

# Alternative Diets: *Marketing, Myth, or Magic?*

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## Alternative Diet Use

- Pet preference
- Owner-pet interaction
- Perception of ingredients/control
- Non-standard feeding philosophy
- No commercial diet to meet pet needs

## Diets options

- Commercial v. home-prepared
- General v. therapeutic



[blog.mysanantonio.com](http://blog.mysanantonio.com) [thedogbreedsbible.com](http://thedogbreedsbible.com)

## Diets options

- Traditional meat & grain-based
- Other...



http://a57.foxnews.com/global/images/commercial/ing/health/468263/OATS.JPG?w=1  
http://hobbyfarms.com.s3-us-west-2.amazonaws.com/image\_transfer/hobby-farm-livestock/organ-meat\_800.jpg

## Various options

- Grain-free
- "Low Carbohydrate"
- Refrigerated/frozen
- Pre-packaged base  
→ add meat
- "Evolutionary" diets
  - Meat-based
  - Raw
  - Whole Prey




## Why so many approaches or feeding philosophies?

- Genetic-dietary mismatch?
- Nutrient composition of natural diet undefined!
- Lack of evidence for one superior strategy
  - As long as diet is: complete & balanced, appropriate for individual, safe, pet is not over/underweight...
- "Optimal" nutrition undefined...
  - Individual variation
  - Avoid malnutrition!






## Background

- Assumptions:
  - Feeding captive-bred whole prey equivalent to wild-caught
  - We know the nutrient content of wild-type diet
  - The natural diet is optimal...




## Potential Problems

## Background

- Issues:
  - Nutritional goals of wild animals V. pets...
  - Nutrient content of prey affects predator
  - Nutrient composition of wild prey species ?
    - Body composition study of wild-caught...



## Diet Evaluation

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



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## Hot topics

- Grain- free
  - Corn
  - By-products
- Home-cooked diets
- Raw

## Grain Free

- Source of carbohydrate in diet
  - As “biologically appropriate” as other carbohydrates
  - *The genomic signature of dog domestication reveals adaptation to a starch-rich diet*
    - Axellson et al, Nature, 2013, 495: 360-364
- No evidence that they offer any health benefit
- Grain free diets are not low-carbohydrate
- Grains provide nutrients
  - Myth: Grains are fillers
- Starch in grains is highly digestible
  - Myth: Dogs & cats can’t appropriately digest grains

## DECIPHERING FACT vs FICTION

Dr. Lisa Freeman  
Dr. Cailin Heinze

Number 4, December 2015

	Taploca	Potato (with skin)	Oats	Corn Meal
Protein (g)	0.2	10.3	14.7	9.1
Carbohydrates (g)	99.7	83.9	75.9	85.7
Total Dietary Fiber (g)	1.0	9.0	11.3	8.1
Sugars (g)	3.8	4.2	1.1	0.7

	Popular grain-free diet	Popular diet
% Calories from Protein	26	24
% Calories from Fat	36	38
% Calories from Carbohydrate	38	38
Main Carbohydrate Sources	Potato, pea	Corn, sorghum, rice, barley

## Grain Free Myths

- Common causes of food allergies
  - True food allergies are rare
    - <1% of pet population
  - Protein sources are much more common offenders
- Associated with obesity
  - High calorie intake (regardless of diet)
- Associated with diabetes mellitus
  - No evidence that diet composition affects dogs
  - Obesity in cats contributes...

## Corn

- Rare cause of food allergies
- Appropriately prepared = highly digestible
- Source of essential nutrients (i.e. linoleic acid)


	Brown rice	Potato (with skin)	Corn meal	Sweet potato
Protein (g)	9.6	10.3	9.1	8.3
Carbohydrates (g)	85.0	83.9	85.7	83.3
Total dietary fiber (g)	6.7	9.0	8.1	13.6
Sugars (g)	1.3	4.2	0.7	26.8
Linoleic acid	1.1	0.2	1.8	0.3

## By-products

- AAFCO defines as “the non-rendered, clean parts, other than meat, derived from slaughtered mammals. It includes, but is not limited to lungs, spleen, kidneys, brain, livers, blood, bone...and stomachs and intestines freed from their contents. It does NOT include hair, horn, teeth and hooves...”
- Organ meats may be nutrient dense and highly palatable
  - Considered delicacies and/or common foods in many cultures
- Include bully sticks, tripe, liver treats, etc.
- Many companies choose to now write liver, kidney, etc...
  - THESE ARE STILL BY-PRODUCTS...

# HCD

## Timely Topics in Nutrition




### Evaluation of recipes of home-prepared maintenance diets for dogs

Jonathan Stockman, DVM; Andrea J. Fascetti, VMD, PhD, DACVM, DACVN;  
Philip H. Kass, DVM, MPM, PhD, DACVIM; Jennifer A. Larsen, DVM, PhD, DACVN

- 200 ‘maintenance’ recipes
- 34 sources – 129 by veterinarians
- General lack of specific instructions required interpretations
- 95% of all evaluated recipes at least 1 essential nutrient below NRC/AAFCO min.
- 83.5% had multiple deficiencies!

Remillard RL. Homemade Diets: Attributes, Pitfall, and a Call for Action. 2008

## Potential Problems



- Excessive protein/fat
- AA deficiencies
- EFA deficiency
- Vitamin/mineral
  - \*deficiency
  - \*toxicity
- Feline nutrition needs

## Potential Problems

- No feeding trials
- Formulation errors → imbalances
- Preparation errors
- lack of specificity
- Diet “drift”
- Time consuming

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## Assessment of HCD

- 4-5 food groups represented?
  - (animal protein source, fat, CHO, minerals, multi-vitamin..)
- Is CHO cooked?
- Type & quantity/quality of protein (eggs>>meat>vegetable)
- Is protein source lean or fat? Type?
- Source of bioavailable Ca, trace minerals and vitamins?
- Source of EFA?

Remillard RL. *Homemade Diets: Attributes, Pitfall, and a Call for Action*. 2008

## Assessment of HCD

- Who formulated the diet?
- Custom-formulated *or* generic?
  - *Specificity of instructions*
- Is owner making alterations?

## Assessment of HCD

- [www.acvn.org](http://www.acvn.org)
- [www.petdiet.com](http://www.petdiet.com)
- [www.balance-it.com](http://www.balance-it.com)
- Tufts
- University of Pennsylvania
- University of Tennessee
- UC Davis
- And now... WCVN!

## Take home message...

- Use HCD with caution & diligence
- Clients will seek advice
- Source, specificity, supplements
- Caution with generic recipes

## RAW DIETS



- \*Could be complete and balanced... or not
- \*Variation in sanitation, preparation method, etc.
- \*All raw animal products carry risk for contamination!

## Multiple options...



## Anecdotal benefits

- Improved stool quality
- Improved breath, cleans teeth
- Shiny, healthy hair coat
- Improved energy
- Others?
- → *Minimal to no scientific evidence to support substantial health benefits...*
  - *Home-cooked diets may achieve same benefits*

## Concerns

- CDC
- FDA
- AVMA/CVMA
- ACVN
- Many therapy animal organizations
  - *Too high risk to bring possible shedders into hospital or contact with immuno-compromised individuals*

Possible risk of litigation if you recommend or fail to inform of risks...

## Microbial Contamination

- 143/240 (60%) of commercial raw diets\* - E. coli
  - 1/5 raw diets (commercial or home-prepared) - E.coli O157:H7
- 8/24 (33%) commercial dry diets\* - E. coli
- 2/24 (8%) commercial cooked moist diets\* - E. coli
- 20% contamination with *Clostridium spp.*
- *Campylobacter jejuni, Toxoplasma gondii, Echinococcus, Listeria, Salmonella...*
- *And more studies... Also look at FDA-CVM pet food recall list*
- \*2001, 2006

## Survival of Salmonella in food bowls

	Stainless steel	Plastic	Total
No cleaning	12/12 (100%) <sup>a</sup>	12/12 (100%) <sup>a</sup>	24/24 (100%) <sup>a</sup>
Warm water rinse	12/12 (100%) <sup>a</sup>	11/12 (92%) <sup>a</sup>	23/24 (96%) <sup>a</sup>
Rinse and scrub	12/12 (100%) <sup>a</sup>	11/12 (92%) <sup>a</sup>	23/24 (96%) <sup>a</sup>
Scrub with soap	10/12 (83%) <sup>a</sup>	9/12 (75%) <sup>a</sup>	19/24 (79%) <sup>a</sup>
Soak in 10% bleach	8/12 (67%) <sup>a,b</sup>	9/12 (75%) <sup>a</sup>	17/24 (71%) <sup>a,b</sup>
Dishwasher	8/12 (67%) <sup>a,b</sup>	8/12 (67%) <sup>a</sup>	16/24 (67%) <sup>a,b</sup>
Scrub/bleach soak	4/12 (33%) <sup>b</sup>	6/12 (50%) <sup>a</sup>	10/24 (42%) <sup>b</sup>

Different superscripts indicate significant differences between treatment groups ( $P < 0.05$ )

Weese 2006 Can Vet J

## Review of Evidence...

- There are NO level 1, 2, or 3 studies of raw food feeding
  - No systematic reviews
- Level 4 = case series or poor quality cohort/case-control
  - Only one can be interpreted as potentially positive...
    - Survey: Owners deemed their pets were healthy...
  - Risk - isolated case reports of hypervitaminosis A in a cat, feline pancreatitis in cats, nutritional osteodystrophy or nutritional secondary HPT in litters of puppies, nutritional analyses of diets finding imbalances and deficiencies..
  - Risk - reports of exposure to and treatment for pathogens
- Level 5 = "expert" opinion
  - One letter to editor...

## Myths

- Proven Benefits
- Can't get infections from raw meat
- Raw bones are safe
- Cooking destroys enzymes needed for digestion
- Grain-free, no by-products, etc.
- If bones or chicken necks are added to raw meat diets...
- If you feed x% organ meat, skeletal meat, bones, fresh veg/fruit...
- Freezing kills bacteria
  - Most bacteria survive freezing or freeze-drying
- What dogs would eat in the wild...
  - True that wolves eat raw meat...also true their life spans are shorter

## Reading material

- *Timely Topics in Nutrition: Current knowledge about the risks and benefits of raw meat-based diets for dogs and cats*
  - JAVMA, Vol 243 (11), pp: 1549-1558; Dec 1, 2013
- *Raw food diets in companion animals: A critical review*
  - CVJ, Vol 52, pp: 50-54; 2011

## Take home message...

- Raw food diets associated with serious complications
- Must discuss food safety with clients
- Multiple resources available to assist with homemade diets...
  - Nutrition services
  - BalanceIT
  - Petdiets.com

## Conclusions

- Alternative diets should be evaluated for safety and risks in a manner similar to conventional diets
  - Similar to using WSAVA guidelines for commercial diets
  - Are they complete & balanced?
  - Is there a risk for nutritional deficiency or excess?
  - Are there safety concerns?
- Evidence that feeding method is superior?
- Evidence that feeding method is potentially harmful?
- Use resources available to you...

## 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



