

# Nutrition: The 5<sup>th</sup> 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

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## WSAVA Global Veterinary Community


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

[www.wsava.org/nutrition-toolkit](http://www.wsava.org/nutrition-toolkit)

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**WSAVA**  
Global Veterinary Development



**NUTRITIONAL ASSESSMENT GUIDELINES**

WSAVA Nutritional Assessment Guidelines Task Force Members: Lisa Freeman (USA), Ireta Becvarova (USA), Nick Cave (New Zealand), Clayton MacKay (Canada), Patrick Nguyen (France), Betina Rama (Argentina), Gregg Takahima (USA), Rosi Tiffin (UK), Hajime Tujimoto (Japan), Peter van Beukelen (Netherlands)

**INTRODUCTION**

The WSAVA has developed a global initiative to standardize five vital signs as part of the standard physical examination for all small animals. These are:

1. Temperature
2. Pulse
3. Respiration
4. Pain assessment
5. Nutritional assessment

## 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 obese<sup>1</sup>

<sup>1</sup> 2016 National Pet Obesity Survey [www.petobesityprevention.com](http://www.petobesityprevention.com)

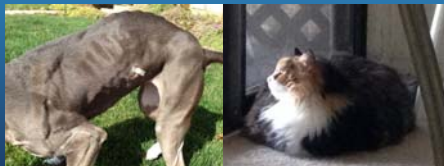
## Goal of assessment

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



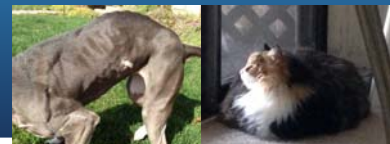
## Goal of assessment

- 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

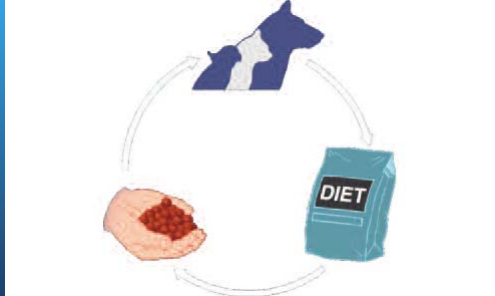


## Key Nutritional Factors

- Nutritional goals for patient?



## Circle of Nutrition



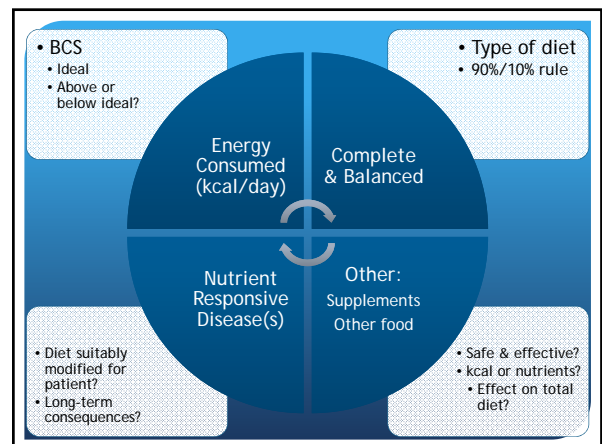
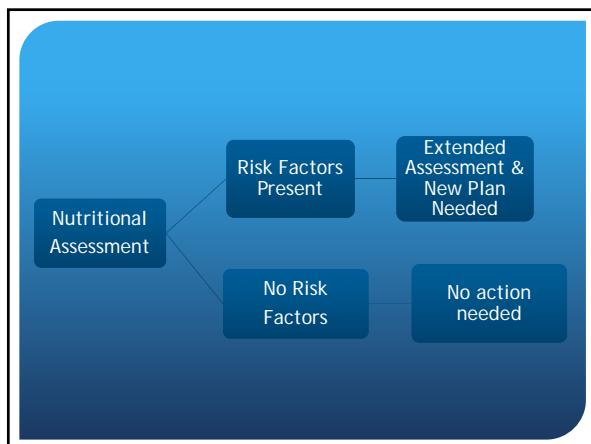
www.acvn.org

## 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

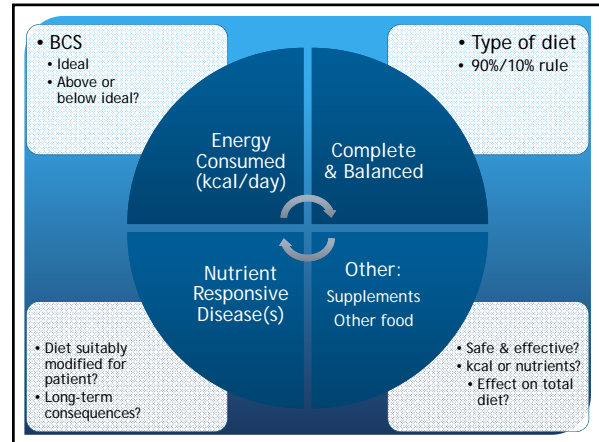
## Patient evaluation

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



# 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?

## Body Condition Score



**UNDER IDEAL**

1. ribs, lumbar vertebrae, pelvic bones and all bony prominences visible through skin. No discernible body fat. Obvious loss of muscle mass.
2. ribs, lumbar vertebrae and pelvic bones easily visible. No palpable fat. Some evidence of other bony prominences. Minimal loss of muscle mass.
3. ribs easily palpated and may be visible with no palpable fat. Tops of lumbar vertebrae visible. Pelvic bones becoming prominent. Obvious waist and abdominal tuck.

**IDEAL**

4. ribs easily palpable, with minimal fat covering. Waist readily noted. Obvious tuck absent. Abdominal tuck moderate.
5. ribs palpable without excess fat covering. Waist somewhat better fat often covered from above. Moderate tuck or under-ribs from side.

**OVER IDEAL**

6. ribs palpable with slight excess fat covering. Waist is discernible several hours above but not prominent. Abdominal tuck apparent.
7. ribs palpable with difficulty, heavy fat cover. Hardly visible fat deposits over lumbar area and base of tail. Tail absent or barely visible. Abdominal tuck may be present.
8. ribs not palpable under very heavy fat cover or palpable only with significant pressure. Heavy fat deposits over lumbar area and base of tail. Waist absent. No abdominal tuck. Obvious abdominal distention may be present.
9. Moderate fat deposits over thorax, spine and base of tail. Waist and abdominal tuck absent. Fat deposits on neck and throat. Obvious abdominal distention.

<http://www.wsava.org/sites/default/files/Body%20condition%20score%20chart%20dogs.pdf>

## Body Condition Score



**UNDER IDEAL**

1. ribs visible on short-haired cats. No palpable fat. Obvious abdominal tuck. Lumbar vertebrae and wings of the scapulae visible.
2. ribs easily visible on short-haired cats. Lumbar vertebrae distinct. Prominent abdominal tuck. No palpable fat.
3. ribs easily palpable with minimal fat covering. Lumbar vertebrae distinct. Obvious waist behind ribs. Minimal abdominal fat.

**IDEAL**

4. ribs noticeable with minimal fat covering. Thoracic walls behind ribs. Slight abdominal tuck. Abdominal fat not absent.
5. ribs noticeable.
6. ribs not palpable with excess fat covering. Waist absent. Obvious rounding of abdomen with prominent abdominal fat past. Fat deposits present over lumbar area.

**OVER IDEAL**

7. ribs not palpable with moderate fat covering. Head easily distinguishable but not obvious. Abdominal tuck absent.
8. ribs not palpable with moderate fat covering. Head easily distinguishable. Obvious rounding of abdomen. Moderate abdominal fat past.
9. ribs not palpable with excess fat covering. Head absent. Obvious rounding of abdomen with prominent abdominal fat past. Fat deposits present over lumbar area.
10. ribs not palpable under heavy fat cover. Heavy fat deposits over lumbar area, base and throat. Distention of abdomen with no waist. Obvious abdominal fat deposits.

<http://www.wsava.org/sites/default/files/Body%20condition%20score%20chart%20cats.pdf>

## Short Diet History Form

Can you tell me everything you give "Fluffy" from the time you wake up in the morning to the time you go to bed?

Where does your pet spend most of the time?  Indoors  Outdoors  Indoors and outdoors

Please list below the brands and product names (if applicable) and the amount of ALL foods, treats, snacks, dental hygiene product, nailclippers and any other foods that your pet currently eats, including foods used to administer medications:

Food	Form	Amount	Number	Feed since
Examples:				
- Purina Dog Chow	dry	1 1/2 cups	2x/day	Jan 2015
- Science Diet Adult				
- Gourmet Beef Entree	moist	1/2 can	2x/day	Jan 2015
- 100% Lean Hamburger	pan-broil	2 oz (60 grams)	1x/week	May 2016
- 888 Bone Marrow	chew	2	1/day	Aug 2016

## 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

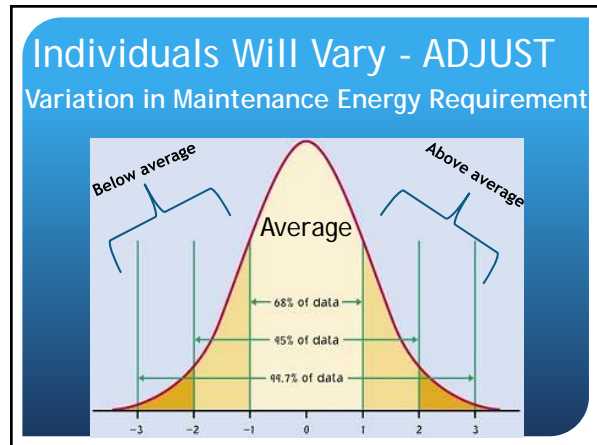
$$RER = 70 * (BW_{kg})^{0.75}$$

- ### Exponential vs Linear RER Equations
- Exponential preferred
    - $RER = 70 * (BW_{kg})^{0.75}$
  - Linear equation not accurate at extreme BW
    - $RER = (30 * BW) + 70$
    - <3 kg
    - >25 kg

### Maintenance Energy Requirements

Maintenance Energy Requirements (MER)		
	Canine	Feline
Critical care/hospitalized	1.0 * RER	1.0 * RER
Weight loss/obese	1.0 * RER	0.8-1.0 * RER
Overweight-prone	1.2-1.4 * RER	1.0 * RER
Neutered adult	1.6 * RER	1.2 * RER
Intact adult	1.8 * RER	1.4 * RER
Gestation	1.6-2.0 * RER <sup>1</sup>	2-3 * RER <sup>1</sup>
Lactation	2-6 * RER	2-6 * RER
Growth (puppies/kittens)	2-3 * RER <sup>2</sup>	2-3 * RER <sup>2</sup>

<sup>1</sup> - depends on stage of gestation (cats steadily increase throughout gestation, while dogs remain relatively stable until the last third and then their energy needs increase)  
<sup>2</sup> - puppies and kittens have higher energy needs when they are younger and they start decreasing around 4 months of age until they are fully grown (which will vary with breed).



### DRY FEEDING INSTRUCTIONS

Weight at Maturity		Feeding Amount*	
lbs.	kg	cups	
3 - 12	1 - 5	1/2 - 1	
13 - 20	6 - 9	1 - 1 1/2	
21 - 35	10 - 16	1 1/2 - 2	
36 - 50	17 - 22	2 - 2 1/2	
51 - 75	23 - 34	2 1/2 - 3 1/2	
76 - 100	35 - 45	3 1/2 - 4	
Over 100	Over 45	4 cups plus 1/2 cup for each 4.5 kg (10 lbs) of body weight over 45 kg (100 lbs).	

Metabolizable Energy (ME)<sup>†</sup> 2100 kcal/kg  
 Metabolizable Energy (ME)<sup>†</sup> 1795 kcal/lb  
 Metabolizable Energy (ME)<sup>†</sup> 443 kcal/9 oz (250 ml) cup

Using a standard 250 ml/8 oz measuring cup which contains approximately 1/2 g of Purina Veterinary Diet® EssentialCare® Adult Formula for Dogs. Provide fresh water in a clean container daily. <sup>†</sup> kcal/gram of metabolizable energy (ME).

### 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

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### Nutritional Assessment Checklist

To be completed by the pet owner. Please answer the following questions about your pet:

Pet's name: \_\_\_\_\_ Species/breed: \_\_\_\_\_ Age: \_\_\_\_\_

Owner's name: \_\_\_\_\_ Date form completed: \_\_\_\_\_

1 How active is your pet? Very active  Moderately active  Not very active   
 2 How would you describe your pet's weight? Overweight  Ideal weight  Underweight   
 3 Where does your pet spend most of the time? Indoor  Outdoor  Indoor & Outdoor   
 Please list below the brands and product names (if applicable) and amounts of ALL foods, treats, snacks, dental hygiene products, nutribites and any other foods that your pet is currently eating, including foods used to administer medications:

Food	Brand	Amount	Frequency	Start date	End date
Example:	- Purina Cat Chow	dry	1/2 cup	2x/day	Jan 2010
	- 90% lean hamburger	ground	2 oz (85 grams)	3x/week	May 2011
	- Milk Bone medium	dry	2	3x/day	Aug 2012
	- Chewies Catnip Dental	meat	2	daily	Jan 2013

4 Do you feed by volume, what size measuring device do you use? \_\_\_\_\_  
 5 Do you feed time-restricted food, what time? \_\_\_\_\_  
 6 Do you give any dietary supplements to your pet (for example vitamins, glucosamine, fatty acids, or any other supplements)? Yes  No   
 If yes, please list brands and amounts.

**To be completed by the health care team:**

Has the diet history form been reviewed? No  If not, please review the diet history form. Yes  If yes, please continue

Current body condition score: \_\_\_\_\_ Ideal body weight: \_\_\_\_\_  
 Muscle Condition Score: normal  mild wasting  moderate wasting  severe wasting

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

**Nutritional screening risk factors (extended evaluation is OPTIONAL)** Check  if present

- Extremely low or high activity level
- Multiple pets in a household
- Gestation
- Lactation
- Growth period
- Age of > 7 years

**Nutritional screening risk factors (extended evaluation is MANDATORY)**

- History of altered gastrointestinal function (e.g., vomiting, diarrhea, nausea, flatulence, constipation)
- Previous or ongoing medical conditions / disease
- Currently receiving medications and/or dietary supplements
- Unconventional diet (e.g., raw, homemade, vegetarian, unfamiliar)
- Snacks, treats, table food > 10% of total calories
- Inadequate or inappropriate housing

**Physical examination**

- Body condition score less than 4 or greater than 5 (on 9-pt scale)
- Muscle condition score: Mild, moderate, or severe muscle wasting
- Unexplained weight change
- Dental abnormalities or disease
- Poor skin or hair coat
- New medical conditions / disease

**NO CHECKED ITEM(S) ON THIS PAGE? The Nutritional Assessment is complete**  
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Reassess plan!!!

**Evaluating Diets**

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

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### Recommendations on Selecting Pet Foods

This information should be provided to pet food buyers to help them make an informed decision. The information is intended to help pet owners make a more informed decision about the pet food they choose for their pet. The information is intended to help pet owners make a more informed decision about the pet food they choose for their pet.

1. The pet food must be complete and balanced. This means that the pet food must contain all the nutrients that your pet needs in the right amounts. The pet food must also be safe and palatable.
2. The pet food must be made in a facility that is inspected and approved by the FDA.
3. The pet food must be made with high-quality ingredients.
4. The pet food must be made with ingredients that are safe and palatable.
5. The pet food must be made with ingredients that are safe and palatable.

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*Factual information must be provided on pet food labels but it is important to be aware that the label is also a promotional tool to attract pet owners. This means that much of the information provided - including the ingredient list and use of unregulated terms such as 'holistic', 'premium' or 'human grade' - is of little practical value in assessing nutritional assessment. The veterinary team plays a vital role in helping pet owners make informed decisions based on two key pieces of information:*

**A. The manufacturer's name and contact information. This allows a member of the veterinary team or the pet owner to contact the manufacturer to ask the following questions:**

1. Do you employ a full time qualified nutritionist? Appropriate qualifications are either a PhD in animal nutrition or board-certification by the American College of Veterinary Nutrition (ACVN) or the European College of Veterinary Comparative Nutrition (ECVCN). What is the nutritionist's name and qualifications?
2. Who formulates your foods and what are his/her credentials?
3. Are your diets tested using AAFCO feeding trials or by formulation to meet AAFCO nutrient profiles? If the latter, do they meet AAFCO nutrient profiles by formulation or by analysis of the finished product?
4. Where are your foods produced and manufactured?
5. What specific quality control measures do you use?

**B. In some countries, the AAFCO adequacy statement is included on the label. This statement confirms three important facts:**

1. Whether the diet is complete and balanced. All over-the-counter foods should be complete and balanced. If the statement reads 'for intermittent or supplemental use only', it is not complete and balanced. That may be acceptable if it is a veterinary therapeutic diet and is being used for a specific purpose - e.g. in a case of severe kidney disease - but should be avoided in over-the-counter pet foods.
2. If the food is complete and balanced, what life stage is it intended? AAFCO provides nutrient profiles and feeding trial requirements for growth, reproduction, and adult maintenance, but not for senior/geriatric pets. A food that is formulated to meet the AAFCO profiles for all life stages must meet the minimum nutrient levels for both growth and adult maintenance.
3. If the food is complete and balanced, how did the company determine that? Labels may include one of two statements regarding nutritional adequacy:
  - "[Name] is formulated to meet the nutritional levels established by the AAFCO Dog (or Cat) Food Nutrient Profiles for [life stage(s)]" (Analysis of food)
  - "Animal feeding tests using AAFCO procedures substantiate [Name] provides complete and balanced nutrition for [life stage(s)]" (Feeding trial evaluation)

## Selecting a Food



- Complete and balanced
- Specific purpose food
- Meets optimal nutrient profile range
- Nutrients are digestible & bioavailable
- Passed a feeding trial
- for appropriate life stage
- Marketed by research-oriented, value-added company
- Personal experience with diet

## 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

Below are the web addresses of some useful, accurate sources of information on nutrition:

**Nutrition Guidelines**

- World Small Animal Veterinary Association Nutritional Assessment Guidelines [http://www.wsva.org/educational/global\\_nutrition\\_consensus](http://www.wsva.org/educational/global_nutrition_consensus)
- American Animal Hospital Association Nutritional Assessment Guidelines <http://www.aahafed.org/Library/NutritionalSeminar.aspx>

**Tools for the Veterinary Healthcare Team**

- World Small Animal Veterinary Association Global Nutrition Committee Nutrition Toolkit <http://wsva.org/nutrition-toolkit>
- Pet Nutrition Alliance - information and tools to increase awareness of the importance of optimal pet nutrition <http://www.petnutritionalliance.org>

**Pet Nutrition - General Information for Pet Owners**

- National Research Council downloadable booklet: Your Cat's Nutritional Needs <http://doi.iec.utexas.edu/handle/document/1047>

**Pet Food**

- Association of American Feed Control Officials: Information on regulations, labeling and other important facts about pet food <http://petfood.aafco.org/>
- PetCo about pet foods [www.petco.com/shop/pcoservlet?command=general\\_pet\\_nutrition.html](http://www.petco.com/shop/pcoservlet?command=general_pet_nutrition.html)
- Federal Drug Administration (FDA) Pet Food site: Information, links, food safety issues, recalls, pet food labels, reporting portal <http://www.fda.gov/oc/ohrt/veterinary/Products/AnimalFood/PetFood/index.html>
- Pet food recalls: Information on ingredient definitions, labeling regulations <http://www.petfoodrecalls.org/index.cfm?tag=Consumer>
- Pet Food Report: Consumer's Guide to Pet Food [www.petfoodreport.com](http://www.petfoodreport.com)

**Nutrition Consultations**

- American College of Veterinary Nutrition: Listing of board-certified veterinary nutritionists who will conduct nutritional consultations for veterinarians and/or pet owners [www.acvn.org](http://www.acvn.org)
- European College of Veterinary and Comparative Nutrition: Board-certified veterinary nutritionists in Europe [www.ecvcn.com](http://www.ecvcn.com)

**Home-cooked Diets**

- American College of Veterinary Nutrition: Listing of board-certified veterinary nutritionists who will formulate nutritionally balanced homemade diet recipes for veterinarians and/or pet owners [www.acvn.org](http://www.acvn.org)
- BalanceIT: Commercial website which offers semi-customized balanced home-cooked diet recipes for pet owners with healthy pets. Veterinarians can customize pre-formulated recipes for animals with medical conditions [www.balanceit.com](http://www.balanceit.com)
- European College of Veterinary and Comparative Nutrition: Board-certified veterinary nutritionists in Europe [www.ecvcn.com](http://www.ecvcn.com)

**Obesity**

- Pet Obesity Prevention: Useful information on assessing pets' body weight, caloric needs, and weight loss tools [www.petobesityprevention.com](http://www.petobesityprevention.com)

**Dietary Supplements**

- ConsumerLab: Site (with a small subscription fee for use) that independently evaluates dietary supplements (primarily for human supplements but some pet supplements are included) [www.consumerlab.com](http://www.consumerlab.com)
- Food and Drug Administration (FDA): Regulatory and safety issues of dietary supplements, adverse event reporting <http://www.fda.gov/food/ DietarySupplements/default.htm>
- Mayo Clinic drugs and supplements information: Fact sheets on human supplements and herbs <http://www.mayoclinic.com/health/drug-information/Drug/fact/index>
- National Institutes of Health (NIH) Office of Dietary Supplements: Evaluating supplements, fact sheets, safety notices, internet health info <http://ods.od.nih.gov>
- United States Department of Agriculture (USDA) Food and Nutrition Information Center: General supplement and nutrition information, links to a variety of dietary supplement websites [http://www.nal.usda.gov/fnic/display/index.php?file\\_center=4&nav\\_level=1&doc\\_subject=274](http://www.nal.usda.gov/fnic/display/index.php?file_center=4&nav_level=1&doc_subject=274)
- United States Pharmacopoeia Dietary Supplement Verification Program: Independent testing of dietary supplements (human supplements only) <http://www.usp.org/usp-verification-services/usp-verified-dietary-supplements>

**Raw meat diets**

- Tufts Cummings School of Veterinary Medicine raw diet fact sheet [http://www.tufts.edu/vet/nutrition/resources/raw\\_meat\\_diets.pdf](http://www.tufts.edu/vet/nutrition/resources/raw_meat_diets.pdf)
- FDA guidance document on safe handling and raw foods <http://www.fda.gov/oc/ohrt/veterinary/Products/AnimalFood/Compliance/Enforcement/GuidanceforIndustry/UCM052662.pdf>

**Other**

- Ohio State Indoor Pet Initiative: Nutrition and other tips for optimizing the indoor pet's environment <http://indoorpet.osu.edu/>
- USDA Nutrient Database: Full nutrient profiles on thousands of human foods <http://www.nal.usda.gov/fnic/foodcomp/search/>

# Case Examples

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## Short Diet History Form

Please answer the following questions about your pet

Pet's name: \_\_\_\_\_ Species/Breed: \_\_\_\_\_ Age: \_\_\_\_\_  
 Owner's name: \_\_\_\_\_  
 Date form completed: \_\_\_\_\_

Gender: male  female  Neutered/spayed: No  Yes

1 How active is your pet? Very active  Moderately active  Not very active

2 How would you describe your pet's weight? Overweight  Ideal weight  Underweight

3 Where does your pet spend most of the time? Indoors  Outdoors  Indoors and outdoors

Please list below the brands and product names (if applicable) and the amount of ALL foods, treats, snacks, dental hygiene product, rawhides and any other foods that your pet currently eats, including foods used to administer medications:

Food	Form	*Amount	Number	Feed since
Examples:				
• Purina Dog Chow	dry	1 1/2 cups	2x/day	Jan 2015
• Solimar Diet Adult	dry	1/2 can	2x/day	Jan 2015
• Gourmet Beef Entree	moist	1/2 can	2x/day	Jan 2015
• 50% lean hamburger	pan-fried	2 or 3 (6 grams)	2x/week	May 2015
• Milk Bone tablets	tab	2	1/day	Aug 2015

### Screening evaluation checklist

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

**Nutritional screening risk factors (extended evaluation is OPTIONAL)**

Check <input type="checkbox"/> if present	
Extremely low or high activity level	<input type="checkbox"/>
Multiple pets in a household	<input type="checkbox"/>
Gestation	<input type="checkbox"/>
Lactation	<input type="checkbox"/>
Growth period	<input type="checkbox"/>
Age of > 7 years	<input type="checkbox"/>

**Nutritional screening risk factors (extended evaluation is MANDATORY)**

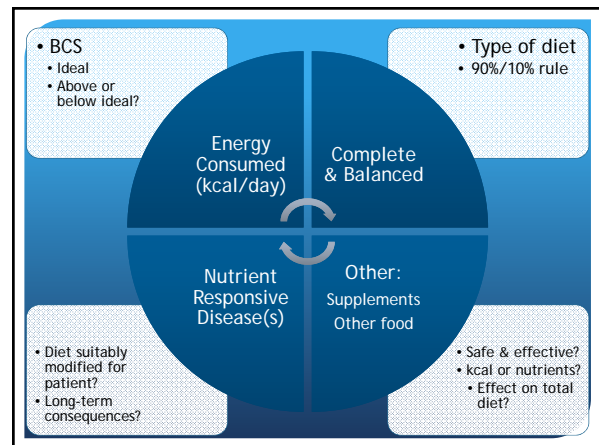
History of altered gastrointestinal function (e.g., vomiting, diarrhea, nausea, flatulence, constipation)	<input type="checkbox"/>
Previous or ongoing medical conditions / disease	<input type="checkbox"/>
Currently receiving medications and/or dietary supplements	<input type="checkbox"/>
Unconventional diet (e.g., raw, homemade, vegetarian, unfamiliar)	<input type="checkbox"/>
Snacks, treats, table food > 10% of total calories	<input type="checkbox"/>
Inadequate or inappropriate housing	<input type="checkbox"/>

**Physical examination**


Body condition score less than 4 or greater than 5 (on 9 pt scale)	<input type="checkbox"/>
Muscle condition score: Mild, moderate, or severe muscle wasting	<input type="checkbox"/>
Unexplained weight change	<input type="checkbox"/>
Dental abnormalities or disease	<input type="checkbox"/>
Poor skin or hair coat	<input type="checkbox"/>
New medical conditions / disease	<input type="checkbox"/>

NO CHECKED ITEM(S) ON THIS PAGE? The Nutritional Assessment is complete  
 CHECKED ITEM(S) ON THIS PAGE? Continue on the next page

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## 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 =  $70 * (70\text{kg})^{0.75} = 1694 \text{ kcal}$
- Question 3:
  - No...not on a therapeutic weight loss diet...and history of losing muscle!

# Isabella - Diet History

**Current Diets**

Please list below the brand or product names and amounts of ALL foods, snacks, and treats your pup currently eats. Please separate out each ingredient in a home-cooked diet, listing each ingredient on its own line. This description should provide enough detail that we could go to the store and purchase the food. It should include human foods given as treats or on the table. Examples given in italics.

Brand Name	Food/Variety	Form/how cooked	Amount fed "per meal"	# of meals	Fed Since
Della and Chewy's	Beef, Chicken, Lamb, Duck or Beef and Indulge	Raw	2oz	2 x a day	May of 2010
Fancy Feast	Commercial	Commercial	1/2 cup	2 x a day	May of 2010

*Handwritten notes:*   
 -  $4 \text{ oz} \times 2 = 8 \text{ oz} \text{ / day}$    
 -  $\sim 100 \text{ kcal / day}$    
 -  $2 \text{ / day}$    
 -  $9/13$    
 -  $7/13$

**DIET HISTORY FORM**

Please list the name or each additional supplement your pet receives. Indicate how much and how often your pet receives it (i.e. herbal product, fatty acid, vitamins or mineral supplement).

- Nature Made Vitamin E 200IU - 1 x a day
- Nature Made Vitamin C 500 mg - 1 time a day
- Tonnature Milk Thistle 200mg 2 x a day
- Nature Made Fish Oil 1000 mg 2 x a day
- Nature Made Omega 3 3000 mg - included in fish oil
- McNeil-PPC Zyrtec 10 mg - 2 x a day
- Mixe Free - Schiff - Glucosamine 1500 mg, Chondroitin 200 mg, Hyaluronic acid 3.3 mg
- Uniflex Extra 3-11 Fractoberic 2.6 mg - 1 x a day
- Tonnature Cranberry 300 mg - 1 x a day

# Isabella

**Dandy Lamb® Frozen Dinner**

**Ingredients:** Lamb, Lamb Spleen, Lamb Liver, Lamb Bone, Lamb Heart, Lamb Kidney, Calcium Carbonate, Pumpkin Seed, Potassium Chloride, Organic Cranberries, Organic Spinach, Organic Broccoli, Organic Beets, Sodium Phosphate Monobasic, Organic Carrots, Organic Squash, Organic Apples, Organic Blueberries, Choline Chloride, Dried Pediococcus Acidilactici Fermentation Product, Dried Lactobacillus Acidophilus Fermentation Product, Dried Bifidobacterium Longum Fermentation Product, Dried Enterococcus Faecium Fermentation Product, Taurine, Tocopherols (Preservative), Zinc Proteinate, Zinc Sulfate, Iron Sulfate, Iron Proteinate, Vitamin E Supplement, Niacin, Copper Sulfate, Copper Proteinate, Manganese Sulfate, Sodium Selenite, Manganese Proteinate, Thiamine Monohydrate, Pyridoxine Hydrochloride, Vitamin D3 Supplement, Calcium Iodate, Vitamin B12 Supplement.

**Guaranteed Analysis:**  
 crude protein min 13.0%  
 crude fat min 11.0%  
 crude fiber max 2.0%

Calorie Content: 2,073 kcal/kg (calculated); 85 kcal per small patty, 470 kcal per large patty  
 Formulated to meet the nutritional levels established by the AAFCO Dog Food Nutrient Profiles for All Life Stages

# Balance IT®

User Info Videos Help Homemade Food Buy Select

## Guaranteed Analysis Converter

It can be difficult to compare the protein, fat and carbohydrate levels between different food labels. This is especially difficult when comparing pet foods with large differences in moisture.

Please note that the values that are calculated may be slightly different from the values digestibility of protein, fat and carbohydrate and at times ash must be estimated. In addition the typical or actual value; therefore, care should be used as protein and fat levels may vary.

Guaranteed Analysis Values	Caloric Distribution Estimate*
% Crude Protein, min = 13%	31.93 % ME Protein
% Crude Fat, min = 11%	65.61 % ME Fat
% Moisture, max = 10%	
% Fiber, max = 2%	
% Ash, max = 1%	
% CHO (by difference) = 1%	2.46 % ME Carb.

Calculate

\* The following "modified Atwater" factors are used 3.5 kcal/g protein, 8.5 kcal/g fat, and

# Isabella

- Stella & Chewy's Frozen Dinner Dandy Lamb or Surf 'N Turf
  - 8 oz or 1.5 patties per day -- [410-706 kcal](#)
- 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

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**Total -- 772-1235 kcal**

## Isabella

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

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

## Isabella

- #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

### CALORIE CONTROL (Dry and Canned)

CALORIE CONTROL has been specially formulated to assist weight loss in the canine patient.

**Indications**

- Overweight adult dogs

#### Calorie Content

**Dry:** Approximately 252 kcal/cup, 360.3 kcal/100 g (NRC 2006)  
 Approximately 232 kcal/cup, 331.4 kcal/100 g (NRC 85)  
 70 g/cup

**Canned:** Approximately 212 kcal/can, 55.8 kcal/100 g (NRC 2006)  
 Approximately 202 kcal/can, 53.2 kcal/100 g (NRC 85)  
 380 g/can

**% Metabolizable Energy**

- From Protein (light green)
- From Fat (medium green)
- From Carbohydrate (dark green)

**Dry**

**Canned**

#### Feeding Guide

### Typical Analysis

Nutrient	Dry		Canned	
	g/1000 kcal	Dry Matter (%)	g/1000 kcal	Dry Matter (%)
Aspartic Acid	28.8	45.1	31.2	54.8
Cystine	16.4	26.3	19.2	34.4
Cysteine	27.7	45.1	25.2	44.2
Alanine	22.9	37.4	24.8	43.8
Valine	28.3	45.1	25.6	44.2
Glutamic Acid	31.2	50.7	43.9	76.7
Proline	3.7	5.9	2.5	4.3
Threonine	5.4	8.7	3.1	5.3
Leucine	2.4	3.9	2.2	3.8
Phenylalanine	3.6	5.9	1.4	2.4
Isoleucine	2.9	4.7	2.7	4.7
Methionine	0.7	1.1	0.3	0.5
Tyrosine	6.6	10.7	5.2	8.9
Lysine	5.8	9.4	3.2	5.5
Total Omega-6 Fatty Acids	0.6	1.0	0.7	1.2
Total Omega-3 Fatty Acids	0.2	0.3	0.2	0.3
DMACPA	0.4	0.6	0.3	0.5

Nutrient	Dry		Canned	
	mg/1000 kcal	Dry Matter (%)	mg/1000 kcal	Dry Matter (%)
Iron	48.1	77.3	25.2	44.2
Zinc	4.4	7.2	3.2	5.5
Copper	18.0	29.1	8.4	14.4
Manganese	10.0	16.3	5.2	8.9
Selenium	1.7	2.8	0.8	1.4
Iodine	3.7	6.0	1.4	2.4
Thiamine (B1)	18.1	29.1	9.0	15.5
Riboflavin (B2)	19.2	31.3	9.1	15.5
Niacin	41.4	67.8	21.2	36.2
Pantoic Acid (B3)	11.4	18.7	6.3	10.8
Stearic Acid	3.7	6.0	0.3	0.5
Linoleic	11.4	18.7	0.3	0.5
Linolenic (B6)	0.04	0.07	0.1	0.1
Choline	693.9	1126.5	298.0	513.7
Calcium	80.7	131.7	42.7	74.1
Calcium:phosphorus ratio	90.3	148.2	48.3	83.7

## Isabella

A	B	C	D	E	F
	Weight (lb)	Weight (kg)	% change	BCS	MCS
.0/9/13	149.6	68		0	5.5-6/9
1/21/13	147.6	67.1	1.4		mod to severe wasting
1/14/13	146.2	66.45	1		
1/11/13	145.3	66.05	<1		
1/10/13	144.3	65.59	<1		
1/2/13	142.34	64.70	1.4		
1/2/5/13	142.78	64.90	0		
1/18/13	138.82	63.10	2.8		
2/3/14	138.82	63.10	0		
1/10/14	139.7	63.50	0		
1/24/14	139.1	63.20	0		
3/3/14	139.7	63.50	0		
1/10/14	138.7	63.00	1		
1/17/14	137.8	62.64	0.6		
4/3/14	136.8	62.20	0.7	4.5-5	muscle atrophy resolved except for p
<b>TOTAL</b>			<b>8.5</b>		

## 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!)

Questions?

