THE UROLOGY GROUP

www.urologygroupvirginia.com

1860 Town Center Drive · Suite 150/160 · Reston, VA 20190 · 703-480-0220
19415 Deerfield Avenue · Suite 112 · Leesburg, VA 20176 · 703-724-1195
224-D Cornwall Street, NW · Suite 400 · Leesburg, VA 20176 · 703-443-6733
24430 Stone Springs Blvd · Ste 100 · Dulles · VA 20166

KIDNEY STONE FOLLOW UP

RISK FRACTORS FOR RECURRENT STONES

Patients who form a kidney stone are at significant risk to form new stones over time. The risk of recurrence is 14% at one year, 35% at two years and 52% at ten years for patients who have had just one episode of kidney stones.

For individuals who have had **more than one episode** of kidney stones, there is an even higher risk for new stone formation.

Certain **medical conditions** that increase the risk of recurrent stones include excess body weight (obesity), diabetes, gout, bowel disease, bone disease and recurrent urinary tract infections.

Medical conditions that would make a recurrent stone more serious include Chronic Kidney Disease, solitary kidney and unusual kidney anatomy.

A **family history** of kidney stones is another risk for factor for forming a new kidney stone.

Some **surgeries**, like surgery for weight reduction (gastric bypass) or bowel resection, increase the risk of recurrent stones.

Some **medications** and **supplements** may increase the risk of stones. Carbonic anhydrase inhibitors (acetazolamide, topiramate, zonisamide) can cause a condition called renal tubular acidosis; furosemide and other loop diuretics can cause the kidney to excrete calcium in the urine; alkalizing agents (potassium citrate, sodium citrate and sodium bicarbonate) can promote calcium phosphate stones; thiazide diuretics (HCTZ) and indapamide increase the risk for stone formation. Vitamin C is converted to oxalate and increases risk for calcium oxalate stones.

Dietary risk factors include low fluid volume; high sodium intake (found in salt and processed foods); high intake of red meat, chicken and fish; and not enough vegetables and fruits.

The more risk factors you have, the more frequently you will need to be followed.

WORK UP TO FIND OUT WHY STONES ARE FORMED

Stone analysis: Stones retrieved at surgery are sent for analysis. Stone composition can direct further evaluation as it can help diagnose some conditions associated with recurrent stones.

Blood work: Lab measures of electrolytes, blood urea nitrogen, creatinine and Glomerular Filtration Rate (GFR), calcium and uric acid check kidney function and screen for conditions that predispose to new kidney stone formation.

24-hour urine testing: A 24 hour urine collection evaluates a number of chemicals in the urine that day. It tells us why stones form and can help target prevention.

Urine volume	Amount of urine voided
Urine pH	Risk and type of new stone
Sodium	Amount of sodium consumed
Calcium	Excess calcium excretion from the kidneys
Oxalate	Excess oxalate intake
Citrate	Fruits and vegetables consumed

Potassium	Potassium consumption
Uric acid	Excess uric acid in the urine
Magnesium	Magnesium consumed
Urea nitrogen	Total protein intake
Sulfate	Animal protein intake
Phosphorus	Animal protein intake
Ammonia	Total acid load intake
Creatinine	Accuracy of collection

Imaging: Periodic imaging with a plain x-ray (Kidney Ureter Bladder or KUB), ultrasound of the kidneys and bladder or CT scan of the abdomen and pelvis may be recommended. KUB or ultrasound is usually used as a screening study. Although not as accurate as CT scan, a KUB has less radiation exposure compared to CT. Ultrasound does not use any radiation. CT scan is the most accurate to show every stone and its exact size, however it does involve radiation and the radiation exposure accumulates over time.

If you currently have stones, the stones will need to followed on periodic imaging studies.

Stone surgery is often recommended if you develop pain, recurrent urinary tract infection, blood in the urine or the stones increase in size or number over time.

Nutrition consultation: You may be advised to see a nutritionist or dietician for a dietary assessment and help on reaching dietary goals. Please see our Kidney Stone Diet. You may want to see a nutritionist to work on achieving and maintaining a healthy weight, improving diabetic control or if you have kidney stones and other dietary restrictions. Please see our Nutritionist referral list.

Reference
Lange JN, Muffarrij PW, Wood KD, et al. Metabolic evaluation and medical management of the calcium stone former. American Urologic Association Update Series. Lesson 22, Volume 31. American Urological Association, Linthicum, MD 2012.