



NUTRITION NOTES

Nutritional Management of Acute Gastroenteritis

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Abstract

Many pet dogs and cats are affected by acute gastroenteritis. Correct management of such cases relies on evaluating the history, performing a physical examination, and conducting a nutritional assessment to differentiate patients requiring further diagnostic testing from patients that can receive symptomatic treatment and dietary adjustment alone.



Take-Home Points

- Although acute gastroenteritis is common, it can be challenging to manage.
- An in-depth history is required to ascertain causes of clinical signs for all cases.
- Withholding food for approximately 24 hours is appropriate for most cases, particularly when vomiting is present. Cases of chronic or severe vomiting may require hospitalization to deliver further support.
- Withholding food for longer than 12 hours for puppies or kittens is not recommended.
- Highly digestible, energy-dense, palatable foods should be used to deliver complete nutrition to all patients.
- Human foods such as chicken should be used to encourage eating only and not as a sole diet.
- The required quantity of dietary fiber depends on where in the gastrointestinal tract the signs originate.
- The prognosis for simple cases of acute gastroenteritis is excellent, as most are self-limiting.

Acute gastroenteritis is defined as a sudden-onset digestive disturbance lasting for a short period of time, usually less than 3 weeks. It is one of the top reasons dogs and cats are presented for treatment in small animal practice.¹ Diagnosis is made by evaluating clinical signs and excluding other causes; however, gastrointestinal mucosal inflammation is not necessarily present in all cases and, therefore, the term “acute gastroenteropathy” might be more appropriate. Gastrointestinal conditions in which clinical signs are present for more than 3 weeks and may worsen over time are not considered acute.

The most common dietary modification for simple acute gastroenteritis is to feed small amounts of a highly digestible, energy-dense diet several times a day until the clinical signs resolve, at which point the patient can be transitioned to its normal diet over a period of 1 to 2 days. If vomiting is present, withholding food for up to 24 hours might be beneficial, with the exception of in young/growing patients.

Decisions to withhold food (if at all) should be made on a case-by-case basis. Severe or chronic cases of vomiting may require hospitalization and additional support in the form of antiemetics, intravenous fluid therapy, and assisted feeding (e.g., via a feeding tube). Clinical signs indicating that hospitalization is required are listed in **BOX 1**.

Although the focus of appointments for acute gastroenteritis will mainly be the pet, it is also important to remember that the pet owner will find such problems stressful and upsetting, possibly because

their pet is uncharacteristically soiling in the house or if blood is present in either vomit or diarrhea. Therefore, it is important to reassure owners that, as alarming as clinical signs may be, they might not indicate a serious condition unless there are complicating factors.

CAUSES OF ACUTE GASTROENTERITIS AND CLINICAL SIGNS

Although cases of acute gastroenteritis are common, the condition can be challenging to manage, not least because patients often present with a range of clinical

BOX 1

Clinical Signs of Acute Gastroenteritis That Require Hospitalization^{2,a}

- Weight loss
- Abdominal pain
- Lethargy
- Abdominal swelling
- Hematemesis
- Inability to retain food in the stomach
- Fever
- Severe dehydration/hypovolemia
- Polydipsia/polyuria
- Bradycardia

^aPatients with clinical signs of gastroenteritis lasting more than 3 weeks should also be considered for hospitalization.



signs that might be attributed to different conditions (**BOX 2**). Common presenting clinical signs include diarrhea, vomiting, lethargy, dehydration, pyrexia, dysrexia, abdominal pain, and signs of shock. In some cases, blood may be seen in vomit or diarrhea. The presence of blood in feces, along with other characteristics, can help in determining the location of the disturbance in the gastrointestinal tract (**TABLE 1**).

MEDICAL AND DIETARY HISTORY

At the initial consultation, all components of the signalment should be reviewed, particularly breed, sex, neutered status, and life stage. Patients in growth or senior life stages might be more vulnerable, which might affect the management strategy. For example, causes such as dietary indiscretion and viral infection (e.g., parvovirus enteritis) are more likely in puppies than in adult individuals, with the causes in puppies being life-threatening in some cases.

A nutritional history questionnaire can be helpful in obtaining all relevant nutritional information. The World Small Animal Veterinary Association (WSAVA) Nutritional Assessment Checklist is a useful tool in obtaining this history; it also provides a helpful list of nutritional screening risk factors for the veterinary

healthcare team and is free to download at bit.ly/3L2XHk7.

A review of the patient's clinical history is needed to identify any underlying conditions that might be relevant. In-depth questioning of the presenting clinical signs will also be required. **BOX 3** lists questions to guide this part of the history.

Once all relevant information has been obtained, a physical examination should be performed, including the following assessments:

- Body weight
- Body condition score
- Muscle condition score
- Temperature
- Pulse rate
- Respiration rate
- Pain assessment
- Abdominal palpation

BOX 2

Common Causes of Acute Gastroenteritis

- **Infection** (e.g., bacterial, parasitic, viral)
- **Inflammation** (e.g., acute or chronic enteropathy)
- **Neoplasia** (e.g., gastrointestinal carcinoma or sarcoma)
- **Obstruction** (e.g., foreign body, neoplasia, intussusception)
- **Dietary** (e.g., rapid change of diet, dietary indiscretion, food intolerance, adverse reaction to food, hairballs)
- **Pharmaceuticals** (e.g., antibacterials, nonsteroidal anti-inflammatory drugs, chemotherapy drugs)
- **Ingestion of toxic or poisonous substances** (e.g., chocolate, xylitol)
- **Systemic diseases** (e.g., pancreatitis, kidney disease, diabetic ketoacidosis, hypoadrenocorticism, pyometra)

BOX 3

Checklist for History of Clinical Signs

- How long have clinical signs been present?
- Are the clinical signs associated with eating and/or drinking, either before, during, or afterward?
- Is vomiting and/or diarrhea present?
- Is the patient vomiting or regurgitating? (A description of both will be necessary to help the owner identify this)
- Is undigested food or bile present in the vomit?
- What is the consistency of the vomit and/or diarrhea?
- Is there blood in the vomit and/or diarrhea?
- How frequent are the episodes of vomiting or diarrhea, and has this changed?
- Is the pet's appetite normal, increased, or reduced?
- Is the pet's water intake normal, increased, or reduced?
- Have borborygmi been heard?
- Are there signs of nausea (e.g., excessive salivation, gulping, gagging)?



TABLE 1 Common Clinical Signs and Origin in Gastrointestinal Tract

CLINICAL SIGN	ORIGIN WITHIN THE SMALL INTESTINE OR STOMACH	ORIGIN WITHIN THE LARGE INTESTINE
Fecal consistency	Watery to semifformed	Semisolid and/or gelatinous
Blood in feces	Appears black or very dark if present	Appears bright red if present
Mucus in feces	Infrequent	Common
Fat in feces	May be observed	Not present
Tenesmus	Not present	Common
Frequency of defecation	May be increased	Frequently increased
Urgency of defecation	May be slightly increased	Frequently increased
Weight loss	Common	Infrequent
Vomiting	May be observed	Infrequent
Appetite	May be normal, increased, or decreased	Commonly normal

- Rectal examination
- Skin tent test to estimate degree of any dehydration
- Mucous membrane assessment for abnormalities such as jaundice

Based on the history and physical assessment, decisions can be made about whether further tests such as blood sampling and diagnostic imaging are required. Clinical findings that would warrant further investigation are listed in **BOX 4**. For complex cases that require further testing, a suitable treatment plan and dietary recommendation will depend on the results of all tests performed.

BOX 4

Clinical Findings Warranting Further Investigation

- Abdominal pain
- Organomegaly
- Anorexia
- Melena
- Bradycardia
- Polydipsia/polyuria
- Hyperthermia
- Tachycardia
- Jaundice
- Tachypnea
- Unvaccinated
- Cough
- Presence of an abdominal mass
- Abnormal lung sounds
- Weak pulses
- Generalized weakness
- Weight loss
- Severe lethargy

NUTRITION FOR SIMPLE ACUTE GASTROENTERITIS

Simple cases of acute gastroenteritis have a short history of clinical signs (commonly vomiting, diarrhea, or both). Cases in which further investigations are not warranted based on the clinical presentation often have a dietary cause such as a rapid diet change or dietary indiscretion (e.g., raiding the trash). Such cases benefit from nutritional modification, as do cases in which the cause is unknown.

Rest the Gut or Continue to Feed?

Traditionally, there are 2 options for dietary management: the first is to withhold food for up to approximately 24 hours before reintroducing a “bland diet,” with the rationale being to rest the gut; alternatively, in specific cases, hospitalized patients may be fed despite the clinical signs. Most cases of gastroenteritis are self-limiting and can be managed at home; however, severe or chronic cases with the clinical signs listed in **BOX 1** require hospitalization.

Resting the gut might be appropriate for cases with vomiting as a sign (with or without diarrhea), as oral



intake of food or water could exacerbate the vomiting frequency, leading to dehydration more quickly. In these cases, withholding food for approximately 24 hours and administering appropriate antiemetic medication and intravenous fluid therapy may be a suitable treatment plan before a gradual reintroduction of food is attempted.

In some rare instances of severe gastroenteritis (e.g., puppies with acute parvovirus enteritis), recovery is improved with hospitalization and nutritional support.³ Further, patients might not benefit overall from withholding food.⁴ Food should not be withheld for more than 12 hours in puppies and kittens with acute gastroenteritis.⁵

Dietary Adaptation

Dietary adaptation is a crucial part of the management strategy for acute gastroenteritis, both to aid recovery and to prevent recurrence.⁶ Various therapeutic diets are available for the management of gastroenteritis. Human foods, such as chicken, can be considered

initially but, ideally, only to encourage consumption of the selected diet and not as the only food, as they are not nutritionally adequate (**TABLE 2**). The following criteria should be considered in choosing a suitable diet:

- **Essential nutrient and energy requirements of the individual patient.** During recovery from illness, each patient should receive a complete and balanced diet that meets all its essential nutrients and energy requirements. This is especially true for growing animals, given their greater protein and energy needs.
- **Energy density of the diet.** Feeding an energy-dense food means that energy requirements can be met with a smaller amount of food. This is particularly useful for patients with partial anorexia. Energy should be calculated to meet the resting energy requirement for hospitalized patients and the maintenance energy requirement for patients that remain with their owner.
- **Digestibility of the diet.** Proteins, fats, and carbohydrates should all be highly digestible to mitigate risks of nutrient malabsorption. Highly digestible diets have also been shown to improve fecal quality.⁸

TABLE 2 Partial Nutrient Profile of Plain Chicken⁷

NUTRIENT	CANINE DAILY REQUIREMENT RANGE	PERCENTAGE OF DAILY REQUIREMENT ^a
Calcium:phosphorus ratio	1-2	6.58
Calcium	1.25-6.25 g	7.29
Manganese	≥1.25 mg	8.26
Vitamin A, RAE	375-18 750 µg	9.72
Vitamin E (α-tocopherol)	≥12.5 IU	13.12
Copper	≥1.83 mg	16.26
Iodine	0.25-2.75 mg	18.96
Folate, DFE	≥90.2 µg	26.93
Cobalamin (vitamin B ₁₂)	≥0.01 mg	29.5
Zinc	≥20 mg	30.37
Riboflavin	≥1.3 mg	53.26
Iron	≥10 mg	63.16
Vitamin D (D ₂ + D ₃)	125-750 IU	64.91
Thiamine (vitamin B ₁)	≥0.56 mg	75.92
Choline, total	≥340 mg	98.78
Potassium	≥1.5 g	103.65
Magnesium	≥0.15 g	117.42

DFE = dietary folate equivalents, RAE = retinol activity equivalents.

^aNutrient deficiencies are shown in red.



- **Palatability of the diet.** High palatability is needed to encourage food consumption. Palatability is increased in foods containing more fat and protein.
- **Fiber content of the diet.** Depending on where in the gastrointestinal tract the clinical signs originate (**TABLE 1**), increased or decreased dietary fiber may not be beneficial. If the disturbance originates in the stomach or small intestine, increased fiber is not recommended. Increased fiber delays gastric emptying and can affect the palatability of the diet. On the other hand, if the disturbance originates in the large intestine, increased fiber is beneficial. In these cases, a blend of fiber should be provided containing both fermentable (to provide nutrition to the colonocytes) and nonfermentable fiber (to add structure to the feces without bulk), which helps normalize fecal transit time and consistency.

Other Nutrient Considerations

For cases of simple acute gastroenteritis, cobalamin deficiency is not an immediate concern; however, should signs persist and become chronic, cobalamin supplementation might be required.⁹

For patients with chronic gastroenteritis, the omega-3 fatty acids EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) are believed to have anti-inflammatory properties.¹⁰ However, there is little evidence that these are beneficial in acute cases, and further work is required to determine their actual biological effects, as well as what cases they most benefit.

Feeding Regimen

It is usually recommended that the selected diet be fed in small amounts, frequently, with meals distributed throughout the day. If the patient is unwilling to eat, warming the food and other tempting techniques such as hand feeding may be required. Once clinical signs have resolved, the patient may be slowly transitioned back to its original diet, typically over 1 to 2 days of dietary adaptation.

Probiotics

The use of probiotics might provide some (albeit limited) benefit in cases of acute gastroenteritis.¹¹ Probiotics are live bacterial organisms that help regulate the normal gastrointestinal microbiome. In acute cases of gastroenteritis, probiotics have been found to shorten the duration of gastrointestinal disturbance

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and, therefore, may be beneficial alongside dietary adaptation.¹² As many probiotic products are available and this product type is not strictly controlled, it is important to communicate to clients that the commercial probiotic they choose should have sufficient quality controls and evidence of efficacy.

PROGNOSIS

Most cases of simple acute gastroenteritis are self-limiting and resolve within the first week. If clinical signs persist, further investigations are required to ascertain the underlying cause.

SUMMARY

Acute gastroenteritis is common in dogs and cats and has a wide range of causes. Withholding food is unnecessary in many cases of simple gastrointestinal disturbance, and dietary adaptation may be all that is required to resolve the clinical signs. Suitable diets to feed such patients should provide all essential nutrients and energy, usually in a highly digestible and palatable format. Probiotics may also be of use to help manage the clinical signs. After a few days, when the clinical signs have subsided, the patient should be able to return to its original diet over a short transition period of 1 to 2 days. If clinical signs do not resolve, further investigation is indicated. **TVN**

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Mirataz[®] (mirtazapine transdermal ointment)

For use in cats only.

Brief Summary (For Full Prescribing Information, see package insert)

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

DESCRIPTION: Mirataz (mirtazapine transdermal ointment) is a white to off-white ointment containing 2% (w/w) of mirtazapine suitable for transdermal (topical) administration. The active ingredient, mirtazapine, is a α 2-adrenergic receptor antagonist, nor-adrenergic and serotonergic drug.

INDICATION: For the management of weight loss in cats.

CONTRAINDICATIONS: Mirataz is contraindicated in cats with a known hypersensitivity to mirtazapine or to any of the excipients. Mirataz should not be given in combination, or within 14 days before or after treatment with a monoamine oxidase inhibitor (MAOI) [e.g. selegiline hydrochloride (L-deprenyl), amitraz], as there may be an increased risk of serotonin syndrome.

HUMAN WARNINGS: **Not for human use. Keep out of reach of children. Wear disposable gloves when handling or applying Mirataz to prevent accidental topical exposure.** After application, dispose of used gloves and wash hands with soap and water. After application, care should be taken that people or other animals in the household do not come in contact with the treated cat for 2 hours because mirtazapine can be absorbed transdermally and orally. However, negligible residues are present at the application site and the body of the cat at 2 hours after dosing. In case of accidental skin exposure, wash thoroughly with soap and warm water. In case of accidental eye exposure, flush eyes with water. If skin or eye irritation occurs seek medical attention. In case of accidental ingestion, or if skin or eye irritation occurs, seek medical attention.

PRECAUTIONS: Do not administer orally or to the eye. Use with caution in cats with hepatic disease. Mirtazapine may cause elevated serum liver enzymes (See **Animal Safety** in the product insert). Use with caution in cats with kidney disease. Kidney disease may cause reduced clearance of mirtazapine which may result in higher drug exposure. Upon discontinuation of Mirataz, it is important to monitor the cat's food intake. Food intake may lessen after discontinuation of mirtazapine transdermal ointment. If food intake diminishes dramatically (>75%) for several days, or if the cat stops eating for more than 48 hours, reevaluate the cat. Mirataz has not been evaluated in cats < 2 kg or less than 6 months of age. The safe use of Mirataz has not been evaluated in cats that are intended for breeding, pregnant, or lactating cats.

ADVERSE REACTIONS: The most common adverse reactions reported in the field study were application site reactions, behavioral abnormalities (vocalization and hyperactivity), and vomiting. **See Product Insert for complete Adverse Reaction information.**

Manufactured for:
Dechra Veterinary Products
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Georgia became certified as a veterinary nurse in 2004 from Myerscough College, Preston, United Kingdom. In June 2015, Georgia took the position of Royal Canin Weight Management Clinic Nurse at the University of Liverpool's Small Animal Teaching Hospital. Her role involves delivering care to patients with obesity and managing specific nutritional requirements of dogs and cats with various disorders. Georgia was awarded a certificate in canine and feline veterinary health nutrition from the College of Companion Animal Studies in 2017, became credentialed as a veterinary technician specialist in nutrition in 2019, and completed a BSc (Hons) veterinary nursing (top-up) degree in 2022.