

## Malabsorption of copper and other nutrients as well as intestinal parasite infections cause health problems and lower birthrates in the American Bison

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### Abstract

#### Background

Herds of American Bison have been raised on pastures of different Indian Reservations in Montana. It has been discovered that many of these Bison have serious health problems related to malnutrition causing lower birth rates. Plants on these reservations absorb unusually high levels of selenium and molybdenum which the animals feed on. Previous studies indicate metals such as copper are necessary for proper health and birthrates. Copper is necessary for normal conception rates and will cause retarded growth of the offspring. In addition, poor calving rates in apparently healthy bison with adequate protein and energy in diets might simply be from copper deficiency.

#### Hypothesis

Decreased copper absorption is due to increased absorption of selenium and molybdenum and parasitic infections.

#### Methods

When the animals are euthanized liver samples and fecal samples are removed for analysis. Body scores were taken to assess the states of malnutrition and number of offspring were counted to assess birthrates.

#### Results

Increased toxic levels of selenium (3.7ppm) and Molybdenum (4.2ppm) and low levels of copper (10ppm) have been detected in tissue samples from the livers of the bison. However increased levels of Zinc have also been detected in these animals (125ppm). In addition, the presence or increased levels of intestinal parasites have also been detected in the fecal matter taken these

animals. These parasites which include Coccidia and various worm infestations may also be also interfering with the normal absorption of copper and other nutrients in the animals.

## Conclusions

Malabsorption of nutrients such as copper may be caused by increased absorption of selenium, molybdenum or zinc as well as infections from parasites in the Bison digestive tract.

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