

My Favorite Things



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Feeding Puzzles for Nutrition and Enrichment

Over the past few years, the indoor environment that we offer our pets has garnered increasing attention. While our current preventive health initiatives have greatly reduced the number of pets that die from preventable problems, we have not addressed our pets' mental health to the same degree.

BATTLING BOREDOM

While we routinely leave our residences for work and socialization, we confine our pets (for their own safety) to our homes, often strictly to the indoor environment. This substantially limits the variety of stimuli, both mental and physical, available to them. When dogs and cats are confined indoors without adequate mental stimulation, trouble can ensue. Ensuring that they have housemates and toys can help, but many animals do not engage in play when humans are not around to share in it. Pets may express boredom in the form of aggression to housemates and owners, destruction of furniture and other household items, and anxiety-related issues.¹

A study done by Beth Strickler, DVM, DACVB, looked at owner engagement and 6 specific behavioral issues in cats.² Strickler was able to demonstrate that the more involved owners were in engaging their cats daily, the fewer behavior-related issues they reported. Owner engagement primarily consisted of playing with the cats. Owners who played with their



FIGURE 1. A variety of dog feeding puzzles used for an active dog. Image courtesy of Judy Conley, LVT

● TECHPOINT ●

Hunting behavior provides exercise, mental stimulation and, if engaged in as part of playing with a person, social interaction.

What benefit does a bowl of food provide?
Easy calories.

cat for 5 minutes each day reported fewer behavior problems than those who did not. The two most frequently reported behavior problems were aggression directed at the owners (36%) and periworm (24%).²

Even if owners are lucky enough for their pets to choose a nondestructive activity to relieve boredom, trouble can still ensue. For example, boredom-related eating can result in obesity, especially when combined with decreased activity levels. All animals evolved to acquire their food through activity, whether hunting, scavenging, or grazing. Wild canids, such as wolves, foxes, and coyotes, can spend up to 60% of their day searching for food.^{3,4} No animal evolved to acquire its food from walking up to a full bowl! We've all seen our pets and patients engage in hunting behavior, from a dog chasing a ball to a cat stalking a toy mouse. These activities provide exercise, mental stimulation and, if engaged in as part of playing with a person, social interaction.¹ What benefit does a bowl of food provide? Easy calories.

WHY USE FEEDING PUZZLES?

Feeding puzzles offer a way for owners to provide enrichment for their pets, encourage mental stimulation, and decrease overeating. Feeding puzzles can also make eating an interactive activity rather than just a source of nutrition.⁵

A feeding puzzle can be any toy or object that can contain food and requires the pet to work to find a way to get to that food.³ A wide variety of commercial feeding puzzles from companies such as Kong, Premier, and Nina Ottosson is available at pet stores and online, ranging from relatively simple toys that scatter food as they are "hunted" to complex, expensive models that require problem solving (FIGURE 1). It is also fairly easy to make many of these toys at home, keeping both owner and pet engaged. BOX 1 provides a list of links to instructions for do-it-yourself feeding puzzles.

Feeding puzzles work well with the way cats prefer to eat, in multiple small meals daily. Even when a cat eats dry food from a bowl, it usually only takes a couple of kibbles at a time. This feeding pattern is ideal for a puzzle, which then makes the cat work for its food! For dogs, using a puzzle can slow down mealtime and provide mental stimulation. Who doesn't like to solve a puzzle and get a reward at the end?

GETTING STARTED

So you've made the commitment to start feeding a pet using a feeding puzzle—or convinced an owner to try it. How can you introduce this concept to the animal? It is easier to introduce a puzzle if the pet is hungry and to begin with the simpler toys. Most people are familiar with Kong toys, which are hollow rubber toys that can be stuffed with food or treats. The goal is for this type of feeder to release the food slowly, with some effort on the animal's part. If the animal gets to the food too quickly, freezing the filled toy can slow the pet down and prolong

BOX 1 Do-It-Yourself Puzzle Resources

- **Enrich feeding time for your cat. Make a puzzle feeder.**
purinaone.com/cats/enrich-feeding-time-for-your-cat-make-a-puzzle-feeder
- **Make your own DIY dog toys and puzzles.**
livewellnetwork.com/Deals/episodes/Make-Your-Own-DIY-Dog-Toys-and-Puzzles/9498449
- **Six DIY food puzzles with stuff around the house.**
rover-time.com/six-diy-food-puzzles-stuff-around-house/
- **Why does my cat need a puzzle feeder?**
catbehaviorassociates.com/why-does-my-cat-need-a-puzzle-feeder/



the activity (**FIGURE 2**). When filling toys with canned food or soft treats, it is usually a good idea to offer them to the pet inside a crate or on a harder, easy-to-clean surface. A mess is guaranteed!

Start by placing some fragrant treats inside the toy to attract initial attention. For some animals, using peanut butter or baby food can help with this step.³ The pet may need assistance in understanding that the food it smells is inside the toy. As the pet perfects the technique involved in getting the treats out, slowly switch over to placing food in the puzzle instead of the food bowl (**BOX 2**). Some animals may need increasingly difficult puzzles. Closing off

BOX 2 No Such Thing as a Free Lunch

For many animals, feeding puzzles can be used to provide all their food, not just treats. A friend of mine provides every kibble to her dog throughout the day in response to work. Her puzzles are in the form of training. There is no free food in her house! For this method to work, portion control is important. Determine what the desired volume of food is per day, and divide this amount into 2 or 3 smaller daily feedings dispensed in one or multiple puzzles.

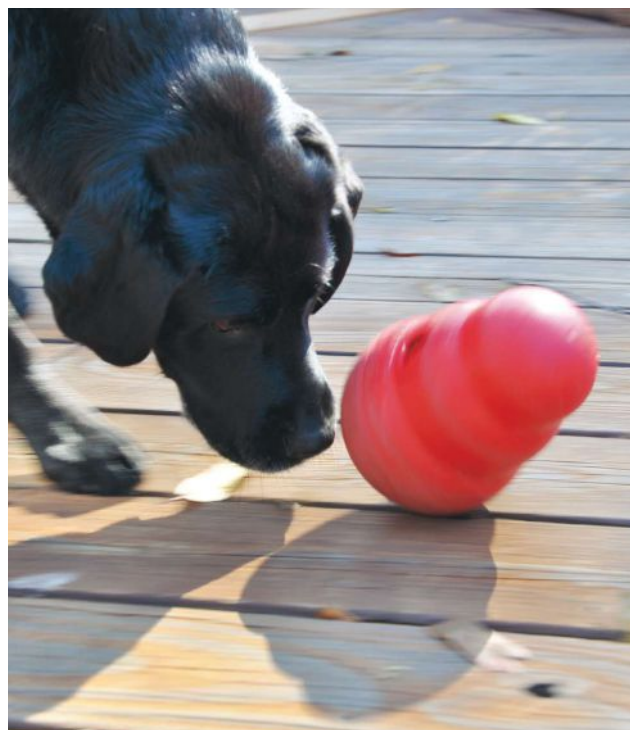


FIGURE 2. A Kong toy for dogs filled with frozen canned food, pursued by Cali the Labrador. Image courtesy of Judy Conley, LVT

How I Do It

My cats have a selection of 4 puzzles. I put all their dry food in these puzzles twice daily. Canned food is provided in bowls because I mix specific medications for each cat into each portion, and using bowls allows me to ensure the right cat consumes at least some part of the right medication...before the inevitable bowl switch. Half of my puzzles are homemade, and half were bought off the clearance rack at the pet store. Each of my cats has her favorite puzzle, but when they're hungry, they will check them all!

A note about food puzzle balls: Personally, I don't use them because my cats would inevitably knock them under the furniture or in a corner, making it harder for me to find them at feeding time. I prefer my puzzles to be less mobile, or confined to a specific area for use.



A SPIRAL COMMERCIAL DOG FEEDER, USED FOR CATS. The cats use their paws to remove the food. Dogs could use their paws or their tongues.

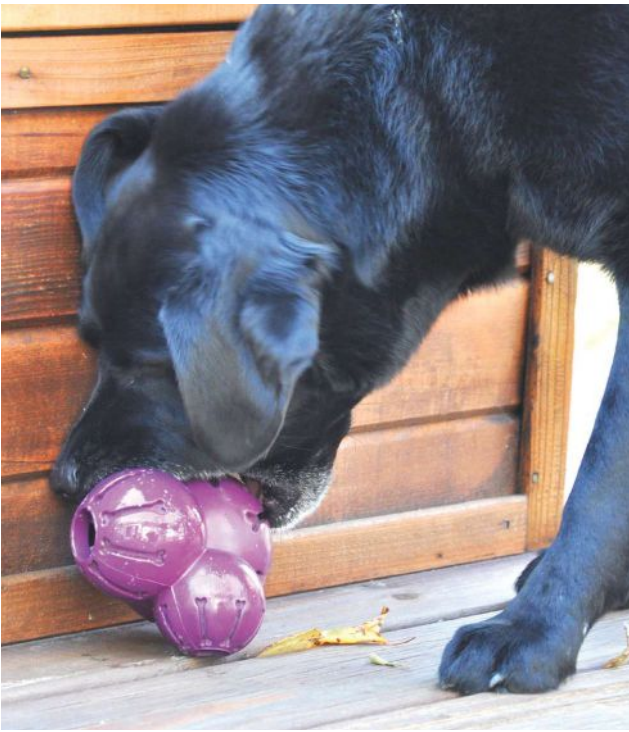


FIGURE 3. Cali with a Premier Barnacle feeding puzzle. Cali likes the harder rubber ones for the oral stimulation—a Labrador needs to stay out of trouble! Image courtesy of Judy Conley, LVT



FIGURE 4. Cali with a Premier tug with golf ball puzzle. Image courtesy of Judy Conley, LVT



A SMALL PLASTIC TRASHCAN BOUGHT AT A DOLLAR STORE. A ½" hole has been drilled into it halfway up the side. The advantage of this toy is that although it rolls, the cats cannot roll it under the furniture, where retrieval is difficult. This is my cats' favorite puzzle.



A BALL TOY FOR CATS. The balls have been removed, and the cats reach through the holes to get the food. For energetic cats, the holes can be covered up to make them smaller, and/or balls can be put back in to increase the difficulty of this toy.



A HOMEMADE FEEDING PUZZLE using 2 x 4 lumber and the bottoms of 4 different-sized plastic bottles. The bottles are held in place with a screw through the bottom into the wood. Attaching the bottle bottoms to the wood makes this puzzle harder to flip over. The cats eat from the bottles by using their paws to remove each kibble individually.

• **TECHPOINT** •

Food puzzles are a wonderful way to increase environmental enrichment, control food portions, and provide mental stimulation for a pet.

or narrowing treat openings can help increase the difficulty in some cases. For overachieving pets, there are some puzzlers that are quite difficult and can challenge even a herding dog's brain.^{3,5}

To increase the pet's mental stimulation, have a selection of puzzles and rotate them daily (FIGURES 3 and 4). To further increase the stimulation, hide them around the house so even more hunting is involved. This is a wonderful way to increase environmental enrichment, control food portions, and provide mental stimulation for a pet. Tell your clients to go out and find the puzzle that makes their pet happy! ■

References

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3. Tripp R. Food puzzles. The Animal Behavior Network. animalbehavior.net/LIBRARY/AllPets/PPM/PetFoodPuzzles.htm. Accessed October 2015.
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5. Smith JL. Five tips for perfect play with cat food filled puzzle feeders. Pet360.com. pet360.com/cat/lifestyle/five-tips-for-perfect-play-with-cat-food-filled-puzzle-feeders/V5CdjFS9k6U36rUo_6uqA. Accessed October 2015.



NexGard®
(afoxolaner) Chewables

CAUTION: Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

Description:

NexGard® (afoxolaner) is available in four sizes of beef-flavored, soft chewables for oral administration to dogs and puppies according to their weight. Each chewable is formulated to provide a minimum afoxolaner dosage of 1.14 mg/lb (2.5 mg/kg). Afoxolaner has the chemical composition 1-Naphthalenecarboxamide, 4-[5-(3-chloro-5-(trifluoromethyl)-phenyl)-4,5-dihydro-5-(trifluoromethyl)-3-isoxazolyl]-N-[2-oxo-2-(2,2-trifluoroethyl)amino]ethyl.

Indications:

NexGard kills adult fleas and is indicated for the treatment and prevention of flea infestations (*Ctenocephalides felis*), and the treatment and control of Black-legged tick (*Ixodes scapularis*), American Dog tick (*Dermacentor variabilis*), Lone Star tick (*Amblyomma americanum*), and Brown dog tick (*Rhipicephalus sanguineus*) infestations in dogs and puppies 8 weeks of age and older, weighing 4 pounds of body weight or greater, for one month.

Dosage and Administration:

NexGard is given orally once a month, at the minimum dosage of 1.14 mg/lb (2.5 mg/kg).

Dosing Schedule:

Body Weight	Afoxolaner Per Chewable (mg)	Chewables Administered
4.0 to 10.0 lbs.	11.3	One
10.1 to 24.0 lbs.	28.3	One
24.1 to 60.0 lbs.	68	One
60.1 to 121.0 lbs.	136	One
Over 121.0 lbs.	Administer the appropriate combination of chewables	

NexGard can be administered with or without food. Care should be taken that the dog consumes the complete dose, and treated animals should be observed for a few minutes to ensure that part of the dose is not lost or refused. If it is suspected that any of the dose has been lost or if vomiting occurs within two hours of administration, redose with another full dose. If a dose is missed, administer NexGard and resume a monthly dosing schedule.

Flea Treatment and Prevention:

Treatment with NexGard may begin at any time of the year. In areas where fleas are common year-round, monthly treatment with NexGard should continue the entire year without interruption.

To minimize the likelihood of flea reinfestation, it is important to treat all animals within a household with an approved flea control product.

Tick Treatment and Control:

Treatment with NexGard may begin at any time of the year (see **Effectiveness**).

Contraindications:

There are no known contraindications for the use of NexGard.

Warnings:

Not for use in humans. Keep this and all drugs out of the reach of children. In case of accidental ingestion, contact a physician immediately.

Precautions:

The safe use of NexGard in breeding, pregnant or lactating dogs has not been evaluated. Use with caution in dogs with a history of seizures (see **Adverse Reactions**).

Adverse Reactions:

In a well-controlled US field study, which included a total of 333 households and 615 treated dogs (415 administered afoxolaner, 200 administered active control), no serious adverse reactions were observed with NexGard.

Over the 90-day study period, all observations of potential adverse reactions were recorded. The most frequent reactions reported at an incidence of > 1% within any of the three months of observations are presented in the following table. The most frequently reported adverse reaction was vomiting. The occurrence of vomiting was generally self-limiting and of short duration and tended to decrease with subsequent doses in both groups. Five treated dogs experienced anorexia during the study, and two of those dogs experienced anorexia with the first dose but not subsequent doses.

Table 1. Dogs With Adverse Reactions.

	Treatment Group			
	Afoxolaner		Oral active control	
	N ¹	% (n=415)	N ²	% (n=200)
Vomiting (with and without blood)	17	4.1	25	12.5
Dry/Flaky Skin	13	3.1	2	1.0
Diarrhea (with and without blood)	13	3.1	7	3.5
Lethargy	7	1.7	4	2.0
Anorexia	5	1.2	9	4.5

¹Number of dogs in the afoxolaner treatment group with the identified abnormality.

²Number of dogs in the control group with the identified abnormality.

In the US field study, one dog with a history of seizures experienced a seizure on the same day after receiving the first dose and on the same day after receiving the second dose of NexGard. This dog experienced a third seizure one week after receiving the third dose. The dog remained enrolled and completed the study. Another dog with a history of seizures had a seizure 19 days after the third dose of NexGard. The dog remained enrolled and completed the study. A third dog with a history of seizures received NexGard and experienced no seizures throughout the study.

To report suspected adverse events, for technical assistance or to obtain a copy of the MSDS, contact Merial at 1-888-637-4251 or www.merial.com/NexGard. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or online at <http://www.fda.gov/AnimalVeterinary/SafetyHealth>.

Mode of Action:

Afoxolaner is a member of the isoxazoline family, shown to bind at a binding site to inhibit insect and acarine ligand-gated chloride channels, in particular those gated by the neurotransmitter gamma-aminobutyric acid (GABA), thereby blocking pre- and post-synaptic transfer of chloride ions across cell membranes. Prolonged afoxolaner-induced hyperexcitation results in uncontrolled activity of the central nervous system and death of insects and acarines. The selective toxicity of afoxolaner between insects and acarines and mammals may be inferred by the differential sensitivity of the insects and acarines' GABA receptors versus mammalian GABA receptors.

Effectiveness:

In a well-controlled laboratory study, NexGard began to kill fleas four hours after initial administration and demonstrated >99% effectiveness at eight hours. In a separate well-controlled laboratory study, NexGard demonstrated 100% effectiveness against adult fleas 24 hours post-infestation for 35 days, and was ≥ 93% effective at 12 hours post-infestation through Day 21, and on Day 35. On Day 28, NexGard was 81.1% effective 12 hours post-infestation. Dogs in both the treated and control groups that were infested with fleas on Day -1 generated flea eggs at 12- and 24-hours post-treatment (0-11 eggs and 1-17 eggs in the NexGard treated dogs, and 4-30 eggs and 0-119 eggs in the control dogs, at 12- and 24-hours, respectively). At subsequent evaluations post-infestation, fleas from dogs in the treated group were essentially unable to produce any eggs (0-1 eggs) while fleas from dogs in the control group continued to produce eggs (1-141 eggs).

In a 90-day US field study conducted in households with existing flea infestations of varying severity, the effectiveness of NexGard against fleas on the Day 30, 60 and 90 visits compared with baseline was 98.0%, 99.7%, and 99.9%, respectively. Collectively, the data from the three studies (two laboratory and one field) demonstrate that NexGard kills fleas before they can lay eggs, thus preventing subsequent flea infestations after the start of treatment of existing flea infestations.

In well-controlled laboratory studies, NexGard demonstrated >97% effectiveness against *Dermacentor variabilis*, >94% effectiveness against *Ixodes scapularis*, and >93% effectiveness against *Rhipicephalus sanguineus*, 48 hours post-infestation for 30 days. At 72 hours post-infestation, NexGard demonstrated >97% effectiveness against *Amblyomma americanum* for 30 days.

Animal Safety:

In a margin of safety study, NexGard was administered orally to 8 to 9-week-old Beagle puppies at 1, 3, and 5 times the maximum exposure dose (6.3 mg/kg) for three treatments every 28 days, followed by three treatments every 14 days, for a total of six treatments. Dogs in the control group were sham-dosed. There were no clinically-relevant effects related to treatment on physical examination, body weight, food consumption, clinical pathology (hematology, clinical chemistry, or coagulation tests), gross pathology, histopathology or organ weights. Vomiting occurred throughout the study, with a similar incidence in the treated and control groups, including one dog in the 5x group that vomited four hours after treatment.

In a well-controlled field study, NexGard was used concomitantly with other medications, such as vaccines, anthelmintics, antibiotics (including topicals), steroids, NSAIDs, anesthetics, and antihistamines. No adverse reactions were observed from the concomitant use of NexGard with other medications.

Storage Information:

Store at or below 30°C (86°F) with excursions permitted up to 40°C (104°F).

How Supplied:

NexGard is available in four sizes of beef-flavored soft chewables: 11.3, 28.3, 68 or 136 mg afoxolaner. Each chewable size is available in color-coded packages of 1, 3 or 6 beef-flavored chewables.

NADA 141-406, Approved by FDA

Marketed by: Frontline Vet Labs™, a Division of Merial, Inc.
Duluth, GA 30096-4640 USA

Made in Brazil.

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