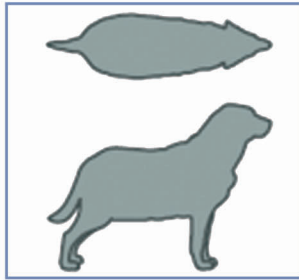


VETERINARY **focus**

Special edition

The worldwide journal for the companion animal veterinarian



A behavioural approach to canine obesity



C. Halsberghe
S. Heath
J. Iracka
G. Muller

A behavioural approach to canine obesity

This book has been prepared with the greatest care, taking into account the latest research and scientific discoveries. It is recommended that you refer to drug and food prescriptions and instructions, since they are likely to change. In view of the diversity and complexity of clinical cases for dogs and cats, it is imperative to realise that any supplementary tests and therapeutic treatment described in this book are non-exhaustive. The treatments and solutions proposed can under no circumstances replace examination by a qualified veterinarian. The publisher and authors can in no way be held responsible for any failure of the suggested treatments and solutions.

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From left to right: Joanna Iracka, Sarah Heath, Gérard Muller and Christine Halsberghe

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In 2002 she gained the French diploma in veterinary behavioural medicine ('Vétérinaire Comportementaliste Diplômé des Ecoles Vétérinaires Françaises'). She is currently the president of the VDWE (Flemish Veterinary behavioural group) and a member of the European Society of Veterinary Clinical Ethology and Zoopsy. In Belgium Christine has worked on a campaign for vets, owners and breeders on the prevention of behavioural problems in puppies and she is a national and international speaker on the topic of veterinary behavioural medicine.

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Sarah graduated from Bristol University Veterinary School in 1988 and set up a behavioural referral practice in 1992. She sees cases at behavioural clinics at Liverpool University veterinary school and at private veterinary practices in the North West of England. She has written books on the subject of cat behaviour and is both a contributor and editor of the BSAVA Manual of Canine and Feline Behavioural Medicine. In 2005 she co-authored a textbook entitled Behaviour problems in small animals – practical advice for the veterinary team, with Jon Bowen. In 2001 Sarah was awarded the BSAVA Melton award for her contribution to small animal practice. She was Secretary of CABTSG (the UK veterinary behaviour organisation) from 1997 to 2005 and is currently a board member of the organisation. She is currently President of the European Society of Veterinary Clinical Ethology. Sarah is an international lecturer on the topic of behavioural medicine. She is an

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Introduction

Why is a behavioural approach to canine obesity necessary?

Many owners are simply not aware of the normal feeding behaviour of their pet and a lack of understanding of natural canine behaviour can lead to a number of misunderstandings. For instance, owners often underestimate the social value of food for their dog and as a result they make mistakes in the way in which they use food during education and training. These mistakes can predispose dogs to problems in terms of weight management and increase the risk of obesity.

This book aims to improve understanding of normal feeding behaviour and thereby reduce the risk of obesity in the domestic dog population. It offers advice on the prevention of obesity and emphasises the importance of interacting appropriately with a puppy right from the start in order to encourage self control and establish the concept of satiation. Some of the common myths surrounding the feeding process are explained and dispelled and advice for owners is offered in the form of ten important things to avoid.

Even when veterinary practices are successful in prescribing a suitable diet for weight reduction or control it is common for the programme to be jeopardised by owners giving their pets additional treats. The offering of food as a “gift” in order to improve relationships or buy affection is not unusual but these seemingly insignificant additions to the daily food intake are frequently responsible for the failure of weight management programmes. It is therefore important for veterinary practices to talk to clients about such issues and to consider the dog, owner and environment when prescribing treatment for the obese patient. The use of low calorie diets is just one aspect of the treatment approach and paying attention to the balance between energy input and expenditure is also essential.

One of the major obstacles in terms of achieving sustainable weight reduction in dogs is a lack of owner motivation and this booklet also looks at the problem of canine obesity from a human perspective. Many owners are reluctant to alter the way in which they feed their pets and resistance to change can be a real problem for the veterinary staff. In this booklet the issue of owner motivation is explored and advice is given on ways in which their resistance can be converted to compliance.

On the initiative of Royal Canin, four European veterinary behaviour specialists have developed a new behavioural approach to canine obesity, which is designed to help the veterinary surgeon in the challenging task of managing the obese patient.



Philippe Marniquet

DVM

Head of Scientific Communication

1. What is obesity?

> Summary

Obesity is usually defined with respect to the ideal body weight of a given subject. For dogs, in the absence of standards for defining ideal body weight, assessing obesity involves essentially subjective methods, such as observation and palpation.

A vast array of factors that may affect the dog either directly or through its environment may contribute to, or influence, the state of obesity by increasing or reducing energy intake from food. There may also be a hereditary predisposition to obesity.

It is appropriate to consider obesity as a pathological condition in which the outward symptom of excess bodyweight is a sign of an inner physiological imbalance. The work up of obesity cases should therefore begin with the elimination of any factors which might physiologically destabilise the individual. In cases where such factors can be identified they must be treated. If such investigations draw a blank then behavioural influences must be taken into consideration and where behavioural disorders are identified these will also require appropriate treatment. Finally, it is useful to remember that obesity in itself can predispose individuals to certain diseases and the interplay between obesity and other physiological conditions may need to be investigated further.

In all cases, it is also necessary to analyse a dog's environment and lifestyle since these may not only affect the development of obesity but also hinder the return to an ideal weight and maintenance of that weight once it is achieved.




1/ Definition

Obesity is usually defined as excessive accumulation of fat in the adipose storage areas of the body leading to increased body weight 15-20% above the optimal physiological weight (so-called body mass index).

This definition is perhaps more useful for people, for whom there already exists a standard for calculating the body mass index, than it is for canine patients. Measures for optimal body weight are only available for purebred dogs and an objective, quantitative

definition of the degree of obesity is therefore difficult in a canine context.

In clinical conditions, obesity is evaluated mainly by subjective methods, such as observation and palpation. The most practical method is to observe and palpate around the rib area. If the ribs are clearly visible, the animal may be considered to be underweight and if the ribs are hard to feel the animal may be considered to be overweight. Inability to feel the ribs at all may be consistent with a diagnosis of obesity. The ideal scenario is to be able to feel an animal's ribs under the skin, without a thick layer of fat, without readily being able to see them.

How can you recognise obesity?						Risk	
	MINI	MEDIUM	MAXI	for a human			
 <p>Ideal</p>							
<p>Ribs, spine, pelvic bone not visible but easily palpable</p>	5kg	12kg	30kg	70kg			
 <p>Overweight</p>							
<p>No waist Fat deposit on spine and base of tail</p>	6kg	15kg	36kg	84kg	Pre-diabetes Arthritis Intolerance to effort		
 <p>Obese</p>					Anaesthetic risk		
<p>Obvious abdominal distension</p>	7kg	17kg	42kg	98kg	Heart risk Reduced life expectancy		

2/ The causes of obesity

The direct cause of an accumulation of fat tissue is a positive energy balance, which results from a disturbance in the balance between the energy derived from food and the energy expended by the animal. Obesity is a complex issue and cannot be treated simply as a result of over eating or of a lack of will power on the part of the owner. Instead it should be viewed as an illness, which, like other illnesses, results from a disturbance of physiological and behavioural factors.

Factors which can be considered as predisposing individuals to obesity include:

1) Factors increasing the intake of energy

- a) Disturbances in the internal control of the intake of food or signals of satiety, including:
 - damage to the satiety centre
 - hormonal disturbances, for example the effect on the appetite of the bitch of reduced oestrogen following spaying
 - emotional disturbances
- b) Disturbances in the external control of the intake of food including:

- the palatability and availability of food
 - social factors:
 - > competition between dogs
 - > influence of the owner on the intake of food, for example through the provision of a variety of energy dense foods and/or treats
- c) Genetic factors

2) Factors reducing the expenditure of energy

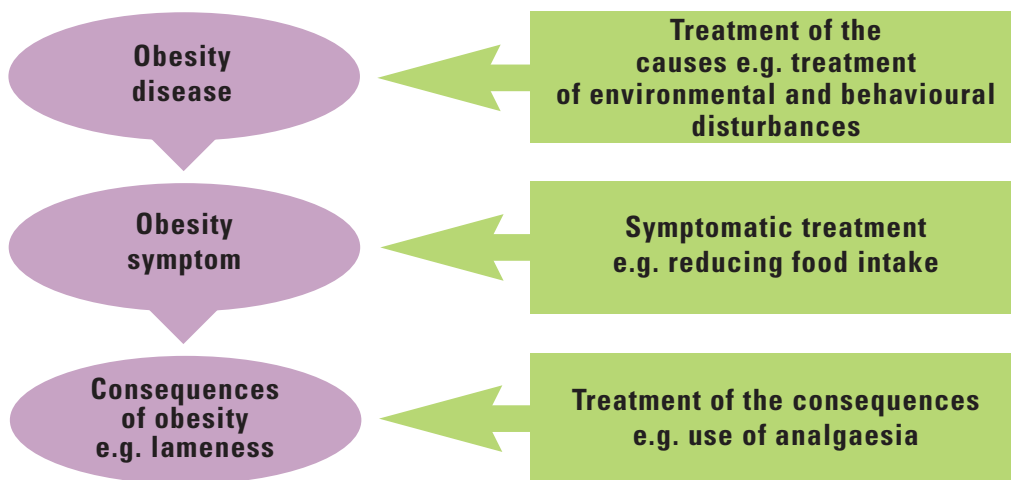
- a) Old age
- b) Reduction in physical activity e.g. as a result of:
- enclosure in a confined area
 - castration
 - disease involving the motor, circulatory or respiratory systems
 - behavioural problems which limit the animal's ability to engage in suitable levels of physical activity.
- c) Factors increasing the efficiency of energy use, e.g.
- composition of the diet (a high fat and carbohydrate content)
 - a reduction in testosterone levels after castration

d) Genetic factors
 Genetic factors have been reported to have a significant effect on obesity in dogs, with some breeds being reported to have a greater or a lesser propensity to obesity than others. The explanation for any discrepancy is not clear but probably relates to genetic influences on both the increase of intake of energy sources and the increase of efficiency of energy use.

Factors affecting obesity can be divided into three main categories:

- Organic, which requires veterinary treatment
- Behavioural problems and disorders which require treatment by someone working in veterinary behavioural medicine
- Environmental factors influencing a dog's behaviour which the owner can often modify successfully, but which must be recognised and noted by the veterinary surgeon

A major pitfall is to limit the treatment of obesity to a symptomatic one.



In a long term study dogs fed on an *ad libitum* basis for the first three years of life before moving to a fixed feeding regime according to their maintenance requirements died on average two years earlier than those fed on a restricted regime (below maintenance requirements) from the start!



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A) Organic factors

Before embarking on a nutritional or behavioural solution to the issue of obesity it is important that all potential organic and iatrogenic factors are ruled out. Potential organic factors might include:

- Diabetes mellitus
- Hypoadrenocorticism – including iatrogenic
- Hypothyroidism
- Administration of progestagens
- Administration of appetite stimulating agents

(in some cases these problems may be associated with the disorders mentioned above):

- > Lack of response to commands (such as recall)
- > Aggression to other dogs
- > Aggression to people
- > Scavenging and/or coprophagia

It is advisable for veterinary general practitioners suspecting the involvement of behavioural disorders to seek advice from veterinary colleagues working in the field of behavioural medicine.

B) Behavioural disorders

Behavioural disorders are the next important group of potential causes of obesity which should be taken into account:

- Behavioural disorders which can directly lead to obesity:
 - > Fear
 - > Depression
 - > Developmental disorders:
 - Abnormal feeding behaviour
 - Inability to recognise the feeling of satiety
- Behavioural problems and disorders causing owners to restrict off lead exercise and consequently leading to a restriction of movement

C) Environmental factors

Environmental factors influencing a dog's feeding behaviour, as well as its physical activity, are important in treating obesity cases. Examples include:

- The influence of the owner on the amount and quality of food consumed (for more information see Chapter 2)
- The influence of the owner and environment on limiting movement, for example:
 - > Limitations placed on owners living in cities
 - > Limitations in rural environments caused by lack of public access to walking areas
 - > Life style of the owner, including lack of time to walk the dog
 - > Disability of the owner

3/ Diseases associated with obesity

There is a well documented interplay between the state of obesity and the health status of the individual. Obesity is a risk factor in the development of the following medical conditions:

- Osteoarthritis
- Respiratory conditions
- Cardio-vascular conditions
- Diabetes
- Increased risk of infections
- Increased risk of complications with general anaesthetic
- Complications of wound healing

> Obesity and lifespan

Obesity negatively influences an animal's quality of life and contributes to a number of diseases, while the restriction of energy below the calculated needs for maintenance has been shown to have a positive influence on health and longevity. Scientific studies have shown that feeding dogs 25% less than what they would eat naturally if fed ad libitum from 6 weeks until they were 3.25 years old and then 25% less than the estimated requirement throughout their life has the following positive effects (Kealy 2002, Lawler 2005):

- increases the median life span, which is calculated as the age when 50% of the dogs are deceased. In this study involving 48 Labrador Retrievers the median life span was 11.2 years for control-fed dogs and 13.0 years for restricted-fed dogs.
- increases mean percentage lean body mass and delays loss of lean body mass. In this study gradual decrease of lean body mass started at 9 years in the control-fed group and at 11 years in the restricted-fed group.
- has similar effects on mean bone mass as on lean body mass.
- decreases mean percentage body fat mass.
- delays the need of treatment for osteoarthritis and other chronic conditions.
- lowers the risk of death from all musculoskeletal causes.

In the context of obesity it should be noted that the effects of energy-restricted diet are not necessarily directly related to the lower mean percentage body fat mass. In rodents longevity seems more closely related to the amount of food consumed than to the degree of adiposity (Kealy 2002). However, in the study cited above, persistently high body fat mass was a significant predictor of death in dogs (Lawler 2005).

2. Understanding feeding behaviour

> Summary

Food plays a specific role in shaping dog-owner relationships. Dogs and humans attach considerable importance to food in developing social interactions, but the significance of gaining control over this resource differs between the two species. For humans, sharing food with a dog is a sign of friendship and offering treats may be seen as a means of relieving the owner's feelings of guilt and encouraging the pet to see them in a good light. For a canine perspective lack of restrictions in terms of gaining access to food can lead to various conflicts. During the puppy's development dietary constraints tend to favour the acquisition of self-control and encourage the formation of appropriate social relationships. Providing a variety of food types may promote attention-seeking behaviour involving food and lead to overeating and therefore obesity.

Introduction

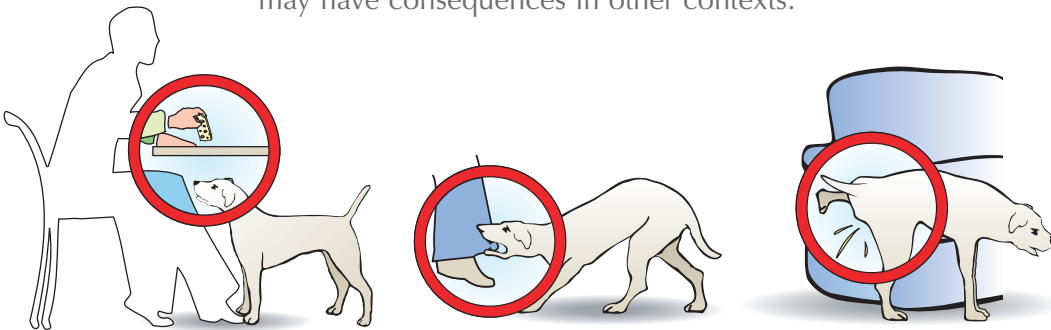
Dogs, like humans, are social species. For both of these species the organisation of social groupings is the result of selection which results in a common organisation in terms of management of resources (Goldberg 1998). There are three main resources to be managed:

- Food
- Space
- Sexual and social partners

For humans and dogs it is possible to find evidence of social rules which govern the management of resources. The similarity between these rules is possibly responsible for the social attraction between these two species.

The lessons learned in the context of feeding can have implications regarding the management of other resources such as space and attention.

Many owners do not realise that inappropriate feeding behaviour may have consequences in other contexts.



1/ Regulating access to food

Dogs, living in wild or feral social groups, are guided by very clear rules governing social coexistence, which make it possible to regulate access to resources while avoiding conflicts. They create a stable hierarchy and impose social regulations in a very consistent manner, which leads to a well-defined social structure and a resulting sense of confidence and security.

For the domestic dog life in close association with people often leads to a significant level of inconsistency and unpredictability and the lack of a clear social structure can induce significant levels of anxiety and even fear.

A lack of self confidence and a level of emotional conflict in the relationship between owner and dog can lead to a range of canine defensive behaviours which are easily misinterpreted as signs of confrontation. Believing that the dog is now challenging their authority many owners respond by attempting to

control their pet in a physical way and this further confuses the relationship and results in a dog that anticipates confrontation and punishment.

Canine society is not regulated through the use of physical conflict but through the control of access to important resources and, in order to establish a stable and secure relationship between dog and owner, it is important to avoid unnecessary physical confrontation. Instead owners need to establish consistent social rules and give clear signals of resource control in order to create a safe and secure environment in which the dog can relax. Controlling access to food during the early stages of behavioural development is one way in which this can be achieved.

A) Learning self-control in puppies

Self-control is an important skill in adult life and something that dogs need to learn -during puppyhood. When a dog exhibits self-control it will have

> Is coprophagia a normal behaviour?

The normal exploratory behaviour of puppies often involves oral investigation of objects together with careful olfactory exploration. The result of this is often that young puppies will put things in the mouth and, while this may be acceptable in some situations, few owners find it acceptable when the target object is a deposit of faeces. It is important to remember that the ingestion of faeces can be a normal canine behaviour and bitches will lick the perineum of their puppies during the first few days following parturition in order to trigger defaecation and thereby ensure that they are on hand to consume the excrement as soon it is produced.

The sight of a dog eating faeces not only disgusts most owners but also induces fear that the dog will contaminate itself in some way and as a result owners are driven to intervene, sometimes very demonstratively. As a result of the owner's apparent determination to get to the faeces the

puppy quickly learns that they must be a valuable resource and one that is worth holding on to. Rather than suppressing the coprophagia the owner finds that the puppy is now more determined to get access to faeces deposits and will ingest them with more haste when it does so. Such behaviour from the puppy will often irritate the owner further and a vicious circle is soon set in place.

In addition to intensifying the speed of consumption of faeces by the apparent "competition" with the owner, the practice of punishing puppies for housesoiling accidents can also result in unintentional encouragement of the behaviour.

When a puppy is punished for toileting inside the house it will often react by avoiding problematic situations and hiding. Since the faeces are the signal that punishment is likely to be delivered some puppies will begin to ingest their faeces as an avoidance tactic and it has been

suggested that such a development is even more likely if the owner has reacted to housesoiling by taking the puppy to the "mess" and pushing its nose in it.

In some cases coprophagia can be traced back to the rearing environment of the dog. Some groups of dogs adopt this behaviour systematically and all of the puppies that are reared within the group may go on to develop this abnormal behaviour. In this situation the role of learning is clear. The puppies see older dogs competing over access to the smallest pile of faeces and from an early age their interest in faeces is increased by the apparent value which other members of the group appear to put on them. Treatment for these cases will involve decreasing the perceived value of faeces as a resource and counter conditioning the dogs reaction to its presence.

a moderate level of controlled locomotor activity (not excessive or uncontrolled), the ability to control the force of its bite and the ability to recognise a level of satiation in terms of hunger, thirst and social interaction, such as play. In the early stages of behavioural development puppies lack self-control and do not conform to external limitations. The process of learning self-control begins during interactions with the dam and is associated with learning to deal with the emotion of frustration. Limiting the puppy's access to food, limiting its locomotor activity and teaching it the concept of bite inhibition during play are all part of this process.

Puppies will typically leave the litter and enter their new home at about eight weeks of age. The process of learning self-control is most pronounced before the age of three months but is not complete by that age and the puppy will continue to learn important lessons for a number of months. During this time the owner can assist the puppy in learning to deal with frustration by controlling access to important resources, such as food and social contact, and giving clear signals as to when these are available. Young dogs have a high requirement for social contact and limiting access to physical and playful interaction with a puppy can be difficult for both owners and puppies. When a puppy enters a new social group it will need to establish ways of communicating and the creation of rituals is an important part of behavioural development.

Self-control enables the dog to:

- control its locomotor activity
- inhibit the strength of its bite
- recognise signals of satiation

B) Establishing rituals

Rituals ease communication and at the same time give puppies structure, which encourages calm and relaxed behaviour. It is common for owners to be

advised to limit contact with young puppies, for example by not giving the puppy any attention for a fixed period of time when they return home or not responding to the puppy when it makes attempts to initiate social contact. Such restrictions of social interaction, without any clear signal for the puppy as to when it will be available, can induce frustration, damage the creation of common rituals and lead to a dysfunctional relationship between the puppy and its owner.

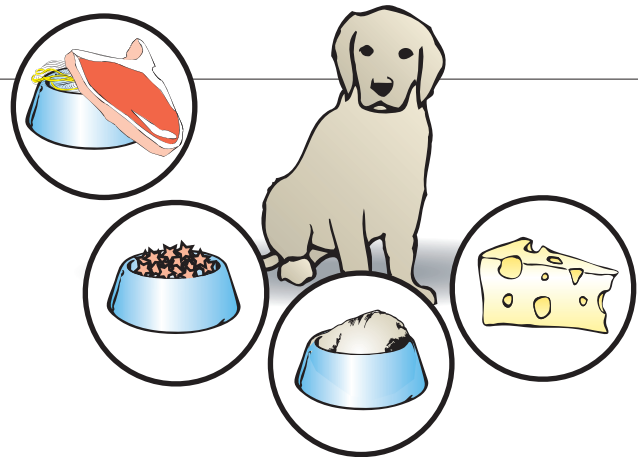
Regulation, rather than restriction, of access to important resources is important and one way in which this can be established is through paying attention to the feeding process. It is recommended that the puppy has access to his food bowl for a set period of time (for example 4 minutes) during each mealtime. This should offer just enough time for the puppy to satisfy its hunger and when the four minutes are over the bowl should be taken away. If the puppy has not finished all of its food it is very important that the removal of the bowl is not a signal of confrontation and therefore the puppy should be called away to another room before the bowl is removed. The aim is to teach the puppy that the resource of food is available at certain times and in certain locations and give clear and consistent signals that the owners control access to this important resource.

C) Sensitivity and the development of taste

The offering of a wide variety of food sources during the developmental period may increase the dog's sensitivity to taste and predispose to food preferences. (Muller b, 1998).

During the "developmental period" which starts at about six weeks and ends for many items at about 12 weeks, the multiplicity of experiences causes synaptic enriching (Changeux, 1983) and results in a better sense of perception. Our capacity to distinguish certain phonemes is a simple illustration of this principle of neuronal plasticity. In terms of taste sensitivity, offering a variety of food is the best way of developing this greater sensitivity. One possible

By offering a wide range of foods it is possible to unintentionally induce “fussy” behaviour.



result of this process is an increase in taste preference and when dogs refuse to eat food that is offered to them it is not unusual for the owners to rapidly react by offering a different food type. Such a response will teach the dog that alternative food sources will be offered and may favour the development of “fussy” feeding behaviour.

and predictability for the puppy and thereby increase its feeling of security and self-control.

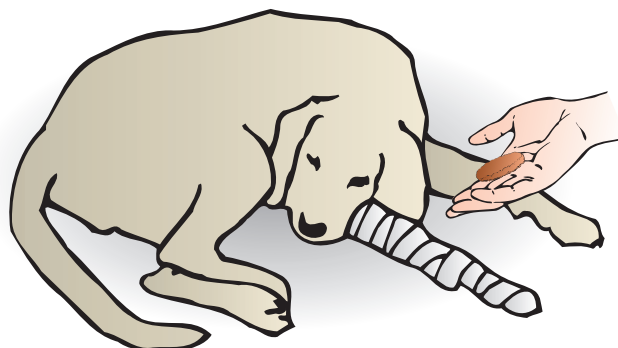
2/ Understanding the social implications of feeding

The first visit to the veterinary surgery provides a good opportunity to talk to owners about the right way to feed their new pet. It is important to discuss the nutritional needs of the puppy but veterinary surgeons should also emphasize the social implications of meals in a canine context and advise owners to be consistent in their approach to feeding their new arrival. Establishing clear rituals in association with the feeding process will help to provide consistency

A) Managing food resources

In all social groups the organisation of resource management results in a process of selection, which favours the most adapted animals.

Higher-ranking members of the group are given preferential access to resources, such as food, and this leads to the establishment of privilege as a precedent within the group. The process of ritualisation establishes social rules (probably through establishing motivations) and over time determines, in part, the characteristics (both genetic and developmental) of the species. The rules, which are observed when resources are in short supply, also persist when resources are abundant and the rules may no longer be necessary (Lorenz, 1978). Ritualisation transforms useful sequences of behaviour into forms of symbolic communication (Heymer, 1977).



When a pet is ill it may be necessary to use hand feeding but it is important to return to normal feeding behaviour as soon as the animal has recovered.

In the context of food management those rules, which favour the more adapted individuals, become symbols of leadership. Eating first, gaining access to the most valuable food items, controlling others and preventing them from feeding can be characteristics of the highest-ranking individual and possibly assist in establishing leadership. However, hierarchies are dynamic and there needs to be a level of flexibility in the system. For example if a lower ranking member of a group has more physical need of food at a particular time it is possible for that individual to gain access to the food source before the higher ranking members, without posing any threat to their position in the social group.

B) Feeding during periods of ill health

When a dog is ill and its appetite is suppressed it is natural for owners to look for ways in which they can encourage the dog to eat. This may involve physically assisting the dog to eat and hand feeding is often used. While this may be necessary in the early stages of a wasting illness, which is associated with suppression of appetite, it is important to return to a more natural method of feeding as soon as possible. This is particularly important in the case of young puppies that are ill during the early stages of their behavioural development since hand feeding at this age can lead to the creation of feeding rituals, which confuse the pet-owner relationship and contribute to problems in social interaction later in life.

3/ The implications of using food as a gift or a reward?

In a human context, particularly within Western culture, food is used as social facilitator and a means of expressing affection. Sharing food is seen as a sign of acceptance and friendship and may be interpreted as a means of expressing social equality. (Muller a 1998).

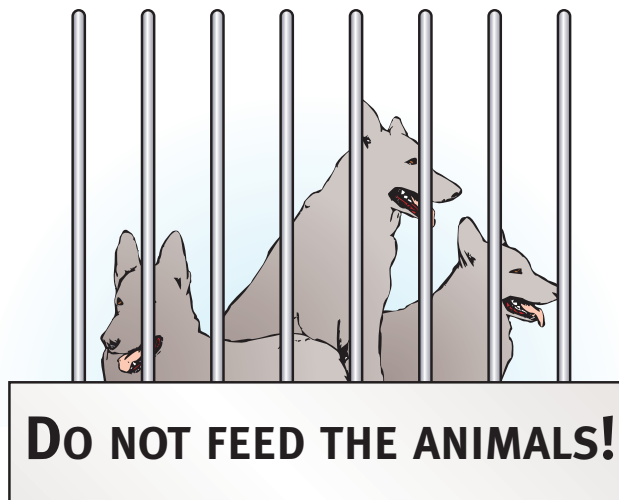
Consistent signals during the feeding process:

- The owner should fix the time of feeding and the amount of food.
- The dog's bowl should be put out for a fixed period of time (a few minutes).
- The dog should be left to eat alone – the owner should not watch over the dog while it is eating.
- If the dog has not finished eating in the allotted time, the dog should be called into another room before the bowl is taken away
- The owner should resist the temptation to encourage the dog to eat (the exception is feeding the dog when it has a wasting illness which is accompanied by a lack of appetite.)

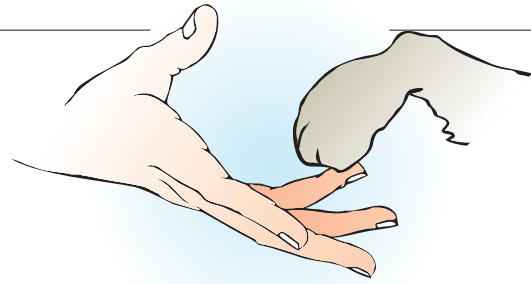
A) Food gifts

When people give food to their dogs in the form of a gift they often do so in order to integrate the pet into the family group. However, gift giving can be interpreted in a different way and may be seen as a

Food is often seen as the easiest way for man to initiate contact with animals.



It is better to use food as a reward rather than a gift. Food should be earned in order to avoid miscommunication!



way of exerting control over the recipient. When people visit the zoo they will often give food to the animals, despite the fact that there are several notices stating that it is forbidden. In this situation food is being used as a means of communicating with the animals and making contact with them. This has been interpreted by some authors as a sign of control rather than sharing as the recipient takes on the role of the debtor and it has been suggested that this may explain the significance of food gifts in the dog-owner relationship.

Another way in which food can be used by owners is as a means of apologising to their pet and dealing with their own guilt. Owners who feel guilty about the way in which their lifestyle impacts on their pet, for example going out to work all day, may offer food treats as a way of making amends. The treats are given freely and without the dog needing to perform any sort of behaviour to earn them. They are not being used as a reward but rather as a gift and the message that is communicated to the dog can be a very confusing one. The result is an increase in the dog's level of anxiety as the social group appears leaderless and the environment seems more unpredictable and less consistent. As a result of learning the dog may go on to develop a range of problem behaviours such as attention-seeking behaviours as it seeks to establish a consistent means of communicating with its owners.

B) Food as a reward

Food is often used in dog training and behavioural

therapy. It serves first and foremost as a primary positive reinforcement (reward) in instrumental conditioning. When the food treat is delivered immediately (preferably within half a second) after a certain type of behaviour has been performed, the probability of repeating this type of behaviour in the future increases. The timing of delivery of the reward is often a problem for owners and in order to make it easier the process of secondary reinforcement is used. This involves associating a verbal ("good dog" or "yes") or auditory (clicker - see page 27 - or whistle) signal with the delivery of the food treat by ensuring that this signal always precedes the appearance of the food. The secondary reinforcer can then be used to identify appropriate behaviours and the food reward can follow.

Owners often feel guilty when they leave their pets and use food as a means of alleviating their own feelings.



Food is not the only primary reinforcer that can be used and for some dogs social interaction, through praise and stroking, or play with a ball, can be equally, if not more, rewarding. For those dogs that do find food more rewarding it can be helpful to gradually substitute other rewards such as social contact with the owner as this will decrease the reliance on the availability of food but can also help to enhance the pet-owner relationship.

When using treats as a reward in the conditioning process it is important not to confuse the concept of rewards with “bribes”. In order for a behaviour to be reinforced it needs to occur directly before, or at the same time, as the appearance of the reward or the predictor of the reward (such as the clicker). If the dog sees the owner reaching for the reward before they issue the command, or before the dog offers the behaviour, then the reward is not fulfilling a reinforcing role. Certainly the dog will learn to perform a task in order to gain access to the reward but the likelihood of the dog repeating that action in the future will not increase, unless the owner is holding a treat in his hand! The food is acting as a predictor for the behaviour rather than a reinforcer. This is the reason why owners will frequently complain that the dog does not respond to their commands, unless they are holding a treat, and that when they are holding a treat the dog will perform all commands it knows even though the owner does not give any command!

4/ Using food in the learning process

One way in which a food reward can be used to induce a behaviour is through the process of “luring”. A good example is teaching the command “sit”. If the owner holds a food treat in their fingers and places it just in front of the dog’s nose they can slowly move their hand upwards and backwards so that the dog begins to bend its head back. This position of the head and neck spontaneously results in the dog putting its bottom on the floor and as the “sit” is achieved the food reward is released and the behaviour is rewarded.

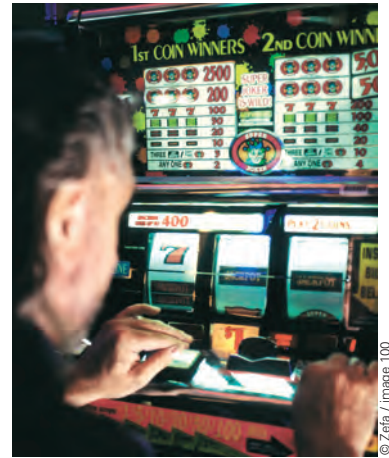
In order to maximise the dog’s motivation to perform new behaviours it is important to realise that not all treats are the same and to adjust the relative value of the treats that are given according to task that is being performed. For relatively easy tasks or those that are performed in non-challenging environments (for example with few distractions) a kibble of the dog’s normal food may be sufficiently rewarding while for exceptional tasks, or those performed in particularly difficult conditions a piece of fresh meat may be required!

During the training process it is important to gradually move from rewarding the dog after performing each task correctly to only giving the dog a reward every so often. This use of an intermittent schedule of reinforcement will increase the dog’s motivation and make the behaviour more resistant to extinction.

A) Using food in behavioural therapy

Food can help to change the mood of an animal by inducing a state of relaxation and in situations that arouse anxiety it can be beneficial to divert the dog’s attention away from the perceived threat and reward it with a treat when it focuses its attention on the owner. The use of treats in situations of anxiety and fear does need to be carefully controlled and it is important to avoid unintentional association between the appearance of a food reward and the negative emotional state. For example it is not appropriate to ask a stranger to give food treats to a dog that is fearful but it can be useful to teach the dog to sit and look at the owner, rather than looking and barking at the stranger, and reward this behaviour by the delivery of a food reward from the owner.

It is important to realise that anxiety can act as an appetite suppressant and if an animal is deeply anxious it is unlikely to be interested in even the tastiest food reward. This can be useful when assessing an animal’s emotional state and the reaction to food can be used as an “emotional thermometer” which can be useful in assessing progress during behavioural therapy.



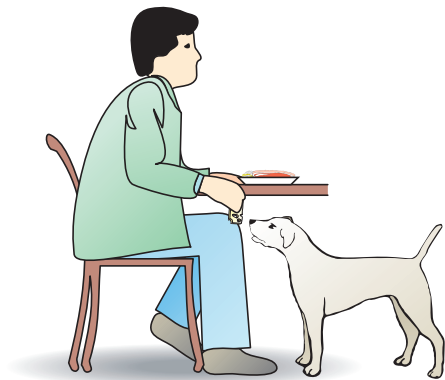
Winning sometimes encourages people to play!
To encourage a behaviour to develop rewards should be continuous and to maintain them the rewards must move to an intermittent basis.

The delivery of food rewards can be a useful tool in establishing positive associations when solving behavioural problems. One example is the use of food to help in the introduction of muzzles and headcollars. By associating the piece of equipment with the delivery of a treat it is possible to alter the dog's perception and reduce its resistance to its use. Similarly associating food with the interior of the car by feeding the dog's regular meals in that location can be a useful way of establishing a positive emotional response. If the dog is particularly frightened of the car it will be important to approach the problem in stages and place the bowl near to the car in the first instance before progressing to placing the bowl inside the car with the doors wide open. As the dog begins to relax you can begin to feed the dog when the car is stationary and the engine is running!

B) Avoiding inappropriate use of food

In many cases behavioural disturbances are the result of unintentional positive reinforcement by the owners. For example when a dog is begging at the table owners will often accept the behaviour and consistently reward it. However, after some time they may decide that the begging behaviour is becoming a nuisance and decide to stop giving food at the table. The dog responds by being more persistent in the begging and often the owner fluctuates between moments of weakness, when food is given, and periods of firm resolve, when they consistently refuse to respond. By doing so the owners move the dog from a continuous schedule of reinforcement, where every begging episode is rewarded with a food treat, to an intermittent schedule of reinforcement, where the dog is never sure if a treat will be given or not. According to the principles of learning theory such a change in reinforcement schedule favours persistence of a behaviour and the owner is faced with a problem of ongoing begging despite their attempts to remove the reward.

When a dog begs for food owners will often be inconsistent in their response and intermittent delivery of food rewards will reinforce the behaviour of begging.



When using treats as a reward, remember that:

- a treat is a reward and not a bribe;
- treats should be "graded": the best treats are given for completing the most difficult tasks, and easy tasks are rewarded with normal dog food;
- after learning a new behaviour it is important to move on quickly to an intermittent schedule of reward so that the dog never knows when it will get the next treat;
- a dog's daily food intake should be calculated by taking into account the treats it received as well!

3. Behavioural aspects of preventing obesity in dogs

> Summary

Prevention of obesity is important at all stages of life. It requires a multi-factorial approach including:

- Development of emotional stability
- Provision of nutrition which is tailored to each of the life stages
- Understanding of the role of food as a social facilitator for dogs and people
- Matching of energy input and expenditure.



Introduction

The task of reducing bodyweight is always a daunting one and it is therefore beneficial to think in terms of preventing obesity and offering dog owners appropriate advice to help them to maintain an ideal bodyweight for their pet.

incidence of anxieties and fears, which can adversely affect appetite control and lead to behaviourally based fluctuations in food intake. Puppies should ideally spend the first few weeks of life in a complex environment, both physically and socially, which encourages the development of a wide set of maintenance stimuli which will ensure a smooth transition between the rearing establishment and the new home.

1/ Starting the process of obesity prevention in puppyhood

A) Emotional stability

During puppyhood it is important to establish normal feeding behaviour and to ensure that the potential social implications of feeding do not lead to problems of miscommunication between owners and pets. It must be remembered that appetite is influenced by emotion and that the behavioural development of puppies is therefore inextricably linked to their physical health and welfare. Rearing practices, which favour emotional stability, will help to reduce the

In the early weeks of life puppies need to be exposed to novelty and complexity in order to develop appropriate emotional responses. Failure to do so leaves puppies vulnerable to emotional instability and potential fluctuations in appetite control.



© Royal Canin

B) Weaning

One of the first important events in relation to nutrition is the weaning process which is very important not only in terms of transition from a liquid to a solid diet but also in terms of establishing control over

emotional responses. If the dam is responsible for weaning her pups she will instinctively fulfil all of the necessary stages of the process but in cases where pups are hand reared it is important for the people involved to understand the significance of this stage of development. During the early days of life a puppy will receive nutrition from its mother on an "on demand" basis and its expectations of reward will therefore be high. Such a high expectation is not sustainable in adult life and during the weaning process the puppy needs to learn that expected reward is not always forthcoming and develop coping strategies which will enable him to manage his emotion of frustration in a range of other contexts. If this is not successfully achieved there is a potential for puppies to be overpowering in their demanding behaviour and one context in which this may be problematic is that of feeding. A very demanding puppy can be easily misinterpreted by owners as a hungry puppy and if humans respond to inappropriate frustration related behaviours by offering food they will inadvertently encourage the very behaviour that they were aiming to remove.

In contrast puppies that have low expectation of reward will often find themselves being coaxed and persuaded by owners yielding tasty titbits and in situations where the low expectation is linked to underlying fear or anxiety the use of food may inadvertently worsen the situation and reinforce negative emotional states. Food consumption is often seen as an outward manifestation of physical health and when a puppy has poor appetite but apparently good physical health owners are tempted to blame the food rather than examine the emotional state of the puppy. This can result in the provision of increasingly palatable, high calorie foods which favour an imbalance between energy intake and expenditure and initiate the tendency toward excessive body weight. A misunderstanding of the required food intake levels for dogs of varying ages and sizes is often at the heart of the over feeding problem and a lack of understanding of the density of dry diets in terms of nutrients and energy leads to a misperception that dogs are not fed enough which is fuelled by concerns over potential weight loss in very small breeds and potential disruption to growth in larger breeders.

Weaning is an important behavioural, as well as nutritional, process and breeders need to ensure that it is carried out successfully.

Puppies need to move from a continuous schedule of reward for suckling behaviour to an intermittent schedule of reward for adult food soliciting behaviour.

Negative emotional states will suppress appetite and should be considered as a differential in cases of fluctuating appetite in young puppies.

Owners should be advised to adhere to the manufacturer's feeding suggestions but remember that every dog is an individual.

The use of food as a means of modifying inappropriate behaviours can inadvertently lead to over feeding and obesity.



1/ The dog barks



2/ The owner gives a treat to make him stop



3/ The dog barks to get another treat

2/ Obesity prevention for adult dogs

A) The role of food in controlling behavioural and emotional responses

During adulthood one of the main contributing factors in problems of canine obesity is the inappropriate use of food to control behavioural and emotional responses. The use of food as a positive reinforcer for appropriate behaviours is to be encouraged but in situations where dogs have developed anti-social behaviours or attention seeking responses it is common for owners to deal with these issues through the use of food. For example a dog that barks while the owner is on the phone may be offered food rewards such as stuffed kong toys in order to pacify him and dogs that are anti-social when visitors call may be shut in another room or an indoor kennel with a food dispensing device to occupy him. While the principle of offering food toys may be sound, their use in these situations of inappropriate behaviour leads to a conditioning of the undesirable activity as a trigger for food reward and encourages owners to over feed. Where food dispensing devices are considered to be appropriate it is advisable to fill them with a portion from the dog's daily food ration and in the early stages of training, when the use of

food can significantly enhance the process of learning it is useful to use up to 50% of the dog's daily diet as rewards.

The use of food as a means of modifying inappropriate behaviours can inadvertently lead to over feeding and obesity.

B) Food as a social facilitator

One of the problems relating to prevention of obesity is that food is a social facilitator for both of our species and therefore owners are often tempted to use food in order to enhance their relationship with their pet. Such food mediated interaction can rapidly become established in the behavioural repertoire of both dog and owner and it can be extremely difficult to remove it when issues of obesity start to occur. It is therefore important to educate owners to use food as a specific reinforcer for appropriate behaviour and to associate its use with a basic learn to earn programme which offers the dog a predictable framework for interactions with humans. Associating food with a remote reinforcer such as a clicker can help to reduce the perception of owner involvement in the reinforcing of certain behaviours and can enhance the animal's level of self-confidence by

Using clickers helps owners to use food as a reward rather than a bribe.



providing reliable and positive predictability within the domestic environment. Such an approach guards against emotional disorders such as anxiety, which are fuelled by inconsistent owner interactions and can significantly affect the individual's level of appetite control.

Food can be a useful tool in reinforcing appropriate behaviours but owners need to guard against its use as a social facilitator.

C) Physical activity as a preventative tool

As part of an effective obesity prevention programme it is important to match the dog's energy intake to its energy expenditure and a realistic exercise programme is therefore important. In addition to physical exercise in the form of excursions away from home it is also important to give dogs adequate opportunities for mental exercise and the provision of games and problem solving activities should be encouraged. Owners of neutered animals need to be made aware of the change in energy consumption, which is associated with the removal of the reproductive organs and daily food intake should be adjusted accordingly.

Daily food intake should be adjusted according to the dog's energy expenditure.

3/ Weight control in geriatrics

As dogs enter the senior phase of life the prevention of obesity remains an important priority. Excess weight will put a strain on cardiac function and can be a complicating factor in many of the age related orthopaedic conditions such as arthritis. In addition to modifying the diet to take into account the specific nutritional needs of the geriatric dog it is also important to adjust daily food intake to match with changes in energy expenditure and this requires a dynamic approach with regular reassessment.

A common feature of the ageing process is an alteration in social interaction and the use of food to encourage older dogs to engage in play and training sessions can be beneficial. However, it is important for owners to be aware of the potential for over feeding and to use portions of the dog's daily food ration for this purpose.

4. Treating obesity

> Summary

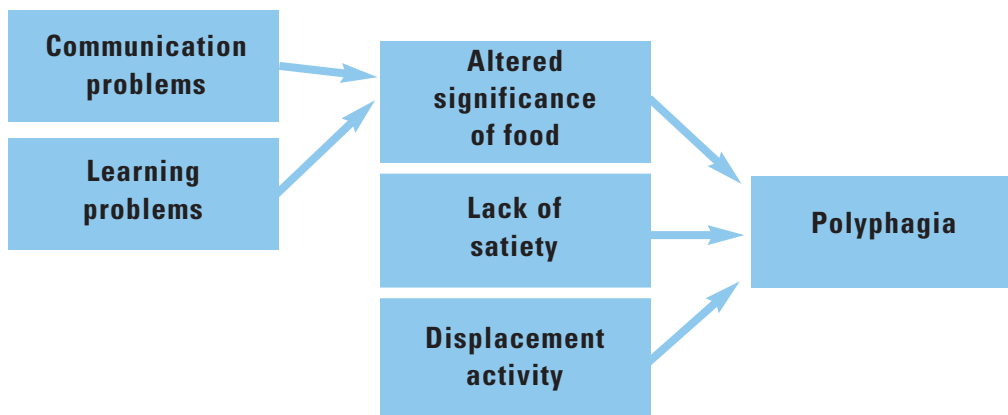
The treatment of obesity is very complex and there are a number of different factors that need to be considered. The provision of appropriate quantities of a good quality balanced diet is obviously important but this is only one aspect of a successful weight reduction programme. Alterations in the lifestyle of both owner and dog, together with environmental changes and alterations in social interaction may all be needed. In order to comply with the treatment programme owners need to be highly motivated and veterinary surgeons need to work closely with them in order to encourage them to adhere to the new regime. In cases where underlying medical conditions or behavioural disorders can be identified it will be important to institute appropriate treatment through the veterinary practitioner or veterinary behaviourist.

Introduction

There are a number of aspects involved in the treatment of obesity and these include:

- a) Investigation of potential medical causes of the obesity and treatment of any medical conditions that do exist
- b) Investigation of behavioural factors, including specific behavioural disorders and problems, and appropriate treatment.
- c) Investigation of environmental factors, including the relationship between the owner and dog, and institution of behavioural treatment where necessary.
- d) Provision of an appropriate diet and setting of realistic targets.
- e) Adjustment of energy output and setting of realistic targets.
- f) Implementation of measures designed to prevent the problem recurring.

Behavioural causes of polyphagia



1/ The behavioural approach

It is important for the veterinary surgeon to ask the owner questions about the dog's level of mental stimulation as well as its physical exercise. Suitable questions would include:

1. How often do you exercise your dog away from your home?
2. Does your dog have the opportunity to meet and play with other dogs?
3. Do you always use the same location and route for your walks with your dog?
4. How often do you play with your dog and what form does that play take?
5. What is your dog's favourite game?

A) Changing the behaviour of the owner

It is important to alter the owner's behaviour and one of the first steps will be to encourage them to stop giving food away to the dog at various times throughout the day. Owners do not always realise how many calories the dog consumes per day in the form of treats and rewards. In the human context food is often used as a demonstration of love and owners are often unaware of other ways in which they can demonstrate their affection for their dog. The use of games, walks and human attention as facilitators of social interaction between owners and dogs should be encouraged, but it is still important to ensure that such rewards are justified by some aspect of the dog's behaviour. The provision of rewards without any specific behaviour will lead to confusion and reduce the owner's control over these important resources. Such confusion can lead to problems of anxiety and, rather than raising issues of dominance and submission, the lack of clear control over resources can lead to issues of insecurity for the dog and resulting behaviour problems such as demanding attempts to gain access to rewards.

In order to make the owner aware of the quantity of food that their dog consumes in the form of treats and rewards it can be useful to ask them to use a "treat bag" and every time they give some food to their dog they place the equivalent amount of food into the "treat bag". At the end of the day the "treat bag" will contain the total amount of food that the dog has consumed, in addition to its daily food ration, and many owners will be shocked to see how much there is!

When food is used as a reward by the owner it is important to explain how the use of an intermittent reward schedule can increase the dog's motivation, while reducing the risks of over-feeding (Appleby, 197a). The intermittent schedule is based on the same principle as slot machines in a gambling arcade. Instead of receiving some money from the machine once every fifteen or twenty times you pull the lever the dog wins a reward once for every five or ten times he performs an appropriate behaviour. Every time he gets a reward his expectation that other rewards will follow will increase and therefore he will continue to perform the behaviour, in much the same way as the person continues to pull the lever.

Tip: It is useful to make the owner aware of the quantity of food, which he gives to his dog each day. Each time the dog is given anything to eat ask the owners to put an equivalent quantity in a separate container and review this at the end of the day.



B) Changing the behaviour of the dog

It is common for dogs to “ask” for food and for owners to find it very hard to resist these requests. For example:

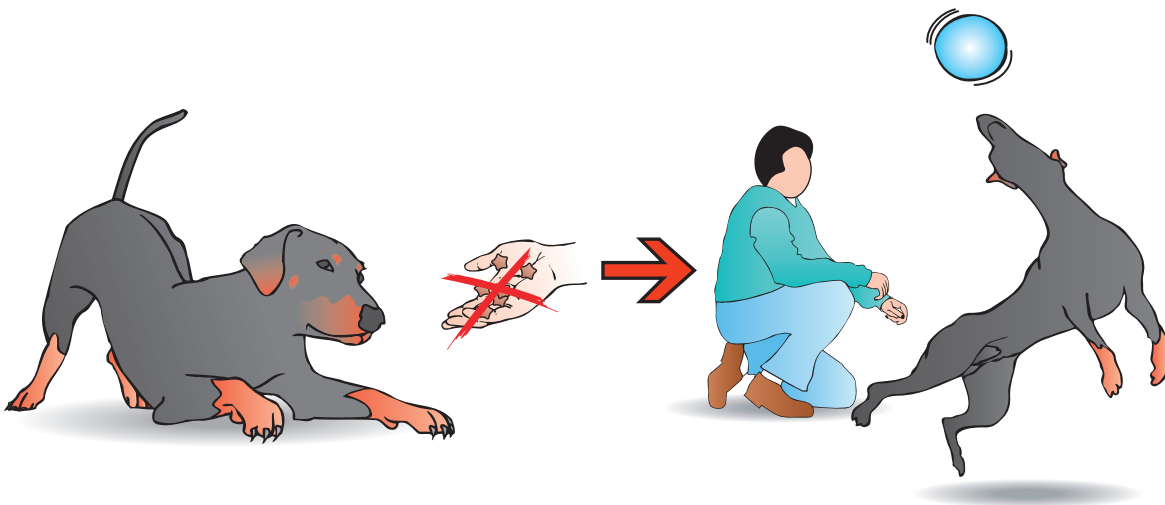
Rex sits in front of his owner and looks at him; he puts his paw on the knee of his master. The owner responds to this polite “request” by giving the dog a piece of cheese. If the owner does not react, the dog becomes more persistent in his “requests” and will not give up. For the sake of peace and quiet, the owner responds by giving the dog what he is asking for. In this situation, there are two different traps: Firstly it is important to analyse the dog’s behaviour and determine whether it was a request for food in the first place. Placing a paw on the owner’s lap could be a request for human interaction and attention, which was misinterpreted by the owner and resulted in the dog receiving a food treat. The delivery of a food treat resulted in the provision of human attention and the dog is therefore rewarded for this pawing behaviour. A rewarded behaviour is more likely to be repeated and therefore the dog continues to paw

at his owner. However, the owner continues to misinterpret the behaviour and a vicious circle of behaviour and reward becomes established. The dog receives food treat after food treat and the issue of weight gain becomes a real possibility.

Secondly it is important to understand how behaviour of this sort can generalise. The dog learns that attention seeking behaviour is rewarded by a response from the owner and the expectation of owner response in other contexts begins to increase. The result is an escalation of attention seeking behaviour, such as pawing, barking or jumping up, and the owner may be tempted to use food as a means of getting the dog to stop.

When dogs are obese owners are often simply advised to stop giving treats but there is a risk that such an approach can leave the dog in a state of frustration, so it is important to ensure that the dog is provided with an alternative method of interacting with his owner. For example owners should be encouraged to use play as a way of improving their relationship with their pet and respond to playful behaviour from their dog by giving attention.

If the vet advises an owner to remove some form of interaction with their dog it is important to replace it. For example he can encourage the owner to use play rather than food in order to reinforce the bond with their dog.



C) Changing rituals associated with the delivery of treats

It is common for unintentional conditioning to lead to the establishment of certain rituals in relation to the giving of food treats and dogs learn that specific situations or locations are associated with the delivery of a food reward. For example, when the owner comes back from work; or when the owner is watching television; or when the dog is sitting under the cupboard with the treats inside. After starting the programme for weight reduction the dog will continue to expect the delivery of a food reward in these situations and the owner will also find it hard to resist the habit. It is worth drawing the owner's attention to this at the very beginning of the treatment programme and providing some alternative methods which will reduce the sense of loss for both dog and owner that comes with not giving or receiving the treat.

For example:

- after returning home, the owner can spend a little time stroking or playing fetch with the dog instead of giving a treat;
- when the owner is watching television they can give the dog a massage;
- when the dog is sitting under the cupboard with

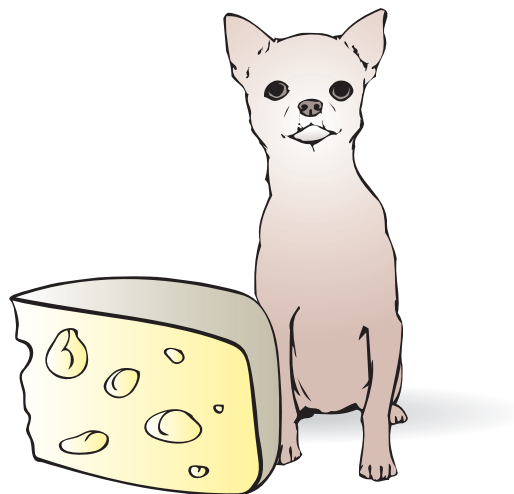
treats, the owner can respond by hiding a toy and playing a search game with the dog.

After a while the changed situation will be associated with pleasures other than eating but continue to be equally rewarding for the owner and the dog.

D) The relationship between dog and owner: dealing with the dominance myth

The majority of problems in the relationship between dog and owner stem from insecurity or frustration. Dogs need consistency and predictability in their relationships and without such features they become anxious and insecure. Lack of clear information for the dog regarding its status within the social group can cause confusion and can result in behaviours which appear to be testing the relationship between the dog and owner. In contrast when a dog is confident in its relationship with its owner and has clear signals regarding the owner's leadership it can relax and is unlikely to cause behavioural problems within the home (Appleby 1997b).

Most owners have no idea of the caloric value of the treats they give to their dog.



Situations in which using food rewards can be appropriate:

- to reinforce appropriate behaviour in training and behavioural therapy
- to reward relaxation and help in changing a dog's emotional state
- to assess the emotional state of a dog: a dog that is anxious will not be interested in treats
- to shape new behaviours by using the food as a "lure"

It is essential that all family members abide by the same rules and that owners do not use any form of confrontational interactions with the dog.

2/ Specific treatment for behavioural problems leading to obesity

Some behavioural problems are associated with symptoms of polyphagia, which can contribute to problems of obesity, and some behavioural disorders lead to a lack of satiety (Pageat 1995a). In cases where behavioural disorders such as depression and anxiety are suspected it is important for these to be referred to a veterinary behaviourist who can confirm the diagnosis and institute appropriate behavioural and pharmacological therapy.

Some behavioural factors, which should be considered in cases of obesity, include:

1. The absence of satiety as a symptom of communication problems between owner and dog.

If the owner uses food as a means of communication the dog may become very persistent in his attempts to ask for food and become aggressive if the behaviour is not rewarded. In order to make life easier the owner often responds by giving food whenever the dog requests it and there is a risk of obesity as a result of the extra food intake. In these cases the relationship between dog and owner needs to be analysed and communication problems need to be resolved. The relationship can be rebuilt around games, which are well controlled by the owner.

2. The absence of satiety in cases of depression.

In these cases it is common to see periods of polyphagia alternating with phases of anorexia. The dog is lethargic and shows very little initiative. There may be problems relating to sleep patterns with the dog sleeping more but showing disturbed sleep patterns. There may be phases of sudden waking, vocalising and agitation. The depression may be exogenous or endogenous (Pageat 1995b). A thorough medical examination should therefore be performed and endocrine disorders should be investigated: behavioural disorders are often the first signs of conditions such as Cushing's disease and hypothyroidism.

3. Appetite alterations in cases of anxiety.

In the case of anxiety disorders and specifically with permanent anxiety, dogs may engage in substitution activities. These are voluntarily triggered motor activities, which occur in a conflicting context and prevent the performance of adaptive responses. They have no functional relationship with the trigger stimulus, but ease the emotional tension brought on by the situation (Pageat 1995c). Food consumption can occur as a substitution behaviour in dogs who suffer from permanent anxiety. These dogs are therefore prone to obesity. Eating appeases the individual and results in them searching for food. If the owner gives food freely to the dog, it is very likely that it will put on weight. Polyphagia can be a compulsive behaviour, which is related to general chronic stress (Luescher 2002, Casey 2002).

4. The absence of satiety in cases of hyperactivity.

In hyperactivity disorders, the lack of satiety will not lead to obesity because the dog will expend a lot of energy through his activity. However, the underlying behavioural disorder still requires treatment.

3/ Choosing a diet and setting realistic targets

Obesity is a disease state; as with any disease the treatment needs to be well constructed. Energy restriction during and after the dieting period is key to maintaining and keeping good body condition (Diez 2002). Clear instructions on the proposed diet, feeding methods and number of meals for the dog are of the utmost importance. Realistic targets also need to be determined: what is the target weight (ideal weight)? What is the proposed time frame in which to achieve this?

A) The diet. How much to give and how often?

When selecting a diet for treating obesity it is important to choose one that has low energy content, stimulates satiety and is well balanced, in terms of the essential nutrients. It is better to aim for a slow steady weight loss that lasts over time since the use of severely restricted diets aimed at rapid weight loss will lead to a high risk of relapse, yoyo effects and resistance to slimming diets in the future.

In order to reduce energy content, a low-fat food is needed. The first stage is to calculate the individual

dog's energy requirements. The daily canine calorific requirement varies between 50 to 85 kcal/kg based on the optimal body weight, this variation is explained by the amount of excess weight, the duration of the diet and the sex of the dog (Diez personal communication). More severe restrictions have proven essential with females (Diez 2002).

The aim of stimulating satiety can be achieved by paying attention to the composition of food, the frequency of meals and the way in which food is delivered.

Food composition for treating obesity remains controversial. Food should be well-balanced and contain the correct amount of vitamins and minerals. The aim is to lose fat and preserve muscle mass. The use of inappropriate diets can result in the dog losing 10 to 25% of his muscle mass. Traditionally, foods rich in fibre were suggested for treatment because fibre generates a feeling of satiety due to of gastric dilatation. However, recent studies show that the consumption of protein-rich food results in better preservation of muscle tissue and a consequent preservation of lean body mass. These studies need to be confirmed by tests on a greater number of dogs (Diez 2002).

When the required amount of dietetic food is accurately calculated owners may be surprised that it exceeds the amount that the dog was receiving before beginning the diet (Burkhoulder 1998). This will help to motivate owners to comply with the treatment since they are not worried about starving their dog.

Nurses play an essential role in motivating the owner and also explaining the new feeding recommendations.



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In order to help with the weight loss process it is best to divide the daily food ration into three or four meals a day. If a fibre- or protein-rich meal is given in this way, hypoglycaemic rebound (responsible for the sensation of hunger) will be avoided.

It is important to take into account any extras that are being given and if the owner insists on continuing to give rewards, these need to be included in the calculated daily ration. Remember to ask about food items that may be given as a tool for dental hygiene, for example, bones for chewing contain calories!

and there is more likelihood that the calorie content will not be well suited to the requirements of obesity treatment. If owners insist on cooking their own food they should be encouraged to use low-fat products and add fibre but should be warned that there is a risk that the diet will be less successful than it would be with a commercial diet for weight reduction. Some owners will ask if they can simply feed less of the dog's usual food but canine diets which are designed for maintaining body weight will have a different composition to those used for the treatment of obesity and it is therefore recommended that a commercial weight reduction diet is prescribed.

B) What food should you choose?

Owners can choose between commercial food and home-cooked food. While many owners like the idea of a home-cooked diet they raise problems regarding accurate information on the composition of the diet

Dogs usually adapt easily to changes in their diet, but it is recommended that the transition is gradual, over three days. At the beginning of the transition, owners can mix the old food with the new. Sometimes the dog will refuse the new food or eat very little of it and owners need to be encouraged to persevere. If they give in immediately and go back to the old diet the dog will have no incentive to try the new food.

> Question to Vincent Biourge



**Vincent C. Biourge, DVM, PhD,
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Why are high protein diets more effective for weight control?

There are four reasons:

- 1/ High protein diets meet the dog's protein requirement despite the need for portion rationing in order to meet the requirement for weight control.
- 2/ These diets maintain the lean body mass during the diet. This was proven by a study carried out by Marianne Diez at the University of Liege in Belgium (Diez, 2002). With a traditional diet (reduced in protein and high in fibre), 30% of the weight loss is related to protein, in comparison to only 20% with a high protein diet.
- 3/ There is considerable evidence that high protein diets induce satiety. This has been proven in relation to human food (Halton, 2004) and recent studies by Royal Canin have suggested similar results.
- 4/ High protein diets are lower in calorie content than traditional obesity diets. The energy value of the food is assessed as "metabolisable energy" but only "net energy" is really utilised by the body and taken into account in the energy balance. Protein has a low net energy because the animal has to "spend" energy in order to "use" the energy from a protein source. One gramme of protein and one gramme of starch have the same metabolisable energy, but in net energy terms, one gramme of protein is 30% less valuable!

C) How long will it take?

The usual rate of weight loss is 0.5 to 2% per week and therefore a realistic target is 1% per week (Markwell 1994). Weight loss is an objective criteria for evaluating the success of the treatment and by knowing the ideal weight for the individual it is possible to calculate the likely duration of the diet. It can be very helpful for owners to be given some idea of the time that the weight loss is likely to take as it helps to maintain motivation. Throughout the diet it is important to maintain close contact with the owner and to see them with their dog on a regular basis. This not only gives the vet practice the opportunity to sell the appropriate food but also enables the veterinary surgeon to weigh the dog, evaluate weight loss and check with the owner that everything is going as planned. If this is not the case, it is important to assess where the difficulties are arising and take steps to resolve them.

4/ Adjusting energy output

By increasing the dog's level of physical activity it is possible to stimulate its metabolism. Exercise will therefore contribute to weight loss and be a useful tool in treating obesity (Markwell 1994). Twenty minutes exercise per day is recommended in order to minimise the loss of lean mass (Diez 2002). Such physical activity will increase weight loss and, in

particular, fat loss but if the dog is seriously overweight, too much physical activity can have serious medical consequences, for example, increasing the risk of rupturing cruciate ligaments. The intensity and length of the exercise period should therefore be determined for each individual dog and the exercise regime should be introduced gradually.

Playing is great therapy and can contribute to weight loss not only by increasing energy expenditure but also by replacing the use of food treats as a facilitator of social interaction. In addition to physical play it is useful to offer the dog an intellectual challenge, which will motivate him to exert himself even more. Every dog is an individual and therefore it will be important to ask the owner about activities which motivate their pet but possible activities may include hiding balls in the garden and looking for them, hiding balls under objects, playing hide and seek or using unpredictable bouncing balls.

5/ Preventing the problem recurring

The yo-yo effects of dieting are very well recognised in humans and preventing the recurrence of weight gain is very important. Once the diet is finished, food quantities need to be increased progressively. It is preferable to continue to give foods which are less energy-rich and owners should be encouraged to calculate the required amount of food per day and accurately measure this when feeding their dog.

> Treatment: step by step

1. Motivate the owner.
2. Determine the target weight. You need to be realistic and find a compromise between the ideal weight and the weight that can be achieved.
3. Calculate the daily energy requirements based on the ideal weight and select an appropriate diet. Give detailed instructions on the quantity of food that is needed.
4. Alter the feeding regime in order to give 3 to 4 meals a day.
5. If the owner wants to continue to give food treats you can either take these into account in your calculations and therefore reduce the daily food ration or you can give some of the daily food ration as treats. Alternatively the owner could stop giving food rewards and replace these with attention in the form of play.
6. Calculate the proposed time needed to achieve the ideal weight - this is a very important piece of information for the owner.
7. Arrange regular check-ups to allow you to check the diet and continue to motivate the owner or, if necessary, make changes to the diet. Initially check ups should take place every month.
8. If expected results are not achieved it is important to reset the targets and continue to motivate the owners. It can be very difficult to make the necessary changes to favour weight loss and at no time should the owners be made to feel guilty.

> Clinical case: considering the human element in a case of canine obesity



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Jimmy 7-year-old entire male Scottish Terrier.

Jimmy lives with his male and female owner who are both 45 years old. The male owner drives heavy goods lorries and is regularly absent for several days. The female owner works part-time. Jimmy weighs 11.20kg, which is 2kg above his ideal bodyweight. He has no medical problems. Jimmy eats two meals a day; he receives some dry dog food and scraps from the table. History taking reveals that the male owner also has some weight problems and snacks throughout the day. Jimmy takes advantage of this and he gets something every time he begs for food. The female owner does not really know how much food Jimmy gets. The male and female owners do not have the same approach to Jimmy. For example the male owner lets Jimmy onto the armchair, but the female owner doesn't like this. The male owner gives in to every demand for attention, which Jimmy makes, and when he watches television Jimmy is there with him. In contrast the female owner likes to go for walks with Jimmy.

In order to tackle Jimmy's weight issue it is suggested to the male owner that he no longer systematically gives treats to Jimmy. This is very difficult for him to achieve and therefore treats are replaced with pieces from the daily food ration, which can be given as rewards. The male owner is instructed to throw the pieces of kibble so that Jimmy has to get up and find them. He is also asked to hide the "rewards" so that Jimmy is working to get them. In addition to altering the way in which the male owner interacts with Jimmy the veterinary surgeon also prescribes a commercial weight reduction dog food and the female owner is very compliant with keeping to the recommended quantities. She also increases Jimmy's level of physical exercise by taking him for more walks and playing with him in the garden. Jimmy is re-examined after about one month and he has lost 300 grammes in bodyweight. The female owner is keeping to the recommendations but the male owner is finding it far more difficult to comply.

5. Motivating the client

> Summary

It is relatively easy to diagnose obesity in a dog and to prescribe a diet. The challenge lies in convincing the owner to introduce the necessary changes in the feeding and lifestyle of the animal in order to induce and maintain significant weight loss. Every suggested change runs the risk of provoking resistance from the dog-owner system and in order for the change to be implemented the owner has to have adequate motivation. Development of this motivation involves several phases and in order for the weight reduction programme to be effective it is necessary for the veterinary surgeon to recognise where the owner is in relation to these phases at the time of every consultation. By doing so they can adjust the arguments used in conversation and can alter recommended treatment approaches in response to the attitude of the client. It is also important to be prepared for resistance on the part of the owner, which can be expressed as doubts and reluctance to comply with the proposed solutions, and to be able to respond appropriately. It may be beneficial to undergo some form of training in order to acquire the ability to motivate clients and it is certainly appropriate to follow the motivation process using a stage by stage approach and remembering that each stage is a stepping stone. Omitting one or more stages on the way will be detrimental to the process.

Introduction

In the field of human medicine it is well recognised that simply prescribing a weight reduction diet for a patient is unlikely to result in any significant level of weight loss and that lifestyle changes are also needed if any dieting programme is going to be successful. In the same way effective weight loss for the domestic dog requires alterations in lifestyle, which in turn rely on a high level of self-discipline and commitment on the part of the owner. It will be necessary to remove a lot of the rituals involved in interactions between pet and owner and in some cases to give up the pampering that both owner and dog enjoy. In order to take on the commitment of weight loss programme for their pet and follow it through to a successful conclusion the owner will need a high level of motivation and a significant level of support from their veterinary surgeon. The process for shaping the motivation to change is described by DiClemente and Prochaska (1984), and is divided into distinct stages. From the moment that a problem is identified to the point at which action

is taken to solve it a particular route has to be followed and this can be illustrated by using the example of an owner of an obese dog.

1/ Precontemplation

In this first phase the owner does not think that the dog is overweight, or if he does acknowledge that this is the case he does not see it as a problem. The role of the veterinary surgeon in this phase of the motivation process is to draw the owner's attention to the problem. By using comments such as "Rex has increased in weight by a whole 3 kilogrammes in the last two months, that's 20% of his previous weight"; or "Oh, Tina has really filled out since her last visit, she must get tired a lot quicker now", the veterinary surgeon aims to assist the owner in acknowledging the problem but the stage of precontemplation can continue for a long time and will only come to a conclusion when the owner recognises that the dog is overweight and that it constitutes a problem that needs to be resolved.

2/ Contemplation

In this second phase of the process of change the owner is aware that the dog is obese, and that his condition is unhealthy. The owner is in the process of making themselves aware of the problem and contemplating the possible ways in which it might be approached. In order to prevent a relapse to the previous stage, the veterinary surgeon needs to confirm the owner's belief that obesity is harmful and that weight loss will improve their pet's mood and state of health.

3/ Planning and preparing to change

The third phase involves planning a solution to the problem. At this stage, owners need to be shown what they can change, in terms of the dog's diet and environment, and guided toward those changes that will be the most practical and the easiest for them to accept.

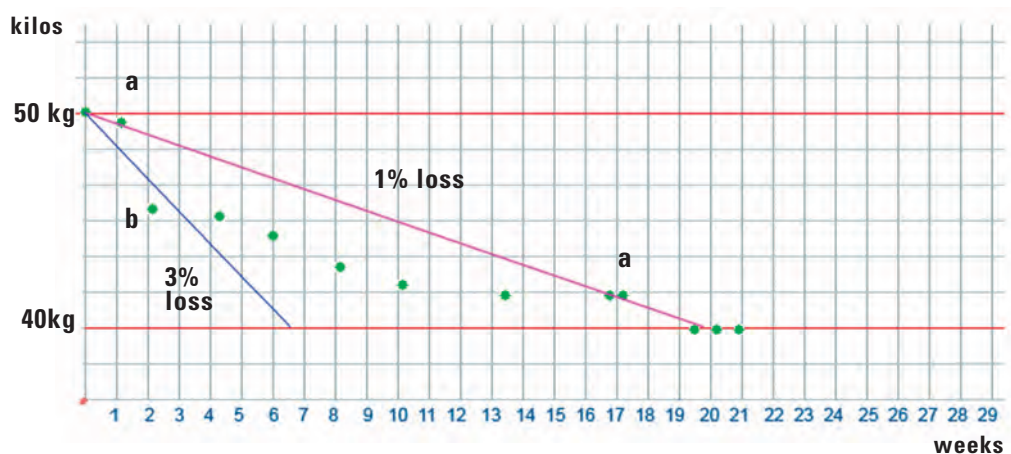
4/ Action

The fourth phase involves action and in the case of the owner of an obese pet this will be the time when they take action that will lead to weight loss for their pet. This is the most difficult phase to accomplish and demands a lot of discipline. The ultimate reward for continuing on the course of action, in the form of the target bodyweight, is still a long way off. However, if the owner breaks the diet at this stage immediate pleasure may be achieved and for this reason it is essential to offer a great deal of support. The owner should never be blamed for a lack of success and even the slightest fall in their pet's body weight should be praised.

5/ Maintenance

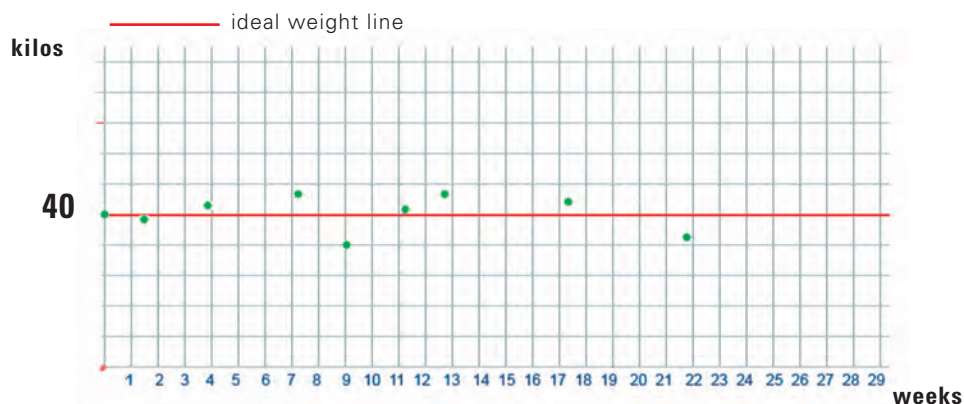
In order for the action to be successful it is important for it to be maintained and in the case of treating an obese pet the weight reduction process will need to be maintained throughout a long period of time. In this phase of the process the veterinary surgeon

A weight loss between 1 and 3% per week is a good target.



- a. These dots trigger a reassessment of the plan – weight loss is too slow
- b. This dot triggers a reassessment of the plan – weight loss is too quick

During the maintenance phase, small fluctuations in weight are to be expected.



should give owners general information which will assist them in reaching the target body mass but it is important to resist the temptation to speed up the process or to put the owner under any pressure to achieve more.

6/ Recurrence of the problem

Recurrence of the problem refers to the process of reverting to the previous stage and this can happen at any stage of the process.

It is not unusual for dogs to regain the weight that they have lost and when this happens it is important to look for an easier, more practical solution for that particular owner. When recurrence occurs it is usually the result of a weight reduction programme that proves to be too unpleasant for the owner. Recurrence may also result from a programme which owners feel pressurised to comply with. In cases of treating obesity the most common problems, which lead to recurrence, include achieving the target weight too quickly and allowing too little time for the owners to implement any real changes in the daily habits of themselves or their dog.

Whenever someone is faced with the prospect of making changes in their life they will go through the stages described above. It is not possible to leap from one stage to another without following the process and owners who are not yet aware of the problem will not be capable of finding and maintaining a solution. Each change requires a lot of effort and it will be necessary to confront resistance to the changes that are being suggested. For example an owner may believe the veterinary surgeon when they tell them that their dog is too fat and that this is detrimental to its health. However, the owner may not want to stop giving the dog treats and may be resistant to the suggestion of putting the dog onto a diet. If the veterinary surgeon persists in prescribing a weight reduction diet at this time it is very unlikely that the dog will lose any weight and the owner, who has failed to comply with the recommendations, may come into conflict with the veterinary surgeon. When this scenario develops the owner will often prefer to deny the existence of the problem than enter into cooperation with the veterinary surgeon. In order to deal with this situation and increase the owner's motivation to change, it will be necessary to identify the stage of the process that the owner is at. Once this has been achieved the veterinary surgeon can begin to use arguments and supply information that is appropriate to that stage of the process. If any attempt is made to try to skip a stage, the owner will be unlikely to co-operate.

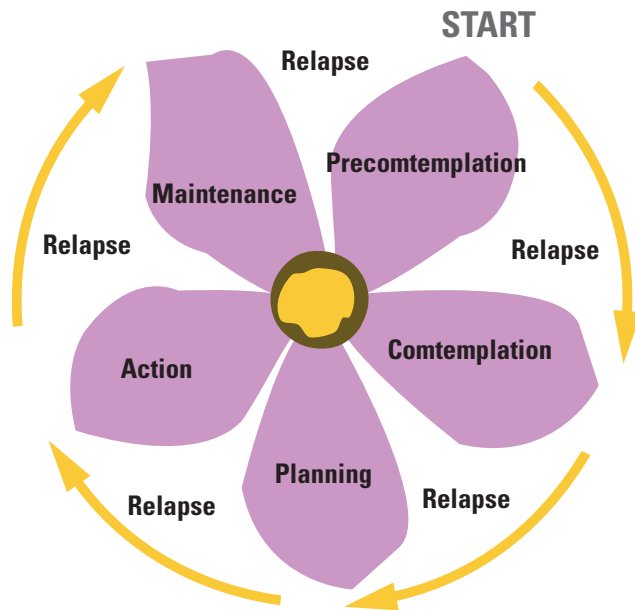
In the process of motivating the owner, if you try to “jump” a phase, you will fall!



© Edouard Cellura

Stage	Veterinary surgeon's response
Precontemplation Not being aware that there is a problem	Demonstrate the problem to the owner, highlight the seriousness of the problem and of the possible consequences
Contemplation Being aware of the problem and thinking it through	Confirm the owner's conviction about the negative effect of the dog's situation and the positive benefits of change
Planning and preparing to change	Offer the owner changes which are simple and easy-to-implement
Action	Provide reassurance and ensure that there is no blame placed on the owner if success is not forthcoming
Maintenance Continuing the action	Provide general information about possible solutions, but do not apply pressure to the owner
Recurrence of the problem	Offer solutions that are more practical and therefore easier for the owner to accept

From the DiClemente and Prochaska wheel



Precontemplation

What the vet can do:

- Ask the owner to choose the silhouette representing his dog
- Ask if they have noticed any change in the dog's activity
- Ask the owner to compare their dog to other dogs and to comment on what they think of his condition
- Compare the chosen silhouette with the ideal and discuss
- Compare bodyweight with the previously recorded weight for that individual
- Express the percentage change and its meaning for a human
- Ask the owner to detail what the dog is consuming

Possible resistance from the owner

- "It's winter – it is normal that he is heavier"
- "He is neutered"
- "He is a Labrador"
- "He doesn't like to go out"
- "He is afraid of cars"
- "He has so much fur"
- "It is only one or two kgs"

Contemplation

What the vet can do:

- Make the owner uncomfortable about his dog's obesity and unbalance the owner so that they start to move toward stage three
- Describe the medical consequences of obesity – use diagrams to illustrate the anatomy of a fat dog
- Make comparisons with cigarettes for humans – introduce the concept of being comfortable in the moment but facing implications for the future
- Identify something to which the owner can relate e.g. limiting sport activity, threatening cardiac health etc.
- Compare dog's obesity with the human condition
- Compare specifically with the owner if they tell you they are overweight. You can use phrases such as "you know how difficult it can be"
- Investigate potential medical causes

Possible resistance from the owner

- > Does not trust the vet
- > Does not believe the potential consequences of obesity
- > Believes that the dog is happy as it is
- > Makes comparisons with him/herself
- > Refers back to their last dog stating that it was fat and did not die young
- > Is reluctant to accept that the situation is the same for dogs and humans in terms of potential consequences and risks.

Planning and preparing to change

What the vet can do:

- Prescribe a practical treatment plan
- Proceed in small steps
- Give permission to give treats
- Show the owner a blood sample with lipids!
- Be very precise about the target, the timescale and the methods to achieve the targets

Possible resistance from the owner

- > Raises objections to complying with the treatment plan – he will not like the food, my dog will be unhappy, I have two dogs etc.

When you identify resistance from the owner, resist the temptation to react to every comment- this is like playing table tennis with your client and will stop you from moving forward.



Action

What the vet can do:

- Set realistic targets
- See diagram regarding % weight losses
- Discuss what treats can be given and why
- Stress the possibility of failure and variation in level of success
- Set a precise programme of follow up
- Remind the owner of the target and the reasons for that target
- Provide praise for the owner and recognition of even the smallest achievement

Possible resistance from the owner

- > "How much is it going to cost?"
- > "Why is my dog so unhappy?"

Maintenance

What the vet can do:

- Help the owner to set a new state of equilibrium for the weight of their dog
- Set a realistic and worthwhile aim through maintenance – make maintenance of weight, lifestyle and relationship an end in itself
- Give permission for a certain degree of yo-yo action within set boundaries

Possible resistance from the owner

- > The owner is comfortable with progress and there is the sense of resistance to further effort.
- > Comments such as "now it's finished" are common

6. Myths and FAQ'S

> Summary

There are many myths that have arisen concerning the way in which dogs should be fed. Some of these myths are strongly influenced by misinterpretations of canine behaviour and by the resulting beliefs that owners have regarding their relationship with their pet. Many of these myths lead to problems of communication between our two species and in some cases can inadvertently contribute to the problem of canine obesity. By dispelling these myths we can improve the relationship between people and their pets and help to reduce the risk of obesity in the pet dog population.

1/ Dispelling common myths

A) "You need to regularly take food away from your dog so that you gain the right to remove food from the dog bowl"

There is a common belief that regularly taking a dog's bowl away or removing food from his bowl when he is eating, teaches him to accept his owner's right to take his food and will therefore stop him being aggressive while he is eating. Sadly such an approach undermines the animal's trust in his owner and is more likely to increase the risk of aggression in association with feeding than reduce it. Regularly taking the bowl away from the dog can induce a state of anxiety, since the dog never knows when someone may disturb him, and many dogs are so disturbed by the unpredictable threat to the all important resource of food that they also become anxious in other contexts. Aggression related to the defence of food resources is not always spectacular and the dog may simply growl when people approach. However, if the

food in the bowl is particularly valuable the aggression may escalate and the dog may show signs of physical confrontation.

There is no evidence to support the myth that the dog believes himself to be dominant when he is defending his food and a cross section of dogs with a range of personality traits have been shown to display defensive behaviour in the presence of their food bowl (Appleby 1997a). In a wild or feral situation it is possible to observe higher ranking group members waiting patiently while lower ranking individuals eat and lower ranking animals defending the food resource if approached by a higher-ranking individual. Taking the bowl away from a dog while it is eating therefore has no justification in terms of canine social behaviour.

Defending food is an instinctive behaviour but, in view of the potential danger involved within a domestic context, it is important to take steps to teach pet dogs that such behaviour is not necessary. (Appleby 1997b).

In order to achieve this, owners should approach young puppies while they are eating and add some additional food to the bowl. In this way the puppy



Repeatedly removing the food bowl from your dog will make him suspicious of your presence when he is feeding and runs the risk of inducing defensive responses.

learns to associate the approach of his owners with a pleasant and rewarding interaction. It will be helpful to command the puppy to sit as you approach the bowl and to lift the bowl off the floor before adding the food treat and replacing the bowl. This will teach the puppy that any attempt to remove the bowl is not threatening. If there are children in the household it is sensible to teach them that they should never approach the dog while it is eating and feeding the dog in an area that is not accessible to small children is a sensible precaution.

If an adult dog has already developed problems of food related aggression the immediate solution is to leave the dog in peace whilst he is eating thus demonstrating that his food no longer under threat. However, a longer-term solution will be needed and owners should be advised to seek professional help so that a programme of behavioural modification can be implemented.

B) "Owners need to eat before their dog"

When wolves catch prey, it is usually the higher ranking (or dominant) wolves that eat first while wolves with a lower status in the group, eat after them. Access to food is regarded as a privilege. In accordance

with this theory, the myth has arisen that owners must eat before their dog in order to be the dominant ones and it has been suggested that the "treatment" for "hierarchical problems" should include instructions to owners to only feed their dog once the family, or visitors, have finished eating.

In reality however things are not that simple. Certainly the relationship between dogs and humans benefits from having rules, in much the same way as the relationship between parents and children, and these rules may include the order of priority of access to food, but it is the consistency of application of such rules, rather than the rules themselves which improve the dog-owner relationship and make the home a safe and secure place for everyone.

Food, attention and a good sleeping place are important for dogs and can be referred to as resources or privileges. The relative importance of each of these resources will be dependent on many factors and each dog needs to be considered as an individual. For example some dogs do not place high value on food as a resource but will work very hard to gain access to human attention or play.

When the access to resources is consistently controlled by the owner, dogs can learn to look for cues and

signals, which indicate that the resource is about to be released to them. This enables them to predict when resources are available and reduces the need to engage in attention seeking and demanding behaviours, which are designed to gain access to resources at other times.

When a dog first arrives in a family situation it is important for owners to decide on the rules that will be applied and to involve all members of the family in this decision. Consistency between family members will be very important in making the dog feel safe and secure in his new environment.

Since food is an important resource for most dogs it can be beneficial to have rules about when it is available to the dog and to develop signals that clearly indicate this availability. Dogs can get very confused when owners sometimes respond to their begging behaviour by giving them food and at other times punish them for exactly the same behaviour. This unpredictable behaviour from owners can lead to problems of anxiety, insecurity and frustration for the dog and these emotions can in turn cause situations of confrontation and aggression.

If a family believes the myth and insists on feeding their dog after the family has eaten, but fails to institute consistent household rules in other aspects of their interactions with their pet, it is unlikely that this one rule will make any significant difference to their relationship with the dog. On the other hand if a family decided to give the dog his meal before they eat, but also adhered to very consistent rules about the way in which everyone interacted with the dog, and made it clear that food was only available from the food bowl and would never be given in response to begging behaviour at other times, the relationship between dog and owners will be significantly enhanced.

C) "To motivate a dog, you need to give him a very appetising food reward"

There is a school of thought that dogs should respond to orders out of respect for their master and not

because of the offer of a tasty food reward. Such a belief leads to reluctance to use food treats in the training process and a reliance instead on a system of punishing unwanted behaviours in order to show a dog how he should behave. However, over recent years there has been a change in attitude and a move toward more positive methods of dog training, which are based on rewarding dogs when they exhibit the correct behaviour and ignoring them when they get it wrong. While this is a very positive development there has been some confusion over the role of food in this training process and a tendency for owners to believe that nothing other than a very tasty food treat, will be rewarding enough to get the message across.

While many dogs are motivated significantly by food it is not the only source of canine reward and it is useful to explore other ways in which a dog can be reinforced for appropriate behaviour. Human attention and play are useful rewards for many dogs but it is important to remember that every dog is an individual and what works for one may not work for another. Owners therefore need to experiment with their own dog and find out what will be useful as a reward for their pet.

Even when food appears to be the only thing that a dog will respond to it is important to grade rewards according to the difficulty of the task and for the majority of the training process the dog's daily food ration will be sufficiently rewarding to reinforce his appropriate behaviour. The use of special appetising rewards can be kept for situations where the task is particularly difficult and this will help to reduce the risk of food treats during training leading to problems of excessive weight gain.

In addition to the value of the food that is given it is important for owners to pay attention to the schedule of reward that is used. At the beginning of the training process it is important to give a reward each and every time the behaviour is performed, but once it is established the dog should be moved onto an intermittent schedule of reward. For example the owner only rewards the dog with a treat once in every ten times that the desired behaviour is performed. This schedule will improve motivation, since the dog

cannot predict when the reward will arrive and will offer the behaviour more frequently in search of the reward. It will also reduce the risk of the behaviour disappearing from the dog's repertoire since the dog cannot predict whether the next expression of the behaviour will be the one to be rewarded. In contrast if the rewards are delivered every time a behaviour is performed the dog will soon realise that the reward is no longer being given and the behaviour will quickly cease. Intermittent rewarding is therefore very effective for manipulating the dog's behaviour and for maintaining learned responses (Appleby 1997c). It also reduces the number of food treats that are needed and thereby reduces the risk of overfeeding during the training process.

2/ FAQ'S from owners

A) I have two dogs, one obese and one thin. If the obese dog has to go on a diet, how will I be able to manage that?

A simple answer to this question is to shut the door between the two dogs and feed them with appropriate diets for each individual in separate locations. Remember that a diet is not just about changing the way in which you feed your obese dog and you will also need to adjust his energy consumption. It is important to provide suitable exercise for both of your dogs and you may find it helpful to exercise them separately in the short term.

(Note to vets: If this answer is not sufficient for your client you should consider the possibility of owner resistance and you will find information about this in chapter 5).

B) My growing dog has not eaten for three days what should I do?

Of course it is essential to ensure that there is no medical reason for the lack of appetite but provided your puppy is fit and healthy in a physical context, it will be important to consider potential behavioural factors that might influence his appetite. Negative emotional states such as fear and anxiety can be responsible for appetite suppression as well as a variation in appetite control. Taking a full behavioural history would therefore be beneficial. Encouraging your dog to eat will involve increasing the perceived value of the food that you are offering but it is important to ensure that anything that your dog is consuming is of correct nutritional value for its stage of physical development. Exploring ways in which the food can be delivered in order to increase interest may be beneficial and the use of puzzle feeders and feeding games may help. Rewarding your dog for eating by providing access to social interaction or play would also be worth considering.

C) My puppy is fussy what shall I do?

The use of the word "fussy" implies that there is a reluctance to consume the food that you provide for your puppy rather than a total refusal to eat and it would be interesting to know more about the development of this "fussy" behaviour as well as the food sources that he will willingly consume. For example does your puppy eat human food or dog treats? And have you ever reacted to your puppy's reluctance to consume dog food by providing him with a more palatable alternative? Obviously it is worrying when

a small puppy refuses to eat and it is very tempting to provide alternatives rather than risk a situation where the puppy goes hungry. However, it is important to realise that “fussy” behaviour can be unintentionally rewarded in that way and with time your puppy will learn to ignore his own food in favour of the palatable treats that will follow. Incorporating the daily food ration into rewarding interactions can help to increase its perceived value and training your puppy to “pay” for his “treats” by consuming a small portion of kibble can be a useful way of increasing consumption.

D) Can I just feed my obese dog less of his normal food or do I need to use a special diet?

Nutrition is a science and in order to achieve optimal health it is necessary to consume constituent nutrients in the right proportions as well as quantities. During a weight reduction programme it is important to provide a lower calorific intake but to maintain appropriate intake of essential nutrients and therefore it is important to feed a specifically prepared food rather than simply reduce the intake of a maintenance diet.

> Clinical case: linking depression to obesity



© Christine Halsberghe

Kimberly: 9 year old female cavalier King Charles Spaniel

Kimberly lives a very peaceful life with her owner, a 60-year old, retired man. She goes to the veterinary practice regularly for vaccinations, slight ear infections and other minor health problems. On each visit the surgery staff notice an increase in weight. Kimberly gets a lot of treats. The man regularly goes to drink a coffee or a beer in local cafés and his dog gets biscuits and peanuts from the friends of the owner. This is quite a sensitive issue because the man is not easily able to resolve this problem. The dog's physical activity is limited to a few outings in the garden and two walks per day. Kimberly is very quiet, she plays very little, and she walks at the end of the leash behind the owner. At one of Kimberly's routine appointments the issue of her weight was discussed with the owner. Some blood was taken to exclude any endocrinological problems. A diet was then suggested and Kimberly was prescribed a well-measured amount of dry dog food for an ideal weight of 8.50kg. The owner received a plastic measuring cup on which the amount of food to be given was clearly marked. At the beginning of treatment, Kimberly lost weight and while the ideal weight was not reached there was a clear improvement.

A few months later Kimberly needed to be neutered because of endometriosis and she regained weight. Her weight was now 10.50kg. A detailed history was taken and the owner told the vet that Kimberly sleeps a huge amount and has lost all interest in what is going on around her. She alternates between periods of polyphagia and anorexia. Another blood test was performed but this showed no abnormalities. The behavioural symptoms suggested possible depression and Kimberly was prescribed Selegiline. She began to regain interest in life and became more active. The owner admitted that he did not offer Kimberly sufficient physical or mental stimulation and this remains a problem. Kimberly lost 0.5kg in bodyweight and her demeanour improved. The practice is continuing to monitor Kimberly's progress very closely and to regularly check her thyroid status.

3/ FAQ'S from vets

A) In human medicine medication is sometimes used in the treatment of eating disorders. Is psychoactive medication ever necessary in the treatment of canine obesity?

Emotional disorders can be an important underlying factor in cases of canine obesity and in cases where behavioural factors such as anxiety are identified the use of psychoactive medication may be indicated. However, it is essential to undertake an extensive behavioural history before considering the use of such medication since it will not be appropriate in every case.

B) My client is not motivated what shall I do?

If a weight reduction programme is going to be successful it is essential for the owners to be fully convinced of the need for such an approach and also to be motivated to adhere to the plan. To some extent the latter of these requirements is dependent on the former and by explaining the problem to the client in a clear and understandable fashion it is possible to significantly increase motivation. Other techniques that can be beneficial in keeping the

owners on board with the suggestions will include setting realistic targets in terms of weight loss and timescale, providing ongoing support for the client in the form of regular telephone contact and face to face consultations, using visual images of the pet to highlight the success of the weight loss programme and discouraging the client from weighing their pet too frequently. Ensuring that the pet is enrolled on a complete weight reduction programme which includes structured exercise and play sessions rather than simply on a "diet" of special prescription food will also be beneficial.

C) My client is not convinced that obesity is a problem what shall I do?

In order to highlight the problems associated with obesity it is possible to look at the issue from a medical or a behavioural perspective. Pointing out the potential medical consequences of excessive weight in terms of strain on the major organ systems and on orthopaedic health may be beneficial, but some clients find it difficult to project into the future and may need to be convinced of some immediate detrimental effect for their pet. In this situation a behavioural approach may be more beneficial and comparing the pet's current activity levels, exercise tolerance, levels of social interaction and levels of enthusiastic play with other dogs of the same breed, age and sex can be a useful way of highlighting the problem from a canine perspective.

7. Ten don'ts for dog owners

1/ Don't introduce any changes to your puppy's food the first day after taking him home

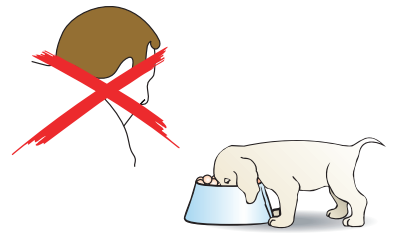
When puppies are separated from their mother and siblings and moved to a completely novel environment the process can be extremely stressful. It is therefore important to maintain some of the elements of the puppy's daily routine in the first few days and one way in which you can do this is to use the same diet and meal times as your puppy had in his rearing environment. You should be prepared for the fact that your puppy may eat very little and should resist the temptation to force him to eat. You should also avoid the mistake of offering your puppy lots of different food types in order to tempt him to eat more. This can result in over-eating and can predispose your puppy to problems with his weight later in life.

Any change in a dog's diet should be introduced gradually. If your puppy is to be fed with different food in his new home, it is best to mix both types of food for a few days, gradually substituting more and more of the new food. With some puppies, the stress involved in moving to a new home can cause digestive disorders and these can be minimised by keeping the current feeding regime and not introducing a new food type.

2/ Don't stand over your puppy while he is eating

New owners are often concerned about their puppy's rate of growth and believe that a good appetite is an important sign to indicate that their

pet is in good health. As a result they are often anxious about how their puppy eats its food and they may be tempted to watch over their puppy while it eats. Unfortunately this behaviour is easily misinterpreted by the puppy as a sign of threat since he anticipates that the owner is attempting to gain access to the food in his bowl. Insecure individuals may even feel so threatened that they retreat from the bowl or alternatively become aggressive to their owner as they seek to defend their food source. It is therefore beneficial to avoid standing over the puppy while it is eating and rather to place the food bowl in a quiet location and allow the puppy to eat his meal in peace.



3/ Don't feed your dog at the table

The seemingly small tidbits that you give to your dog at the table can in fact turn out to be the equivalent of a sizeable meal. If this is not included in your calculations of your dog's daily food ration there is a serious risk of causing problems of obesity.

Giving your dog the leftovers from the table is never advisable as it can result in an imbalance of nutrients as well as lead to problems of over feeding. If you are not able to stop this practice then it would be helpful to leave a bowl on the table into which everyone can put what they want to give to the dog at the end of the meal. When the meal is finished you can put the leftovers into your dog's bowl. In this way, your dog continues to get the leftovers from your dinner but you are able to see exactly how much your dog is eating and you can adjust his other food intake accordingly.

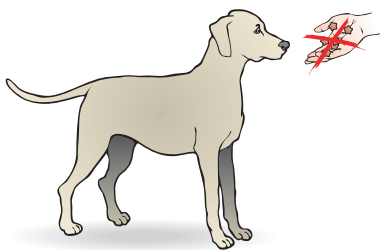
Using this bowl approach removes the temptation to feed your dog directly from the table by hand. This

is important because feeding at the table can cause a great deal of confusion for your dog, especially if only some members of the family behave in this way. Consistency is very important in the dog-owner relationship and it can be helpful if owners have clear control over access to important resources such as food. It is also important that everyone in the family adheres to the same rules.

4/ Don't force your dog to eat, and don't feed him from your hand

If a healthy dog does not want to eat, he probably is not hungry. Urging a dog to eat may encourage over-eating and lead to obesity.

If you are very worried about your dog being too thin you should consult your veterinary surgeon. Offering food from your hand is unlikely to significantly increase your dog's food intake and if your dog is healthy he may eat less through the process of being hand fed than he will when his food is served in his bowl twice a day for a fixed period (several minutes).



5/ Don't add anything to balanced dry food to encourage your dog to eat it

Dogs regulate their appetite according to their energy needs. If a dog is healthy and is given good quality food, there is no need to encourage him to eat. The fact that he is not eating is most likely to be a sign that his energy needs have been satisfied. If you respond by making the food particularly attractive, the dog may continue to eat despite having earlier satisfied his hunger. Tasty additions are often very high in energy density, for example one tablespoon of vegetable oil contains about 150 kCal.

Such an addition will significantly increase the dog's daily intake of energy and this can be a factor in the onset of obesity.



6/ Don't take your puppy's food bowl away while he is eating

It is common for owners to be advised that regularly taking a puppy's food bowl away when he is eating will help to teach him to accept that his owners have the right to take things away from him and will stop him from being aggressive when eating. Unfortunately such advice is totally unfounded and far from being a sensible thing to do with a puppy it is probably one of the best ways to induce aggressive behaviour during feeding! If people repeatedly remove the food bowl from the puppy while he is eating he can feel threatened and forced to defend his food. This behaviour undermines the animal's trust in his owner and causes him to feel stressed when eating.

The puppy cannot relax as he never knows when someone may disturb him. Taking the bowl away when the puppy is eating has no justification in terms of natural canine behaviour: in the situation when a low ranking dog is waiting for his turn to eat, when the other members of the group have finished eating they will leave him alone to eat his share in peace. If a low ranking dog is challenged while he is eating he will usually defend his food even against higher ranking members of his group. In order to avoid problems of aggression around the food bowl it is important to teach the puppy that people approaching is a positive thing and this can be achieved by repeatedly adding a tasty titbit to the puppy's bowl while he is eating. This should be done in a predictable way and at other times the puppy should be left to eat in peace.

7/ Don't give titbits to your dog because you feel guilty or as a means of saying hello

It is common for people to cook a meal for someone as a way of saying sorry and it is therefore easy to

transfer this behaviour into our relationships with our dogs and to offer food treats as a way of making up for leaving them on their own. Food is also commonly used as a means of initiating social contact and it can be tempting to reach for the food treats as soon as you come home. However, food is not the only pleasurable thing that you can give to your dog and if he has spent a few hours alone it will be much more valuable for him to have contact with you through playing or petting or to have the opportunity to run around on a walk or during a game. If you are simply wanting to initiate social interaction with your dog you could try one of the following approaches:

- Stroke and pat him;
- Play with him, for example playing fetch or tug-of-war with toys;
- Teach simple commands; the actual command is not really important but the act of communicating with your dog will enhance your relationship

Giving your dog a treat may be much easier than giving him your time but it will not improve your relationship and it can run the risk of making him overweight.

8/ Don't "treat" your dog with "Sunday lunch"

A dog's digestive system works most effectively if he is fed a consistent and balanced diet of an appropriate nutritional value. Provided that you are feeding your dog with a quality dog food from a reputable source you can be assured that he is receiving all of the nutrition that he needs. Giving him a meal of human food once a week, such as "Sunday lunch", will cause an imbalance in his diet. It is far better to offer him a special game or a particularly interesting walk on a Sunday afternoon!



9/ Don't use feeding as a way of making your dog happy

Dogs are social animals and contact with members of the group, and also other members of their own species, are of great importance to them. In modern society domestic dogs are primarily kept as companion animals and are rarely hungry. However, they do often lack social contact, both with people and other animals, and instead of using food as a means of increasing your dog's quality of life it will be far more beneficial to spend more time with him, play with him, give him a chance to run around and offer him contact with other dogs.

10/ Don't worry if your dog does not eat exactly the amount that is indicated on the feeding guide

The packaging of commercial dog foods carries information about the approximate daily amount the dog should eat according to his body weight. This is only a rough guide and does not take into account individual variations in metabolic rate and exercise regimes. The amount indicated on the packaging should therefore be verified by observing your dog's behaviour, and also by monitoring his body weight. The only accurate way to know whether a dog is eating enough is to observe his physical condition.



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Chapter 6

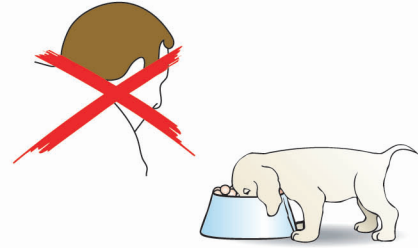
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> Ten tips for responsible dog owners

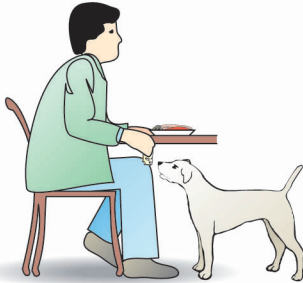
1 Don't introduce any changes to your puppy's food the first day after taking him home



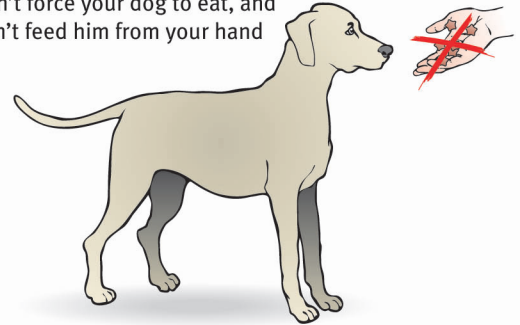
2 Don't stand over your puppy while he is eating



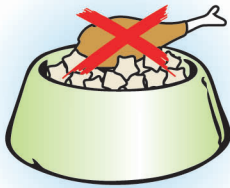
3 Don't feed your dog at the table



4 Don't force your dog to eat, and don't feed him from your hand



5 Don't add anything to balanced dry food to encourage your dog to eat it as it may significantly alter the caloric value of the meal



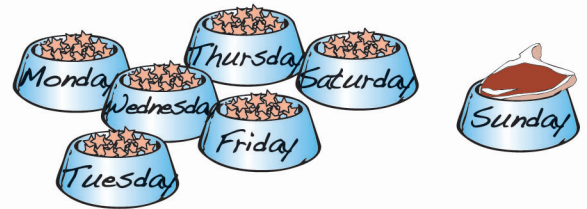
6 Don't take your puppy's food bowl away while he is eating



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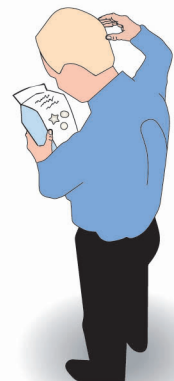
8 Don't "treat" your dog with "Sunday lunch"



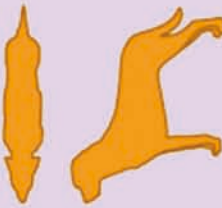
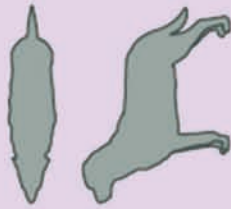
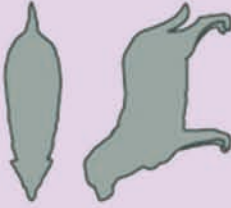
9 Don't use feeding as a way of making your dog happy



10 Don't worry if your dog does not eat exactly the amount that is indicated on the feeding guide



How can you recognise obesity?

		MINI	MEDIUM	MAXI	for a human	Risk
 Ideal	Ribs, spine, pelvic bone not visible but easily palpable	5kg	12kg	30kg	70kg	
 Overweight	No waist Fat deposit on spine and base of tail	6kg	15kg	36kg	84kg	Pre-diabetes Arthritis Intolerance to effort
 Obese	Obvious abdominal distension	7kg	17kg	42kg	98kg	Anaesthetic risk Heart risk Reduced life expectancy