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KIDNEY STONES · CALCIUM PHOSPHATE

Calcium phosphate stones

Water, the right amount of calcium, little salt — and finding and treating the cause.



🔎 Calcium phosphate stones

They form mainly when urine is **not acidic enough (alkaline)** and contains a lot of calcium. They may be linked to conditions your doctor will look for: **hyperparathyroidism**, **renal tubular acidosis** or **urinary infections**. Treating these causes is part of prevention.

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.
- ⚠️ **Your water should NOT be alkaline: avoid alkaline waters such as Monchique water.**
- Water should be your main drink; avoid fizzy and sugary drinks.

✅ The most important things

- **Normal calcium** in your diet (don't cut it), with meals.
- **Salt < 5 g/day** and moderate animal protein.
- **Don't alkalinise your urine** on your own (bicarbonate, citrates).
- **Treat and prevent urinary infections.**

🚦 Food traffic lights

Choose

- Water (your main drink)
- Vegetables and fresh fruit
- Milk, yoghurt and fresh cheese, with meals
- Pulses and wholegrains
- Fish, eggs and white meat in moderate portions
- Olive oil, herbs and lemon

In moderation

- Red meat and shellfish: moderate portions
- Cured cheeses and bread (salt)
- Coffee and tea: in moderation
- Wine or beer: a little

Avoid / rarely

- **Alkaline waters (e.g. Monchique water)**
- Sodium bicarbonate or citrates without prescription
- Calcium or bicarbonate antacids used regularly
- Cured and smoked meats, salty snacks
- Fizzy and sugary drinks
- Calcium or vitamin D supplements without advice
- 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…
✗ Bicarbonate "for heartburn" every day	✓ Talk to your doctor about the heartburn
✗ Cutting out milk and cheese	✓ 2–3 servings of dairy a day, with meals
✗ Fizzy drink at the beach	✓ A bottle of cool water
✗ Salty restaurant food	✓ Ask for "little salt", sauces on the side
✗ Putting off going to the toilet	✓ Pass urine regularly and drink well

💊 Medicines and products: take care!

- 🧪 **Potassium citrate or bicarbonate**: only if prescribed, with urine pH monitoring (they can raise pH too much).
- 🍊 **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** (if urine calcium is high): keep salt low and have the 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.

🏃 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**.

🍽️ Normal calcium, little salt, non-alkaline water — example

Breakfast	Lunch	Snack	Dinner	Drinks
Plain yoghurt with oat flakes; kiwi	Vegetable soup; stewed turkey with pasta and peas; apple	Mixed-grain bread with fresh cheese	Grilled horse mackerel (carapau) with boiled potatoes and salad; fruit	Low-mineral, non-alkaline water; no fizzy drinks

🏷️ How to read a water label

- Look at the **pH** and the **bicarbonate (HCO_3^-)**.
- **Avoid alkaline waters** (pH above 8), such as Monchique (pH ≈ 9.5), and waters rich in bicarbonate.
- Choose low-mineral waters.

🦠 Preventing urinary infections

- Drink well and don't put off going to the toilet.
- Burning, cloudy urine, fever or back pain: contact your doctor — early treatment helps prevent stones.
- Do not take antibiotics on your own.

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.