Companion Animal Obesity: Fit and Lean - all the reasons why.

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Obesity and Inflammation:

Obesity in companion animals has become the leading health problem today with nearly 40% of the dog population being classified as overweight to obese. This is alarming, yet even more concerning is that the most recent studies in canine and feline obesity show that adipose tissue is a pro-inflammatory tissue resulting in chronic inflammation. Although the ramifications are yet to be elucidated, it is clear in human medicine that these changes are correlated to heart disease, cancer, hypertension, insulin resistance and diabetes (1-3). This alone are talking points for the well-being of your canine and feline companion.

1) **Accountability is the Key:**

The reason that "Weight Watchers" and other programs work in the human arena is that the person is accountable to the scale during a weekly or monthly meeting. We have to address this in the veterinary clinic with each and every visit. The "weigh-in" is the ideal tool to help with compliance to keeping your pet lean and in appropriate body condition. Part of this obesity epidemic is that too many veterinarians see your dog and then escort you out of the office without an appropriate discussion related to ideal body condition and obesity prevention. In addition, the perception of appropriate body condition of many owners is skewed, whereby owner believe that body condition of their pet is fine when in all reality their dog is a little bit heavy (4).

2) **Overweight? - Where to start:**

Weight loss starts with the assumption of an ideal body weight for your dog, rather than starting any protocol or calculation using the present body weight; all calculations will be based on the ideal body weight. Assume a maintenance energy requirement based on the linear equation for resting energy requirement (RER): RER = 30 (kg) + 70. Then use a multiplier on that equation for activity at somewhere around 1.5 times the RER. This is fine for the young active dog, but not adequate for the inactive dog. This multiplier is the key and more often than not, it is less than 1.5, particularly in the cases where weight loss was previously unsuccessful or you have a larger dog who in general needs fewer calories. From here we reduce the calories to only 60% of the ideal kcal intake for dogs as a starting place. This calculation is designed to initiate weight loss at 1-3% per week and often the kilocalories have to be readjusted as the dog loses weight. It may seem drastic, but is often what is needed for effective weight loss. If your dog is losing less than 1% a week (4% a month) it's wise to reduce the kilocalories by around 15% to re-initiate weight loss (5-6).

3) **Satiety:**

One of the biggest problems encountered during weigh loss is satiety, and this is where strategic feeding may be helpful. Many of the "lite" foods on the market and therapeutic pet foods have increased fiber content to induce a feeling of satiety. Unfortunately, this effect only lasts a few hours at best. Therefore, depending on the your lifestyle it's best to break feeding up so that the larger portion is provided to the dog at a time owners will be at home to help curb begging

behaviors (i.e. evenings). Other things that can be used to create stomach fill are canned or cooked frozen green beans to help fill the stomach, since a cup of green beans only has around 30 kilocalories. Going as high as a cup of beans per cup/can of dog food is suitable. Other tools like buster cubes and feeding puzzles may help with keeping your dog busy when eating and may also help with cognition over time (1,2,8).

4) Picking the right food.

One of the critical mistakes can be the random use of various commercial "lite" formulas. A recent publication suggests that many "lite" formulas do not comply with the AAFCO regulation for labeling, such that they are higher in kcals than the regulation allows. Not only are some of them no more restricted in kilocalories than regular foods, but the kilocalorie information on the bag or can might not be correct (7). This incorrect calculation is not intentional, but there is likely more fat in the food than was calculated, since all regulations have fat listed as a minimum amount and the digestibility of fat might be greater than the calculations assume. Therefore, the food chosen from the commercial arena may have up to 15% more kilocalories than actually labeled.

Therapuetic diets on the other hand have a known kilocalorie content and have specialized formulations to help with satiety and/or maintaining lean mass during the weight loss process through enhanced fiber, protein levels and/or increased carnitine. The use of high protein and/or carnitine enrichment cannot be emphasized enough since lean mass loss contributes to more metabolic tissue and a primary goal is to maintain metabolically active tissue to help sustain and drive the weight loss (8,9).

5) Physical Activity and Weight loss:

Many clinicians prescribe an "increase in physical activity" to help augment the weight loss plan. Though this sounds wonderful and ideal, the reality is that this requires a change in the activity pattern of the owner which complicates the problem of getting a pet to be more physically active (5). Though exercise is ideal, and likely helpful in combating obesity, a majority of the success in a weight loss program will be through calorie restriction.

Why is lean better for dogs?

As stated above there is a growing body of literature that suggests there is a mild chronic inflammation associated with aging and inflammation and this inflammation is often associated with increased oxidative injury to the body. This inflammatory profile basically tips the balance towards degeneration and break down of tissue rather than maintenance of tissues. Worms, rodents, humans and monkeys have shown that a lean body type leads to an increased life span (10). Amazingly, we have similar data in Labrador Retrievers. In this longevity study litter mates split into two groups for a life-long study where one group was fed at 70% of their litter-mate counterpart. These feed restricted Labradors lived on average two years longer. The

average age of the group fed ad-lib when were body condition scores of 6-7 out of a score of 9 lived to be 12, while those kept at body condition of 4-5 out of 9 lived 14 years before succumbing to a number of problems with the number one problem being debilitating arthritis (11,12). Other physiological parameters of health were studies including insulin sensitivity and the dogs fed ad-lib that were overweight showed decreased sensitivity to insulin (13). This recapitulates the ideal that a lean phenotype is ideal for helping your companion lead a long healthful life, therefore sometime less is more, particularly when it comes to feeding!

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