



An Extended Guide · No. 1687

Common Battery Myths, Cleared Up

Old advice that no longer holds

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! Read this first — a few battery-safety basics

A battery stores a lot of energy in a small package, so a few plain habits keep everyone safe — no matter the chemistry. Charge with the charger made for that exact battery, on a hard, non-flammable surface, and never charge one that is swollen, cracked, leaking, hot, or wet. Keep batteries away from open flame, sparks, and high heat, and give a lead-acid battery plenty of fresh air while it charges, because it can give off explosive hydrogen gas. Never puncture, crush, short the two terminals together, or throw a battery in a fire. Around lead-acid batteries wear eye protection — the acid inside can burn skin and eyes. And when any battery finally wears out, it does not belong in the household trash: batteries are recycled at the right drop-off, never thrown away. The reassuring part is that the LiFePO₄ chemistry — also written LFP — inside most of today's power stations and backup batteries is one of the safest and most stable there is. A myth is only harmless until it talks you into skipping one of these habits — so wherever an old rule and this safety note disagree, follow the safety note.

The old battery advice, set straight

A lot of what folks 'know' about batteries was true once, for a different kind of battery, and quietly stopped being true years ago. Let's sort the good advice from the old wives' tales — gently, and with no eye-rolling.

I'm Bill, and I run Bill's Home Tech here in Portage County, Ohio. Some of the most common things I hear at the kitchen table are battery myths — passed down from a parent, a neighbor, or an old owner's manual. If you've believed one, you're in good company; I believed a few myself for years.

The reason so much old battery advice no longer fits is simple: the batteries changed. The kind in most of today's power stations and backup batteries — called LiFePO₄, or LFP — behaves very differently from the batteries our advice grew up around. So let's clear the fog, one myth at a time, and leave you with a handful of rules that are actually true.

★ You're not foolish for believing these

Every one of these myths made sense once. Believing one doesn't mean you did anything wrong — it means the advice got old. Call or text me at (330) 200-8042 and I'll happily talk through any of them.

The myths, busted on one page

If you read nothing else, here's the short version of what's true and what isn't.

- ❑ 'Drain it all the way before recharging' — no. Modern lithium likes partial top-ups, and lead-acid hates being drained.
- ❑ 'Concrete drains a battery' — no. A modern battery on a clean, dry surface is fine; only damp concrete causes trouble.
- ❑ 'All lithium batteries catch fire' — no. The LFP kind is very stable; quality gear used correctly is safe.
- ❑ 'More amp-hours always means more energy' — only at the same voltage. Compare watt-hours to be fair.
- ❑ 'Leaving it plugged in ruins it' — not with a quality charger that floats; a cheap one left on can.
- ❑ 'Batteries last forever' — no. Every battery ages; the good news is you can slow it down.

✓ Keep this page handy

You don't have to remember which myth is which. Skim this once, then come back to the page that matches whatever you just heard.

Why yesterday's advice hangs around

Battery myths aren't lies — they're advice that outlived the battery it was written for.

Years back, the rechargeable batteries in tools and gadgets really did have quirks. Some needed to be run all the way down now and then. Others were fussy about charging. So people learned careful little rituals, taught them to their kids, and the rituals stuck — long after the batteries that needed them went away.

Today's batteries are a different animal. Modern lithium — the LFP chemistry in most power stations and backup batteries — comes with a built-in electronic guardian called a BMS, short for Battery Management System, that does the worrying for you. Lead-acid is still with us, and it has its own honest quirks, but even it isn't quite what the old rules assume.

✓ A good rule of thumb for rules of thumb

When a piece of battery advice and the maker's own label disagree, the label wins. The maker knows the exact battery in your hands; a saying handed down over the years does not.

Myth 1: 'You must drain it all the way before recharging'

This is the granddaddy of battery myths, and for most batteries you'll meet today it's exactly backwards.

The myth comes from an old chemistry (nickel-cadmium) that could develop what people called a 'memory' if it wasn't fully drained now and then. That battery is mostly gone from our homes — but the habit of running things to empty lived on.

Modern lithium (LFP)

Today's lithium batteries have no such memory. They're actually happier with partial charges and partial uses — shallow sips rather than deep gulps. Topping one up before it runs low is kind to it, not harmful.

Lead-acid

Lead-acid is even clearer: it dislikes being drained deeply, and draining one to empty over and over wears it out fast. Our depth-of-discharge guide digs into why shallower is always gentler.

Myth 2: 'Storing a battery on concrete drains it'

This one has a kernel of old truth, which is why it's stuck around — but for a modern battery it just isn't so.

Long ago, battery cases were made of materials that could react poorly to a cold, damp floor, and the story grew from there. A battery made today, sitting on a clean, dry surface, will not drain into the concrete. The concrete isn't the enemy.

What is worth avoiding is damp. A cold concrete floor can sweat, and that moisture can lead to corrosion on the terminals and case over time. So the smart move isn't fear of concrete — it's keeping the battery dry.

- A modern battery on a dry shelf or a board is perfectly fine.
- The real risk is dampness, which invites corrosion — so keep it dry.
- A scrap of plywood or a shelf lifts a battery off a sweating floor.
- Our storage guide covers where and how to put a battery away safely.

Myth 3: 'All lithium batteries catch fire'

This is the myth I most want to put to rest, because fear of it keeps good folks from a safe, useful tool.

The scary stories you've seen almost always involve a different, more energy-packed kind of lithium — the sort in some phones, laptops, and cheap gadgets — and usually a cell that was damaged, counterfeit, poorly made, or charged the wrong way. That's a real risk worth respecting, but it is not the whole lithium family.

The chemistry in most of today's power stations and home backup batteries — LiFePO₄, or LFP — is prized precisely because it is far more stable and much harder to set off. That stability is a big reason the makers of that gear chose it. Buy quality gear with a recognized safety listing like UL, use the right charger, and treat it well, and it is a safe thing to have in your home.

! Respect, not fear

The honest middle ground: a swollen, hissing, smoking, or very hot battery of any kind means stop — don't use it, don't charge it, keep it away from anything that burns, and for anything past the mildest case, get out and call 911. Our safety-and-fire-prevention guide covers this fully.

Myth 4: 'More amp-hours always means more energy'

This one trips up even careful shoppers, because it sounds like it must be true — and half the time it is.

Amp-hours (Ah) are a rough measure of how much a battery can deliver over time — loosely, the size of the bucket. Comparing two batteries by amp-hours is only fair when they're at the same voltage. Change the voltage, and the same amp-hour number can mean a very different amount of real energy.

The honest number is watt-hours (Wh), which measures the actual energy stored no matter the voltage. That's why power stations are usually rated in watt-hours — it's the fair, apples-to-apples figure. Our capacity guide walks through amp-hours versus watt-hours in plain English.

! Don't compare amp-hours across voltages

Two batteries can share the same amp-hour number and hold very different amounts of energy. When you're weighing one against another, compare watt-hours, not just amp-hours.

Myth 5: 'Leaving it plugged in ruins the battery'

Like a few of these, this depends entirely on what's doing the charging — so the myth is part right and part wrong.

A good, modern charger is smart. When the battery is full, it eases off and just 'floats' — keeping the battery topped up without cooking it. A charger or maintainer built to do this can be left on safely, which is exactly what you want for a battery that mostly waits, like a standby backup or a seasonal one.

The grain of truth is the other kind: a cheap, 'dumb' charger with no brain, left on and forgotten, really can overcharge a battery and shorten its life — or worse. So the rule isn't 'never leave it plugged in.' It's 'use a quality charger that knows when to stop.' Our charging guide explains smart chargers and maintainers.

✓ The charger matters more than the outlet

A quality automatic charger or maintainer is made to stay connected. A bargain trickle charger left on for weeks is the one to be wary of.

Myth 6: 'A good battery lasts forever'

No battery does — and knowing that up front saves you a nasty surprise at the worst moment.

Every battery wears down two ways: through use (each charge-and-use is a cycle) and simply through age on the calendar. Losing a little capacity over the years is normal — it's not a defect and it's not something you did wrong. Lithium generally lasts far longer than lead-acid on both counts, but neither lasts forever.

I won't quote you a number of years or cycles, because it depends so much on the exact battery and how it's treated — that figure belongs to the product's own spec and warranty. What I can promise is that good habits stretch the life of any battery. Our warranty-and-lifespan guide explains what to expect.

✓ Plan for the day it tires out

For anything you truly rely on, don't assume it'll last indefinitely. Test it now and then, and be ready to replace it before it lets you down.

A few smaller myths, quickly

These come up less often, but they're worth a plain, quick word.

- **'Keep batteries in the freezer to make them last.'** Modern batteries don't need it — cool and dry is plenty. And never charge a lithium battery that's below freezing; let it warm up first.
- **'Any water tops off a flooded battery.'** No — a flooded lead-acid battery takes distilled water only, and only enough to cover the plates. Our lead-acid maintenance guide covers this.
- **'You can wire any two batteries together.'** Only identical ones — same chemistry, size, and age. Mismatched batteries fight each other and wear out fast. See our series-versus-parallel guide.
- **'A no-name battery is just as good.'** Not for something you rely on — look for a quality maker and a recognized safety listing like UL.

✓ When in doubt, follow the label

The maker's own instructions beat any saying — including mine. If a myth and the label disagree, trust the label.

Two kinds of homes, two sets of needs

The myths are the same everywhere, but believing the wrong one costs a lot more in some homes than others.

If you live in town or the suburbs

In town or the suburbs, outages tend to be shorter, so a myth rarely bites hard — you can often just recharge from the wall and try again.

- A smaller power station covers phones, the internet, and a medical device, and you top it up between storms — so the 'drain it fully' myth costs you little here.
- Believing 'it lasts forever' stings less when a store and a recycling drop-off are a short drive away.
- You can test a myth safely: try the right habit for a while and see your battery behave better.
- Even so, the safety myths — 'all lithium burns' or 'lithium can't burn' — deserve the truth, wherever you live.

If you are out in the country on a well

Out in the country on a private well, outages run longer, and when the power stops the well pump stops — so no running water until it's back. A myth can leave you high and dry.

- Believing 'store lead-acid empty, it'll be fine' can quietly kill the very battery you were counting on for the well and the fridge.
- 'Batteries last forever' is a costly myth when the nearest store is far off and you truly need backup to work.
- Barns and outbuildings swing hot and cold, so the 'heat doesn't matter' myth ages a battery faster than folks expect.
- A 240-volt well pump needs serious power a small station can't provide — see our well-pump and sizing guides, not a hopeful myth.

★ Not sure which advice to trust?

That's a fine reason to call — no sales pitch, just an honest answer about your batteries and your home. Reach me at (330) 200-8042.

The grain of truth in each myth

Most myths started as real advice for a real battery. Here's what was true then, and what's true now.

The myth	The honest truth today
Drain it fully first	Old nickel batteries liked it; modern lithium prefers partial, and lead-acid hates deep draining.
Concrete drains it	True of old cases long ago; today only damp matters, so keep a battery dry and off a sweating floor.
All lithium burns	Some energy-dense lithium can; the stable LFP kind in modern gear is far safer.
More amp-hours wins	Only at the same voltage — compare watt-hours for the real energy.
Plugged in ruins it	A dumb charger can; a quality one that floats is made to stay on.

Seeing where a myth came from makes it easier to let go of. The battery it was written for is usually long gone.

When believing a myth actually costs you

Most myths are harmless. A few, believed at the wrong moment, can ruin a battery or put you in harm's way.

The costly ones tend to be about storing and safety. Leaving a lead-acid battery sitting empty because 'it'll be fine' can quietly ruin it, so it's dead the day you finally need it. Trusting that a battery 'lasts forever' can leave you without backup during a long outage.

The most serious is on the safety side. If you believe 'lithium can't ever burn,' you might keep using a swollen or damaged battery that's telling you to stop. The truth sits in the middle: the good LFP chemistry is very stable, and a damaged battery of any kind still deserves respect.

! The myth that's worth unlearning today

Never keep charging or using a battery that's swollen, hissing, very hot, leaking, or cracked — no matter how safe you've heard its chemistry is. Isolate it somewhere away from anything that burns and arrange to recycle it. Our signs-of-a-failing-battery guide walks through the warnings.

What really wears a battery out

Forget the myths for a moment — here's where the real damage comes from, so you can spend your worry wisely.

- **Heat.** High heat is the quiet, long-term enemy — it ages every chemistry faster. A hot car, attic, or sunny spot is hard on a battery.
- **Deep draining, over and over.** Running a battery to empty repeatedly wears it out — sharply so for lead-acid.
- **Sitting empty.** A lead-acid battery left discharged for a long stretch can ruin itself.
- **The wrong charger.** Charging a battery with the wrong charger for its chemistry, or overcharging it, does real harm.
- **Damage and abuse.** Drops, punctures, and moisture shorten a battery's life and can make it unsafe.

Notice what's not on this list: clean, dry concrete, the occasional partial charge, and a night left on a quality charger. Those are the myths. Heat and deep draining are the real culprits.

What really keeps a battery healthy

The true habits are few, simple, and gentle — the opposite of fussy rituals.

- ❑ Keep it cool and dry, out of direct sun and away from heat.
- ❑ Use the charger made for that chemistry, and let a smart one do the thinking.
- ❑ Top up before it runs low — shallow sips beat deep gulps.
- ❑ Store lead-acid fully charged; store lithium at a partial charge.
- ❑ Keep the terminals clean and the connections snug.
- ❑ Give a battery you rely on an occasional check, and recycle it when it finally tires out.

✓ Six true habits beat a dozen old rules

If you trade every myth for this short list, your batteries will thank you — and you'll have far less to remember.

The myths that aren't all wrong

A few of these aren't myths so much as advice that needs an 'it depends' attached.

'Leaving it plugged in' is the clearest example. With a cheap charger left on forever, there's real truth to the worry. With a quality charger or maintainer that floats correctly, there isn't. Same words, opposite answers — it depends on the charger.

'Drain it fully' is another. It was genuinely good advice for an old battery chemistry that's mostly gone. It just doesn't fit the lithium and lead-acid batteries in our homes today. The advice wasn't wrong — it aged out.

★ This is why I ask questions first

When someone asks me if an old battery tip is true, my honest answer often starts with 'it depends — what battery, and what charger?' That's not me dodging; it's the only way to answer it right.

How to tell good advice from a tall tale

You don't need to be an expert to sort fact from folklore. A few simple questions do most of the work.

- **Does the label or manual agree?** The maker knows your exact battery; a saying doesn't. The label wins.
- **Is it about an old kind of battery?** Advice built around old nickel or older lithium may not fit today's LFP.
- **Does it ask for a fussy ritual?** Modern batteries mostly want to be left alone in good conditions, not babied.
- **Is a specific number promised?** Be wary of 'exactly this many years or cycles' — real figures live in that product's warranty.

✓ A quick gut-check

If a piece of advice sounds like a secret ritual, it's probably an old wives' tale. If it sounds like 'keep it cool, charge it right, don't drain it dry,' it's probably true.

The myth scorecard

The whole batch, boiled down to a verdict apiece.

- **Drain it fully first:** Busted for modern batteries.
- **Concrete drains it:** Busted — only damp matters.
- **All lithium catches fire:** Busted — LFP is very stable.
- **More amp-hours always wins:** Half-true — only at the same voltage; compare watt-hours.
- **Leaving it plugged in ruins it:** Half-true — depends on the charger.
- **Batteries last forever:** Busted — they all age.

Two 'half-true' verdicts, four flat 'busted.' Not bad for advice that's been repeated for decades.

Common Questions

The myth questions I hear most from folks at the kitchen table.

Q: So should I ever run a battery all the way down?

As a rule, no — not on purpose. Modern lithium prefers partial top-ups, and lead-acid dislikes deep draining. Topping up before it runs low is kinder to both.

Q: Is it really okay to leave my power station on the charger?

For a quality power station with a smart charger, yes — it floats when full. The old warning was about cheap, dumb chargers left on and forgotten. Check your maker's guidance if you're unsure.

Q: Can I store my battery on the garage floor?

A modern battery on a clean, dry floor is fine — concrete doesn't drain it. Just keep it dry; a board or shelf lifts it off a floor that might sweat and cause corrosion.

Q: Are lithium batteries safe to have in the house?

The LFP kind in most power stations and backup batteries is very stable and safe when it's quality gear used correctly. Respect any battery that's swollen or damaged, but there's no need to fear a good one.

Q: Why do people still repeat these myths?

Because they were true once, for batteries that are mostly gone now. The advice got handed down while the batteries changed underneath it. You're not foolish for having heard them.

★ Heard a battery 'rule' you're not sure about?

Run it by me. Call or text (330) 200-8042 and I'll tell you straight whether it holds up — there's no such thing as a silly battery question.

The truth worth keeping

Toss the myths and keep this short, true list instead.

- ❑ Partial charges are fine — you don't have to drain it first.
- ❑ Clean, dry concrete won't hurt a modern battery.
- ❑ The LFP chemistry in modern gear is stable and safe used correctly.
- ❑ Compare watt-hours, not just amp-hours.
- ❑ A quality charger can stay connected; a cheap one shouldn't be left on.
- ❑ No battery lasts forever — keep it cool, charge it right, and plan to replace it someday.

✓ **Tape this list inside a cabinet door**

You don't have to hold it in your head. A printed copy where you keep your battery gear is worth a dozen old sayings.

Where to go next

Each myth here has a fuller guide behind it, if you'd like the whole story.

- Curious about partial versus deep draining? See our depth-of-discharge guide.
- Want the truth about safety and fire? Our safety-and-fire-prevention guide has you covered.
- Puzzled by the label? Our capacity guide covers amp-hours and watt-hours.
- Wondering about chargers left on? The charging and storage guides explain smart chargers and maintainers.

You don't have to read them in order, and you don't have to read them all. Follow whatever myth was nagging at you — each guide stands on its own.

You don't have to do this alone

You just have to remember that a friendly, patient person is one call away.

I hope this guide made the common myths about batteries feel a little less daunting and a lot more doable. Keep it in a drawer with your other home papers, come back to a page whenever you need it, and don't worry about memorizing anything.

When you'd rather have a hand, that's exactly what I do. I come to your home, work at your pace, and never make you feel rushed or silly for asking. A first visit is a flat \$99, and for the parts that don't need me on-site I can often help right on your screen for \$49. Every visit comes with a 30-day, come-back-free guarantee. I don't do licensed electrical work or open up sealed battery packs myself — for anything hardwired, or for panel work, I'll help you line up a trustworthy local pro.

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Myth vs. Truth

Six old sayings, set straight

	The Old Myth	The Truth Today
Draining	Drain it fully	Partial is kinder
Concrete	It drains it	Damp is the risk
Lithium	All catch fire	LFP is stable
Amp-hours	More = more	Compare watt-hours
Plugged in	It ruins it	Depends on charger
Lifespan	Lasts forever	They age

Most myths were true once — for a battery that’s mostly gone now.

Why the Old Advice Changed

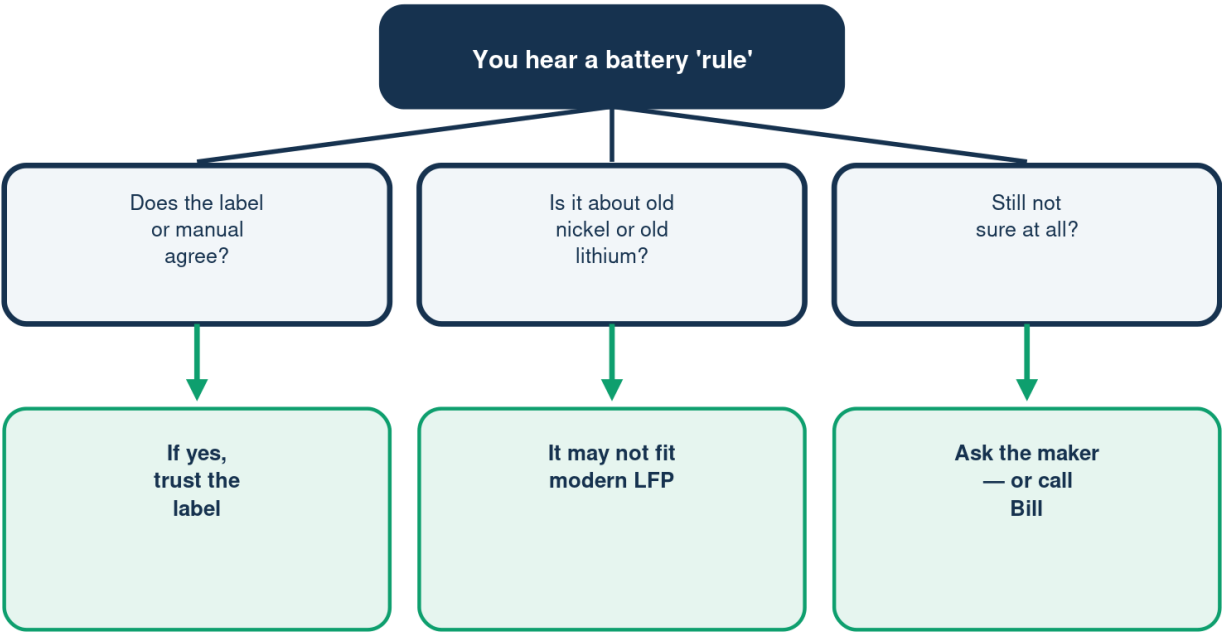
Batteries grew up — the rules did too



The advice wasn't wrong — it outlived the battery it was for.

Is That Battery Tip Still True?

A quick way to check any battery 'rule'



When an old rule and the label disagree, the label wins.

Illustration - a schematic, not to scale. Your setup may differ.

Drop the Myth, Keep the Habit

Where to spend your worry

	Myth to drop	Habit to keep
Draining	Run it to empty	Top up early
Heat	Heat is fine	Keep it cool
Charger	Any charger	The right one
Storage	Store it empty	Store it right
Forever	It never dies	Plan to replace

Heat and deep draining are the real culprits — not the myths.



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A Note From Bill

A quick note from Bill.

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