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## Novel Fiber-rich Supplement Effective for Prevention and Treatment of Acute, Episodic and Chronic Anal Gland Disease in Dogs and Cats

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### Abstract

The most common disease entity of the anal area in dogs, Anal Gland Disease (AGD), is directly associated with paired structures located on either side of the anus. Despite frequent manifestations of AGD in both canine and feline populations, veterinarian-client conversations addressing the prevention and management of AGD are typically avoided during routine exam room discussions. Unfortunately, AGD consultations most commonly occur when an animal presents at the clinic with an attendant anal gland problem.

Compression of the internal and external muscles of the anal sphincter and the concomitant mechanical pressure of stool during defecation effects a full or partial emptying of anal glands: Problems related to AGD are primarily associated with the inability of the anal glands to empty. Reduction in the incidence of AGD can be accomplished when firm stool exerts enough pressure on the anal glands to allow for natural gland expression, reducing the potential for inflammation. This is especially significant in the management of obese animals and small breeds diagnosed with the disease.

### Introduction

Both cats and dogs possess pouch-like anal structures that have evolved for identification, territorial marking and a defense against predators. These paired sacs (Figure 1), located on either side of the anus between the internal and external sphincter muscles [1], generate and can spontaneously release a watery to paste-like fluid that has a species-specific, unvaryingly disagreeable odor. This noxious material is formed by sebaceous glands, and in dogs, apocrine glands that line the sacs [1]. Upon defecation, the pressure of the stool causes emptying of the contents through narrow ducts that open near the rectum.

While the anal glands are today considered vestigial, dogs and cats in their natural settings will voluntarily express anal gland fluid to mark their territory, alerting others that the area is already 'taken' and by whom; strangers be warned! The territorial marking of AG material is far stronger than urine marking: It is not easily obliterated by weather or by marking over the urine left by others. Skunks [2], bears [3] and sea otters [4] all possess analogous pouch-like structures with similar functions.

Acute and chronic AGD are very common presenting complaints at veterinary clinics. Affecting up to 12% of all canines [5], the problems associated with these organs can range from mild irritation and itching; regional inflammation; infection; to cancer. For the almost eleven million dogs affected by AGD [6], early symptoms are frequently minor and easily overlooked by owners. Presenting history and signs can range from occasional dragging on ground, licking or biting at the rear end--in an attempt to relieve discomfort--to considerable pain due to deep infection, abscess or tumor formation.

Despite the frequency of AGD, veterinarians rarely discuss with clients its prevention or accompanying clinical signs and symptoms. The dialogue between pet owner and clinician usually begins after the dog or cat presents with glands that are blocked [7], swollen or draining or the perianal region is inflamed, bloody or ulcerated. In part, this lack of communication may be reflective of several contentious issues concerning anal glands, including a general lack of agreement among professionals in the field regarding even basic descriptors of these structures.

### 1. Nomenclature

While the lining of the anal glands in dogs includes both sebaceous and apocrine glands, taxonomists and texts refer to them as 'anal sacs'. Unfortunately, this poorly translates in the exam room: Clients often hear the term 'anal sex' instead of 'anal sacs', justifiably resulting in wide-eyed confusion! One would hope that this miscommunication and often embarrassing clarification is addressed while the client is still in the exam room, but more often than not, practitioners avoid the discussion completely in order to avert any misunderstandings! (For the purposes of clarity, the term 'anal glands' shall be used exclusively throughout this manuscript.)

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## 2. Function

There is lack of general agreement by companion animal practitioners whether anal glands were primarily designed for: (1) territorial identification and dominance; or (2) defense [8].

### A. Territoriality

Because the odor of the anal gland material is unique for each dog, it is both a form of individual identification and territorial marking. When dogs sniff rear ends, they are establishing dominance and setting the foundation for the relationship. Dominant dogs will typically initiate sniffing; a submissive animal will wait, may stop sniffing first and will quickly retreat. Superior canine scent memory is responsible for identification of individuals that may not have been seen for years and which of the pair was dominant.

### B. Defense

Like 'scent sacs' in skunks, the material produced by anal glands in dogs and cats is foul-smelling and is an effective method for distracting unwanted visitors!

## 3. Management

Failure of the anal glands to routinely empty during defecation due to poor muscle tone or obesity results in the retention of the contents. But if untreated, what may begin as intermittent mild irritation may lead to the development of significant problems, including chronic inflammation, bacterial overgrowth, deep infection and abscessation.

Unfortunately, thousands of years of domestication and selective breeding have resulted in the diminution of the ability of the muscles surrounding the anal glands to effectively contract; the resultant anal gland material retention is a condition that predisposes to AGD.

Diet also plays a significant role in the prevalence and management of AGD. Toy breeds and small dogs weighing less than 20 pounds experience a significantly increased incidence of AGD.

Modern commercial canine and feline diets have been developed primarily for their palatability and digestibility. Reducing fiber-rich ingredients in feed results in the production of a less bulky stool, making it easier for owners to clean up after their pets, while soft, high moisture-content canned food or high-digestibility formulae result in reduced fecal volume, they also lessen the primary requirement for effective AG emptying.

And although there is common understanding between veterinarians and owners about the positive short and long-term benefits of maintaining a pet's proper weight and body condition (including the reduced incidence of anal gland impaction), fully 50% of all dogs and cats are either overweight or obese [9], with poor overall muscle tone.

It is known that high fiber diets can positively impact anal gland health and adding fiber to the diet will facilitate anal gland emptying, but clinicians are generally uncertain about the proper amount or type of fiber to recommend. Palatability, most notably in cats, can also prove to be a challenge to compliance when attempting to supplement or feed a diet with increased fiber content. Even under the best of circumstances, just adding some fiber in the diet may only yield marginal results, falling short of the goal sufficient for long-term effective control of AGD.

The author discusses a proprietary formula, Glandex<sup>®</sup>, with ingredients that target and diminish underlying inflammatory and allergic causes of AGD while producing bulky, firm stool. The result is a reduction in the incidence of episodic or chronic AGD in affected or at-risk pets and provides the practitioner with an effective and safe treatment option for the most common complaint of the anal region in dogs [10].

## DIAGNOSIS OF AGD

The most common forms of AGD are non-neoplastic: impaction, inflammation, rupture and abscess formation. These conditions are diagnosed in up to 12% of the canine population [4,10,11].

Neoplastic AGD does occur (11,8,12) in both cats and dogs, often apocrine gland adenocarcinomas [13]. Highly malignant tumors that can metastasize to regional lymph nodes [14,11], they typically occur unilaterally and are generally not painful and may be quite small (0.2 to 1 cm). Therefore, rectal palpation of anal glands is highly recommended [15,1] as part of any routine or wellness physical exam.

The diagnosis of AGD is based on presenting symptoms and a thorough physical examination. Large and giant breed dogs are less frequently affected by AGD than small dogs and cats, but any companion animal may exhibit signs ranging from scooting to impaction, infection, abscessation or chronic draining fistulae [16].

### Canine presenting signs

- Dragging rear end on the ground
- Excessive licking of the anus
- Blood on the surface of a bowel movement or around the anus
- Difficulty defecating
- Vocalization during defecation
- Sudden turns to the rear in an attempt to lick or bite at the base of the tail or anal region
- Discomfort, straining or anxiety when defecating

### Feline presenting signs

- Impaction
- Excessive licking of the anal area or hind end
- Defecating or urinating outside the litter box
- Straining or crying when defecating
- A foul, fishy odor in or near the litter box
- Hair loss around the anus
- Generalized rear end discomfort
- Bleeding or swelling near the anal area

The authors declare that they have no conflicts of interest.

## Treatment of AGD

- Mildly impacted or irritated anal glands: simple digital pressure to empty the contents
- Infected or severely inflamed anal glands: antibiotics, pain and anti-inflammatory medications
- Abscesses: surgical curettage, drainage and wound care at home, with antibiotics
- Frequently recurring problems or possible neoplastic masses: surgical intervention [17] by a specialist and anal gland removal

## Post Treatment of AGD

Given the frequency of AGD in dogs and cats, where even a minor irritation can result in substantial patient discomfort and reduced quality of life for both the owner and patient, there has been an obvious, long-standing need for a safe, efficacious, convenient and cost-effective prevention and treatment product. And without a long-term management protocol that can address the underlying causes of AGD, additional and worsening episodes are likely; the potential for even minor anal gland irritation to quickly develop chronicity, or even festering abscess formation requiring advanced surgical interventions, is well-recognized and accepted.

Veterinarians have struggled to find a viable treatment option that successfully prevents or controls manifestations of AGD. There commendations most commonly offered have been to: (1) increase dietary fiber or (2) preemptively empty the anal glands on a routine basis. Unfortunately, these options have been inadequate in stemming the frequency of AGD cases seen in practice.

A product was needed that was capable of effectively treating AGD while meeting the needs and expectations of demanding veterinary professionals serving an educated clientele. The product had to meet the following criteria.

- Aid in the prevention and control of AGD
- Enhance a patient's ability to produce a firm stool capable of facilitating AG expression and avoiding constipation
- Contain ingredients which would ameliorate concurrent allergic or inflammatory initiators that prevent the easy passage of the anal gland material, avoiding impaction and the development of additional problems
- Contain synergistic ingredients that ensure the maintenance of healthy gut flora regardless of diet in order to maintain normal gastrointestinal balance and function
- Meet the high-quality standards necessary to gain the confidence of practicing veterinarians
- USA-sourced, all-natural ingredients
- Contain no artificial ingredients or preservatives

**Glandex**<sup>®</sup> is a proprietary oral formulation that effectively meets all the criteria required to successfully treat AGD. It is the first-to-market, clinically developed and approved treatment solution for the prevention and management of AGD in both dogs and cats. It's patented and extensively researched and balanced formulation precisely blends high-quality soluble and insoluble fiber, including pumpkin seed and apple pectin. Dosing levels are established that meet the wide variety of individual body weight requirements and conditions seen in clinical practice.

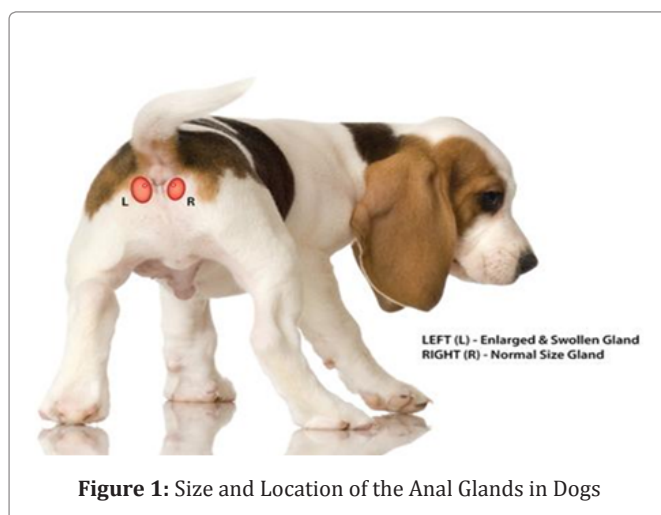
Included in the **Glandex**<sup>®</sup> formulation are natural anti-inflammatories including quercetin [18] and bromelain [19], omega-3 fatty acids, digestive enzymes and probiotics. These ingredients further target the underlying causes of AGD: Acting synergistically, they support anal gland emptying during normal defecation and significantly reduce factors contributing to AGD. Only human-grade components are used in the extremely palatable formulation, critical for long-term compliance. No grains are used. Without processed corn, the potential of dietary arachidonic acid to prime the pump for inflammation is eliminated [20].

**Glandex**<sup>®</sup> post-marketing surveillance indicates that 85.7% of pet owners have reported measurable effectiveness and improvement of their animal's AGD symptoms and a reduction of discomfort associated with the condition. **Glandex**<sup>®</sup> has become the gold standard in the treatment protocol for AGD in veterinary clinics for both cats and dogs.

## CONCLUSION

**Glandex**<sup>®</sup> is a safe, all-natural, palatable supplement that effectively treats and manages anal gland disease in dogs and cats.

By addressing the principal causes of AGD (impaction, inflammation and insufficient dietary fiber), **Glandex**<sup>®</sup> offers clinicians and their clients a pathway to improved wellness and optimal health for their companion animals.



**Figure 1:** Size and Location of the Anal Glands in Dogs

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