Feeding the Dog with Cancer

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Dogs with cancer have special nutritional needs. In human patients with cancer, it has been shown that malnutrition can increase the risk of complications from therapy and decrease survival times. Improved quality of life and improved response to therapy are observed in those with good nutritional status. The same is thought to be true in dogs.

Cancer cachexia

The weight loss and loss of body condition associated with cancer is different than the weight loss seen in a dog who may be suffering from starvation. The weight loss seen in dogs with cancer is called "cancer cachexia." During starvation, an animal first loses body fat. In cancer cachexia, the animal loses both fat and muscle at an equal rate. Cancer cachexia is associated with severe malnutrition and loss of muscle mass even if adequate amount of food is being eaten, and often the food intake is decreased which worsens the problem.

Causes of weight loss in dogs with cancer

There are several reasons for the severe weight loss commonly seen in dogs with cancer:

- Decreased appetite: Nausea may be associated with cancers of many types and causes a decrease in appetite with subsequent weight loss.
- Direct effects of the tumor: Some tumors, because of their location in the mouth, throat or intestinal tract may make eating, swallowing, or the digestion of food difficult. In addition, tumors of the digestive tract may cause vomiting, diarrhea, or decreased absorption of nutrients from the intestine, which all lead to weight loss.
- Chemotherapy: Drugs used in chemotherapy can alter the sense of smell or taste, which leads to a decrease in interest in food. They can also cause nausea and even vomiting and diarrhea. In some cases, dogs can develop a food aversion. This means if they are eating a certain type of food while they are sick, they may associate that food with not feeling well and refuse to eat it even when they have recovered.
- Radiation therapy: Radiation affects not only the tumor, but normal areas of tissue around the tumor. Radiation of the head or neck can cause changes in the production of saliva which makes eating and swallowing difficult. It can also cause inflammation of the mouth, tongue and esophagus. Similarly, radiation of the chest or abdomen can affect the esophagus, stomach and intestines.
- Changes in metabolism: Cancer can change the body's metabolism. Cancer cells prefer to use simple carbohydrates like glucose as energy. They use a different pathway than normal cells, however, so the body needs to use even more calories to metabolize the breakdown products produced by the cancer cells. Cancer cells can also use amino acids as energy, which affects the body's protein balance.
- Body's response to the cancer: The body can produce substances in response to the cancer. These substances can affect appetite and influence weight loss and loss of muscle.

Recommended diets for dogs with cancer

- Energy dense: In general, foods with a higher caloric content are preferred. If the dog will eat only a small amount, it is important that the food should contain as many calories as possible.
- High in fat: Tumor cells are much less likely to use fat for energy, whereas the dog's normal cells find fats an excellent source. It is recommended that foods should be 25-40% fat on a dry matter basis.
- Moderately high in protein: Since cancer cachexia is associated with a decrease in muscle mass, and muscle is high in protein, moderately high protein levels should be available to dogs with cancer, provided they have normal kidney and liver function. In general, protein levels should be in the range of 30-45% on a dry matter basis.
- Low in carbohydrates: Since tumor cells prefer carbohydrates, diets low in carbohydrates will theoretically give the tumor cells less to grow on. Carbohydrates should be less that 25% of the food on a dry matter basis.

To calculate nutrients on a dry matter basis, look at the Guaranteed Analysis (GA) on the food container. Subtract the moisture from 100 and you will get the amount of dry matter in the food. Then divide the value for each nutrient by the dry matter to obtain the amount of that nutrient on a dry matter basis.
For example: a canned dog

Added nutrients

Some dog foods are fortified with certain nutrients that can be beneficial to dogs

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with cancer. Added nutrients that may be recommended include:

- Omega-3 fatty acids: Eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) are omega-3 fatty acids found in fish oils. They may be very beneficial to dogs with cancer. It not only reduces cachexia, it may also have a direct effect on the tumor cells themselves. Since some dog foods already contain increased amounts of omega-3 fatty acids, it is best to consult with your veterinarian before supplementing. Ultra-high doses can be detrimental.
- Arginine: Arginine is an important amino acid for dogs. Arginine can benefit the immune system and may influence tumor growth. Although the optimal amount of arginine for dogs with cancer has not been determined, a level of 2% of dry matter or higher is generally recommended. Unfortunately, the arginine levels in most dog foods are not available.

food may have a GA of:
Crude Protein 10%
Crude Fat 7%
Crude Fiber 1%
Moisture 78%

The dry matter in the food is 100-78=22. The protein on a dry matter basis is 10/22=45%. The fat is 7/22=32%. For more on calculating nutrients on a dry matter basis, see our article: Dog Food Labels

There remains some controversy as to whether antioxidants should be given to dogs with cancer. Although they can be helpful, they may also alter the effectiveness of certain cancer therapies. Consult your veterinarian before giving antioxidants to your dog with cancer.

Always check with your veterinarian regarding the use of any supplements in a dog with cancer.

Ways to increase food intake in dogs with cancer

We can choose the appropriate food to feed a dog with cancer but that is only half of the battle. We also have to make sure the dog will eat it. We can try to increase the palatability of food by:

- Increasing the moisture: For dogs who prefer foods with higher moisture, switch to a canned food or add water to the dry kibble. (Note: some dogs prefer dry kibble.)
- Increasing the aroma: Warming canned food to body temperature can help increase the aroma of the food. If heating in a microwave, be very careful to mix it well afterwards to avoid any hot spots. Only warm the food to body temperature (around 100° F, not hotter). For dogs with a food aversion, it may be best to not increase the aroma of the food.
- Assuring freshness: It is best to offer multiple small meals a day to assure the food is fresh. This is especially true for canned foods.
- Trying a novel food: Although many dogs are set in their ways, offering a food they have not had before, or offering it in a different location, may entice some dogs to eat.
- Adding flavorings to the food: Dogs like the taste of sweetness and salt. If advised by your veterinarian, these can be added in small amounts to the dog food. Do not use artificial sweeteners, as these can be toxic to dogs.
- Avoiding the association of medications with food: Do not mix medications into food or water and it is best to not medicate immediately before or after a meal. Some medications need to be given with food, however, to avoid stomach upset. You will need to experiment with your dog to find the best approach.
- Making eating easy: Be sure the food bowls are easily accessible. You may want to place multiple bowls around the house. Be sure your dog can access the food. If your dog must wear an Elizabethan collar, remove it at mealtime and monitor your dog carefully.
- Avoiding feeding if the dog is nauseated: It is fine to try to hand feed your dog in an attempt to get her to eat. When a dog (or person) is nauseated, however, the last thing they want is food. Do not try to coax your dog to eat if she is obviously nauseated (drools at the sight of food, turns away, spits out food). This can lead to the development of food aversions. If you feel your dog is nauseated, contact your veterinarian who may be able to prescribe medications that will help.
- Administering appetite stimulants: There are several drugs which may stimulate the appetite in dogs. These are generally used as a last resort as they are usually short acting and not always effective.

Feeding tubes

If a dog will not eat on her own, a feeding tube can be used until the dog starts to feel better. Feeding tubes are the best way to provide nutrition to dogs with cancer cachexia who will not eat on their own. The feeding tubes are generally tolerated very well by dogs and make giving food and administering medications quite simple. Feeding tubes also help the digestive tract to continue to function normally.

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Conclusion

Providing good nutrition to dogs with cancer is key to assuring they have the best response to therapy and the optimal quality of life. Be providing a diet with increased fat and protein and modifying the feeding methods to increase food intake, we can counterbalance some of the pathways that lead to cancer cachexia.

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