Nutrition: The 5th vital assessment

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Resources

- Textbooks:
  - Applied Veterinary Clinical Nutrition
- WSAVA website
  - http://www.wsava.org/nutrition-toolkit
- ACVN website
  - http://www.acvn.org/
- Pet Nutrition Alliance website
  - http://petnutritionalliance.org/
- Timely Topics in Nutrition – JAVMA
- Product guides

Resources

- World Small Animal Veterinary Association
- Global Nutrition Committee
- Vital assessments: TPR
- 4th = pain assessment
- 5th = nutrition

www.wsava.org/nutrition-toolkit

Clinical Nutrition

- Management of patients’ nutritional needs
Importance?

- Your clients care about nutrition...
- Diet induced disorders, disease, death
- Maintenance of health
- Cornerstone of nutrient responsive disease management
- Not meeting patients’ medical needs without nutrition

Recommendations

- *Every* patient, *every* time
- AAHA study 2003
  - 350 veterinary practices
  - 27% of dogs & cats that could have been helped by a prescription diet did NOT receive it...
  - 9 million cats
  - 11.6 million dogs

Leave it up to clients?

Internet research, marketing, anthropomorphism

54% of dogs and 58% of cats in U.S. overweight or obese¹


Goal of assessment

- Identify improper nutrition
- Improper nutrition = malnutrition
- Malnutrition = increased health risks

Goal of assessment

- Identify improper nutrition
- Malnutrition = increased health risks
- Problems with energy or essential nutrients

Malnutrition

- Problems with energy or essential nutrients
  - Starvation
  - Muscle wasting
  - Overconsumption
  - Unbalanced
  - Inappropriate for disease state
Key Nutritional Factors

• Nutritional goals for patient?

VS

Circle of Nutrition

Patient evaluation

• Integration of many factors
  • Patient history
    • Diet history
    • Physical exam
  • Skin/coat quality, impediments to eating, other
  • Body condition score (BCS)
  • Muscle condition score (MCS)
  • Diagnostic test findings
  • Patient problem list or diagnoses

Patient evaluation

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    • Physical exam
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  • Diagnostic test findings
  • Patient problem list or diagnoses

Nutritional Assessment

Risk Factors Present → Extended Assessment & New Plan Needed

No Risk Factors → No action needed

Energy Consumed (kcal/day)

Complete & Balanced

Nutrient Responsive Disease(s)

Other: Supplements Other food

Type of diet

• Safe & effective?
• kcal or nutrients?
• Effect on total diet?

BCS

• Ideal
• Above or below ideal?

Diet suitably modified for patient?

Long-term consequences?
Food

- Main diet →
  - Complete & balanced?
  - Safe & reliable?
  - Appropriate for patient?
  - Comprising 90%+ of daily calories?
- Treats
  - Safety concerns?
  - Less than 10% of daily calories?
  - Appropriate for patient?
- Supplements →
  - calories, safe, effective, appropriate?

Energy

- Animals should be fed to meet *their* Energy needs
  - Ideal body condition
- How are Energy needs *estimated*?
  - Resting Energy Requirements (RER)
  - Maintenance Energy Requirements (MER)
- Environment, life-stage, physiologic state, activity
- Energy required for any work beyond RER
Exponential vs Linear RER Equations

- Exponential preferred
  \[ \text{RER} = 70 \times (\text{BW}_{\text{kg}})^{0.75} \]
- Linear equation not accurate at extreme BW
  \[ \text{RER} = (30 \times \text{BW}) + 70 \]
  - <3 kg
  - >25 kg

Maintenance Energy Requirements

<table>
<thead>
<tr>
<th>Maintenance Energy Requirements (MER)</th>
<th>Canine</th>
<th>Feline</th>
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<tbody>
<tr>
<td>Critical care/hospitalized</td>
<td>1.0 * RER</td>
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<td>Weight loss/obese</td>
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<td>Neutered adult</td>
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<td>Gestation</td>
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<td>Lactation</td>
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<td>2.5 * RER</td>
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</table>

1. depends on stage of gestation (note usually increase throughout gestation, while stage remains relatively stable until the last third and then their energy needs increase)
2. puppies and kittens have higher energy needs when they are younger and they start decreasing around 8 months of age until they are fully grown (which will vary with breed).

Energy intake (kcal per day)

Calorie information:
- USDA Food Database
  https://ndb.nal.usda.gov/ndb/search/list
- Manufacturer packaging
- Manufacturer website or phone
- Product guides
- Estimated - guaranteed analysis
Evaluating Diets

- Commercial diets → WSAVA
- Non-commercial diets:
  - Complete & balanced?
  - Source of information, who formulated?
  - Quality
  - Safety concerns?
  - Evidence-based?
Feeding Management

- Amount (energy needs)
- Frequency
- Timing
- Feeding method
- Location
- Environmental factors
- Food storage
- Interaction between all factors

Evaluating Diets

- Red flags in diets...
  - Home-cooked diets
  - Raw diets
  - Other alternative feeding
    - e.g. whole prey
  - Supplements
  - Treats

Obesity


For more information, visit the following websites:

1. https://www.obesity.org
2. https://www.nice.org.uk
3. www.obesity.org.uk
Case Examples

Screening evaluation checklist
Pets that are healthy and without risk factors need no additional extended evaluation

Multinutritional screening and factor (Nutritional evaluation is OPTIONAL)
Check off comment

Emotional stress or high activity level
Multinutritional diet
Dietary advice
Diet
Physical examination

Multinutritional risks factor (Nutritional evaluation is MANDATORY)

History of altered ponderal index (e.g., vomiting, diarrhea, nausea, starvation, starvation)
History of cancerous disease or condition (diabetes, heart disease, kidney disease, liver disease, etc.)
History of unfortified food consumption...
Unintentional diet (e.g., raw, fermented, spoiled, water-based)
Gastrointestinal disease (e.g., enteritis, liver disease, kidney disease, etc.)
Physical examination

Physical examination:
Uncoordinated gait (>3/3 activity)
Muscle condition score (Muscle, coat, or severe muscle wasting)
Corrected weight change
Dental abnormalities or disease
Poor appetite or food
New medical conditions / disease

No checked items on this page? The Nutritional Assessment is complete
Checked items on this page? Continue on the next page

Isabella
- 3 year old, spayed female Spanish Mastiff
- Current body weight - 70 kg (154 lb)
- Lost 3% of body weight in past week
  • History of losing weight and muscle quickly
- Body Condition Score - 6/9
- Muscle Condition Score: moderate-marked loss
- SEVERE Orthopedic disease...

Isabella
- Question 1:
  How overweight is Isabella?
- Question 2:
  What is her estimated RER/MER?
- Question 3:
  Is 3% weight loss in one week OK?
Isabella

• Question 1:
  • BCS = 6/9  Ideal = 4-5/9
  • Answer: 10-30% overweight

• Question 2:
  • Current body wt: 70 kg
  • RER = 70 * (70kg)^0.75 = 1694 kcal

• Question 3:
  • No...not on a therapeutic weight loss diet...and history of losing muscle!

Isabella – Diet History

Isabella - Dandy Lamb: Frozen Dinner


Guaranteed Analysis:
  • Protein, min: 23.0%
  • Fat, max: 12%
  • Fiber, max: 2.4%

Caloric Content: 2.5oz serving (calculated): 80 kcal per small patty, 170 kcal per large patty

Isabella - Surf ‘N Turf

Isabella - Stella & Chewy’s Freeze Dried Dinner

Nutrition Facts: 2-4 grams per day (5500 kcal/kg):
  • Caloric Content: 11-21 kcal

Isabella - Nutro Crunchy Treats, Zuke’s Mini Naturals Peanut Butter Flavor, Costco Made in the USA Jerky Treats, Tucker’s Raw Frozen Beef Bones, Chicken, beef, or fish, baked (1/4 cup per day):

Isabella - Tucker's Raw Frozen Beef Bones (2-4” per day):

Isabella - Wysong DentaTreat Canine & Feline Supplement

Nutrition Facts: 1-2 per day:

Isabella - Honey, Nature Made 1000 mg Fish Oil (2 per day):

* The following “modified Atwater” factors are used: 3.5 kcal/g protein, 9 kcal/g fat, and 4 kcal/g carbohydrate.
Isabella
12/6/2016

- Stella & Chewy's Frozen Dinner Dandy Lamb or Surf 'N Turf
  - 8 oz or 1.5 patties per day -- 410-706 kcal
- Surf 'N Turf
- Stella & Chewy's Freeze Dried Dinner
  - 2-4 grams per day (5500 kcal/kg) -- 11-21 kcal
- Nutro Crunchy Treats, 12-18 per day or
  - Zuke's Mini Naturals Peanut Butter Flavor, 16-30 per day or
- Costco Made in the USA Jerky Treats, 1-2 per day -- 56-108 kcal
- Tucker's Raw Frozen Beef Bones (2-4" per day) -- 250-500 kcal
- Chicken, beef, or fish, baked (1/4 cup per day) -- 45-90 kcal
- Wysong DentaTreat Canine & Feline Supplement -- 12 kcal
- Honey, 20 ml (4 teaspoons) -- 85 kcal
- Nature Made 1000 mg Fish Oil (2 per day) -- 20 kcal

Total -- 772-1235 kcal

Isabella
- Average daily intake <70% RER!
- 30-50% of daily calories coming from "treats"
- Large % of calories from fat and carbohydrate
- Nutrient deficiencies likely (including protein)

- Need complete & balanced diet
- More nutrient dense due to low energy needs
- Sufficient protein
- More consistent daily calorie intake

#1 - Pick Diet: therapeutic weight loss diet!!!
#2 - Feed average estimated current caloric intake
  - 1160 kcal per day
  - 959 kcal (diet) + 116 kcal (treats) + 85 kcal fish oil = 1160 kcal
#3 - Discontinue supplements (except fish oil)
#4 - Reweigh in one week
  - Adjust caloric intake (increase or decrease 10-20%)
#4 - Set up regular rechecks
#5 - Keep journal/log of diet and progress
#6 - Physical Rehabilitation Service

Isabella

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TOTAL 85
Isabella

- Isabella LOVED new diet (she & owner 😊)
- Owner became consistent about feeding
- Decreased intake by 10%, then maintained...
- % fat decreased as % muscle increased!!
- Frequent rechecks
- Assess BCS & MCS, not just BW
- Increased muscle, decreased fat, rehab → improved mobility (Yay!)