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KIDNEY STONES · CALCIUM OXALATE

Calcium oxalate stones

Water, the right amount of calcium, less salt and fewer foods very high in oxalate.



🔎 Calcium oxalate stones

The most common type. They form when there is little urine and/or too much calcium, oxalate or uric acid, or too little citrate in the urine. **Cutting out calcium is a mistake:** calcium in food binds oxalate in the gut and stops it being absorbed.

2.5 to 3 L
of fluid a day, to pass
at least 2 to 2.5 L of urine

🚰 Drinking water: measure no. 1

- Spread it through the day — include a glass at bedtime and if you wake at night.
- Drink **more** in hot weather (Algarve summer, beach), with exercise or working in the sun.
- Aim for **pale**, straw-coloured urine. Dark urine = drink more.
- Water should be your main drink; avoid fizzy and sugary drinks.

✅ The most important things

- **Normal calcium** (1000–1200 mg/day), with meals.
- **Limit oxalate**: spinach, chocolate, nuts, black tea.
- **Salt < 5 g/day** and moderate animal protein.
- **Do not take vitamin C supplements**; fruit and vegetables, yes.

Foods very high in oxalate — limit

- Spinach, Swiss chard, beetroot, rhubarb
- Cocoa, chocolate (especially dark)
- Almonds, cashews, peanuts; wheat bran
- Strong black tea and iced tea in large amounts
- If you eat them: **add calcium to the same meal** (e.g. spinach with cheese or milk)

Food traffic lights

Choose

- Water (your main drink)
- Milk, yoghurt, fresh cheese: 2–3 servings a day, with meals
- Low-oxalate vegetables: lettuce, cucumber, cabbage, broccoli, cauliflower
- Fresh fruit, including oranges and lemons
- Rice, pasta, low-salt mixed-grain bread
- Olive oil, herbs and lemon

In moderation

- Meat, fish and shellfish: moderate portions
- Spinach, Swiss chard, beetroot: rarely and with calcium
- Nuts: small amounts
- Coffee and tea: in moderation
- Cured cheeses and bread (salt)

Avoid / rarely

- Chocolate and cocoa in large amounts
- Iced tea and strong black tea
- Cured and smoked meats, salty snacks
- Fizzy and sugary drinks
- Vitamin C supplements (≥ 1 g/day)
- High-protein diets and protein shakes

📞 Contact your doctor if...

- Colic with fever or shivering → A&E
- You cannot pass urine or pass very little
- Pain not relieved by your medicines
- Vomiting that stops you drinking or taking medicines
- Single or transplanted kidney with colic → A&E
- Blood in the urine that persists

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🔄 Easy swaps

INSTEAD OF…	CHOOSE…
✗ Cutting out milk and cheese	✓ Dairy with meals, every day
✗ Frequent spinach or chard soup	✓ Cabbage, carrot, pumpkin or leek soup
✗ Chocolate or almonds as a snack	✓ Plain yoghurt with fruit
✗ Iced tea or strong black tea	✓ Water or unsweetened herbal teas
✗ Effervescent tablet of vitamin C	✓ An orange or a kiwi

💊 Medicines and products: take care!

- 🍊 **High-dose vitamin C** (≥ 1 g/day, e.g. effervescent tablets): avoid — it turns into oxalate.
- ☀️ **High-dose vitamin D** without monitoring: avoid; only on advice and with blood tests.
- 🧠 **Topiramate, zonisamide, acetazolamide** promote stones. Don't stop them: talk to your doctor.
- 🔥 **During colic**: use the medicines prescribed. Anti-inflammatories work well, but use them with caution if you have kidney disease or a stomach or duodenal ulcer, or if you take anticoagulants.
- 💧 **Thiazide** (diuretic prescribed to prevent stones): keep salt low and have the potassium tests requested.
- 🥛 **Calcium supplements**: only if advised and **always with meals** (between meals they increase the risk).
- 🚽 **Laxatives** used daily/excessively: can cause stones and dehydration.
- 💉 Some medicines can form stones (e.g. indinavir, atazanavir, sulfadiazine, triamterene) — say you have kidney stones.
- 🌿 **Teas and products "to dissolve stones"**: no proven benefit; they do not replace the measures in this leaflet.
- 🥣 **Bowel disease or weight-loss surgery**: less fat and calcium with meals, as advised.

🏃 Lifestyle

💧 Heat and exercise
Always carry a bottle of water; drink before, during and after.

⚖️ Weight
Aim for a healthy weight (BMI 18–25). Excess weight increases the risk.

🚶 Physical activity
Stay active: regular activity, ≥ 150 min a week.

🧂 Salt
< 5 g a day: salt increases calcium in the urine.

🩺 Other conditions
Control diabetes, blood pressure and gout: they are linked to stones.

🔬 Follow-up
Keep any stone you pass and bring it for analysis; do the tests requested.

🥛 Calcium: reaching 1000–1200 mg a day, without supplements

🥛 1 glass of milk (250 mL) ≈ **300 mg** 🥄 1 plain yoghurt ≈ **150–200 mg** 🧀 1 slice of cheese (30 g) ≈ **200 mg**

Example: milk at breakfast + yoghurt as a snack + 1 slice of cheese or another dairy food at lunch/dinner. Have them **with meals**.

🍽️ Calcium with meals, little oxalate — example

Breakfast	Lunch	Snack	Dinner	Drinks
Galão (milky coffee) and mixed-grain bread with fresh cheese	Cabbage and carrot soup; grilled chicken with rice and broccoli; orange	Plain yoghurt with a pear	Oven-baked sea bream with potatoes and cauliflower; fruit	Water; herbal infusions instead of strong black tea or iced tea

🤝 Pair oxalate with calcium

- Calcium in the meal binds oxalate in the gut and stops it reaching the urine.
- Spinach, chard or esparregado → in the same dish, fresh cheese, or milk/yoghurt at the same meal.
- Nuts or chocolate (a little) → together with a yoghurt or milk, not on their own.
- Calcium supplements: only if prescribed and always with meals.

References (sources of these recommendations):

1. European Association of Urology. EAU Guidelines on Urolithiasis, 2025 edition (Skolarikos A et al.). Arnhem: EAU Guidelines Office.
2. Pearle MS et al. Medical Management of Kidney Stones: AUA Guideline (2014, amended 2019). J Urol. 2014;192:316–324.
3. KDIGO 2024 Clinical Practice Guideline for the Evaluation and Management of CKD. Kidney Int. 2024;105(4S):S117–S314.
4. Direção-Geral da Saúde (Portuguese Directorate-General of Health) – PNPAS: Food Wheel and salt reduction recommendations (≤ 5 g/day, WHO).

This leaflet is for information only and does not replace individual advice from your doctor or dietitian. Targets should be personalised. Do not change or stop any medicine without talking to your doctor.