

# Lowering Blood Calcium

*Compiled by Kathleen Wilsbach, PhD*

Although no direct scientific link between dietary calcium and an excess amount of calcium excreted in the urine has been proven, many veterinarians are advising clients whose rabbits have urinary/bladder problems to decrease the amount of calcium in their rabbit's diet.

Calcium is an important mineral for bone growth and maintenance, nerve and muscle function, and blood clotting. However the minimum daily requirement for calcium of a medium sized rabbit is about 510 milligrams. This amount of calcium is contained in less than two ounces of commercial pellets or 1 cup of turnip greens. The percentage of calcium in alfalfa and clover hay is 2-5 X the amount needed for an adult nonbreeding rabbit. Grass hays have a much lower amount of calcium, less than half the amount found in alfalfa and clover hay. Commercial pellets provides more than enough calcium for the average house rabbit and could cause a persistently elevated ("high normal") level of calcium in the blood. If the amount of calcium excreted in the urine becomes too high, problems may develop.<sup>1</sup>

Calcium metabolism appears to be less complex in rabbits than in many mammals. For rabbits choosing a lower calcium diet can be as simple as knowing the amount of calcium contained in each food item to determine if it should be restricted or eliminated.

Alfalfa hay is extremely high in calcium and should be replaced with lower calcium hays such as timothy or oat hay. Fruits are low in calcium but high in sugar and should make up a very small part of the diet. Root vegetables such as carrots and radishes are low in calcium. Most greens are comparatively high in calcium but they are also a very important component of a healthy rabbit diet and should not be eliminated. Broccoli flowers and stem, cilantro, dark leaf lettuce, watercress, Brussels sprouts, celery leaves, cabbage, and endive are good choices when trying to reduce dietary calcium. Turnip greens, broccoli leaves, mustard greens, kale, and collards greens should be restricted or eliminated depending on the severity of the problem. \*

## Reference

1. Summary of Calcium in Rabbits, John E. Harkness (Rabbit Health News, 1994: Vol.11, p.7)

## Calcium Content of Raw Vegetables

6 mg	Peppers, sweet	28 mg	Purslane
10 mg	Alfalfa sprouts	28 mg	Radishes
15 mg	Pumpkin leaves	30 mg	Carrots
16 mg	Coriander (cilantro)	30 mg	Eggplant
18 mg	Chard, Swiss	32 mg	Arugula
19 mg	Radish seed sprouts	32 mg	Cabbage
20 mg	Lettuce, Romaine (per 100g serving)	32 mg	New Zealand spinach
20 mg	Squash, zucchini	34 mg	Kohlrabi
21 mg	Jerusalem artichoke	38 mg	Lettuce, looseleaf
24 mg	Pumpkin	39 mg	Turnips
26 mg	Endive	40 mg	Cress, garden
26 mg	Squash, summer	40 mg	Watercress
28 mg	Asparagus	42 mg	Broccoli
28 mg	Cauliflower	44 mg	Celery

46 mg	Beet greens	82 mg	Okra
56 mg	Spinach	94 mg	Kale
58 mg	Mustard greens	103 mg	Dandelion greens
59 mg	Dock	105 mg	Turnip greens
62 mg	Peas, edible pod	137 mg	Kale, Scotch
65 mg	Rutabagas	180 mg	Chicory greens
68 mg	Celeriac	218 mg	Collards
74 mg	Chinese cabbage	309 mg	Lambsquarter
78 mg	Parsley	315 mg	Mustard spinach
82 mg	Borage		

per 1 cup serving, unless otherwise noted

Sources United States Department of Agriculture, Human Nutrition Information Service, Agriculture Handbook Number 8-11, "Composition of Foods: Vegetables and Vegetable Products." Revised August 1984. These are values representative for vegetables collected from across the country; precise values will vary somewhat between regions.