

Feline Anorexia and Feeding Tube Placement

By Cheryl J. Loken D.V.M.

Feline Anorexia and Feeding Tube Placement

- Causes of anorexia
- Effects of anorexia
- Advantages of early enteral nutrition
- Strategies to promote eating
- Nasoesophageal tube placement and feeding
- Esophagostomy tube placement and feeding
- Feeding tube removal

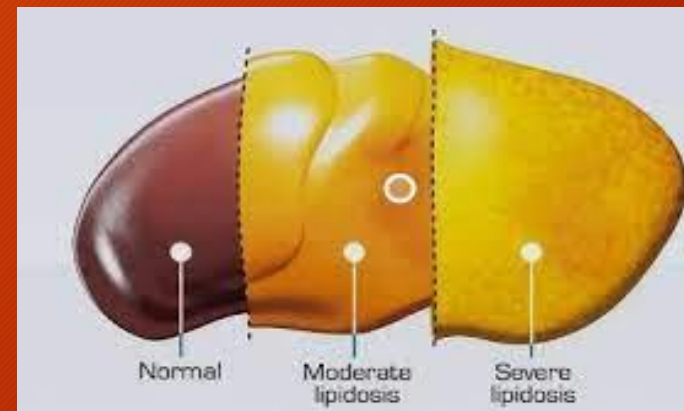
Causes of Anorexia

- 1) Perceived- Multi-cat household with free-choice feeding
- 2) Refusal
 - Change in type or quality of food
 - Change in feeding environment (type of dish, location, competition with other cat)
- 5) Acute illness
- 6) Chronic illness
- 7) Pain or obstruction



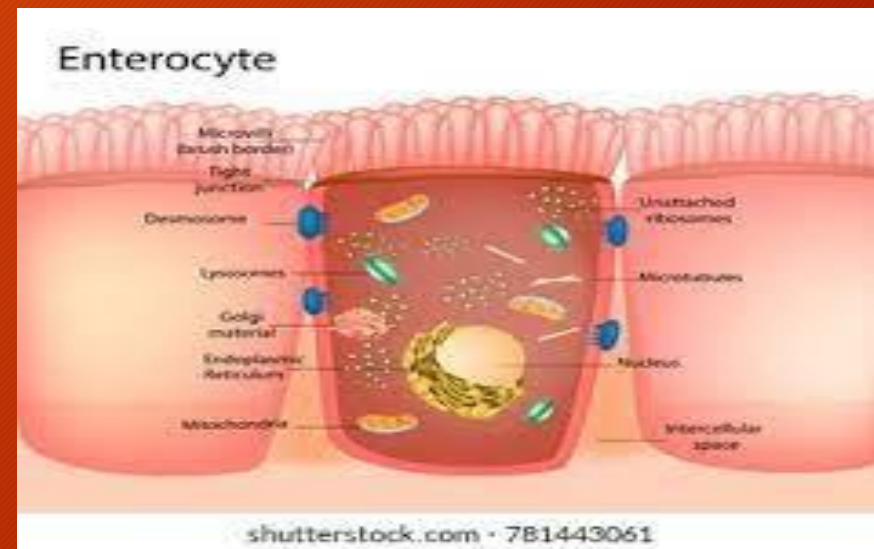
Effects of Anorexia

- Intestinal muscle atrophy
- Increased infectious complication due to bacterial translocation from the gut
- Delayed wound healing
- Development of hepatic lipidosis



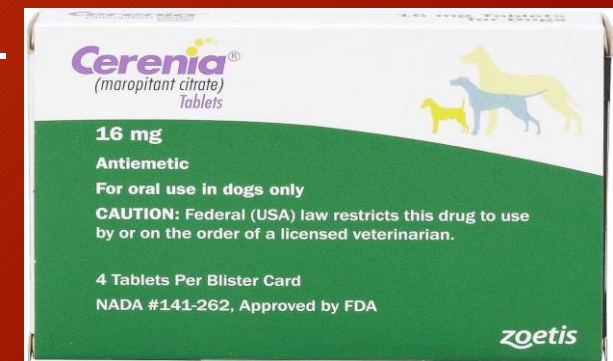
Advantages of Early Enteral Nutrition

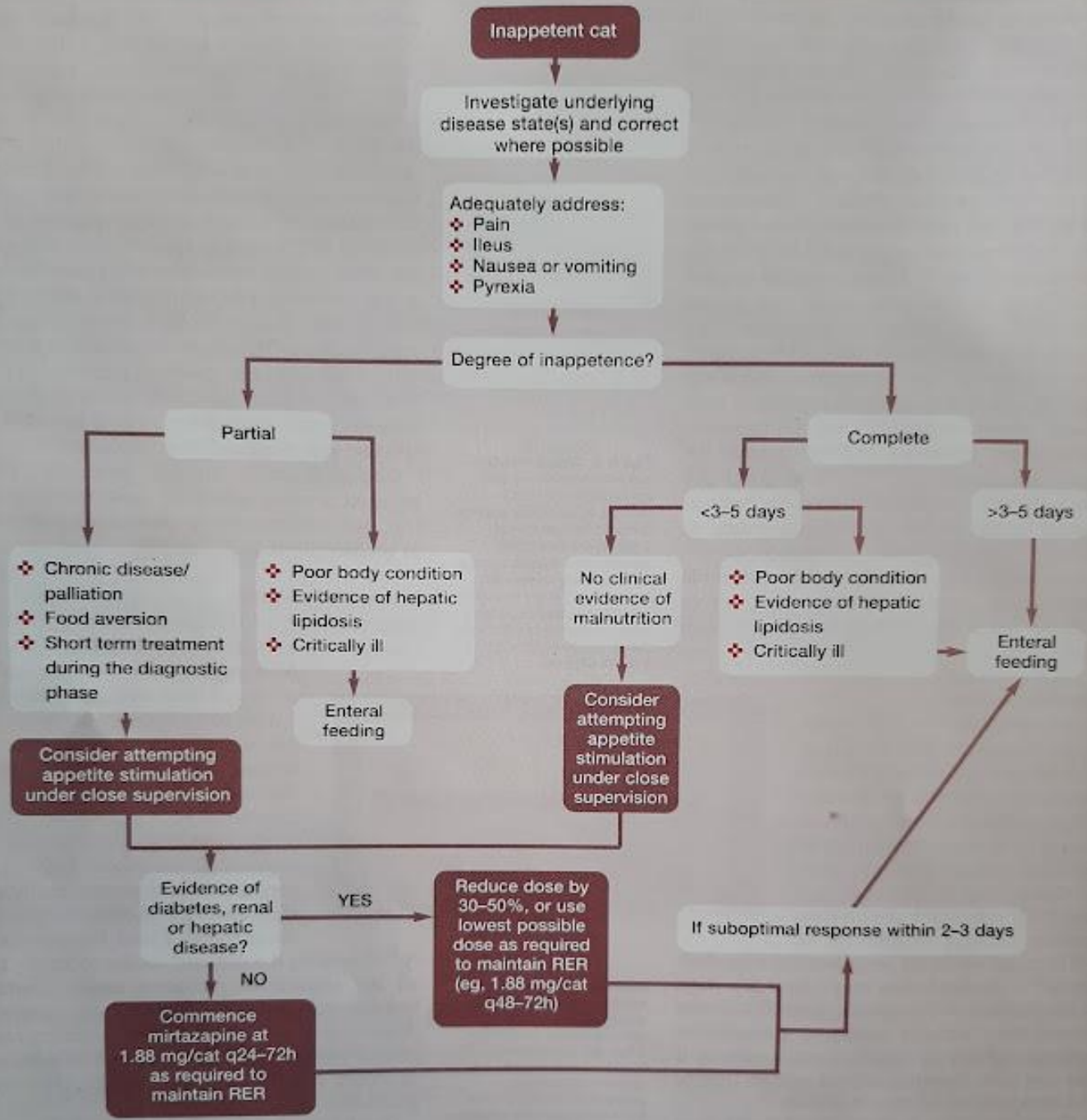
- Improves enterocyte health
- Improves immune function
- Improves gastrointestinal mobility
- Prevents catabolism
- Decreases morbidity and mortality



Strategies to Promote Eating

- Offer a more palatable diet (Prescription Diet a/d, tuna fish)
- Warm the food
- Add something palatable to the standard diet (chicken broth or pieces of cooked chicken)
- Hand feed
- Use an appetite stimulant- mirtazapine (1.88 mg/cat q24-72 hr)
- Use an anti-emetic if nausea may be a contributing factor- maropitant (2 mg/kg q24 hr)





RER = resting energy requirements

Nasoesophageal verses Esophogostomy Tube

Nasoesophageal

- Short term (< 5 days)
- Smaller tube size- only liquid diet, no tablet medications
- Less stable/secure (can be sneezed or vomited out)
- No sedation needed for placement
- Can be used prior to esophagostomy tube

Esophogostomy

- Long term (5 days to several months)
- Larger tube size- slurry diet, crushed tablet medications okay
- More stable/secure
- General anesthesia needed for short time

Placing a Nasoesophageal Tube

- Equipment

- Cat bag for restraint
- 5 or 8 fr feeding tube
- Cap for feeding tube (not pictured)
- Lubricant (not pictured)
- Lidcaine
- 3-0 nylon suture
- Needle holder with scissors
- Waterproof tape
- E. collar
- X-ray machine or sterile water/saline in a syringe (not pictured)





Placing a Nasoesophageal Tube

- Procedure

- Measure feeding tube from nostril to 9th rib and mark tube at nostril end
- Restrain cat in cat bag
- Instill a few drops of lidocaine into nostril that will receive the feeding tube and tilt head back for the lidocaine to flow down the nasal cavity
- Pass suture in skin just caudal to nares and place a square not (in preparation for finger trap suture)
- Lubricate tip of feeding tube and pass it down the ventromedial nasal meatus to the predetermined mark
- Secure feeding tube to skin with finger trap suture
- Confirm esophageal placement with a radiograph or instill 5 mL sterile water/saline into tube to confirm no coughing
- Secure end of tube in one or two more places (just above eyes and dorsal head) with butterfly tape and suture to further secure the tube, and cap the tube
- Place E collar to prevent the cat from scratching the tube out of place









Placing an Esophagostomy Tube

- Equipment
 - General anesthesia and surgical prep
 - 14 fr feeding tube with cap
 - Scalpel handle and #10 blade (not pictured)
 - 3-0 nylon suture
 - Needle holder with scissors
 - Waterproof tape
 - 5"-7" curved hemostat
 - Triple antibiotic ointment and gauze (not pictured)
 - Stockinette





Placing an Esophagostomy Tube

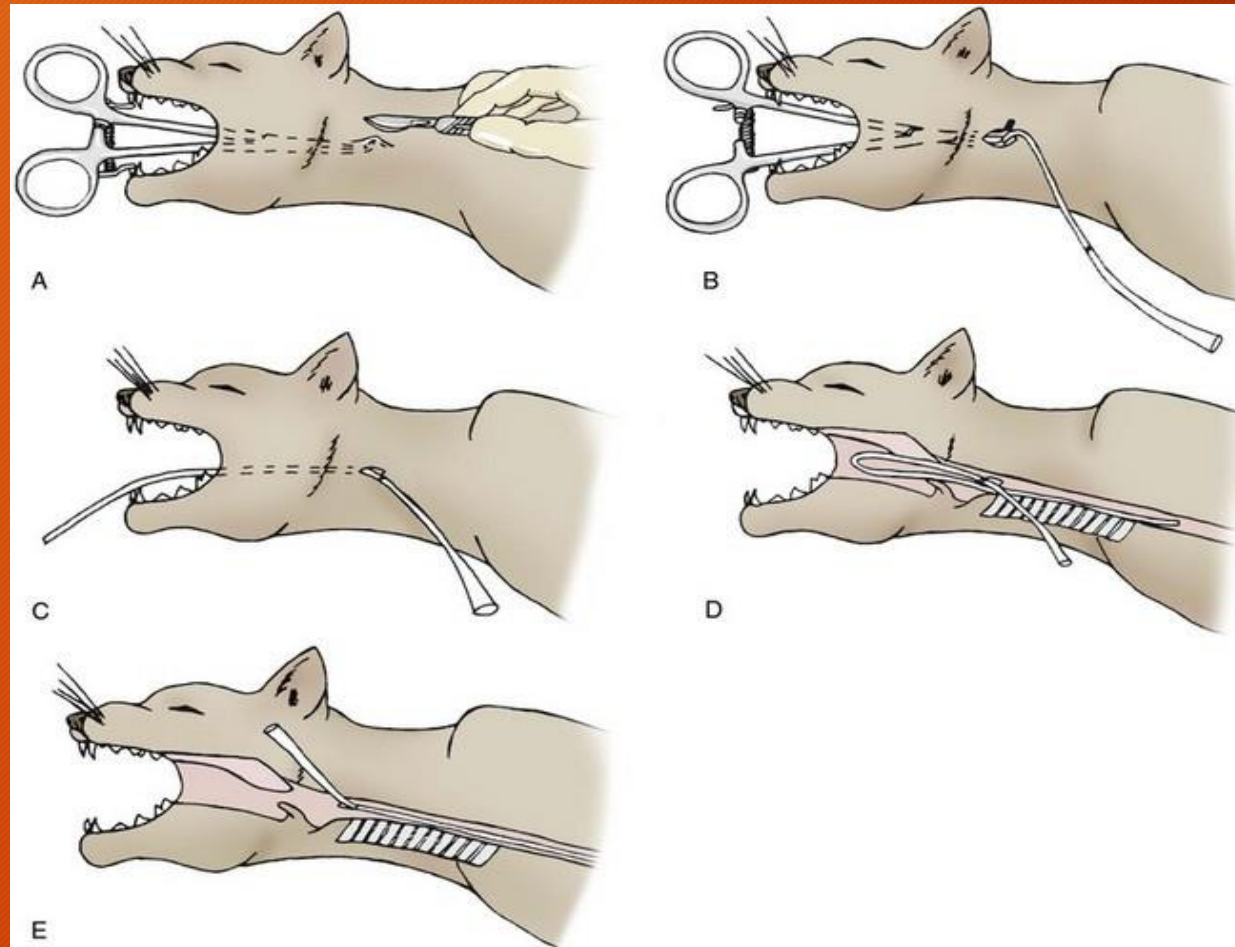
- Procedure
 - Induce general anesthesia and place in right lateral recumbency
 - Surgical clip and prep of left side from base of ear to distal neck
 - Measure feeding tube from wing of atlas (first cervical vertebra) to 9th rib and mark at level of wing of atlas
 - Assistant to pass hemostat through mouth into esophagus (surgeon will feel the tip through the skin in the cervical area)
 - Using the scalpel, cut down through the skin and underlying tissue to the tip of the instrument (be careful of the jugular vein). The final layer is a translucent membrane. Make the incision large enough for the tip of the hemostat to pass through the skin.



Placing an Esophagostomy Tube

- Procedure continued
 - Pass the tip of the hemostat through the incision and grasp the caudal end of the feeding tube
 - Retract the hemostat, pulling the feeding tube with it, to exit the mouth
 - Release the hemostat and then re-grasp the caudal tip of the feeding tube with it now directed caudally
 - Push the tip of the feeding tube past the incision. This may be helped by the surgeon pulling the extra loose tubing out the incision. Release the tip of the catheter. The assistant removes the hemostat and the surgeon pushes the tubing in until the desired placement is reached (marked area level to wing of atlas).
 - Place finger trap suture at level of incision and butterfly tape at level of wing of atlas. The suture at this level is passed through the osteum to anchor it.
 - Place a gauze with triple antibiotic ointment over the incision and a stockinette over the neck covering everything

Placing an Esophagostomy Tube





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Tube Feeding

- Resting Energy Requirement
 - $RER = (30 \times \text{weight in kg}) + 70 = \text{kcal/day}$ - starting point to avoid overfeeding
 - Illness= IER= $1.0-1.4 \times RER$
 - Monitor weight and adjust accordingly
 - Quantity fed per 24 hrs= $RER \div \text{kcal/mL in diet}$ - divide total into 2-6 feedings per day depending on duration of anorexia, and patient tolerance
 - On day one, start at 50% of total: day 2 at 75% of total: day 3 100%
 - Max volume per feeding= 10-20 mL/kg
 - Example for a 8 lb (3.6 kg) cat- $RER = (30 \times 3.6) + 70 = 178 \text{ kcal/day}$

Tube Feeding

- What to feed
 - Nasoesophageal tube- must be liquid diet
 - EmerAid Intensive Care HDN- mix one part powder to two parts water for 5-8 fr tube= 1.13 kcal/mL. Balanced feline nutrition.
 - If feline-specific product not readily available, can use human product. Ensure Plus= 1.4 kcal/mL (not chocolate flavor).



Tube Feeding

- What to feed
 - Esophagostomy tube- can be slurry
 - Prescription Diet a/d- mix one 5.5 oz. can with 25 mL of water= 1 kcal/mL



Company	Diet	Can size (oz)	kcal/can	Water (ml) required to add to 1 can (for 19 fr E-tube)	kcal/ml of final mixture	Water required (ml) to add to 1 can (for 14 fr E-tube)	kcal/ml of final mixture
Feline							
Eukanuba	Response - LB	6	222	40	1.1	50	1.1
	Low residue	6	165	60	0.8	70	0.7
	Renal	6	205	60	1.0	70	0.9
	Max. calorie	6	340	25	1.9	25	1.9
Hill's	a/d	5.5	180	25	1.0	25	1.0
	d/d venison	5.5	197	70	0.9	80	0.8
	i/d	5.5	161	30	0.9	40	0.8
	k/d (with chicken)	5.5	183	20	1.0	30	1.0
	l/d	5.5	183	30	1.0	40	0.9
Purina	CV feline	5.5	223	60	1.0	70	1.0
	NF	5.5	234	60	1.1	70	1.0
Royal Canin	Renal LP (pouch)	3	126	40 (per 2 pouches)	1.1	50 (per 2 pouches)	1.1
Science	Adult beef	3	93	40 (per 2 cans)	0.9	50 (per 2 cans)	0.9
Canine							
Eukanuba	Low residue	14	447	180	0.7	200	0.7
	Max. Calorie	6	340	25	1.9	25	1.9
Hill's	a/d	5.5	180	25	1.0	25	1.0
	i/d	13	485	330	0.7	350	0.7
	k/d	13	496	360	0.7	380	0.7
Purina	CV feline	5.5	223	60	1.0	70	1.0
	EN	12.5	424	290	0.6	310	0.6
	NF	12.5	500	320	0.7	340	0.7
Royal Canin	Low Fat LF	13	442	320	0.6	340	0.6
	Renal LP	13	784	360	1.1	380	1.0

Esophagostomy Tube Feeding-Home Care

Harmony Date Discharged- _____

Current Body Weight-9.9 _____

Feedings - Mix 1 can of Prescription Diet a/d with 25 mL warm water. Mix the diet and water thoroughly by drawing it up into the syringe and forcing it out again repeatedly (this will allow it to pass through the tube readily). Any remaining mixture can be stored in the refrigerator, but should be warmed for the next feeding.

- 1) Flush the tube with 3 mL warm water.
- 2) Administer the designated amount of warmed diet over 3-5 minutes. If any resistance is met, flush the tube again and make sure the diet is mixed adequately. If any vomiting occurs, stop the feeding and reduce the next feeding by one half. If vomiting continues, please call the veterinary clinic.
- 3) Flush the tube with 5 mL warm water.
- 4) Cap the tube.

Day 1- Feed _____ mL every _____ hours

Day 2- Feed _____ mL every _____ hours

Day 3 and onward- Feed _____ mL every _____ hours

Offer food before each tube-feeding, or free-choice during the day. Your pet should be eating very well on its own for one week before the tube is removed.

Tube/Skin Care

- 1) Clean the skin around the tube once a day with hydrogen peroxide.
- 2) Cover the incision with triple antibiotic ointment and a clean gauze pad once a day.
- 3) Cover the tube and gauze with a neck wrap (stockinette), and replace as needed to keep clean.

Medications -If needed, most oral medications can be given through the tube. For tablets, crush them to a fine powder and mix with 3 mL of warm water. Flush the tube after giving medications.

- 1) Clavamox (an antibiotic) give ___ mL every ___ hours for ___ days.
- 2) Cerenia (an antiemetic) give ___ tablet(s) once a day for ___ days.
- 3) Mirtazapine (an appetite stimulant) give ___ tablet(s) every ___ days as needed.

Recheck examination requested on _____

Removing the Feeding Tube

- Remove the feeding tube when the cat is eating on its own for at least 3-4 days
- For nasoesophageal tubes- remove sutures, kink tube, and gently pull tube out
- For esophagostomy tubes- remove sutures and gently pull tube out. The incision is left to heal by second intention.

Questions?