

Coprophagia in the Domestic Dog
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Introduction and Definition

This will be a brief review and assessment of the causes, ramifications and treatments of coprophagia in domestic dogs found in the literature.

Coprophagia is defined as the consumption of feces. Autocoprophagia describes an animals who consumes their own feces. Intraspecific coprophagia describes an animals who consumes feces of other animals within their species. Interspecific coprophagia describes an animals who consumes feces of other animals outside of their species. This is a very common behavior noted in wild and domestic animals. This is a normal but usually undesirable behavior.

Proposed Causes

“There has been little research done on this particular behavior” (Erik Hofmeister; Melinda Cumming, DVM Ph.D.; Cheryl Dheinn,DVM, MS, DACVIM www.vetmed.wsu.edu/pets/study.htm) “Unfortunately no study to date has been performed to identify the causal factors underlying coprophagia.” (Lindsay, Steve, Canine Behavioral Services, www.erinet.com/ghost/coprophagia.htm)

Signalment:

1. Mothers who ingest the feces of their neonates. 2. Puppies oradolescents. The habit is usually first observed in pups 4-9 months old. It tends to decrease in intensity after the dog is 1 year old (Merk Veterinary Manual 7th. Edition).

Review of Hypothesized Causes or Contributing Factors for Coprophagia

1. Medical problems.

“Coprophagia may result due to various medical problems. Primary among them are exocrine pancreatic insufficiency, pancreatitis, intestinal infections, malabsorptive syndromes, and over-feeding (especially high fat content diets).However, with the majority of these conditions, many other signsbesides the coprophagia will be prominent, particularly diarrhea.” (Erik Hofmeister; Melinda Cumming, DVM PhD; Cheryl Dheinn,DVM, MS, DACVIM www.vetmed.wsu.edu/pets/study.htm)

“Most dogs that are coprophagic do not have a physiological, gastrointestinal basis for this behavior.” (Overall, Karen, MA,VMD, Ph.D. Clinical Behavioral Medicine for Small Animals, p. 264)

It would seem that coprophagia is seldom caused by medical problems and when it is, other, obvious and more prominent signs would present. Clients presenting a dog that is

coprophagic should be questioned about any signs of illness including diarrhea. If there are signs of illness the dog should have a veterinary examination to rule out medical causes. Otherwise behavioral causes should be explored. This is the first rule-out.

2. Nutritional

“Behavioral research has discounted the idea that it is a dietary deficiency or pancreatic enzyme deficiency” (Dr. Jo Ann Eurell, University of Illinois College of Veterinary Medicine)

“Most dogs that are coprophagic (stool eating) are not fed a diet that is deficient in essential nutrients or vitamins, nor do they have a pancreatic enzyme disorder.” (Overall, Karen, MA, VMD, Ph.D. Clinical Behavioral Medicine for Small Animals, p. 264)

“Some experts have speculated that undigested food or digestive enzymes are the sought after ingredients.” (Lindsay, Steve, Canine Behavioral Services, www.ernet.com/ghost/coprophagia.htm)

“stool produced by dogs on performance rations or puppy chow is much more attractive than that produced by dogs fed high-fiber diets.” (Dodman, Nicholas, DVM, Dogs Behaving Badly 2000, p. 53)

“By changing dogs to a high-fiber diet, owners wind up feeding their dogs a larger volume of food, perhaps enough to satiate their oral craving. The compulsion may not be eliminated at all by feeding high-fiber rations - it may simply be displaced onto a more acceptable alternative.” (Dodman, Nicholas, DVM, Dogs Behaving Badly 2000, p. 54)

The notion that dogs are coprophagic because of a nutritional deficiency seems to have been discounted by most sources. It is still considered viable that a dog who consumes a high protein or high fat diet may consume feces because the food is perceived by the dog as a viable food source. This is confirmed by common observations that coprophagic dogs often consume fat and protein in higher concentrations than other dogs and once dietary changes are made by increasing dietary fiber and decreasing protein and fat coprophagia is minimized or abates completely. As Dodman notes though, this may be an artifact of satiety rather than protein or fat being detected by the dog as a food source. This issue remains unresolved but it does suggest a potential pragmatic treatment option. Experimentation to hopefully confirm or refute this theory could possibly involve a survey or a coprophagic group and non-coprophagic group having their feces tested for undigested protein and fat levels.

3. Behavioral-nutritional

“Dogs are historically scavengers, and this is believed to be a scavenger behavior.” (Dr. Jo Ann Eurell, U of Illinois College of Veterinary Medicine)

“Dogs, even extant wolves, have a well-documented history of scavenging for food, and coprophagia may be a behavior that is a remnant of that history.” (Overall, Karen, MA, VMD, Ph.D. Clinical Behavioral Medicine for Small Animals, p. 264)

"Searching for feces is a self-rewarding hunt." (Super Dog, www.superdog.com/hints/eatpoop.htm)

This is a viable hypothesis and while difficult to test it certainly is an intuitively acceptable model that accounts for the behavior according to the law of parsimony. Dogs are scavengers and coprophagia may be largely a factor of this trait. It is a common observation that young dogs are more exploratory than older dogs, which is consistent with the signalment. Dogs explore and destroy or consume various items found in yards and parks.

4. Allelomimetic behavior

“The dog observes the owner picking up the feces and learns from them to do so as well.” (Erik Hofmeister; Melinda Cumming, DVM Ph.D.; Cheryl Dheinn, DVM, MS, DACVIM www.vetmed.wsu.edu/pets/study.htm)

This idea seems a stretch. I have yet to see research that would add validity to this.

5. Dominance

“There have been reports of a submissive dog consuming the feces of one or more dominant dogs in the same household.” (Erik Hofmeister; Melinda Cumming, DVM Ph.D.; Cheryl Dheinn, DVM, MS, DACVIM www.vetmed.wsu.edu/pets/study.htm)

It could be postulated that the subordinate dog does this as an appeasement of some sort but a competing hypothesis is that the subordinate is merely much less successful at competing for food resources and hence requires the nutrition of the feces, which is a much less preferred food source and the dominant dog probably does not challenge the subordinate for possession of it.

6. Conditioning

“The dog observes other dogs engaging in coprophagia and mimics their activity.” (Erik Hofmeister; Melinda Cumming, DVM Ph.D.; Cheryl Dheinn, DVM, MS, DACVIM www.vetmed.wsu.edu/pets/study.htm)

“Something about eating the feces itself reinforces the behavior. Things such as taste may be a factor in this.” (Erik Hofmeister; Melinda Cumming, DVM Ph.D.; Cheryl Dheinn, DVM, MS, DACVIM www.vetmed.wsu.edu/pets/study.htm)

The notion that something about consuming feces is reinforcing would seem obvious.

7. Attention seeking

“When the dog engages in coprophagia, their owner tends to reprimand them and, therefore, pay attention to the animal. This may be a sequellae to a medical condition [or other cause] which brought about the coprophagia initially and, now that the medical condition has cleared, the animal continues to engage in coprophagia in order to get attention from the owner.” (Erik Hofmeister; Melinda Cumming, DVM Ph.D.; Cheryl Dheinn, DVM, MS, DACVIM www.vetmed.wsu.edu/pets/study.htm)

This is a sound hypothesis based on the observation of hundreds of owners, trainers and behaviorists. It seems obvious to most behaviorists that in some cases this becomes the reason why the behavior continues. This can be difficult to test but when the behavioral history suggests an owner that chases the dog around or reprimands the dog for coprophagic behavior this is a very viable hypothesis. This of course begs the question of why the behavior started in the first case. While it is possible that the behavior was shaped by successive approximations this seems less likely than the theory that the behavior started as a result of some other process and then had its frequency was affected by the reinforcement of attention. For anyone who has seen this phenomenon it seems clear that the dog considers it a game. The dog will often look at the owner and then proceed to explore the feces at which point the owner yells commands or threatens the dog. At that point the dog will continue until the owner attempts to approach the dog. Then the dog either gulps down the feces or runs around the yard and comes back to the feces where he stands and looks at the owner usually with a play face on. The theory is further supported by the presence of play behaviors such as the play bow. As time goes on this can become a significant contributing factor.

8. Maternal Behavior.

It is well established that mother dogs will eat the feces of their pups. This should be easy to determine or rule out.

9. Boredom.

This hypothesis states that the reason a dog is coprophagic is because he is bored. There are dogs that are bored who do not become coprophagic and so this theory does not address why dogs are coprophagic directly or in all cases. It is possible that bored dogs are more likely to be in a position to become coprophagic or that they are more likely to explore or forage.

Conclusions

“At some level many coprophagic behaviors involve play, sampling, and learning”
(Overall, Karen, MA, VMD, Ph.D. Clinical Behavioral Medicine for Small Animals, p. 264)

There are several hypotheses to account for coprophagic behavior in dogs some of which are more likely than others. Maternal coprophagia is easy to determine by the presence of pups under 2 weeks of age and observation of the feces of the pups being consumed. If signs of illness accompany coprophagia then the dog should be examined by a veterinarian for the presence of common illnesses that can produce the behavior. Conditioning can sometimes be presumed at least partially if the behavior starts suddenly after exposure to a coprophagic dog. The dominance theory may be able to be considered if the subordinate dog in a household consumes the feces of more dominant dogs in the household and very intense competitive exclusion is present. Nutritional and behavioral-nutritional considerations can be assumed in many cases as it is probable that scavenger or exploratory behavior may be an important component and change in diet may result in abatement of the behavior. Attention seeking can be confirmed by the presence of play behavior and an increase in the behavior in the presence of owner intervention. It would seem that coprophagia is a multifactorial issue.

If the context of the situation does not offer specific ideas as to cause, treatment can still be started and it is possible that a cause can be identified backwards from a rule-out and successful plan process. In many cases the cause will not be determined and treatment may or may not be successful depending on many factors.

Resulting Medical Problems Associated with Coprophagia

Most of the time coprophagia is an undesirable behavior but does not result in illness or disease. Parasitism is a potential hazard, particularly if the feces eaten is from a wild animal (Erik Hofmeister; Melinda Cumming, DVM Ph.D.; Cheryl Dheinn, DVM, MS, DACVIM www.vetmed.wsu.edu/pets/study.htm).

Toxoplasmosis is transmitted in many sources of cart feces. This can cause Central Nervous System and muscle damage as well as other problems (Erik Hofmeister; Melinda Cumming, DVM Ph.D.; Cheryl Dheinn, DVM, MS, DACVIM www.vetmed.wsu.edu/pets/study.htm).

If the feces is left for long before ingestion the likelihood of the feces being contaminated with fly larvae, foreign bacteria, fungus and other microbes which can cause a variety of problems (Erik Hofmeister; Melinda Cumming, DVM Ph.D.; Cheryl Dheinn, DVM, MS, DACVIM www.vetmed.wsu.edu/pets/study.htm)

Hepatitis and canine parvovirus are two of the more important diseases than can be transmitted by the fecal-oral rout (Erik Hofmeister; Melinda Cumming, DVM Ph.D.; Cheryl Dheinn, DVM, MS, DACVIM www.vetmed.wsu.edu/pets/study.htm).

Treatment

Most treatment options for coprophagia are noninvasive and since a cause is not frequently identified the best approach may be for the owner to throw everything they can at the problem. Below are some treatment options to be considered.

1. Prevention.

Most dogs will out grown coprophagia. One option is to simply wait it out. Another option is to manage the problem in conjunction with other treatment options. This may break the habitual cycle of the behavior or simply give other “actual” treatment options a chance to work better. This involves restricting the dog’s access to feces. This may mean accompanying the dog out for voiding so that the owner can clean the mess up immediately. It may mean putting cat litter boxes on top of refrigerators or other areas inaccessible to the dog. It may mean keeping the dog on leash for voiding outings. It may also mean the use of a muzzle for voiding outings. A good solid “off” or “leave it” command can help.

2. Pharmacological intervention.

Concurrent to prevention there are medications or food additives that can be used. Veterinarians can prescribe *Forbid*, a powder that is added to the meal of the dog who’s feces is being consumed. This product makes the feces taste bad. If the owner forgets to pickup a stool this may help turn the habit around. An over the counter product called *Deter* is in pill form and it does much the same thing as *Forbid*.

On the theory that the food is not being digested completely and protein is detected by the dogs in their stool meat tenderizer can be added to the food, which will aid in the digestion of the protein. This is reported to work in many cases. Other substances said to help include monosodium glutamate (MSG), pumpkin seeds, breath mints, papaya, anise seed and pineapple. These are only anecdotal observations. There is no evidence to support their use though.

Another option is to add some noxious substance to the feces, which will create a taste aversion. This tactic is unlikely to work as dogs can easily detect the hot sauce or other product and will simply discriminate between tainted and nontainted feces. This is not likely to affect the consumption of normal feces. Better advice would be to go with the first few options.

3. Dietary Adjustment.

Switching the dog to a food lower in fat and protein and higher in dietary fiber may help. Also most dogs are simply over fed. A proper nutritional assessment by a professional and the suggestion of an appropriate diet can be helpful and certainly will not hurt.

4. Extinction.

For incidents of attention seeking behavior the best bet is to remove as many of the reinforcers as possible. This means attention. Taste is a reinforcement that might be removed by the chemicals mentioned in (2) while the owners added reinforcement is dealt with here. This is to be attempted in conjunction with the above recommendations.

That will mean that there is unlikely to be an incidence in which the dog is ignored while he explores feces. For situations that arise in which this is an option the dog should be ignored completely. Ideally the owner would walk away which could possibly even be negatively punitive.

5. Punishment.

Punishment may work in the first trial or two of the behavior but is unlikely to work thereafter. The use of punishment is risky also since it may be perceived as reinforcing. If it is perceived as punishment then the incidence of the behavior may or may not decrease in the presence of the punisher but will not be likely to decrease in the punisher's absence. Punishment is not recommended as the fallout is significant.

6. Mental and Physical Stimulation.

Increasing a dog’s mental and physical stimulation levels can decrease the incidence of coprophagia. It is thought that by doing so the dog simply has less energy to put into exploratory /scavenger behavior. Increasing mental stimulation can be achieved through canine sports such as agility or through positive reinforcement based training. Buster Cubes and well stuffed Kongs are also stimulating as is stashing small bundles of the dog's rations in the yard or house to encourage foraging. Physical stimulation can be achieved through fetch games, off leash play with other dogs or canine sports, preferably chosen based on the dog's heritage.

In conclusion, coprophagia is probably a natural and usually physically harmless behavior. We do not know for sure what the cause is and it is likely that it is some combination of the dog being a scavenger and other factors. The best way for owners to handle the problem is with chemical food additives and careful management / prevention until the dog outgrows the problem.