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Use of Commercial Starch Blockers in Canine Weight Loss

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Abstract

The alarming increase in overweight and obesity among companion animals has been documented in various studies and was especially noted in dogs. The reason for this weight gain has been thought to be due to the increase of starch carbohydrates in commercial dog food preparations.

This study was designed to test the effectiveness of a starch blocker designed to prevent the breakdown of starch and its absorption. The product tested was VetSlim containing Phase 2™, a commercial starch blocker.

Twenty dogs of several breeds and ages were recruited from two veterinary clinics in Hawaii. Dogs were given before-and-after blood and stool tests. Their owners were instructed to sprinkle the VetSlim product on the food at the beginning of each meal. No other changes in the animals' program were to be included. There was no change in food type or amount and no change in exercise level.

Out of the initial 20 dogs, three dropped out due to travel and time problems. Of the 17 dogs who completed the 8-week study, 15 (88%) lost weight on the tested product. This is highly significant at $p < .01$. The average weight loss for the dogs who lost weight was 3.01 pounds which represents an average weight loss of 4.61% of body weight for each dog.

Measurement of abdominal girth showed that no dogs in the study gained size. Of the 15 dogs who lost weight, 13 also lost abdominal inches. The average abdominal girth lost was 1.6 inches. No side effects were noted, and the blood and stool tests performed before and after indicated no systematic changes.

As this study is the first to investigate the use of starch blockers for canine weight loss, the results indicate that it warrants further investigation and consideration as a useful tool in combating the growing problem of canine obesity.

Introduction

A recent study published in 2003 showed that 25% of dogs in the United States were overweight and many were classified as obese.¹ This is a startling increase over a similar study done in 1985.² The reasons for this large increase in companion animal obesity are not readily apparent, but it is similar to the rise in human overweight and obesity rates.³

One postulated reason for this weight gain is the increased uses of starch carbohydrate ingredients in commercial dog and pet foods. Additionally, many dogs are fed table scraps by their families, which often consist of starch products. Since the canine digestive tract is designed to digest and assimilate mostly protein, the addition of a significant percentage of starch carbohydrates into the diet will be stored as fat, often in the abdominal area. This increase in weight is one of the major causes of the sudden rise of diabetes, heart disease, muscular-skeletal problems and cancers in the canine population.

This is a common problem often found in human weight loss clinics. The most effective solution to human weight loss seems to be the "low carbohydrate" diets. This is most typified in the "Atkins Diet." A newer and more effective addition to this diet program is the introduction of starch blockers which effectively block the digestion of starch and thus the absorption of starch calories into the body.

Starch blockers were originally developed in the 1970's and 1980's as a natural way to block the digestive enzyme alpha-amylase, which converts starch to simple sugars. Without the action of alpha-amylase, starch is not broken down into sugar and thus cannot be absorbed into the body.⁴

The action of starch blockers was first developed using an animal model^{5,6} and several studies have been done on the mechanism of action and effectiveness in canines.^{7,8} It was for this reason that the current study decided to investigate the clinical application of the use of starch blockers in canine populations that were seen at outpatient veterinary clinics.

Procedure

Two outpatient veterinary clinics were used in this multi-center design. Both clinics were located in Hawaii, one on the island of Maui, the other on the Big Island of Hawaii. Dogs were enrolled in the study if they were deemed by the attending veterinarian to be overweight or obese. The veterinarian examined each dog on an initial visit. At this time, an initial evaluation form was completed which consisted of a physical exam and laboratory tests including a blood test and fecal float test. Each dog was weighed, and the abdominal

girth measured at the navel was recorded. In addition, a doctor or staff member completed a subjective evaluation scale.

At the time of the initial visit client instruction sheets were given to the dog owners that explained the purpose of the study and the procedure to be followed. Each owner was given enough starch blocker capsules for one week and asked to return with their animal in one week. Owners were instructed not to change their dogs' exercise or food program.

Animals were seen for eight consecutive weekly visits following the initial visit. At each visit the dog was weighed and measured by the clinic staff. A subjective clinical evaluation form was also filled out at each visit. After the eight visits, a second blood and fecal samples were taken on the dogs and sent for analysis.

Products And Dosage

The starch blocker product utilized in this study is a white kidney bean extract developed and produced by VetMedicinals, Inc. The trade name of the product is "VetSlim". Quality control testing at the factory assured high purity and consistency of the product.

The product was supplied in capsules each containing 500 mg of the Phase 2. Owners were instructed to open the capsules and sprinkle them on the food (but not to mix it into the food) before the dog began to eat.

Owners were instructed to sprinkle the contents of one 500 mg capsule on the food if the dog's body weight is less than 50 pounds. Owners were to sprinkle two 500 mg capsules on the food if the dog weighed 50 pounds or more.

Canine Subjects

Ten dogs were recruited from each of the two clinics. They were of different breeds, and all were judged to be overweight or obese by the attending veterinarian. A wide variety of breeds participated in the study; the breed of each dog is listed in the results section of this study. Twenty dogs were initially enrolled in the study.

Results And Analysis

Of the twenty dogs that were enrolled in the study, one dropped out after the initial visit due to travel concerns. Two other dogs dropped out after three visits due to time requirements needed to be seen for clinical evaluation. Seventeen dogs completed the entire nine weeks of the study.

Out of the 17 animals that completed the study, 15 (88%) lost weight. This is significant on a two-tailed p test ($p < .01$).

The average weight loss in all dogs in the study was 2.66 pounds, which represents a 3.61 % average body weight loss per dog. In the 15 dogs who lost weight, the average weight loss per dog was 3.01 pounds. This represents an average weight loss of 4.61% of body weight per dog.

In looking at the abdominal girth measurements, none of the dogs gained inches. Even those few dogs who gained weight either lost inches at the waist or stayed the same. Of the 15 dogs who lost weight in the study, 13 of them also lost inches. Two dogs who lost weight stayed the same in abdominal measurement. The average abdominal girth lost was 1.6 inches per dog.

Examination of the blood tests done pre- and post-treatment revealed no change in relevant measures. There was no change in liver enzyme measures or in digestive enzyme levels. The fecal float measure showed no change in fecal fat composition, and no intestinal parasites before and after the study.

Discussion

The use of starch blockers in animal weight loss has been evaluated in several previous studies. These studies done at the Gastrointestinal Research Unit of the Mayo Clinic, demonstrated that starch blockers were effective at causing amylase inhibition and thus preventing the digestion of starch products.^{7,8} This current study is the first to look at the use of starch blockers in animals in a clinical setting.

Several points need to be discussed in an initial study such as this one. First, it should be emphasized that a study of this type only shows changes in weight as a result of the starch blocker. By holding other variables constant and only including the starch blocker, we focused only on the effect of blocking the starch component of the diet, but not on any other aspects of a well-rounded weight loss program as might be found in a clinical setting. Dietary change and exercise are also important parts of a comprehensive weight loss program.

Secondly, from a procedural point of view this study probably understated the weight loss potential of the starch blockers. Owners were instructed to empty the contents of the capsules directly on the food. Studies in human weight loss showed better results if the product was taken about 15 minutes before the meal in order to allow the starch blocker to precede the food into the small intestine and thus inactivates the alpha-amylase, preventing the digestion and absorption of starch. In future studies we will be investigating a

chewable dog-biscuit type product that will be give before each meal in order to give the active starch blocker ingredient time to reach the small intestine before the food is consumed.

Thirdly, it was noticed by some of the investigators that the larger dogs might need a larger quantity of starch blocker. It was suggested that because of the faster transit time of food in the gut in canines, larger amounts of the starch blocker are needed to inactivate a sufficient amount of alpha-amylase. In future studies we propose that dogs over 80 pounds be given 1.5 grams of starch blocker before each meal.

Finally it should be pointed out that out of the 19 dogs in the study, even the dogs that did not complete the study, 15 of them lost abdominal girth as measured around the navel. None of the animals showed an increase in waist size, even those who gained a small amount of weight. All animals lost waist size or stayed the same. This finding is similar to human studies where participants lost not only weight but also inches at the waist.⁹ This indicates that in place of using starch for energy production the body is burning body fat. This is seen to be one of the major factors in the use of starch blockers for weight loss. By blocking starch carbohydrates, the body is forced to burn its stored energy in the form of body fat. This study in canine weight loss seems to confirm this finding.

The successful use of starch blockers in this group of dogs seems to warrant even larger investigations of this approach in helping to combat the growing problem of increasing obesity in our canine population.

Results Summary

Total ALL dogs:

Total Weight Loss	– 45.20 lbs
Avg. Weight Loss	– 2.66 lbs
Avg. % Wt. Loss	– 3.61%

Total ONLY Dogs who Lost Weight
(15 out of a total of 17 dogs):

Total Wt. Loss	– 45.20 lbs
Avg. Wt. Loss	– 3.01 lbs
Avg. % Wt. Loss	– 4.61%

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Barbara Ota, MS, studied zoology at the University of Hawaii. She earned a Master of Science at the Traditional Chinese Medicine College of Hawaii and is National Board Certified as a Diplomate in Acupuncture. She is currently the lead consultant with Vet Medicinals, Inc. and works with Alternative and Oriental Medicine, at the Kohala Clinic in Hawaii

Vet Medicinal, Inc.'s Web site at www.vetmedicinals.com is under construction.

The American Veterinary Chiropractic Association

The American Veterinary Chiropractic Association (AVCA) has grown to include three approved programs that teach the basic 180 hour course; Options for Animals, the Healing Oasis Wellness Center, and the Parker College of Chiropractic. Graduates of each of these programs are eligible to sit the AVCA certification examination.

Options for Animals was the first AVCA approved animal chiropractic program. Founded by Dr. Sharon Willoughby, Options was purchased by Drs. Heidi Bockhold, Dennis Eschbach, Gary Marr, and Drew Spisak in June of 2003. In July of 2003 Options presented its course in Hamburg, Germany for the European Academy of Veterinary Chiropractic. The course was taught by Options instructors as well as other AVCA certified doctors. The curriculum has been recently expanded in the areas of neurology, case management, advanced biomechanics, and advanced case management. Advanced modules are being offered at Options in Illinois for doctors needing AVCA approved CE. Please consult www.animalchiro.com for more information.

The Healing Oasis Wellness Center is owned by Dr. Pedro and Mrs. Michelle Rivera. The basic

program was approved in 2001. They recently hosted the 3rd annual Veterinary Spinal Manipulative Therapy convention in Lombard, Illinois, featuring a slate of great speakers. Information on Basic programs as well as AVCA approved continuing education programs can be found at www.thehealingoasis.com.

Parker College of Chiropractic was approved by the AVCA in 2003, and had their first class that year. The 2004 basic program has 46 students enrolled. The class is taught by AVCA certified doctors on staff at Parker as well as other AVCA certified doctors. Another class may be added this year due to increased interest.

The AVCA is pleased to hold its annual meeting in conjunction with the AHVMA Annual Conference. On September 11, 2004, Jay Komarek, DC, will present three hours of lectures entitled "Force application to the vertebral motor unit," and William Ormston will present three hours of lectures entitled "Gait analysis and biomechanics of the quadruped." The entire six hours is approved AVCA continuing education. The Annual General Membership meeting will be held on the evening of the 11th.