



Lucky Glider Rescue & Sanctuary *Community Outreach for Sugar Gliders*

A 501(c)3 non-profit animal rescue

www.LuckyGlider.org

SOURCE

Litholink Corporation

<http://www.litholink.com/en/AboutUs>

What are the Complications from Chronic Kidney Disease?

CKD affects more than just your kidneys. Because the kidneys are involved with so many important body processes, you could have other complications due to CKD. These complications may happen slowly, over a long period of time.

Some complications are:

High blood pressure

Anemia (low blood count)

Bone and Mineral

Poor nutritional health

Increased risk of heart disease

If you need to limit phosphorus

Phosphorus is a mineral found in bones. Along with calcium, phosphorus helps build strong, healthy bones, and keeps other parts of your body healthy.

Why limit phosphorus?

Too much phosphorus in a person's blood can cause changes that pull calcium out of your bones, making them weak. High phosphorus and calcium levels also lead to dangerous calcium deposits in blood vessels, lungs, eyes and heart. Percent (%) Daily value is based on a human's 2,000 calorie daily diet. This number helps you know if a food is high or low in a nutrient, even if a person eats more than 2,000 calories. Phosphorus is not required to be listed by law. It is listed here, but may not be listed even if the product contains phosphorus.

Serving size is very important because most foods have phosphorus. Remember, a large amount of a low-phosphorus food can turn into a high-phosphorus food.

In general, percent (%) daily value of phosphorus is:

- Low = less than 5% or under 50 mg
- Medium = 5–10% or under 51–100 mg
- High = over 10% or over 100 mg

LOW PHOSPHORUS FOODS

• Fresh fruits such as:

apples (**no seeds**)
apricots
blackberries
grapes (**do not give to sugar gliders**)
tangerines
pears
peaches
pineapple
plums
strawberries

• Fresh vegetables such as:

cauliflower
carrots
cucumber
celery
green beans
broccoli

- Popcorn crackers
- Rice cereal
- Fruit juices
- Sherbert

HIGH PHOSPHORUS FOODS

• Dairy products such as:

milk
cheese
custard
cottage cheese,
yogurt
ice cream
pudding

• Dried beans and peas such as:

baked beans
black beans
chick peas
garbanzo beans
kidney beans
lentils
limas (**do not give to sugar gliders**)
northern beans
split peas
soybeans

- Bran cereals
- Whole grain products

- Nuts
- Seeds
- Peanut butter

ABOUT THE SOURCE

Litholink Corporation
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<http://www.litholink.com/en/AboutUs>

Litholink Corporation was founded by Dr. Fredric L. Coe, a professor of medicine at the University of Chicago in 1996. Over the course of his career and through hundreds of research papers, Dr. Coe helped establish the standard of care in kidney stone prevention, chairing the Consensus Conference of the National Institutes of Health (NIH).

Litholink was founded to bring Dr. Coe's life's work to doctors and their patients across the country. Litholink serves many of the country's leading urologist and academic medical centers.

In 2006, Litholink was acquired by Laboratory Corporation of America Holdings. Litholink continues to be the leader in kidney stone testing and is now applying the Litholink programmatic approach to build comprehensive programs for chronic disease.

SOURCE

American Kidney Fund

<http://www.kidneyfund.org>

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What is kidney disease?

The term "chronic kidney disease" (CKD) means lasting damage to the kidneys that can get worse over time. If the damage is very bad, your kidneys may stop working. This is called kidney failure. If your kidneys fail, you will need dialysis or a kidney transplant in order to live. CKD can be caused by many different diseases. The most common causes of CKD are diabetes and high blood pressure. Some infections, inherited diseases and injuries can also cause CKD.

What do my kidneys do? Your kidneys clean waste and extra fluid from your blood. This makes up your urine (pee). They also do many other jobs that you need in order to live. Your kidneys:

- Control chemicals and fluid in your body
- Help control your blood pressure
- Help keep your bones healthy
- Help you make red blood cells

Where are my kidneys? Your kidneys are part of your urinary tract. They are located on either side of your spine, just below your rib cage. Each kidney is connected to your bladder by a thin tube called a ureter.

View Health Brochures and Fact Sheets Provided by American Kidney Fund

<http://www.kidneyfund.org/kidney-health/brochures/download-brochures-new.html>

You will need Adobe Reader to view the brochures. You can download Adobe Reader for free at:

<http://get.adobe.com/reader/>

Bone Disease and Kidney Failure

This fact sheet talks about bone disease as a common complication for people with kidney failure.

<http://www.kidneyfund.org/kidney-health/brochures/brochure-pdf/bone-disease.pdf>

Facts about Kidney Disease

A quick and basic brochure that talks about the kidneys and kidney disease.

http://www.kidneyfund.org/kidney-health/brochures/brochure-pdf/facts_about_kidney_disease.pdf

Healthy Eating

Describes a kidney-friendly diet and why it is important.

http://www.kidneyfund.org/kidney-health/brochures/brochure-pdf/healthy_eating_for_hemodialysis.pdf

**LGRS NOTE: pages 14 and 15 particularly helpful in determining foods lower in phosphorus and potassium.

Potassium

Potassium is a mineral found in almost all foods. Your body needs some potassium to make your muscles work, but too much potassium can be dangerous. Having too much or too little potassium can cause muscle cramps, irregular heartbeat and muscle weakness.

Phosphorus

Phosphorus is a mineral found in many foods. It works with calcium and vitamin D to keep your bones healthy. Healthy kidneys help keep the right balance of phosphorus in your body. Too much phosphorus in your blood can lead to weak bones that break easily.

ABOUT THE SOURCE

American Kidney Fund

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<http://www.kidneyfund.org>

The American Kidney Fund was founded in 1971 out of concern for a single individual who had been bankrupted by the costs associated with treating kidney failure. In its first year, AKF provided financial assistance to 79 patients who would not have otherwise been able to pay for life-saving dialysis treatments.

SOURCE

The National Kidney Foundation
<http://www.kidney.org>

The Facts about chronic kidney disease (CKD)
<http://www.kidney.org/kidneydisease/ckd/index.cfm#facts>

Nutrition, Diet
http://www.kidney.org/atoz/atozTopic_Nutrition-Diet.cfm

SOURCE

The National Kidney Foundation

http://www.kidney.org/professionals/Kdoqi/guidelines_pedbone/Images/table12l.jpg

Important note that the leaves of a plant almost always contain higher oxalate levels than the roots, stems, and stalks.

<p>Fruits low in oxalates Blackberries Blueberries Raspberries Strawberries Currants **not suggie approved when in the grape family Kiwifruit Figs Tangerines Plums</p>	<p>High oxalate-dense vegetables (per 100 gram serving) Spinach 750 mg **high in iron, limit suggie intake Swiss Chard Beet greens 610 mg Collard Greens 74 mg Okra 146 mg Parsley 100 mg Leeks 89 mg Quinoa</p>
<p>Nuts and seeds High oxalate almonds, cashews, and peanuts</p>	<p>Moderately dense in oxalates Celery Green beans Rutabagas Summer squash</p>
<p>These foods are low in oxalate content (0–2 mg per serving) Apple juice Bananas Beef (lean) Bing cherries *no pits allowed Brussels sprouts Cabbage Cauliflower Eggs Grapefruit Lamb (lean) Melons Poultry Nectarines Peas (fresh) Plums Radishes Yogurt</p>	<p>Low oxalic acid content Dandelion greens Kale Watercress Escarole mustard greens turnip greens kale broccoli tomatoes asparagus cabbage Avocado **not suggie approved Cabbage Cauliflower Mushrooms Peas (fresh or frozen) Potatoes, white **not suggie approved Radishes</p>

Table 12. Low-Phosphorus, High-Calcium Foods

Food	Portion	Calcium* (mg)	Phosphorus (mg)
Collards, frozen, cooked	½ cup	179	23
Dandelion greens, cooked	½ cup	74	22
Kale, frozen, boiled	½ cup	90	18
Molasses, blackstrap	1 Tablespoon	172	4
Mustard greens, cooked	½ cup	52	28
Rhubarb	½ cup	174	10
Spinach, boiled	½ cup	122	50
Turnip greens, boiled	½ cup	99	21
Vitamite 100 (nondairy beverage)	½ cup	150	75

* Calcium values listed are milligrams of elemental calcium.

Source: U.S. Department of Agriculture, Agricultural Research Service. 2001. USDA Nutrient Database for Standard Reference, Release 14. Nutrient Data Laboratory Home Page, <http://www.nal.usda.gov/tnic/foodcomp>

Plant (100 g)	Oxalate	Calcium	Ox:Ca	Phos	Ca:P	Protein
Broccoli	610	42	14:1	58	0.7:1	3
Collards	450	218	2:1	29	7.5:1	3
Carrot	500	30	17:1	48	0.6:1	1
Kale	20	90	0.2:1	38	2.4:1	2
Parsnip	40	70	0.6:1	96	0.7:1	2
Parsley	1700	122	14:1	38	3.2:1	2
Romaine	330	20	16:1	26	0.8:1	1
Spinach	970	51	19:1	28	1.8:1	2
Squash, summer	20	36	0.6:1	38	0.9:1	1
Squash, winter	20	57	0.4:1	98	0.6:1	4
Sweet potato	240	29	8:1	37	0.8:1	2
Turnip	210	5	4:1	39	1.3:1	1
Turnip green	50	105	0.5:1	23	4.6:1	1
Watercress	310	53	6:1	19	2.8:1	1

ABOUT THE SOURCE

The National Kidney Foundation
 30 East 33rd Street
 New York, NY 10016
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<http://www.kidney.org/about/>

The National Kidney Foundation, a major voluntary nonprofit health organization, is dedicated to preventing kidney and urinary tract diseases, improving the health and well-being of individuals and families affected by kidney disease and increasing the availability of all organs for transplantation.

The National Kidney Foundation (NKF) has been providing help and hope to kidney patients and their families since 1950. Today, with local offices across the country, NKF is meeting the growing public health challenge of chronic kidney disease with a range of vital programs and services for the public, patients and healthcare professionals.

SOURCE

Oxalosis & Hyperoxaluria Foundation (OHF)©
http://www.ohf.org/about_ohf.html

Diet

The oxalate content of food can vary considerably between plants of the same species, due to differences in climate, soil quality, state of ripeness, or even which part of the plant is analyzed. Variations also may be caused by the different methods used for measuring oxalate in food. Published values for some foods can vary from negligible amounts to moderately high. In addition, the soluble oxalate content of a food may influence the amount of oxalate absorbed by the intestine much more than the insoluble part, so foods that have a modest total oxalate content should still be limited because of the relatively high amount of soluble oxalate present.

A low oxalate diet is usually defined as less than 80mg oxalate per day. However, dietary oxalate restrictions may vary depending on the underlying condition causing Oxalosis.

The Oxalate Content of Food 2008 (Acrobat file) (Updated January 9, 2008)

<http://www.ohf.org/docs/Oxalate2008.pdf>

These food tables were compiled for the OHF by experienced research dieticians who work on oxalate research using the most up to date published information available. They may be grouped differently to that of other oxalate food lists because they are based on more recent data.

ABOUT THE SOURCE

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The OHF was founded in 1989 thanks to the care, interest and actions of concerned parents and families, who were frustrated and confused and not sure where to turn after discovering that a loved one was diagnosed with a rare genetic disorder called Primary Hyperoxaluria (PH), which results in the never-ending formation of kidney stones caused by a defective enzyme in the liver

The OHF has a Scientific Advisory Board, comprised of top experts from the finest universities and medical institutions from around the globe that help guide the OHF in funding millions of dollars in peer-approved research dedicated to Oxalosis, PH and related stone disease. The foundation also provides legislative support to the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) and the National Institutes of Health (NIH) to help better understand Oxalosis, PH and related stone disease.

Oxalate Ratings & Values in Select Foods

SOURCE

<https://regepi.bwh.harvard.edu/health/Oxalate/files/Oxalate%20Content%20of%20Foods.xls>

Food Group	Food Item	Serving size	Rating	Value
Honey & Molasses	Honey	1 tablespoon	Very Low	0mg
	Molasses	1 tablespoon	Very Low	0mg
Fruits, Juices	Apple (do not give seeds)	1 fruit	Little or None	1mg
	Apple Juice	6 oz	Low	2mg
	Apple Sauce	1 cup	Low	2mg
	Apricot	1 fruit	Little or None	0mg
	Apricot Juice	1 cup	Low	2mg
	Avocados	1 fruit	Very High	19mg
	Banana	1 fruit	Low	3mg
	Blackberries	1/2 cup	Low	2mg
	Blueberries	1/2 cup	Low	2mg
Fruits, Juices	Cantaloupe	1/4 melon	Little or None	1mg
	Cherries	1 cup	Low	3mg
	Dates	1 date	Very High	24mg
	Figs	1 medium	Moderate	9mg
	Grape Juice (do not feed to sugar gliders)	8 oz	Little or None	1mg
	Grapefruit	1/2 fruit	Very High	12mg
	Grapefruit Juice	8 oz	Little or None	0mg
	Honeydew Melon	1 cup	Little or None	1mg
	Kiwi	1 fruit	Very High	16mg
	Lemon	1 wedge	Little or None	1mg
	Lemon Juice Canned or Bottled	1 cup	Low	4mg
	Lemon Juice Raw Concentrate	1 tablespoon	Very Low	0mg
	Lime	1/2 fruit	Low	3mg
Food Group	Food Item	Serving size	Rating	Value
Fruits, Juices	Mango	1 fruit	Little or None	1mg
	Mango Juice	8 oz	Little or None	1mg
	Nectarine	1 fruit	Little or None	0mg
	Orange	1 fruit	Very High	29mg
	Orange Juice	1 cup	Low	2mg
	Papaya	1 medium fruit	Little or None	1mg
	Peach	1 fruit	Little or None	0mg
	Pear	1 fruit	Low	2mg
Food Group	Food Item	Serving size	Rating	Value

Food Group	Food Item	Serving size	Rating	Value
Fruits, Juices	Pineapple	1 cup	Low	4mg
	Pineapple Juice	8 oz	Low	3mg
	Plantain	1 medium	Little or None	1mg
	Plum	1 fruit	Little or None	0mg
	Prune Juice	1 cup	Moderate	7mg
	Raspberries	1 cup	Very High	48mg
	Strawberries	1/2 cup	Low	2mg
	Tangerine	1 fruit	High	10mg
	Watermelon	1 slice	Little or None	1mg
Food Group	Food Item	Serving size	Rating	Value
Dried Fruits	Dried Apple Rings	1 cup or 13 rings	Low	2mg
	Dried Apricot Halves	1 cup of halves	Low	3mg
	Dried Cranberries	1/2 cup	Little or None	1mg
	Dried Figs	5 pieces of fruits	Very High	24mg
	Dried Pineapples	1/2 cup	Very High	30mg
	Dried Prunes	1/4 cup or 5 prunes	High	11mg
Food Group	Food Item	Serving size	Rating	Value
Vegetables & Juices	Alfalfa Sprouts	1/2 cup	Little or None	0mg
	Artichokes	1 small bud	Moderate	5mg
	Asparagus	4 spears	Moderate	6mg
	Bamboo Shoots	1 cup	Very High	35mg
	Beets	1/2 cup	Very High	76mg
	Bok Choy Chinese Cabbage Raw	1 cup	Little or None	1mg
	Broccoli Chopped	1/2 cup	Little or None	1mg
	Brussel Sprouts Frozen	1/2 cup	Low	2mg
	Cabbage	1/2 cup	Little or None	1mg
	Carrot Juice	1 cup	Very High	27mg
	Carrots Cooked Sliced	1/2 cup	Moderate	7mg
Food Group	Food Item	Serving size	Rating	Value
Vegetables, Juices	Carrots Raw 1 Large	1/2 piece	High	10mg
	Cauliflower Cooked	1/2 cup	Little or None	1mg
	Celery Cooked	1 cup	High	10mg
	Celery Raw	1 stalk	Low	3mg
	Collards	1 cup	High	10mg
	Corn	1/2 cup	Little or None	1mg
	Cucumber	1/4 cucumber	Little or None	1mg
	Endive	1/2 cup	Little or None	0mg
	Green Pepper Bell Pepper	1 ring	Little or None	1mg
	Kale Chopped	1 cup	Low	2mg
	Lettuce Iceberg	1 cup	Little or None	0mg
	Mix Vegetables Frozen	1/2 cup	Moderate	5mg
Food Group	Food Item	Serving size	Rating	Value

Food Group	Food Item	Serving size	Rating	Value
Vegetables, Juices	Mung Beans	1/2 cup	Low	3mg
	Mustard Greens Chopped	1 cup	Low	4mg
	Okra	1/2 cup	Very High	57mg
	Olives	10 olives approx	Very High	18mg
	Oriental Vegetables Frozen	1/2 cup	Moderate	6mg
	Parsnip	1/2 cup	Very High	15mg
	Peas	1/2 cup	Little or None	1mg
	Radish	10 count	Little or None	0mg
	Rhubarb	1/2 cup	Very High	541mg
	Romaine Lettuce	1 cup	Little or None	0mg
	Rutabaga Cooked Mashed	1/2 cup	Very High	31mg
Food Group	Food Item	Serving size	Rating	Value
Vegetables, Juices	Soybeans	1 cup	Moderate	7mg
	Spinach cooked	1/2 cup	Very High	755mg
	Spinach Raw (limit intake, very high iron)	1 cup	Very High	656mg
	Squash Yellow	1/2 cup	Little or None	1mg
	Squash Zucchini	1/2 cup	Little or None	1mg
	String Beans Green Beans	1/2 cup	Moderate	9mg
	Tomato	1 med whole	Moderate	7mg
	Tomato Juice	1 cup	Very High	14mg
	Tomato Sauce	1/2 cup	Very High	17mg
	Tomato V8 Juice	1 cup	Very High	18mg
	Turnip Cooked Mashed	1/2 cup	Very High	30mg
	Yams Cubed	1/2 cup	Very High	40mg
Food Group	Food Item	Serving size	Rating	Value
Potatoes, White	Potato, Baked with Skin (do not feed to sugar gliders)	1 medium	Very High	97mg
	Potato, White, Mashed (do not feed to sugar gliders)	1 cup	Very High	29mg
Potatoes, Sweet	Potato Sweet	1 cup	Very High	28mg
Dairy	Milk Whole, 2%, 1%, Fat Free	1 cup	Little or none	1mg
	Cottage Cheese	1/2 cup	Little or None	0mg
	Cottage Cheese Low Fat	1 cup	Little or None	0mg
	Cottage Cheese Fat Free	1/2 cup	Little or None	1mg
Yogurt Products	Yogurt Plain	1 cup	Low	2mg
	Yogurt with Fruit	1 cup	Little or None	1mg
	Yogurt Non Fat with Fruit	1 cup	Little or None	1mg
Eggs	Eggs	1 medium	Little or None	0mg

Food Group	Food Item	Serving size	Rating	Value
Meats	Chicken	3 oz	Little or None	0mg
	Beef Ground 75% Lean	3 oz	Little or None	0mg
	Beef Ground 85% Lean	3 oz	Little or None	0mg
	Beef Ground 90% Lean	3 oz	Little or None	1mg
	Turkey	5 oz	Little or None	0mg
Food Group	Food Item	Serving size	Rating	Value
Nuts, Seeds	Almonds	1 oz or 22 kernels	Very High	122mg
	Cashews	1 oz or 18 kernels	Very High	49mg
	Flaxseed	1 Tablespoon	Little or None	0mg
	Mixed Nuts with Peanuts	1 oz	Very High	39mg
	Peanut Butter	1 Tablespoon	Very High	13mg
	Peanut Butter Reduced Fat	1 Tablespoon	Very High	16mg
	Peanuts	1 oz	Very High	27mg
	Pecans	1 oz or 15 halves	High	10mg
	Pistachios	1 oz or 48 kernels	Very High	14mg
	Pumpkin Seeds Cooked	1 cup	Very High	17mg
	Sunflower Seeds	1 cup	High	12mg
	Trail Mix	1 oz	Very High	15mg
	Walnuts	1 cup or 7 nuts	Very High	31mg
Food Group	Food Item	Serving size	Rating	Value
Soy Products, Etc.	Rice Dream Beverage	1 cup	Very High	13mg
	Soy Burger	3.5 oz	High	12mg
	Soy Milk	1 cup	Low	4mg
	Soy Protein Isolate	1 oz	Very High	27mg
	Tofu	3.5 oz	Very High	13mg
Food Group	Food Item	Serving size	Rating	Value
Flours, Cereals, Grains	Brown Rice Flour	1 cup	Very High	65mg
	Cream of Wheat Cereal	1 cup	Very High	18mg
	Farina Cereal	1 cup	Very High	16mg
	Flaxseed	1 Tablespoon	Little or None	0mg
	Oat Bran, raw	1/3 cup	Little or None	0mg
	Soy Flour	1 cup	Very High	94mg
	Wheat Flour Whole Grain	1 cup	Very High	29mg

VEGETABLE Oxalic Acid per 100 grams

SOURCES

<http://www.ars.usda.gov/Services/docs.htm?docid=9444>

http://www.guinealynx.info/diet_oxalic.html

Amaranth 1.09

Asparagus .13

Beans, snap 0.36

Beet leaves 0.61

Broccoli 0.19

Brussels sprouts 0.36

Cabbage 0.1

Carrot 0.5

Cauliflower 0.15

Celery 0.19

Chicory 0.21

Collards 0.45

Coriander 0.01

Corn, sweet 0.01

Cucumbers 0.02

Eggplant 0.19

Endive (Escarole) 0.11

Kale / Curly Kale 0.02

Lettuce 0.33

Okra 0.05

Parsley 1.7

Parsnip 0.04

Pea 0.05

Pepper 0.04

Purslane 1.31

Radish 0.48

Rutabaga 0.03

Spinach 0.97

Squash 0.02

Sweet potato 0.24

Tomato 0.05

Turnip 0.21

Turnip greens 0.05

Watercress 0.31

SOURCES

Information and Credits Attributed to the Following

The Channing Laboratory & Harvard Medical School

The OHF - Oxalosis & Hyperoxaluria Foundation
a 501 (c)(3), public charity
www.ohf.org

Oxalate Food Content: <http://www.ohf.org/docs/Oxalate2008.pdf>

The Channing Laboratory

Department of Medicine, The Brigham and Women's Hospital (BWH)
<https://regepi.bwh.harvard.edu>

Oxalate Files - <https://regepi.bwh.harvard.edu/health/Oxalate/files>

Harvard Medical School & Harvard School of Public Health (HSPH)

<http://hms.harvard.edu/> and <http://www.hsph.harvard.edu/>

(HSPH) Nutrition Department's Oxalate Documentation File Download Site

<https://regepi.bwh.harvard.edu/health/nutrition.html>

ADDITIONAL REFERENCES AND RESOURCES

NUTRITIONAL REFERENCE SOURCE

<http://www.nal.usda.gov/fnic/foodcomp/search/>

NUTRITIONAL REFERENCE SOURCE

<http://www.branwen.com/rowan/oxalate.htm>

OXALIC ACID VEGETABLE LIST REFERENCE SOURCE

http://www.guinealynx.info/diet_oxalic.html

REFERENCE SOURCE

http://www.guinealynx.info/diet_ratio.html

REFERENCE SOURCE

<http://www.nutrition.com/>

REFERENCE SOURCE

<http://www.nutritiondata.com>
