

# How Tumor Cells Can Spread Between Dogs

Male dogs are at greater risk for this infectious malignancy, in which living tumor cells can physically transplant themselves from one dog to another through the nose, mouth, skin and genitals. While rare in most countries, here's how it is diagnosed and treated.

**Analysis by Dr. Karen Shaw Becker**

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## STORY AT-A-GLANCE

- A new U.K. study shows that a very rare form of transmissible cancer called the Canine Transmissible Venereal Tumor (CTVT), seen primarily in countries with free-roaming dog populations, is four to five times more prevalent in male dogs than females
- In CTVT, living cancer cells can physically transplant themselves from one animal to another, usually during mating, and typically affecting the genitals; however, the cancer can affect other areas like the nose, mouth, and skin
- Common symptoms of the oronasal form of CTVT include sneezing, snoring, difficulty breathing, nasal deformation or bloody and other discharge from the nose or mouth; the cancer is easily treated, and most dogs recover
- While CTVT is a rare form of cancer, one in four dogs in the U.S. will develop more common forms of the disease; pets, especially seniors, should be assessed for cancer at annual or bi-annual veterinary visits
- Excess weight, exposure to toxins, and an inflammatory diet are among the top contributors to cancer in pets

The researchers believe this is the result of behavioral differences between the sexes, specifically, that male dogs spend more time sniffing and licking female dogs' genitalia than vice versa.<sup>1</sup>

## Why Male Dogs Are at Greater Risk for Infectious CTVT

Canine Transmissible Venereal Tumor is an uncommon form of cancer in that it's infectious and can spread through contact between dogs. The living cancer cells physically transplant themselves from one animal to another, typically affect the genitals, and are usually transmitted during mating. Sometimes, however, the cancer can affect other areas like the nose, mouth, and skin.

For the study, the researchers reviewed a database of almost 2,000 cases of CTVT from around the globe and found that only 32 tumors affected the nose or mouth. Of these, 27 cases were in male dogs.

*"We think this is because male dogs may have a preference for sniffing or licking the female genitalia, compared to vice versa," said Dr. Andrea Strakova, lead study author. "The female genital tumors may also be more accessible for sniffing and licking, compared to the male genital tumors."<sup>2</sup>*

Genital cases of CTVT occur in roughly equal numbers of male and female dogs.

## CTVT Symptoms and Treatment Prognosis

CTVT was first discovered several thousand years ago from the cells of a single dog. The cancer actually survived the death of the dog by spreading to other dogs. This transmissible cancer is now found in dogs across the globe, primarily in countries with free-roaming dog populations, and is the oldest and most prolific cancer lineage known to exist.

This is a very unique type of cancer, in that the histiocytic tumors are themselves, infectious. These unicellular, asexually reproducing cells are essentially a sexually transmitted infectious disease (which most cancers aren't).

*“Although canine transmissible cancer can be diagnosed and treated fairly easily, veterinarians in the U.K. may not be familiar with the signs of the disease because it is very rare here,” said Strakova. “We think it’s important to consider CTVT as a possible diagnosis for oronasal tumors in dogs. Treatment is very effective, using single agent Vincristine chemotherapy, and the vast majority of dogs recover.”*

Common symptoms of the oronasal form of CTVT include sneezing, snoring, difficulty breathing, nasal deformation or bloody and other discharge from the nose or mouth.

Interestingly, transmissible cancers are also found in Tasmanian Devils, and in marine bivalves like mussels and clams. The University of Cambridge researchers believe research into this unusual long-lived cancer might also be helpful in understanding how human cancers work.

## About Half of All U.S. Dogs Over 10 Develop Cancer

While CTVT is an extremely rare form of cancer, and rarer still for its ability to spread like an infection, the fact is that about 1 in 4 dogs will develop more common types of noninfectious neoplasia — the uncontrolled, abnormal growth of cells or tissues — during their lifetime. Abnormal growths are called tumors, and malignant tumors, or neoplasms, are “cancer.”

According to the American Veterinary Medical Association (AVMA), almost half of dogs over the age of 10 years will develop cancer, which occurs in canine companions at about the same rate as it does in humans.<sup>3</sup>

While your pet’s immune system can fight off cancer cells, because they are constantly mutating they can overwhelm the immune system’s ability to fight back. Cancer is often used to describe one disease, but it actually refers to many different types, including:<sup>4</sup>

- Carcinoma, which begins in tissues that cover internal organs
- Sarcoma, which begins in bone, cartilage, fat, muscle, blood vessels or connective tissue
- Leukemia, which begins in blood-forming tissue
- Lymphoma, which begins in immune system cells

## Signs and Symptoms of Canine Cancer

Most dog owners don't want to even think about cancer, but knowing the possible signs and symptoms is important so you can see your veterinarian right away. These include:<sup>5,6</sup>

- Abdominal swelling
- Bleeding from the mouth, nose, or other body openings
- Difficulty breathing
- Difficulty eating
- Lumps, bumps, or discolored skin
- Nonhealing wounds
- Persistent diarrhea or vomiting
- Sudden changes in weight
- Unexplained swelling, heat, pain, or lameness
- Visible mass or tumor
- Dry cough
- Swollen lymph nodes
- Unexplained bad breath or other odor
- Lowered stamina
- Lack of interest in physical activities

Even if you don't notice any of these specific signs, dogs should be assessed for cancer at their yearly veterinary visit — and twice a year for senior dogs. Blood and urine tests, along with physical exams, can all be used to detect cancer, even in cases where a dog doesn't seem sick.<sup>7</sup>

For instance, a urine test known as the CADET (CAncer DETection) BRAF Mutation Detection Assay can detect bladder cancer with as few as 10 cancer cells in the urine, making it useful for early detection, months before clinical signs appear.<sup>8</sup>

## Causes of Cancer in Dogs

Often the cause of a specific cancer is unknown, but lifestyle and environmental influences are known risk factors in many cases. Obesity and overweight in pets can increase cancer risk, as body fat produces inflammation that can promote tumor development.

Diet is another important factor, as a carb-heavy inflammatory diet, such as kibble or other highly processed pet foods, can fuel cancer in the body. Chemicals (from the veterinarian, from indoor and outdoor home chemicals, and from conventional/nonorganic foods) can negatively affect DNA and in turn, cell and organ function.

To help your dog avoid cancer, it's important to reduce environmental exposure to toxins and chemicals, and feed an anti-inflammatory, low glycemic diet of whole foods. Feed as much nutritionally complete, minimally processed food as you can afford.

Beneficial add-ins that stimulate autophagy (the body's cellular "clean up" program), apoptosis (programmed cell death, a good thing) and support gut health (70% of your pet's immune system is in the gut), include:

- Decaf green tea and pet-safe herbs, which provide polyphenols
- Super green foods, which provide antioxidants, chlorophyll, and prebiotic fiber
- Medicinal mushrooms, which provide glutathione, spermidine, and arabinogalactans
- Berries, which provide proanthocyanins
- Turmeric/curcumin, which modulate inflammation
- Broccoli and sprouts, which provide sulforaphane

Exposure to toxins, including pesticides such as flea and tick preventives, lawn chemicals, flame retardants, unnecessary vaccinations, and tobacco smoke, may also increase cancer risk. Chemicals in our air, water and food affect our DNA. The timing of neutering and spaying also matters, and I recommend looking into alternative ways to sterilize your pet without upsetting his or her important hormone balance for this reason.

Age is also a factor, with most cancer developing later in life. However, certain cancers, including osteosarcoma, an aggressive bone cancer that most commonly invades the long bones of large and giant breed dogs, may develop at a younger age. Certain dog breeds also tend to have higher cancer risks, such as Golden Retrievers, which are at significant risk for lymphoma.

## Available Cancer Treatments

Conventional cancer treatment for dogs consists of surgery, chemotherapy, radiation therapy and immunotherapies, which are typically managed by a veterinary oncologist. In some experimental cases, veterinary oncologists have teamed up with human oncologists to treat canine cancer, with promising results. As The Bark reported:

*"At the University of California, Davis, human oncologist Robert Canter and veterinary oncologist Michael Kent launched a clinical immunotherapy trial to test their theory that NK (natural killer) cells will attack tumor cells and stop them from creating new tumors.*

*In June 2020, a chocolate Lab named Josie with oral melanoma who had been given two to four months to live was infused with NK cells from a healthy dog. While it's too soon to tell if the theory will hold, six months later, Josie was back doing what she loved: retrieving ducks."*

However, I also recommend consulting with an integrative veterinarian who can advise you on adjunctive therapies that may benefit your pet, such as hyperbaric oxygen therapy, intravenous (IV) antioxidant therapy, and herbal and nutraceutical protocols along with dietary strategies.

Transitioning your pet to a raw or gently cooked, species-appropriate diet rich in antioxidants, healthy fats and fatty acids, and ultra-low carbohydrates is a critical piece of any cancer treatment protocol. Digital filmmaker Rodney Habib and I also produced a documentary about using a ketogenic diet as a profound metabolic strategy to slow or stop aggressive canine cancers.

If your dog is diagnosed with cancer, or you're concerned about your pet's future health and want to reduce cancer risk as much as possible, team up with an integrative or holistic veterinarian and/or an integrative veterinary oncologist.

Most conventional vets have very limited knowledge in the use of targeted nutrition, supplements and other treatments that can work synergistically with conventional cancer treatments to greatly extend lifespan and quality of life for cancer patients.

If there's no integrative veterinarian in your area, some may offer phone consultations to help guide your dog's treatment.

## Sources and References

<sup>1</sup> [Strakova, A. et al. Vet Record, July 3, 2022](#)

<sup>2</sup> [University of Cambridge News, July 4, 2022](#)

<sup>3,5</sup> [American Veterinary Medical Association, Cancer in Pets](#)

<sup>4,9</sup> [The Bark February 2021](#)

<sup>6,7</sup> [Merck Veterinary Manual, Reducing the Risk of Cancer](#)

<sup>8</sup> [AKC October 14, 2016](#)

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