The obesity epidemic, food composition, and the role of industry

John Flanagan Ph.D.

Research Program Manager, Discover Vet R&D

Royal Canin



Content

- **Obesity epidemic**
  - Definition, incidence, consequences and risk factors
- **Food composition**
  - Feeding guidelines and a lesson from human nutrition
- **The role of industry**
  - Development of purpose-made diets
  - Fine tuning of weight loss programs
  - Effective communication
  - Prevention



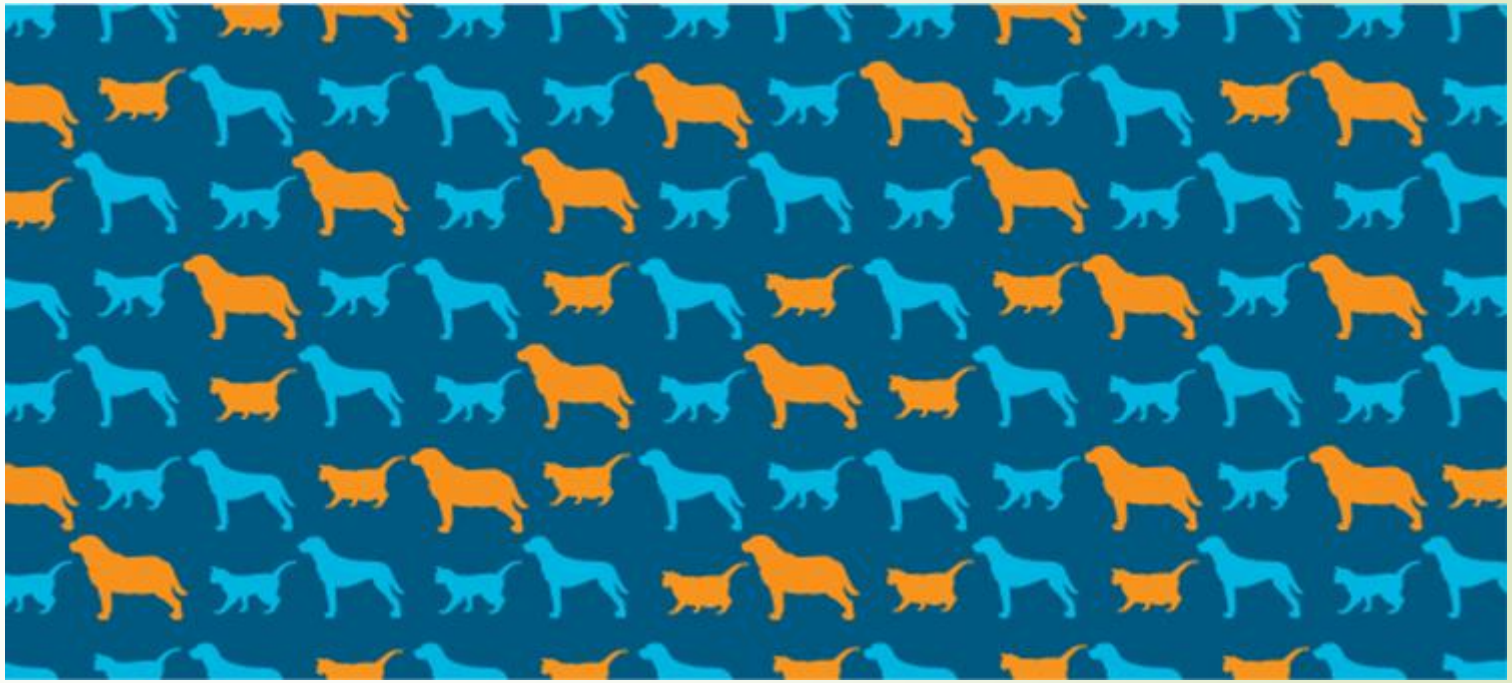
What I want to convince you of today……

1. Obesity is a serious disease

2. YOU can do something about it!



Obesity epidemic





Definition

o·be·si·ty
/ōˈbēsədē/
noun
the condition of being grossly fat or overweight

Condição da pessoa obesa, de quem acumula uma quantidade excessiva de gordura no organismo, sendo caracterizada pelo aumento do peso

Humans

Body Mass Index (BMI): kg/m^2

- Healthy : 18-25
- Overweight: 25-30
- Obesity: 30-40
- Morbid obesity: >40

$BMI = weight/height^2\ [kg/m^2]$



Definition

BMI for dogs or cats?

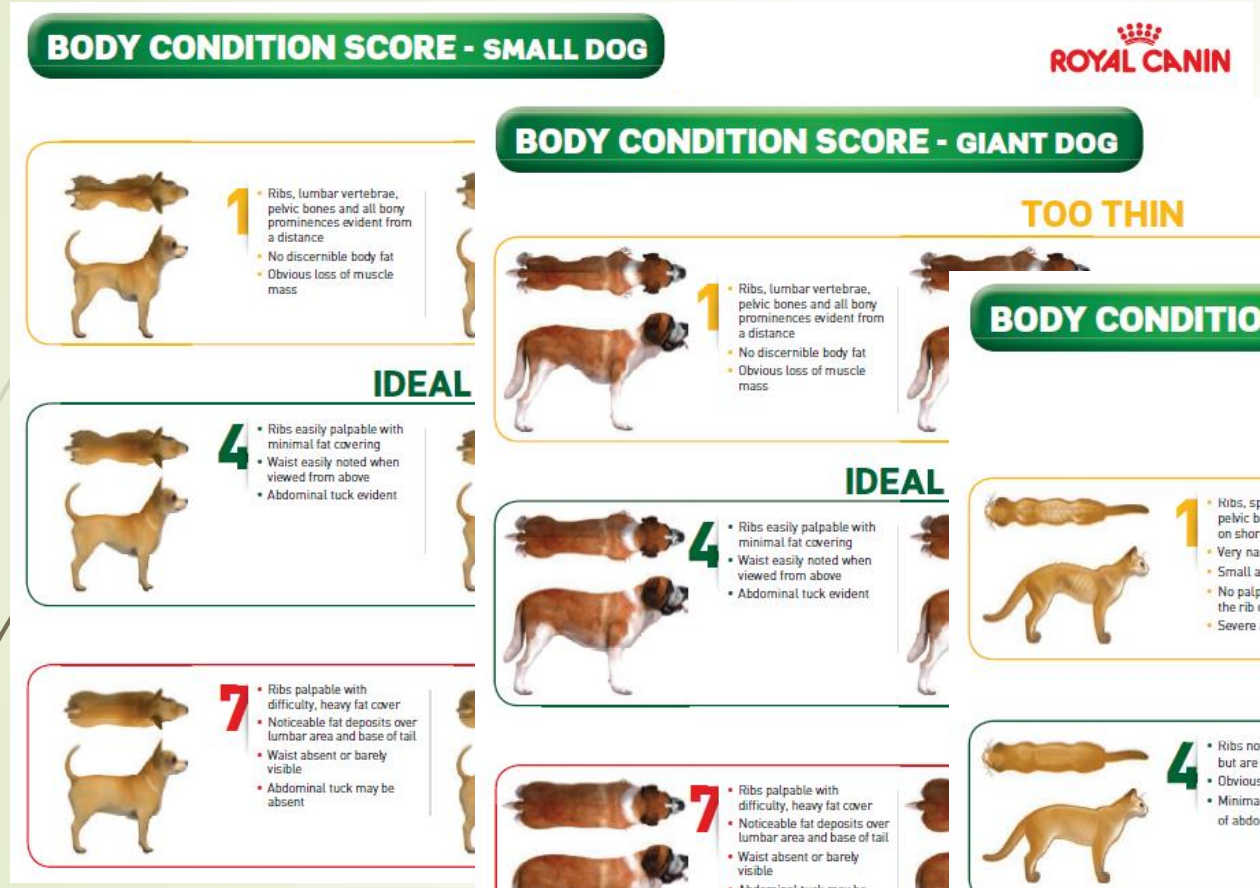


10 -15% above ideal bodyweight?





Definition


BODY CONDITION SCORE - SMALL DOG
ROYAL CANIN
1
Ribs, lumbar vertebrae, pelvic bones and all bony prominences evident from a distance
No discernible body fat
Obvious loss of muscle mass
IDEAL
4
Ribs easily palpable with minimal fat covering
Waist easily noted when viewed from above
Abdominal tuck evident
7
Ribs palpable with difficulty, heavy fat cover
Noticeable fat deposits over lumbar area and base of tail
Waist absent or barely visible
Abdominal tuck may be absent

BODY CONDITION SCORE - GIANT DOG
ROYAL CANIN
TOO THIN
1
Ribs, lumbar vertebrae, pelvic bones and all bony prominences evident from a distance
No discernible body fat
Obvious loss of muscle mass
IDEAL
4
Ribs easily palpable with minimal fat covering
Waist easily noted when viewed from above
Abdominal tuck evident
7
Ribs palpable with difficulty, heavy fat cover
Noticeable fat deposits over lumbar area and base of tail
Waist absent or barely visible
Abdominal tuck may be absent

BODY CONDITION SCORE
ROYAL CANIN
TOO THIN
1
Ribs, spine and pelvic bones easily visible on shorthaired cats
Very narrow waist
Small amount of muscle
No palpable fat on the rib cage
Severe abdominal tuck
2
Ribs easily visible on shorthaired cats
Very narrow waist
Loss of muscle mass
No palpable fat on the rib cage
Very pronounced abdominal tuck
3
Ribs visible on shorthaired cats
Obvious waist
Very small amount of abdominal fat
Marked abdominal tuck
IDEAL
4
Ribs not visible but are easily palpable
Obvious waist
Minimal amount of abdominal fat
5
Well proportioned
Ribs not visible but are easily palpable
Obvious waist
Small amount of abdominal fat
Slight abdominal tuck
OVERWEIGHT
6
Ribs not visible but palpable
Waist not clearly defined when seen from above
TOO HEAVY
7
Ribs difficult to palpate under the fat
Waist barely visible
No abdominal tuck
Rounding of abdomen with moderate abdominal pad
8
Ribs not palpable under the fat
Waist not visible
Slight abdominal distension

Is obesity a disease?

A risk factor for other diseases?



Disease definition:

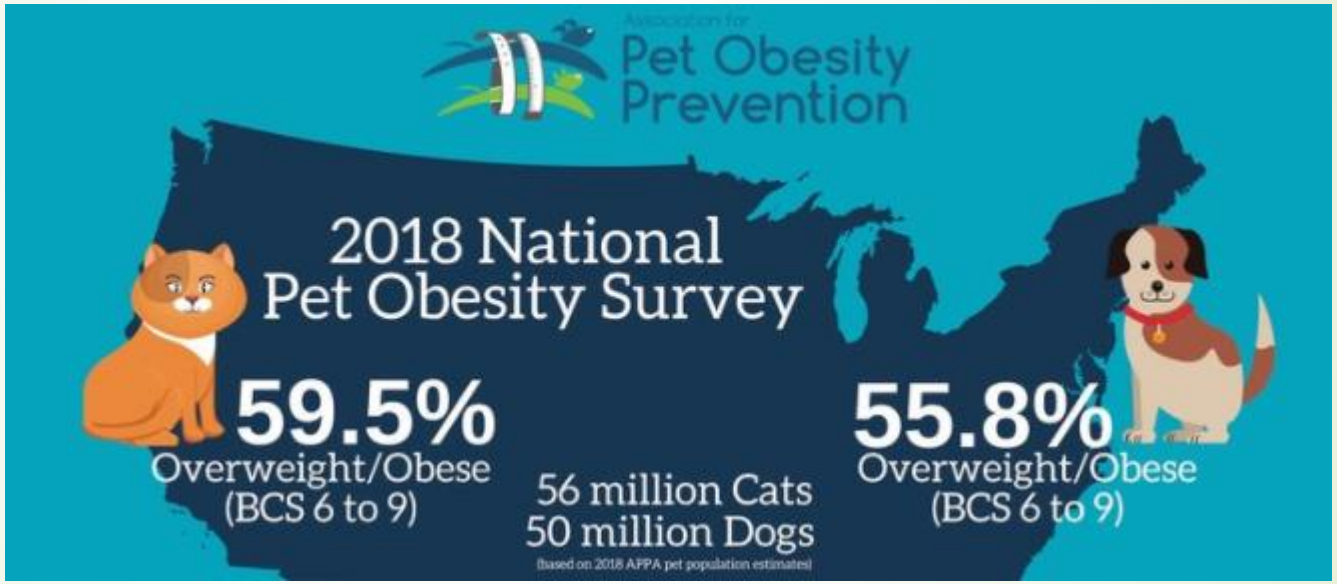
1. *An impairment of the normal functioning of some aspect of the body*
2. *Demonstrates characteristic signs or symptoms*
3. *Causes harm or morbidity*



INCIDENCE OF OBESITY

In the latest survey (2018) conducted by the Association for Pet Obesity Prevention (APOP) in US veterinary clinics :

60 % of cats & 56% of dogs were diagnosed overweight or obese



Prevalence of obesity is consistently increasing in most countries.
(China 44% of dogs; New Zealand 63% cats; Europe 40% pets)

INCIDENCE OF OBESITY

40.5% of dogs were diagnosed overweight or obese

www.nature.com/scientificreports

SCIENTIFIC REPORTS

nature research

Check for updates

OPEN

Prevalence of canine obesity in the city of São Paulo, Brazil

Mariana Yukari Hayasaki Porsani[1], Fabio Alves Teixeira[1], Vinicius Vasques Oliveira[1], Vivian Pedrinelli[1], Ricardo Augusto Dias[1], Alexander James German[2] & Marcio Antonio Brunetto[1]✉

Canine obesity is associated with comorbidities, a shortened lifespan, and a poorer quality of life, but epidemiological studies characterizing canine obesity in Latin America are scarce. Therefore, this study aimed to determine the prevalence of canine obesity in the city of Sao Paulo, Brazil, and



Consequences of Obesity

Impact on lifespan

Received: 1 May 2018 | Accepted: 24 October 2018

DOI: 10.1111/jvim.15367

Journal of Veterinary Internal Medicine Open Access

ACVIM American College of Veterinary Internal Medicine

Check for updates

STANDARD ARTICLE

Association between life span and body condition in neutered client-owned dogs

Carina Salt[1] | Penelope J. Morris[1] | Derek Wilson[1] | Elizabeth M. Lund[2] | Alexander J. German[3]

15% shorter life span in small dogs!

Shortened lifespan in cats



Check for updates

Original Article

jfms

Journal of Feline Medicine and Surgery
1–9
© The Author(s) 2018
Reprints and permissions:
sagepub.co.uk/journalsPermissions.nav
DOI: 10.1177/1098612X17752198
journals.sagepub.com/home/jfms

This paper was handled and processed by the European Editorial Office (ISFM) for publication in *JFMS*

SAGE

Strong associations of 9-point body condition scoring with survival and lifespan in cats

Kendy T Teng[1], Paul D McGreevy[1], Jenny-Ann LML Toribio[1], David Raubenheimer[2], Kim Kendall[3] and Navneet K Dhand[1]

Abstract

Objectives The objective of the study was to investigate the associations of a 9-point body condition score (BCS) with survival time and lifespan in cats.

Methods Electronic patient records from a cat-dominant primary practice in metropolitan Sydney, Australia, where the body condition of cats was regularly recorded using a 9-point BCS scale were obtained. The maximum BCS of each cat during the visits was used as the primary exposure variable. Two survival analyses were conducted to evaluate the associations of BCS with cats' survival and lifespan.

Results In total, 2609 cats met the selection criteria from 4020 cats screened. The median of the maximum BCS was 6 (interquartile range [IQR] 5–7). Compared with cats with a maximum BCS of 6, increased hazards of death were observed in cats with a maximum BCS of 3 (hazard ratio [HR] 4.67, 95% confidence interval [CI] 3.00–7.27), 4 (HR 2.61, 95% CI 1.95–3.49), 5 (HR 1.43, 95% CI 11.5–1.76) and 9 (HR 1.80, 95% CI 1.11–2.93). Median lifespan was 15.8 (IQR 13.5–17.6) years. Compared with cats reaching a maximum BCS of 6 in the same age group, cats reaching a maximum BCS of 4 (HR 4.15, 95% CI 1.26–13.67) or 5 (HR 1.75, 95% CI 1.07–2.85) between age 1 and 3 years, and a maximum BCS of 3 (HR 6.09, 95% CI 1.47–25.25) and 9 (HR 2.27, 95% CI 1.27–4.04) between the age of 3 and 11 years had shorter lifespans.

Conclusions and relevance There are significant associations of 9-point body condition scoring with survival and lifespan, and BCSs <5 and of 9 were found to be negatively associated with both. The study yielded information regarding a desirable BCS for cat longevity that veterinarians could consult with.

Accepted: 6 December 2017

Introduction

The World Health Organization defines overweight and obesity (O&O) as 'abnormal or excessive fat accumulation that presents a risk to health'.[1] Similar to humans, O&O have been reported to have positive associations with several health conditions in cats, such as dermatological conditions,[2,3] hypertrophic cardiomyopathy,[4,5] lower urinary tract conditions[6–11] and diabetes mellitus.[2,3,12,13] O&O are also shown to be associated with a shorter lifespan in humans,[14–17] but, to our knowledge, this association in cats from a general population has not been investigated.

Before determining the associations between feline O&O and longevity (and health conditions), it is important to define O&O in cats. Body condition score (BCS) has been the most common method of measuring body composition of cats in veterinary practice and research. Most studies on the frequency of and risk factors for feline O&O determined O&O using body condition scoring. Body condition scoring was originally developed by Jefferies[18] in sheep and has been applied to livestock

[1]Sydney School of Veterinary Science, Faculty of Science, University of Sydney, Sydney, Australia
[2]Charles Perkins Centre and School of Life and Environmental Sciences, Faculty of Science, University of Sydney, Sydney, Australia
[3]The Chatswood Cat Palace and Clinic, Roseville, Australia

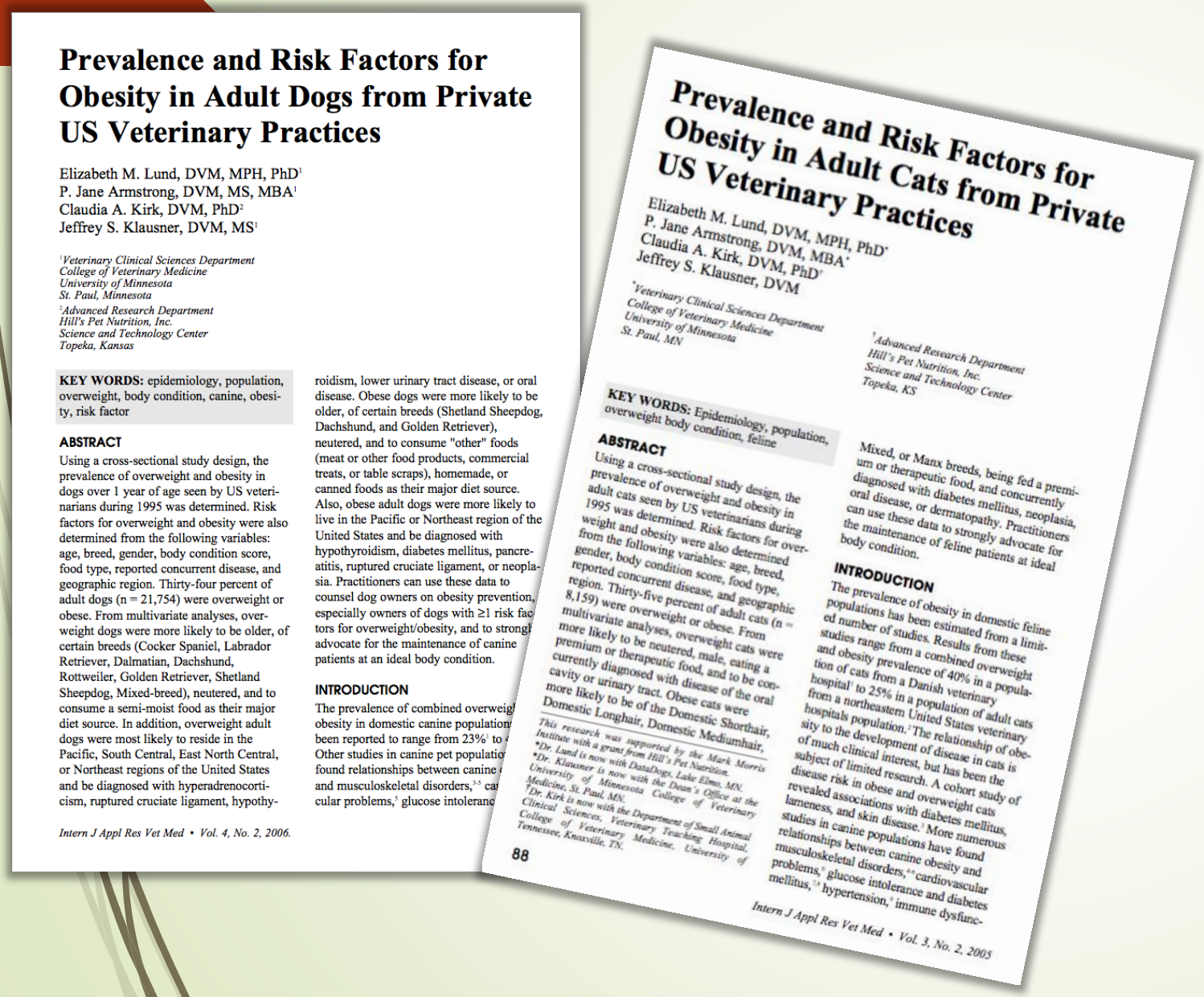
Corresponding author:
Kendy T Teng DVM, Sydney School of Veterinary Science, Faculty of Science, University of Sydney, B01 JD Stewart Building, NSW 2006, Australia
Email: kendy.t.teng@gmail.com

BCS 5-6 longest survival

Lifespan shortest for BCS ≤3

Shorter survival for BCS 9

Disease associations in pets



Prevalence and Risk Factors for Obesity in Adult Dogs from Private US Veterinary Practices

Elizabeth M. Lund, DVM, MPH, PhD[1]
P. Jane Armstrong, DVM, MS, MBA[1]
Claudia A. Kirk, DVM, PhD[2]
Jeffrey S. Klausner, DVM, MS[1]

[1]*Veterinary Clinical Sciences Department*
College of Veterinary Medicine
University of Minnesota
St. Paul, Minnesota
[2]*Advanced Research Department*
Hill's Pet Nutrition, Inc.
Science and Technology Center
Topeka, Kansas

KEY WORDS: epidemiology, population, overweight, body condition, canine, obesity, risk factor

ABSTRACT

Using a cross-sectional study design, the prevalence of overweight and obesity in dogs over 1 year of age seen by US veterinarians during 1995 was determined. Risk factors for overweight and obesity were also determined from the following variables: age, breed, gender, body condition score, food type, reported concurrent disease, and geographic region. Thirty-four percent of adult dogs (n = 21,754) were overweight or obese. From multivariate analyses, overweight dogs were more likely to be older, of certain breeds (Cocker Spaniel, Labrador Retriever, Dalmatian, Dachshund, Rottweiler, Golden Retriever, Shetland Sheepdog, Mixed-breed), neutered, and to consume a semi-moist food as their major diet source. In addition, overweight adult dogs were most likely to reside in the Pacific, South Central, East North Central, or Northeast regions of the United States and be diagnosed with hyperadrenocorticism, ruptured cruciate ligament, hypothyroidism, lower urinary tract disease, or oral disease. Obese dogs were more likely to be older, of certain breeds (Shetland Sheepdog, Dachshund, and Golden Retriever), neutered, and to consume "other" foods (meat or other food products, commercial treats, or table scraps), homemade, or canned foods as their major diet source. Also, obese adult dogs were more likely to live in the Pacific or Northeast region of the United States and be diagnosed with hypothyroidism, diabetes mellitus, pancreatitis, ruptured cruciate ligament, or neoplasia. Practitioners can use these data to counsel dog owners on obesity prevention, especially owners of dogs with ≥1 risk factors for overweight/obesity, and to strongl advocate for the maintenance of canine patients at an ideal body condition.

INTRODUCTION

The prevalence of combined overweig obesity in domestic canine population been reported to range from 23%[1] to Other studies in canine pet populatio found relationships between canine and musculoskeletal disorders,[2-5] ca cular problems,[2] glucose intoleranc

Intern J Appl Res Vet Med • Vol. 4, No. 2, 2006.

Prevalence and Risk Factors for Obesity in Adult Cats from Private US Veterinary Practices

Elizabeth M. Lund, DVM, MPH, PhD*
P. Jane Armstrong, DVM, MBA*
Claudia A. Kirk, DVM, PhD†
Jeffrey S. Klausner, DVM

*Veterinary Clinical Sciences Department
College of Veterinary Medicine
University of Minnesota
St. Paul, MN

†Advanced Research Department
Hill's Pet Nutrition, Inc.
Science and Technology Center
Topeka, KS

KEY WORDS: Epidemiology, population, overweight body condition, feline

ABSTRACT

Using a cross-sectional study design, the prevalence of overweight and obesity in adult cats seen by US veterinarians during 1995 was determined. Risk factors for overweight and obesity were also determined from the following variables: age, breed, gender, body condition score, food type, reported concurrent disease, and geographic region. Thirty-five percent of adult cats (n = 8,159) were overweight or obese. From multivariate analyses, overweight cats were more likely to be neutered, male, eating a premium or therapeutic food, and to be currently diagnosed with disease of the oral cavity or urinary tract. Obese cats were more likely to be of the Domestic Shorthair, Domestic Longhair, Domestic Mediumhair,

This research was supported by the Mark Morris Institute with a grant from Hill's Pet Nutrition.
*Dr. Lund is now with DataDogs, Lake Elmo, MN.
*Dr. Klausner is now with the Dean's Office at the University of Minnesota College of Veterinary Medicine, St. Paul, MN.
†Dr. Kirk is now with the Department of Small Animal Clinical Sciences, Veterinary Teaching Hospital, College of Veterinary Medicine, University of Tennessee, Knoxville, TN.

88

Mixed, or Manx breeds, being fed a premium or therapeutic food, and concurrently diagnosed with diabetes mellitus, neoplasia, oral disease, or dermatopathy. Practitioners can use these data to strongly advocate for the maintenance of feline patients at ideal body condition.

INTRODUCTION

The prevalence of obesity in domestic feline populations has been estimated from a limited number of studies. Results from these studies range from a combined overweight and obesity prevalence of 40% in a population of cats from a Danish veterinary hospital[1] to 25% in a population of adult cats from a northeastern United States veterinary hospitals population.[2] The relationship of obesity to the development of disease in cats is of much clinical interest, but has been the subject of limited research. A cohort study of disease risk in obese and overweight cats revealed associations with diabetes mellitus, lameness, and skin disease.[3] More numerous studies in canine populations have found relationships between canine obesity and musculoskeletal disorders,[4-6] cardiovascular problems,[6] glucose intolerance and diabetes mellitus,[7,8] hypertension,[9] immune dysfunc-

Intern J Appl Res Vet Med • Vol. 3, No. 2, 2005

- Orthopaedic diseases
- Diabetes mellitus
- Pancreatitis
- Cancer – *mammary, TCC*
- Respiratory diseases
- Hypertension
- Urinary tract disorders
- Lipid disorders
- Hepatic lipidosis
- Dermatological disease
- Gastrointestinal disease
- Anaesthetic risk

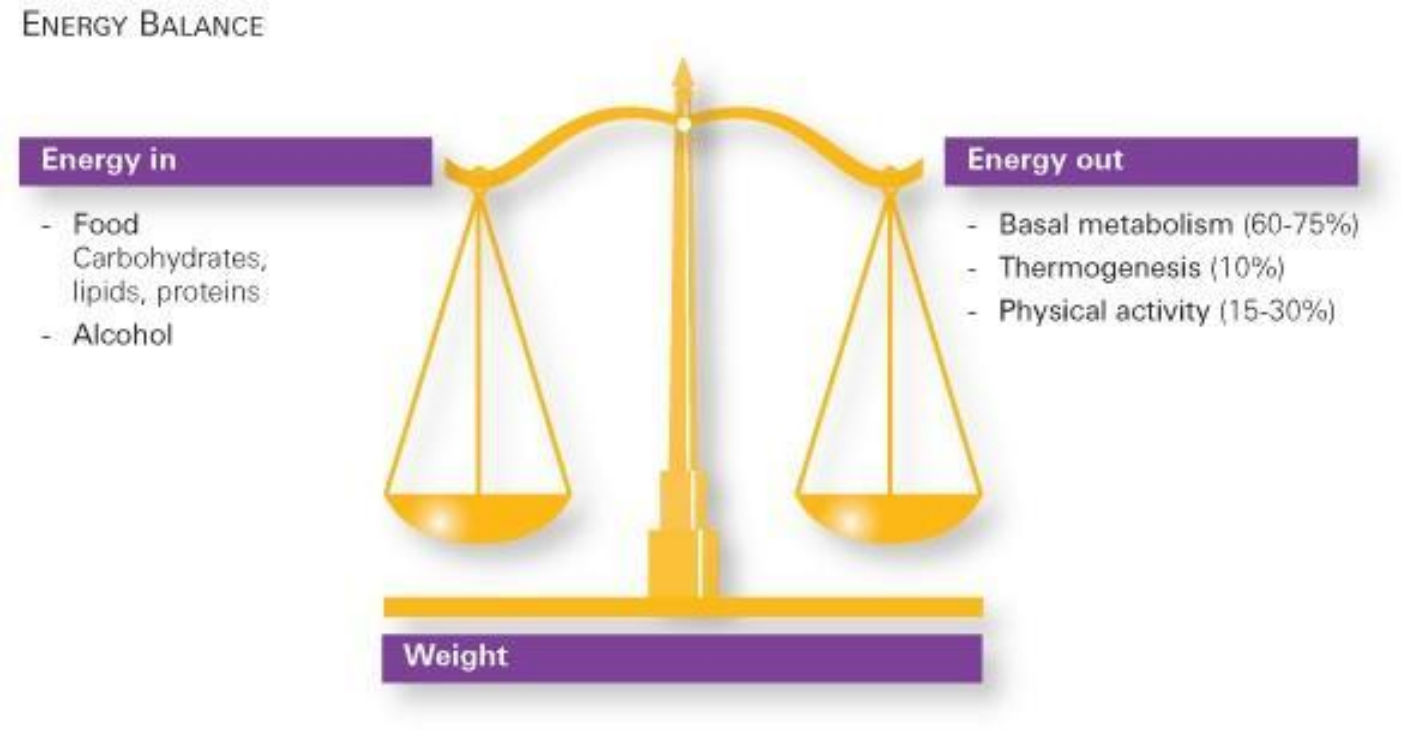




Causes of Pet Obesity

Causes of Pet Obesity

It's simple!





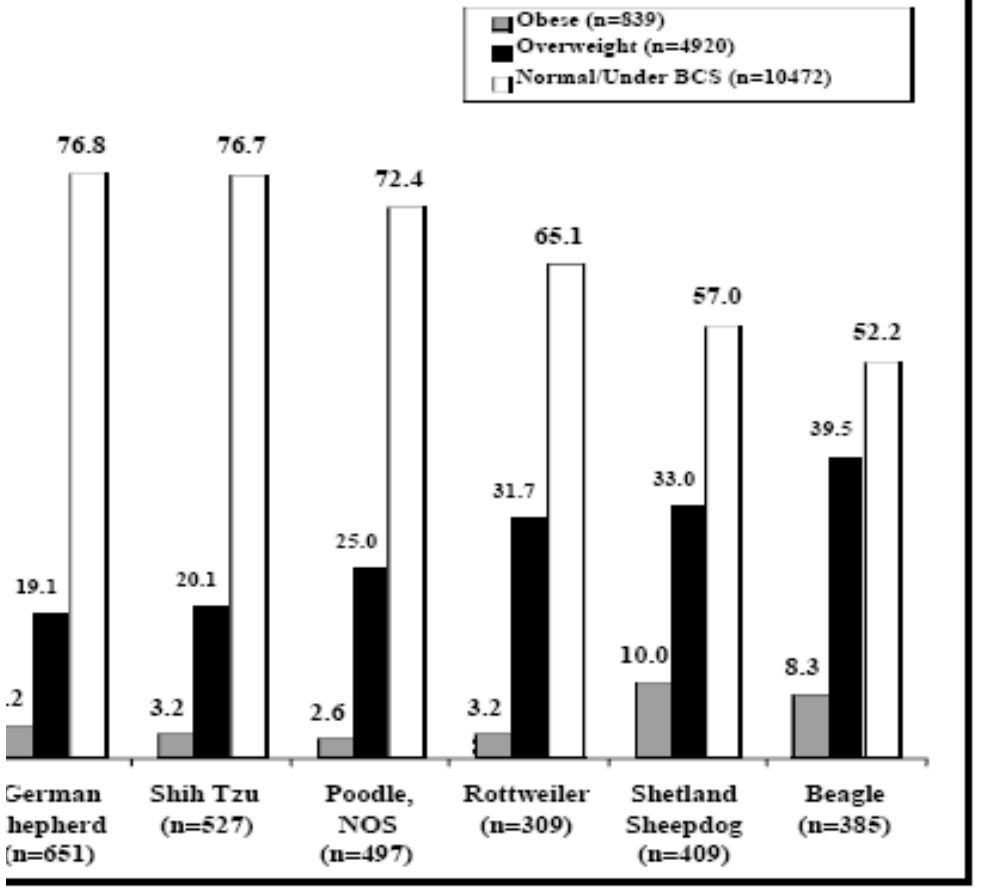
Risk Factors

Breed associations for obesity

Small	Medium	Large	Giant
 Cairn Terrier	 Beagle	 Labrador Retriever	 Bernese Mountain dog
 Dachshund	 Cocker Spaniel	 Collie	 Newfoundland
 Cavalier King Charles	 Basset Hound	 Golden Retriever	 Saint Bernard
 Scottish Terrier		 Rottweiler	

Figure 2: Canine breeds predisposed to obesity (from Edney & Smith, 1986; Lund 2005, 2006)

Figure 3. Prevalence of Obesity and Overweight by Breed for Adult Dogs.

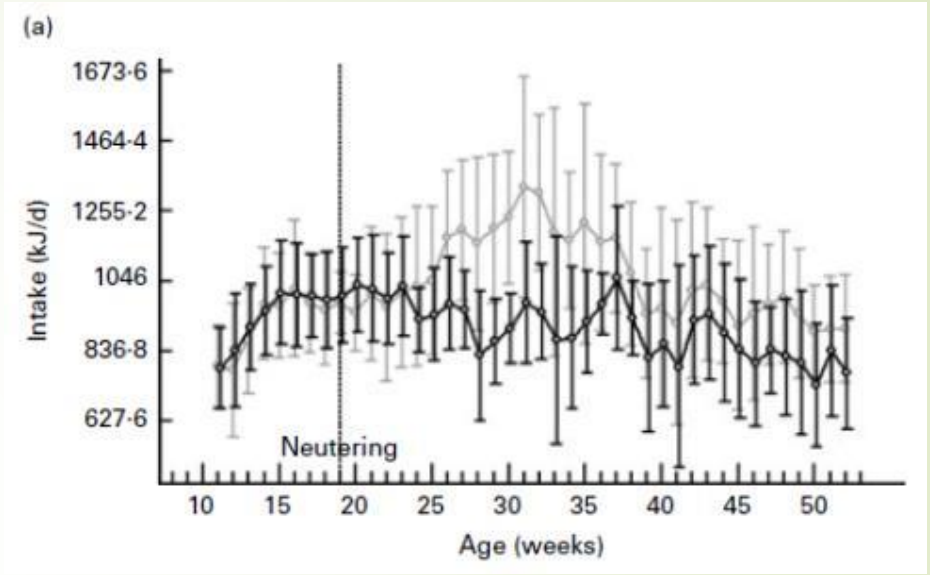


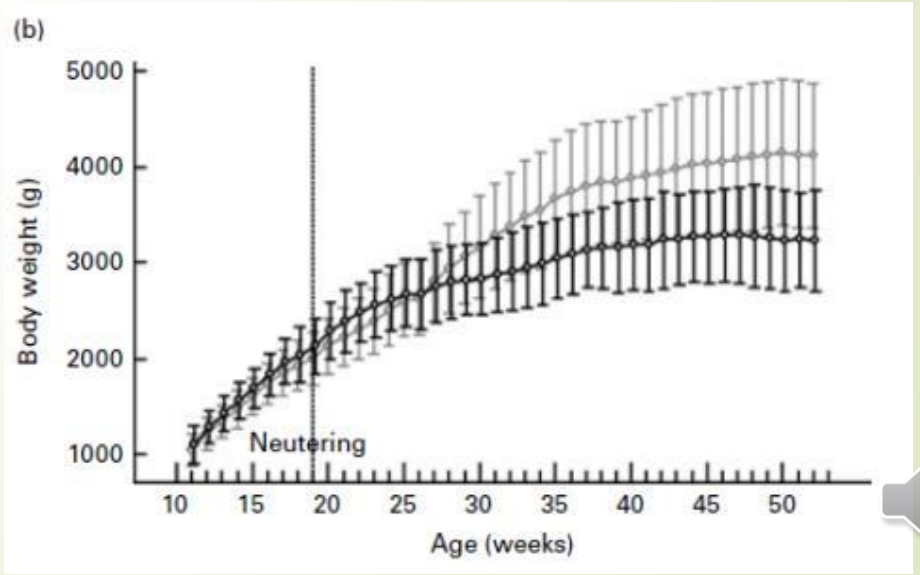
Edney & Smith, 1986; Lund et al. 2005, 2006

Neutering

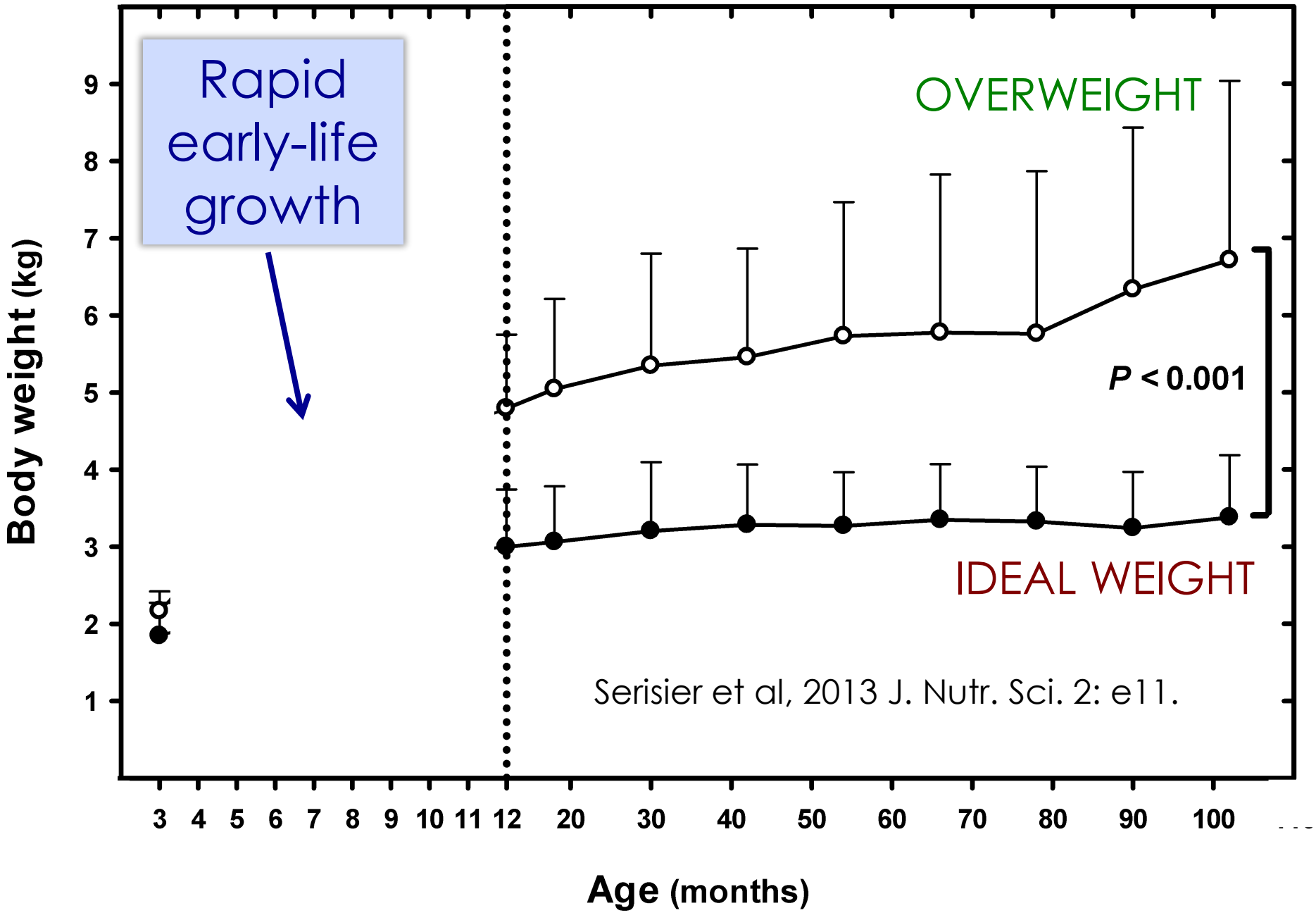
In cats

- increased food/energy intake
- Some evidence of decreased activity
- Increased body weight (adiposity)





- Alexander et al., (2011), Br J Nutr. 106:: S19-S25 and Belsito et al., (2009) J Anim Sci 87: 591-602


Rapid early-life growth
OVERWEIGHT
IDEAL WEIGHT
P < 0.001
Serisier et al, 2013 J. Nutr. Sci. 2: e11.
Body weight (kg)
Age (months)
1
2
3
4
5
6
7
8
9
3
4
5
6
7
8
9
10
11
12
20
30
40
50
60
70
80
90
100

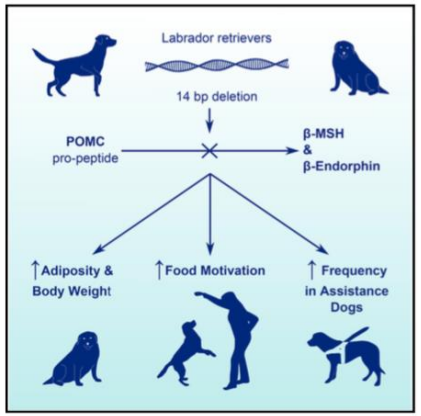
Genetics

Short Article

Cell Metabolism

A Deletion in the Canine *POMC* Gene Is Associated with Weight and Appetite in Obesity-Prone Labrador Retriever Dogs

Graphical Abstract



Authors

Eleanor Raffan, Rowena J. Dennis, Conor J. O'Donovan, ..., Kerstin Lindblad-Toh, Giles S.H. Yeo, Stephen O'Rahilly

Correspondence

er311@cam.ac.uk (E.R.), so104@medschl.cam.ac.uk (S.O.)

In Brief

Companion dogs from the obesity-prone Labrador retriever breed were found to carry a mutation in *POMC* in this study by Raffan et al. The mutation is predicted to disrupt production of the neuroactive peptides β-MSH and β-endorphin and was associated with greater weight, adiposity, and food motivation in affected dogs.

Highlights

- A *POMC* mutation is common in the obesity-prone Labrador retriever breed of dog
- It disrupts β-MSH and β-endorphin production, both implicated in energy homeostasis
- Mutation is absent from other breeds except related flat-coat retrievers
- The mutation is associated with weight, adiposity, and food motivation in both breeds

Raffan et al., 2016, Cell Metabolism 23, 893–900
May 10, 2016 © 2016 The Authors. Published by Elsevier Inc.
http://dx.doi.org/10.1016/j.cmet.2016.04.012

CellPress

Differences in gene expression in visceral adipose tissue of young Beagle dogs is associated with adult obesity

Flanagan, J.[1], Leclerc, L.[2], Leray, V.[2], Nguyen, P.
[1]Royal Canin Research Center, Aimargues, France; [2]LUNAM University, Oniris, Nantes-Atlantic College of Veterinary Medicine and Food Sciences and Engineering, Nutrition, PhysioPathology and Pharmacology Unit, Nantes, France

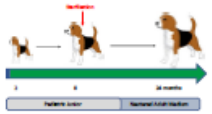
1. Introduction

- **Incidence of pet obesity** has reached epidemic proportions worldwide [1-4]
- **Altered gene expression of adipose tissue** has been proposed as one possible mechanism for excess fat mass deposits in the development of obesity
- An early altered transcription of proteins involved in energy metabolism, insulin sensitivity, lipolysis, lipogenesis, adipogenesis and thermogenesis could be **predictive factors for development of obesity** in later life.

2. Objectives

- To determine whether the transcription of proteins in visceral and subcutaneous adipose tissue in early life is associated with the development of spontaneously-occuring obesity in female Beagle dogs

3. Materials & Methods



Study population: Female Beagle dogs of similar age, housed under identical conditions
Ethical approval: Reviewed & approved by the Royal Canin Committee for Animal Ethics and Welfare & approved by the Animal Use and Care Advisory Committee of Pays de la Loire (France), ref. 00934.01.

Diets and rationing

- Diet provided to meet nutritional requirements by stage of life
- Dogs were fed *ad libitum* individually for 3.5h day, diets supplied by Royal Canin

Sampling, group formation and statistics

- During the sterilization procedure at 8 months of age, subcutaneous and visceral adipose tissue [5] samples were collected.
- mRNA levels of genes involved in lipolysis, lipogenesis, adipogenesis, thermogenesis, glucose uptake and insulin sensitivity were estimated by real time RT-PCR [6].
- At 24 months of age, dogs were allotted *a posteriori* to 2 groups according to their body condition score (BCS): ideal weight (IW, BCS=5 and 6, n = 9) and obese (Obese, BCS=7 and 8, n = 9).
- Relative gene expression levels in the 2 groups were calculated by the 2-DDCt method [6]; results analysed using the Mann Whitney test (JMP 14.0.0).

4. Results

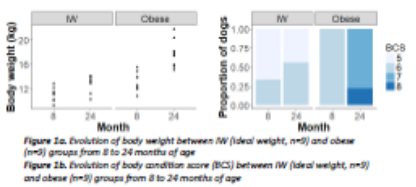


Figure 1a. Evolution of body weight between IW (ideal weight, n=9) and obese (n=9) groups from 8 to 24 months of age
Figure 1b. Evolution of body condition score (BCS) between IW (ideal weight, n=9) and obese (n=9) groups from 8 to 24 months of age

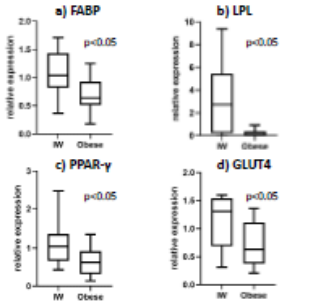


Figure 2. Relative expression of a) Fatty-acid binding protein (FABP), b) Lipoprotein lipase (LPL), c) Peroxisome proliferator-activated receptor gamma (PPARγ) and d) Glucose transporter type 4 (GLUT4) at 8 months of age in visceral adipose tissue of 8-month old dogs that became IW (ideal weight, n=9) or obese (n=9) at 24 months of age

5. Discussion

- Groups created *a posteriori* based on BCS at 24 months
- No significant difference in BCS at 8 months of age was detected, although the obese group were significantly heavier at 8 months (Fig. 1)
- No differences in gene expression in subcutaneous adipose tissue
- In visceral adipose tissue, transcription of 13 of 14 genes down-regulated, 4 of those significantly (Fig. 2)
- A lower expression of PPARg, and its downstream genes (Glut4 and LPL) in visceral adipose tissue in obese and insulin-resistant adult dogs has been previously reported [7].

6. Conclusions

- A difference in gene expression in visceral adipose tissue of young dogs could potentially be linked to their disposition to develop obesity in adulthood when fed *ad libitum*

References:
1. Association for Pet Obesity Prevention, 2018. https://petobesityprevention.org/2018, accessed Aug 2020
2. Courcier et al, 2012. Vet Record, 171, 560
3. Towell et al, 2015. Intern J Appl Res Vet Med, 13, 34
4. Blissitt et al, 2010. J Feline Med Surg, 14, 104
5. Leclerc et al, 2017. BMC Vet Research, 13, 104
6. Leray et al, 2008. JAPAN, 62, 380
7. Goyet et al. 2007. Br J Nutr, 98, 497

ESCVN 2020

Obesogenic Environment









www.nature.com/scientificreports

SCIENTIFIC REPORTS
nature research

Check for updates

OPEN

Prevalence of canine obesity in the city of São Paulo, Brazil

Mariana Yukari Hayasaki Porsani[1], Fabio Alves Teixeira[1], Vinicius Vasques Oliveira[1], Vivian Pedrinelli[1], Ricardo Augusto Dias[1], Alexander James German[2] & Marcio Antonio Brunetto[1]✉

Canine obesity is associated with comorbidities, a shortened lifespan, and a poorer quality of life, but epidemiological studies characterizing canine obesity in Latin America are scarce. Therefore, this study aimed to determine the prevalence of canine obesity in the city of São Paulo, Brazil, and

Risk factor	p value
Neutering	0.001
Sex	0.003
Snacks - owner	0.005
Elderly presence	0.006
Snacks - pet	0.011

Recap of this section



- **Incidence of obesity in dogs** has reached epidemic proportions worldwide *(Association for Pet Obesity Prevention, 2018; German et al 2016, Hayasaki Porsani et al 2020)*
- **Neutered status, sex** and **age** have been implicated in excess weight gain *(Lund et al 2006; Colliard et al 2006, Hayasaki Porsani et al 2020)*
- Impact of **treats** and extras *(German et al 2016, Hayasaki Porsani et al 2020)*
- Obesogenic environment
- Perception of being overweight
- Pet parenting style

PLOS ONE

OPEN ACCESS PEER-REVIEWED

RESEARCH ARTICLE

Permissive parenting of the dog associates with dog overweight in a survey among 2,303 Dutch dog owners

Ineke R. van Herwijnen, Ronald J. Corbee, Nienke Endenburg, Bonne Beerda, Joanne A. M. van der Borg

Published: August 11, 2020 • https://doi.org/10.1371/journal.pone.0237429

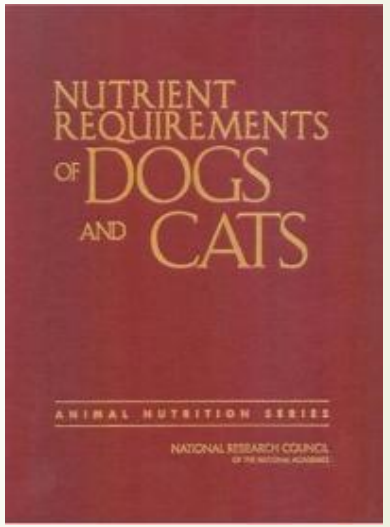
Food composition



Appropriate Feeding Guides

What is the energy requirement of typical pets?

fediaf



AAFCO
Association of American Feed Control Officials, Inc.

What is the energy requirement of typical pets?

- Current NRC (2006) allometric equation 132 kcal/d/kg $^{0.75}$
  - Energy requirement of kennelled dog
- Relevance to pets?
  - 40% of pet dogs are not walked (Christian et al., 2012)
  - Many cats live in an 'Indoor' lifestyles
  - Typical pet is 'Inactive' ~ energy requirement 20-30% lower





Christian et al. (2012). Dog Ownership and Physical Activity: A Review of the Evidence. J Phys Act Health

Food and obesity

- Genetics
- Biology
- Behaviour
- Environment

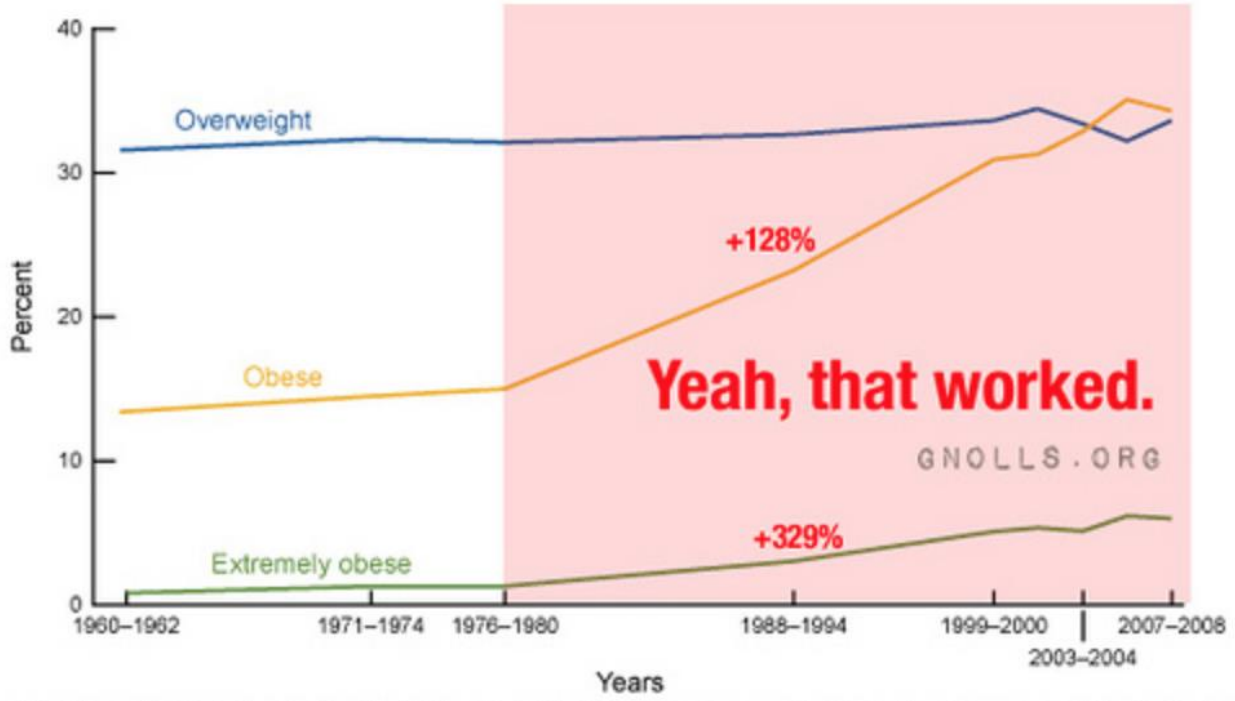
“ (Saturated) fat causes heart disease and obesity ”



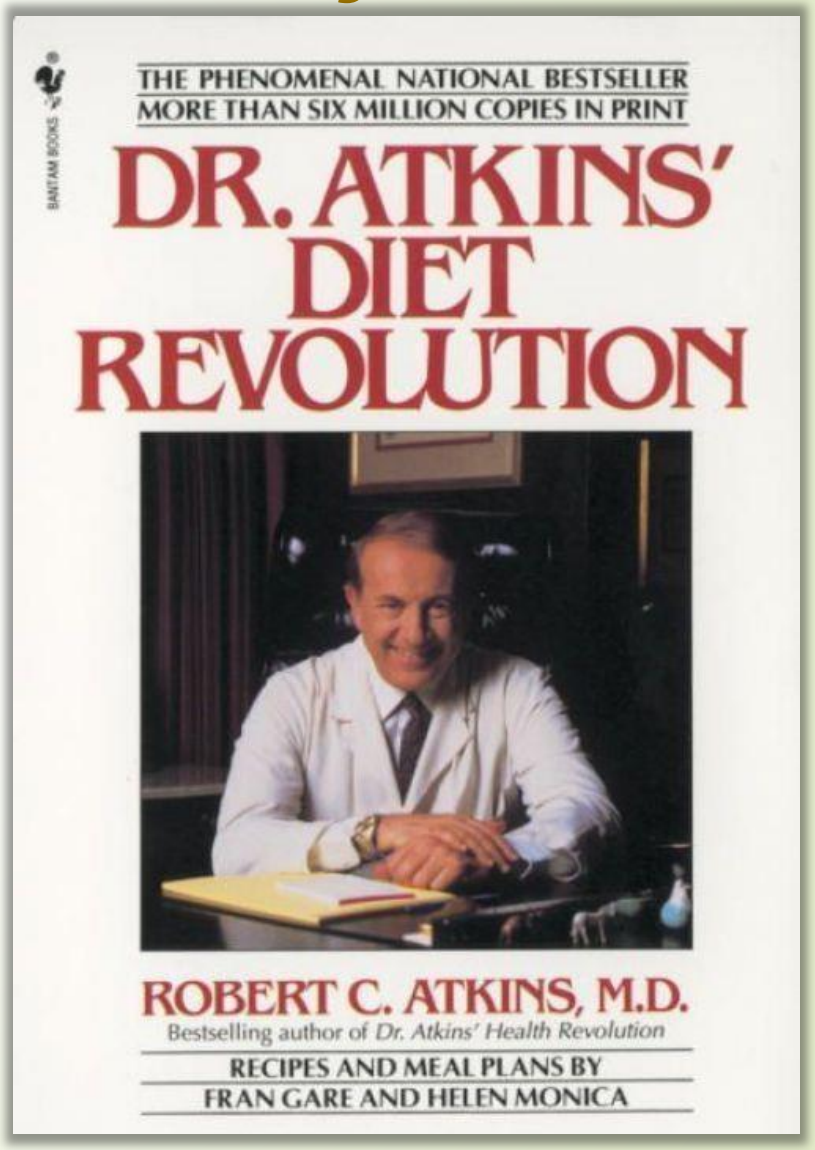
Does reducing fat cure obesity?

In 1977, the US Government issued its first dietary recommendations: "Eat less fat and cholesterol, and more carbohydrates."

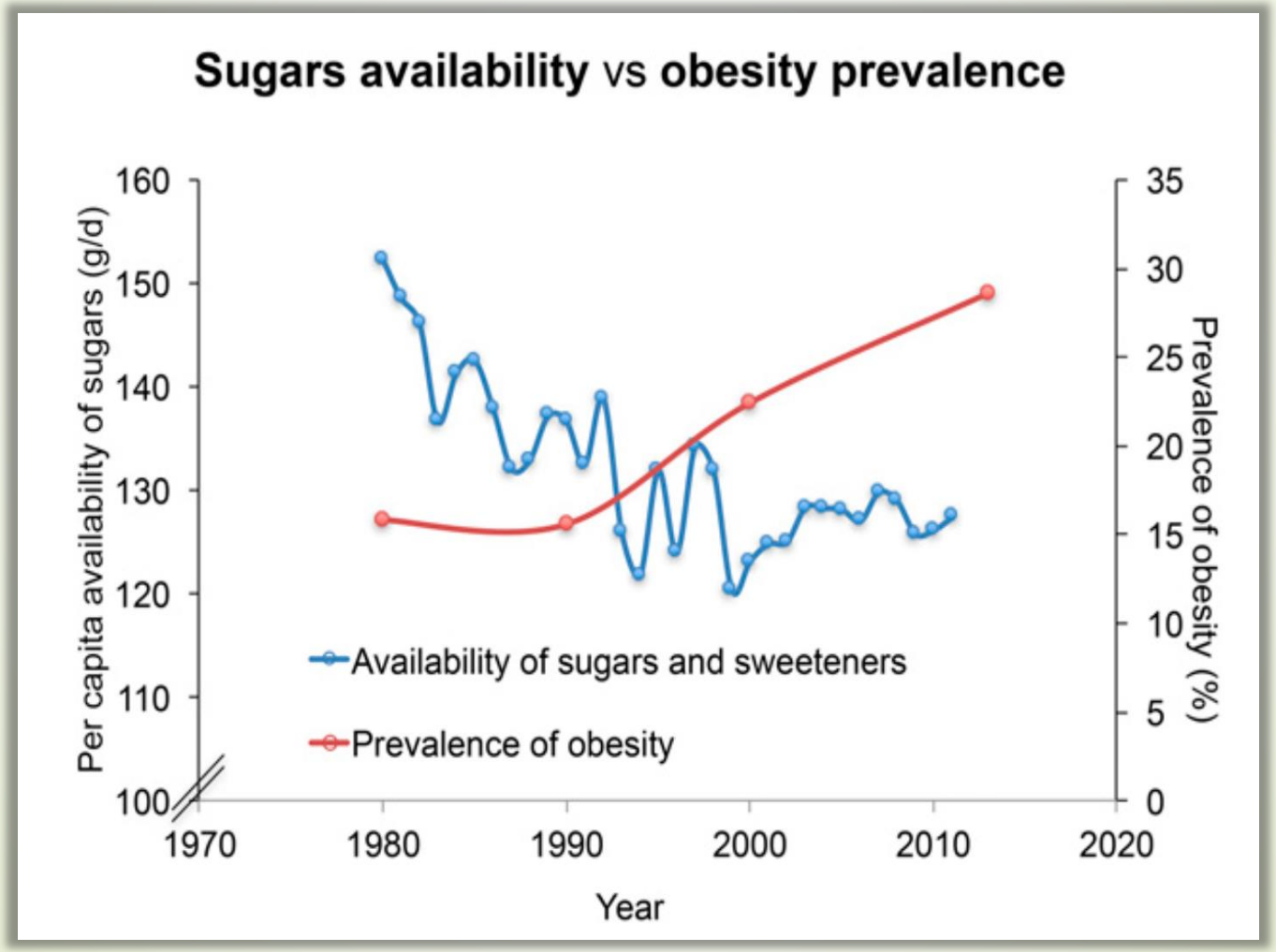
Figure 2. Trends in overweight, obesity, and extreme obesity among adults aged 20–74 years: United States, 1960–2008



NOTE: Age-adjusted by the direct method to the year 2000 U.S. Census Bureau estimates, using the age groups 20–39, 40–59, and 60–74 years. Pregnant females were excluded. Overweight is defined as a body mass index (BMI) of 25 or greater but less than 30; obesity is a BMI greater than or equal to 30; extreme obesity is a BMI greater than or equal to 40.
SOURCE: CDC/NCHS, National Health Examination Survey cycle I (1960–1962); National Health and Nutrition Examination Survey I (1971–1974), II (1976–1980), and III (1988–1994), 1999–2000, 2001–2002, 2003–2004, 2005–2006, and 2007–2008.



Will reducing carbs cure obesity?



Brand-Miller & Barclay 2017

Its not just calories…..

- Complete and balanced
- Nutrient concentration formulated to an ‘appropriate’ energy intake



Industry Response to Obesity



Addressing the global obesity epidemic

- What industry can do to help:
  - **Nutritional** solutions to ease weight loss **challenge**
  - New **dietary concepts** to **capture** the minds
  - Alleviate pet owner **pain-points**
  - **Communicate** on **benefits** of weight loss
  - **Diagnosic** tools to predict obesity **risk**
  - **Preventative measures**



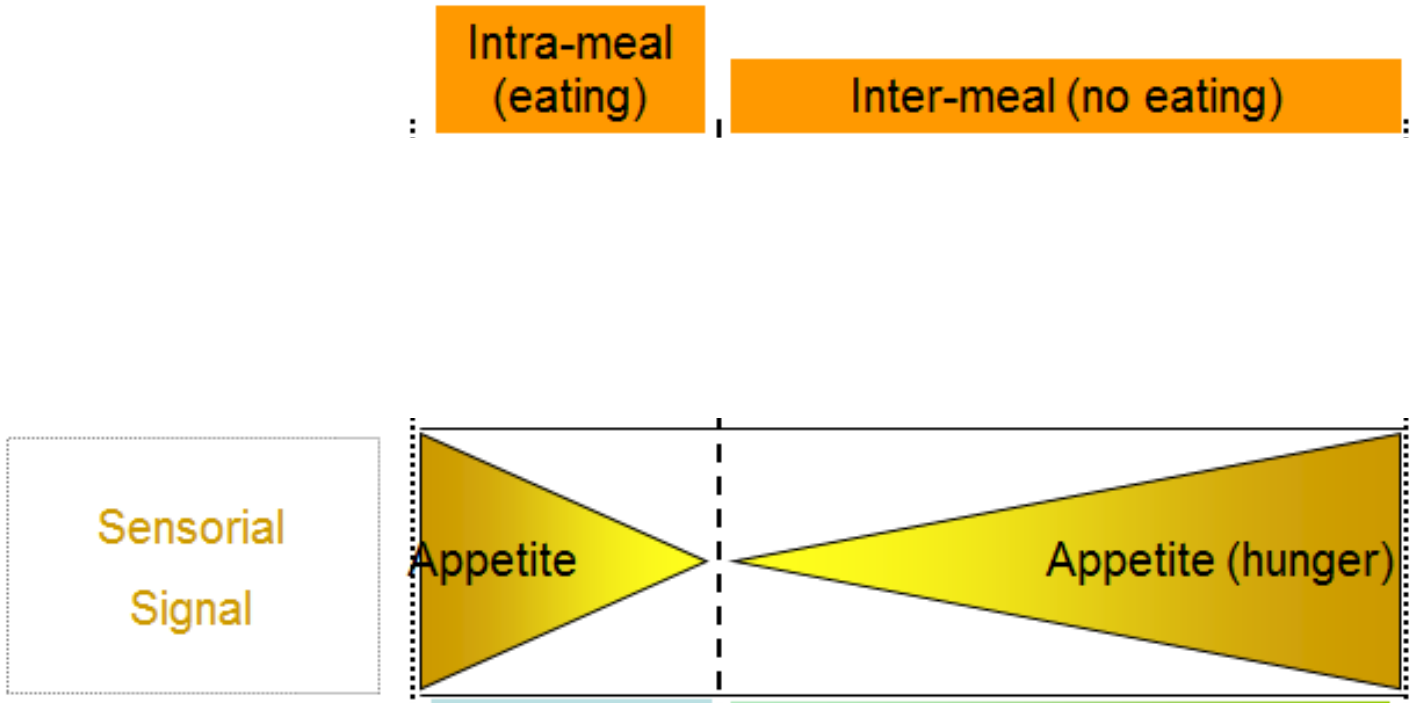
A Responsible Pet Food Industry needs to Promote Responsible Feeding!





- Appropriate feeding guides
- Complete and balanced diets

Satiety – what is it?



- Satiety is the opposite of hunger
- Satiety :
  - is reached when we no longer feel hungry
  - continues until we feel hungry again

CLINIC PRESENTATION

- Liverpool University
- State of the art obesity clinic
- First of its kind in Europe
- Referral Service
- Real-life weight management programmes
- Data collection and research

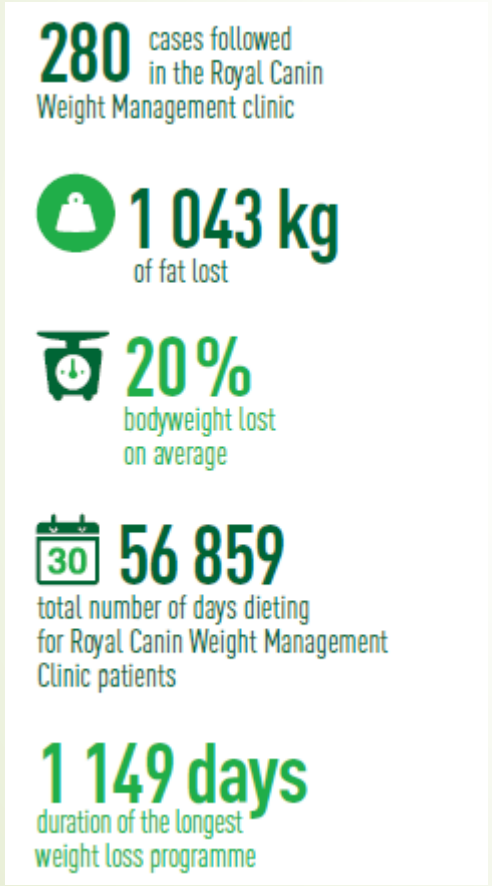


Weight Management Clinic™

In partnership with ROYAL CANIN

KEY NUMBERS

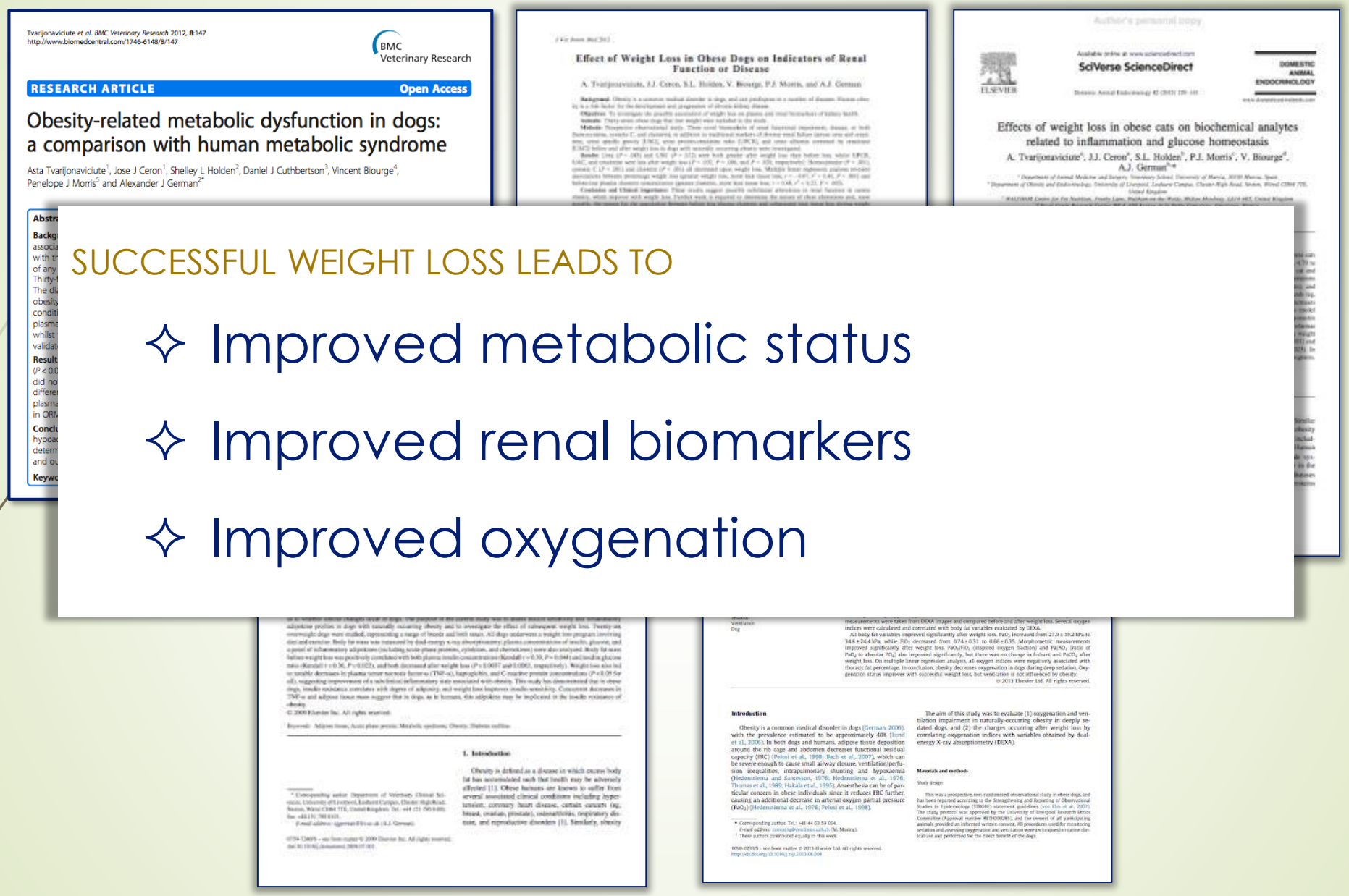
Refine weight management programmes in real life conditions



Increase awareness and scientific knowledge



PETS THAT LOSE WEIGHT FEEL BETTER

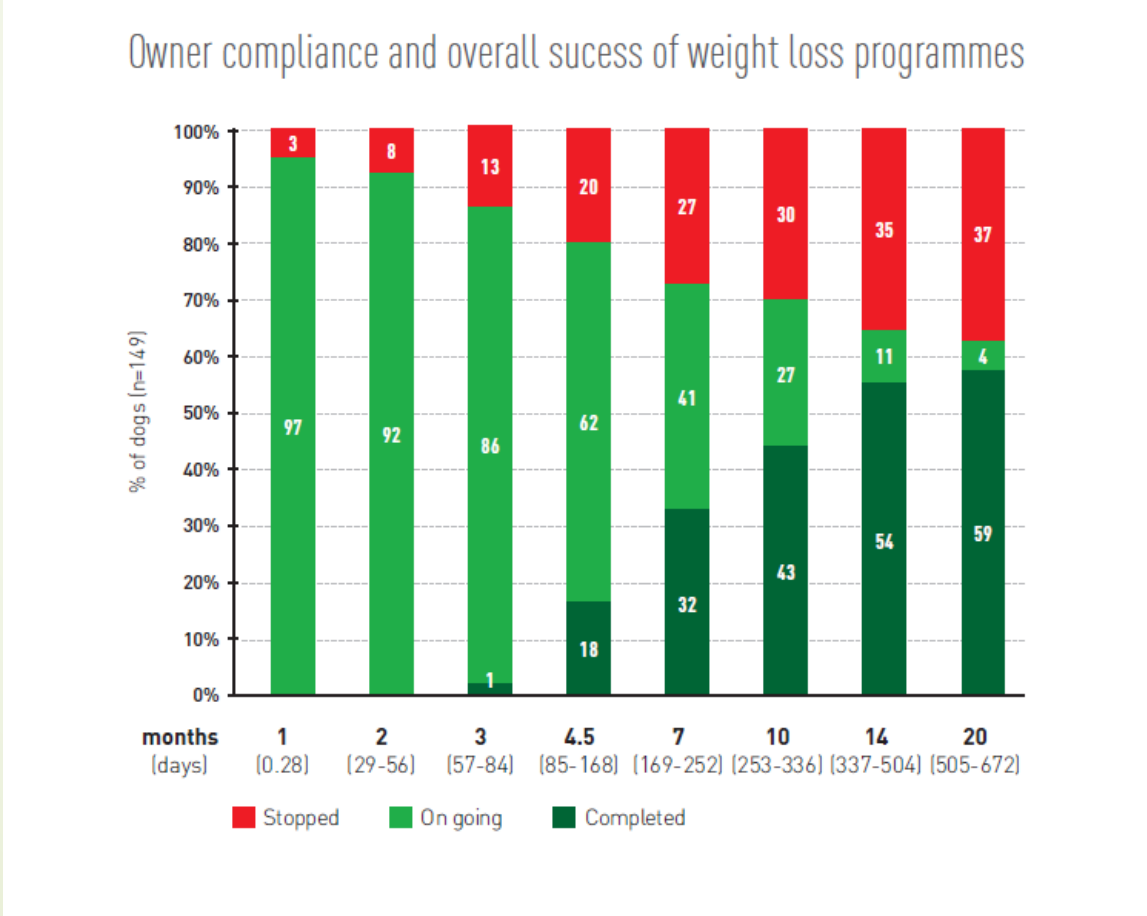


SUCCESSFUL WEIGHT LOSS LEADS TO

- ✧ Improved metabolic status
- ✧ Improved renal biomarkers
- ✧ Improved oxygenation

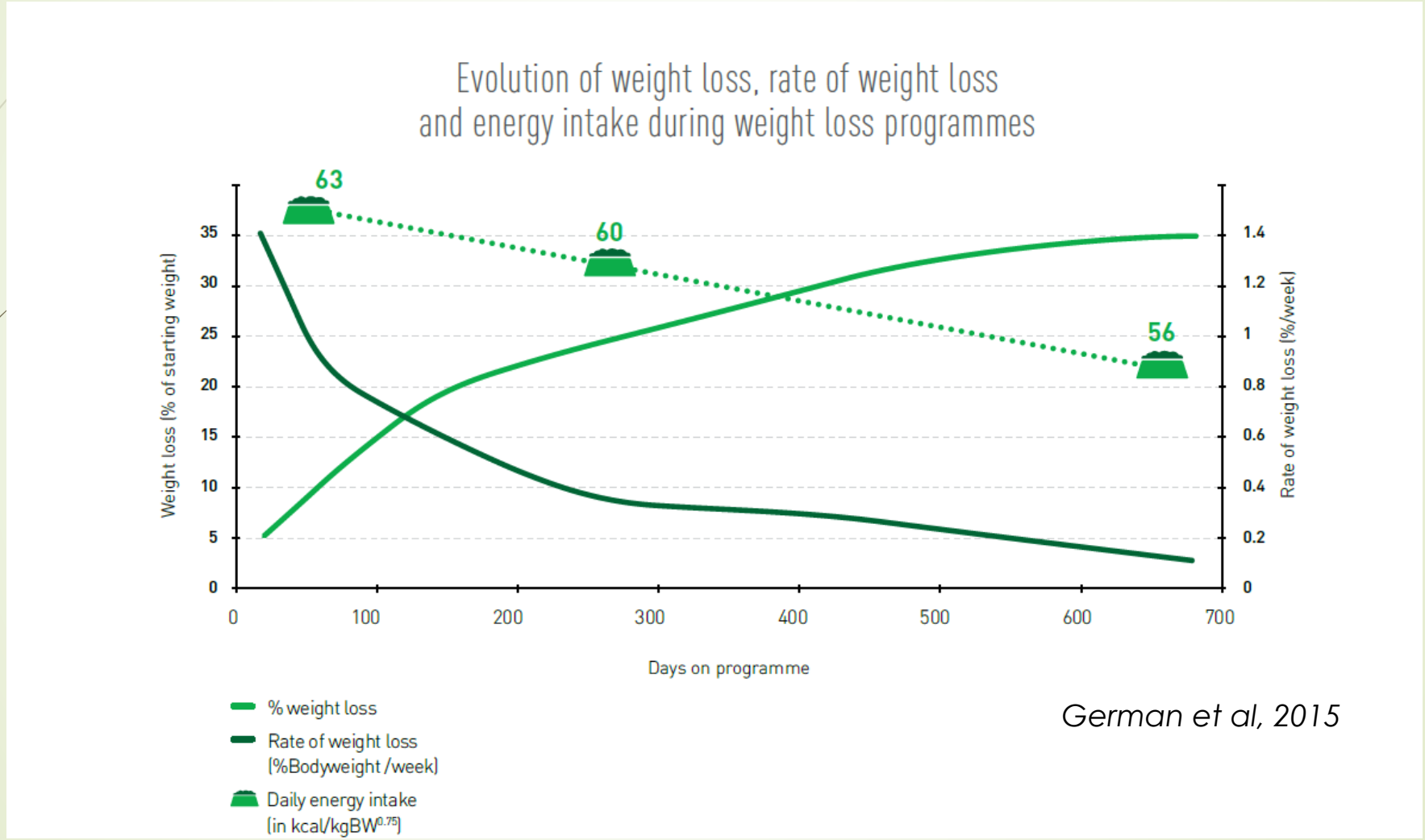
WEIGHT LOSS IS TOUGH…

- Complete success (reaching target weight) ~60%
- Compliance decreases with time
- It takes about 14 months to achieve ideal weight in >50% dogs



Weight Management Clinic™
In partnership with ROYAL CANIN

… And gets tougher as the programme goes on



German et al, 2015

Journal of Veterinary Internal Medicine
Open Access
J Vet Intern Med 2015

Cohort Study of the Success of Controlled Weight Loss Programs for Obese Dogs

A.J. German, J.M. Titcomb, S.L. Holden, Y. Queau, P.J. Morris, and V. Biourge

Background: Most weight loss studies in obese dogs assess rate and percentage of weight loss in the first 2–3 months, rather than the likelihood of successfully reaching target weight.

Objective: To determine outcome of controlled weight loss programs for obese dogs, and to determine the factors associated with successful completion.

Animals: 143 obese dogs undergoing a controlled weight loss program.

Methods: This was a cohort study of obese dogs attending a referral weight management clinic. Dogs were studied during their period of weight loss, and cases classified according to outcome as "completed" (reached target weight), "euthanized" (was euthanized before reaching target weight), or "stopped prematurely" (program stopped early for other reasons). Factors associated with successful completion were assessed using simple and multiple logistic regression.

Results: 87/143 dogs (61%) completed their weight loss program, 11 [8%] died or were euthanized, and the remaining 45 [32%] stopped prematurely. Reasons for dogs stopping prematurely included inability to contact owner, refusal to comply with weight management advice, or development of another illness. Successful weight loss was positively associated with a faster rate ($P < .001$), a longer duration ($P < .001$), and feeding a dried weight management diet ($P = .010$), but negatively associated with starting body fat ($P < .001$), and use of dirlotapide ($P = .0046$).

Conclusions and Clinical Relevance: Just over half of all obese dogs on a controlled weight loss program reach their target weight. Future studies should better clarify reasons for success in individual cases, and also the role of factors such as activity and behavioral modification.

Key words: Caloric restriction; Canine; Outcomes; Overweight.

The medical profession classifies human obesity as a disease,[1] and it is arguably the most important medical disease in dogs.[2] Recent studies have suggested that approximately half of all pet dogs are overweight[3,4] and that the prevalence has been steadily increasing.[5] Obesity is associated with many diseases, including orthopedic disease, diabetes mellitus, respiratory disease, and certain types of neoplasia.[2,3] Dogs that are overweight might also develop metabolic derangements,[6,7] altered renal function,[8] and respiratory dysfunction causing poorer oxygenation.[9] Obese dogs have a reduced quality of life,[10] and a shorter lifespan.[11] Given the large at-risk population, and the effects on health and quality of life, obesity is a major welfare concern. Management usually involves controlled weight loss through energy restriction using a purpose-formulated weight loss diet coupled with increased activity,[12–15] but licensed drug therapies are also available.[16,17]

Abbreviations:

AAFCO	Association of American Feed Control Officials
AF	as fed
BMD	Bernese mountain dog
CKCS	Cavalier King Charles spaniel
CI	confidence intervals
DEXA	dual-energy X-ray absorptiometry
DM	dry matter
EBT	English Bull Terrier
F	female
FCR	Flat coated retriever
FOS	fructo-oligo saccharides
GR	Golden retriever
GSD	German shepherd dog
HPHF	high protein high fiber
HPMF	high protein medium fiber
M	male
ME	metabolizable energy
MER	maintenance energy requirement
NF	neutered female
NM	neutered male
OR	odds ratio
SBT	Staffordshire Bull Terrier
STROBE	Strengthening and reporting of observational studies in epidemiology
TDF	total dietary fiber
YT	Yorkshire Terrier

From the Department of Obesity and Endocrinology, University of Liverpool, Leahurst Campus, Chester High Road, Neston, Wirral CH64 7TE, UK (German, Holden); The School of Veterinary Science, University of Liverpool, Leahurst Campus, Chester High Road, Neston, Wirral CH64 7TE, UK (German, Titcomb); Royal Canin Research Center, B.P.4 – 650 Avenue de la Petite Camargue, 30470 Aimargues, France (Queau, Biourge); WALTHAM Centre for Pet Nutrition, Freeby Lane, Waltham-on-the-Wolds, Melton Mowbray LE14 4RT, UK (Morris).

The study was performed at the Small Animal Teaching Hospital, University of Liverpool, UK. The study was funded by a grant from Mars Petcare (VCR10030).

Corresponding author: Dr A.J. German, Department of Obesity and Endocrinology, University of Liverpool, Leahurst Campus, Chester High Road, Neston CH64 7TE, UK; e-mail: ajgerman@liv.ac.uk.

Submitted March 31, 2015; Revised July 5, 2015; Accepted August 27, 2015.

Copyright © 2015 The Authors. Journal of Veterinary Internal Medicine published by Wiley Periodicals, Inc. on behalf of the American College of Veterinary Internal Medicine.

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited and is not used for commercial purposes.

DOI: 10.1111/jvim.13629

About half of pets with obesity reach *target weight*



The Veterinary Journal 192 (2012) 65–70

Contents lists available at SciencesDirect

The Veterinary Journal

journal homepage: www.elsevier.com/locate/tvjl

Long-term follow-up after weight management in obese dogs: The role of diet in preventing regain

A.J. German [a,*], S.L. Holden [a], P.J. Morris [b], V. Biourge [c]

[a] Department of Obesity and Endocrinology, Institute of Ageing and Chronic Disease, University of Liverpool, Leahurst Campus, Chester High Road, Neston, Wirral CH64 7TE, UK
[b] The WALTHAM Centre for Pet Nutrition, Freeby Lane, Waltham-on-the-Wolds, Melton Mowbray LE14 4RT, UK
[c] Royal Canin Research Center, B.P.4 – 650 Avenue de la Petite Camargue, 30470 Aimargues, France

ARTICLE INFO

Article history:
Accepted 4 April 2011

Keywords:
Obesity
Rebound
Diet
Nutrition
Dog

ABSTRACT

Regain after weight loss is widely reported in humans, but there is little information on this phenomenon in dogs. The current study aim was to determine long-term success of a weight loss regime and those factors linked with regain. Thirty-three obese dogs, that had successfully lost weight, were included, all enrolled between December 2004 and May 2009. After weight loss, dogs were switched to a maintenance regime and follow-up weight checks were performed periodically. A review of cases that had completed their weight programme was held during the summer of 2010 and a follow-up check was subsequently conducted, where dogs were reweighed and information was collected on current feeding practices.

Median duration of follow-up was 640 days (119–1828 days). Fourteen dogs (42%) maintained weight, 3 (9%) lost >5% additional weight, and 16 (48%) gained >5% weight. Dogs fed a purpose-formulated weight loss diet regained less weight than those switched onto a standard maintenance diet ($P = 0.0016$). Energy intake at the time of follow-up was significantly higher in those dogs fed a standard maintenance diet, compared with those that had remained on a purpose-formulated weight loss diet ($P = 0.017$). These results suggest that weight regain occurs in about half of dogs after successful weight loss. Long-term use of a purpose-formulated weight management diet can significantly limit regain in the follow-up period, likely by limiting food intake.

© 2011 Elsevier Ltd. All rights reserved.

Introduction

Canine obesity is a common medical disorder and a known a risk factor for associated diseases such as osteoarthritis, diabetes mellitus, cruciate ligament disease and pancreatitis (German, 2006; Lund et al., 2006). Weight loss can be achieved by reducing energy intake, either using dietary management or drug therapy, in conjunction with increasing energy expenditure through increased activity (German et al., 2007; Gossellin et al., 2007). Although previous studies have demonstrated the success of weight management strategies (Gossellin et al., 2007; German et al., 2007, 2010), data are more limited on long-term outcome.

In humans, long-term success of weight management strategies is disappointing; one meta-analysis revealed that 29–64% of participants on diet-based weight loss strategies regained more weight than they had originally lost (Mann et al., 2007). Whilst the reasons for this 'regain' are still unclear, the most likely explanation is that, when obese humans are returned to a lean state, their resting metabolic rate is lower (Astrup et al., 1999). Experimental studies in dogs have demonstrated a similar tendency for weight regain (Laflamme and Kuhlman, 1995; Gossellin et al., 2007; Nagaoka et al., 2010), with maintenance energy requirements (MER) decreasing significantly after weight loss (Laflamme and Kuhlman, 1995; Gossellin et al., 2007; Nagaoka et al., 2010; German et al., in press). For instance, a recent study has demonstrated that obese pet dogs, that maintain target weight after successful loss, have an average daily metabolisable energy intake of 285 kJ (68 kcal)/$kg^{0.75}$/day (German et al., 2011), and this is much lower than current MER recommendation for inactive adult pet dogs (398–440 kJ [95–105 kcal]/$kg^{0.75}$/day) (NRC, 2006).

No data exist on factors associated with regain in dogs. Therefore, the aims of the current study were twofold. First, we wished to report long-term follow-up data in obese pet dogs that had successfully lost weight and reached their target. Second, we wished to determine the frequency of weight regain after successful weight loss and to determine any associated factors.

Materials and methods

Animals

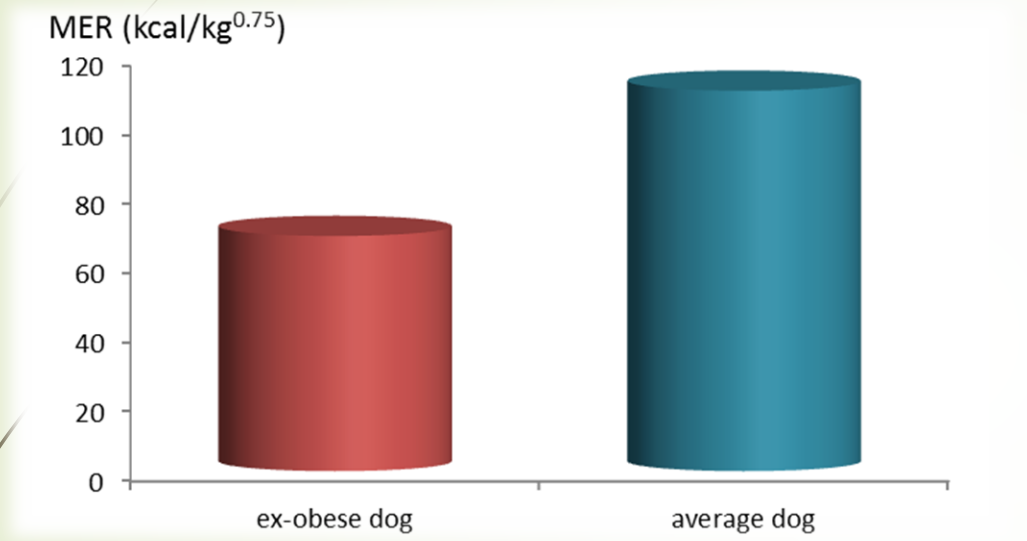
Thirty-three dogs participated in the study. All had been referred to the Royal Canin Weight Management Clinic (University of Liverpool) for investigation and management of obesity or obesity-related disorders between December 2004 and

* Corresponding author. Tel.: +44 151 795 6100.
E-mail address: ajgerman@liv.ac.uk (A.J. German).

1090-0233/$ - see front matter © 2011 Elsevier Ltd. All rights reserved.
doi:10.1016/j.tvjl.2011.04.001

…and about half of the successful ones then regain weight

The job is not done when reaching target weight…







Rebound
18%
Weight loss diet

vs

Rebound
81%
Maintenance diet

Weight loss programmes should be tailored

- Target weight should take into account **age** and **concurrent disease** of the pet

- Even a **small weight loss (> 6%)** weight loss is beneficial for mobility and quality of life *(Marshall, 2010)*



DIETARY MANAGEMENT

Key benefits of an effective weight loss diet

1. Promoting **satiety** with no compromise on **palatability**
2. Inducing safe and successful **weight loss**
3. Maintaining **lean body mass**
4. **Stabilising bodyweight** after weight loss

Adapted rationing

Target body weight of dog	start	after 4 weeks*
	grams	grams
2kg	44	38
3kg	60	51
4kg	74	64
5kg	88	75
6kg	101	86
7kg	113	97
8kg	125	107
9kg	136	117
10kg	148	126

**If the dog did not lose weight*

Insights

- Weight loss is much more **difficult to achieve** in client-owned dogs *(German et al 2010; German et al 2007)* than in experimental conditions. *(Floerchinger et al 2015; Diez et al 2002)*
- Owners struggle to **comply** with program *(German et al 2015)*
- Concerns of changing **behavior** during restriction *(German et al 2015)*
- Impact of **treats** and extras *(German et al 2016)*
- Role of other factors in **weight loss** is unclear



Weight loss program is only part of the story




www.bajiroo.com



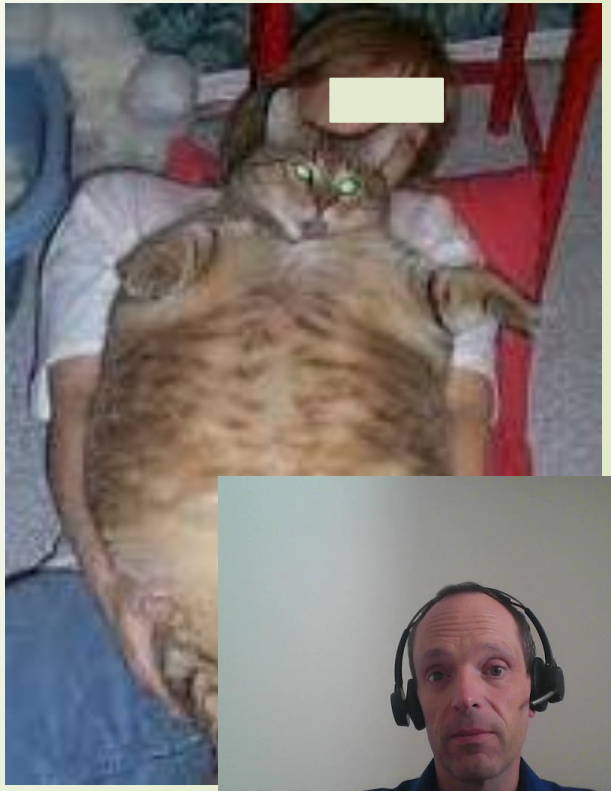

Posted on > www.bajiroo.com











PERCEPTION: Reinforcing awareness of healthy body condition

Downloaded from http://veterinaryrecord.bmj.com/ on July 13, 2015 - Published by group.bmj.com

Paper

Best in show but not best shape: a photographic assessment of show dog body condition

Z. R. Such, A. J. German







Big words: framing conversations on obesity



UNIVERSITY OF LIVERPOOL

Weight Management Clinic
In partnership with ROYAL CANIN

Alex
University of L



frontiers in Veterinary Science

ORIGINAL RESEARCH
published: 31 July 2017
doi: 10.3389/fvets.2017.00117

Feline Obesity in Veterinary Medicine: Insights from a Thematic Analysis of Communication in Practice

Alexandra M. Phillips[1], Jason B. Coe[2], Melanie J. Rock[3] and Cindy L. Adams[4]*

[1] University of Calgary, Calgary, AB, Canada, [2] Department of Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada, [3] Department of Community Health Science, University of Calgary, Calgary, AB, Canada, [4] Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada

Feline obesity has become a common disease and important animal welfare issue. Little is known about how, or how often, veterinarians and feline-owning clients are addressing obesity during clinical appointments. The purpose of this qualitative study was to characterize verbal and non-verbal communication between veterinarians and clients regarding feline obesity. The sample consisted of video-recordings of 17 veterinarians during 284 actual appointments in companion animal patients in Eastern Ontario. This audio-visual dataset served to identify 123 feline appointments. Of these, only 25 appointments were identified in which 12 veterinarians and their clients spoke about feline obesity. Thematic analysis of the videos and transcripts revealed inconsistencies in the depth of address of feline obesity and its prevention by participating veterinarians. In particular, in-depth nutritional history taking and clear recommendations of management rarely took place. Veterinarians appeared to attempt to strengthen the veterinary–client relationship and cope with ambiguity in their role managing obesity with humor and by speaking directly to their animal patients. Clients also appeared to use humor to deal with discomfort surrounding the topic. Our findings have implications for communication skills training within veterinary curricula and professional development among practicing veterinarians. As obesity is complex and potentially sensitive subject matter, we suggest a need for veterinarians to have further intentionality and training toward in-depth nutritional history gathering and information sharing while navigating obesity management discussions to more completely address client perspective and patient needs.

Keywords: feline obesity, communication, thematic analysis, qualitative analysis, diet and nutrition

OPEN ACCESS

Edited by:
Lynette Arnason Hart, University of California, Davis, United States

Reviewed by:
Brennon Wood, Massey University, New Zealand
Meghan Bruce, Royal Veterinary College, United Kingdom

****Correspondence:***
Alexandra M. Phillips
aphilli@ucalgary.ca

Specialty section:
This article was submitted to Veterinary Humanities and Social Sciences, a section of the journal Frontiers in Veterinary Science

Received: *12 May 2017*
Accepted: *07 July 2017*
Published: *31 July 2017*

Citation:
Phillips AM, Coe JB, Rock MJ and Adams CL (2017) Feline Obesity in Veterinary Medicine: Insights from a Thematic Analysis of Communication in Practice. Front. Vet. Sci. 4:117. doi: 10.3389/fvets.2017.00117

INTRODUCTION

Obesity affects approximately 11.5–63% of the canine and feline population in industrialized nations (1–7). Obesity is both a medical issue and an animal welfare concern that can cause or expedite a multitude of health problems in dogs and cats (8). Potential sequelae in dogs and cats include diabetes mellitus, osteoarthritis, cardiovascular changes, and decreased lifespan (9). In North America, obesity rates of pets mirror those of the human population (10). Obesity is considered difficult to discuss, and human physicians often struggle to find consistent and clear recommendations around management (11). In a study examining western media, Degeling and Rock (12) report that companion animal obesity and diet are complex and sensitive issues. Companion animal obesity could be addressed with specific skills that effectively facilitate a discussion regarding weight loss and diet with intentionality and targeted approach toward clear and sensitive discussions around obesity

Key observations

- *'Communicative misalignment'*
- *Oblique / absent messaging*
- *Absent recommendation*



Communicating about obesity

1. Why don't we talk about obesity?
2. The difficult first consultation
3. Gathering information
4. Setting realistic goals





Trick the owner into starting the conversation

Pet health check

- Eyes ☑
- Ears ☑
- Nose ☑
- Mouth ☑
- Heart ☑
- Body condition ☒
- Legs
- Skin…



Journal of Consulting and Clinical Psychology
1983, Vol. 51, No. 3, 390-395

Copyright 1983 by the
American Psychological Association, Inc.

Stages and Processes of Self-Change of Smoking: Toward An Integrative Model of Change

James O. Prochaska
University of Rhode Island

Carlo C. DiClemente
Texas Research Institute of Mental Sciences

An integrative model of change was applied to the study of 872 subjects changing their smoking habits on their own. The subjects represented the following five stages of change: precontemplation, contemplation, action, maintenance, and relapse. Ten processes of change were expected to receive differential emphases during particular stages of change. Results indicate that self-changers: (a) use the fewest processes of change during precontemplation; (b) emphasize consciousness raising during the contemplation stage; (c) emphasize self-reevaluation in both contemplation and action stages; (d) emphasize self-liberation, a helping relationship, and reinforcement management during the action stage; and (e) use counterconditioning and stimulus control the most in both action and maintenance stages. Relapsers were found to respond like a combination of contemplaters and people in action. Results are discussed in terms of developing a model of self-change of smoking and enhancing a more integrative general model of change.

Formalized treatment programs for smoking fail with a majority of smokers (Hunt, Barnett, & Branch, 1971). Nevertheless, 30 million Americans quit smoking in the past decade, with 70% to 80% quitting on their own (Adult Use of Tobacco, 1975). Furthermore, 70% of smokers surveyed indicated that if they were to quit, they would not attend a formal treatment program (McAlister, 1975). In spite of the preponderance of and preference for self-change approaches, research on smoking cessation has focused primarily on formalized treatments. The present study reports on the change processes that were emphasized by 872 self-changers representing five different stages of quitting smoking.

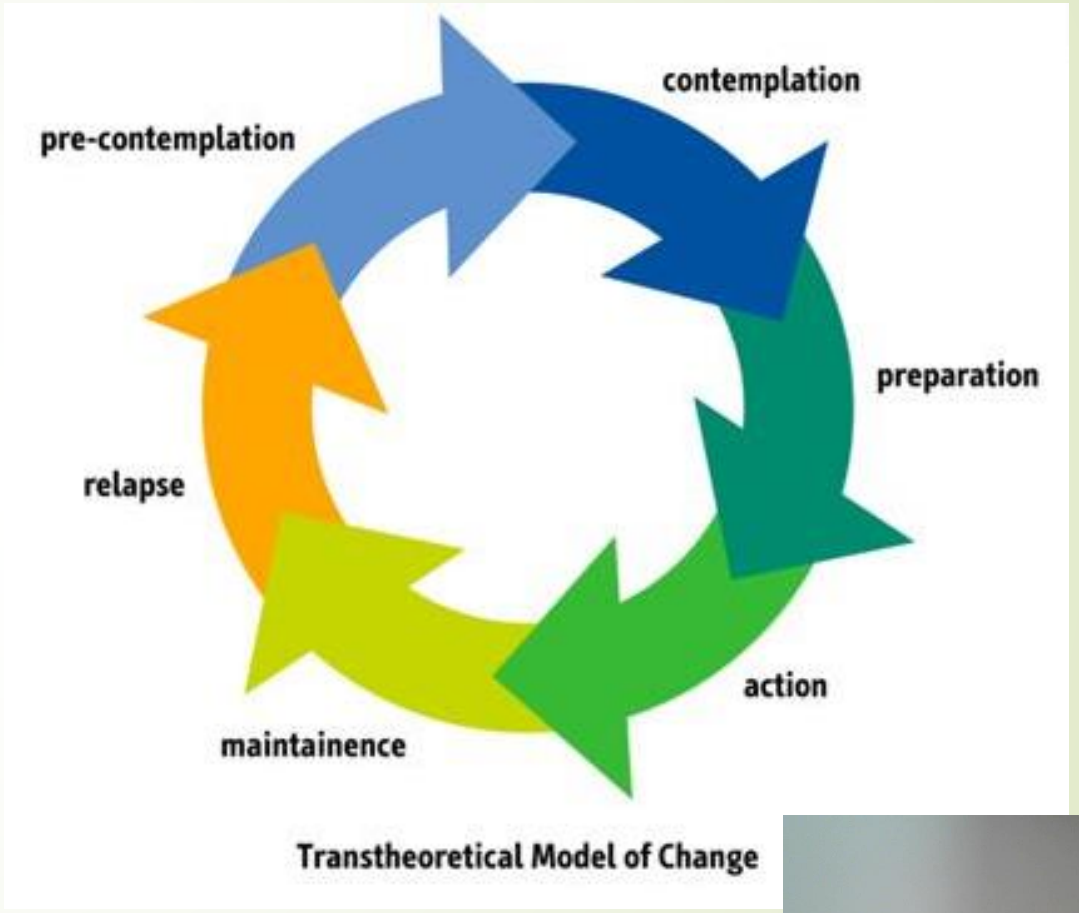
In one of the few studies on self-change, self-changers did not differ from individuals in formalized treatments on smoking habits, locus of control, and measures of the Jackson Personality Inventory (Pederson & Lefcoe, 1976). DiClemente and Prochaska (1982) also found that self-changers did not differ from subjects in two types of therapy programs in terms of smoking history variables, including history of previous attempts to quit smoking. DiClemente and Prochaska (1982) found that self-changers did differ from therapy changers in terms of the processes of change that were emphasized in recent attempts to quit smoking. More importantly, both self-changers and therapy changers reported retrospectively that they had used affective and cognitive processes more during early stages of change and emphasized behavioral processes during later stages.

Perri, Richards, and Schulteis (1977) completed retrospective interviews with 24 successful and 24 unsuccessful college students who had made attempts to quit smoking on their own. The successful self-changers reported using self-reinforcement procedures significantly more than the relapsers. Although encouraging, this study was limited by focusing on just two stages and four processes of change. Baer, Foreyt, and Wright (1977) analyzed letters describing the quitting experiences of 51 self-changers who had maintained nonsmoking for at least 2 years. While most of the self changers used multiple techniques, the investigators were not able to discover any systematic clustering of their quitting methods.

Research to date on self-change approaches to smoking cessation has been limited by inadequate models of change and retrospective methodologies. The present re-

This work was supported by Grant CA 27821 from the National Cancer Institute.

Requests for reprints should be sent to James O. Prochaska, Department of Psychology, University of Rhode Island, Kingston, Rhode Island 02881.

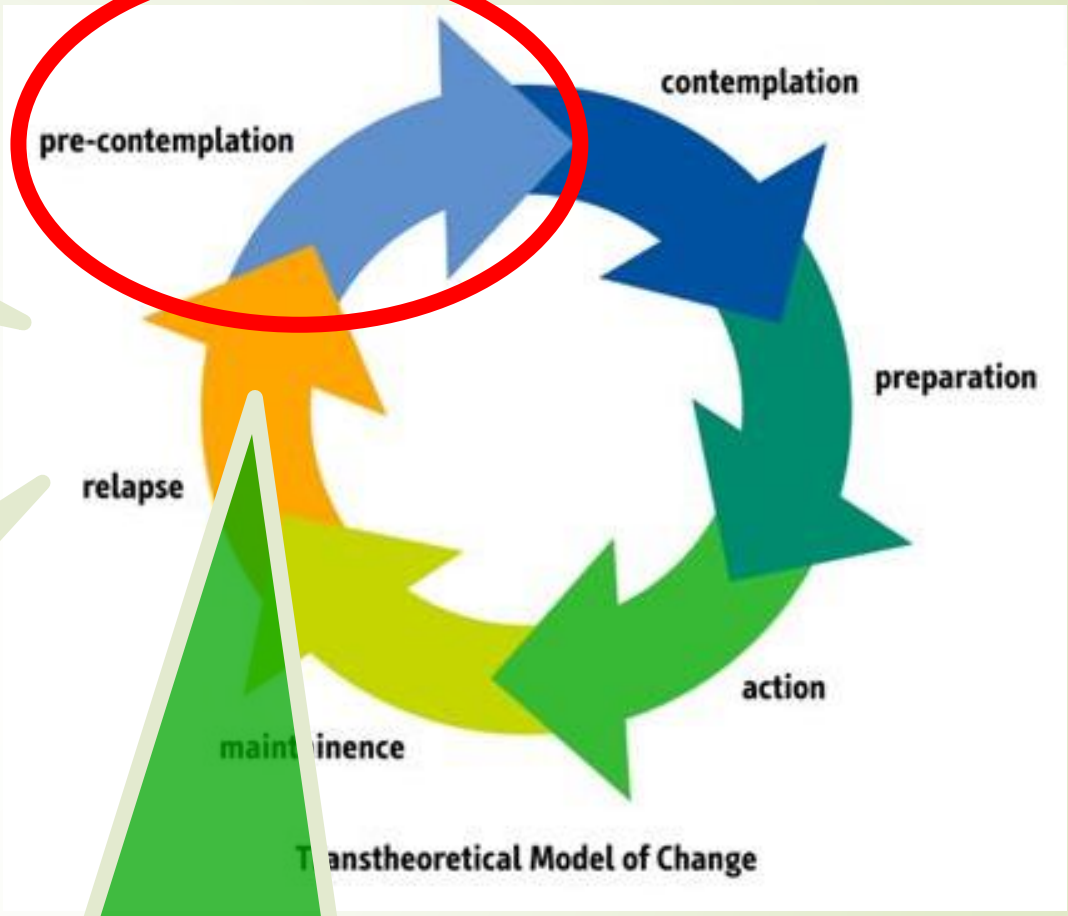




Tigger is meant to be big…

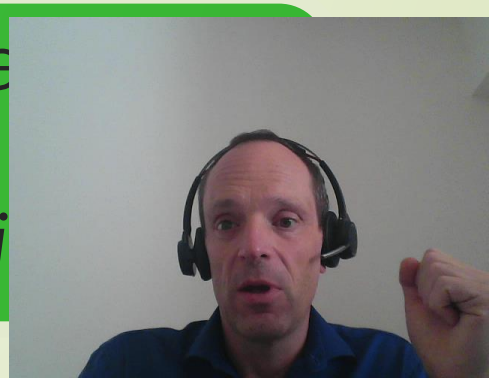
…he's a Main Coone!

1. *Ask permission*
2. *Leave door open*



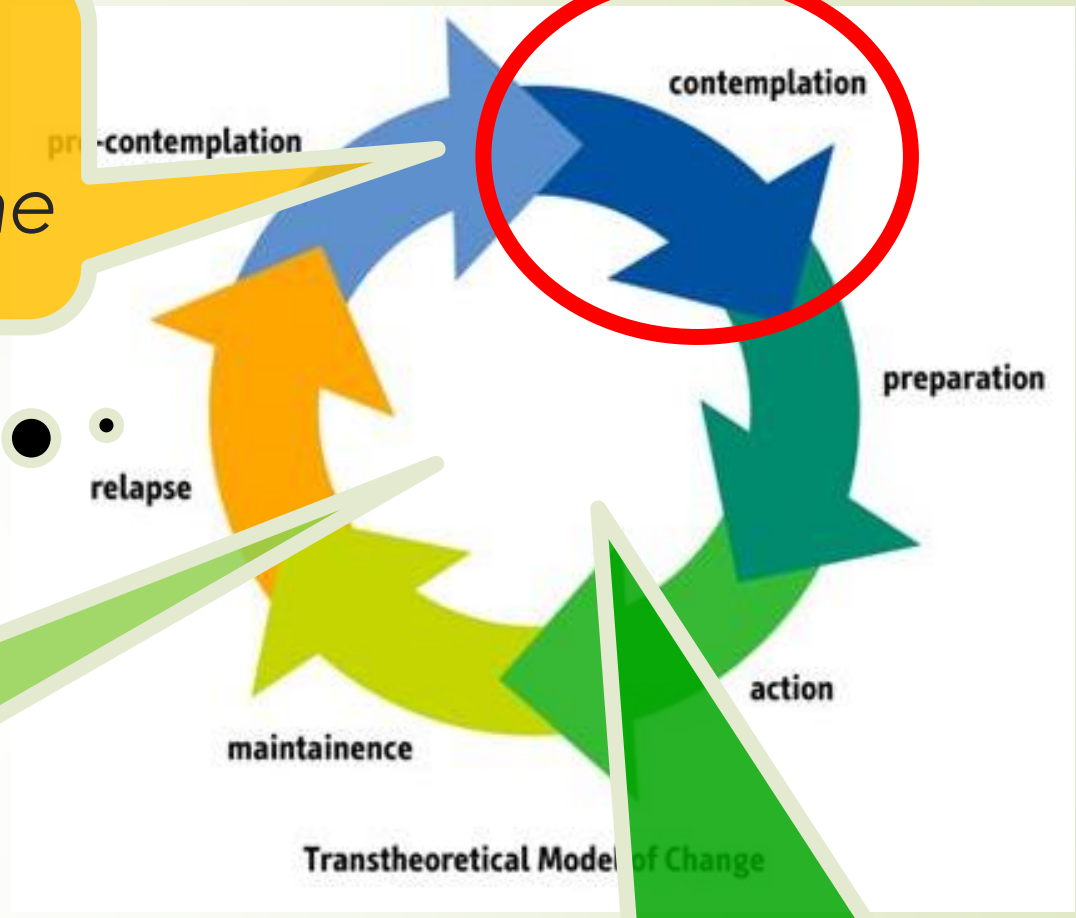
Would you be open to chatting about Tigger's weight?

How about we che again in a month what's happeni



I know we need to do something about his weight… it's finding the time

1. *Empathise*
2. *Make small steps*



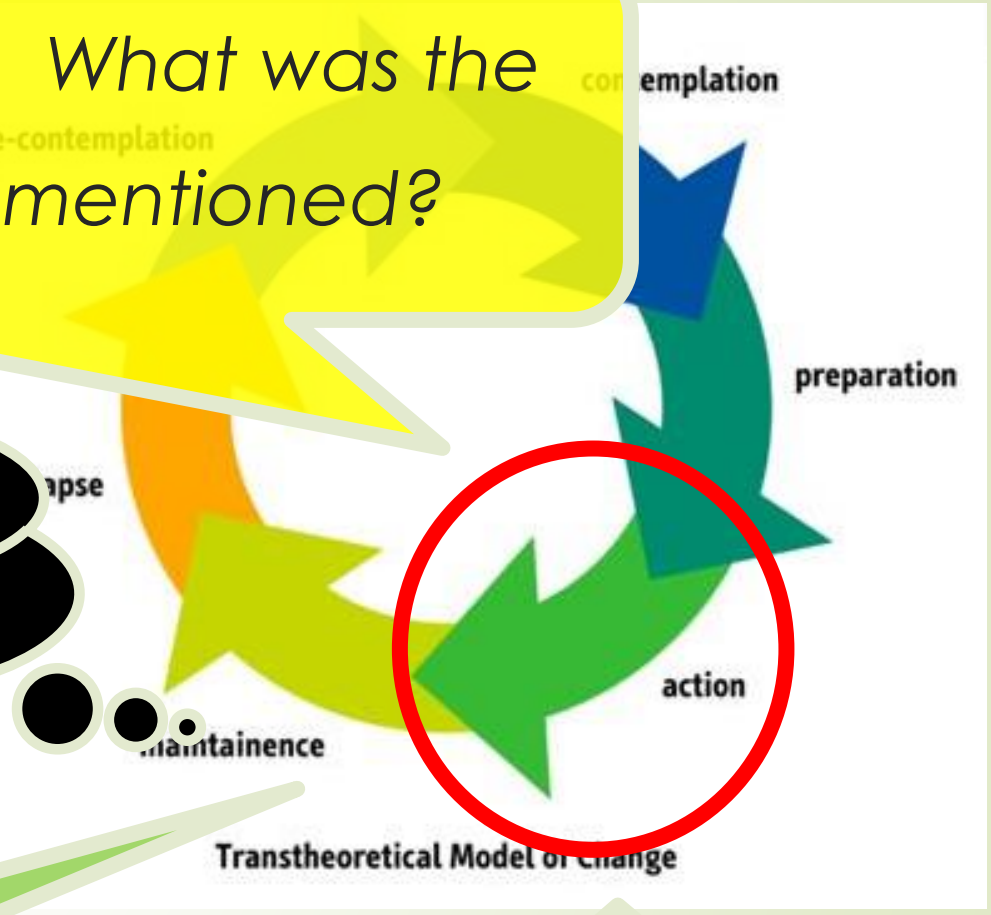
I know it's hard for you to do this when you are already busy…

If we were to m what changes easiest for



We definitely need to do something. What was the name of that weight loss diet you mentioned?

1. *Share enthusiasm for change*
2. *Establish a partnership*
3. *Talk through priorities*

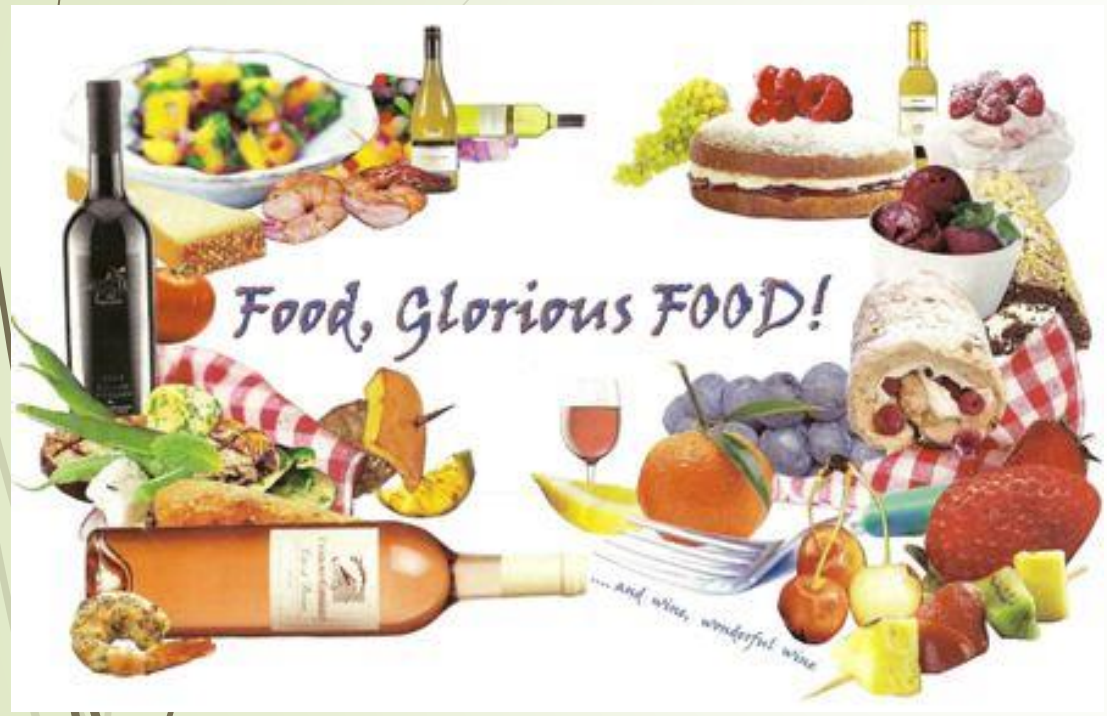


Great! Let's work together to develop a weight loss plan for Tigger

What are you hoping when Tigger loses



Gathering information



1. *Open-ended questions*
2. *Ask at least three times*
3. *Not just what but WHY*



JNS
JOURNAL OF NUTRITIONAL SCIENCE

RESEARCH ARTICLE

Overweight dogs are more likely to display undesirable behaviours: results of a large online survey of dog owners in the UK

Alexander J. German[1]*, Emily Blackwell[2], Mark Evans[3] and Carri Westgarth[4]

[1]*Institute of Ageing and Chronic Disease, University of Liverpool, Neston, UK*
[2]*School of Clinical Veterinary Science, University of Bristol, Langford, UK*
[3]*Independent Veterinary Consultant, Guildford, UK*
[4]*Institute of Infection and Global Health, University of Liverpool, Liverpool, UK*

(Received 12 November 2016 – Final revision received 29 January 2017 – Accepted 8 February 2017)

Journal of Nutritional Science (2017), vol. 6, e14, page 1 of 6 doi:10.1017/jns.2017.5

Abstract

Much of the global canine population is now overweight, and this can adversely affect health, lifespan and quality of life. Undesirable behaviours are also common in pet dogs, and these can adversely affect welfare, as well as being stressful to owners. However, links between obesity and behavioural disorders have never previously been explored. An online survey was conducted between June and August in 2014, coinciding with the broadcast of a National UK television programme, exploring dog health, welfare and behaviour. Information gathered included signalment, overweight status and the prevalence of a range of undesirable behaviours. Fisher's exact test and OR were used to determine associations between overweight status and owner-reported behaviours. A total of 17 028 responses were received. After data verification, the final dataset comprised 11 154 dogs, 1801 (16·1 %) of which were reported by owners to be overweight. Owners of overweight dogs were more likely to see them as 'a baby' ($P < 0{\cdot}0001$) and allow them to sleep on their bed ($P < 0{\cdot}0001$). Overweight dogs were also more likely to guard food ($P < 0{\cdot}0001$) and steal food ($P < 0{\cdot}0001$). Other undesirable behaviours more commonly reported in overweight dogs included barking, growling or snapping at strangers ($P = 0{\cdot}0011$) and other dogs ($P = 0{\cdot}0015$), being fearful of outdoors ($P < 0{\cdot}0001$), and not always coming back when called ($P = 0{\cdot}0011$). Finally, owners were more likely to report that unsociable behaviours adversely affected their dog's health ($P < 0{\cdot}0001$). Overweight status is associated with a number of undesirable behaviours in dogs. Further studies are now required to explore the reasons for these associations.

Key words: **Welfare: Obesity: Canine nutrition: Anxiety: Aggression: Fearfulness**

A multitude of problems can affect the welfare of dogs, ranging from inappropriate husbandry to euthanasia of healthy dogs. In a recent study, seven experts were asked to rank welfare priorities in dogs, and two of the top-rank priorities were undesirable behaviours and obesity[1]. Undesirable behaviours are known to be common in pet dogs, with one study estimating 90 % of the population to be affected[2]. Problems can include aggression to familiar people, strangers or other dogs; fearfulness; separation anxiety; and food-related behaviours such as food guarding, food stealing and coprophagia[3].

Obesity is also a considerable welfare concern in dogs; recent studies suggest that approximately half of all pet dogs are overweight[4,5], and this can predispose dogs to many diseases[4,6,7], poorer quality of life[8] and a shorter lifespan[9].

Whilst obesity and undesirable behaviours both have an impact on canine welfare, the degree to which they may be related is not known. Therefore, the aim of the present study was to examine the associations between overweight status and undesirable behaviours, based upon attitudes of owners in a large, anonymous, online survey.

* **Corresponding author**: A. J. German, fax +44 151 795 6101, email ajgerman@liverpool.ac.uk

© The Author(s) 2017. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

Downloaded from https://www.cambridge.org/core. IP address: 2.122.204.144, on 03 May 2017 at 08:11:56, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/jns.2017.5

Owners of obese pets have a closer relationship with their pet



Food is critical to the owner-pet relationship





Owners of obese pets…

... Observe pet more closely during feeding

... Allow them to be present when preparing food

... Feed more snacks & table scraps

Kienzle et al 1998

Allan et al 2000



Open-ended questions

What do you feed Fluffy?

Brand X

Please talk me through everything you feed Fluffy in a typical day, from first thing in the morning and to last thing at night



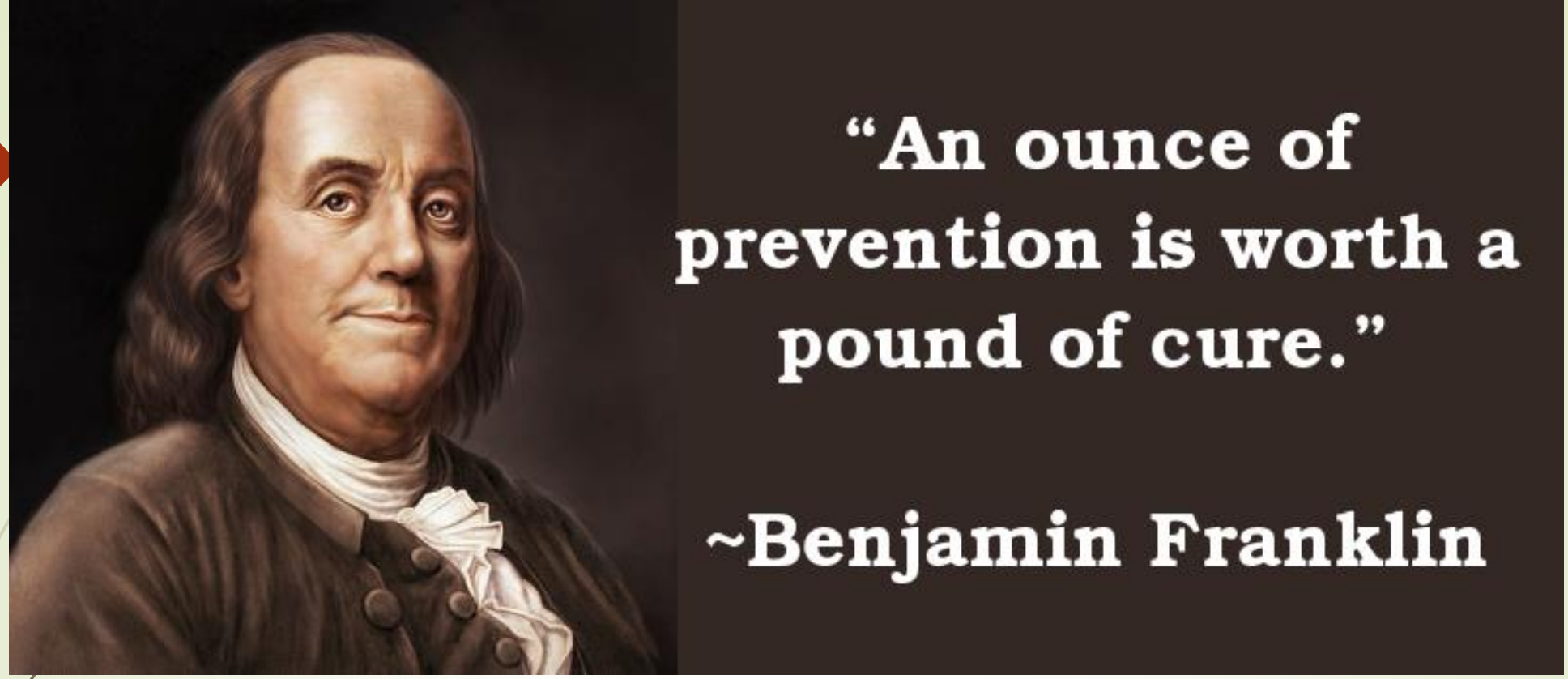


Multiple family members

numbers!



Focus on the benefits weight loss brings and not the numbers



"Prevention is better than cure



Prevention

Leclerc et al. BMC Veterinary Research (2017) 13:104
DOI 10.1186/s12917-017-0994-7

BMC Veterinary Research

RESEARCH ARTICLE Open Access

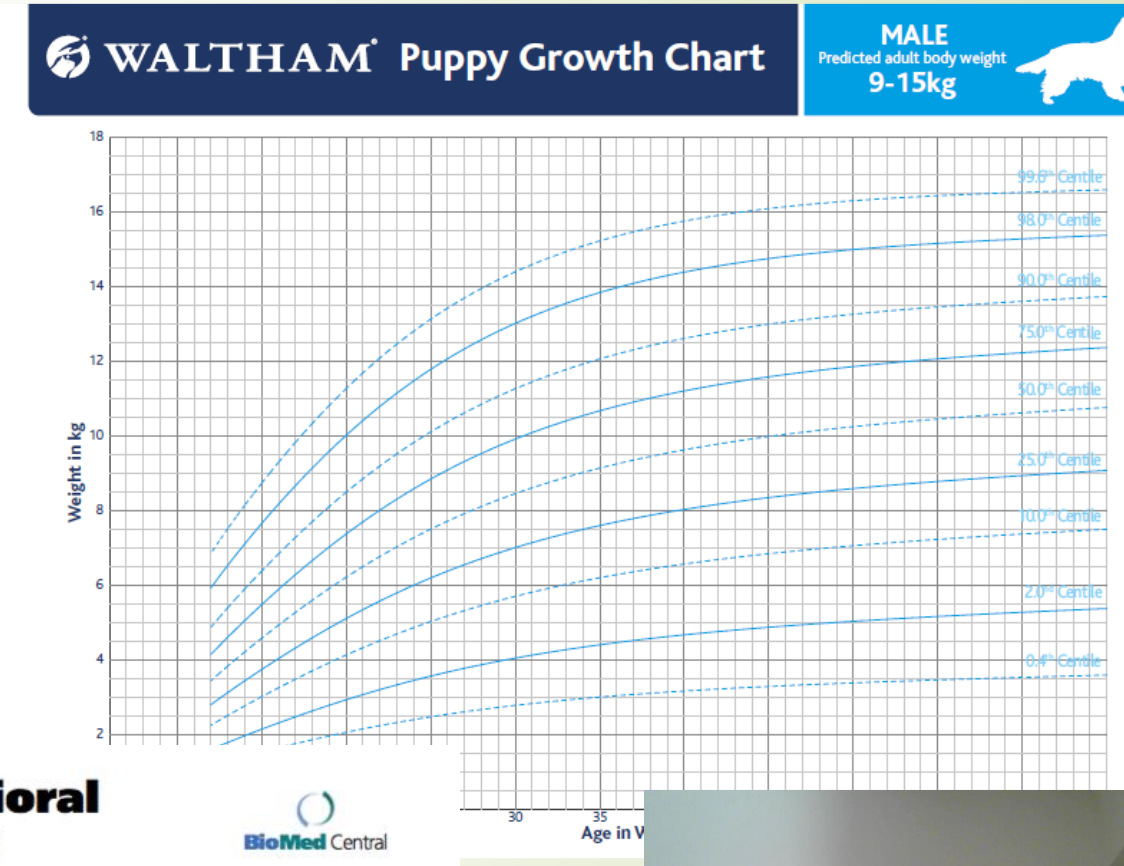
PLOS ONE

RESEARCH ARTICLE

Growth standard charts for monitoring bodyweight in dogs of different sizes

Carina Salt[1], Penelope J. Morris[1], Alexander J. German[2]*, Derek Wilson[1], Elizabeth M. Lund[3], Tim J. Cole[4], Richard F. Butterwick[1]

1 WALTHAM Centre for Pet Nutrition, Mars Petcare, Waltham on the Wolds, Leicestershire, United Kingdo
2 Institute of Ageing and Chronic Disease, University of Liverpool, Neston, Cheshire, United Kingdom,
3 Banfield Pet Hospital, Vancouver, WA, United States of America, **4** Institute of Child Health, University College London, London, United Kingdom



International Journal of Behavioral Nutrition and Physical Activity

BioMed Central

Review

Open Access

The Impact of Regular Self-weighing on Weight Management: A Systematic Literature Review

Jeffrey J VanWormer*[1], Simone A French[2], Mark A Pereira[2] and Ericka M Welsh[2]



Obesity definition



"A disease where excessive body fat has accumulated such that health may be adversely affected" (German 2012)

animals

Opinion

The Responsibility of Companion Animal O

Barry S. Kipperman [1,*] and Alexande

'We should classify pet obesity as a disease'

Alexander German, Ian Ramsey and **Philip Lhermette** address some of the concerns raised over calling pet obesity a disease and argue that this classification can bring many management opportunities.

MANY veterinary organisations, including WSAVA and BSAVA, have recognised canine and feline obesity as a disease,[1] and the BSAVA also published a position statement covering the definition, prevention, treatment and monitoring of obesity.[2] The scientific rationale has been explained elsewhere.[1,2] Here, we address arguments made against classifying obesity as a disease[3] and consider opportunities the current interest in obesity brings.

One argument against a disease classification is that obesity is a normal

Few owners clean their pet's teeth, yet nobody suggests that this is because we refer to 'dental disease'

Indeed, many contend that classifying human obesity as a disease has improved insurance cover for affected individuals. People also worry

insurance premiums will incre

cover the additional costs of ob

if classified as a disease. Howe

might instead incentivise comp

to offer discounted insurance t

pet owners who engage in obes

prevention, as for some human

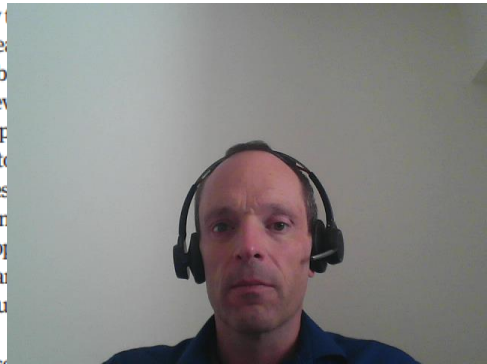
insurance policies. Such an ap

could reduce the cost of insura

claims, while improving the qu

life of the animals involved.

responsibility is important. Few owners clean their pet's teeth, yet nobody suggests that this is because we refer to



Long-term strategies

- Royal Canin priorities
  - Start of Life
  - Weight Management
- Talking about it today



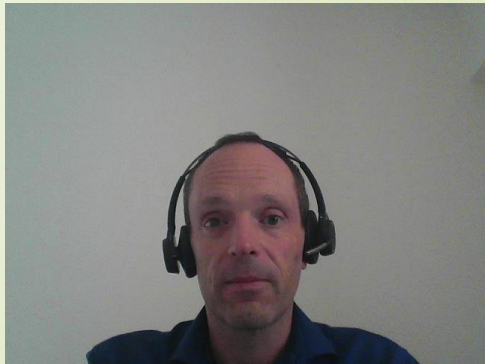
COLÉGIO BRASILEIRO DE NUTRIÇÃO ANIMAL
cbna
21 a 23 outubro 2020
Pet
XIX CONGRESSO
100% ONLINE

21 de outubro de 2020 - quarta-feira	
09:50	Abertura
BLOCO NUTRIÇÃO	
10:00 – 10:45	A epidemia de obesidade, a composição dos alimentos e o papel da indústria JOHN FLANAGAN - Royal Canin, França
10:45 – 11:00	Perguntas
11:00 – 11:45	Aplicação de óleos e gorduras em produtos extrusados: desafios tecnológicos para boa palatabilidade - LOIC BRAMOULLÉ - Diana PetFood - França
11:45 – 12:00	Perguntas
12:00 – 14:00	Intervalo
14:00 – 14:30	Fontes de óleos e gorduras e suas características nutricionais CRISTIANA FONSECA F. PONTIERI - Premier Pet
14:30 – 15:00	Ácidos graxos como nutrientes LUCIANO TREVIZAN – UFRGS, Porto Alegre, RS

Conclusion



- Obesity is a disease with serious consequences
- Early action is necessary
- Tools are available to help you
- Huge scope to find an approach that works well for you and your clients!



Obesity is a disease

…yet we have a funny way of looking at it

