

The Intersection of Nutrition and Rehabilitation for Orthopedic Patients

Creating Collaborative Care Through Nutrition Conversations



A PANEL DISCUSSION

Nutrition and rehabilitation are vital modalities for chronic orthopedic diseases such as osteoarthritis (OA) and for postoperative orthopedic recovery. Optimal nutrition is essential for weight loss, tissue repair, and recovery. Physical rehabilitation helps restore or maintain mobility, reduce inflammation, and strengthen muscles.

This panel discussion, moderated by feline internal medicine specialist Dr. Andy Sparkes, features key opinion leaders Dr. Ross Palmer and Dr. Joseph Wakshlag reviewing the importance of weight loss and rehabilitation for orthopedic patients, ingredients that may support joint health, and how to communicate with pet owners to drive their understanding and adherence to your recommendations.¹

DIAGNOSIS



**Andrew Sparkes, BVetMed, PhD,
Dipl. ECVIM, MANZCVS, MRCVS
(Chair/Moderator)**

Dr. Andy Sparkes: In the history, what would make you suspicious of OA in a dog versus a cat?

Dr. Ross Palmer: Dog owners may report lameness, stiffness, or a reluctance to do usual activities, such as walking, running, playing.

Cats manifest OA differently. Signs may be subtle. Cats are rarely lame but may slow down or appear less kempt. Cat owners often misattribute these changes to aging.

A key question to ask cat owners is whether their pet has changed how they use vertical space. Most cats like to use vertical space and often have a favorite elevated resting place. An osteoarthritic cat may start taking multiple small jumps versus a single jump to reach the resting place or may start resting in a different place entirely.

Owners may have noticed urinary or fecal accidents in the home if the cat cannot reach or climb into the litter box easily.

Dr. Sparkes: What are the components of an orthopedic examination?

Dr. Palmer: I observe a dog's posture and gait, first, on a flat surface and, if possible, as the dog ascends and descends stairs or an incline. My screening orthopedic exam also includes palpating for joint swelling/effusion and muscle atrophy² and evaluating the comfortable passive range of motion in the joints (PROM).

Gait and pain, especially mild pain, are usually more difficult to assess in a feline patient. Muscle mass can be assessed. Use of home video can be especially helpful with cats to observe their gait, and how they go up and down stairs and on and off furniture or perches. Comfortable PROM of joints can be assessed in most cats by using calming handling techniques.

Dr. Sparkes: If you suspect an orthopedic condition, what are your next steps? Do you offer therapies in advance of diagnostics or diagnostics first to help determine best therapies?

Dr. Palmer: I always offer diagnostics first. I would rather make the recommendation of the best care possible based on a firm diagnosis.

In dogs, diagnostic imaging often reveals that their OA is secondary to another disease, e.g., hip dysplasia, cruciate ligament disease, osteochondrosis. In order to more effectively manage the OA, the underlying disease must be managed. If surgery is indicated, the joint will still require lifelong management.

Cats radiographically manifest OA a bit differently. We must train ourselves to what is normal and what OA looks like in a cat, in different joints. We should also recognize that while radiographic changes can be quite profound, some cats showing very subtle radiographic changes are limited by their joint disease.

Dr. Sparkes: Owners may be hesitant to pursue diagnostics due to cost concerns, or there may be concerns with sedation for imaging. If the owner declines diagnostics, what is next?

Dr. Joe Wakshlag: Typically, I will begin a trial of a nonsteroidal anti-inflammatory drug (NSAID), analgesic, etc. Rechecks are essential to gauge progress. If the lameness and pain are not improving, diagnostics are necessary.

MANAGEMENT OF OSTEOARTHRITIS IN AN OVERWEIGHT PET

Dr. Sparkes: In an overweight pet with suspected OA, what does management entail?

Dr. Wakshlag: Weight loss and pain control are a priority. A study

showed that with loss of as little as 6–9% of initial weight, obese dogs became less lame.³

Weight loss programs should be tailored to the individual pet. The owner should receive clear guidance on what and how much to feed, type and amount of exercise, and feeding or other environmental management changes. Follow-up is critical with rechecks scheduled at specific intervals.



“Weight loss and pain control are a priority.”
Joe Wakshlag, DVM, PhD, DACVIM (Nutrition), DACVSMR

Dr. Palmer: I calculate resting energy requirements for the pet’s target weight.⁴ I target a 1–2% body weight loss per week. I tell the owner the pet’s current weight and how much in pounds or kilograms that 1–2% loss equates to.

Dr. Sparkes: What are the benefits of feeding a veterinary therapeutic weight loss diet versus feeding less of the pet’s regular diet or using an over-the-counter senior or weight management diet?

Dr. Wakshlag: Veterinary therapeutic weight loss diets are balanced for weight loss. Feeding less of the pet’s regular diet or of another diet does reduce calories, but it also reduces all of the nutrients in the food, which may lead to nutrient deficiencies.

“Veterinary therapeutic weight loss diets are balanced for weight loss.”
Dr. Wakshlag

Dr. Sparkes: Are there any special considerations in terms of feeding management in an overweight cat with OA?

Dr. Wakshlag: As many cats are fed ad libitum, switching to meal feeding is a priority. If feeding a dry diet, the owners should weigh food using a kitchen scale. Or, since it is easier to portion correctly, the owner may elect to feed a wet diet. Owners can utilize feeding puzzles to encourage activity and provide enrichment.

Feeding zucchini (courgette) provides satiety. The pet owner should chop it to about the size of the kibble or mix it with wet food. As cats appear to like the crunchy texture, the zucchini does not need to be cooked.

Multi-cat households where only one cat is overweight present their own challenges. Switching from ad libitum to meal feeding may lead to inter-cat aggression. Owners may question how to feed different diets to different cats. Potential solutions include feeding the cats separately or using smart feeders, which restrict access to a bowl of food to an individual cat or cats.

Dr. Sparkes: Do ingredients such as fish oil or glucosamine and chondroitin sulfate, incorporated in the diet or given as a supplement, help pets with OA?

Dr. Wakshlag: Research in dogs supports that fish oil slows the progression of joint damage due to the anti-inflammatory effects of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Evidence suggests it may benefit osteoarthritic cats as well. There is some evidence in humans that glucosamine and chondroitin sulfate may slow cartilage degradation over 2–3 years in the knee.

Dr. Sparkes: What diet do you recommend for an osteoarthritic pet with a comorbidity?

Dr. Wakshlag: Depending on the comorbidity, a multifunctional veterinary therapeutic diet may be available. Or, I may be able to supplement a diet indicated for one condition to make it appropriate for the other. This is also where I may formulate a home-cooked diet.

Dr. Sparkes: How do you address joint pain?

Dr. Wakshlag: From a pharmaceutical perspective, in order to decrease pain and slow the inflammatory process to reduce further degeneration in the joint, I am typically dispensing an NSAID.

In an overweight pet with OA, increasing activity may help with weight loss. However, a pet will be reluctant to be more active if they are painful. So, we must control joint pain.

Dr. Sparkes: Is it appropriate to use NSAIDs long term in a pet with OA?

Dr. Palmer: We are typically using the NSAID along with weight management, rehabilitation therapy, and/or lifestyle modifications (e.g., increasing exercise). Over time, the pet develops some physical fitness, better motor control of their joints, better muscle mass, and greater cardiovascular fitness. Oftentimes we then discover that the pet’s reliance upon pain medications is decreased.

I generally adopt a weaning approach—lowering the dose of the NSAID or spreading out the dosing interval depending upon the medication. We may find that we can achieve the desired lifestyle without pain medications. So, the NSAID is not necessarily lifelong from the point of diagnosis.

REHABILITATION THERAPY

Dr. Sparkes: Where does rehabilitation fit in orthopedic cases?

Dr. Wakshlag: I use rehabilitation therapy in dogs with OA and in the post-orthopedic surgery cases. The older dogs with OA tend to have multi-joint involvement and some proprioceptive deficits. Rehabilitation is often a long-term modality in these cases. Post-surgical rehabilitation may last just through the recovery period.

Dr. Palmer: When formal rehabilitation therapy cannot be incorporated, due to lack of availability, cost, etc., we should still provide guidance to pet owners on the lifestyle modifications they can make at home, such as how (e.g., walking on flat ground, walking on hills, jogging, swimming for dogs, and active playing with cats) and how much their pet should exercise.



“When formal rehabilitation therapy cannot be incorporated, we should provide guidance to pet owners on the lifestyle modifications they can make at home.”

Ross Palmer, DVM, MS, DACVS

COMMUNICATION WITH PET OWNERS

Dr. Sparkes: Communication with owners is key. When you detect a lameness that the owner has not noticed, how do you convince them there is an issue?

Dr. Wakshlag: I use client-specific outcome measures when I need to help an owner recognize that there is an orthopedic problem, particularly in a pet with a subtle lameness. Are there activities the cat did at 2 years of age that are no longer possible at 9 years of age? Then we can monitor whether those measures improve.

Dr. Sparkes: How do you approach agreeing on recommendations with the owner?

Dr. Palmer: Starting is oftentimes the hardest part of the process. I focus on the owner’s aspirational goals and link my recommendations to what the pet owner hopes to achieve. This motivates the owner to follow our recommendations for diagnostics and follow-up care. I find this is better than the sterile white coat “make and treat a diagnosis” approach.

Using open-ended conversational questions, e.g., “Tell me about the activities you used to enjoy with your pet,” and actively listening help me determine what those aspirational goals may be. If the owner says they can no longer take the dog on runs, then our getting the dog back to being able to exercise with the owner again may become an aspirational goal, something tangible that we can work towards. To better understand how to achieve that goal, I might recommend radiographs.

In this process, it is important to assess an owner’s readiness to change, i.e., is the owner open to discussing diagnostics, willing to discuss management?

We may share success stories about another pet that was similarly affected, oftentimes saying that that pet’s owner was very committed. That comment often seems to create a challenge for my new client and can elicit their competitive nature.

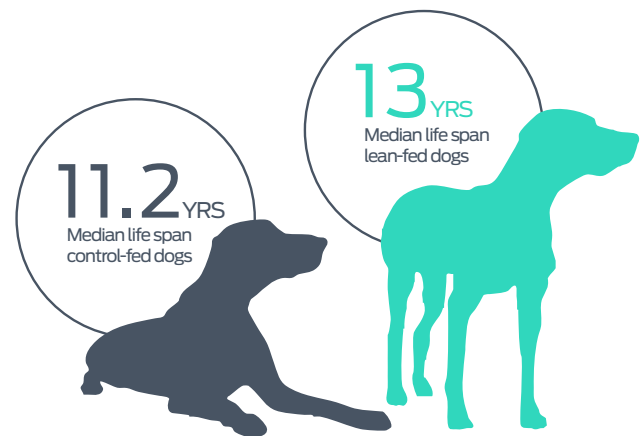
“I focus on the owner’s aspirational goals and link my recommendations to what the pet owner hopes to achieve. This motivates the owner to follow our recommendations.”

Dr. Palmer

Dr. Sparkes: How do you help owners remain committed to a weight loss program, particularly given the length of time it typically takes?

Dr. Palmer: Owners tend to see results when their pet achieves loss of one body condition score⁵ (BCS), e.g., from an 8 to a 7 on a 9-point scale, which is exciting. To keep owners motivated, I cite the Purina Life Span Study.⁶ Labrador Retrievers were age and sex matched littermates. Essentially all that was different between these dogs that had the same diet was the amount fed. The lean-fed dogs were fed 75% of what their littermate was fed (which was initially ad libitum and then changed to a controlled amount based on estimated energy needs), and the dogs were followed throughout life.

The dogs that were lean fed (BCS of 4–5) lived longer and were healthier, showing a later onset of chronic diseases, than the control-fed group. So, I celebrate with my client the initial success they have achieved but remind them that the real impact on life and health spans came when the ideal BCS of 4–5 was achieved.



Kealy et al., 2002

Dr. Wakshlag: One study showed pets that came in on a monthly basis had good weight loss regardless of how much the owner was educated on the topic.⁷ It was creating the accountability with the owner by weighing the dog.

Dr. Sparkes: What if the pet is not losing weight?

Dr. Palmer: First, we reevaluate what is being fed. Are there calories being fed (by other family members, neighbor, or mail carrier, or to help with administration of medications) that we had not accounted for? If we have accounted for all the calories being fed, then we recognize that initial calculations on how much to feed are just estimates and we may need to make adjustments.

Dr. Sparkes: What do you consider the primary take-home messages from this discussion for practitioners?

Dr. Palmer: I have seen the role of my team change over time. We are now much more conversational with the pet owner, very much trying to elicit what their aspirational goals are.

However, we do not simply ask them, “What are your aspirational goals for your pet” as they may not have thought about it in those terms and it can be overwhelming. Instead, we use the open-ended, conversational “tell me about” questions and listen closely to what

the owner is and is not saying. What are the activities that they used to enjoy with their pet? What are some of the behaviors their cat used to display that are not part of their lifestyle now? Answers to these questions often reveal their goals.

And we use those aspirational goals to assess the client's readiness for change relative to diagnostics as well as therapies and hopefully stimulate readiness for change.

I think when we focus on what the owner wants to achieve and we link our recommendations to their aspirational goals, we can be more successful, and that is why they came to us.

Dr. Wakshlag: I would reiterate that it is a team approach. The veterinary technicians and nurses are invaluable in weight management cases. They are great at follow-up. They know the clients well. They can do the weigh in, talk to the owner about any concerns, and alert you if there is an issue.

I agree that it is important to recognize where the owner is in terms of their readiness to change. You have the best chance of helping overweight pets whose owners acknowledge their pet is overweight and have been trying to address weight loss on their own or are ready to do so.

CHAIR/MODERATOR

Andrew Sparkes, BVetMed, PhD, Dipl. ECVIM, MANZCVS, MRCVS is an independent consultant. Previously, he served as Veterinary Director of International Cat Care and the International Society of Feline Medicine (ISFM). Dr. Sparkes has published widely and is the founding and current co-editor of the *Journal of Feline Medicine and Surgery*.

PANELISTS

Ross Palmer, DVM, MS, DACVS received his BS and DVM degrees from Kansas State University. He is currently a Professor of Orthopedic Surgery at Colorado State University and the Associate Director of Education at the Translational Medicine Institute. He is a board member and past President of the Veterinary Orthopedic Society (VOS).

Joe Wakshlag, DVM, PhD, DACVIM (Nutrition), DACVSMR received his DVM and PhD degrees from Cornell University. He is currently Chief of Service for the Nutrition Department at Cornell. Interests include obesity, cancer cell biology, nutraceuticals, sporting dog metabolism, and nutrient requirements. He has been involved in a groundbreaking Cornell healthy aging and mobility program (CHAMP) to drive research and initiatives around healthy aging to promote longevity.

FOOTNOTES

¹ Adapted from the live broadcast of *The Intersection of Nutrition and Rehabilitation for Orthopedic Patients*, a Purina Institute Creating Collaborative Care Through Nutrition Conversations webinar, available on demand at [The Intersection of Nutrition and Rehabilitation for Orthopedic Patients](#).

² Learn about muscle condition scoring at [Detecting muscle loss in cats & dogs | Purina Institute](#).

³ Marshall, W. G., Hazewinkel, H. A. W., Mullen, D., et al. (2010). The effect of weight loss on lameness in obese dogs with osteoarthritis. *Veterinary Research Communications*, 34(3), 241-253. doi: 10.1007/s11259-010-9348-7

⁴ Various energy calculators are available online, including [MER Calculator for Dogs | Purina Institute](#) and [MER Calculator for Cats | Purina Institute](#).

⁵ See [Purina Body Condition System | Purina Institute](#).

⁶ This study has generated more than 20 peer-reviewed publications including the following:

Kealy, R. D., Lawler, D. F., Ballam, J. M., et al. (2002). Effects of diet restriction on life span and age-related changes in dogs. *Journal of the American Veterinary Medical Association*, 220(9), 1315-1320. doi: 10.2460/javma.2002.220.1315

Lawler, D. F., Evans, R. H., Larson, B. T., et al. (2005). Influence of lifetime diet restriction on causes, time, and predictors of death in dogs. *Journal of the American Veterinary Medical Association*, 226, 225-231. doi: 10.2460/javma.2005.226.225

Kealy, R. D., Lawler, D. F., Ballam, J. M., et al. (2000). Evaluation of the effect of limited food consumption on radiographic evidence of osteoarthritis in dogs. *Journal of the American Veterinary Medical Association*, 217(11), 1678-1680. doi: 10.2460/javma.2000.217.1678

Smith, G. K., Paster, E. R., Powers, M. Y., et al. (2006). Lifelong diet restriction and radiographic evidence of osteoarthritis of the hip joint in dogs. *Journal of the American Veterinary Medical Association*, 229(5), 690-693. doi: 10.2460/javma.229.5.690

⁷ Yaissle, J. E., Holloway, C., & Buffington, C. A. T. (2004). Evaluation of owner education as a component of obesity treatment programs for dogs. *Journal of the American Veterinary Medical Association*, 224(12), 1932-1935. doi: 10.2460/javma.2004.224.1932

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