

CANINE OBESITY – A MAJOR PROBLEM OF PET DOGS

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Abstract

Nowadays the obesity at the dogs represents one of the most important nutritional problems, and it became a frequent illness. This can affect seriously the pets health (causing a shorter life, cardiac disorders, osteoarticular problems), though some owners think that a faty pet is a sign of well-being.

Key words: *obesity, pet dogs, frequency.*

INTRODUCTION

The obesity can be define as a pathological situation characterized as an excessive set down of fat which determine different modifications of organism functions. World Health Organization (WHO, 1997) defines the human obesity as "excessive fat leading to harmful consequences for health". "Mathematical" definition of the obesity is rarely used because it is difficult to appreciate correctly the ideal weight of the animal except breed dogs, where we know the values established by the standard of each breed. (Markwell & Butterwick, 1994). It is easier for us if we know the weight of the dog which it had before to become obese.

We make a difference between overweight dogs and the obese ones. A dog is overweight when its weight is higher than the ideal weight with 10-20 % and it is obese when this value exceed 20% (Sanderson, Sherry Lynn, 2007).

Obesity is the result of a higher contribution of energy then the requirement.

The diets in the management of obesity implies a limited contribution of energy while all essential nutritive elements applyment remains normal.

MATERIALS AND METHODS

Frequency of obesity at the dogs

Recent studies show that obesity frequency is between 24% - 44% at the dogs which are brought to the veterinary clinics (Table 1.) (Mason, 1970; Meyer et al., 1978; Edney & Smith, 1986; Armstrong & Lund, 1996; Robertson, 2003).

Table 1.

Frequency of obesity at the dogs (Diez, M. and Nguyen, P.).

References	Country	Number of dogs	Estimation
Krook et al., 1960	Sweden	10993	9%
Mason, 1970	UK	1000	28%
Edney, 1974	UK	1134	34%
Meyer et al., 1978	Germany	266	30%
Edney & Smith, 1986	UK	8268	24%
Armstrong & Lund, 1996	USA	23000	25%
Lund et al., 1999	USA	30517	28%
Royal Canin, survey (2000)	France UK Spain Germany	400 veterinarian respondents	20-22%
Jerico & Scheffer, 2002	Brazil	648	17%
Robertson, 2003	Australia	860	25%

In conclusion the epidemiological datas do not attest an increasing frequency of obesity in the last 10 years, but the obesity still remains a big problem of the dogs. (Diez, M. and Nguyen, P.)

The reasons of obesity and the risk factors.

Table 2.

The risk factors of obesity.

Risk factors	Remarks
Predisposed breeds	Depending on the country and the period (the year) when studies were made (Labrador Retriever, Teckel, Sheltie, Cocker Spaniel, Beagle, Basset Hound, Cavalier King Charles Spaniel, Cairn terrier) See table 3.
Genetic factors	Probability of the implication of some genetic factors.
Age	Incidence of obesity is increasing after 2 years old and it will be highest at 6-8 years old.
Sex	Females are more predisposed than males.
Neutering	At males and females too.
Contraceptive treatments	Medroxyprogesterone acetate – determine a weight increasing with 17.4% at the treated femeles. (Picavet and Le Bobinnec, 1994)
Endocrine diseases	Diabetes mellitus (Hoenig, 2002) and hipotiroidism (Roche et al., 1991;Pancieria, 2001).
Medications	Some medicines can determine hyperphagy and weight increasing,especially antiepileptics and glucocorticoids.
Sedentary lifestyle and lack of exercise	The life style is very important. The dog needs to move minimum a few hours a week.
Food not adapted to the energy requirement of the individual	Too high power containt compare to the physical effort set down.
Type of food	Good taste and smell.
Begging from the table	Appeared and supported habit from the part of the owner.
The individual dog	Individual predisposition

Table 3.

Breed predispositions in different countries.

Edney & Smith, 1986	UK	Labrador Retriever, Cairn Terrier, Collie, Basset Hound, Cavalier King Charles Spaniel, Cocker Spaniel, Dachshund and Beagle.
Krook et al. (1960)	Suedia	Rottweiler, Saint Bernard, Collie, Terra Nova, Scottish terrier and Chow Chow.
Meyer et al. (1978)	Germany	German Shepherd, Poodle and Boxer.

Pathophysiology of Obesity

There are distinguished 2 types of obesity at humans and rodents . These were adapted for dogs too:

- Hypertrophic obesity – characterized by enlargement of fat cell size. It is generally seen with adult onset of obesity. Overfeeding during adulthood increases the size but not the number of fat cells .
- Hyperplastic obesity – characterized by an increase in both size and number of fat cells. It is generally seen with onset of obesity during growth and puberty (Sanderson, Sherry Lynn, 2007).

(See Table 4.)

Anamnesis and clinical exams of the animal – Evaluation of obesity

Through anamnesis we get different informations from the owners, the most frequent are lethargy, warm intolerance, difficult movement.

Examination of the animal consists in routine physical exam which includes weighting of the dog, calculation of the body condition score (BCS – body condition score), body parameters (length and circumference of some parts of the body). It is indicated to make some supplementary exams – laboratory investigation, imaging (echography, radiography).

Table 4.

Pathology associated with Canine Obesity.

States and disfunctions	Remarks
Reduction in longevity	
Osteoarticular diseases	Osteoarticular distortion (irreversible), torn cruciate ligaments and fractures of the humeral condyle.
Intolerance to effort and heat	
Cardiorespiratory problems	Hypertension, tracheal collapse, thrombosis of the portal vein, hypoxia of the myocardium and valvular endocarditis.
Diabetes mellitus	The dogs which suffer diabetes present hyperphagia.
Reduced immunity	
Hyperlipidemia and dyslipidemia	HDL cholesterol decreases, VLDL cholesterol, fatty infiltration of the liver increases.
Increases incidence of pancreatitis	Increases the risk of acute hemorrhagic pancreatitis.
Incontinence and urinary calculi	Formation of more urinary calcium oxalate calculi compare to the dogs with normal weight.
Reproductive problems	The correlation between obesity and reproductive problems is not clear, although it is accepted that excess fat may lead to dystocia.
Cancers	Increasing of incidence of mammary tumors and a bladder carcinoma.
Malassezia dermatitis	
Difficulties in using exploratory techniques and Surgical inconveniences	Due to the excess of subcutaneous or abdominal fat. Many anesthetic drugs are lipid soluble, in this way the obese dogs eliminate more slowly the anesthetic from organism.
Modifications in the thyroid function	The concentration of thyroid hormones is increased at the obese dogs and the restriction of the energy modifies the normal working of the thyroid. (Daminet et al., 2003).
Increasing of morbidity and mortality during to and after anesthesia.	

CONCLUSIONS

Body condition score is a subjective evaluation, semiquantitative which combines with evaluation of some visible and palpable features of different zones. There is estimated the place and the dimension of adipose deposits, the visible and invisible structure of skeleton and of the silhouette of the animal.

There were proposed more types of body condition score:

- 3 grades: 1 = slim, 2 = optimal, 3 = excessive;
- 5 grades: 1 = gaunt, 2 = slim, 3 = optimal, 4 = overweight, 5 = obese; (Edney & Smith, 1986) (table 5.)
- 9 grades: 1-4 = gaunt; 5 = optimal; 6-9 increasingly overweight (Laflamme, 1993; Laflamme et al., 1994).




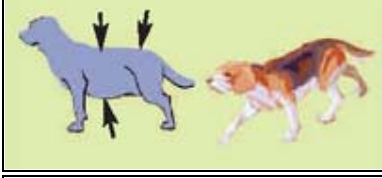
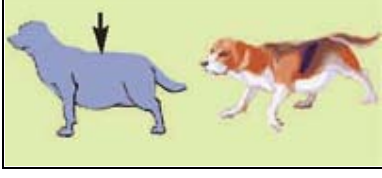
See Table 5.

Each half-grade above grade 3 represents an increase in weight of 10%. So a dog graded 4.5 presents 30% overweight.

The treatment will be instituted by the veterinary based on the obtained datas (anamnesis, lab and imagistical exams, measurements, index BCS and so on).

Table 5.

Body Condition Scoring (Diez, M. and Nguyen, P.).

	Grade	Dog
	1. Cachexia more than 20% below optimal weight	<ul style="list-style-type: none"> - Clearly visible ribs, vertebral column, pelvic bone (short hair) - Clear loss of muscle mass - No palpable fat around thoracic cage
	2. Thinness 10 - 20% below optimal weight	<ul style="list-style-type: none"> - Visible ribs, top of vertebrae, pelvic bone - Clear abdominal belt (waist) - No palpable fat around thoracic cage
	3. Ideal Weight	<ul style="list-style-type: none"> - Ribs, vertebral column not visible, but clearly palpable - Clear abdominal belt (waist) - Thin layer of palpable adipose tissue around thoracic cage
	4. Excess Weight 10 - 20% above optimal weight	<ul style="list-style-type: none"> - Ribs, vertebral column palpable with difficulty - No abdominal belt (waist) - Clear adipose deposit around vertebral column and base of the tail
	5. Morbid obesity from 40% above optimal weight	<ul style="list-style-type: none"> - Massive adipose deposit around thorax, vertebral column and base of the tail - Clear abdominal distension

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