vet

Veterinary Emerging Topics (VET)™ Report

Shining a light on a heavy risk: Help pet owners identify and reduce OA in pets

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PET HOSPITAL

Across the U.S., excess weight in pets has been an increasing trend for years. More recently, a Banfield survey of pet owners found 33% reported that their pet gained weight as a result of increased time spent together during the COVID-19 pandemic. Also, during the pandemic, many veterinary practices shifted away from preventive care towards more urgent and emergent cases. Together, these two trends have created a critical moment for veterinary teams to adjust our tactics as we resume the battle against excess weight and its associated condition, osteoarthritis (OA).

In this year's Veterinary Emerging Topics (VET)™ Report, Banfield Pet Hospital® and the North American Veterinary Community (NAVC) further the conversation from the 2019 and 2020 reports by exploring the changes in weight before and after OA diagnosis in both overweight and non-overweight pets. We also take our research one step further, uncovering a sobering trend: OA appears to play a notable role in the owners' decision to euthanize their pet. Our research found that within 6 months of a diagnosis of OA, approximately 5% of dogs and 10% of cats are euthanized. In those cases, OA contributed to owner decision to euthanize in 40.5% of these dogs and 27.5% of these cats.

Onset of excess weight gain and joint disease can begin at any age in any pet. Because of this, it is important for the entire veterinary team to start talking with pet owners early in the pet's life about the importance of body weight in relation to pet health before overt clinical signs develop. This report includes a toolkit for the entire veterinary team to support these conversations.

Banfield and NAVC believe that the combined power of data with open, solutions-based dialogue will lead to improved patient outcomes. We have partnered to share the fifth annual Banfield VET Report, leveraging data from more than three million pets seen annually at more than 1,000 Banfield hospitals nationwide. Banfield – a pioneer in preventive veterinary care and part of the Mars Veterinary Health family of brands – is committed to using the immense information at our fingertips to shed light on opportunities to drive innovation within veterinary medicine. Together with NAVC, an organization dedicated to advancing veterinary healthcare through education, collaboration, and innovation, we believe we can draw on our strengths to maximize the important lessons in the VET Report.

We hope that this year's report and resources support you and your entire veterinary team as you provide care to pets. If the COVID-19 pandemic has taught us anything, it is that the veterinary profession is essential, and the human-animal bond is stronger than ever. As trusted providers, it is our responsibility to shed light on the significant health challenges related to excess weight and OA.

Respectfully,

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Clinical bottom line

Responsible veterinary medical care is multi-faceted, requiring individualization of management plans to meet the needs of the pet and expectations of the owner. This includes taking into consideration risk factors for conditions such as excess weight and osteoarthritis (OA) and proactively monitoring for early signs. The results of our study suggest:

- In a comparison of the changes in weight pre- and post-OA diagnosis:
    - > Both overweight and non-overweight canines tend toward weight maintenance or gain pre- and post-OA diagnosis;
    - > Non-overweight felines tend toward weight loss while overweight felines toward weight maintenance or gain pre-OA diagnosis; and
    - > There is no significant difference in weight changes between overweight and non-overweight felines post-diagnosis.
- OA appears to play a role in owner decision to euthanize in both canine and feline pets. Within 6 months of OA diagnosis:
    - > 5% of canines are euthanized – 40.5% for OA-related reasons,
    - > 10% of felines are euthanized – 27.5% for OA-related reasons.

The variability in how OA is diagnosed and the stage of disease at the time of diagnosis likely play a role in these findings; nonetheless, the euthanasia findings are sobering.

As veterinary health professionals, we have a responsibility to pets and their owners to better educate owners and make proactive recommendations, particularly for pets at higher risk of developing OA and/or gaining excess weight. Earlier detection and initiation of OA management and prevention of excess weight in pets can help veterinary teams better manage the effects of weight on OA development and progression. Moreover, such an approach might help us improve our understanding of the impact of OA on muscle mass and weight changes. Ultimately, early management, and a measure(s) to evaluate and refine its effectiveness, could improve pet comfort, mobility and quality of life, potentially delaying owner consideration of euthanasia.
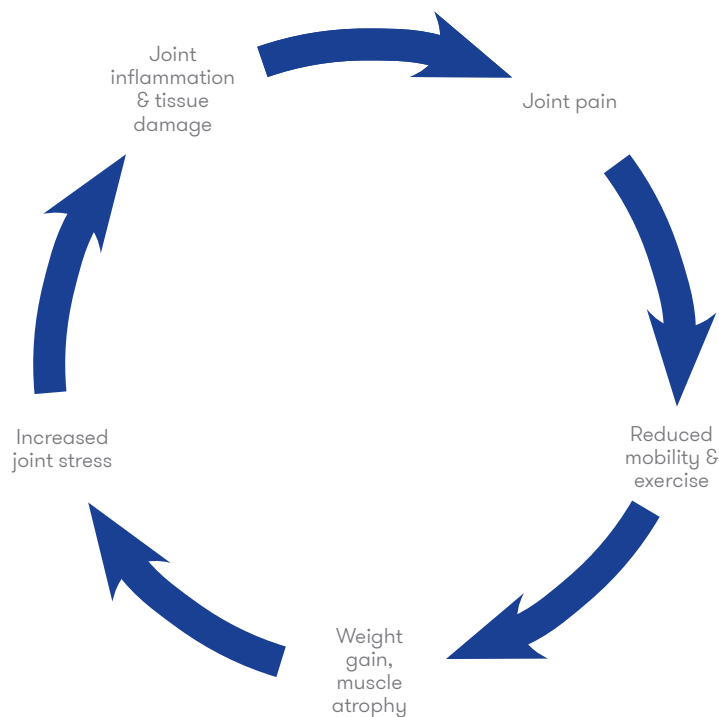
Introduction

Veterinary professionals are committed to providing the best care for pet patients and the best possible results for pet owners. While following professional guidelines and providing recommended therapies benefit patients, one aspect of patient care receiving increased attention is improving patient outcomes with outcomes that are individualized to the pet and the pet owner's unique situation. And, by setting and then meeting owner expectations, veterinary professionals can often influence and improve the owner's compliance with recommended care. This theme of improved patient outcomes has arisen in the 2019 and 2020 Veterinary Emerging Topics (VET)™ Reports, specifically regarding two linked conditions: osteoarthritis OA and excess weight figure 1 .

The 2019 VET Report[1] focused on osteoarthritis and related musculoskeletal conditions (hereafter, referred to as OA) in overweight pets and opportunities to improve the management of OA patients. The 2020 VET Report[1] focused on challenges of weight loss in dogs and identified approaches hospital teams could implement to support pet weight loss programs.

The 2021 VET Report continues our research on excess weight and OA, looking specifically at changes in weight around the initial OA diagnosis. And because it is a potential negative outcome of OA, particularly in under-recognized and undermanaged cases[2-4], euthanasia patterns in new OA pets were then investigated.

Figure 1. The cycle of OA and weight gain.

Research

Analysis of medical record data: Pet weight trends before and after initial diagnosis of OA

Methods

All canine and feline patients examined by a veterinarian at a Banfield Pet Hospital® from January 1, 2016 through June 30, 2018 were considered for inclusion. Patient records were used to identify those patients diagnosed with an OA condition for the first time during the study period. For this study, OA conditions included: osteoarthritis, degenerative joint disease, osteoarthropathy, hip dysplasia, Legg-Perthes disease, ligament rupture (cruciate, collateral, patellar), tendon rupture, osteochondrosis dissecans (OCD), spondylosis, synovitis, and immune-mediated joint disease.

For all pets newly diagnosed with OA, the following information was extracted from structured fields in Banfield's electronic medical record system (PetWare®):

1. Body condition at the time of diagnosis: A pet was considered overweight if the pet was identified as overweight or obese in the medical record (i.e., BCS >3 on 5-point system or diagnosed as overweight or obese) on the visit of initial OA diagnosis or the visit directly preceding or following the diagnosis.

2. Visit weight: Body weight (pounds) at time of OA diagnosis.

3. Pre- and post-diagnosis weights: Body weight recorded in hospital visits 12 months (+/- 2 weeks) and 24 months (+/- 2 weeks) prior to and after the date of initial diagnosis.

4. Management: Whether any one of the following had been dispensed for the pet in the 12- and 24-month pre- and post-diagnosis periods:

   a. Joint supplement (e.g. glucosamine)

   b. Omega-3 essential fatty acid (EFA) supplement

   c. Mobility or weight management therapeutic diet

   d. Non-steroidal anti-inflammatory drug (NSAID)

   e. Other analgesic (*e.g., opioid*)

   f. Corticosteroid

5. Comorbid conditions: Whether any of the following diagnoses was recorded for the pet during the 12- and 24-month pre- and post-diagnosis periods:

   a. Diabetes mellitus

   b. Hyperthyroidism (felines) or hypothyroidism (canines)

   c. Chronic kidney disease (CKD)

   d. Hyperadrenocorticism (Cushing's disease)

   e. Hypoadrenocorticism (Addison's disease)

Pets with a body weight recorded at the OA diagnosis that was likely invalid (weight <1.0 lb. (all) or >40.0 lb. (feline) or >250 lb. (canine)) were removed from the dataset.

Percent weight change pre- and post- diagnosis was determined. Pre-diagnosis weight change was based on the difference of weights between the pre-diagnosis visit and diagnosis visit relative to the pre-diagnosis visit weight. Post-diagnosis weight change is based on the difference from diagnosis visit to post-diagnosis visit relative to the diagnosis visit weight. Manual record review was performed for extreme weight changes (≥ 100%), and visits where the weight was deemed erroneous were corrected or, if not possible, removed from the dataset.

The distribution of weight change for overweight vs. non-overweight pets were compared to evaluate differences in these two subpopulations of OA patients. Pets with one of the aforementioned comorbid conditions or who had received corticosteroid treatment were removed, as these may have influenced pet weight change during the study period. Changes in weight between overweight and non-overweight pets were compared using the two-sample Kolmogorov-Smirnov test (alpha=0.05) for statistical significance.

Findings

More than 4.1 million canines and 900,000 felines were seen in over 23 million total visits at Banfield Pet Hospital between January 1, 2016 and June 30, 2018. During this study period, 174,278 canines and 7,714 felines were diagnosed with an OA condition for the first time. The prevalence (all cases, regardless of time of diagnosis) and incidence (cases newly diagnosed during the study period) are presented in table 1. The initial descriptive statistics show that pets with OA have a higher prevalence of being overweight than the general population. As reported in the 2020 VET Report[1], the prevalence of overweight pets is very likely an underestimate of the true proportion of affected pets, as this analysis limited the definition based on reported BCS and overweight or obese diagnoses entered in structured fields.

Of these new OA pets, 185 (0.1%) canine and 102 (1.3%) feline patients were removed from the study population due to invalid weights recorded at time of OA diagnosis. Subsequently, 113,211 (65.0%) canine and 3,885 (51.0%) feline patients had at least one in-room visit (*i.e., examined by a veterinarian*) during the previously defined pre- and post- diagnosis time periods. This does not mean that 35% of the canine and 49% of the feline patients did not have any visit before or after the OA diagnosis, only that they did not fall in the time frames defined for this analysis.

Table 1. Prevalence and incidence of osteoarthritis and overweight conditions in canine and feline patients seen during the 2.5-year study period.

Species	# Unique Pets	Prevalence of OA	Incidence of OA	Prevalence of overweight, overall	Prevalence of Overweight, all OA	Prevalence of Overweight, new OA
Canine	4,116,918	6.1%	4.3%	31.6%	59.9%	50.7%
Feline	963,940	1.0%	0.8%	32.3%	46.0%	42.6%

Table 2 presents descriptive statistics of the study population, regarding concurrent conditions and receipt of potential OA-related treatments, before and after diagnosis. The percentage of pets receiving other analgesics and corticosteroids include those receiving these for reasons other than OA (*e.g., dental extraction, dermatitis*) and therefore likely overestimate the use of those interventions for OA. Similarly, EFA supplements may be recommended for other reasons than OA management. Finally, the percentage of pets receiving medications and supplements are based solely on invoicing of products carried by and sold to the pet owners at Banfield Pet Hospital and therefore does not include those cases where owners opted to purchase from other sources.

Removal of those pets who received corticosteroid treatment or had been diagnosed with diabetes mellitus, thyroid disease, chronic kidney disease, Cushing's disease or Addison's disease (in the 24- or 12-month period, as appropriate for the analysis) led to the distributions of weight changes (based on weight status) for the pre- and post-diagnosis periods presented in figures 1 (canine) and 2 (feline).

The canine statistics show that both overweight and non-overweight canines tend toward weight maintenance or gain pre- and post-OA diagnosis. The overweight canines are significantly more likely to gain weight pre-diagnosis, compared to their non-overweight counterparts ($p < 0.001\%$). Post-OA diagnosis, the non-overweight canines are significantly more likely to gain weight than the overweight canines ($p < 0.001\%$). The feline statistics show that prior to OA diagnosis non-overweight felines are more likely lose weight while overweight felines seem prone to maintain or gain weight ($p = 0.2\%$ and 0.4%). There is no statistical difference in the weight changes of overweight and non-overweight felines post-OA diagnosis ($p = 74.1\%$ and 86.4%).

The results suggest that many of our canine and feline OA patients tend to maintain or gain weight. However, based on readily available (structured) medical record data, it is not known which pets underwent a formal weight management program nor the status of muscle mass (i.e., muscle condition score, MCS), so we are unable to comment on the influence of those factors in these findings.
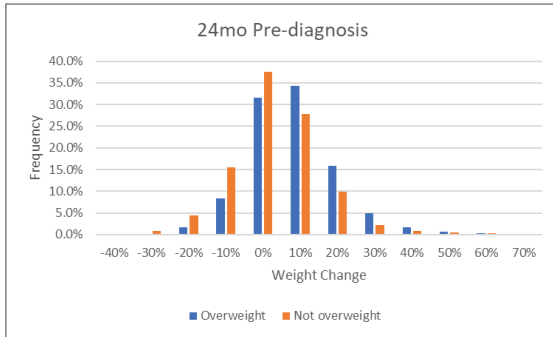
Manual review of medical records of 2,250 newly diagnosed OA pets in 2018 had revealed that many cases of OA are diagnosed after a period of lameness of undetermined cause (unpublished data). This suggests that for some pets in this study, onset of OA may have occurred prior to the official diagnosis being recorded in the medical record. This is supported by the finding that there were pets receiving joint supplements and possibly other medications for OA management prior to entry of the OA diagnosis into the medical record. This also would not include early stage cases (*i.e., without overt clinical signs*). Thus, any resulting muscle atrophy (that could be attributed to OA), fat accumulation and/or other influencers on weight may have already been underway at the time these animals entered the study. To reduce the influence of those factors on our results, weight changes up to two years prior to the diagnosis were included, and pets with comorbid conditions that could influence weight change were excluded. However, it is possible that variability of OA severity in affected pets and incomplete control for other factors (*e.g., presence of other comorbid conditions*) affected our results. A method to consistently identify and score or stage OA at the time of diagnosis in the pet record would be useful for future research.
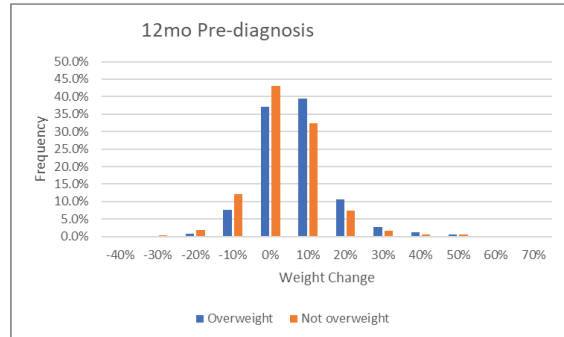
Table 2. Descriptive statistics for the study population of 113,211 canine and 3,885 feline patients newly diagnosed with OA during the 2.5-year study period.

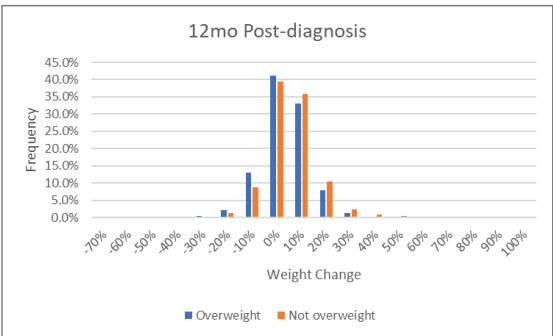| Species		Canine	24mo Pre-Dx	12mo Pre-Dx	12mo Post-Dx	24mo Post-Dx	Feline	24mo Pre-Dx	12mo Pre-Dx	12mo Post-Dx	24mo Post-Dx
# Pets with Valid Weights			27,210	36,404	36,452	21,981		690	1,020	1,035	541
Overweight			54.8%	54.6%	55.3%	56.8%		45.8%	48.5%	50.4%	56.8%
Weight Change	Mean		1.0%	0.3%	-0.5%	-0.8%		-7.9%	-4.2%	-6.2%	10.6%
	Range		-48.7%, 64.8%	-48.9%, 62.9%	-74.1%, 97.4%	-58.0%, 100.0%		-67.2%, 58.0%	-47.9%, 55.3%	-58.9%, 67.7%	-62.0%, 98.4%
Joint Supplement			14.6%	10.8%	28.7%	34.8%		9.4%	7.3%	29.3%	35.9%
EFA			5.2%	3.0%	5.5%	7.7%		2.9%	1.8%	5.5%	6.7%
NSAID			52.8%	36.0%	58.3%	72.4%		22.8%	15.2%	29.0%	35.5%
Other Analgesic			72.7%	51.7%	64.7%	78.6%		58.8%	39.5%	50.7%	63.8%
Corticosteroid			15.8%	8.7%	8.8%	13.7%		14.6%	7.5%	8.7%	14.4%
Therapeautic Diet			10.8%	6.9%	12.0%	16.7%		15.7%	10.2%	14.3%	21.8%
Diabetes Mellitus			0.8%	0.7%	1.1%	1.4%		3.3%	3.8%	3.7%	3.5%
Thyroid Disease			3.5%	2.9%	3.1%	3.7%		10.1%	8.4%	9.8%	10.2%
CKD			0.9%	0.8%	1.4%	2.0%		16.1%	15.0%	19.4%	25.3%
Cushing s Disease			0.8%	0.7%	1.0%	1.3%		—	—	—	—
Addison s Disease			0.3%	0.3%	0.3%	0.4%		—	—	—	—

Figure 1. Distribution of weight change in canine patients, after removal of those that received corticosteroid treatment or were diagnosed with a concurrent condition during the 24- or 12-month period pre- and post-OA diagnosis.
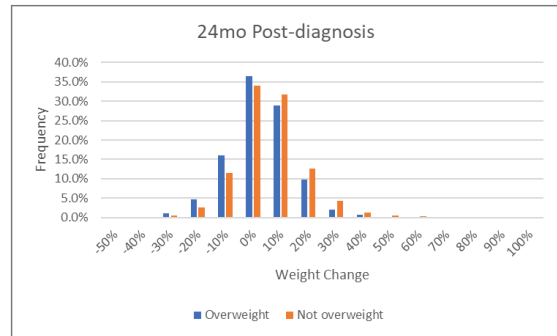

24mo Pre-diagnosis

9,606 overweight dogs compared to 8,022 non-overweight dogs

2-sample K-S p<0.001%

12mo Pre-diagnosis

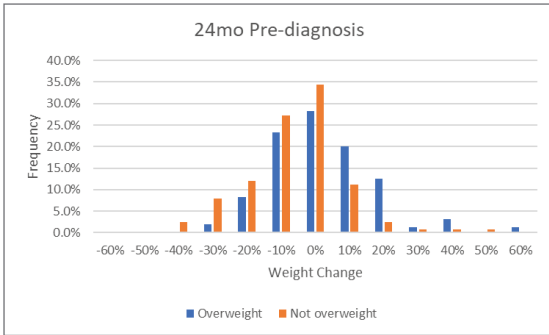5,992 overweight dogs compared to 9,124 non-overweight dogs

2-sample K-S p<0.001%

12mo Post-diagnosis

7,805 overweight dogs compared to 11,810 non-overweight dogs
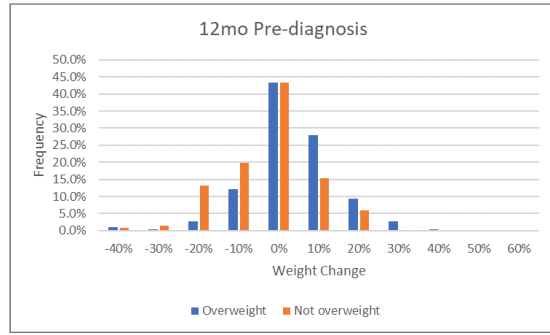
2-sample K-S p<0.001%

24mo Post-diagnosis

8,998 overweight dogs compared to 7,091 non-overweight dogs

2-sample K-S p<0.001%

Figure 2. Distribution of weight change in feline patients, after removal of those that received corticosteroid treatment or were diagnosed with a concurrent condition during the 24- or 1-month period pre- and post-OA diagnosis.
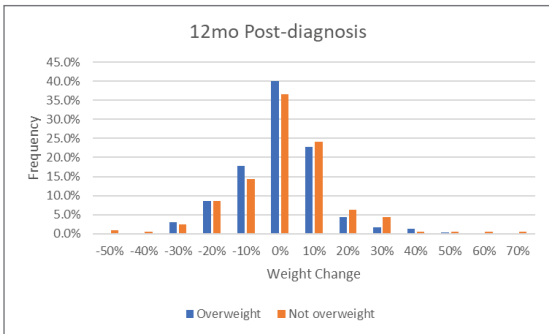

159 overweight cats compared to 125 non-overweight cats
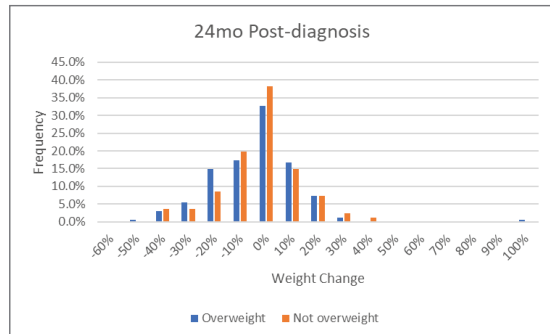
2-sample K-S p=0.2%

215 overweight cats compared to 136 non-overweight cats

2-sample K-S p=0.4%

302 overweight cats compared to 208 non-overweight cats

2-sample K-S p=74.1%

162 overweight cats compared to 81 non-overweight cats

2-sample K-S p=86.4%

Manual Record Review: Euthanasia of newly diagnosed OA patients

Methods

Previous internal research at Banfield found that approximately 5% of canine and 10% of feline patients were euthanized within 6 months of initial OA diagnosis (unpublished data). More information regarding the role OA played in the decision to euthanize was needed to determine if euthanasia rates in OA patients could be used as a measure of patient outcome (*i.e., if implementing practices to support the diagnosis and management of OA could reduce the incidence of euthanasia post-diagnosis*).

Six hundred canine and 200 feline patients newly diagnosed with OA in 2018 and euthanized at Banfield within 6 months of that diagnosis were randomly selected. Because reasons for euthanasia are recorded in the medical record in an unstructured field, medical records of those pets were manually reviewed to identify the reason(s) for euthanasia and to gather information on OA management in those pets prior to euthanasia.

Findings

The record review found 149 (24.8%) of canine and 31 (15.5%) of feline patients had only OA noted as the reason for euthanasia and another 94 (15.7%) canine and 24 (12.0%) feline patients had the comorbidity of OA with other medical condition(s) listed as the reason. In total, OA contributed to the decision to euthanize in 40.5% of the euthanized canine and 27.5% of the euthanized feline cases.

To garner early insights into how these pets' OA condition was managed, prior Banfield medical records were manually reviewed for those pets euthanized due to OA and comorbid condition(s). These preliminary insights are presented in table 3, suggesting opportunities of increased therapeutic interventions prior to euthanasia. Further investigation into the medical records of patients for which OA was the sole reason for euthanasia is warranted to better understand management plans, compliance and effectiveness. Further studies to compare these patients to other new OA patients will allow identification of recommendations to improve the patient outcomes (*i.e., increased comfort, improved mobility and longer times between OA diagnosis and owner's decision to euthanize*).

Table 3. Management of OA in pets with comorbid condition(s) based on manual review of the medical records of 82 canine and 24 feline patients that were seen at a Banfield Pet Hospital prior to euthanasia.

Species	Analgesic	Multi-modal therapy	Weight loss discussed	No therapy recorded
Canine	50 (61.0%)	35 (42.7%)	6 (7.3%)	23 (28.0%)
Feline	13 (54.2%)	7 (29.2%)	0	4 (16.7%)

Veterinary medical quality: OA and improving patient outcomes

The 2019 and 2020 VET Reports[1] provided insights into opportunities for the veterinary industry to manage the inextricably linked conditions of osteoarthritis and excess weight. As described in those reports, prevention, identification and management of one is just as important to the prevention, identification and management of the other. If a pet is overweight, that pet is at increased risk of developing osteoarthritis, and vice versa.

As reported in the 2020 VET Report[1] and supported by other published research[5,6], pets designated as overweight or obese are underreported. Similarly, the prevalence and incidence of OA in the study population presented in this report are likely underestimates of the true occurrence of this condition in the pet population. As seen in table 2, some pets received treatment with joint supplements, NSAIDs and/or other analgesics before an OA-related diagnosis was entered into the medical record. This is likely due to the attending veterinarian being hesitant to enter an OA condition without full diagnostic assessment *(e.g., radiographs, orthopedic examination)*.

It is the responsibility of the veterinary team to talk to owners about prevention of these conditions, to identify weight gain and/or the development of osteoarthritis at early stages and to report these findings in the medical record. In the case of weight, the sooner that excess weight gain is detected and a weight management plan is initiated, generally the more likely it will be to successfully lose the weight[6], as there are fewer pounds to lose. OA management can begin before joint disease has significantly progressed to overt clinical signs. While OA is an irreversible and progressive condition, early management may support joint health and reduce inflammation, possibly slowing progression of joint disease[7] and delaying the need for additional interventions *(e.g. analgesics)*. Pain may be easier to manage if OA is identified earlier thereby reducing the medication dosages needed and increasing the options for analgesia. Proper documentation in the medical record facilitates client communication regarding compliance and effectiveness of treatment on future visits.

In both the 2019 and 2020 VET Reports, opportunities were identified for improving medical quality in the veterinary clinic, specifically relating to improving patient outcomes. Why is this important? While industry guidelines for pain management[2,8] and weight management[9] are available, the implementation across veterinary clinics is quite variable. In addition, the tendency has been to utilize metrics such as provision of services *(e.g., radiographs)* and dispensing of products *(e.g., supplements, medications)* to monitor compliance with the guidelines. However, these metrics alone do not fully assess the quality of veterinary care. Patient care should be also measured by outcome, such as what can be measured through validated quality of life (QoL) or pain scale instruments or pet activity monitors. These objective metrics can signal to hospital teams and pet owners whether the current management plan is having the intended effect or needs adjustment.

In addition to opportunities identified in the 2019 and 2020 VET Reports[1], this research provides further opportunities for veterinary professionals to improve the quality of care they can provide to pets, particularly those at risk of developing OA and/or gaining excess weight.

Opportunity #1: Orthopedic exam on every patient, every visit

Pets with osteoarthritis may have a range of clinical signs – from no signs to subtle indications such as behavior changes that owners might mistakenly attribute to "normal" aging or more obvious signs such as notable lameness, being nonweight-bearing or nonambulatory. For these reasons, a pet presenting with lameness may already have significant joint damage. Fortunately, detection in the earlier stages of disease is possible in many of these pets.

In the 2019 and 2020 VET Reports, the opportunity to make every team member a part of the patient management team was identified. Team members may notice:

- Abnormal gait
- Subtle signs of OA
- Weight gain
- Excess fat accumulation

In addition to implementing and encouraging the team approach to identify potential OA cases sooner, veterinarians should make some of the components of an orthopedic exam a routine part of every physical exam, regardless of the reason for presentation. While a full orthopedic exam is the gold standard, it requires training and can disrupt hospital operations and work schedules. Alternatively, utilizing an 'abbreviated' system (*e.g., CREAPI – crepitus, range of motion, effusion, asymmetry, pain, inflammation*[10]) is in the interest of the pet and the owner, adding only a few minutes to a physical exam in the midst of a fully scheduled day and providing the ability to identify early indications of joint disease. Early diagnosis can enable initiation of a management strategy that may slow joint disease progression and reduce discomfort, as well as potentially delay the need for owners to consider euthanasia.

Opportunity #2: Monitor pet body weight and weight change trends, every visit

Recording a body conditions score (BCS) has become routine in most veterinary clinics, and a point increase on a 9-point scale corresponds to approximately 5% increase in body fat and 10% increase in body weight. However, while validated and a useful measure to monitor, BCS can still be subjective and therefore vary between observers and hospital visits. Thus, in addition to the BCS, trends in pet weight should be monitored at every visit. An upward trend should be brought to the owner's attention immediately with an emphasis on the importance of monitoring the trend to maintain the pet at a healthy weight.

As mentioned previously, utilize the whole hospital team to observe and note any indication of weight gain and fat accumulation; together, you can be a unified, caring voice when discussing the importance of weight with the owner.

While there may be other pet health care topics to discuss during the visit, informing the owner about a pet's weight and nutrition identifies these factors as important components to pet health, and allows the owner (and your team) to institute changes sooner. Early initiation of a weight management plan means fewer pounds to lose and is therefore more likely to be successful[14]. This is particularly important for pets diagnosed with OA. The results of the weight change analysis suggest that after diagnosis, many of these pets

tend toward weight gain. We need to change our usual narrative of how we approach weight gain in pets – that the health impacts of the excess weight can be serious and that an overweight pet getting excess food or treats is not necessarily a happier pet. For pets at a healthy weight, this can also serve as a time to praise owners for their excellent work keeping their pet trim and healthy, which can help with OA prevention and management.

To help owners understand the importance of their pet's weight to health and well-being, veterinary teams can discuss the conclusions of several research studies, which have reported the following:

- Overweight and obese dogs showed decreased energy or enthusiasm and decreased activity or comfort.[11,12]
- Dogs on restricted diets (compared to those fed ad libitum) over their lifetime[13-17] had:
  - > Lower body weights and BCS;
  - > Decreased incidence of hip dysplasia as young adults;
  - > Decreased frequency and severity of osteoarthritis in the coxofemoral joints as mature dogs;
  - > Lower incidence of radiographic evidence of osteoarthritis as senior dogs; and
  - > Increased median time to onset of treatment of osteoarthritis.
- Being overweight negatively impacted lifespan of middle-aged dogs.[18]

Opportunity #3: Increase utilization of radiographs and other diagnostic tools

Proper diagnosis of OA is important to ensure appropriate management for the pet's health, comfort, and quality of life. A physical exam including an orthopedic component is a key first step and can inform a proper diagnostic approach.

For lame pets, while analgesic and supportive therapy is an accepted initial approach when OA is suspected, there is benefit to the pet and owner to perform radiographs as an initial diagnostic screening tool. They reduce the likelihood that the treatment plan is addressing the wrong problem. Other conditions can present as lameness (*e.g., neoplasia, orthopedic fracture*), and medical therapy will not be successful in managing these patients. In such cases, proper identification will benefit the pet in addressing the problem more promptly, thereby improving patient comfort, mobility, and, potentially, prognosis. Early diagnosis may also reduce the cost for the owner.

For pets without overt signs of OA, an orthopedic examination, regardless of reason for the pet's visit, is of key importance, particularly for those pets identified as high-risk for OA (*e.g., breed, genetic testing results, overweight, previous trauma*). Research has shown that pets without obvious clinical signs of OA can still have radiographic evidence of OA[19-22]. The findings of the orthopedic exam, the patient signalment and medical history can indicate joint(s) of potential concern and guide the use of radiographs and other diagnostics to determine onset of OA earlier. Early detection enables the initiation of a management plan before joint disease has become severe, may delay the need for analgesics and other medications, and may delay owner consideration of euthanasia.

Conclusion

Onset of excess weight gain and joint disease can begin at any age in a pet; these are not exclusively mid-life or senior conditions. It is crucial for veterinary professionals to start talking with owners earlier in the pet's life about the relationship between body weight and pet health, including joint health – even before overt clinical signs develop. This can benefit the pet and the owner and strengthen the veterinary team's relationship with the pet owners. While it can be challenging to balance pet health priorities to discuss with owners during visits, it is important to understand and convey the importance of weight and joint health in providing the best care to their pet. This is particularly critical for those pets deemed at higher risk of developing either or both conditions. Owners rely on veterinary professionals to educate them on the key health components to help their pets live their best lives. We can deliver a higher level of service if we emphasize and discuss key points about nutrition, body weight and OA risk as part of our preventive care conversations in all stages of the pet's life.

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Notes