

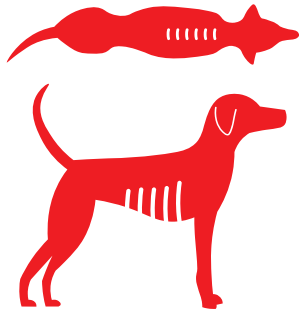


Large Breed Puppy Formulation

Dietary Considerations

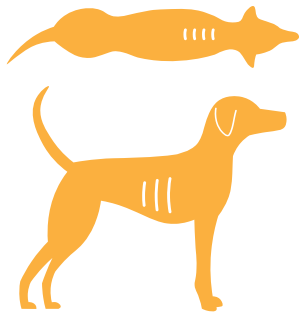
- **Energy** – Meal-restricted feeding decreases frequency of orthopedic disease in large and giant-breed puppies compared to ad libitum feeding.¹
 - Recommended that diets contain between 3,400 to 4,100 Calories/kg.²
 - TRUVIDA diets range between 3,500 to 3,700 Calories/kg.
 - Daily energy requirement (Calories) is suggested to be 70 x metabolic body weight (BW, kg^{0.75}) x a daily energy requirement factor of 2 to 2.5.^{2,3}
 - Our current starting point recommendation for all puppies is a factor of 2.1
 - Important they maintain a body condition score close to a 4-5 on a 9-point scale
- **Calcium & Phosphorus** – Excess calcium, especially relative to phosphorus adversely affects growth and skeletal formation.⁴
 - NRC recommendation: 1.2 to 1.8% calcium; AAFCO recommendation: 1 to 2.5% calcium.
 - Study reported that less than 0.9% or greater than 2.3% calcium in various breeds and sizes caused poor growth.⁵
 - Scientific data suggests that for large-breed puppies is 0.9 to 1.5% calcium and a ratio of 1.1 to 1.5 calcium to phosphorus are safe.^{1,6}
 - TRUVIDA's diets range from 1.2 to 1.5% calcium and ratios of calcium to phosphorus 1.2 to 1.5
 - TRUVIDA diets with the lowest calcium are the Ocean fish and Salmon followed by Chicken.
 - Ocean fish and Salmon diets contain approximately 1.2% calcium and 1.25 calcium to phosphorus ratio.
 - A 50-50 blend of Ocean fish & Salmon - Chicken would contain approximately 1.3% calcium and a 1.3 calcium to phosphorus ratio as well as supply the fatty acid DHA at 0.15% of the diet, which is crucial to the development of the retinal and neural development in puppies.

TRUVIDA recommendation: Meal-feed any TRUVIDA diet over 2 to 4 meals per day. Use Companion IQ with body weight and body condition scoring monthly to adjust amount fed to maintain a body condition score of 4 to 5 (most important variable to monitor; adjust intakes up or down by 10%). Recommend feeding either an Ocean fish & Salmon or a 50-50 blend of Ocean fish & Salmon – Chicken.



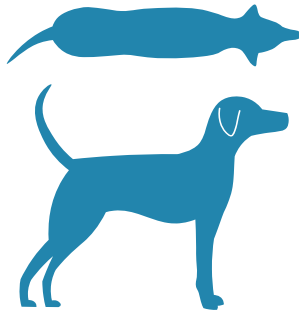
VERY THIN

Ribs, lumbar vertebrae, pelvic bones and all bony prominences evident from a distance. No discernible body fat. Obvious loss of muscle mass.



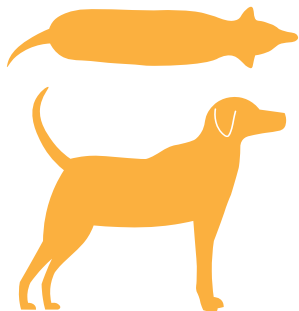
UNDERWEIGHT

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.



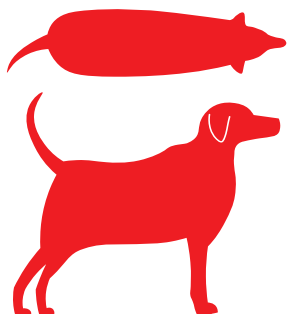
IDEAL

Ribs palpable without excess fat covering. Waist observed behind ribs when viewed from above. Abdomen tucked up when viewed from the side.



OVERWEIGHT

Ribs palpable with slight excess fat covering. Waist is discernible viewed from above but is not prominent. Abdominal tuck apparent.



OBESE

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.



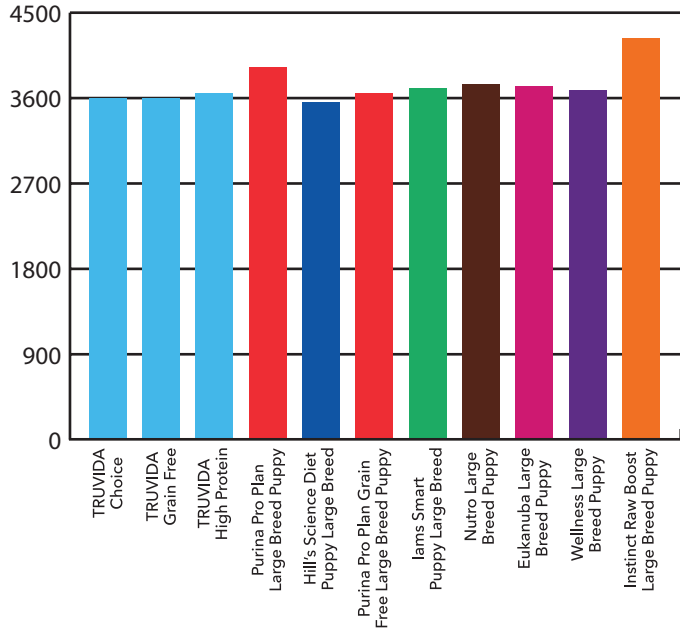
Table 1. General formula of large-breed puppy diet compared with nonspecific puppy diets.

Nutrient	Puppy Diets	Large-breed puppy Diets
Protein, %	29 to 36	29 to 24
Fat, %	20 to 23	11 to 16
Fiber, %	1.6 to 4.4	2.4 to 5.6
Calcium, %	1.3 to 1.4	0.8 to 1.4
Phosphorus, %	1.2	0.7 to 1.2
Ca:P ratio	1.1:1	1.1:1 to 1.3:1
Energy density, kcal/kg	3.8 to 4.5	3.4 to 4.1

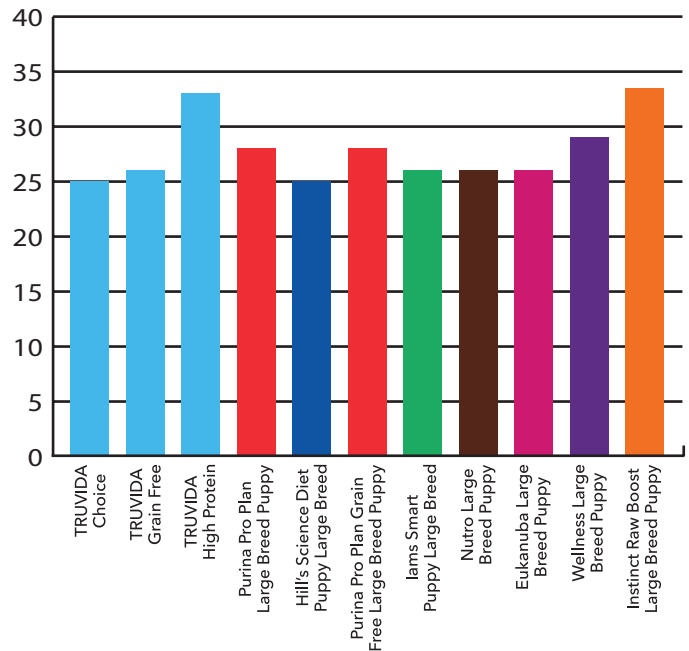
Adapted from Lauten (2006). Nutritional Risk to Large-Breed Dogs: From Weaning to the Geriatric Years. *Vet Clin. Small Anim.* 36:1345-1359



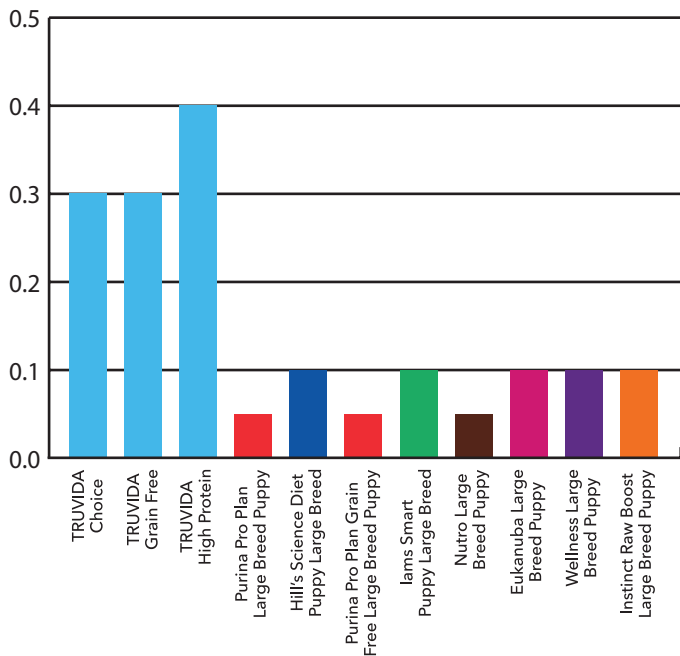
ME, kcal/kg



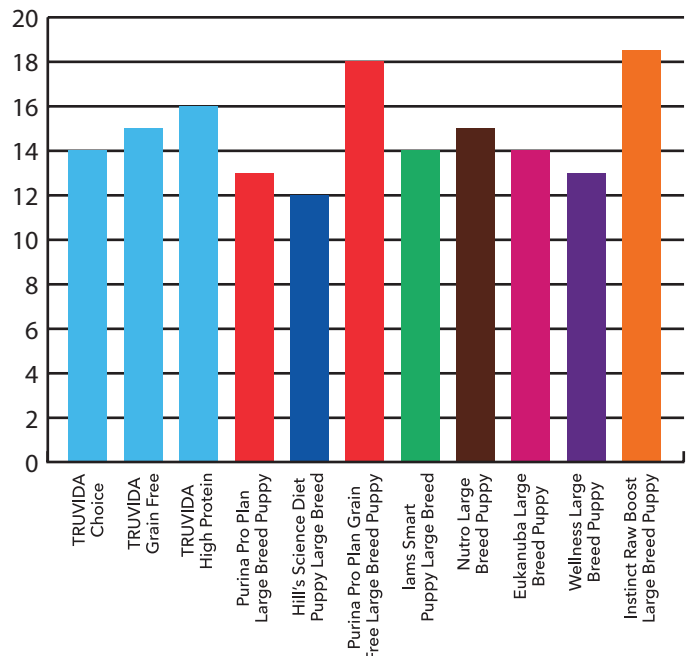
Protein, %



DHA, %



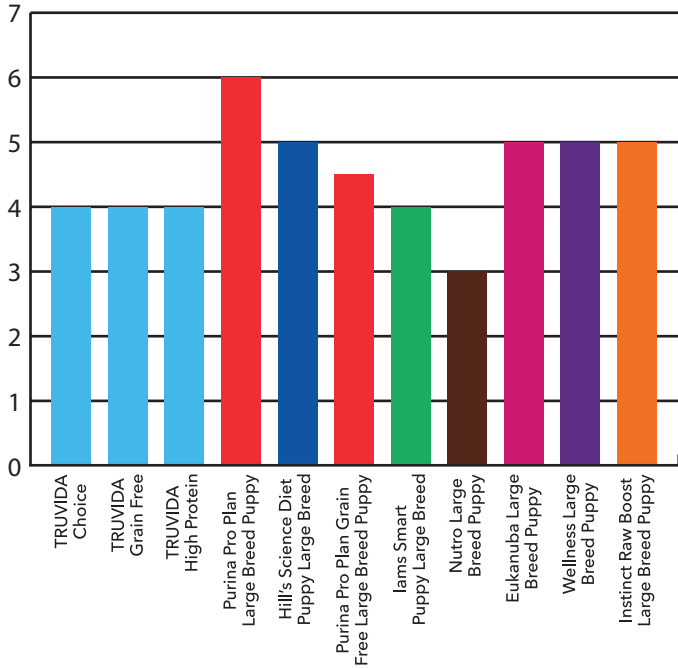
Fat, %



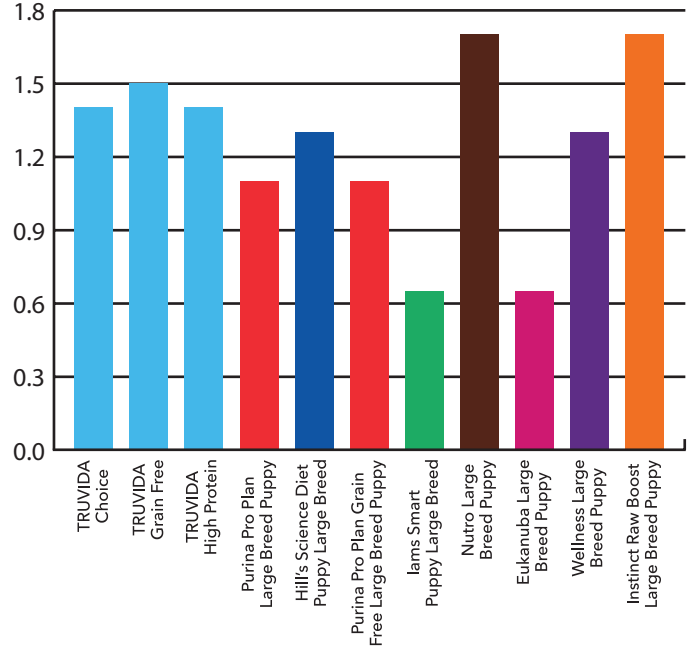
TRUVIDA Food within each series with the lowest calcium is Ocean fish & Salmon. Recommend feeding large breed puppies either the Ocean fish & Salmon diet alone or as a 50-50 blend with Chicken. Feed at a daily rate of approximately 140-155 Calories multiplied by metabolic body weight (BW, kg0.75).



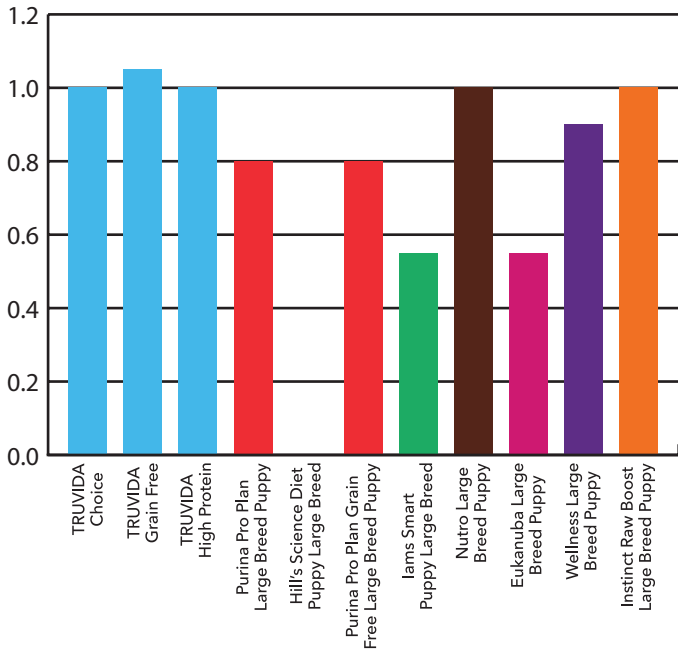
Fiber %



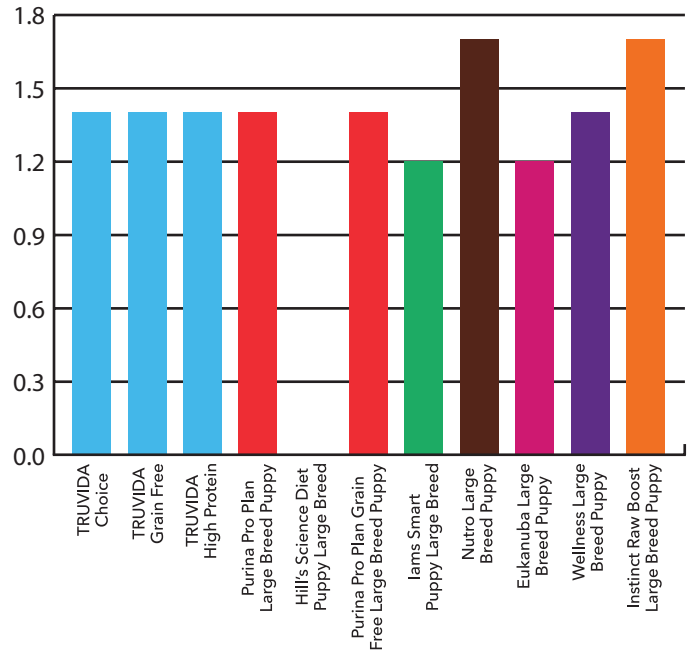
Calcium, %



Phosphorus, %



Ca:P



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References

¹Larsen, J. 2010. Feeding large-breed puppies. MediMedia Animal Health Vetlearn.com Compendium. E1-E4.

²Lauten, S.D. 2006. Nutritional risks to large-breed dogs: from weaning to the geriatric years. Vet. Clin. Small Anim. 36:1345-1359.

³Thatcher, C.D., M.S. Hand, and R.L. Remillard. 2010. Small animal clinical nutrition: an iterative process. In Hand, M.S., C.D. Thatcher, R.L. Remillard, P. Roudebush, and B.J. Novotny. Small Animal Clinical Nutrition. 5th Ed. Topeka, KS. Mark Morris Institute.

⁴Hazewinkel, H.A.W., W.E. Brom, and A. Van't Klooster. 1991. Calcium metabolism in Great Dane dogs fed diets with various calcium and phosphorus levels. J. Nutr. 121:S99-S106.

⁵Laflamme, D.P. 2001. Effect of breed size on calcium requirements of puppies. Compend. Contin. Educ. Pract. Vet. 23:66-69.

⁶Dobenecker, B. 2011. Factors that modify the effect of excess calcium on skeletal development in puppies. Br. J of Nutr. 106:S142-S145.
