




Inappetent cats: don't hope they will eat tomorrow, act today!

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International Cat Care for Vets

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One cannot think well, love well, sleep well, if one has not dined well.
 -Virginia Woolf-



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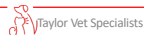
Contents of the talk



- Background on cats and eating
- Consequences of poor nutrition
- Nutritional assessment
- Hospitalised patients
- Appetite stimulants and when to use them
- Feeding tubes and when to use them


'Don't hope they will eat tomorrow, act today!'

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Introduction

- Inappetence (also called hyporexia, anorexia) is a common presenting sign in cats
- For cats periods of inappetence can lead to deleterious consequences
- Often multiple causes (not just the underlying illness)
- Manage with combination of approaches
- Satisfying to manage effectively
- Should never be ignored

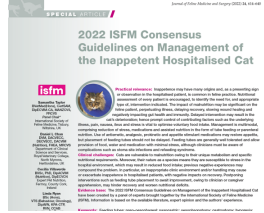


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2022 ISFM Guidelines on the management of inappetent hospitalised cats

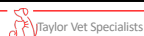
- Open access guidelines
 - Information on appetite stimulants, feeding tubes, reducing stress
 - Accompanied by feeding tube recording sheet, nutritional questionnaire
- Owner guides x 2
- Videos x 3





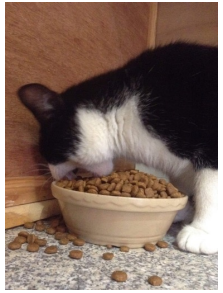
Your inappetent cat 'toolkit': bit.ly/inappetentcattoolkit

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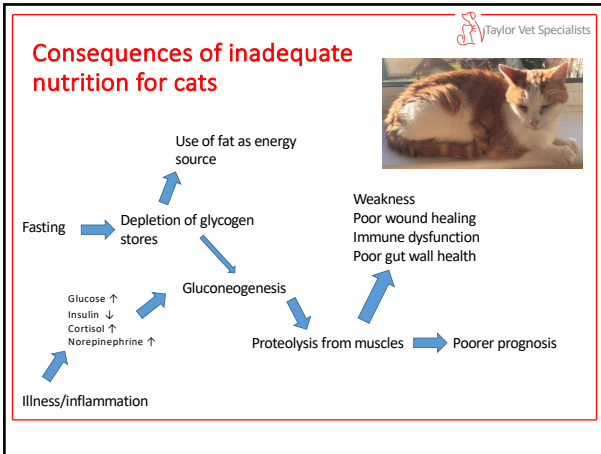


When the cat refuses food...

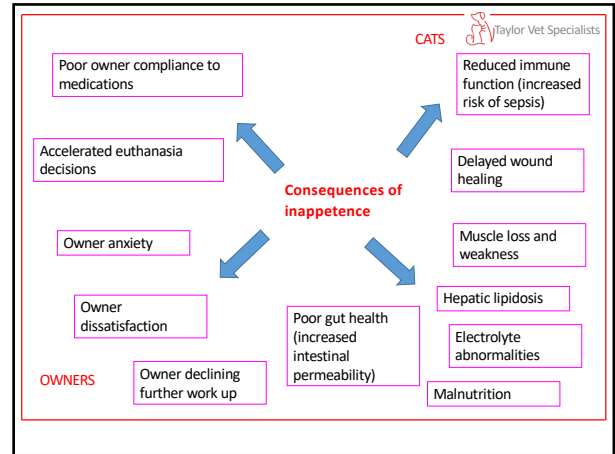
- It causes the owner worry
- It could be inadvertently re-inforced
- It may prompt the owner to seek veterinary attention
- If not managed promptly owners may lose faith
 - In the clinic
 - In the cat's ability to recover
 - In spending more money
- It worsens dehydration
- May make it very difficult to medicate the cat
 - Affecting recovery
 - Increasing client anxiety that they are not helping their cat



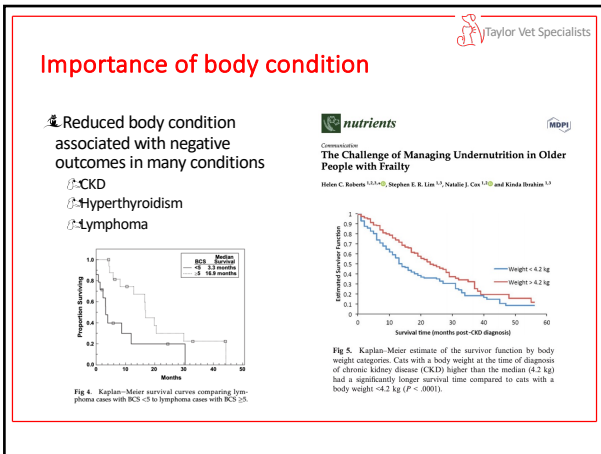
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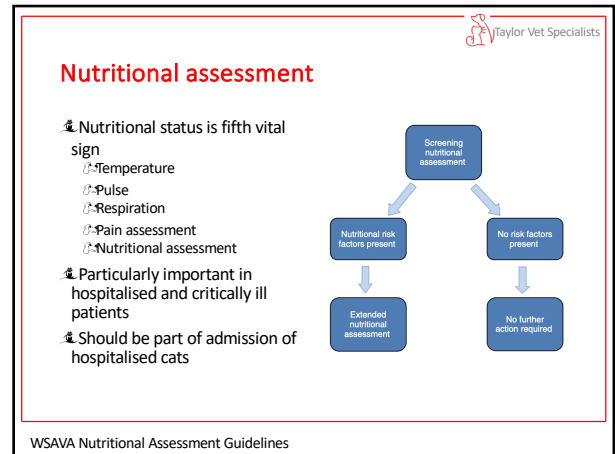
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Good habits: nutritional assessment

- Evaluated in every patient
- Short dietary history
 - Type of diet
 - Brand
 - Treats
- Questionnaires can be useful
- Weight AND BCS recording
- Risk factors
 - GI signs
 - Hypoalbuminaemia
 - Expected illness course

NUTRITIONAL ASSESSMENT IN THE CAT
Practical recommendations for better medical care

Angela Wilson Phillips and Maryseung Murphy

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Good habits: nutritional assessment

Muscle condition score

- Some cats may be overweight but have poor muscle condition score
- Particularly cats with chronic health issues
 - OA
 - CKD
 - GI disease
- 0-3 score
 - 0 severe muscle wasting
 - 1 moderate muscle wasting
 - 2 mild muscle wasting
 - 3 normal

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Nutritional assessment

Assessment tool to identify the need for nutritional support

Parameter	Low risk	Moderate risk	High risk
Food intake <80% RER for >3 days	✓		
Food intake <80% RER for 3-5 days		✓	
Food intake <80% RER for >5 days			✓
Presence of weight loss		✓	✓
Severe vomiting/diarrhoea		✓	✓
Body condition score <4/9			✓
Muscle condition score: moderate to severe muscle loss			✓
Muscle condition score: mild muscle loss		✓	
Pyothorax/abdominitis		✓	✓
Expected course of illness <2 days	✓		
Expected course of illness 2-3 days		✓	
Expected course of illness >3 days			✓

A patient with two or more high-risk factors present should receive nutritional support immediately once stabilised. Patients with fewer than two risk factors should be closely monitored and reassessed daily. RER = resting energy requirements. Modified from Perna (2012), with permission of Wiley-Blackwell

Use as a guide to prompt timely intervention
 Useful for hospitalised cases
 > 2 or more high risk factors: support as soon as stabilised
 < 2 or less high risk factors: plan reassessment and prepare to support



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Taking a nutritional history

Time pressures can limit history taking

'Fussy', 'eating nothing'

More subtle
 • Leaving some food
 • No longer asking for food

What is the cat's normal diet?
 Owner's may have already tried to modify diet to tempt to eat
 • Home cooked food
 • Treats

Other clinical signs
 Lethargy hard to notice in cats
 Withdrawal from family
 Spending more time indoors for indoor/outdoor cats
 Stress at home?
 Changes in environment
 PU/PD
 GI signs – owners may not see diarrhoea
 Abdominal pain

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Are you monitoring nutrition in your hospitalised patients?

Are you doing this in your clinic?

Every hospitalised cat should have

- A nutritional history taken
- Body weight and body condition and ideally muscle condition score recorded
- Calculation of energy requirements
- Calculations of grams of food this means
- Consideration of underlying disease
- Consideration of body condition score

Body Weight =	
(RER = (30 x BW) + 70) =	
Body Score Today (/ 9):	
RER is based on, please indicate	
Actual weight:	
Admitted weight:	
Ideal weight:	

Resting energy requirements (RER):
 < 2kg : 70 x BW^{0.75}
 > 2kg : (30 x BW) + 70

g or ml food per day = RER / metabolisable energy in the food

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Hospital sheets: room to record

Nutrition plan:

Please circle: NPO / H₂O only / Tube feeding / Oral

Food type:

Food volume per day:

Food volume per meal:

Meal frequency:

Allergies/special consideration

Body Weight = (RER = (30 x BW) + 70) =

Body Score Today (/ 9):

RER is based on, please indicate

Actual weight:

Admitted weight:

Ideal weight:

Time	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Amount offered g/mls															
Food eaten g/mls															
Water offered (tick)/administered ml															

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We are pretty good at recording weight, less so at recording BCS

95.2% consults recording weight
 Only 22.5% recorded body condition score
 More likely to record BCS in conjunction with a weight loss/overweight term
 More likely to be recorded in the morning than afternoon or OOH
 Other studies show poor uptake of nutritional assessment



Taylor and German 2022 under review

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But not so good at nutritional assessment...

PAPER

Knowledge, attitudes and application of nutrition assessments by the veterinary health care team in small animal practice

Infrequent and non-systematic nutritional assessments
 Time limitations
 Lack of knowledge of assessment

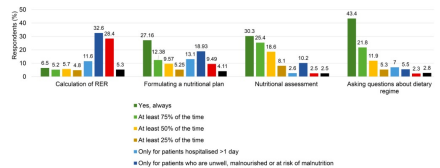


FIG 2. Frequency of performance of different components of nutritional assessment

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Why cats might not eat in hospital

Non-specific factors associated with inappetence

Ileus
Pain
Direct effect of underlying illness
Nausea (with or without vomiting)
Adverse effects of medications (direct or via bitter taste)
Constipation
Dehydration and electrolyte abnormalities
Stress

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Management of inappetence – first things first

Treat underlying disease

Review medications
• Direct effect
• Interactions
• Bitter taste

Stress management
• In the home
• In the hospital

Pain recognition and management

Management of ileus

Management of nausea

Correct electrolyte abnormalities

Management of fluid deficits

Treat constipation

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The effect of anxiety

- Many cats will not eat in hospital due simply to anxiety and fear
- Therefore, anxiety can actually impact recovery from illness
- Cat Friendly Clinic scheme (from ISFM) designed to help clinics reduce stress for their feline patients
- See www.catfriendlyclinic.org
- Minimise/avoid exposure to dogs
- Quiet and calm surroundings
- Gentle handling

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Simple changes to the hospital cage: a place to hide

- Hospitalised cats MUST have somewhere to hide
- Clear evidence of reduction in stress
- In shelter studies provision of hiding place reduced incidence of disease
- Anxiety will be reduced by a giving back some control
- Some cats like to 'perch'
- Simple solutions
 - Cardboard box
 - Basket in cage

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Are you managing nausea?

- Nausea may not be obvious
- Assume its presence with consistent diseases
- GI tract pathology
- Liver disease
- Pancreatic disease
- Also consider as an adverse effect of anaesthesia and opioids
- Several options available

Cerenia
Metoclopramide
Zofen

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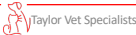
Pain scoring in clinic and at home

- All clinics should be pain scoring post-op and hospitalised patients
- Feline grimace scale is simple and easy to use
- Other pain scoring systems are available
- Written into hospital monitoring sheets
- Is the fourth 'vital sign'
- See <https://www.felinegrimacescale.com>

FELINE GRIMACE SCALE FACT SHEET


WHO? HOW? WHY?

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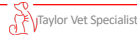
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Drug adverse effects

- ⚡ Avoid 'polypharmacy'
- ⚡ Drug interactions underdiagnosed
- ⚡ Many drugs may cause nausea
- ⚡ Opioids cause ileus and nausea, constipation plus over-sedation
- ⚡ Consider indication for the drug eg omeprazole
- ⚡ Bitter tastes: metronidazole, ranitidine, gabapentin




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When to intervene?

- ⚡ When do we worry about hypoxemia?
 - ⌚ After 2 weeks of inappetence?
 - ⌚ After 2 days of inappetence?
 - ⌚ After 5 days of inappetence?
 - ⌚ After 3 days?
- ⚡ Immunity impaired (decreased CD4+ and CD8+ at 4 days)
- ⚡ Consider support for any cat eating:
 - ⌚ <RER for 3 days
 - ⌚ Predicted >3 days



Biochemical and Molecular Action of Nutrients

Acute Starvation and Subsequent Refeeding Affect Lymphocyte Subsets and Proliferation in Cats¹

Kimberly A. Freitag,^{1*} Korinn E. Saker,^{1*} Elizabeth Thomas¹ and Joan Kainitsky¹

¹Graduate Program in Department of Human Nutrition, Food and Exercise and ²Virginia-Maryland College of Veterinary Medicine, Virginia Polytechnic University, Blacksburg, VA 24061

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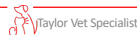
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Don't wait until tomorrow

- ⚡ Postponing interventions just leaves more time for negative effects of inappetence
- ⚡ Hard to regain lost condition
- ⚡ Don't rely on hope (or tuna!)
- ⚡ Don't wait for results
- ⚡ Consider how to improve appetite while waiting for test results
- ⚡ Soft adaptations
 - ⌚ Tempting
 - ⌚ Warming food
 - ⌚ Small meals
- ⚡ Appetite stimulants




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Appetite stimulants


- ⚡ Can be very useful in the management of hypoxemia
- ⚡ Inappropriate use will lead to treatment failure
- ⚡ Appetite stimulation in the presence of nausea and pain will fail
- ⚡ Consider compliance to medications (are you just adding another tablet?)
- ⚡ Consider each case individually
- ⚡ Unlikely to 'mask' illness



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Appetite stimulants



- ⚡ Not appropriate to use
 - ⌚ Prednisolone
 - ⌚ Unless treating the underlying disease
 - ⌚ Diazepam
 - ⌚ Anabolic steroids
 - ⌚ Propofol (although proven affect)
 - ⌚ Megestrol acetate
 - ⌚ B12? – unless deficient

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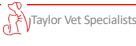
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Appetite stimulants: use them at the right time

- ⚡ Consider when to use the drug
 - ⌚ Pain controlled
 - ⌚ Nausea controlled
 - ⌚ Anxiety reduced
 - ⌚ Offering appropriate foods
 - ⌚ Underlying disease improving/managed
 - ⌚ Left with some food aversion
 - ⌚ Interest in food but inadequate intake
 - ⌚ Outpatients
 - ⌚ Earlier in course of disease
 - ⌚ Whilst waiting for results
 - ⌚ Recovering from illness
- ⚡ According to local licensing rules




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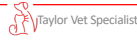


Appetite stimulants

- As part of management of chronic illness
- To support nutritional intake
- To facilitate compliance to medications
- To help with hydration
- To assist transition to novel foods that are clinically indicated
 - Renal diets
 - Hydrolysed diets
- To manage food aversion
 - Once illness resolved
 - Neophobic patients



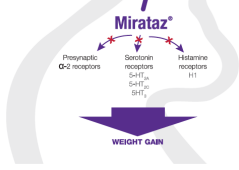
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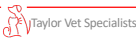
Appetite stimulants: mirtazapine

- 5-HT₂ and H₁ antagonist
 - Appetite stimulation
 - Anti-emetic
 - Prokinetic
- Antiemetic effect via antagonism of 5-HT₃
- Adverse effects
 - Localisation, agitation, restlessness
 - Occurred at higher doses more often
 - Resolve with time
 - Transdermal – site reactions such as erythema, scabbing etc reported in 10% cases

Mirtazapine myths



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Appetite stimulants: mirtazapine

- Initial studies on oral mirtazapine
 - CKD cats showed less vomiting, increased appetite, increased activity
- Transdermal mirtazapine
 - Various diagnoses (CKD, dental disease, OA, vomiting)
 - Mirtazapine vs placebo 14 days
 - Mean weight gain +3.9% mirtazapine vs 0.4% placebo
- Other studies (Quimby et al 2020) similar findings in CKD cats

Received 7 July 2019 | Revised 7 November 2019 | Accepted 11 November 2019
DOI: 10.1111/j.1365-3113.2019.05701.x

ORIGINAL ARTICLE WILEY

A double-blind, placebo-controlled, randomized study to evaluate the weight gain drug, mirtazapine transdermal ointment, in cats with unintended weight loss

Melinda Poole¹ | Jessica M. Quimby² | Tianhua Hu³ | Dalida Lubetz⁴ | William Buhler⁵

Assessment of compounded transdermal mirtazapine as an appetite stimulant in cats with chronic kidney disease

Jessica M Quimby^{1,2}, Kelly K Benson¹, Stacie C Summers¹, Ashlie Saffner¹, Andrea K Herndon¹, Shasha Bai¹ and Daniel L Gustafson¹

Journal of Clinical Pharmacy and Therapeutics

Volume 44, Issue 1, February 2019, pp. 1–7

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ISSN 0269-4727

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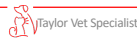
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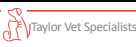


Let's start with a question

- How often do you place feeding tubes (any type) in cats in your clinic?
 - Never
 - Occasionally
 - Frequently
- If never – why not?







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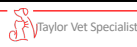


Types of feeding tube

- Most commonly placed are NO and O tubes
- G tubes have specific indications
- J tubes very rarely used







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Naso-oesophageal feeding tubes

- Easy to place
 - Short term nutrition (3-5 days)
- Conscious or sedated (consider gabapentin for example)
- Use lots of local anaesthesia in the nose and wait long enough
- Secure: tape and glue, staples, sutures
- Irritates some cats and will deter voluntary food intake
- Try to use soft collars with them
- Complications are unusual
 - Easily obstructed
 - Can't give crushed meds
- Narrow bore precludes many diets

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Naso-oesophageal feeding tubes


- Short term nutrition only
 - 5 days then should consider O tube
- Contraindicated in nasal disease
- Easily obstructed
- Cannot give medications
- Poorly tolerated by some cats
- Types of food limited
 - Liquid only
 - Tend to be high in protein and fat



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NO tube or NG tube?

- USA/Canada routinely place NG tubes in cats
- Complication rate in one (dog) study no different
- Probably with narrow gauge tubes is fine (no reflux)
- Easier to place under sedation (NG)
- Can suction fluid from stomach



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Oesophagostomy tubes

- Place under short GA
 - Easy once familiar with technique
- Larger bore tube
 - Allows medication to be given
 - Better choice of diets
- Can be managed at home
- Can leave for months if needed
- Check placement with
 - Radiography
 - Fluoroscopy
 - Endoscopy
 - Aspiration (negative pressure)
 - Capnograph
 - Sterile flush



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How to place an O tube

- Sterile technique
- Carmalt forceps
- You can use kits and introducers
- Secure with finger trap suture
- Can feed with it immediately
- Avoid excessive dressings
- Kitty Kollars


Watch our videos:
- bit.ly/inappentcattoolkit



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O tubes: complications

- Tube dislodgement
- Stoma site infection 12- 18%
 - Possibly more likely in cats on corticosteroids or chemo
- Can cause local infection/cellulitis
- Haemorrhage
- Nerve damage
- Horner's syndrome (rare)



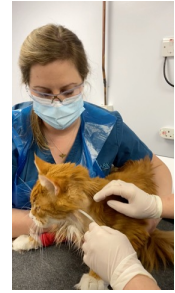
Journal of Veterinary Internal Medicine ACVIM
Esophageal feeding tube placement and the associated complications in 240 cats
Dora E. Boshuizen¹ | Aislinn Reid¹ | Alex Lu-Goff¹ | Sam-Ed Hoar¹ | Helen Castellan¹ | Doreen Anderson¹ | Tom Nutall¹ | Mojib L. Chalabi¹

Journal of Veterinary Internal Medicine ACVIM
Esophagostomy tube complications in dogs and cats: Retrospective review of 225 cases
Olivia Nathanson^{1*} | Kathryn McGonigal¹ | Kathryn McNeil¹ | Darko Stefanovic¹ | Dana Chiriac¹

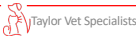
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Dealing with stoma site infections

- If severe can necessitate tube removal
- Swab for culture if possible in severe cases
- Mild cases:
 - Increase cleaning/re-dressing of area with chlorhexidine or iodine
 - Check sutures not too tight in skin
- Consider using antibiotic impregnated discs




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Stoma site infections

- ⚡ Severe cases need tube removal
- ⚡ Culture and sensitivity
- ⚡ Surgical debridement
- ⚡ Abscess rare

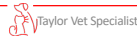


Prevention:

- Change instruments and gloves when suture in place
- Clean and change dressing daily
- Avoid over-tight sutures at tube site
- Hygiene when cleaning/caring for the tube

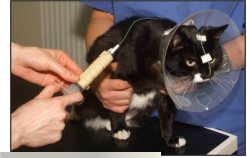

Photo courtesy of Carolyn O'Brien

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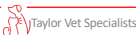
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Feeding tube obstruction


- ⚡ Common with narrow bore tubes
- ⚡ Flush well with body temperature water before and after feeding to prevent
- ⚡ Leave a column of water in tube
- ⚡ To manage:
 - ⚡ Warm water
 - ⚡ Pancreatic enzymes in bicarbonate
 - ⚡ Carbonated drinks?

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When should you consider placing a feeding tube?

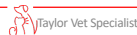


- ⚡ Cat consuming less than 80% RER for 3 days or more
- ⚡ Cats physically unable to eat (jaw fracture etc)
- ⚡ When undernutrition is predicted (after surgery, chemotherapy)
- ⚡ When patient is at risk of malnutrition
- ⚡ Medication compliance

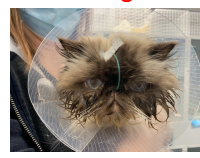
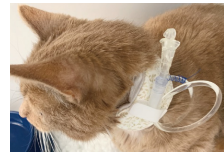
When you have the opportunity!

- GA for other things eg biopsies
- Prolonged medication courses

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When should you consider placing a feeding tube?





- ⚡ Early use of feeding tubes can reduce hospitalisation
- ⚡ Pre-emptive nutritional support beneficial
- ⚡ Must control nausea and vomiting before placing tube
- ⚡ O tubes allow discharge and home care
- ⚡ Complications usually minor

Choice of tube type depends on case


- Clinical condition
- Finances
- Temperament
- Diet choice

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What diet to feed


- ⚡ With NO and NG tubes likely limited to liquid foods
 - ⚡ Recovery diet
 - ⚡ Renal diets
- ⚡ O tubes and G tubes can usually use any diet
- ⚡ Liquidise well
- ⚡ Can be difficult to use hydrolysed diets for GI cases



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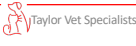
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Feeding via tube: how much




- ⚡ Adjust according to period of inappetence, tolerance, go slow
- ⚡ Usually
 - ⚡ 1/3 RER day one
 - ⚡ 2/3 RER day two
 - ⚡ RER day 3 onwards
- ⚡ Start lower if risk of refeeding syndrome
- ⚡ Monitor weight/hydration
- ⚡ Adjust according to body condition and growth for eg
- ⚡ Do not try to correct deficits in body condition in sick cats
 - ⚡ Aim for maintenance
 - ⚡ Or risk overfeeding
- ⚡ Monitor and adjust
- ⚡ Illness factors not recommended

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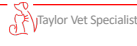
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Feeding via tube


- ⚡ Consider meal volume and any delays in gastric emptying (usually 5-10ml/kg max)
- ⚡ Some cats need small frequent meals (pancreatitis, liver disease)
- ⚡ Others will cope with larger volumes (jaw fracture)
- ⚡ CRI feeding possible 3-8ml/hr
- ⚡ Adjust parenteral fluids (most liquid diets are 75% water)



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Tips for cat friendly tube feeding



- ⚡ Allow cat to relax before starting, give hiding place/bed
- ⚡ Gentle support, cat carrier if needed
- ⚡ No forced restraint
- ⚡ Feed slowly monitoring for physical or emotional discomfort
- ⚡ Positive reinforcement
- ⚡ Warm food to body temperature
- ⚡ Cat Friendly Clinic principles

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Why you should NEVER EVER syringe feed

- ⚡ Rarely meet nutritional requirements
- ⚡ Risk of aspiration
- ⚡ Causes stress and fear
- ⚡ Cause of food aversion that can be longstanding
- ⚡ Some cats will tolerate this BUT still be finding the experience stressful



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Inappetent cats: summary



- ⚡ Multifactorial causes
- ⚡ Deleterious to recovery
- ⚡ Nutritional assessment important
- ⚡ Confidence to intervene rather than leave another day
- ⚡ Appetite stimulants can be useful – but manage other factors too
- ⚡ Remember the role of stress for hospitalised patients

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Thank you for listening!




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