



NUTRITION & HEALING

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Preventing Kidney Stones

by Jonathan V. Wright, M.D.

Although he'd not been to Tahoma Clinic before, Dmitri Osmonovich had a thick file. "I had my records sent from everywhere I've been with this problem. I want you to see how bad it is," he said. "The University hospital, all the other hospitals and emergency rooms, the best urologists, everything. I've had regular surgery, and lithotripsy. They've had me on a low-calcium diet for years, no dairy at all. I've taken diuretics and other drugs, nothing works. I just keep having kidney stones. I might have missed one or two, but last time I counted I've had at least 47 - more stones than I have years! Anna here keeps telling me maybe changing what I eat and taking some vitamins will help, but how can that be? All the doctors, even at the University,

tell me that diet has nothing to do with getting kidney stones!" He spread his arms wide. "My wife, I love her, but could she be smarter than all those doctors?" He folded his arms across his chest and looked at me.

"Dmitri's a part-time actor. Don't mind the theatrics," Mrs. Osmonovich smiled. "During his last ride to the hospital - in the ambulance, he's too big for me to carry - I got him to promise to come here..."

"I was in so much pain, I'd have promised anything!" he exclaimed.

She continued unperturbed. "I got him to promise to come here if there were even a tiny chance of stopping or even slowing down these kidney stones. There is a tiny chance, isn't there, doctor?"

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Commentary

by Alan R. Gaby, M.D.

As many as one of every fifteen men and probably half as many women in the United States will suffer from one or more kidney stones at some time in their lives. While a kidney stone may in some instances cause no symptoms at all, the passing of a stone can also be one of the most excruciatingly painful experiences one will ever encounter. In addition, kidney stones sometimes block the flow of urine, causing recurrent urinary-tract infections or damage to the kidney.

In the United States, most kidney stones are made of calcium oxalate, although some contain primarily calcium phosphate, uric acid, or other materials. Because calcium-oxalate stones are the most common, and because most of the research has focused on that type of stone, this month's discussion will focus on calcium-oxalate stones.

Preventing Stones: The basic strategy for preventing kidney stones from forming is to keep calcium and oxalate dissolved in the urine, rather than allowing these molecules to crystallize. One way to keep calcium and oxalate in solution is to reduce their con-

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Charles Walters talks with Dr. Wright about why natural farming methods are essential to good nutrition in an age of poisoned agricul-

"I looked through your record before I went to get you," I said. Nearly every time your kidney stones were analyzed they were mostly calcium oxalate, the most common type. Calcium-oxalate kidney stones are usually quite preventable."

Anna smiled at Dmitri, "I'm glad we came," she said.

"Preventable? This must be something brand new, not tested...how could all those doctors not know? Even at the University!"

"Likely because they still don't think vitamins and minerals are important," I answered. "Actually, it's been twenty years since Drs. Gershoff and Prien published an article in a major urology journal

about successful prevention of calcium-oxalate kidney stones in humans using a mineral and a vitamin. And they'd been carefully establishing the basis of that work in animals for years before."

"Twenty years? 1974? I must have had two-dozen kidney stones in those years, and no one told me I could prevent them!"

"Nearly every time your kidney stones were analyzed they were mostly calcium oxalate, the most common type. Calcium-oxalate kidney stones are usually quite preventable."

"Actually, Dmitri, I have told you on and off since we were married, and that's been ten years now."

"Oy, maybe I should keep the kidney stones so I won't have to hear forever how I should have listened to my wife! But tell me, in case it works, what vitamin and mineral I should try."

"Before I tell you that, let's go over basic diet first. Vitamin and mineral supplements are important, but they are supplements to a good diet. And water, too; our bodies are 60-to-70 percent water...do you drink much water?"

"No, mostly coffee and tea, sometimes beer. Actually, water just tastes wrong. Not bad, but wrong."

"Not a surprise if you're drinking 'city water.' Most are treated with chlorine, medicated with fluoride, and frequently have other chemicals besides. Many of us Americans have never tasted truly pure water. It's really quite good. If you can, install a water-filtration system at your house for the water you use in cooking and drinking. If that's not possible, use distilled water or water of known composition without chemical additives and

'medications' like fluoride. Please try to drink at least a quart of really pure water daily."

"A quart? I'll float away!"

"You drink more coffee and tea than that already, dear, and you're not floating yet."

"Actually, all that caffeine isn't so good either. Caffeine promotes calcium excretion for two-to-three hours, and if you're drinking coffee frequently..."

"I'm peeing out extra calcium all day long!" He spread his arms dramatically again. "So what good will a low-calcium diet do anyway, if this is true? It just gets messed up again with the caffeine!"

"Actually, there's very little evidence that low-calcium diets do any good, anyway, caffeine or not. When we cut down on dietary calcium our bodies start to make more parathyroid hormone, which just takes calcium off the bones, and puts it in circulation in the bloodstream."

"From where I just pee it out AGAIN! Do these other doctors know nothing of nutritional science, Anna? Why didn't you tell me?"

Anna smiled and said nothing.

"So, more pure water, stay away from caffeine. What about those vitamins and minerals?"

"We'll get there, but a few more things about diet. Both sugar and salt can cause excess calcium loss, as can lack of fiber in the diet. I read through the diet record you sent in..."

"I should have known. Anna's been after me about the sugar for

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Preventing Kidney Stones (continued from page 2)

years, also. I admit, I have a sweet tooth. This part may be hard."

"Just remember your first surgery and eat a piece of fruit instead, Dmitri."

"High-sugar diets are often highly processed and low in fiber. More fiber than you currently have in your diet will likely cut down on calcium excretion. Remember whole grains, more root vegetables, beans. I'm sure Anna can tell you."

"I'm sure she can, too, and will. Is that all the diet changes? It's certainly enough...no caffeine or sugar, less salt, more fiber, lots of pure water. I'll lose my image and turn into a health-food nut! Are you sure this will work?"

"Very little is 100% certain, but combined with the right vitamins and minerals it does the job for most people."

"So, now can you tell me which vitamins and minerals? I can't take the suspense any longer!"

"Dmitri..."

"Sure. The main ones are Vitamin B₆ and magnesium. Vitamin B₆ cuts down on the production of oxalate and magnesium makes it more soluble, so it doesn't precipitate and form stones so easily."

"How much should I take?"

"Since you've had a long and...dramatic...stone history, please start with 200 milligrams of Vitamin B₆ and 200 milligrams of magnesium, twice daily."

Dmitri looked skeptical. "Isn't that a lot? I've heard you can get poisoned on vitamins, too."

"Dmitri, I'm sure the doctor knows what he's doing," Anna said quietly.

"Thank you, I think I do, too,

but questions are always fine. If magnesium is too much, it'll give you diarrhea, you'll know to use less. There has been talk of possible Vitamin B₆ toxicity at very high quantities, but that's fairly easy to tell also. In very large doses, B₆ might cause numbness or tingling in the fingers or toes. If that even starts to happen, please quit. As long as you "back up" the B₆ with a good B-complex, preferably as part of a good multiple vitamin-mineral combination, it's not at all likely."

"Dmitri had one more kidney stone, "a small one, which hardly hurt at all." For more than a dozen years he has reported no further kidney stones.

"And just this magnesium and Vitamin B₆ can make me quit having kidney stones? It seems unbelievable! So simple!"

"Dmitri!" Anna exclaimed.

"Already you've forgotten the pure water, no sugar, no caffeine."

"I haven't forgotten, I'll just let you remember for me."

"It's you with the kidney stones, though." I said.

Dmitri sighed. "You're so right about that." He got up to go.

"In addition to Vitamin B₆, magnesium, and a good multiple vitamin and mineral..." I paused to write these items down, "...a little extra Vitamin A would be wise. There's some evidence that low levels of Vitamin A are associated with kidney-stone formation. Please make sure you take at least 40,000 units of Vitamin A daily for the next year or so."

"Is beta-carotene OK?" Dmitri asked.

"Won't hurt, but actual Vitamin A is better."

"I have one question, too," Anna said. "I've read that too much Vitamin C might cause oxalate kidney stones. Is this true?"

"Theoretically, it's possible. In actuality, I've only seen it happen once in ten years. If it were important for Dmitri to take more than a gram or two a day of Vitamin C, we could check a urine test for oxalate both before and after to see if it might be a problem. Even then, the extra Vitamin B₆ supplement will cut down on oxalate production from Vitamin C, should it happen."

"So should Dmitri take extra Vitamin C?"

"If we're really trying to stay healthy, at an absolute minimum it's wisest to take Vitamins C and E along with that good multiple vitamin and mineral. For Dmitri, I'd suggest one gram Vitamin C and 400 units Vitamin E each day."

"But this has nothing to do with preventing kidney stones?" Dmitri asked.

"Dmitri, we're here for the best of health, too, not just to prevent stones."

"Anna, this time I listen to you, and this doctor. Lots of water, no sugar, no caffeine, less salt, more whole food with fiber, Vitamin B₆, magnesium, multiple vitamin and mineral, Vitamin C, Vitamin E...but it better do the job!"

"Even if it just cuts them in half, it's worth it..."

In the first year after this visit, Dmitri had one more kidney stone, "a small one, which hardly hurt at all." For more than a dozen years he's reported no further kidney stones. □

Commentary (continued from page 1)

centration in the urine. That objective can be accomplished in part by drinking more water, which will increase the volume of urine and thereby dilute the urine's constituents. The concentration of calcium and oxalate can also be influenced by what you eat and by certain nutritional supplements.

A second way to prevent calcium oxalate from crystallizing is to increase the urinary concentration of so-called "inhibitors," compounds which increase the solubility of calcium oxalate. Two major inhibitors are citrate (citric acid) and magnesium. Although eating citric acid does not significantly increase the amount of citrate in the urine, ingesting more magnesium can effectively increase the amount of magnesium in urine.

Avoid Sugar: Diets that are high in refined sugar may promote kidney stones by increasing the amount of calcium in the urine. An individual's susceptibility to sugar is inherited to some extent. In one study, for example, patients with kidney stones and their relatives had a much greater increase in urinary calcium after ingesting 100 g of sugar than did healthy individuals.¹ What this means is that eating sweets is more likely to cause problems if kidney stones run in your family than if they do not.

Cola Drinks Harmful: Certain soft drinks may also promote kidney stones through an effect that is unrelated to their sugar content. In one study, 1,009 men with a history of kidney stones who drank at least one quart of soft drinks per week were divided into two groups. One group was advised to discontinue all soft drinks, while the others were given no dietary advice (control group). After three years, significantly fewer new stones developed in the no-soft-drink group than in the control group. However, the improvement occurred only in men whose usual soft drinks contained phosphoric acid (primarily cola beverages). Among those who consumed soft drinks other than colas, dis-

continuing them did not reduce the risk of stones. The results of this study suggest that completely avoiding colas and other soft drinks containing phosphoric acid can reduce the risk of kidney-stone recurrences by as much as 36%.² Evidently, there is something about phosphoric acid that promotes stone formation.

Dietary Fiber Helps: Increasing the amount of fiber in the diet may also be helpful. In one study, patients with kidney stones were given 24 g/day of unprocessed wheat bran for two months. There was a significant reduction in urinary calcium excretion in 86% of the patients.³

Rice bran may be even more effective than wheat bran. In a study of 164 patients with kidney stones who excreted excessive amounts of calcium, treatment with 10 g of rice bran twice a day significantly reduced the amount of calcium in the urine. More important, rice-bran treatment reduced the number of kidney-stone recurrences by more than 78%.⁴

Dietary fiber is believed to decrease urinary inhibiting calcium excretion by reducing the amount of calcium absorbed. It might seem that inhibiting calcium absorption is not such a good idea, particularly since many kidney-stone patients already have thinner-than-normal bones. However, no one is sure how dietary fiber actually works and no one has demonstrated that increasing dietary fiber makes the bones thinner. It is our belief that supplementing with bran (particularly rice bran) is desirable for some patients; however, bone density should be monitored in individuals who are at risk for developing osteoporosis.

Other Dietary Factors: The amount of oxalate in the urine can be reduced by avoiding foods high in oxalate, such as spinach, chard, rhubarb, parsley, tea, and cocoa. Most herbal teas are low in oxalate and are therefore acceptable.

Diets high in animal protein (meat, chicken, and fish) tend to

increase both urinary calcium and oxalate,⁵ and are therefore not advisable for people who suffer from kidney stones. In addition, eating these food increases urinary excretion of uric acid.⁶ Since excess uric acid in the urine promotes formation of calcium-oxalate crystals, stone formers may be able to reduce their risk by leaning more towards a vegetarian diet.

Excess salt intake may also promote kidney stones. In a study of 282 individuals with kidney stones, the amount of calcium in the urine increased with increasing sodium intake.⁷ Since eating salt appears to increase levels of urinary calcium, people who suffer from kidney stones should go easy on the salt.

Caffeine ingestion also increases urinary calcium excretion⁸ and may therefore be another triggering factor for kidney stones.

Magnesium Prevents Stones: As mentioned above, magnesium inhibits the formation of calcium-oxalate crystals in urine. As early as the 17th century, magnesium was being recommended to prevent kidney stones, and modern research has now confirmed that old folk remedy. Fifty-five patients with recurrent kidney stones were given 500 mg/day of magnesium, in the form of magnesium hydroxide, for up to four years. Urinary magnesium increased promptly and remained elevated during the entire treatment period. The average number of stone recurrences fell by 90%, and 85% of the patients remained free of stones (compared to only 41% of similar patients who did not receive magnesium).⁹

Vitamin B₆ Also Effective: Vitamin B₆ also plays a role in kidney-stone prevention, primarily through its effect on oxalate metabolism. In addition to being absorbed from food, oxalate is manufactured in the body from the amino-acid glycine and from other compounds. Some stone formers produce excessive amounts of oxalate, and abnormality which can be at least partly corrected by supplementing with Vitamin B₆.

Lab tests have shown that some

individuals with kidney stones have subtle deficiencies of Vitamin B₆.¹⁰ When as little as 10 mg of Vitamin B₆ were given to patients with kidney stones, the amount of oxalate in their urine declined gradually but progressively, reaching a 45% decline after 120 days.¹¹

The combined effect of Vitamin B₆ and magnesium was tested in a landmark study performed more than twenty years ago. Some 149 recurrent stone formers were given 300 mg of magnesium oxide (equivalent to 180 mg of magnesium) and 10 mg of Vitamin B₆ daily for 4.5 to 6 years. Before receiving this treatment, these patients had been suffering an average of 1.3 stones per person per year. During therapy with magnesium and Vitamin B₆, however, the stone-formation rate fell to 0.1 per person per year, an improvement of 92.3%.¹²

Moderate doses of Vitamin B₆ (10-50 mg/day) will effectively lower oxalate levels for most people. However, some individuals have a rare genetic disorder, known as primary hyperoxaluria, in which the metabolism of oxalate is defective. Individuals with this condition excrete massive amounts of oxalate and develop frequent and severe kidney stones, which can lead to kidney failure. Large doses of Vitamin B₆, such as 1,000 mg/day, may be needed to prevent further stone formation in these individuals.¹³ As we have mentioned in the past, massive doses of Vitamin B₆ (500 mg/day or more) can cause nerve damage and should therefore be monitored by a doctor. Fortunately, very few people with kidney stones require such large amounts of Vitamin B₆.

Should Calcium Be Restricted?

Some doctors recommend restricting the amount of calcium in the diet, in order to reduce urinary calcium. However, recent research suggests that calcium restriction is not a good idea and may, in fact, make things worse. Calcium binds oxalate in the intestinal tract, thereby preventing the oxalate naturally present in food from being absorbed. It turns out that urinary oxalate influences stone formation to a far greater extent than does urinary

calcium. Thus, a high-calcium diet may actually prevent stone formation by reducing the urinary concentration of oxalate, even though such a diet might increase calcium excretion.¹⁴

That possibility was confirmed by a recent study in which the risk of developing kidney stones fell as the amount of dietary calcium increased.¹⁵

Is Vitamin C Dangerous? There has been a good deal of controversy about whether Vitamin C causes kidney stones. Since this vitamin can be converted to oxalate, taking large amounts could theoretically cause a stone to develop. One study showed that the average person can take up to 4,000 mg/day of Vitamin C without producing a statistically significant increase in urinary oxalate.¹⁶

While larger doses of Vitamin C (such as 8 g/day) may increase the amount of oxalate in the urine, even in these large amounts Vitamin C does not seem to cause stones. In fact, nutrition-oriented doctors who routinely prescribe Vitamin C in mega-doses have been impressed with the relative rarity of kidney stones among their patients. Vitamin C is capable of binding calcium in the urine which would leave fewer calcium ions available to combine with oxalate. Any tendency of Vitamin C to increase oxalate levels is probably counterbalanced by this calcium-binding effect.

Thus, although Vitamin C does not seem to promote kidney stones in the average person, a rare individual (perhaps one in several hundred) will develop extremely high oxalate levels when taking Vitamin C supplements. This unusual reaction to Vitamin C, which is probably inherited, can be detected by measuring urinary oxalate before and after beginning Vitamin C therapy. Individuals with a personal or family history of kidney stones who wish to take large doses of Vitamin C should probably have such testing done. Fortunately, a rise in oxalate excretion induced by Vitamin C can often be corrected by supplementing with Vitamin B₆.¹⁷

Summary: Calcium-oxalate kidney stones, which are epidemic in

Western civilizations, can be prevented by dietary modifications and by nutritional supplements. A diet to prevent kidney stones should be low in refined sugar, salt, caffeine, colas, and animal protein, and should contain adequate amounts of fiber. Supplementing with magnesium and Vitamin B₆ greatly reduces the risk of kidney-stone formation. Dietary calcium should not be restricted by people who have kidney stones. Except in rare instances, taking large doses of Vitamin C does not cause kidney stones. □

1. Lemann J Jr, et al. *Possible role of carbohydrate-induced calciuria in calcium oxalate kidney-stone formation.* *N Engl J Med* 1969;280:232-237.
2. Shuster J, et al. *Soft-drink consumption and urinary-stone recurrence: a randomized prevention trial.* *J Clin Epidemiol* 1992;45:911-916.
3. Shah PJR, et al. *Idiopathic hypercalciuria: its control with unprocessed bran.* *Br J Urol* 1980;52:426-429.
4. Ebisuno S, et al. *Rice-bran treatment for calcium stone formers with idiopathic hypercalciuria.* *Br J Urol* 1986;58:592-595.
5. Robertson WG, et al. *The effect of high animal protein intake on the risk of calcium stone-formation in the urinary tract.* *Clin Sci* 1979;57:285-288.
6. Coe FL, et al. *The contribution of dietary purine over-consumption to hyperuricosuria in calcium oxalate stone formers.* *J Chronic Dis* 1976;29:793-800.
7. Burtis WJ, et al. *Dietary hypercalciuria in patients with calcium oxalate kidney stones.* *Am J Clin Nutr* 1994;60:424-429.
8. Hollingbery PW, et al. *Effect of dietary caffeine and aspirin on urinary calcium and hydroxyproline excretion in pre- and post-menopausal women.* *Fed Proc* 1985;44:1149.
9. Johansson G, et al. *Effects of magnesium hydroxide in renal stone disease.* *J Am Coll Nutr* 1982;1:179-185.
10. Thind SK, et al. *Role of vitamin B₆ in oxalate metabolism in urolithiasis.* *Am J Clin Nutr* 1979;32(6):xx (Abstract).
11. Rattan V, et al. *Effect of combined supplementation of magnesium oxide and pyridoxine in calcium-oxalate stone formers.* *Urol Res* 1994;22:161-165.
12. Prien EL, Gershoff SN. *Magnesium oxide-pyridoxine therapy for recurrent calcium oxalate calculi.* *J Urol* 1974;112:509-512.
13. Will EJ, et al. *Primary oxalosis: clinical and biochemical response to high-dose pyridoxine therapy.* *Metabolism* 1979;28:542-548.
14. Robertson WG, Peacock M. *The cause of idiopathic calcium stone disease: hypercalciuria or hyperoxaluria?* *Nephron* 1980;26:105-110.
15. Curhan GC, et al. *A prospective study of dietary calcium and other nutrients and the risk of symptomatic kidney stones.* *N Engl J Med* 1993;328:833-838.
16. Ringsdorf WM Jr, Cheraskin E. *Nutritional aspects of urolithiasis.* *South Med J* 1981;74:41-44.
17. Wright JV. *High-dose vitamin C and kidney stones.* In *Dr. Wright's Book of Nutritional Therapy*. Rodale Press. 1979. pp.272-277.

ACUTE SX

- MAGNESIUM GLYCINATE
300-400 mg 2X/DAY
- EPSOM SALTS BATHS
1 CUP / BATH
- ++ WATER -

(Homeopath. Berp 30C)