

## **COMPLEMENTARY THERAPIES FOR PETS WITH CANCER**

The approach to helping pets that have been diagnosed with cancer goes beyond surgery, chemotherapy or radiation, and palliative care. There are a number of other options to support and treat pets with cancer, which can be used in conjunction with the conventional methods, or which be employed on their own.

The goals are generally to slow or stop the progression of cancer, and provide the pet the best quality of life possible for the longest period of time.

In order to do this, the steps are:

- 1) Provide the best diet possible (return to the Kali's Wish Info Hub for more diet info).
- 2) Supply specific nutrients and supplements that are the best combination to strengthen the pet's immune system and support the whole body.
- 3) Provide supplements and nutraceuticals to slow or stop the cancer.
- 4) Make lifestyle changes that will help support the pet's health.

### **Supplements with Anti-Cancer Activity**

There is ever increasing research into supplements and nutraceuticals (purified extracts usually from plants) that have anti-cancer activity.

The mechanisms by which most supplements work against cancer are:

- 1) Inducing apoptosis - causing the cancer cell to break apart and die; occurs by various mechanisms.
- 2) Anti-angiogenesis—blocks the formation of blood vessels in the tumour, so that it can't receive nutrients and oxygen, and can't grow easily.
- 3) Pro-angiogenesis—supports formation of blood vessels (sometimes useful to help penetration of herbs into the center of tumour masses, and can increase oxygen in anoxic environments).
- 4) Block glucose uptake by cancer cells (which have a drastically increased use of glucose compared to normal cells).
- 5) Inducing cell cycle arrest (stopping reproduction of cancer cells)
- 6) Other mechanisms, such as using the higher levels of iron in cancer cells to create free radicals, which cause damage in the cancer cell and destroy it.

Listed below are some of the supplements that have been shown by research to be effective, along with the mechanisms they use to fight cancer cells.

1) **Luteolin**-- a bioflavonoid (plant pigment found in celery, green peppers, artichokes, peanut hulls and chrysanthemums)

Works by inducing apoptosis, anti-angiogenesis, blocks glucose uptake, induces cell cycle arrest. Also blocks communication between cancer cells by blocking gap junctions.

2) **Apogenin**--(a bioflavonoid from plants such as parsley, artichokes, basil, celery and others)

Apoptosis (and also helps turn on apoptosis genes in cancer cells), anti-angiogenesis, induces cell cycle arrest.

3) **Curcumin** (turmeric extract)

Apoptosis, anti-angiogenic, induces cell cycle arrest. Turmeric needs to be processed in a special way, or combined with oil in order to be absorbed well. For a recipe for “golden paste” (turmeric with coconut oil), check out the website:

<https://www.turmericlife.com.au/blogs/recipes/turmeric-recipes-golden-paste>

Highly absorbable curcumin extracts can also be found in health product stores, or as a part of supplement formulas (such as Apo-Caps canine supplement).

4) **Cannabinoids (CBD oil)**—an extract of the marijuana plant

Apoptosis, anti-angiogenesis, cell cycle arrest. Dose is **0.1 – 0.5 mg/kg twice daily**  
Also has an anti-inflammatory effect (which is important since cancer flourishes in inflamed tissues), as well as analgesic and anti-anxiety activity.

5) **Mushroom polysaccharides** (or medicinal mushrooms)

These include:

- Reishi (*Ganoderma lucidum*)
- Shitake (*Lentinus edodes*)
- Turkey Tail (*Trumetes versicolor*)
- Maitake (*Grifola fondosa*), *Cordyceps sinensis*
- *Phellinus linteus*, *Coriolus versicolor* and other species. These have established immunostimulatory and anti-tumour activity.

Effects of Polysaccharides, including beta-glucans, include:

- Binding to the outside of natural killer (NK) cells and other immune system cells to help turn them on and increase their cancer killing activity, and

- An increase in overall white blood cell activity in the body, which may increase cell cycle arrest (which slows down replication), help induce apoptosis and interfere with angiogenesis. These are usually found as powders or capsules, and are dosed at 10 - 50 mg/kg per day.

## 6) Modified Citrus Pectin

Can help block cancer cells from binding to their targets and keep them from metastasizing. It can also decrease angiogenesis. Recommended dose is about 30 mg/kg once per day (or divided into 2 portions) mixed with food.

## 7) Melatonin

Increased melatonin can have cytotoxic effects against cancer cells, it is antioxidant. In humans, has been shown to benefit patients with breast cancers, metastatic renal cell carcinoma, hepatocellular carcinoma and brain metastases from solid tumours. The dose is 0.1 -0.25 mg/kg/day. Always give melatonin late at night. \*Alternative: make sure your pet is getting 9 hours of sleep in a dark environment every night, to stimulate natural melatonin production. \*\*Do not give melatonin to dogs on calcium channel blockers, fluoxetine (Prozac) or to epileptic dogs.

## 8) Artemisinin—an extract of Qing Hao, a Chinese herb (also known as Wormwood)

It works by interacting with iron stored in cancer cells to create free radicals. The iron-rich stores in cancer cells make them a natural target for artemisinin. It enters the cancer cells relatively easily, and once inside, uses the iron to create free radicals, which can help destroy the cancer cell from within. Other derivatives are artemether and artesunate (Artemix combines all 3 compounds). Should be “pulsed” 5 days on and 5 days off, since the lining of the intestine stops absorbing it after 5 days. Best to give at least 4 hours before or after meals (so it doesn’t interact with unbound ferrous iron in meats). Dose is 5 mg per kg body weight once daily between meals or right before bedtime. Can be given with a small amount of food that contains fat, which will help it absorb and boost blood levels. If nausea occurs, can try splitting the dose into 2 half doses. Don’t give while pet is having radiation treatment and for at least 2 months afterward (radiation may cause dying cancer cells to release iron into the surrounding tissues and artemisinin may react with it). Best not used in animals with elevated kidney enzymes, seizures or brain tumours.

## 9) Hoxsey Formula

Contains a combination of Western herbs that have cytotoxic and immunostimulatory activity. No controlled trials available, but a case series following 39 patients with advanced cancers over 48 months reported that 6 were still alive. Also there are many case reports from veterinarians in recent years indicating remissions and extended survival times in animal patients with cancer.

## 10) **Chinese herb formulas**

There are several formulas that were developed by Chinese physicians over hundreds of years that recently have been studied and found to contain herbs that alone and in combination, have strong anti-cancer activity. These are often used in combination with other supplements, and in some cases, can augment conventional treatments such as chemotherapy and radiation. Formulas are chosen according to the type of cancer and specific symptoms manifested by the pet. Consult your veterinarian for appropriate diagnosis and prescription of herbal formulas.

## 11) **Frankincense essential oil**

Found to have anti-cancer activity, particularly for brain, breast, colon, pancreas, prostate and stomach cancer. For pets, it must be diluted substantially before application. Consult your veterinarian for recommendations.

### **Other Supplements with Anti-Cancer Activity**

#### 1) **Green tea extract** (active ingredient is epigallocatechin gallate or ECGC).

This may inhibit tumour growth, angiogenesis and metastasis in addition to preventing cancer. Dried green tea extract can be mixed with food at the highest dose the pet will tolerate. Standardized Green Tea extract contains a constant amount of epigallocatechin gallate (ECGC), which can be administered at 2.5 mg/kg/day. Also strong anti-oxidant so best not taken with apoptogenic supplements. May interact with quercetin.

#### 2) **Garlic**

This has antioxidants, immune-enhancing, eicosanoid-mediated mechanisms in the treatment of cancer. Garlic must be used with a little caution due to the possibility of the production of anemia in some pets, but if used with other anti-oxidants, it is generally very safe. The dose is approximately 1 clove per 15 - 25 kg/day for dogs, and 1/8 - 1/4 clove per day for cats. You can also use Kyolic extract at 5 - 15 mg/kg/day, but the natural source is considered to be more effective.

#### 3) **Inositol Hexaphosphate** (IP-6, phytate)

This may alter signal transduction pathways, cell cycle regulating genes, differentiation genes, oncogenes and tumour suppressor genes. It has been found to be especially useful in cases of carcinomas and leukemias. The dose is 5 - 25 mg/kg/day.

#### 4) **Ginseng (Panax Ginseng)**

Appears to decrease cancer growth and metastasis and enhance immune function and survival times. Also has some antioxidant activity.

#### 5) **Cat's Claw (Uncaria tomentosa)**

This herb is advocated for the treatment of many cancer types, but no studies are available.

#### 6) **Pau D'arco (Tahebo tree extract).**

Active ingredients include lapachol, and bioflavonoids. Antibacterial and antifungal activity, modulates the immune system and has some potential benefit in affecting metastatic disease. No studies are available.

#### 7) **Essiac or Floressence Tea or liquid**

Contains a combination of herbs with evidence of biological activity, including anti-tumour, antioxidant, anti-estrogenic and immunostimulant actions, but no studies have been published.

#### 8) **Astragalus**

Immunostimulant, anti-tumour activity and inhibits platelet aggregation.

#### 9) **Ginger**

Chemicals in ginger have demonstrated anti-cancer benefits, and ginger is also helpful in managing nausea. Mildly anti-oxidant.

#### 10) **Amino acids**

- Arginine (with Omega 3 fatty acids). Enhances immune function and may inhibit the growth of some tumours. They may also improve clinical signs, quality of life and survival time in dogs and cats treated for cancer. Dose 500 - 3000 mg daily: however, pets on a high protein, natural source diet should be receiving good levels of this.
- Glutamine. Inhibits tumour growth and cachexia, and is useful for inhibiting the adverse effects of chemo. Dose 0.5 mg/kg daily; however, pets on a high protein, natural source diet should be receiving good levels of this.

## 11) Acupuncture

Acupuncture can be useful in treating the symptoms of cancer, and also in many cases can treat the cancer itself. Many holistic veterinarians have training in veterinary acupuncture.

## 12) Homeopathy

This is another modality, using remedies made from plants, minerals and other substances that can target specific problems in the body. It is best to find a veterinarian trained in homeopathy to work with you and your pet.

*“There is no single herb that will kill cancer. There is no single treatment type that will cure all cancer. Cancer cells are constantly mutating. When treating a tumour, it is important to remember that one tumour mass is essentially many different cancers with many different variations of cancer metabolism. The more ways you attack cancer cells simultaneously, the more different types of cancer cells you can address, and the longer it will take for a mutation to arise that your treatment does not address. **One must also not forget that without a properly functioning immune system, cancer treatment will not succeed.**”*

–quote from Dr. Nancy Scanlan, lecture on Treating Cancer with Herbs, AMVMA Conference 2016.

## Supplements to Support the Immune Systems

Many traditional Chinese medicine practitioners believe that the body would not allow cancer to develop if the immune system was strong enough, so we need to keep it strong.

### 1) **Mushroom polysaccharides** (which are also listed under supplements to fight cancer)

Mushroom extracts support and balance the immune system in a number of ways.

### 2) **Transfer Factor or colostrum**

These are made from the first milk of cows that contain very high levels of immunoglobulins and other substances which augment the immune system, and help the pet fight infections and cancer.

### 3) **Probiotics**

Probiotics contain beneficial bacteria to help boost the natural bacteria of the gut (microbiome), which is extremely important to the function of the body's immune system.

Products that contain probiotics include frozen tripe, live culture yogurt, kefir and other fermented milk products, fermented vegetables and probiotic powders and capsules.

#### 4) Spirulina, chlorella and other algae products

These are types of single-celled algae that grow in fresh or salt water. They may be some of the most nutrient-dense foods on earth. They have anti-oxidant and anti-inflammatory properties and also appear to have some anti-cancer, blood pressure reducing and endurance boosting properties. One of my favourite brands is Bio-Age algae, which contains four strains of algae, and has years of research and clinical trials. For information on this product, check out the website [bioage.com](http://bioage.com).

\*\* During cancer treatment, care must be taken with the use of anti-oxidants for two reasons:

- 1) Many chemotherapy agents and anti-cancer supplements function by creating oxidative states which help to destroy the cancer cells, which anti-oxidants may interfere with.
- 2) If the anti-oxidants attach to free radicals but are not flushed out of the system, the pro-oxidant compounds they form can cause more inflammation and create a more favourable environment for the cancer cells to grow.

However, it is important to minimize inflammation in the body, since cancer develops faster in an inflamed system. So we do want to give animals some form of anti-oxidant to minimize the inflammation.

Recent research shows that it is best not to use high levels of anti-oxidant fat soluble vitamins (Vitamins A, D, and E) during cancer treatments, and to give water-soluble anti-oxidants (which will be flushed out of the system quickly) at a different time than the anti-cancer supplements.

Safe anti-oxidant supplements include:

- Vitamin C
- Resveratrol
- Lycopenes, especially from ripe red tomatoes, cooked in oil (lycopene is fat soluble, so cooking in oil results in a high extraction rate).
- Natural sources of anti-oxidants and other detoxifying compounds including green leafy vegetables (chard, parsley, bok choy and others), cruciferous vegetables (broccoli, cabbage), berries (vitamins A, C, gallic acid, resveratrol). Also zucchini, asparagus, and artichokes. These are best given by pureeing these veggies and fruits raw, to make their nutrients more bioavailable.

If using anti-cancer supplements such as luteolin, curcumin, apogenin and artemesin, it is usually best to give these around 4 hours away from meals (they can be given with a treat or

small amount of food), and to give other supplements (anti-oxidants, mushroom extracts, green tea extract, citrus pectin, algae, colostrum and probiotics, with a meal

### **Resources**

- 1) The Dog Cancer Survival Guide by Dr. Demian Dressler and Dr. Susan Ettinger. A complete guide to caring for a dog with cancer, including conventional and alternative treatments, diet and lifestyle recommendations. Available on I-Tunes, or <https://store.dogcancerblog.com/products/the-dog-cancer-diet>
- 2) The Dog Cancer Blog. <https://www.dogcancerblog.com>. Articles on treating and preventing cancer.
- 3) The Veterinary Cancer Society. <http://vetcancersociety.org/pet-owners/clinical-trials/>. Articles on clinicals trials and other information concerns pets and cancer.
- 4) Kali's Wish Cancer Foundation for pets. <http://kaliswish.org> . A not-for-profit organization started in Calgary designed to support guardians and their pets through pet cancer.
- 5) American Holistic Veterinary Medical Association. <https://www.ahvma.org> Find a holistic veterinarian in the United States or Canada.
- 6) Association of Veterinary Acupuncturists of Canada. <http://www.avacanada.org>. Has a list of Canadian veterinarians trained in acupuncture.
- 7) The Academy of Veterinary Homeopathy <https://theavh.org>. A website dedicated to veterinary homeopathy, with information for pet owners about homeopathy, and a listing of veterinarians who practice homeopathy.