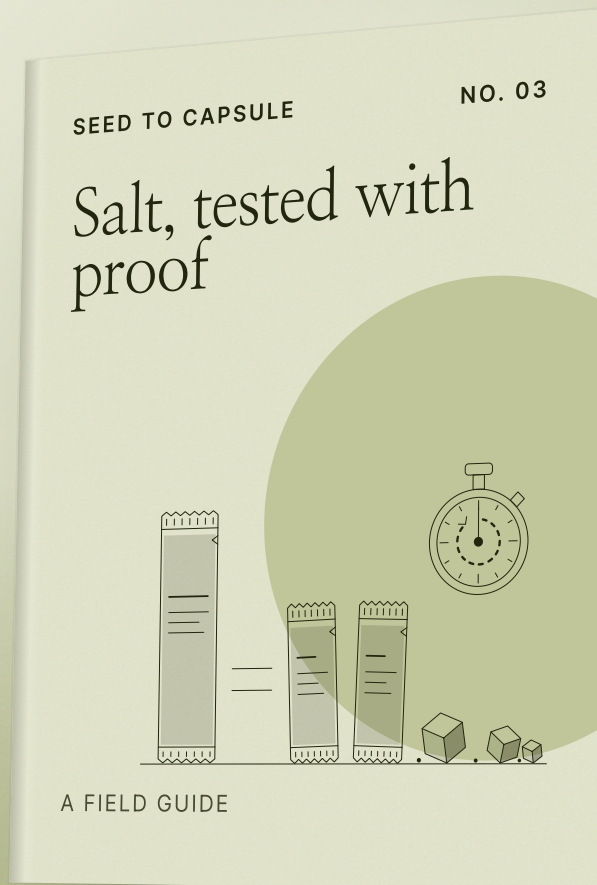




SOURCING GUIDE • TESTING

How to compare electrolytes without the guesswork on dose

This guide is for careful buyers who read Supplement Facts panels and want documents behind claims. After reading it you will be able to compare sodium, potassium and elemental magnesium per serving and match a powder to training days or office days.

- **Food first**
Log sodium, potassium, magnesium and calcium before you shop for powder.
- **Elemental math**
Glycinate is about 14 percent elemental, citrate about 11 percent.
- **Lot proof**
Ask for a per lot Certificate of Analysis and check the listing.

By Kristen Decker · Updated Oct 2, 2026 · 11 min read

CONTENTS

01	Start with food before you shop	05	Use lot testing and sport screening
02	Compare sodium and potassium per stick	06	Pick for training days versus office days
03	Read elemental magnesium and match the form	07	The checklist
04	Judge taste, solubility and tolerance	08	Sources and further reading

Most buyers compare price per stick and pick the flavour they like, then wonder why one training day feels steady and the next feels heavy. Once the panel is read by form and dose, with food intake already logged, the choice becomes calmer and more repeatable.

01

Start with food before you shop

A powder cannot be judged until food and drink are counted. Sodium, potassium, magnesium and calcium from meals set the baseline, and sweat loss is added on training days. Office days often need water only, because the average diet already exceeds the guideline cap for sodium.

The numbers give structure. Adequate Intake is about 1,500 mg sodium per day and the guideline cap is 2,300 mg, and the average diet already exceeds that. Food targets are potassium 3,400 mg for men or 2,600 mg for women, with sodium starting at 1,500 mg and rising with activity. Adult Recommended Dietary Allowances for magnesium are 400 to 420 mg for men and 310 to 320 mg for women ages 19 to 50 and older, depending on age group. Approximately 30 percent to 40 percent of dietary magnesium from food and beverages is typically absorbed by the body.

Write down three ordinary days. Include bread, cheese, soup, sauces, canned beans, pickles and restaurant meals, since those carry much of the sodium load. Include fruit, potatoes, beans, yogurt and milk for potassium. Include nuts, seeds, legumes and whole grains for magnesium. Then add training. Sweat contains about 900 mg sodium and 200 mg potassium per litre on average, though this varies widely between people. Sweat sodium varies roughly 460 to 2,300 mg per liter, and sweat rates run 0.5 to 2 or more liters per hour.

How to log it

Keep a simple sheet for one week. Record sodium, potassium, magnesium and calcium from food. Mark session length, heat, clothing and visible salt streaks on kit. Note thirst, urine colour and bowel pattern in plain words. Bring that sheet to a clinician if sodium advice feels conflicted, because guidance on sodium is unresolved between low sodium advice for blood pressure and higher needs in heat, keto or heavy sweating, so context decides.

FROM THE EDITORS

Total magnesium status cannot be read from blood tests alone, since serum levels do not fully reflect body stores. Track intake, form, dose and tolerance over time, and treat a single lab number as incomplete.

02

Compare sodium and potassium per stick

Turn the stick over and read mg sodium per stick or serving first. Compare high sodium sticks around 500 to 1000 mg with lower everyday mixes. A practical starting range is 300 to 600 mg sodium per hour of hard exercise in heat, adjusted to sweat saltiness. That range comes from exercise science journals, not from a flavour name or a front label claim.

Potassium sits beside sodium on most formulas. Check potassium per serving and read it against food, since food targets are already in the thousands of milligrams per day. Electrolyte powder formulation balances sodium, potassium, magnesium and calcium, plus solubility, flavor masking, stability and shelf life. Sugar matters here too. Studies on performance and fatigue have recommended carbohydrate concentrations of 60 to 80 g per L in rehydration drinks. Glucose paired formulas use sugar for absorption, so check sugar because that choice changes calories and taste as well as delivery.

Sports drinks with osmolalities ranging from 275 to 295 mOsm per kg water are marketed to replenish electrolytes lost during exercise. Osmolality describes the concentration of dissolved particles in the drink. Fruit based recovery powders can be hard to keep stable at low pH while keeping osmolality and sensory quality acceptable, which is one reason formulas differ even when sodium numbers look similar.

USE CASE	SODIUM SIGNAL ON LABEL	POTASSIUM AND SUGAR CHECK
Long, hot or heavy sweat session	Higher sodium per serving, toward 500 to 1000 mg per stick, matched to 300 to 600 mg sodium per hour in heat	Note potassium mg and sugar grams, since glucose paired types rely on sugar
Short session under an hour	Lower sodium mix or water only, since food already supplies baseline sodium	Keep sugar low if the session was light and food follows soon
Desk work or office day	Lowest sodium option or plain water, because average intake already exceeds 2,300 mg	Compare potassium to food intake first before adding more powder

The exact sodium and potassium mg per stick for any specific brand cannot be listed here, which requires reading that label. Lots change, flavours change and serving size changes. Photograph the Supplement Facts panel and the other ingredients line at the shelf, then compare sticks by milligrams, not by marketing words.

03

Read elemental magnesium and match the form

Supplement Facts panels list elemental magnesium, for example Magnesium 200 mg, not the total weight of magnesium glycinate, citrate or oxide. That distinction decides the whole comparison. Compound weight sounds large. Elemental amount is what counts for intake math.

Magnesium glycinate is roughly 14 percent elemental magnesium by weight, so a 1,000 mg capsule delivers about 140 mg elemental. Magnesium citrate is about 11 percent elemental, so a 1,000 mg dose provides around 110 mg elemental. Typical doses run 200 to 400 mg of elemental magnesium in the evening for glycinate, and 200 to 400 mg elemental with water for citrate. For many adults a cautious trial is 100 to 200 mg elemental magnesium daily, then adjust based on benefit and bowel tolerance.

Form changes tolerance and solubility. Magnesium oxide is less soluble than many other forms, so more unabsorbed magnesium can stay in the gut and pull water into the intestines. Magnesium citrate dissolves better than oxide, so it is generally absorbed more completely, but it can still loosen stools at higher doses. Magnesium glycinate is magnesium bound to the amino acid glycine and is usually stomach friendly and less likely to act like a laxative.

Which form fits which need

Choose oxide only when a laxative effect is the stated goal on the label. Choose citrate when the label states support plus bowel movement and the buyer accepts looser stools at higher doses. Choose glycinate for gentle daily use with food, starting low and adjusting by bowel tolerance. Keep daytime expectations realistic for malate, since magnesium evidence differs by goal, with mixed results for sleep and limited evidence for malate energy claims. Evidence comes from Examine entries on magnesium, zinc and sodium balance, which summarise trials without promising an outcome for any reader.

To calculate what 1,000 mg of powder actually delivers, multiply compound milligrams by the elemental share. A scoop that lists 1,000 mg magnesium citrate blend does not deliver 1,000 mg magnesium. At about 11 percent elemental it delivers around 110 mg. A capsule that lists 1,000 mg magnesium glycinate delivers about 140 mg. Then add food magnesium, then compare the total to 400 to 420 mg for men and 310 to 320 mg for women. Individual sweat rate and sweat sodium level vary widely and change dose needs, and absorption from food sits around 30 percent to 40 percent, so keep the math humble and watch tolerance.

04

Judge taste, solubility and tolerance

Taste predicts whether a powder will be used consistently. Minerals like magnesium and potassium can create off flavors, requiring careful masking and formulation adjustments. Citrus, saltiness, bitterness and chalkiness all come from the minerals themselves, not only from flavouring. A formula that hides bitterness with strong sweetener may taste pleasant on day one and tiring by week three.

Check rapid and complete dissolution. Add the stick to the stated volume of water at the stated temperature. Stir for the stated time. Look for grit, film, foam or sediment at the bottom of the glass. Quality control includes identity, potency and purity checks, microbiological tests, stability testing and label compliance verification. Solubility in the glass does not prove absorption in the body, yet poor solubility often tracks with gut complaints.

Link high osmolality and high carbohydrate loads to slower water absorption and gut discomfort. A very sweet, very concentrated drink can sit heavily during running or cycling. High carbohydrate loads slow gastric emptying for some people. If cramping, nausea or urgent stools follow a new powder, reduce the concentration, increase water, separate magnesium dosing from training fuel, or return to water for short sessions. Point to a professional where cramps, dizziness, swelling or blood pressure concerns persist.

FROM THE EDITORS

Words like pure and natural need a document behind them. Ask what the word means in milligrams, in test limits and in lot numbers, and credit a founder who names growers and shows paperwork while naming any step that remains opaque.

05

Use lot testing and sport screening

A Certificate of Analysis covers one lot or batch, not a brand forever. Ask for a per lot Certificate of Analysis. Look for identity of each electrolyte mineral, potency in milligrams per serving, and purity checks including microbiological tests. Start with the published limits for lead, cadmium, arsenic and mercury. USP General Chapter 2232 sets daily dose limits of 10 micrograms per day for lead, 15 for inorganic arsenic, 5 for cadmium and 15 for total mercury. Those limits apply to daily dose, so milligrams per serving and servings per day both matter.

Prefer ongoing certification marks over a single old test. Certification improves trust but does not replace manufacturing compliance and does not guarantee legal compliance or zero risk. Whether a specific powder lot meets a heavy metal or sport standard cannot be known without

its lot Certificate of Analysis or certification listing. Encapsulation and fill weight can vary, so check that the lot number on the tub matches the document.

For drug tested sport, choose screened lots and confirm lot numbers match the database. NSF Certified for Sport screens every lot against more than 290 substances banned by groups including WADA, NFL, MLB, NHL, PGA, LPGA and MLS. Informed Sport states as many as one in ten supplements are contaminated with ingredients and compounds prohibited in sport. USADA recognizes NSF Certified for Sport as the program best suited for athletes to reduce risk from supplements. Screening adds cost and paperwork, which is why screened powders list lot numbers and searchable certificates. If a product claims screening but the lot is missing from the list, treat the chain as opaque until it is shown.

06

Pick for training days versus office days

Use higher sodium only for long, hot or heavy sweat sessions. Use lower sodium or water for short sessions and desk work. The split keeps total sodium closer to food targets while covering large sweat losses when they occur.

Training days start with duration and heat. Sessions past an hour, sessions with heavy clothing or equipment, and sessions with white salt marks on skin point toward more sodium. The practical starting range of 300 to 600 mg sodium per hour in heat can be compared to the stick label. Two lower sodium sticks may equal one high sodium stick. Water still carries much of the work. Track intake and adjust to thirst, sweat saltiness and clinician advice.

Office days start with food. If meals already pass 2,300 mg sodium, an extra salty stick adds little except taste. Water, food potassium and food magnesium often cover the day. A small magnesium powder in the evening may fit a household routine better than a salty drink at the desk, with dose read as elemental milligrams and tolerance watched. For a partner, a child or a parent, keep products separate, keep doses separate and keep clinician guidance separate, since needs differ by age, size, medicines and activity.

Revisit the choice each season. Heat, training volume, travel and illness change sweat and intake. Keep the shelf small. Keep one higher sodium option for training, one lower sodium option or water for everyday use, and one magnesium form with a known elemental dose. Keep the lot documents with the tubs. When the facts stop supporting a product, let it go.

The checklist

-
- ☐ Log food sodium, potassium, magnesium and calcium for three days
-
- ☐ Note sweat duration, heat and salt streaks on training days
-
- ☐ Read mg sodium per stick and compare 500 to 1000 mg sticks to everyday mixes
-
- ☐ Read potassium mg and sugar grams per serving
-
- ☐ Read elemental magnesium mg on Supplement Facts, not compound weight
-
- ☐ Multiply compound mg by 14 percent for glycinate or 11 percent for citrate
-
- ☐ Start magnesium at 100 to 200 mg elemental and adjust by bowel tolerance
-
- ☐ Test dissolution in the stated water volume and watch for grit
-
- ☐ Request the per lot Certificate of Analysis and match lot numbers
-
- ☐ Check heavy metal limits against USP 2232 daily dose values
-
- ☐ For sport, confirm screened lot status in the certification database
-
- ☐ Assign higher sodium to long hot sessions, water to office days
-
- ☐ Review intake with a clinician when blood pressure or medicines are involved
-
-

Sources and further reading

- Magnesium Mayhem: Which Type Do You Actually Need? (Glycinate vs. Citrate vs. Oxide) - Health Tips & Pharmacy News · coalgrovepharmacy.com
- Designing Functional Fruit-Based Recovery Drinks in Powder Form That Contain Electrolytes, Peptides, Carbohydrates and Prebiotic Fiber Takin · pmc.ncbi.nlm.nih.gov
- Magnesium Glycinate vs Citrate: Key Differences (2026) Mito Health · mitohealth.com
- From Concept to Shelf: The Role of an Electrolyte Powder Manufacturer in Product Development · bactolac.com
- Supplement Testing & Quality Certifications Explained: NSF, Informed Sport, USP, COA, Heavy Metals (2026) · nutrola.app
- How Much Sodium & Electrolytes Do You Need? (2026 Guide) · verifiedsupplementdata.com
- Office of Dietary Supplements - Magnesium · ods.od.nih.gov
- Sports Supplements Certification Informed Sport · sport.wetestyoutrust.com

For information only, not medical advice. Statements about supplements have not been evaluated by the Food and Drug Administration, and no product here is intended to diagnose, treat, cure or prevent any disease. Ask a doctor or pharmacist before starting a supplement, especially if you are pregnant, nursing or taking medication.



WRITTEN BY

Kristen Decker

Kristen produces the interviews at Seed to Capsule: the research, the supplier maps, the follow-up calls. She asks for the name of the farm early in every conversation, and writes it down before the founder can change the subject.
