk tissues for BSE transmission, although most food-grade gelatin in the U.S. is of porcine origin. In 1997, FDA published guidance for gelatin manufacturing that recommends that bones and hides from cattle with any neurologic disease not be used to manufacture gelatin. The guidance also recommends that the heads, spines and spinal cords of cattle from BSE countries not be used in gelatin production. The manufacturing process for gelatin further reduces any BSE risk for humans to negligible levels.

Is BSE in Cattle the Same Disease as CWD in Deer and Elk in the U.S.?
They both belong to a family of diseases known as Transmissible Spongiform Encephalopathy (TSE), which also includes scrapie in sheep and goats, and Creutzfeldt-Jacob disease (CJD) in people. To date, there is no scientific evidence that BSE in cattle is related to CWD in deer and elk. USDA is working closely with other government agencies and the public health community to address CWD in wild and domesticated deer and elk herds. Wildlife and public health officials advise people not to harvest, handle, or consume any wild deer or elk that appear to be sick, regardless of the cause, especially in those states where CWD has been detected.

Where Can I Find Updated Information on the Internet on BSE?
A comprehensive website from the U.S. Food and Drug Administration is available at
http://www.fda.gov/oc/opacom/hottopics/bse.html

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service, and Veterinary Services is at

The Centers for Disease Control and Prevention at
http://www.cdc.gov/ncidod/diseases/submenus/sub_bse.htm

What do South Carolina Food Safety Experts Say About the Safety of Beef?
Dr. Daniel E. Lafontaine, Director of the S.C. Meat and Poultry Inspection Department, stated, "I am confident beef is safe to eat because of the numerous prevention steps taken by federal and state food safety agencies. Examples of these actions include prohibiting the importation of live cattle and beef products from countries with substantial risk associated with BSE, a proactive USDA surveillance program looking for the disease, and FDA's ban on feeding ruminant protein to cattle. Also, the additional safeguards of banning all high-risk non-ambulatory cattle and certain high-risk organs from human food have provided another layer of protection."

Sources:
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