

Copper Bullet - ESPN

- By James A. Swan, Ph.D. Author of “In Defense of Hunting”.
- References the document reviews of Dr. Michael McDonnell.
- Article references the USDA control program that found Zinpro’s Availa-Cu eliminated or completely stopped Chronic Wasting Disease.
- *Asterisk draws attention to points of particular interest.
- ** Indicates elk in the USDA control program were fed 10 mg. of copper from Zinpro’s Availa-Cu.
- All free-ranging White-Tailed and mule deer fed 1.5# of Lyssy & Eckel Deer Feeds receive 93 mg. of copper from Zinpro’s Availa-Cu.

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Copper bullet for chronic wasting disease?

By James A. Swan, Ph.D.
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News stories about chronic wasting disease keep cropping up like mushrooms after the first warm, spring rain. Recently stories report that:

1.) A total of 48 CWD-positive deer have been found in Wisconsin. Beyond Wisconsin, four wild deer in Illinois, and one at White Sands, N.M., have recently tested positive for CWD.

It has now been found in wild deer and elk in Colorado, Kansas, Minnesota, Illinois, Nebraska, New Mexico, Oklahoma South Dakota, Wisconsin and Wyoming, as well as in the Canadian provinces of Saskatchewan and Alberta.

Whether the disease is spreading or simply being better detected by more widespread testing is uncertain.

2.) Seven states and several Canadian provinces have found CWD in captive herds. Canada has destroyed more than 7,800 elk trying to stop the disease.

Korea, which started elk farming with U.S. animals, has banned elk farming.

More than 30 states have tightened laws about transporting cervids.

3.) Two Wisconsin hunters who were thought to have died of CWD did not have the disease.

If CWD can jump the species barrier to humans or livestock, the economic and biological implications are monumental and staggering. So far, there is no evidence to show that CWD can jump to humans.

4.) Until very recently, there was no way to test for CWD except by cutting off the head of a dead animal. There is a new live test for CWD, which is like a tonsillectomy.

It takes about 20 minutes to collect the tissue and the deer requires an hour to recover afterwards.

This means that you don't have to kill a deer to test for CWD, which helps ranchers who want to transport live animals, but the costs of sedating and testing wild deer on any large scale are not cheap.

* The copper bullet

There is a lot of work going on out there about CWD. But just what causes it, or how it can be controlled or eradicated, remains as mysterious as the tiny infectious proteins called "prions" that cause it.

Nebraska elk researcher Michael McDonnell became aware of CWD two decades ago, when it broke out in game farms.

He has been pouring over research from around the world ever since and recently shared with me some theories that I have not seen in the general media.

McDonnell believes that chronic wasting disease is a "spontaneous metabolic upset." The rouge prions that cause CWD or Bovine spongiform encephalopathy (better known as "mad cow disease" or BSE) are mutations of healthy prions initially caused by some external agent or dietary deficiency, or both.

On [The Elk Breeder's Web site](#), you find a growing number of articles and postings that agree with this theory.

Many suggest that the initial outbreak of CWD is associated with exposure to an organophosphate pesticide, such as Phosmet.

Phosmet was used in England and Europe, on livestock and, in some cases, on humans for lice.

This is a working theory, but there is ample evidence of pesticides and other toxic chemicals causing mutagenic consequences. Some even gently suggest that mad cow disease in Europe started the same way.

If mutated prions are the cause, couldn't that occur naturally?

It could, but McDonnell believes there is a second factor involved in the spread of CWD, whatever its cause: low levels of copper in the animals' diet.

McDonnell says that there are low copper levels in the soils in Northeastern Colorado, where CWD got started, and low copper levels in every place where an outbreak has occurred.

But regardless of the copper levels in the soil, where the herds are too large they overbrowse certain species of plants that normally are rich in copper, such as buck bush.

This results a copper-deficient diet, regardless of soil copper levels.

According to McDonnell, that copper dietary deficiency makes the deer and elk more susceptible to CWD.

"Imagine a prion is like a screen door spring: a long length with a curling structure like DNA," he said.

"On each end of the prion are hooks that carry copper to various body tissues. The prion then goes to the liver to pick up more copper.

"When copper is low or manganese is high, manganese gets stuck on these hooks. Manganese has a different shape than copper, causing the screen door spring to bend with both ends coming together.

"These fish hook-shaped prions stick to normal prions and knock off copper ions. Manganese replaces the copper and the cycle starts all over. The fish hooks latch onto each other and form chains.

"These chains with the fish hooks sticking out tear holes in the brain that are the trademark of TSEs (transmissible spongiform encephalopathies)."

* * * McDonnell supports this thesis with studies that show that when 300mg of supplemental copper is fed to farmed elk herds that were subsequently slaughtered as part of the U.S. Department of Agriculture program (10 mg coming from Zinpro Avail4), CWD is stopped almost completely.

If 300 mg is fed from copper sulfate, 5 percent to 7 percent of the herd tested positive for CWD. If no copper is fed, 33 percent to 55 percent of the elk tested positive for CWD.

What about air-dropping salt blocks laced with copper into areas like southwestern Wisconsin?

In theory, it could help, McDonnell says. It wouldn't risk dispersing the deer from the area and spreading the disease more rapidly, because deer would be drawn to the salt licks.

While not a solution, it might at least slow down the spread of the disease until we can get a better handle on what is going on and how serious the problem is.

McDonnell doubts if CWD could cause extinction of a species. CWD might devastate a herd, but it could not cause extinction because some animals have a natural immunity to CWD.

In time the resistant animals would interbreed and the herd would be immune.

But, the bottom line, he emphasizes, is that there are too many deer. They are overbrowsing the range, which depletes natural vegetation that would normally carry copper to the deer or elk.

With virtually all predators gone except man (and his automobiles), the deer population is way out of control in many areas.

If we don't increase the harvest, even if CWD was eradicated tomorrow, other diseases will appear to reduce the population, if starvation doesn't occur first.

And if those diseases can skip species, we may find that those nice deer in the front yard that already carry Lyme disease and bovine tuberculosis may be carriers of something much worse for man and beast.

Poised on the verge of large-scale eradication of wild deer and elk herds, the copper bullet theory seems worthy of serious consideration.