

# Why feeding a homemade raw food diet may not be providing adequate amounts of the nutrients your dog needs

## Common raw food feeding claim

“We don’t analyse the nutrient content of every meal that we eat, or every meal that we feed our children - and we’re doing okay! So why should we analyse the nutrient content of what we’re feeding our dogs? – It doesn’t have to be that complicated!”

## The reality of the situation is that we’re not doing ok!

1. A large proportion of adults *and* children are not even meeting the minimum nutrient requirements as outlined by Government guidelines (which are set at a level to stop us from getting sick with disease, not to achieve optimal health).
2. The majority of Australian adults and children have fruit and vegetable intakes well below the recommended number of serves per day (which goes a long way to explaining why we’re not getting the nutrients we need).
3. Nutrient requirements *increase* when the body is exposed to physical and psychological challenges (i.e. emotional stress, exercise, illness, weather changes, certain living conditions etc.). This applies to both our dogs and us.
4. Most pet owners do not feed their dogs the whole prey animal (not practical for most of us).
5. The nutrient content of the foods we’re eating and feeding our dogs is lower than in years gone by as a result of modern farming practices and depleted soils.

## Food for thought

Perhaps we *should* be regularly assessing the nutrient profile of what we’re eating, what we’re feeding our children, and what we’re feeding our dogs!

“Some mineral and vitamin supplementation is needed in a fresh food diet.”

-- Dr Karen Becker (*Real Food for Healthy Dogs & Cats: Simple Homemade Food*, 2015)

“ You may be told that balance over time is good and you don’t have to feed everything every day. Our experience is that we humans aren’t very good at keeping track of 'balance over time’.”

-- Dr Karen Becker (*Real Food for Healthy Dogs & Cats: Simple Homemade Food*, 2015)

### **Don’t assume that you’ll see a deficiency**

In contrast to frank micronutrient deficiencies that result in clinically overt symptoms fairly quickly, micronutrient inadequacies over time may cause covert symptoms that are difficult to detect clinically. Micronutrient inadequacies may also have important implications for long-term health and increase the risk for chronic diseases like cancer, cardiovascular disease, diabetes, and osteoporosis. It can take years for some nutrient deficiencies to become apparent. Therefore, it is of paramount importance to ensure micronutrient intake is sufficient to account for increased needs or losses. For example:

- It can take as long as five years to deplete the liver of B12.
- A calcium deficiency produces few obvious symptoms in the short term because the body carefully regulates the amount of calcium in the blood. As such, it is possible to be feeding a diet too low in calcium but have blood levels that appear normal. So, by the time blood levels are below normal, it is possible that calcium intake has been inadequate for some time with irreversible consequences.
- Vitamin D deficiency is not usually visible. The symptoms are subtle and may develop over years or decades.

## Percentage of dietary intakes BELOW the estimated average requirement (EAR).

Nutrient	Percentage of dietary intakes BELOW the estimated average requirement		
	2-to-8-year-old children	14-to-18-year-old girls	Adults 19 and older
Potassium			98%
Vitamin D	81%	98%	95%
Vitamin E	65%	99%	94%
Vitamin K			71%
Magnesium	2%	90%	61%
Vitamin A	6%	57%	51%
Calcium	23%	81%	49%
Vitamin C	2%	45%	43%
Vitamin B6	0.1%	18%	15%
Folate	0.2%	19%	13%
Zinc	0.2%	24%	12%
Iron	0.7%	12%	8%
Thiamin	0.1%	10%	7%
Copper	0%	16%	5%
Vitamin B12	0%	7%	4%
Riboflavin	0%	5%	2%
Niacin	0.1%	4%	2%

*Sources:* Dietary intake information originally derived from the National Health and Nutrition Examination Survey (NHANES). Fulgoni, V.L., *J Nutr*, 2011. **141**(10): p. 1847-54. Berner, L.A., et al., *J Acad Nutr Diet*, 2014. **114**(7): p. 1009-1022.e8.

EAR = A daily nutrient level estimated to meet the requirements of half the healthy individuals in a particular life stage and gender group (which means that the needs of the other half of the population will NOT be met by even these amounts!).

To give you an example of how low the EARs tend to be:

- The EAR for vitamin C in Australia is 30 mg/day for adults (NHMRC, 2016) and in the US it's 60 mg/day for women and 75 mg/day for men (IOM, 2000). Based on the data above, nearly half of all adults surveyed were not even consuming 60-75 mg of vitamin C per day. The amount of vitamin C needed to prevent scurvy is 10 mg/day! A medium sized kiwi fruit has 64 mg of vitamin C. That's scary stuff!
- The Adequate Intake (AI) for vitamin D in Australia is 5 mcg/day (200 IU) and in the US the EAR is 10 mcg/day (400 IU). Based on the above data, 95% of adults surveyed were consuming less than 400 IU of vitamin D daily. A single 100g can of salmon can contain between 500-800 IU of vitamin D and one fresh egg yolk contains 218 IU of vitamin D (USDA nutrient database). What are people eating?!

## Proportion of the Australian population with usual food intakes BELOW the recommended number of serves per day (%).

Food Group	Boys	Girls	Men	Women
Vegetables and legumes/beans	99.6	99.7	96.5	94.8
Fruit	53.5	54.0	70.7	77.0
Grain foods	60.5	73.5	66.6	75.6
Lean meat and poultry, fish, eggs, nuts and seeds and legumes/beans	92.4	98.7	79.1	87.0
Milk, yoghurt, cheese and alternatives	80.4	79.8	89.9	98.5

**Source:** Australian Bureau of Statistics, Australian Health Survey: Consumption of food groups from the Australian Dietary Guidelines, 2011-12. 2016, ABS: Canberra.

## Australian Guidelines for Recommended Fruit and Vegetable Intake

Minimum recommended number of serves of fruits and vegetables per day						
	19-50 years		51-70 years		70+ years	
	Fruit	Veg	Fruit	Veg	Fruit	Veg
Men	2	6	2	5.5	2	5
Women	2	5	2	5	2	5

Minimum recommended number of serves of fruits and vegetables per day										
	2-3 years		4-8 years		9-11 years		12-13 years		14-18 years	
	Fruit	Veg	Fruit	Veg	Fruit	Veg	Fruit	Veg	Fruit	Veg
Boys	1	2.5	1.5	4.5	2	5	2	5.5	2	5.5
Girls	1	2.5	1.5	4.5	2	5	2	5	2	5

Standard serving size	
Fruit 150 g	Vegetables 75 g
1 small apple, orange, banana, pear	½ cup cooked vegetables or legumes
2 small apricots, kiwi fruit, plum	1 cup green leafy or raw salad vegetables
1 cup of diced canned fruit (no sugar)	½ medium potato
30 g dried fruit	1 medium tomato

### Changes in Nutrient Content of Beef and Chicken *Per 100 Grams*



*Beef, Ground*



*Chicken*

Nutrient	1963	1992	%Change	1963	1992	%Change
Calcium	10.000mg	8.000mg	-20.00	12.000mg	10.000mg	-16.67
Iron	2.700mg	1.730mg	-35.93	1.300mg	1.030mg	-20.77
Magnesium	17.000mg	16.000mg	-5.88	23.000mg	23.000mg	0.00
Phosphorus	156.000mg	130.000mg	-16.67	203.000mg	198.000mg	-2.46
Potassium	236.000mg	228.000mg	-3.39	285.000mg	238.000mg	-16.49
Vitamin A	40.000IU	0.000	-100.00	150.000IU	45.000IU	-70.00
Thiamine	0.080mg	0.038mg	-52.50	0.100mg	0.069mg	-31.00
Riboflavin	0.160mg	0.151mg	-5.63	0.120mg	0.134mg	+11.67
Niacin	4.300mg	4.480mg	+4.19	7.700mg	7.870mg	+2.21

*Source: USDA, 1963 and 1997*

### Eighty-Year Decline in Mineral Content of One Medium Apple

*Raw, With Skin*

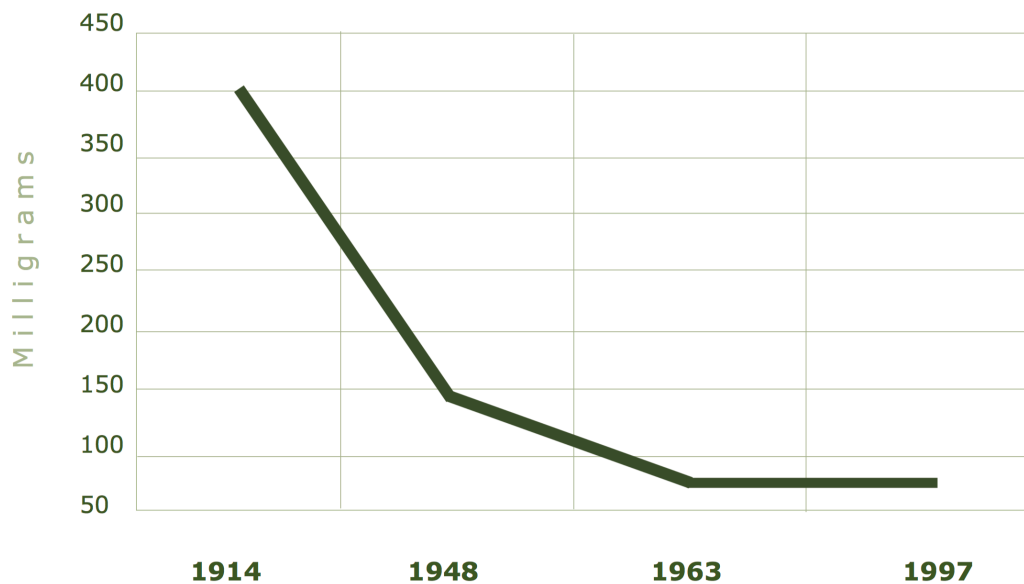
Mineral	1914	1963	1992	%Change (1914-1992)
Calcium	13.5mg	7.0mg	7.0mg	-48.15
Phosphorus	45.2mg	10.0mg	7.0mg	-84.51
Iron	4.6mg	0.3mg	0.18mg	- 96.09
Potassium	117.0mg	110.0mg	115.0mg	-1.71
Magnesium	28.9mg	8.0mg	5.0mg	-82.70



*Source: Lindlaar, 1914; USDA, 1963 and 1997*

### Average Mineral Content in Selected Vegetables, 1914 -1997

Sums of averages of calcium, magnesium and iron in cabbage, lettuce, tomatoes and spinach



Source: Lindlahr, 1914; Hamaker, 1982; U.S. Department of Agriculture, 1963 and 1997

### MINERALS GO DOWN, DISEASE GOES UP

#### Changes in the Rates of Selected Reported Chronic Diseases, 1980-1994

(per 100,000 member of the US Population)

Mineral	1980	1994	%Increase	Minerals Deficiencies Associates with Disease
Heart Conditions	75.40	89.47	18.67	Chromium, Copper, Magnesium, Potassium, Selenium
Chronic Bronchitis	36.10	56.30	55.98	Copper, Iodine, Iron, Magnesium, Selenium, Zinc
Asthma	31.20	58.48	87.44	Magnesium
Tinnitus	22.60	28.24	24.98	Calcium, Magnesium, Zinc
Bone Deformities	84.90	124.70	46.96	Calcium, Copper, Fluoride, Manesium

Source: USDC, 1996, Werbach, 1993

## Changes in the mineral content of vegetables (per 100g)

	1963	1997	Change
<b>Carrot, raw, with skin</b>			
calcium (mg)	37	27	-27.03%
iron (mg)	0.7	0.5	-28.57%
magnesium (mg)	23	15	-34.78%
phosphorus (mg)	36	44	22.22%
potassium (mg)	341	323	-5.28%
<b>Potatoes, raw, whole</b>			
calcium (mg)	7	7	0.00%
iron (mg)	0.6	0.76	26.67%
magnesium (mg)	34	21	-38.24%
phosphorus (mg)	53	46	-13.21%
potassium (mg)	407	543	33.42%
<b>Corn, sweet, yellow, raw</b>			
calcium (mg)	3	2	-33.33%
iron (mg)	0.7	0.52	-25.71%
magnesium (mg)	48	37	-22.92%
phosphorus (mg)	111	89	-19.82%
potassium (mg)	280	270	-3.57%
<b>Tomatoes</b>			
calcium (mg)	13	5	-33.33%
iron (mg)	0.5	0.45	-25.71%
magnesium (mg)	14	11	-22.92%
phosphorus (mg)	27	24	-19.82%
potassium (mg)	244	222	-3.57%
<b>Celery</b>			
calcium (mg)	39	40	2.56%
iron (mg)	0.3	0.4	33.33%
magnesium (mg)	22	11	-50.00%
phosphorus (mg)	28	25	-10.71%
potassium (mg)	341	287	-15.84%

Source: USDA nutrient database

Broccoli, raw	1963	1997	Change (%)
calcium (mg)	103	48	-53.40%
iron (mg)	1.1	0.88	-20.00%
magnesium (mg)	24	25	4.17%
phosphorus (mg)	78	66	-15.38%
potassium (mg)	382	325	-14.92%
Romaine lettuce			
calcium (mg)	68	36	-47.06%
iron (mg)	1.4	1.1	-21.43%
magnesium (mg)	n.a.	6	n.a.
phosphorus (mg)	25	45	80.00%
potassium (mg)	264	290	9.85%
Collard greens			
calcium (mg)	203	29	-85.71%
iron (mg)	1	0.19	-81.00%
magnesium (mg)	57	9	-84.21%
phosphorus (mg)	63	10	-84.13%
potassium (mg)	401	169	-57.86%
Swiss chard			
calcium (mg)	88	51	-42.05%
iron (mg)	3.2	1.8	-43.75%
magnesium (mg)	65	81	24.62%
phosphorus (mg)	39	46	17.95%
potassium (mg)	550	379	-31.09%

Source: USDA nutrient database

**Changes in the nutrient content of fruit (per 100g)**

	1963	1997	Change
<b>Oranges</b>			
calcium (mg)	41	40	-2.44%
iron (mg)	0.4	0.1	-75.00%
magnesium (mg)	11	10	-9.09%
phosphorus (mg)	20	14	-30.00%
potassium (mg)	200	181	-9.50%
Vitamin A (IU)	200	21	-89.50%
Vitamin C (mg)	50	53	6.00%
<b>Bananas</b>			
calcium (mg)	8	6	-25.00%
iron (mg)	0.7	0.31	-55.71%
magnesium (mg)	33	29	-12.12%
phosphorus (mg)	26	20	-23.08%
potassium (mg)	370	396	7.03%
Vitamin A (IU)	190	81	-57.37%
Vitamin C (mg)	10	9.1	-9.00%

Source: USDA nutrient database

So as you can see, we are fighting an up hill battle with the quality of the food that we're eating and that we feed our dogs. And whilst we would ideally get all of the nutrients we need from a whole, fresh food diet, selective supplementation with key vitamins, minerals and healthy fats may be indicated in many cases.

## **We're not feeding the whole prey animal**

While the quality of the food we feed is of concern, perhaps the main reason that our dog's diets may be lacking what they need from a nutritional standpoint is that most pet dogs being fed a raw food diet are not being fed *all* parts of the prey animal. Going to the supermarket and buying commercially farmed meat and feeding a ratio of 80% muscle meat, 10% organs and 10% bone does not replicate the canine ancestral diet. Wolves ate the whole prey animal – the fur, eyes, nails, brain, teeth, tongue, glands, feathers, and intestines etc. These additional parts of the prey animal contain essential trace minerals that are lacking in muscle meats, organs and bone.

It is easy to cover macronutrient requirements (protein, carbohydrates and fats) and the key macro-minerals such as calcium and phosphorus. But many of the micronutrients – particularly the trace minerals, are often overlooked and their importance underestimated. Key trace minerals that are likely to be deficient in a homemade raw diet include selenium, iodine, zinc, copper and manganese.

## **Why I'm telling you this**

I'm not highlighting the difficulties to put you off raw feeding, as I truly believe that a raw food diet is the best diet that we can give our dogs. Rather, my goal is to make you aware of the risks, so that you don't go into raw feeding with a naïve view that everything will work out just fine – it actually requires considerable thought and effort to ensure that your dog is getting everything that it needs, and in the correct amounts. If you're not confident about raw feeding, simply start by adding small amounts of raw food to a commercial kibble or tinned food. Your dog will still gain significant benefits from such an approach.