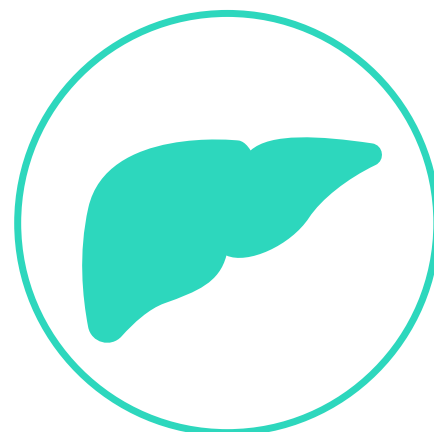




## Hepatic Disorders

# COPPER-ASSOCIATED HEPATITIS



As an enzyme cofactor, copper supports crucial functions in the body, including red blood cell formation, iron metabolism, connective tissue formation, central nervous system development and function, melanin pigment formation, and immune function.

Dietary copper is supplied in the diet, stored in the liver, and delivered to other tissues as needed.<sup>1</sup>

Due to defects in copper excretion into the bile (the primary route of elimination from the body), excessive levels of copper can accumulate in the liver, which causes oxidative injury and inflammation. The disease is initially characterized by a subclinical phase. However, with continued copper accumulation, hepatitis and eventually liver cirrhosis ensue. Excessive copper accumulation is the leading toxic cause of chronic hepatitis.<sup>2</sup>

Although it may be seen in any breed, copper-associated hepatitis has been linked to a genetic defect identified in Bedlington Terriers, Labrador Retrievers, and Doberman Pinschers.<sup>2-5</sup>

Diet plays a key role in the management of copper-associated hepatitis.

### Key Messages

- The primary goal of dietary management is reduction of hepatic copper levels.
  - A copper-restricted diet should be fed long-term.<sup>2</sup>
  - After elimination of excess copper from the liver using the copper chelator D-penicillamine, supplement zinc to reduce intestinal absorption of copper and prevent re-accumulation of toxic levels.<sup>2</sup>
    - In some pets, zinc supplementation is not needed as normal hepatic levels of copper can be maintained long-term with a low-copper diet alone.<sup>2</sup>
- Supplementation with vitamin E may lessen oxidative injury and fibrosis.<sup>6</sup>
- Supplementation of fish oil, a source of the long chain omega-3 fatty acids eicosapentaenoic acid and docosahexaenoic acid, may reduce inflammation.
- If the owner elects a homemade diet, consult with a veterinary nutritionist to ensure the diet is nutritionally balanced and complete.
- Ensure the pet's drinking water does not serve as an unintended source of copper. In a home with copper plumbing, the tap should be run for 5 minutes before filling the water bowl or distilled bottled water should be used.<sup>2</sup>

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