

### Copper and Kangal Dogs: What Owners Need to Know About Liver Copper and Copper-Associated Hepatitis

**As additional research emerges in the coming years, we expect to develop a clearer understanding of the significance and predictive value of ATP7A and ATP7B copper transport gene mutations in relation to copper-associated hepatitis in the Kangal Dog.**

Although Kangal Dogs have not been specifically studied, large retrospective datasets indicate that liver copper levels and copper-associated hepatitis have increased significantly over recent decades, both in traditionally high-risk copper-storage breeds and in the broader canine population. Accordingly, we consider copper management an important health consideration for Kangal Dogs and other Anatolian Shepherd-type livestock guardian breeds.

#### Overview

Over the last several decades, veterinarians have seen **more cases of chronic liver disease caused by excessive copper stored in the liver** (copper-associated hepatitis, CAH). A large study of 546 dogs over a 34-year period showed that liver copper levels have **risen over time in both traditionally “at-risk” breeds and the general dog population**. Although Kangal Dogs were not specifically studied, these trends are relevant to our breed.

#### Key points for Kangal owners:

- **Liver copper has increased in many dogs** since the 1980s, including breeds not historically labeled as “copper storage” breeds. ([ResearchGate](#))
- In “non-predisposed” breeds (the group where Kangal Dogs would fall), the percentage of dogs with liver copper above historical normal values nearly **doubled**, and copper-related hepatitis has become **more common**. ([ResearchGate](#))
- Levels **≥600–800 µg/g** are often considered high enough to warrant treatment, especially if there is liver inflammation, and levels **≥1000 µg/g** are strongly associated with liver injury. ([ResearchGate](#))
- Changes in **commercial dog food copper supplementation and other environmental sources** (e.g., plumbing) are suspected contributors to higher liver copper in today’s dogs. ([ResearchGate](#))
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#### What owners can do:

1. **Work with your veterinarian to monitor liver health.**
  - Ask for periodic liver enzyme testing, especially in middle-aged and senior dogs or dogs used for breeding.
  - If liver enzymes are elevated or ultrasound suggests disease, discuss **liver biopsy with quantitative copper measurement**.
2. **If your Kangal has chronic hepatitis, ask whether copper has been measured.**
  - In modern cases of chronic hepatitis in “non-predisposed” breeds, excess copper is a **much more common cause** than it used to be. ([ResearchGate](#))

## Proposed Member Article Draft

### 3. Manage diet and supplements sensibly.

- Avoid unnecessary copper-containing supplements in dogs that already receive complete diets.
- For dogs with elevated liver copper or liver disease, work with your veterinarian or a veterinary nutritionist to select an appropriate **lower-copper diet**.

### 4. Watch for clinical signs of liver disease.

- Early on, signs can be subtle: decreased energy, mild weight loss, or changes in appetite.
- More advanced disease may cause vomiting, increased drinking/urination, jaundice (yellowing of eyes/gums), abdominal swelling, or neurologic changes.
- Any of these signs warrant **prompt veterinary evaluation**.
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### Summary for our community:

The available evidence shows that **rising liver copper is not just a problem of a few breeds**. While Kangal Dogs have not been singled out as a “copper disease” breed, the broader trends suggest that **copper management and liver monitoring are prudent health priorities** for our livestock guardians. Owners are encouraged to discuss these issues with their veterinarians and to consider liver and copper evaluation in dogs with abnormal liver tests or chronic illness.

### Disclaimer:

This advisory is intended for educational purposes for Kangal Dog owners and breeders. It is **not a substitute for individualized veterinary diagnosis or treatment**. All health decisions for individual dogs should be made in consultation with a licensed veterinarian or veterinary specialist.

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### SOURCES:

- Primary article:
  - Strickland JM, Buchweitz JP, Smedley RC, et al. **Hepatic copper concentrations in 546 dogs (1982–2015)**. *J Vet Intern Med*. 2018;32(6):1943-1950.[\(PubMed\)](#)
- Optional supporting review for background
  - Ullal T, Choi EA, Gui D, Medici V. **Comparative review of copper-associated chronic hepatitis in dogs and Wilson disease in humans**. *Front Vet Sci*. 2025.[\(Frontiers\)](#)