4 iPHONE 16 ON US

Get yours now

Contact us before cancelling entire account to continue remaining bill creds, or creds stop & balance on req'd. finance agrmt is due (e.g. $829.99 - iPhone 16 128GB). Bill creds end if you pay off device early. Qualif. service req'd. See details.

When you purchase through links in our articles, we may earn a small commission. This doesn't affect our editorial independence.

FEATURE

Is it bad to leave your laptop always plugged in?

There are still many myths surrounding rechargeable batteries and correct charging.

By Steffen Zellfelder
Contributor | AUG 29, 2023 7:33 AM PDT

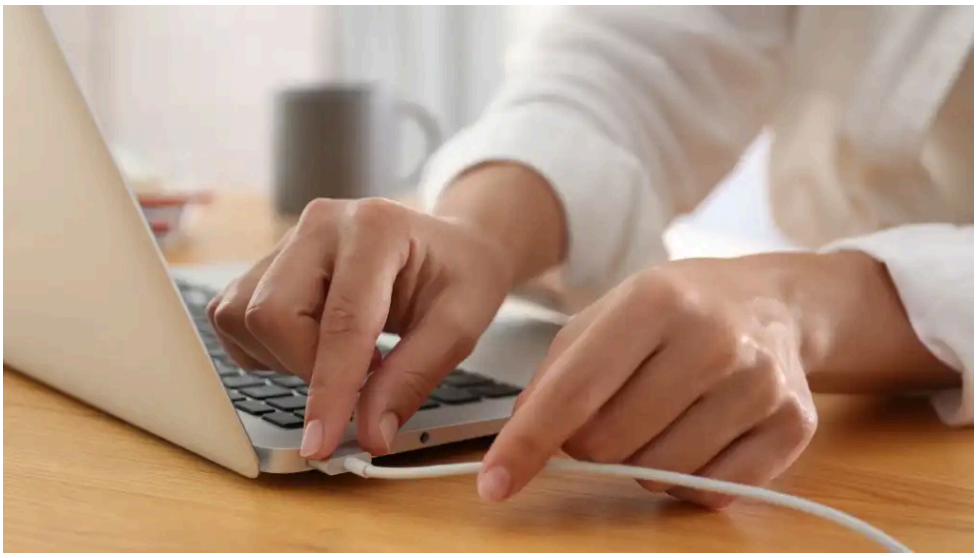


Image: Shutterstock.com/New Africa

TABLE OF CONTENTS

The laptop is always connected to the power cable — is that bad?

Lithium batteries suffer from permanently high voltage

The strength of laptops and MacBooks? Clearly their mobility. The handy devices make it possible to work, surf, or watch videos in a relaxed atmosphere even on the train, while traveling, or on vacation. But because very few of us are on the road non-stop, laptops don't spend much of their time in their intended field of competence beyond the desk and power socket — quite the opposite.

Notebooks often spend a large part of their lives at home. Most people plug their laptop into the socket at home, because then you don't have to bother with charging or discharging the battery at all. The same goes at work. Thus, the portable computer suddenly fulfils the role of a desktop PC or Mac without actually being designed for it.

ADVERTISEMENT

ALIENWARE m16 R2

By Dell Technologies

Performance gaming laptop with NVIDIA® GeForce RTX™ 4070 and a "Stealth mode" hot key, designed to take you…

SEE MORE

Nowadays, laptop batteries are increasingly built into the notebook housing and cannot be replaced so easily. So the question quickly arises: Does this constant charging damage the battery or shorten its life? Here's the answer.

> **Further reading:** Best laptops of 2023

The laptop is always connected to the power cable — is that bad?

For older models, this question can be answered clearly and briefly: Yes, for very old mobile computers it is not a good idea to "park" them at the power socket. There is a risk of overcharging, also because batteries of old laptops are themselves quite old and have already suffered some wear and tear in the course of their life.

With newer models, however, this is less critical: Resilient batteries and sophisticated software protect the energy storage device from immediate damage caused by permanent charging. Charging processes are stopped in good time and so-called trickle charging ensures that modern batteries are kept at full charge with minimal energy surges as soon as they become even slightly discharged. The MacBook or laptop no longer draws its "working current" from the battery, the current is diverted and taken directly from the main power.

So everything's fine? Unfortunately not. Despite such protective functions, batteries that are permanently connected to the mains suffer from two chronic diseases: too much voltage and too much heat.

Today's Best Deals Selected by

Get 19% off one of the best cheap tablets you can buy

From: Amazon
Was: $269.99
Now: $219.72 ($50.27 off)

VIEW DEAL

This 256GB model of Samsung's premium budget tablet was already great value at its $269.99 starting price. But a discount of over $50 makes it an even better buy.

Further reading: How to check your laptop's battery health

Lithium batteries suffer from permanently high voltage

THIS KILLER BUDGET LAPTOP HAS ALL-DAY BATTERY

Acer Aspire 3

Read our review

Price When Reviewed: $329.99

Let's start with the bigger of the two problems: high voltage. The imposition on the battery is not so much the regular flow of current, but rather its state of charge. For with every percent of battery charge, the voltage in the energy storage unit also increases, and this affects its chemical aging.

Although this aging takes place in every battery, it is particularly rapid at particularly high or low voltages (i.e. at very high or very low battery levels). The recommended energy window with minimal wear for lithium batteries is between 30 and 70 percent of their maximum charge. If devices remain plugged in all the time, the battery "dwells" at the highest energy level and that means stress for the core component.

Too much heat accelerates the wear of the energy storage device

Problem number two: heat. Even without being actively used, lithium batteries lose charge all by themselves over time. If the devices are connected to the mains, such charge losses are immediately compensated and the battery is warmed up by regular micro-charges. This accelerates its wear and tear, and performance can also suffer. During active use, the temperatures in the case and thus in the battery then rise even more.

? EXPLORE FREQUENTLY ASKED QUESTIONS

- Can constant charging damage a laptop's battery?
- What are some laptop battery charging tips?
- What are some tips for prolonging laptop battery life?
- Can you replace a laptop battery if it's damaged?
- How does a laptop's battery affect its durability?

> **Further reading**: Best laptops for engineering students 2023

Nevertheless, we would not recommend constantly plugging and unplugging laptops at home to keep the battery in the optimal charging window between 30 and 70 percent. On the one hand, this is terribly annoying, and on the other, the battery has to be constantly charging or discharging, i.e. actively working — and that may be a tougher lot than having to maintain maximum capacity.

Lithium-ion batteries usually tolerate between 500 and 1000 charging cycles, after which an increasing aging process becomes apparent: the capacity shrinks. It is therefore better to save these limited charging cycles for mobile use when no power socket is available. Today, you also have other sensible options for protecting and conserving the battery.

Protecting laptop batteries — what you can do

Sustainable battery care is not particularly complex. To increase the lifespan of your energy storage device, you can do the following.

THIS INCREDIBLE LAPTOP OFFERS INCREDIBLE BATTERY LIFE

Dell XPS 17 9730

Read our review

Price When Reviewed: From $2,449 | Model reviewed $3,099

Best Prices Today: $2199 at Dell | $2899.99 at Best Buy

Remove the battery (if you can). If the battery is not permanently installed, the best wellness treatment for the stressed energy storage device is simple: Simply remove the component from the housing when the device is connected to the power socket (but switch it off first!). When doing so,

Recommended For You

JPG is dying. Check out these 4 modern successors
PCWorld

Sick of Google? Try one of these 5 search engines instead
PCWorld

Look For Any High School Yearbook, It's Free
Sponsored | Classmates

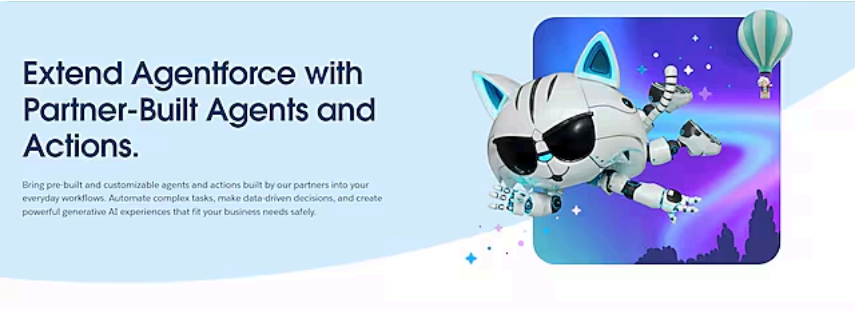
Powered by Taboola

Use Smart Charging or intelligent charging under Windows: With modern laptops, you can do your battery a lot of good under Windows 10 and Windows 11 with this function. The maximum capacity of the battery is temporarily redefined: to about 80 percent of the actual maximum. In this way, the battery always remains in a healthy energy window even when the power connection is active. With Lenovo laptops, for example, this also works in their own manager called Lenovo Vantage.

Apple has its own helpful suggestions for maximizing battery performance in a MacBook.

Do not recharge the battery immediately: If you have only slightly drained the battery during mobile use, you do not have to recharge it immediately. Remember that the battery feels most comfortable between 30 and 70 percent of its maximum charge.

Avoid cheap components: When buying charging cables and adapters, it pays not to be too stingy. The cheapest devices promise to save a few dollars, but often have poor charge control or cheap circuitry.



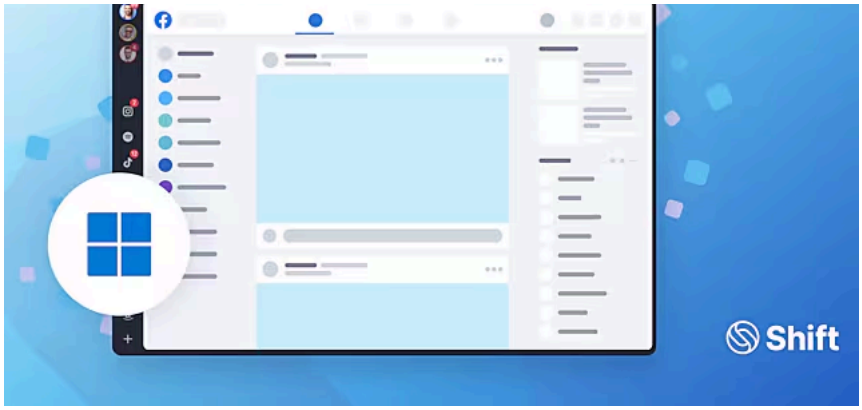
SPONSORED CONTENT

Asymbl, Inc. Announces Inclusion in Salesforce's Agentforce Partner Network with...

Sponsored by Asymbl, Inc.

Avoid temperatures that are too high or too low: Whether laptops, MacBooks or smartphones: Lithium batteries work best in a temperature window of -10 to +40 degrees Celsius. Direct sunlight is therefore taboo, especially in summer, and you should also refrain from charging when batteries are very hot or very cold.

This article was translated from German to English and originally appeared on pcwelt.de.



SPONSORED CONTENT

How to Customize Your Web Browsing Experience With Shift

Sponsored by Shift Technologies, Inc.

Author: Steffen Zellfelder, Contributor

Steffen Zellfelder is a freelance graduate journalist from Bonn. As an experienced software expert, he is particularly enthusiastic about apps, tools and future trends.

ADVERTISEMENT

New Electric Cars Are So Cheap Now (Take A Look)

CommonSearches | Sponsored

Click Here

Enlarged Prostate Has Nothing to Do with Age. Just Stop Doing This One Common Thing!

Try It Today!

You Won't Want To Take Off The Waterproof And Orthopedic Boot All Winter Long
The best walking shoes suitable for men to wear all day.
orthoture | Sponsored
Shop Now

CBD Gummies Discovery Leaves Doctors Speechless
greenstreet | Sponsored

Toss 10 tools in your pocket and go get it.
Gerber Gear | Sponsored
Shop Now

New Small Electric Car For Seniors - The Price May Surprise You
Small Electric Car | Search Ads | Sponsored

New Camper Vans Cost Next to Nothing (Take a Look)
BestSearches | Sponsored

A Pair of Reading Glasses That Can Look Far and near, Smart Zoom, Smart Color-Changing
Why countless elderly americans read anywhere, anytime with confidence!
Grishay | Sponsored
Shop Now

Look For Any High School Yearbook, It's Free
Classmates | Sponsored

Top Cardiologist Begs: Quit Eating Blueberries Before This Happens
Top doctor urges people over 60 to stop making this huge mistake for their health.
Gundry MD | Sponsored
Learn More

PCWorld helps you navigate the PC ecosystem to find the products you want and the advice you need to get the job done.

Mobile Data Technologies, Inc.
IPR2024-00250 - Exhibit 2015
Page 9 of 10

Copyright © 2024 IDG Communications, Inc.

Explore the Foundry Network +