Obesità: strumenti nutrizionali e approcci per ottenere un (minimo) successo

Obésité: outils et approches nutritionnelles pour obtenir un (minimum de) succès

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It is now well accepted that obesity in dogs and cats is primarily a medical and health issue reducing animals' lifespan (Kealy & al. 2002) and welfare (German & al., 2012) and not merely an aesthetic matter. In Europe, it is admitted that overweight condition and obesity have a high incidence, of at least 30 % in both cats and dogs (Colliard & al., 2006, 2009, Diez & al., 2015). By contrast, obesity is scarcely the reason for consulting the vet. Most of owners are either not conscious of this problem in their pet or tend to minimize it (German & al., 2015), considering obesity as a normal consequence in neutered or aged dogs and cats. This simply shows that people do see overweight pets (as they see overweight humans) but they do not recognize the condition as a life-threatening disease. Causes and diagnosis of obesity have been largely discussed elsewhere (Nguyen & Diez, 2010, Corbee, 2012, 2014).

1. Prevention

The cornerstone of obesity prevention is the education of owners to the healthy nutrition and welfare of their pets. Owners often think that vets only cure sick animals and ignore that they can be consulted also to receive good advice on how to maintain them healthy. The vets' interest for healthy nutrition must appear as soon as possible: at the first consultation of a puppy or a kitten or, at least, when taking the decision of neutering. In this latter case, the type of diet and/or the daily amounts of food should be changed few days before surgery and owners trained to weight their pets regularly –at least twice a month in the 6 months following neutering. It is not surprising that owners receiving clear written and individualized recommendations on the new regimen - including type of diet, daily amount of food, number of meals per day- and having free access to a scale, easily manage to maintain the pet's ideal body weight (BW). Significant health benefits have been shown in several animal species maintaining a lean BW. Of course the crucial role of the veterinarian is played by calculating the proper amount of daily Metabolizable Energy (ME) for each individual. To calculate daily energy requirements in adult dogs with an ideal Body Condition Score (BCS 5/9) (Laflamme & al., 1994), we use the NRC (1974) equation based on current BW (kg): ME = $BW^{0.75}$ x 132 kcal, multiplied by individualized factors such as kc (climatic factor), k1 (breed factor –varying from 0.9 in prone-to-obesity breeds to 1.1 in prone-to-thinness breeds) and k2 (energy expenses factor – varying from 0.7 in low active and neutered dogs (Jeusette & al., 2004) to 1.2-1.3 in highly active dogs). To date, in daily practice, this method allows the best individualized estimation of daily energy requirements. In adult cat, we use a simplified formula to calculate daily energy requirements: 50 to 70 kcal ME /kg BW depending on neutering and activity level.

2. Treatment

When obesity is installed, there is no easy or fast way to solve it.

Communication and motivation

In experimental conditions, the results of weight loss programs (WLP) are excellent. In practice, the situation is more complex: veterinarians often have to convince the owners that losing weight would be beneficial for their pet, and starting a WLP an important treatment for concurrent diseases. Moreover, talking about nutrition and making feeding plans is time-consuming for the vets and because they do not have direct influence on the dog's diet and social environment, achieving weight loss can sometimes be frustrating. A concept map has been adapted to provide a guide to successfully approach the overweight dog/cat depending on the owner's attitude – denies pet's obesity, admits pet's obesity and refuses the treatment, or admits pet's obesity and accepts the treatment- (Diez, 2009, *Figure 1*). This allows the vet to gain time because he can directly go to the point and be systematic in his approach to pet obesity. Factors motivating the owners to continue the WLP are the clear amelioration of chronic clinical signs such as the decreased pain in pets suffering from osteoarthrosis, the reversibility of many metabolic disorders (Bastien & al., 2015) and the increased quality of life (German & al., 2012). Once the owner is convinced, implementing a WLP is not technically difficult.

Feeding plans

Vet combines different tools and resources to implement a WLP. The first point to keep in mind is that the use of energy restricted diets remains the only way to ensure long term weight loss. Medical treatments are deceiving because results are maintained for a short term, and it is known from human medicine that long term weight loss can not be reached by medications only. In humans, the changes in microbiota by using pro- or prebiotics or even gut flora translocation appear as a new therapeutic approach to treat obesity but to date, they are no proves that this last method should be suitable in overweight pets, due to the lack of studies comparing gut microbiota between healthy and overweight pets (Handl & al., 2013).

Another point to consider when planning a WLP is the percentage of excess BW because each kg of excess BW contains 7500 kcal therefore WLP forces the animal to use these enormous amounts of energy. Thus, the higher the excess BW (%) the higher the level of energy restriction is required to achieve a BW loss. In dogs this accounts for the 40 to the 60% of the ME calculated on the ideal dog's BW (0.6 to 0.4 x 132 kcal x ideal BW $^{0.75}$). More specifically, the following restriction factors are used according to the excess BW: 0.4 if excess BW > 50 %, 0.5 for excess BW between 30 and 49 %, and finally 0.6 for excess BW between 15 and 29 %. It is advisable to allow a weekly BW loss between 1% and 2% of the initial BW. Further, it has been demonstrated that it is more difficult to allow the optimal weekly weight loss and reach the ideal BW in female than in male dogs, therefore it is sometimes necessary to adapt (decrease) the daily energy amounts during the WLP in the formers.

In overweight/obese cats we use the following equation: 30-40 kcal (ME) x target BW (kg).

To achieve the target BW we definitely need time – a slow weight loss is healthier and long-lasting than a fast weight loss- and diets specifically formulated for WLP in the targeted species. These energy restricted diets present many specific features such as high protein-to-energy ratio, low amount of fats, sources of carbohydrates with low glycaemic index, high content of essential fatty acids and micronutrients to avoid deficiencies, moderate to high amounts of total dietary fiber and other peculiar ingredients like carnitine (Blanchard & al., 2002), antioxydants, or prebiotics. During the last decade, dry diets were mainly used. There is now some evidence showing that the satiety remains a problem in pets during WLP, and many of these programs fail because pets keep begging and owners fail to follow the strict recommendations consequently. For these reasons, introducing a part of the daily energy amount as wet food is now proposed with adaptations of dietary modalities (number of meals, time of meals, environmental enrichment) to help the owners to be strict. Offering cats wet food mixed with the dry one has induced significant and long term weight loss, as reported in recent studies (Colliard & al., 2009). The use of wet food in large dogs is a matter of cost, but it is not necessary to give the greater part of energy under this form; *ie*, a can of energy restricted-diet can be divided in 2 or 3 days and the rest of energy is given as dry diet.

Exercise and follow-up

Progressive exercise – walking, swimming, playing - must be encouraged in dogs and cats and sustained during and after the WLP. Most pets experience an increase in spontaneous activity during the WLP; this must be encouraged despite the fact that some cat's owners do not appreciate the changes in cat's behavior.

Another point is the regular check up of BW during the WLP, once a week during the first month and bi-monthly afterwards. BW control should be performed possibly using the same scale and, if possible, at the vet's clinic, because it is important that the owner is encouraged by all the team (vet, nurses, and secretary). Some studies have also shown that frequent direct or indirect (phone or (e)mail) contacts with the owner allow to increase the compliance.

3. Maintaining the ideal BW

Maintaining the ideal BW attained after a WLP is rather challenging in our pets. This is because there is an important risk of recurrence, known as the "yoyo effect", particularly in the 6 months following the end of the WLP. Maintaining BW in a narrow range is not easy and dietary amounts must be often adapted weekly during the following 3 to 6 months. At this time, the diet used during BW loss is no longer required but generally, an energy restricted diet for obese-prone, low active or neutered dogs and cats is prescribed in fixed amounts, taking into account the new ideal BW but also the restriction factors described before (1. Prevention). Fighting sedentary lifestyle is also a goal.

In summary, a 4-steps approach is recommended to treat overweight and obese pets in a specific program:

1. Clinical exam: to diagnose if overweight condition or obesity is primary or secondary to an endocrine disease

2. An open discussion with the owner to obtain accurate feeding history and practices – these last are often to be changed- and to convince him/her about the necessity of the WLP

3. Making the individualized WLP: choosing a specific diet, determining the quantities, giving written instructions about precise amounts of foods and the modalities (number of meals, replacing (dental) treats, exercise if possible), curves with objectives, and duration of the WLP.

4. Organizing the follow-up using written practical instructions about 1) when and where the pet must be weighed, 2) how to communicate the BW to the vet. During this period, owners must be deeply encouraged.

In conclusion, whilst obesity in pets is compared to an epidemic disease, the condition is highly avoidable by educating owners to the actual pets' requirements. One of the veterinarians' purposes should be teaching owners to regularly weight their pets, to weight offered pet food, to use treats with rationale and to daily stimulate animals to exercise and play. The question for the vets is the following: are we ready to invest in client education to pets' health and welfare? Why not considering proper feeding and nutrition as important as all other means of prevention as recommended by WSAVA nutritional guidelines assessment (Freeman & al., 2011)?

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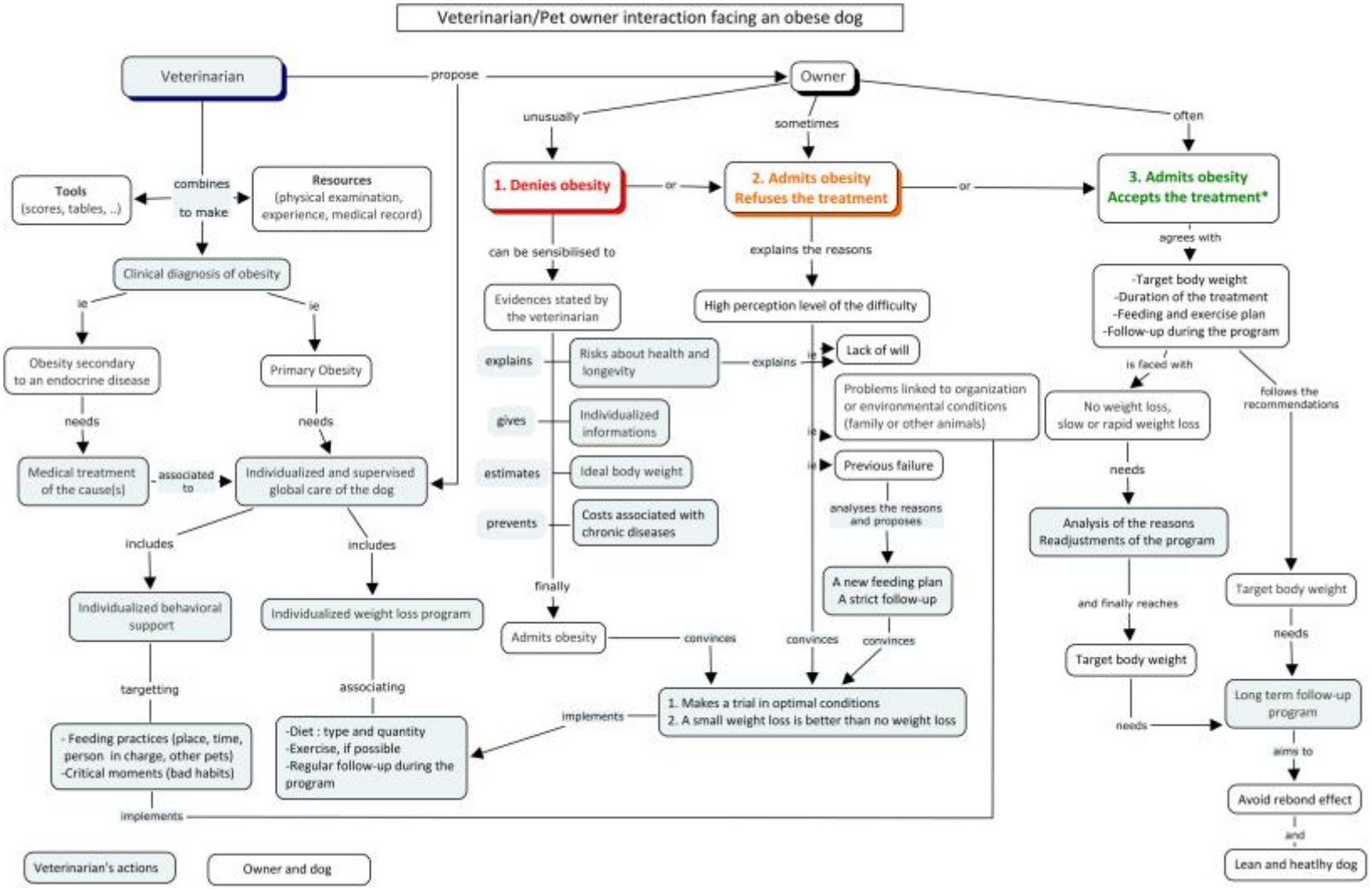

Figure 1. A method to gain efficiency and time to convince pet's owner by use of a concept map (http://cmap.ihmc.us/conceptmap.html), a dynamic way to explain and link concepts. Owners' cooperation and behavioral characteristics were analyzed based on medical records of 153 obese dogs presented at the consultation of nutrition of the veterinary faculty of Liège (Belgium) in 2007.