

SPECIAL
REPORT

MEATLESS "BURGERS" ARE THEY SAFE & WILL THEY SAVE THE PLANET?

OCTOBER 2019

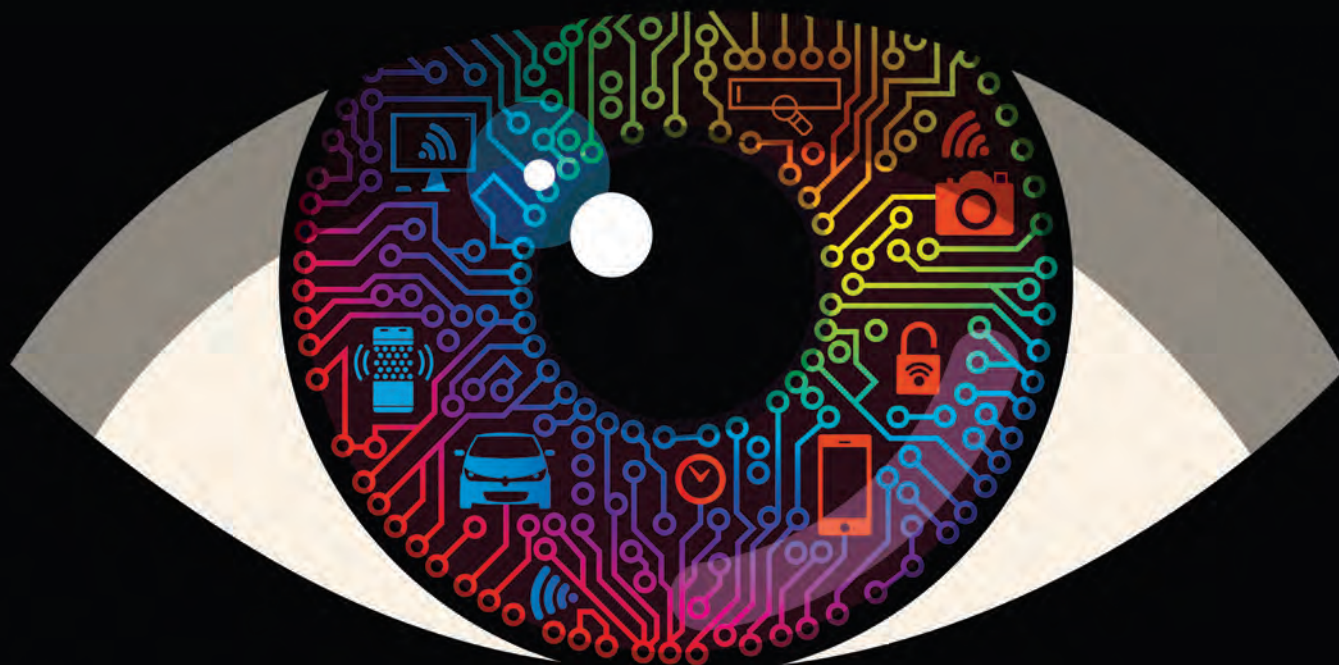
CR Consumer Reports®

REVIEWS & RATINGS

- Microwaves
- Printers
- Truck Tires
- Bottom-Freezer Fridges
- Range Rover Evoque

WHO IS WATCHING YOU?

Apps. Digital Photos. GPS. Smart Speakers.
Easy & effective ways to take more control of your digital privacy.



**TOP 10 RELIABLE
USED CARS STARTING
AT \$12,000**

**BEST DIY HOME
SECURITY SYSTEMS**

**6 WAYS TO BOOST
YOUR RETIREMENT
SAVINGS—EVEN IF
YOU'RE STARTING LATE**

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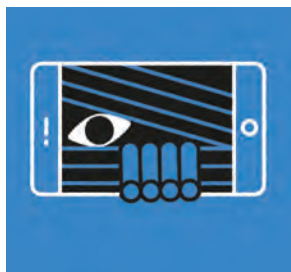
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ABOUT CONSUMER REPORTS

Consumer Reports is an independent, nonprofit organization founded in 1936 that works side by side with consumers to create a safe, fair, and transparent marketplace. To achieve our mission, we test thousands of products and services in our labs each year and survey hundreds of thousands of consumers about their experiences with products and services. We pay

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In addition to our rigorous research, investigative journalism, and consumer advocacy, we work with other organizations, including media, consumer groups, research and testing consortiums, and philanthropic partners. We also license our content and data, as well as work with business partners to offer shopping and other consumer services,

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 ✔ GOOD
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 ✔ EXCELLENT



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Keeping Your Data Safe



WHEN YOU DOWNLOAD an app, share a digital photo, or set up a smart speaker in your home, your personal data is at risk of being exploited by tech and other companies. Most of us have no idea that we're vulnerable to such intrusions—even if we spend hours reading long, dense "terms of service" agreements and privacy agreements.

Consumer Reports is committed to helping you

take back control of your personal data. This month, we're sharing a variety of tips you can put to use immediately, such as managing your passwords, changing your smartphone settings, and stopping the routine sharing of your data that happens when you conduct a web search.

It's also why we've created a new Digital Lab to advance and protect your rights in the digital age. In recent years, CR has exposed hidden risks in products, apps, and services. This new lab will expand on that work to make sure you have the tools you need to safely navigate the digital marketplace and make smart choices about products and services that are ever more complex. By bringing our trusted product testing, investigative journalism, and advocacy to bear on the digital world, we hope to hold corporate giants accountable for data security, privacy, and fair marketplace competition the same way we've always held industries accountable for safety and performance.

From the Equifax data breach to the exploitation of our private Facebook profiles in political campaigns, we understand that privacy violations and data abuse are a hidden threat of this connected world. With CR's help, you'll be armed with the information you need to engage with new technologies on your terms—without having to compromise your personal data.

Marta Tellado

Marta L. Tellado,
President and CEO
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The Consumer Reports Annual Meeting is nearly here. This year it will be held the evening of Oct. 16, 2019, in Washington, D.C. Please go to CR.org/annualmeeting for the time and exact location of this year's event, and if you are a paid member of CR, please watch your email for an electronic ballot to vote on the current CR Board of Directors slate. If you haven't provided your email address, you can do so by calling us at 800-333-0663 or by going to CR.org/myaccount.

Stopping Surprise Bills

WHAT'S AT STAKE

When you go to a hospital that's in your health insurer's network, you might assume that your care will be covered. Unfortunately, that's not always the case: You can end up with a sizable surprise bill if an out-of-network doctor assists during surgery or is on duty in the emergency room, or when your sample is sent to an outside lab. You don't control these things, but you can pay mightily for them. "It is fundamentally unfair to get hit with out-of-network bills when you're treated at healthcare facilities covered by your insurance," says Dena Mendelsohn, senior policy counsel at CR.

HOW CR HAS YOUR BACK

CR has been a leader in advocating for laws to protect patients from surprise medical bills. New York's governor is soon expected to sign a CR-backed bill to make excessive emergency room charges subject to an independent dispute resolution process. We are pushing similar laws in California and at the federal level, where legislators in both parties say it's time to stop this unfair practice. CR has endorsed the No Surprises Act, a bill in the U.S. House of Representatives to prevent surprise bills from out-of-network providers in emergency rooms and at in-network facilities. And we've endorsed similar legislation in the U.S. Senate.

WHAT YOU CAN DO

Learn how to avoid surprise medical bills at CR.org/medicalbills. And if you've been hit with one, tell us your story at CR.org/surprise1019.

Protecting Data Security

WHAT'S AT STAKE

We seem to hear about another theft of consumer data almost daily. The massive Equifax

breach in 2017 is only the most notorious case. Capital One, Dunkin', Microsoft, Quest Diagnostics, and the Federal Emergency Management Agency have acknowledged breaches or vulnerabilities in 2019 alone. All told, hundreds of millions of Americans have been exposed to the risk of identity theft in recent years.

Yet for all the headlines, laws pertaining to data breaches remain woefully out-of-date—and largely ineffective.

That could begin to change with the passage in New York of the Stop Hacks and Improve Electronic Data Security (SHIELD) Act, which would raise standards for the handling of customer data and broaden requirements for consumer notification.

HOW CR HAS YOUR BACK

CR engaged in a yearlong effort to advance the SHIELD Act, working with Albany lawmakers and testifying in favor of the bill. It passed the legislature in

June, and Gov. Andrew Cuomo is expected to sign it soon.

But pushing for stronger laws is just one part of CR's broader effort to expand digital security rights and protect consumer privacy. This summer we launched our Digital Lab to develop new ways to test and report on the security of digital products and services.

WHAT YOU CAN DO

See our cover story this month, starting on page 24, and to stay apprised, go to CR.org/dataprivacy.

Reinforcing Recall Alerts

WHAT'S AT STAKE

In 2016 Ikea announced a recall of millions of unstable dressers, including its Malm line, which had been tied to seven child tip-over deaths and at least 17 injuries. The recall

came after months of pressure from CR and other groups.

More than three years later, it has become clear that not enough has been done to get those dangerous dressers out of U.S. homes. Three more children have since been killed, and at least 127 more people injured, by Ikea dressers.

HOW CR HAS YOUR BACK

This June, on the third anniversary of that recall, CR and other consumer advocates joined parents who lost children to furniture tip-over incidents in front of Ikea's New York City store. They called on the company to do more to alert parents about the risk and make it easier for customers to return the dressers or have them picked up at their homes.

In response to questions from CR's reporter, Ikea released updated recall data for the first time in two years: The company has issued only 400,000 refunds, meaning an overwhelming portion of the recalled dressers—at least 15 million—are unaccounted for, with many probably remaining in people's homes.

"When unsafe products are recalled, companies must do everything in their power to alert consumers and get these products out of homes," says Meagen Bohne, CR's associate director of campaigns.

"They need to be proactive, transparent, and thorough in their efforts—and we must have government enforcement to hold them accountable."

WHAT YOU CAN DO

If you have a recalled Ikea dresser, email secureit@ikea.com or call 866-856-4532 to have it picked up at your home for a refund or an exchange. And go to CR.org/sturdyact to support the Stop Tip-overs of Unstable, Risky Dressers on Youth (STURDY) Act, a bill that would require the Consumer Product Safety Commission to set a mandatory rule for dressers that is stronger than the industry's current voluntary standard.





Our August 2019 article “**Safety Systems That Could Save Your Life**” examined crucial new car technologies. Readers raised important questions and shared their experiences. To join in, go to [CR.org/safecar1019](https://www.consumerreports.org/safecar1019).

AS A DRIVER SAFETY instructor with 20 years' experience, I have been tracking the introduction of safety-related systems in cars. Your article provides the first “real world” data I have seen about the positive impact advanced driver assistance systems (ADAS) are having on driver safety. I will for sure be including information from the article in future classes. There was one key point that I did not find: Adverse weather conditions (snow, ice, rain, etc.) can adversely affect their functioning. Every driver of a vehicle with ADAS needs to know this.
—Peter Eddy,
Bainbridge Island, WA

EDITOR'S NOTE *Many situations could cause a system to work improperly or not at all, including weather (yes, even rain). A good system will alert the driver when there is low confidence in the system's performance. Because the systems might not always work, even on a perfect, sunny day (for reasons other than weather), we advise drivers to always be attentive.*

AS I'M LOOKING at purchasing a new vehicle, your article couldn't have been timed better. It's very thorough and has provided me with the knowledge I need. Thank you.
—Lindsey Sparks, via [CR.org](https://www.consumerreports.org)

YOUR ARTICLE SHOULD also alert consumers that the front windshield holds much of the technology to provide “eyesight” and that a small stone crack may develop into a lengthy line crack across the windshield, as it did on our

2016 Subaru. It is an expensive repair, even with insurance.
—William Atkins,
Brush Prairie, WA

EDITOR'S NOTE *You're right that the costs of replacing new windshields are increasing because of the required sensor calibrations. It's an issue we're continuing to look into. Cracks, dirt, and debris on your windshield can cause problems—but that's not the only trouble area. In many models, there are sensors all around the car. Damage to a bumper, fender, or side mirror could cause the sensors there to no longer work and add to the cost of the repair.*

I READ with great interest your story about driver assist crash-prevention systems. My car has lane assist and forward collision warning; both have been activated by shadows.
—Elizabeth Davenport
Noblesville, IN

EDITOR'S NOTE *Shadows have presented a problem for certain early safety systems we've tested. The cameras for systems such as lane keeping assist are looking for contrast in lane lines and can be fooled by shadows. Our surveys and personal experiences show that some newer systems are better at avoiding this.*

I LAUGHED when I read that consumers turn off lane departure warning because it's annoying. Keeping to your lane seems to have gone the way of polite driving practices, like leaving room for someone to merge. I can't wait for self-driving cars.
—Nancy Azzolini, Wayne, NJ

GREAT ARTICLE. The advanced safety features in my car have paid for themselves several times over.
—T. Alex Shimada-Brand, via [CR.org](https://www.consumerreports.org)



SUPERMARKET SMARTS

I JUST READ your helpful report “The Brave New World of Grocery Shopping” (August 2019), and although you covered many important criteria to consider when selecting a supermarket, I was hoping to see ratings on each supermarket's use of plastic. With increased awareness of the perils of plastic pollution, active steps to reduce use of plastic is one of the key criteria many of us use to select a grocery store.
—Esther Berkowitz, Milwaukee

EDITOR'S NOTE *That's a great point. Some states (including California and New York) have passed laws limiting plastic bag use, and some municipalities restrict grocers from using plastic bags. Additionally, certain stores—highly rated Trader Joe's, for instance—don't provide an option for plastic bags at checkout. CR does still advise that shoppers use the thin plastic bags that grocers supply in the aisle for items susceptible to contamination, such*



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as raw chicken, and not to reuse them. Wash reusable cloth bags frequently, using a hot water cycle.

HOW DOES ONE actually find items in the market, when there is never anybody around to ask? I often waste time combing the aisles, looking for something that isn't where I think it should be. How about an app, where one could type in what is needed, and it would respond with which aisle it is in. What a time-saver!

—Scott Wood, Torrance, CA

EDITOR'S NOTE Some exist! Large retailers—Kroger, Target, and Walmart—have an item-finder feature on their apps so that consumers can locate products in their aisles.

I CAN ALWAYS tell when a “buy one, get one free” offer will be in next week's grocery circular. It's because the store has suddenly doubled the “regular price” on an everyday item ... but only for a few days. A “regular price” like that would make any shopper irregular.

—David Fone, Prescott Valley, AZ

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A GLARING TV PROBLEM

THANK YOU for the review of 8K TVs (“Should You Buy an 8K TV?” CR Insights, August 2019). You discuss many relevant details but fail to mention the screen finish and reflections. I watch in a room with ambient light. Virtually all modern flat-screen TVs are glossy and have annoying reflections.

—Elliott Berger, Indianapolis

EDITOR'S NOTE In our labs we've seen most TVs move to a glossy finish. While there's not much you can do about reflections, some TVs are more reflective than others. If you're looking at displays in a store, wait for a dark part of the demo video to catch a reflection of the ceiling lights. That should give you an idea of what to expect.



LONG-LASTING APPLIANCES

THANK YOU for your article “The Most Reliable Appliance Brands, Revealed” (August 2019). All brands require appliance repairs at one time or another, but it's hard to tell if any provide any real support to consumers. A few years ago, I was forced to replace a \$2,500 range after waiting two months for a crucial part that was perpetually “back-ordered.” The fact that my 5-year-old range wound up in a landfill still makes me furious. I am interested in buying from companies that do not view their appliances as disposable.

—Kathy Giovanniello, Orange, CT

EDITOR'S NOTE We're aware that customer service around repairs is a real problem for



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consumers, and we plan to look into the topic in even more depth in the future.

THANKS FOR YOUR excellent review of appliances. However, in 2016 the appliance manufacturer Haier purchased GE Appliances. You did not mention this.

—Bernard White, Dallas

EDITOR'S NOTE In our product surveys, we ask members about whether the products they own have broken or stopped working as they should, and then use that data to make predictions about how new models from a given brand will hold up over time. Regardless of who manufactures a product, the real-world experiences of how it holds up will show up in our data.



CREDIT SCORES

THANK YOU for the excellent “Secrets to Credit Score Success” (August 2019). This article is especially important for younger people. Being a Realtor, I often see people unable to purchase a home because of low credit scores. I hope you again feature information on this. It needs to be seen by more people.

—Thomas P. Stanko, Jacksonville, FL

CORRECTION: In “The Electric Car Comes of Age” (September 2019, on page 56) the IRS provided incorrect information to our reporter. The article stated: “These tax credits are subtracted from the adjusted gross income on the tax return buyers prepare the following year, reducing the total income on which they must pay federal taxes.” The IRS has since provided the correct information: These electric-vehicle tax credits reduce a person's federal income tax liability, not a person's total adjusted gross income.

What We're Testing in Our Labs ...

In our 63 labs, we continually review and rate products. Here, timely picks for this month.

Countertop Microwaves Under \$100

WE TESTED: 12 models

WE TEST FOR: Speed and evenness of heating, defrosting evenness, noise while microwaving, and ease of use. We also measure a model's usable capacity.

ABOUT THE SCORES:

Median: 55

Range: 46-67

Speedy Heat & Even Defrost

Danby DMW11KNLBD
(12x21x16 inches)
\$90

67

OVERALL
SCORE



Stainless Steel & Quiet

Magic Chef MCM1110ST
(12x20x17 inches)
\$80

66

OVERALL
SCORE



Countertop Space Saver

Avanti MO7191TW
(10x18x13 inches)
\$70

65

OVERALL
SCORE



Bottom-Freezer Refrigerators

WE TESTED: 21 models

WE TEST FOR: Thermostat control, temperature uniformity, energy efficiency, and ease of use. We also measure a model's usable capacity.

ABOUT THE SCORES:

Median: 73

Range: 40-89

Large Capacity

LG LDCS24223S
\$1,300

89

OVERALL
SCORE



Cool Price

Kenmore 69313
\$900

85

OVERALL
SCORE



Cabinet Depth, With In-Door Water Dispenser

Fisher & Paykel
ActiveSmart
RF170WDRUX5
\$2,300

73

OVERALL
SCORE



Ask Our Experts

Which has more freezer space: a top- or bottom-freezer fridge?



WHILE BOTTOM-FREEZER REFRIGERATORS offer the convenience of keeping more fridge items at eye level, “they tend to have smaller freezers because of the space lost to organizer bins and sliding hardware,” says Jim Nanni, head of appliance testing for CR. In fact, some top-freezers offer about a cubic foot more freezer space than the biggest bottom-freezer fridges we’ve tested. Still, if you prefer the bottom-freezer style, the LG shown above has more usable freezer space than most we’ve tested, at 4.8 cubic feet. (The manufacturer’s claimed capacity is often larger than the actual usable capacity we measure.) All-Access and Digital members can look up our “usable capacity” measurements at [CR.org/fridge1019](https://www.consumerreports.org/fridge1019).

ILLUSTRATION: SERGE BLOCH

For the latest ratings of these and other product categories, readers with a Digital or All-Access membership can go to [CR.org](https://www.consumerreports.org).

Frying Pans Under \$25

WE TESTED: 8 pans

WE TEST FOR: How evenly a pan browns pancakes on a gas range, how easily eggs slide off the pan's surface, the durability of a nonstick coating, and more.

ABOUT THE SCORES:

Median: 59

Range: 54-75

Best Value Overall

10" Member's Mark Nonstick
(Sam's Club) \$15



75

OVERALL
SCORE

Evenly Browns Food

10" Red Copper Nonstick
\$20



75

OVERALL
SCORE

Works on Induction Cooktops

10" Copper Chef Nonstick
\$20



63

OVERALL
SCORE

Black & White Laser Printers Under \$100

WE TESTED: 9 models

WE TEST FOR: How fast a model can print text, and the quality; the appearance of black and white graphics; ease of use; and more.

ABOUT THE SCORES:

Median: 72

Range: 64-80

Speedy Text & Best Graphics

Samsung Xpress M2835DW
\$90



80

OVERALL
SCORE

Most Reliable

Brother HL-L2315DW
\$90



78

OVERALL
SCORE

Petite & Very Reliable

HP Laserjet Pro M15w
\$90



72

OVERALL
SCORE

Truck Tires

WE TESTED: 53 tires

WE TEST FOR: Braking in dry, wet, and icy conditions; handling, including steering feel; ride comfort; noise; rolling resistance; tread life; and more.

ABOUT THE SCORES:

Median: 66

Range: 54-74

Best All-Season Tire

Continental CrossContact
LX20 EcoPlus (size tested:
265/65R17)
\$153



74

OVERALL
SCORE

Excels on Snow and Ice

Michelin Latitude X-Ice XI 2
(size tested: 265/70R17)
\$180



74

OVERALL
SCORE

Good Deal for All-Terrain

Nexen Roadian AT Pro RA8
(size tested: 265/70R17)
\$123



68

OVERALL
SCORE

Strollers

WE TESTED: 11 umbrella-style models; only some are safe for babies under 6 months

WE TEST FOR: Safety, ease of folding and braking, and how well a model maneuvers our multi-terrain test course.

ABOUT THE SCORES:

Median: 72

Range: 53-74

Deal on Wheels

Summer Infant 3D Lite (12 lb.)
\$80



74

OVERALL
SCORE

Super Lightweight

Maclaren Mark II (7 lb.)
\$200



74

OVERALL
SCORE

Fully Reclinable Seat

Joovy Groove Ultralight (14 lb.)
\$140

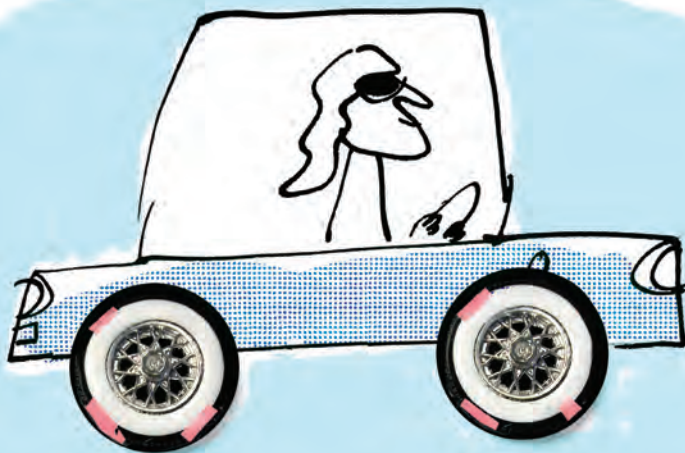


73

OVERALL
SCORE

Note: We rate different products according to different testing protocols; as a result, Overall Scores of one product category are not comparable with another.

COMING NEXT MONTH **Cookware Sets & More**



How critical is it that I rotate my tires regularly?

This common maintenance task—which should typically be done every 5,000 to 8,000 miles—isn’t one you should ignore. It may seem minor, but remember: Tires are the only thing that comes between your two-ton vehicle and the road. Well-maintained tires will help you travel safely for tens of thousands of miles.

Without rotation, tires may not wear evenly. Front tires play a larger role in braking, and on front-wheel-drive vehicles they must claw for traction, which means they wear out more quickly. Plus, minute variations in suspension and alignment can introduce uneven wear patterns. All of this can impact your car’s ride and noise level, as well as the tire’s longevity.

“Spreading wear around all four tires ensures even tread depth and grip,” says Chris Jones, a certified mechanic and tire technician for CR. “A visit to the mechanic is also an opportunity for a pro to inspect your tires for damage and proper inflation.”

Your owner’s manual will have guidance on the rotation pattern (some are front-to-rear, others side-to-side) and frequency. Tire rotation can cost up to \$60, but shop around: Some retailers may provide the service free of charge.

My health insurance deductible and premiums keep going up. What can I do to save on costs?

As healthcare costs rise, Americans are bearing more of the burden of paying for it.

The average deductible—what you pay before insurance kicks in—for a single person with work-based insurance is up 39 percent from five years ago, to \$1,573 in 2018, while annual premiums jumped 21 percent,

to an average of \$5,547 for family coverage. People who buy their own plans through the federal Affordable Care Act exchanges also are paying a lot more for health insurance. The benchmark plan for those who don’t get subsidies to lower premiums costs an average of \$477 per month in 2019, up 33 percent from 2017.

More of the same is expected for 2020, so you’re right to be cost-conscious when choosing a plan this fall, says Donna Rosato, senior money editor at CR.

Start with a careful comparison of plans. What plans cover and cost changes, probably more than you’d expect. So don’t assume last year’s election will still be the best fit—it could be a lot costlier this time around.

Another great way to keep costs in check is to fund a flexible spending account or health savings account. Those tax-free dollars you put away will make what you spend on care go that much further. And don’t forget to use the wide range of free preventive medical services available on most plans. Taking care of yourself now could prevent the need for more expensive care later, Rosato says.

How can I keep my black clothing from fading?

Wearing black never goes out of style—except if your clothes are faded and covered in fuzzies or detergent streaks. The more you wash black clothing, the more dye washes away, especially with black denim.

Before you toss your black garment in the washer, turn it inside out to shield it from the agitation or tumbling of your machine, which breaks down the fibers in fabrics and causes them to appear faded. Some detergent won’t dissolve well in *very* cold water, which can cause streaks. Use cool or warm water (generally above 60° F) to help detergents dissolve and keep the fibers from losing their color. Too much detergent can also cause streaks, so be sure to measure out the recommended amount. And don’t use detergents with bleach or bleach alternatives, which can discolor black dye. Last, set dark loads to the light-soil setting—it’s gentler—and on the shortest cycle possible. Less time in the wash means less fading.

How you dry your darks matters, too. Tumbling in the dryer roughs up the surface of the fibers, creating a halo of fuzz that catches light and makes black clothes appear faded. Instead, keep the garments turned inside out and hang them to dry indoors; avoid drying outdoors, where the sun can fade them.



LEARN

We have more than 140 in-house experts who research, test, and compare. Submit your questions at [CR.org/askourexperts](https://www.consumerreports.org/askourexperts) ... and watch for the answers.

CR Insights

In the Know

The Right Way to Sit Behind the Wheel

Tell the right time. Your hands should be placed at 9 and 3 o'clock, with a slight arm bend. This helps with control, and your arm is less likely to be injured by a deploying airbag.

It's all in the wrist. You should be able to rest your wrist on the top steering wheel rim. Use steering wheel tilt and telescoping adjustments to accomplish this.

Fancy foot work. Your feet should easily reach the pedals, allowing you to brake fully and firmly.

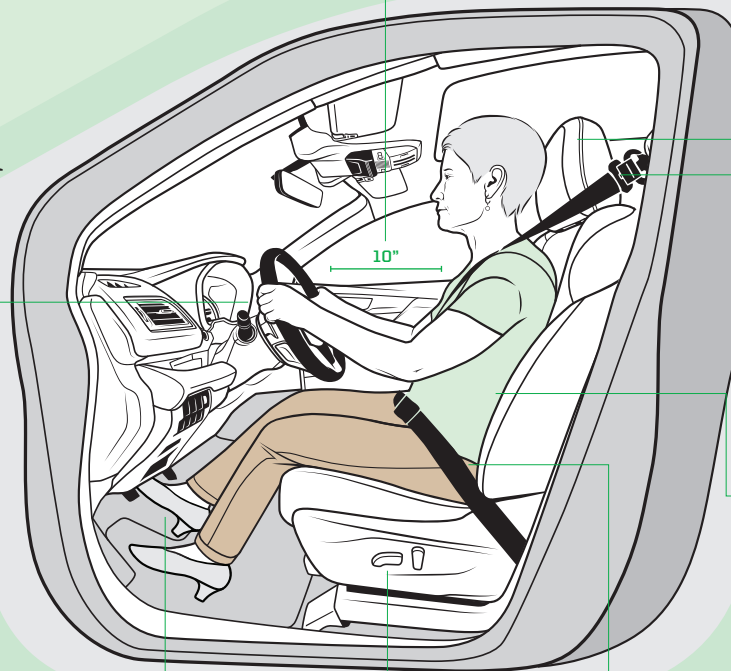
Make room for a view. Adjust the seat height to optimize your view over the hood. If you can't tell how close other cars are, you're not up high enough.

Aim for the hip. The lap belt should be low on your lap so that it hugs your hip bones, which are stronger than the softer areas of your abdomen.

Get a head start. Line up the top of the head restraint with the top of your head, or at least the top of your ears. Leave no more than 4 inches between the back of your head and the head restraint.

Use your belt anchor. The seat belt should cross the center of your left collarbone. Newer cars have an upper adjustable belt anchor on the door pillar to help provide the best position.

Sit up straight and centered to keep your body in alignment with airbags. This posture also helps you better control the vehicle and remain alert.



FIND YOUR BEST FIT

These vehicles offer comfortable seating for a variety of drivers.



COMFY FOR SHORTER DRIVERS
2019 Subaru Forester
\$24,295–\$34,295

89

OVERALL SCORE



A GOOD FIT FOR ALL
2020 Toyota Sienna
\$31,415–\$49,190

78

OVERALL SCORE



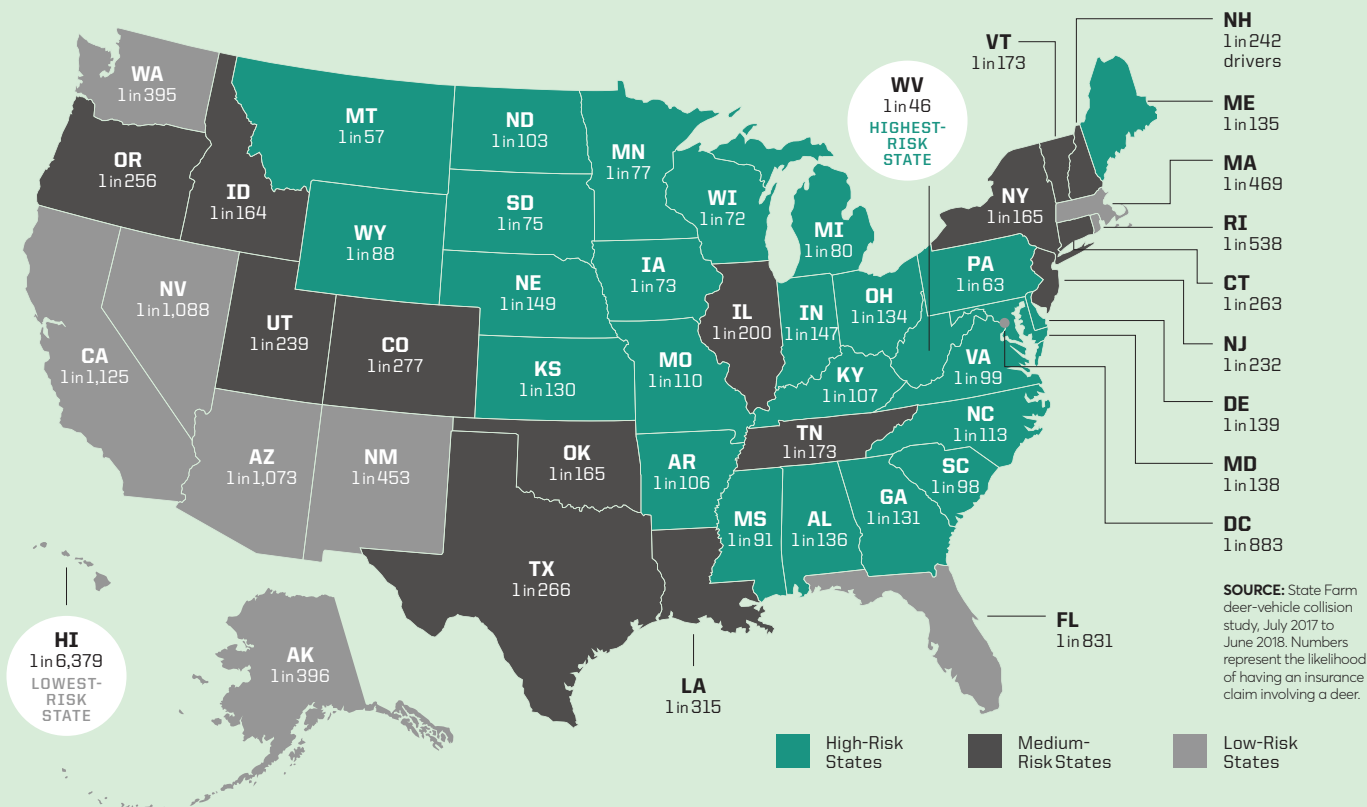
TOPS FOR TALLER DRIVERS
2019 Honda Pilot
\$31,450–\$48,020

74

OVERALL SCORE

Map of the Month

How Likely Are You to Hit a Deer?



“FALL DRIVING MEANS more deer are active and more people are driving on darker roads due to the shorter daylight hours,” says Jen Stockburger, director of operations at the CR Auto Test Center. Deer are most active at dawn and between

6 p.m. and 9 p.m., so use your high beams, Stockburger says. If you’re about to hit a deer, don’t swerve—just brake. Swerving can cause you to lose control or crash into another car, both scenarios that could result in more injury than striking an

animal. And don’t count on aftermarket deer whistles that attach to front bumpers to scare them off; deer reaction is too unpredictable. Though automatic emergency braking and forward collision warning can help, your seat belt

is still the best defense for minimizing injury. Past research has found that more than half of people killed in animal-vehicle collisions weren’t wearing their seat belts. Also, be extra vigilant in high-risk states, such as West Virginia.

CR Time Traveler FIRE SAFETY

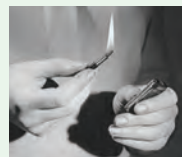


1925 President Calvin Coolidge proclaims the first National Fire Prevention Week in the month of October.

1939 Each year, 200 people are burned to death using inflammable cleaning liquids in the home, CR reports. Our testing reveals three that are unsafe.



1944 We test a product called the Match King—a lighter that has a metal “match” and flint strip—and find that the flame often envelops the entire match, making it a fire hazard.



1951 Less than 2 percent of American homes have fire extinguishers. CR shows readers the types available, such as the hand-powered water model below, along with a guide for when and how to use them.



OCTOBER
IS THE
BEST TIME
TO BUY ...



SMART SPEAKERS



LEAF BLOWERS



MATTRESSES

For more info,
go to CR.org/buy1019.

Face-Off

Peanut Butter Cups

THE CLASSIC milk chocolate Reese's peanut butter cup has been around since 1928. Today, Reese's and other brands tout a ton of tempting new options, including dark chocolate and organic ingredients. But does that make them a healthier choice? Our nutritionists say that a dark chocolate cup, which is richer in antioxidants,

is indeed better than a milk chocolate one, and organic can mean better ingredients—but you still need to check labels before biting in.

We compared three national brands of dark chocolate PB cups. While the calorie counts are all similar, Theo cups are much lower in sodium and sugar than the other two

and use the highest-quality ingredients of the three, with the main ingredients being cocoa beans and roasted peanuts. Both Theo and Justin's are organic, which means they cannot contain synthetic ingredients such as those found in Reese's. But don't forget that even the best of the bunch is still candy, says CR nutritionist Amy Keating.



Theo Organic Dark Chocolate Peanut Butter

CALORIES	210
SUGARS	13 g
SATURATED FAT	6 g
SODIUM	55 mg
SERVING SIZE	38 g
2 PB cups	

Justin's Organic Dark Chocolate Peanut Butter

CALORIES	220
SUGARS	16 g
SATURATED FAT	7 g
SODIUM	120 mg
SERVING SIZE	40 g
2 PB cups	

Reese's Dark Chocolate Peanut Butter

CALORIES	200
SUGARS	18 g
SATURATED FAT	5 g
SODIUM	125 mg
SERVING SIZE	39 g
2 PB cups	

1968 We warn against 100 percent acrylic carpets, a large part of the market, due to the flammability risk. In testing, 10 out of 14 all-acrylic samples catch fire.



1994 We test fire extinguishers outdoors on a remote section of CR property. A Buckeye model (below) is one of the best performers.

1964 Some fire extinguishers contain "carbon tet," producing poisonous gas when used on a fire. Our chemists say not to buy this type. (By 1970, the Food and Drug Administration bans carbon tet home-use products.)



1976 We ignite four fire types. None set off our heat-triggered sprinklers; only smoke detectors work.



2019 Our labs have been recording response times of photoelectric, ionization, and dual smoke detectors to fires for well over a decade. Today's top-rated dual model is below.

FIRST ALERT
3120B \$30

91 OVERALL
SCORE



Product Spotlight

Tankless Water Heaters

THOUGH STORAGE TANK water heaters are the most common type, tankless water heaters are gaining market share—with a reputation for running more efficiently, potentially saving you money over time. That's appealing, given that heating water is the average U.S. home's second-highest utility cost after heating and cooling the house itself.

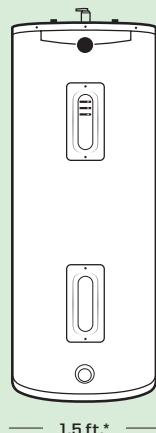
Switching types is expensive when you factor in pro installation, but if your

storage tank water heater is failing or you're building a new home, a tankless water heater is worth a look.

We tested electric and gas whole-house models, including those from Bosch, Navien, Rheem, and Trutankless, to see how they compare with storage models. We did not find meaningful performance differences between the brands within a type—all were adequate—so our chart compares types rather than scoring models.

STORAGE TANK

TYPICALLY HOLD BETWEEN 30 AND 60 GALLONS



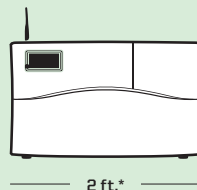
5 ft.*
or larger

*Size varies by model. Newer storage models have more insulation, so may take up more space than old ones.

1.5 ft.*

TANKLESS

HEAT THE WATER AS IT PASSES THROUGH



1.5 ft.*

2 ft.*

HOW THEY WORK

These continuously heat water, so when you ask for hot water, it's ready with no lag time. But that means you're paying to heat water whether you need it or not.

These heat water only when you turn on the tap. Depending on your unit's power and the temperature of your groundwater, you may need to wait for water to get hot.

APPROXIMATE PURCHASE & INSTALLATION COSTS

\$570 (electric) or **\$600** (gas) for a 50-gallon tank; larger capacities cost more. Add \$600 to \$800 for pro installation, or more if your existing hookups are not compatible.

\$525 to \$1,150
Add \$800 to \$1,500 for pro installation. Plus, some models may require upgrades to your gas pipes or home electrical service.

ANNUAL-USE COST**

\$245 (gas) or **\$580** (electric)

\$195 (gas) or **\$535** (electric)

TESTING PERFORMANCE

Both gas and electric models easily delivered a steady supply of hot water that reached our target temperature of 120° F, whether the incoming water was 58° F or 74° F.

Gas models hit our target water output temperature of 120° F. Two electric models—a Bosch and a Rheem—did when the incoming water was 74° F, but not when it was 58° F.

✓ **Toro**
UltraPlus
\$100

82



Do More With ...

A Vacuum Leaf Blower

If you spend a lot of time piling and bagging leaves each fall, a vacuum leaf blower might seem like a tempting one-tool solution. With a built-in vacuum mode and snap-on leaf collection bags, these blowers can suck up leaves and shred them, with some that promise to reduce leaves into a twelfth or even a sixteenth of their original volume. That means fewer bags to put at the curb.

Though the electric plug-in Toro shown above keeps that mulching promise, our testing revealed that other vacuum blowers don't quite. (We tested 13 models.) Some shredded leaves down to only a third or a quarter of the original volume and collected just a small quantity of leaves before the bag got full. "The vacuum on most leaf blowers isn't designed to deal with huge piles of leaves," explains Misha Kollontai, CR's leaf blower tester. Also, we haven't seen any vacuums on battery-powered models, which can be more convenient than gas or corded types.

However, the right vacuum blower could still save you time and effort if you have a small yard, or if you want to surgically suck up leaves from around bushes and flower beds. To see full ratings, All-Access and Digital members can go to [CR.org/leaf1019](https://www.consumerreports.org/leaf1019).

Food Sleuth

Snack Bars for Kids



MANY COMPANIES now offer “healthy” snack bars for kids. The distinctions from adult bars are that they are generally a bit smaller, can be heavy on the chocolate offerings, and may have drawings of dinosaurs on the packaging. But does that really make them a good choice for kids?

Our nutrition experts

evaluated the ingredients and nutritional information for 12 different kids’ snack bars. “When it comes to kids, calories aren’t the main concern,” says Amy Keating, R.D., a CR nutritionist. Instead, our testing and scoring weighed factors such as natural vs. added sugars; whole vs. refined grains;

and isolated, processed sources of protein vs. protein from whole foods.

For example, some bars contained processed sources of fiber and protein, such as inulin, but fiber is best for you when it comes from minimally processed whole foods, such as oats or other grains. We also noted whether rice

products were used, because CR research has shown that rice may contain worrying amounts of arsenic. Our two top-rated bars contained no rice, fewer added sugars, and no processed protein or fiber. Several others aren’t as healthful as the wrapper vibe might suggest. Below, our results for all 12 bars.

✓ **RXBar**
Kids Chocolate
Chip Protein Bars
\$1.34
(pictured above)

72	
SUGARS	8 g
SATURATED FAT	1.5 g
SODIUM	70 mg

✓ **Quaker**
Kids Organic
Whole Grain Bars
Chocolate
\$1.00

69	
SUGARS	6 g
SATURATED FAT	1.5 g
SODIUM	85 mg

MadeGood
Chocolate Chip
Granola Bars
\$1.13

66	
SUGARS	6 g
SATURATED FAT	1 g
SODIUM	10 mg

Kashi by Kids
Organic Super
Food Bites
Chocolate
\$0.80

63	
SUGARS	8 g
SATURATED FAT	1 g
SODIUM	70 mg

This Bar Saves
Lives Kids
Chocolate Chip
“Dino”mite Bars
\$2.00

59	
SUGARS	5 g
SATURATED FAT	1 g
SODIUM	30 mg

Kind Kids
Chewy Chocolate
Chip Granola Bars
\$0.96

59	
SUGARS	5 g
SATURATED FAT	0.5 g
SODIUM	65 mg

Annie’s
Organic Chewy
Chocolate Chip
Granola Bars
\$0.42

58	
SUGARS	8 g
SATURATED FAT	1 g
SODIUM	75 mg

Nature’s Path
Organic Envirokidz
Chewy Chocolate
Chip Granola Bars
\$1.62

57	
SUGARS	7 g
SATURATED FAT	1 g
SODIUM	50 mg

Lärabar Kid
Chocolate Chip
Cookie Bar
\$0.67

55	
SUGARS	10 g
SATURATED FAT	4 g
SODIUM	55 mg

Quaker
Chewy Chocolate
Chip Granola Bars
\$0.48

49	
SUGARS	7 g
SATURATED FAT	1.5 g
SODIUM	70 mg

Clif Kid
Zbar Protein
Chocolate
Chip Bars
\$0.78

47	
SUGARS	9 g
SATURATED FAT	1.5 g
SODIUM	80 mg

ThinkKids
Chocolate Chip
Protein Bars
\$0.70

38	
SUGARS	4 g
SATURATED FAT	1.5 g
SODIUM	140 mg



RECALLS

TO STAY INFORMED ABOUT RECALLS FOR YOUR VEHICLES, READERS WITH MEMBERSHIP CAN USE OUR FREE CAR RECALL TRACKER AT CR.ORG/MORE.



2019
MAZDA3

MAZDA VEHICLES

Mazda is recalling 9,430 of its 2019 Mazda3 sedans because the head restraint may not lock into place, which raises the risk of injury in a crash, according to the National Highway Traffic Safety Administration. Because of improper installation of the seat cover material for the driver and front-passenger seatbacks, the material may interfere with the head restraint lock-release button, causing the button to be stuck in the released position. In this condition, the restraint can be moved freely and can't lock into the vertical height adjustment at the desired position. If a crash were to occur, NHTSA says, the head restraint could become loose and injure occupants in the vehicle. The vehicles were built from Jan. 15, 2019, through May 22, 2019.

What to do: Owners may contact Mazda customer service at 800-222-5500. Dealers will install spacers at the bottom of the lock-release buttons on both front-seat head restraints, at no charge to owners. Mazda's number for this recall is 3819F.

SMOKE AND FIRE ALARMS

Universal Security Instruments is recalling about 180,000 battery-powered smoke and fire alarms because they can have

a misaligned internal switch, causing the alarm to not activate properly, posing a risk of failure to alert to a fire. The alarms were sold online through specialty wholesalers and others from July 2015 to December 2016 for about \$20.

What to do: Inspect the smoke alarm to determine whether it will activate appropriately: Press the test button, and if the alarm sounds, no further action is needed. Additional instructions are on the company's website, at universalsecurity.com. If the smoke alarm does not sound during the test, contact Universal Security for a replacement at 877-612-6955.

PORTER-CABLE PORTABLE TABLE SAWS

Porter-Cable is recalling about 258,000 10-inch table saws because the motor can overheat, creating a fire hazard. The saws were sold at Lowe's from June 2016 through September 2018 for \$100 to \$180.

What to do: Stop using the table saw. Contact Chang Type (the manufacturer) at 877-206-7151 or go to www.recallrtr.com/PCsaw for details and a refund.

FITZ AND FLOYD MUGS

Lifetime Brands is recalling about 150,000 Fitz and Floyd Nevaeh White mugs because the mugs can crack or break when used with or exposed to hot liquids, posing burn and laceration hazards. The mugs were sold at Bed Bath & Beyond stores and online at bedbathandbeyond.com from January 2013 through April 2019 for \$8 to \$10 for the mug alone and \$30 for a four-piece dinnerware set.

What to do: Stop using the mug. Call Lifetime Brands at 888-561-2269 or go to fitzandfloyd.com for details and to get a free replacement mug.

GILLETTE VENUS RAZORS

Gillette is recalling about 87,000 Venus Simply3 disposable razors because a manufacturing problem resulted in misalignment of the blades, posing a higher risk of cuts during use. The razors were sold at stores nationwide from January 2019 through May 2019 for \$6 to \$10.

What to do: Stop using the razor. Contact Gillette at 800-362-1258 or go to gillettevenus.com for details and to get a postage-paid return label to return the razors and receive a voucher for a replacement.

DISNEY PLUSH TOYS

Disney is recalling about 80,000 Forky 11-inch plush toys because the "googly" plastic eyes on the toy can detach, posing a choking hazard to young children. The toys were sold at Disney Stores and Disney Theme Parks, online at shopdisney.com, and through the Disney Store on Amazon Marketplace from April 2019 through June 2019 for about \$20.

What to do: Take the toy away from children and return it to

any Disney Store, Walt Disney World, or Disneyland Resort store for a full refund. Call Disney at 866-537-7649 for details.

FISHER-PRICE INCLINED SLEEPER ACCESSORIES

Fisher-Price is recalling about 71,000 inclined sleeper accessories included with Ultra-Lite Day & Night Play Yards because infant fatalities have been reported while using other inclined sleep products. The American Academy of Pediatrics discourages the use of any inclined sleep product because they increase the risk of airway compression, suffocation, and death. The Play Yards were sold at juvenile product stores and mass merchandisers nationwide from October 2014 through June 2019 for \$90 to \$110.

What to do: Stop using the inclined sleeper accessory, and call Fisher-Price at 800-432-5437 or go to service.mattel.com for details and to get a refund or voucher. You can continue to use the play yard part of the product without the inclined sleeper accessory. To learn about other inclined sleeper products that have been recalled, and to read about CR's investigation into the safety of inclined sleepers, go to CR.org/sleeper1019.

EVERBILT DOOR PULLS

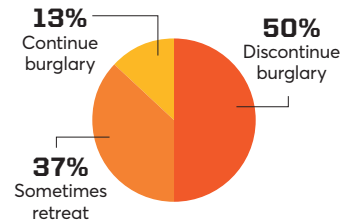
Everbilt is recalling about 70,200 stainless steel door pulls because they have sharp edges on the back, posing a laceration hazard. The pulls were sold at Home Depot stores and online at homedepot.com from April 2018 through May 2019 for about \$6.

What to do: Stop using the recalled door pulls, and return them to Home Depot for a full refund. Call Home Depot at 800-305-1726 or go to homedepot.com for details.

Product Update

The latest ratings from our labs

How burglars respond to the presence of home security systems



Source: 2012 survey, University of North Carolina at Charlotte department of criminal justice and criminology.

Best Home Security Systems

Today's DIY security systems make protecting your home easier and more affordable than ever. Our latest ratings will help you turn your home sweet home into a home safe home.

by Daniel Wroclawski

Silent Sentry
CR tester Bernie Deitrick uses an app to monitor a Ring home security system with an optional camera.



✓ Ring Alarm Kit 5-Piece
\$200

88
OVERALL SCORE

BURGLARY RATES in the U.S. are declining, but a home was still broken into every 23 seconds in 2017, according to the FBI. So it's not surprising that property owners have long put up with the pricey multiyear contracts, extensive wiring, and ugly sensors that home security systems have traditionally required.

Today's do-it-yourself security systems are changing all that: They're sleek and wireless, and can be quickly installed—without tools—by just about anyone. (Stand-alone security cameras and video doorbells don't provide the whole-house protection that do-it-yourself security systems do, but they can be added to the systems to enhance their capabilities.) DIY security systems are also less expensive than traditional systems because in most cases you can monitor them yourself, eliminating the cost of professional monitoring. “Keep in mind that any system that relies on wireless signals, as these do, is susceptible to being hacked,” says Justin Brookman, director of privacy and technology policy at CR. Even so, with more than 8 million of them installed in American homes, they're catching on fast.

DIY vs. the Pros

“The biggest difference between DIY and traditional security systems is that most DIY systems allow you to self-monitor,” says Bernie Deitrick, CR's test engineer for home security products. “That can save roughly \$10 to \$50 a month compared to professional monitoring, depending on the company and the services provided.”

With professional monitoring, a call center dispatcher alerts you and the police whenever an alarm is triggered. With self-monitoring, you'll receive a notification on your phone, but it's up to you to call the police.

“If you've done a good job of securely installing the door and window sensors, our tests suggest you should receive notifications almost immediately when an alarm

[CONT. ON PAGE 23]

HOW MUCH SECURITY DO YOU

DIY security systems come with an array of different components in a wide range of prices. But what do you really need to protect your home, and what can you skip? CR's experts help guide you in the right direction.

Assembling a Basic System

The prices of basic home security kits could make you think you can protect your house for about the cost of taking the whole family out to a nice dinner. But that's often not the case. “While basic kits might have enough sensors for a small home or apartment, many homes will require at least a few more door and window sensors or motion detectors for adequate coverage,” says Bernie Deitrick, who oversees CR's home security testing.

For example, the basic kits CR recommends cost \$70 to \$450. But after adding the components required to secure even an average-sized U.S.

home, the total would range from about \$300 to more than \$800. (With professional monitoring, the price goes up even more.)

Deitrick and his team have determined that a basic home security system should offer six key components: a base station, a keypad or touch-screen control panel, contact sensors for windows and doors, motion sensors, key fobs, and range extenders. Most of the kits we tested offer these basic components; many of the companies offer online tools to help you design the optimal system for your home.

1 BASE STATION

This acts as a bridge between the components and the internet, and usually includes a siren, backup batteries, and backup cellular connectivity in case of a power or internet outage. Best placed in a centrally located area, so it can receive wireless signals from every sensor.

2 KEYPAD OR TOUCH-SCREEN CONTROL PANEL

Typically mounted to a wall, the keypad has 10 numeric buttons to enter codes to arm and disarm the alarm. Touch screens, which look like a small tablet, allow you to enter codes to arm

and disarm the system, as well as control other smart home devices.

3 CONTACT SENSORS

Sensors attach to doors and windows to detect when they're opened. Typically used only on ground-floor windows, they can also be placed on second-floor windows vulnerable to burglars.

➤ For the average-sized U.S. home, homeowners may need to purchase five or more additional sensors, \$15 to \$50 each.

4 MOTION SENSORS

These detect movement and can be more cost-effective than placing a sensor on every window

and door in rooms that have several. Some are programmed so that pets won't set them off.

➤ For the average-sized U.S. home, homeowners may need to purchase two or more additional motion sensors, \$30 to \$65 each.

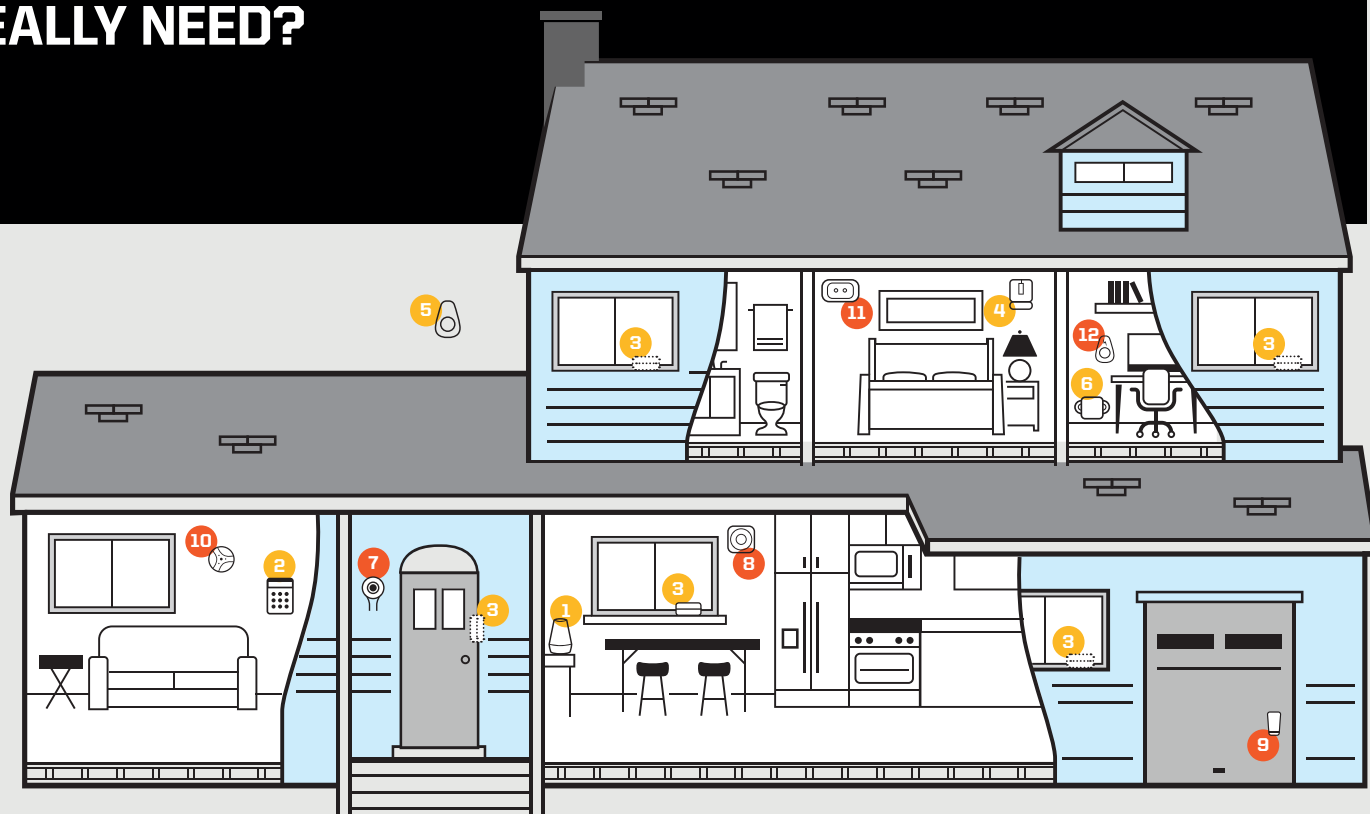
5 KEY FOBBS AND TAGS

These arm or disarm the system without using the app or keypad. Some also let you arm or disarm the system with a tap to the base station or keypad.

6 RANGE EXTENDER

This allows the base station in larger homes to communicate with sensors in distant parts of the house.

REALLY NEED?



Adding Specialty Components

Homeowners can beef up basic DIY home security systems by adding a number of specialty components. These aren't required for protection, but adding them allows you to monitor for additional threats, such as fires, carbon monoxide, and leaks. Keep in mind that costs can quickly escalate: Adding just a security camera to monitor, say, your pool or garden can cost up to \$400.

CR experts also caution consumers to be mindful of the threats to privacy that

security cameras and video doorbells can pose. "There have been multiple highly publicized incidents of hackers gaining access to security cameras," says Justin Brookman, director of privacy and technology policy at CR. To decrease chances of such a privacy breach, the most secure systems let you use two-factor authentication when logging in to your account. (For more tips on protecting your privacy, see "Your Guide to Digital Privacy," on page 24.)

7 SECURITY CAMERAS AND VIDEO DOORBELLS

\$50 to \$400 These enable you to visually check on the house when you're not there and also to provide recorded evidence in the event of a robbery. They can

be motion-activated or continuously record on a loop.

8 ENVIRONMENTAL SENSORS

\$20 to \$90 In addition to smoke, fire, and carbon monoxide

detectors, these include alarm listeners that are activated by the sound of those detectors going off. Leak and freeze detectors are worthwhile additions to security systems in homes with pipes that might freeze in the winter.

9 GARAGE DOOR TILT SENSORS

\$30 to \$45 A good idea if you're worried about burglars entering your home through the garage, the sensors are placed on the interior side of the door and alert you when it is opened.

10 GLASS-BREAK SENSORS

\$35 to \$75 A burglar could foil a contact sensor by breaking the glass in a picture window or sliding glass door. These detect the sound of shattering glass and trigger an alarm before anyone can enter.

11 SIRENS

\$30 to \$60 Stand-alone sirens can be placed away from the base station to startle an intruder and alert others to possible danger. If you live in a large home, you might consider installing multiple sirens, or even a siren outside.

12 PANIC BUTTONS AND PENDANTS

\$20 to \$40 Panic buttons alert a monitoring service that you need help. They're usually wireless, allowing you to place them in any room. Panic pendants work in similar fashion but are worn by the user.

DIY SYSTEMS THAT WILL ALARM YOU

Most home security systems do a good job of detecting a break-in. The differences are in the details. Here, six of our top-rated models and what sets them apart.



User-Friendly Favorite

**NEST SECURE ALARM SYSTEM
STARTER PACK H1500ES \$300**

89

PROS: Nest Secure packs performance and convenience into a pleasingly minimalist design. It responds to voice commands and comes with two tags to arm and disarm without using a code. **CONS:** Security or smart home add-ons are limited and can be expensive. Optional professional monitoring costs a comparably pricey \$29 per month (\$19 per month with a three-year contract).



Bargain Basics

**RING ALARM KIT 5-PIECE
\$200**

88

PROS: Easy to set up and use, the kit and optional monitoring (\$10 per month or \$100 per year) are cheaper than most we tested. (Additional contact and motion sensors cost \$20 and \$30, respectively.) It doubles as a smart home hub. **CONS:** Video quality of the add-on camera could be better. Extra security features, such as smoke detectors and water sensors, are somewhat limited.



Flexible Monitoring

**ABODE ESSENTIALS STARTER KIT
\$250**

86

PROS: Abode offers an array of add-on security features (including an outdoor siren) and integrates with Amazon, Google Nest, and other smart home products. On-demand monitoring for as few as three days is available for those who want the service only on occasion. **CONS:** The starter kit comes with a rather bare-bones group of components compared with most DIY security systems.



Performance for a Price

**FRONTPOINT SAFE HOME EVERYDAY
\$70 (WITH REQUIRED 3-YEAR CONTRACT)**

85

PROS: Easy to set up and use, this system has more components than most and connects to a wide variety of security and smart home products, such as lightbulbs. (The hardware design for this kit has changed since we tested this system, but we expect it to perform the same.) **CONS:** When you factor in the mandatory monitoring (\$35 to \$50 per month), this is one of the most expensive DIY systems.



Great Video and Value

**SIMPLISAFE THE ESSENTIALS SS3-01
\$270**

83

PROS: SimpliSafe is easy to set up, and add-ons are typically cheaper than most. (Water-leak sensors cost \$20, compared with \$35 from Ring.) Its add-on video camera is one of the best. **CONS:** It lacks certain features common to other systems, such as adjustable motion-sensor sensitivity, and requires professional monitoring (\$15 to \$35 per month).



Smart Home Standout

**SAMSUNG SMARTTHINGS ADT HOME
SECURITY STARTER KIT F-ADT-STR-KT-1 \$400**

78

PROS: The Samsung system is easy to use, doubles as a smart home hub and connects to a wider variety of devices—such as window blinds and water shutoff valves—than the other systems we tested. **CONS:** Setup can be complicated, the system does not support security cameras, and additional contact and motion sensors are pricey, at \$30 and \$40, respectively.

Ratings ➤ **Hearth Monitors** Our home security system ratings factor in performance, monitoring options, and available components.

		Brand & Model	Overall Score	Price		Test Results							Features				
Recommended	Rank				Professional monitoring ¹	Security essentials	Security add-ons	Smart home add-ons	Ease of setup	Ease of use	Motion detection	Video quality	What's in the box	Two-factor authentication	Web access	Battery backup	Cellular backup
✓	1	Nest Secure Alarm System Starter Pack H1500ES	89	\$300	Opt.	✓	↓	↓	✓	✓	✓	✓	Base station with keypad, motion sensor, and siren, 2 contact sensors with motion sensing, 2 RF tags	App and web	•	•	With paid monitoring
✓	2	Ring Alarm Kit 5-Piece	88	\$200	Opt.	✓	↓	✓	✓	✓	✓	↓	Base station, keypad, motion sensor, contact sensor, range extender	App and web	•	•	With paid monitoring
✓	3	Abode Essentials Starter Kit	86	\$250	Opt.	✓	✓	✓	✓	✓	✓	✓	Base station, motion sensor, 1 door sensor, 1 key fob	Web only	•	•	Requires fee
✓	4	Frontpoint Safe Home Everyday	85	\$70 ²	Req.	✓	✓	✓	✓	✓	✓	✓	Base station, keypad, 2 motion sensors, 3 contact sensors, yard sign	App only	•	•	Yes
✓	5	SimpliSafe The Essentials SS3-01	83	\$270 ³	Req.	✓	✓	✓	✓	↓	✓	✓	Base station, keypad, 3 contact sensors, 1 motion sensor with pet mode	NA	•	•	Yes
✓	6	Samsung SmartThings ADT Home Security Starter Kit F-ADT-STR-KT-1	78	\$400	Opt.	✓	✓	✓	↓	✓	✓	NA	Security hub with touch screen and siren, pet-ready motion sensor, 2 contact sensors	NA	•	•	With paid monitoring
	7	Scout DIY Home Security Small Pack SC-MID-SKT-02	70	\$300	Opt.	✓	↓	↓	↓	↓	✓	NA	Base station, door sensor, 2 contact sensors, motion sensor, 2 key tags, RFID sticker	NA	•	•	Requires fee
	8	Honeywell Home Smart Home Security Starter Kit RCHS5230WF1008/W	69	\$450	None	✓	↓	↓	✓	↓	↓	✓	Base station with camera, 2 contact sensors, key fob	App only		•	No
	9	iSmartAlarm Preferred Home Security Package ISA3	62	\$200	None	✓	↓	↓	↓	↓	✓	↓	Base station, motion sensor, 2 contact sensors, 2 key fobs	NA			No
	10	Ooma Smart Home Security Starter Pack	57	\$180	None	↓	↓	↓	✓	↓	✓	✓	Base station with VoIP, 2 contact sensors, motion sensor	NA			No

¹ Professional monitoring can be required (Req.), optional (Opt.), or not available. ² Requires a 3-year contract for professional monitoring, starting at \$35 per month. The system can also be purchased for \$350 with a 1-year contract for professional monitoring, starting at \$35 per month. ³ Requires a month-to-month plan for professional monitoring, starting at \$15 per month.

HOW WE TEST: Our **Security essentials** test assesses whether a kit contains the basic devices necessary to monitor a home. For **Security add-ons** and **Smart home add-ons**, we evaluate each system's capacity for extra

features, such as the ability to integrate smoke alarms and lighting. Our experts then judge each system for **Ease of setup** and **Ease of use**. The **Motion detection** test is an evaluation of the systems' motion sensors to ensure that

they detect the presence of people of different heights at varying distances and walking speeds. For **Video quality**, we evaluate the cameras in good light, low light, and zero light (to test night vision), using a unique scene designed

by CR engineers to expose weak spots in cameras. ("NA" means security cameras are not available for the system.) **Overall Score** is based on the performance of the product and an evaluation of available features.

[CONT. FROM PAGE 20]
is triggered," Deitrick says. Still, some homeowners—such as those who travel frequently or have spotty cell-phone reception—may find that professional monitoring provides peace of mind that's worth the added price.

Professional monitoring can be offered on a short-term or month-to-month basis or on a contract of a year or more. Long-term contracts

generally lock in a price; short-term or month-to-month monitoring allows you to cancel without penalty, but the company could raise prices at any time.

Cut Through the Confusion

For all their convenience, DIY security systems can be a challenge to shop for: Each brand offers a slightly different combination of components you can expand on. Manufacturers may also add

functionality or change the systems' configurations and names over time. All of that makes it tough to do an apples-to-apples comparison.

Our expert advice on which components you'll need and how much you'll have to spend, the pros and cons of our recommended models, and our ratings and detailed evaluations of 10 widely sold systems will help you find the best one for your home.

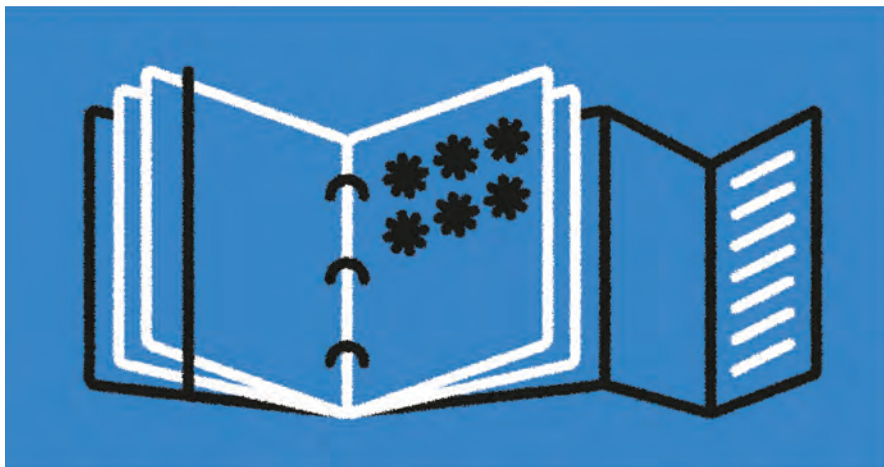
Your Guide to Digital Privacy





Welcome to the age of ordinary objects that stealthily spy on us—from inside our cars, our homes, and our offices. That smartphone game you play in a waiting room, the mobile app that gives you a weather forecast, the photo you share with online friends—all have the ability to reveal intimate details about your life. Our increasingly digital world has created mountains of data, and there are precious few laws to safeguard the information. But that doesn't mean you can't protect yourself. According to one of three nationally representative Consumer Reports surveys that guided this special report, 60 percent of Americans now bar mobile apps from accessing the camera, GPS data, and contact list on their phones. And half protect their online accounts with two-factor authentication.* In the pages ahead, we'll provide you with more ways to protect your personal data and we'll answer key privacy questions about technologies from smart speakers to fitness trackers. Here's how to take charge of your digital domain.

**ILLUSTRATIONS BY
GIACOMO BAGNARA**



OLD-SCHOOL OPTION

The Case for a Paper Password Notebook

When it comes to protecting your online and mobile accounts, many security experts recommend a password manager. Software supplied by services such as Dashlane and LastPass, or built into popular web browsers, can help you generate and deploy strong passwords across all your devices.

But password managers aren't for everyone. Setting them up requires some technical savvy, not to mention a modest investment of time and occasionally money.

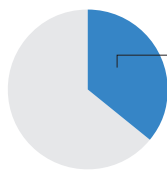
Chester Wisniewski, a principal research scientist at the cybersecurity firm Sophos, says one old-fashioned alternative can be almost as good: Writing down well-crafted passwords on paper, then hiding

them away in a safe place at home.

The pen-and-paper method works particularly well for people like Wisniewski's parents, who need only a limited number of passwords, for sites such as Amazon, Gmail, and Facebook.

"The important thing is to never use the same password twice," Wisniewski says. "They should also be long and complex."

Use a lengthy, random string of lowercase letters, uppercase letters, numbers, and characters such as @, #, and \$. Keep the notebook in a place where visitors won't see it. And be careful not to lose it. Otherwise, you're looking at a future filled with "forgot my password" requests.



DO YOU USE A PASSWORD MANAGER?*

36% SAY YES.

Security experts say this is a wise move, but what's most important is having strong, unique passwords for each account.



SEARCH SAVVY

DUCKDUCKGO

Each time you do a web search using Google, the company archives the details of that search, alongside data on your web-browsing history, to help target you with personalized ads. (The company serves ads to millions of sites, and it can note each time you go to those sites, too.) With DuckDuckGo, you can avoid that tracking. The search engine delivers the info you request without building a user profile, generating revenue by showing you ads related only to that single query. Type in "women's running shoes" and appropriate ads pop up on DuckDuckGo's results page—and nowhere else.

30-SECOND FIX

TURN OFF FACEBOOK FACIAL RECOGNITION

Facebook says it uses facial recognition to spot fake accounts and to help people tag friends in photos, but never to target users with ads. No matter how it's used, the technology itself can seem intrusive, and Facebook announced a new setting in late 2017 to let people turn it off. Nearly 18 months later, a CR investigation showed that not all users had received the promised Face Recognition setting. (Our finding was cited by the Federal Trade Commission in announcing its \$5 billion settlement with Facebook this summer.) **TO TURN THE FEATURE OFF ON ALL DEVICES VIA YOUR DESKTOP**, click the arrow at the top right of any Facebook page and choose **Settings > Face Recognition > Edit > No**. Don't have that setting? This works: Go to **Settings > Timeline and Tagging > Who sees tag suggestions...? > No one**.

THE DEEP CLEAN

How to Search and Destroy Your Old Accounts

People have been accumulating online accounts since the days when AOL recruited members using CD-ROMs. Unfortunately, not everyone remembers to delete the accounts they no longer use. And the data in these accounts can expose you to identity theft, phishing scams, and other security threats. "Understanding what's out there about you on the internet is very important," says Micah Hoffman, principal investigator at the cybersecurity firm Spotlight Infosec. "Companies may still be collecting your personal info. And when there's a data breach, attackers can use your log-in credentials to try to sign in to other accounts." So how do you conduct a Marie Kondo-style purge? Use these tools and tips to flush out the ghosts of internet past. Then look online for instructions on how to delete them.



EMAIL

Search your email accounts (new and old) for phrases such as "welcome to," "new account," "password," and "confirm your email" to surface the messages you received when you signed up for services. It might be wise to hold on to old email accounts a bit longer, too, in case you need to reset an account password before the purge is complete.



SEARCH ENGINES

Type your favorite usernames into **Bing**, **DuckDuckGo**, and **Google** to locate profile pages and public posts from your old accounts. The results will vary by search engine. Try hunting for your name and former email addresses, too.



SAVED LOG-INS

If you've allowed your web browser to save usernames and passwords, you can review the archived list to find old accounts. Instructions vary by browser. In Chrome, the most widely used option, click on the three dots in the upper right corner and go to **Settings > Passwords**.



GOOGLE AND FACEBOOK LOG-INS

Any app, website, or game you logged in to using Facebook or Google will be listed on those sites. On Facebook, click the triangle in the top right of any page and go to **Settings > Apps & Websites**. On a Google page (such as Google Search, Gmail, or Calendar), click the grid icon near the top right and go to **Account > Security > Signing in with Google**.



SPECIALIZED SEARCH TOOLS

Go to the website **Have I Been Pwned** to see whether any of your email addresses or passwords have been exposed in a data breach at a service where you have an account. (In addition to reminding you of forgotten accounts, any hits should prompt you to change your password.) Next, go to **KnowEm** or **Namecheck.com**. Sites such as these help entrepreneurs head off trademark problems by revealing whether a potential username has been claimed on a popular platform. That's a great way to learn where your own username appears, too.

SNEAKY GADGET

Smart Speakers That Listen When They Shouldn't

If you own a smart speaker, you should be mindful about the internet-connected microphone that lives inside it, according to David Choffnes, Ph.D., an associate professor of computer science at Northeastern University in Boston. How does he know? Well, he and Daniel Dubois, Ph.D., are conducting a privacy study on smart speakers in consultation with CR, and they have some interesting early results.

The team started with the leading brand, setting up four identical Amazon Echo speakers, each programmed to respond to a different wake word: **Alexa**, **Amazon**, **Computer**, or **Echo**. Then they exposed the devices to lots of conversation by playing three audiobooks and nine episodes of the super-talky turn-of-the-millennium TV show "Gilmore Girls."

The results? During the "Gilmore

Girls" marathon, the speakers started recording snippets of dialogue 10 times without hearing the correct wake word.

During the audiobook test, the team recorded 63 false positives in 21 hours.

Some of the false positives sounded a lot like an official wake word. (See examples at right.) Others? Not so much. There was some good news: When a speaker was fooled into responding to a false wake word, it stopped recording within seconds, Choffnes reports.

We called Amazon for an explanation. "In rare cases," a spokeswoman said, "Echo devices will wake up due to a word in background conversation sounding like Alexa or one of the other available wake words." The company continues to work hard to improve the speakers' performance, she said.

Here are bits of dialogue that appeared to trigger the speakers in Choffnes' lab:

MISTAKEN FOR ALEXA

I need medical assistance • It's actually • I like [plus any word that begins with "S"] • A later [plus another word]

MISTAKEN FOR AMAZON

This is on • It was • There were none • As soon as • Last night • There was also • Eyes were wide

MISTAKEN FOR COMPUTER

Confident • Kiro

MISTAKEN FOR ECHO

Marco • Echoing • That's also

We also asked CR staffers and members of our Facebook groups for examples of accidental wake words:

MISTAKEN FOR ALEXA

Election • I like some

MISTAKEN FOR ECHO

Petco • Pickles

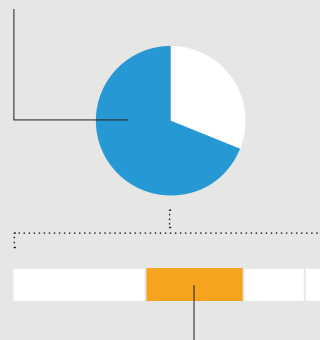
MISTAKEN FOR GOOGLE

Good girl • Goofball

MISTAKEN FOR SIRI

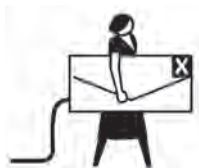
Seriously • Hey, sir

DO YOU WATCH WHAT YOU SAY AROUND YOUR SMART SPEAKER?*
69% SAY NO.



WHY NOT?
32% OF THOSE RESPONDENTS say they don't worry because the speaker listens only if you use a wake-up word.





ENCRYPTED EMAIL PROTONMAIL

Free email services, such as Gmail and Yahoo Mail, may scan your communications for anything from ad targeting to integrating mail with other apps. If that turns you off, consider shifting to ProtonMail. The service offers end-to-end encryption, which makes the contents off-limits to anyone but you and the recipient. Better yet, ProtonMail doesn't collect data on its users. In fact, you don't need to provide any personal info to register for an account. Drawbacks? The encryption hinders inbox searches. The 500-megabyte storage limit for the free service is low. And if you forget your password, you're in trouble: ProtonMail is so hands-off, it can't help you reaccess your emails.

PRESSING QUESTION

What's the Best Way to Sign In?

When you sign up for an app or a web account, it's very tempting to use those log-in tools provided by Facebook and Google that enroll you with a single click. But you're better off **creating your own username and password.**

"That way, you don't have to give Facebook or Google yet another way to monitor what you do online," says Justin Brookman, director of consumer privacy and technology policy at CR. Be sure the password you create is strong, Brookman adds. (Don't use Password123, and don't recycle one from another account.)

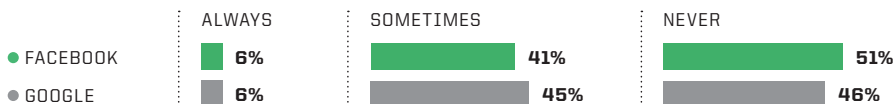
One argument for counting on the tech giants for your log-ins is their world-class security expertise. But "there's no such thing as perfect security," says Casey Oppenheim, founder of the security firm Disconnect. Early this year, for example, Facebook discovered that the passwords of hundreds of millions of users had been stored unencrypted on its servers.

When Apple releases its new log-in feature this fall, though, Oppenheim says it may be worth reconsidering his advice—at least from a security point of view. The feature, Sign In with Apple—which, much like Google Login, operates independently of the company's password manager—protects your email address by using your Apple ID instead. It uses Face ID or Touch ID for two-factor authentication. And it can generate random email addresses for new accounts that you simply delete if the accounts flood your inbox with spam. "The idea is frankly awesome," Oppenheim says, but much depends on the real-world details. "The jury's still out."



DO YOU USE FACEBOOK OR GOOGLE TO SIGN IN TO OTHER ACCOUNTS?*

Americans who have accounts on those platforms are almost evenly split on the question. Privacy and security experts say it's better to create individual log-ins for each account you create.



30-SECOND FIX

HOW TO DELETE ALEXA RECORDINGS

Amazon, Apple, and Google have at times had humans review bits of dialogue recorded by their smart speakers to improve their voice computing technology. To delete select recordings and place limits on the use of such data, you have to dip into the settings on the device's mobile app. But Amazon recently made things slightly easier with two new voice commands: "Alexa, delete what I just said" and "Alexa, delete everything I said today." Before you can use the feature, you have to activate it.

ON THE ALEXA APP:

Tap the three bars in the upper left and choose **Settings > Alexa Privacy > Review Voice History >** and flip the toggle switch to enable deletion by voice.



PRESSING QUESTION

Is Public WiFi Still Dangerous?

You've probably read the advice countless times (we've given it ourselves): Don't use the WiFi in coffee shops, airports, and other public places, especially for sensitive activities, such as checking a bank balance. But are those worries outdated?

These days most websites use encryption to protect information as it travels back and forth between your device and the web. Whenever you check email, shop on Amazon, or read an article on the Consumer Reports website, you see a little



lock symbol and "HTTPS" in the address bar of your browser, indicating that encryption is at work scrambling the data in transit. Even if hackers intercept, say, an email, they will be hard-pressed to decipher what it says.

Does that make WiFi a danger-free zone?

Not quite, says Gary Davis, chief consumer security evangelist for the antivirus software maker McAfee. "Things are much safer now," he explains, "but that doesn't mean all the threats have gone away."

First, PDFs—of medical records, bank statements, and so on—are transmitted in an unscrambled format. Second, there's no way to see whether most mobile apps employ HTTPS. And, finally, encryption isn't always deployed correctly. One study conducted by researchers in Europe concluded that the security of a significant number of websites had been severely harmed by "cryptographic weaknesses."

How to stay safe? Many tech-savvy folks connect to the internet using a secure VPN (virtual private network) app. But you also might try using a cellular connection, because cellular signals are less likely than WiFi to get hacked. That's easy to do on a phone—just don't join the public WiFi network. If you're using a laptop or tablet, you can set up your phone as a WiFi hotspot—although access to that feature depends on your cellular plan.

This will burn through some data. It might also leave you with a slow connection. Or you could just use the WiFi and stay off sensitive sites. "Will I log on to my bank account on the Starbucks WiFi?" asks Chester Wisniewski of the cybersecurity firm Sophos. "No. But will I log on to Twitter? Sure."

30-SECOND FIX

LIMIT GPS TRACKING

The apps on your smartphone don't need to know where you are at all times, especially when you're not looking for a traffic report, weather forecast, or dining hotspot. Here's how to limit access to your phone's GPS data. (Apps may still use WiFi signals and other clues to infer your location, but the data is typically less precise.) While you're at it, you can use these settings to control access to your contacts and photo library, too.

ON AN IPHONE: Go to **Settings > Privacy > Location Services**. Then toggle the control off to stop GPS data from being transmitted. Or tap on each app individually to control which ones get access "always," "never," or "while [you're] using" the app.

ON AN ANDROID PHONE: Go to **Settings > Google > Location** and flip the toggle switch or scroll down to **App-Level Permissions**.



DATA BLACK MARKET

WHAT YOUR INFO SELLS FOR ON THE DARK WEB

Data stolen by hackers is often sold through online forums on the dark web. Here's what that personal info is worth, according to Emily Wilson, vice president of research at the security firm Terbitum Labs.

Log-In Credentials

PRICE: A FEW DOLLARS

Username and password combinations for email, music streaming, and retail accounts aren't worth as much as you might expect, Wilson says. Criminals will often dump lists with tens of thousands of entries onto the internet, driving prices down.

Credit Card Info

PRICE: UP TO \$250

Tens of millions of credit card numbers are for sale online, Wilson says. The vast supply—plus the fact that numbers from old data breaches might no longer be valid—can limit the price to 50 cents apiece. But the price for a card with a high credit limit—think American Express Centurion card—can stretch into the hundreds.

'Fullz' Data

PRICE: UP TO \$300

A complete digital profile—name, date of birth, billing address, Social Security number—opens the door for identity theft. A standard kit can cost anywhere from 50 cents to \$50, Wilson says. But an infant's profile can claim \$300 because the fraud it enables can go undetected for decades.



SNEAKY GADGET

The Spy in Your Pocket

You're sitting in the kitchen with your spouse, chatting about island getaways, and minutes later an ad for a Bahamas cruise pops up on Facebook.

If such incidents have you convinced your phone is listening to you, you're not alone. (See statistic below.) But, surprise: Security experts say you're not entirely correct. You're right to think the technology industry is keeping close tabs on you—just not with your phone's mic.

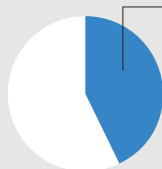
Researchers led by Northeastern University associate professor David Choffnes, Ph.D., analyzed more than 17,000 widely used apps on the Android operating system and didn't find a single instance where an app activated a phone's microphone and leaked audio data without permission.

Wandera, a mobile security company, performed a similar study, focusing on high-profile apps such as Amazon, Chrome, Facebook, Instagram, and

THINK YOUR PHONE SECRETLY LISTENS?*

43% SAY YES.

But security experts who study the question say no. Your phone does snoop on you—just not with its microphone.



YouTube. And, just like Choffnes' team, it found no evidence of secret recordings.

The researchers weren't surprised.

Choffnes says the speech-to-text translation required to mine that audio data is relatively poor in quality. "It's just not an effective way to spy on people, compared to the extensive web and mobile app tracking ecosystem put in place by the major tech platforms, advertisers, and data brokers."

So what's really going on? People underestimate just how much data companies such as Google collect through methods having nothing to do with microphones, says Clay Miller, chief technology officer for the mobile security firm SyncDog. The sites you visit; the products you buy or simply read about; the places you live, work, and travel; and other personal details can help marketers decide precisely which ads to show you—especially when they can compare the data with the information on tens of millions of other people. At times, the process can seem like magic.

Not that apps don't do some dodgy things. For instance, the Northeastern study found about 9,000 apps with the potential to take and transmit screenshots of the app in use on a person's phone—potentially recording information as it's being entered and sharing it with third parties.

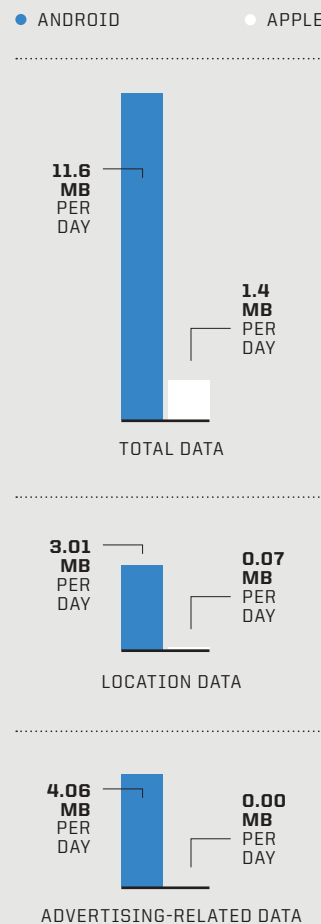
For what it's worth, mobile apps often suck up GPS and contact list data, too. To reduce such privacy intrusions, take a moment to read the permissions before installing an app, review those permissions on your phone every now and then (see the facing page), and avoid using Facebook and Google log-in features (page 29).

A TALE OF TWO PHONES

ANDROID VS. APPLE

Smartphones collect all sorts of info about us—even when we're not using them. In 2018, Douglas C. Schmidt, a computer science professor at Vanderbilt University in Nashville, Tenn., set out to see how often Android phones and iPhones quietly send data back to the servers of their respective mother ships (Google and Apple). The results may surprise you.

In a typical day, Google's servers requested info from an Android phone 90.3 times per hour. Apple's servers? A less frequent 17.9 times per hour. Charted below is the volume of data relayed by each phone in that 24-hour stretch, including the approximate amounts used for location tracking and interaction with ad servers.



THE RIGHT TO REMAIN PRIVATE

Where Federal Law Lets You Down

"There are shockingly few legal privacy protections in the United States," says Maureen Mahoney, a policy analyst at Consumer Reports.

No federal law provides the kind of broad consumer rights granted in 2018 by the European Union's General

Data Protection Regulation. However, scandals involving Facebook, Google, and other tech giants are helping to raise interest in such legislation.

For instance, 63 percent of Facebook users say the company shouldn't be allowed to collect data on them when

they're not using Facebook, according to a January 2019 CR nationally representative survey of more than 2,000 U.S. adults.

"We still have a long way to go nationally," Mahoney says. "But a number of state legislatures have stepped up and passed privacy laws of their own." (See details, below.)

For now, the following national laws provide some protections for consumers.

Federal Trade Commission Act

This law prohibits "unfair or deceptive" business practices. That means companies are prohibited from making misleading statements about how they handle your data. However, as long as they adhere to the terms in their privacy policies and user agreements, which can be vague and filled with jargon, the companies are mostly free to collect and use information as they see fit. It wasn't the voluminous data gathering or the way information was shared that led to Facebook's recent \$5 billion settlement with the FTC. It was the misleading statements the company made about the control that consumers had over that personal information.

Health Insurance Portability and Accountability Act

HIPAA limits what healthcare providers can do with your medical data, preventing doctors, insurance companies, and billing firms from disclosing that info without permission. But it does not necessarily protect info collected by a smartwatch, reproductive health app, or direct-to-consumer genetic testing service. Unless the info ends up in a healthcare provider's files, it has the same limited protections as other data about you.

Children's Online Privacy Protection Act

COPPA requires companies to get verifiable parental consent before collecting info from children younger than 13. Firms must also explain how the data might be used, properly secure the information, and provide parents with the means to delete it. Yet once consent is granted, such data is fair game, albeit generally off-limits to third parties. The problem is, digital toys and apps are often useless without a quick sign-off. Additionally, YouTube has been accused of violating COPPA. Despite its many child-oriented videos, YouTube says in its terms of service that the site is intended for teens and adults.



THESE STATES ARE PRESSING AHEAD WITH LAWS THAT COULD BECOME MODELS FOR NATIONAL LEGISLATION



CALIFORNIA

The California Consumer Privacy Act is on track to become the country's most sweeping privacy law when it takes effect Jan. 1. The law gives consumers the right to access, delete, and opt out of the sale of personal data.



ILLINOIS

The Biometric Information Privacy Act, passed in 2008, governs companies that collect and use fingerprints and facial recognition data. Amazon, Facebook, Google, and Six Flags have all been sued over alleged violations. Texas and Washington have similar laws, minus the individual's right to sue.



MAINE

The Act to Protect the Privacy of Online Customer Information, signed into law this year, places new restrictions on the state's internet service providers. They generally can't use or sell residents' personal information unless the customer opts in. And they can't charge people more for refusing.



OREGON

HB 2395 mandates "reasonable security features" for most products that connect to the web. That can include supplying unique passwords or requiring users to create one—practices that could help prevent malicious strangers from hijacking baby monitors and home security cameras.



VERMONT

Act 171 of 2018 is the country's only law to specifically regulate data brokers, those companies that stealthily collect and monetize people's personal information. The firms are required to register with the state and provide annual updates on their business practices.



ADVANCED ADVICE

PRIVACY TIPS THAT NEED MORE EXPLAINING

We love tips and tricks for protecting your privacy—there are many on these pages. But some widely repeated techniques don't do as much as you might think.

\$ecret P@sswOrd C0de

Strong passwords are hard to remember. That's why many people try tactics such as taking a familiar word and replacing the "A's" with "@'s" and "E's" with "3's." But these days criminals have software capable of beating those kinds of ploys. The best passwords are long, random strings of letters, numbers, and special characters.

Fake Social Media Names

A clever online pseudonym may protect you from the prying eyes of friends, family, and some data collectors, but it won't throw companies such as Google off your trail. They use digital breadcrumbs—email addresses, phone numbers, WiFi network locations, and ID numbers tied to your devices—to keep track of who you are and what you're doing online.

Incognito Mode

The incognito or private mode on your web browser can hide your online behavior from other people who use your computer. It may also stop companies from storing trackers such as cookies on your laptop. But it won't necessarily conceal your identity, location, or activity from your internet service provider or a website you visit.



PRESSING QUESTION

Should I Use a Workplace-Provided Fitbit?

We asked Dena B. Mendelsohn, senior policy counsel at Consumer Reports. Here's what she says:

Some people may find company-sponsored fitness trackers to be a helpful way to pursue their fitness goals.

But keep in mind that the information collected by trackers, as well as

health-related tech products, such as at-home blood pressure monitors, smart scales, and health apps, is not automatically protected by U.S. privacy laws, even if the device is used for medical reasons. (See "Where Federal Law Lets You Down," on the facing page.)

The data on a fitness tracker does not qualify as health information. If I track my weight in an app, that's not health information. To be protected by the Health Insurance Portability and Accountability Act, the information must be created, transmitted, or maintained by a HIPAA-covered entity, such as a healthcare provider, an insurer, or a data clearinghouse responsible for billing.

Before giving up any health data in a wellness program, ask who will see the information and whether it might be shared with others. If your company's program is run by an insurance provider, HIPAA may apply. But if the program is run by a third-party company that's not HIPAA-covered, it may not.

It can get pretty confusing. For instance, if Aetna gives me a tracker and I use it, the data generated is generally not HIPAA-protected until the information goes back to Aetna and is included in Aetna's records on me. Then it does fall under HIPAA.

In short, there's no clear way for the average person to know what protections apply and when. That's why Consumer Reports wants to see a law passed that takes away the guesswork.

30-SECOND FIX

ENABLE TWO-FACTOR AUTHENTICATION

WHAT BEST DESCRIBES YOUR USE OF 2FA?*

39% SAY "WHAT'S THAT?"— yet this common setting is crucial for online security, according to experts.

Security experts say everyone should use multifactor authentication, when it's offered, to protect important online accounts. The goal is to block hackers from gaining access, even if they've acquired your password. Once you turn on a company's 2FA setting, you'll need to provide info in addition to the password any time you try to access the account from an unverified location or device. Typically, the company will send you a verification code by text or via an app. Without the second identifier, hackers armed with a stolen password get blocked. Setting up 2FA is usually easy.

AS AN EXAMPLE, FOR YOUR GOOGLE ACCOUNT, go to your Gmail inbox or any other Google page. Then click the grid icon in the top right and go to **Account** (you may need to sign in first) > **Security** > **2-Step Verification** > **Get Started**.



SNEAKY GADGET

The Oversharing Camera

When you take a snapshot with a digital camera, including the one on your smartphone, the device captures data about where, when, and how the image was recorded.

And when you share that picture with someone else, that information, called Exif data, typically goes along for the ride.

That's how mobile apps and storage services, such as Google Photos and iCloud Photos, know how to sort your Springsteen summer tour pictures by place and date.

Facebook, Instagram, Twitter, and other sites hide the data from the public, but they reserve the right to use it themselves to enhance their services.

"People should be aware that when they upload a photo, there is more to it than just the pixels they see," says University of California, Berkeley, computer science professor Hany Farid, a leading researcher on digital forensics.

Imagine, for instance, what a private investigator, savvy thief, or stalker could learn about your weekly routine simply by using the Exif data in your photo archives.

Most smartphones don't have built-in tools for removing the data, but free apps for Android and Apple phones can help you do it.

"If you are really worried, just take a screenshot of the photo and share

that instead," says Bobby Richter, who oversees privacy and security testing at CR. "Screenshots typically don't include the same sensitive metadata as photos from a camera."

For some people, though, the only bit of Exif data that feels too personal is the info on where the photo was taken. "That's a pretty serious privacy issue," Farid says. "You know where [those in the picture] are at a given time of day."

If you want to keep that location information out of your images, simply revoke the camera app's access to the GPS function on your device.

In iOS, go to **Settings > Privacy > Location Services > Camera > Never**.

Instructions for Android devices vary by model, but typically you need to open **Settings > Lock Screen & Security > Location > App-Level Permissions** and switch the toggle off for **Camera**. On certain Android devices, camera apps have their own GPS setting.

To strip out the location data from photos stored on your computer, do the following.

In Windows, right-click on the image file, then **Properties > Remove Properties and Personal Information**.

In MacOS, open the photo in Preview, then **Tools > Show Inspector > Remove Location Info**.



BETTER MESSAGING SIGNAL

This isn't the only messaging app to provide end-to-end encryption, scrambling data so that only the sender and recipient can read the contents. But Signal—available on Android phones, iPhones, and desktops—stands out for several reasons. It lets you send messages that self-delete from both parties' phones (though the recipient could preserve the contents in a screenshot). And according to its creators, the service does not store your user name, location, or data related to your contact list—info that others, such as Facebook's WhatsApp, can use for marketing. Signal has even tested a feature that lets you encrypt other metadata, so would-be snoops can't identify who wrote the texts.

ILLUSTRATION (MAN PULLING SHADE DOWN): JASON SCHNEIDER

Reporting by Bree Fowler, Thomas Germain, Ian McClure, Chris Raymond, and Allen St. John

THE DEEP CLEAN

Wipe Data From Your Car Before Selling It

These days, vehicles collect and store all kinds of personal data—everything from the songs on your playlist to the locations you frequent to how firmly you apply the brakes. And if you're not careful, the data can travel on to your car's next owner. "That's why it's important to know your car," says CR auto analyst Mel Yu, who offers these tips for seeking and destroying the data. For more detailed instructions, consult the owner's manual for your particular vehicle.



UNPAIR ALL BLUETOOTH DEVICES

By deleting the connection to your smartphone, you protect info routinely shared for contacting friends, listening to music, and using GPS directions.



RESET THE GARAGE-DOOR OPENER

If you use a universal application, such as **HomeLink**, for example, you don't want it to be sharing codes that grant access to your home. To erase them, press and hold the two outer HomeLink control buttons until the red light flashes.



RESET TELEMATICS SERVICES

Blue Link, **FordPass**, and **OnStar** can all send data from a car to the cloud, even if you don't have a current subscription, Yu says. Look for an SOS or call button on the rearview mirror or overhead console. Press it and you will be connected to a live operator, who can help you change the account owner information.



LOG OUT OF CLOUD ACCOUNTS

Exclusive to certain automakers, they store driver data, including preset radio stations, favorite temperature settings, navigation destinations, and driving history.



REMOVE TRACKING DEVICES

Auto dealers, banks, and insurance companies may attach such devices to vehicles when setting up financing and coverage deals. If buyers don't read the fine print, they might not realize they're there. Once the car is paid off, check with your lender or dealer about disabling them.

DIGITAL WATCHDOG

CONSUMER REPORTS DOUBLES DOWN ON PRIVACY

When it comes to helping people protect their private lives from snoopy corporations and hackers alike, nothing beats a team of engineers, data experts, journalists, and advocates assigned to work on the problem full-time.

That's what CR has been creating over the past few years, and in 2019, we're taking a big step forward with a new project funded in part by a \$6 million investment from Craig Newmark Philanthropies: The **Digital Lab** will develop new ways to empower consumers by testing and reporting on everything from online platforms such

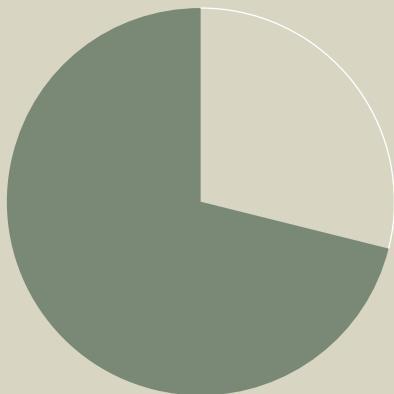
as Amazon and Google to connected thermostats to cars that collect data on their drivers.

"Our digital testing has already shown how products and services we use every day can expose us to many new and potential harms," says Marta L. Tellado, CR's CEO and president. "Consumer Reports' new Digital Lab will reveal precisely how and where our rights are undermined by the unchecked influence of technology. Armed with that knowledge, consumers can make more secure choices that protect our privacy and hold these digital giants to account." Stay tuned.

WILL YOU HAVE ENOUGH MONEY TO RETIRE?


THE FALLOUT FROM THE GREAT RECESSION—INTERRUPTED INCOME AND MOUNTING DEBT—IS RESHAPING WHAT IT MEANS TO SAVE FOR RETIREMENT, AFFECTING FAMILY DECISIONS AT **EVERY LIFE STAGE.** LEARN HOW YOU CAN GET BACK ON YOUR FINANCIAL FEET EVEN IF YOU'RE GETTING A LATE START.

BY PENELOPE WANG



29%

OF BOOMERS, GEN XERS, AND
MILLENNIALS COMBINED
SAY THAT THEY'RE IN
WORSE FINANCIAL SHAPE
THAN THEIR PARENTS
WERE AT THE SAME AGE



PERCENTAGE OF PEOPLE WHO
SPEND 50% OR MORE
OF THEIR MONTHLY
INCOME REPAYING DEBT

26%

BOOMERS

32%

GEN XERS

20%

MILLENNIALS

46%

OF BOOMERS ARE HIGHLY
CONFIDENT THAT **SOCIAL**
SECURITY BENEFITS
WILL BE THERE FOR
THEM WHEN THEY RETIRE

19%

OF GEN XERS ARE HIGHLY
CONFIDENT THAT **SOCIAL**
SECURITY BENEFITS
WILL BE THERE FOR
THEM WHEN THEY RETIRE

Source: Consumer
Reports' 2017 nationally
representative Financial
Security Survey.



Sarra Herzog, 46, and her husband, Marc, 44, appear to have achieved the dream of upper-middle-class financial success. They live in northern New Jersey, in a community noted for its charming Victorian houses, vibrant downtown, and excellent school system. She's a communications director for a biopharmaceutical firm and he's an account executive.

But for the Herzogs, re-establishing financial security has been a 13-year struggle. Marc was downsized from his job in 2006. In the aftermath of the Great Recession of 2008-2009, he found new jobs only to be laid off twice, finally landing a new position earlier this year.

The couple have tried to preserve their priorities. To cope with long periods of reduced income, they slashed their spending while still maintaining college savings for their daughter, Sophia, now 12, as well as paying down credit card debt. "We had to make trade-offs," Sarra says. "I've lowered my 401(k) contribution just to pay the utility bills. We take virtually no vacations, and Marc just got his first pair of shoes in almost three years."

In addition to the years of scrimping, the Herzogs have had to significantly ratchet down their expectations for retirement. "My baby boomer parents recently took a monthlong trip to Australia, but that will never ever happen for my husband and me,"

Sarra says. "I believe the ability for our generation to achieve as much as the baby boomers did is just unreachable."

Dreams Derailed

The Herzogs' financial struggles are shared by many of their Generation X counterparts, a group ranging in age from about 39 to 54. Gen Xers are in quintessential midlife—making mortgage payments, funding college educations, and saving for retirement, which is looming ever closer. The difference between them and other generations is that the Great Recession hit them at a vulnerable moment, just as they were establishing themselves in the workforce and starting to buy homes. And that derailed their efforts to build wealth and long-term financial security.

It's no small wonder that Gen Xers lag behind other generations on most financial measures at this point in their lives. Only 65 percent of people between the ages of 40 and 51 owned their own home in 2016, according to a recent study by the Employee Benefit Research Institute (EBRI), a nonprofit group. But

when today's baby boomers were in that age range, 75 percent owned homes. And fewer Gen Xers have a retirement plan: just 66.9 percent in 2016 vs. 71.5 percent of baby boomers when they were 40 to 51 years old.

Granted, Americans of all ages were hurt by the recession. Nearly 60 percent of workers ages 18 and older say that even now they haven't fully recovered, and 8 percent say they may never recover, according to a recent survey by the nonprofit Transamerica Center for Retirement Studies. Still, those furthest away from retirement—millennials and Gen Xers—seem to have found it the most debilitating. Almost 25 percent of them say they haven't begun to recover or think they may never recover from the recession vs. 19 percent of baby boomers.

Even those who have regained their footing have lost valuable time. Twelve years ago, Mark Schneider, 53, and his wife, June, 48, of Parker, Colo., never thought they would fall so far behind in reaching their goals. The parents of two children, now 14 and 16, they were working in what seemed to be secure jobs, Mark at an investment firm and June at a telecom company. "We were flush," she says. "We used my income for savings and travel, and we ate out a lot."

But in 2008, as the stock market tanked and investment firms cut staff, Mark lost his job. It was two years before he landed a new position, at an insurance company, and it paid far less than he was earning before. The couple couldn't keep up with their living expenses, including June's student loan payments and mounting credit card debt. They declared bankruptcy in 2011 and sold their house. "We survived," June says. "But I never want to go through that again."

After renting for several years, the Schneiders were able to purchase a smaller house last year—1,500 square feet vs. the 3,000-square-foot house they used to own. They're making improvements, including finishing the basement. Further bolstering their

BOOMERS HELPING THEIR GROWN CHILDREN

WHAT'S HEALTHY, WHAT'S NOT

FOR MANY PARENTS, it's second nature to want to make financial sacrifices to support their children, even after they've become adults. More than 7 out of 10 parents say they put their children's interests ahead of their own, according to a 2018 Merrill Lynch Age Wave study. These parents are spending twice as much on adult children (those between the ages of 18 and 34) as they're contributing to their own retirement accounts, adding up to \$500 billion and \$250 billion, respectively.

There's no question that some financial support for adult children may be necessary given today's hefty student loan burdens and the lack of affordable housing in many areas. But often this funding is based on unrealistic expectations, says Manisha Thakor, vice president of financial wellbeing at Brighton Jones, a wealth management firm in Seattle. "The standard of living that many kids think they should have—and that parents think their kids should have—is far beyond the incomes the kids coming out of school can afford," Thakor says.

There's another reason too much generosity isn't a

good long-term strategy. For baby boomers, who have limited time left to build their savings, this kind of gifting may have serious repercussions for their own nonworking years, causing them to run short of money. The burden of their support may fall on their kids, who may end up providing financial help and long-term care, says Mari Adam, a certified financial planner in Boca Raton, Fla.

To avoid this situation, boomers should set ground rules for giving, Adam advises. Sit down with

your children and draw up a timetable for their financial independence. If your over-21 child lives at home, require that she contribute toward rent or groceries. If she doesn't have an income yet, request help in the form of household chores and other responsibilities—for example, ferrying grandma to the doctor. Otherwise, limit your support to gifts that provide long-term value. Here are three other ways to help:

FUND HEALTHCARE COVERAGE.

If your adult child doesn't have health-care insurance from

an employer and can't afford to buy a marketplace plan on her own, consider helping her pay for a policy. If she's 26 or younger, you may be able to keep her on your employer's plan. "The cost of uninsured medical bills and debt could have lasting financial consequences," Thakor says.

CONTRIBUTE TO YOUR CHILD'S ROTH IRA.

If he's earning an income but doesn't have an employer-sponsored retirement plan, consider helping to fund a Roth IRA, says Karen Van Voorhis, a certified financial planner in Norwell, Mass. With a Roth,

contributions are made after-tax, and earnings growth and withdrawals after age 59½ are tax-free. A single person earning less than \$122,000 can put away as much as \$6,000 in a Roth IRA in 2019.

TEACH MONEY SKILLS.

Helping your grown child learn to manage his own finances will have the biggest long-term impact. But he may be more receptive if the lesson comes from someone else, Thakor says. Ask a friend with money expertise to sit down with him over coffee. Or offer to pay for a session with a financial adviser.

THE NEVER-EMPTY NEST

GIVING FINANCIAL HELP TO YOUR GROWN CHILDREN SHOULDN'T MEAN ACTING LIKE AN ATM. GIVE THEM THE TOOLS TO BUILD AN INDEPENDENT LIFE.



finances, they rebuilt their credit and accumulated enough savings for an emergency fund to cover a year's worth of expenses, and June paid down her student loans. "It's great that we're back on track," she says, "but we're only back to where we started." And they have fewer years to save for their kids' college education—and their own retirement.

The Rocky Road to Recovery

For many people, just getting back to where they started is a tough challenge. Median wage growth averaged just 0.3 percent a year between 2007 and 2018, according to the Economic Policy Institute. And yet other essential costs have skyrocketed. Average family healthcare premiums, for example, have climbed 55 percent since 2008, rising twice as fast as workers' wages.

Then there's the recession's most enduring legacy—debt—which has also had a disproportionate impact on Gen Xers. One out of 3 Gen X households is spending at least half its income on debt, a higher percentage

than baby boomers or millennials are spending, according to a 2017 nationally representative survey by Consumer Reports. And a recent study by Experian found that Gen Xers have the highest average total debt of all the generations—\$138,916—nearly 50 percent more than the national average.

That burden of debt compounds an already precarious retirement. Gen Xers have skimpier retirement benefits than previous generations. Only 18 percent expect to receive a traditional defined benefit pension compared with 30 percent of boomers, according to the Transamerica survey.

"Gen X is going to be the first generation to rely mainly on 401(k) and IRA savings for retirement," says Craig Copeland, senior research associate at EBRI. "Whether they can accumulate sufficient assets, as well as manage them for income in retirement, will be a test case going forward."

What's more, for those hit hardest by the recession, the very idea of trying to start saving may seem so daunting

that they lapse into inaction. "It's not surprising that many Gen Xers are paralyzed," says Derek Tuk, a certified financial planner in Boulder, Colo., and a Gen Xer himself.

The statistics bear him out. Only 31 percent of Gen Xers have figured out how much they need to save for retirement, according to the EBRI survey. And that figure is lower than for boomers and millennials. With retirement just around the bend, only 56 percent of Gen Xers say they're doing a good job preparing for it financially, EBRI data show. Among Gen X households with retirement plans, the median account holds just \$60,000. That compares with \$115,000 for boomers and \$15,900 for millennials.

Retooling Your Retirement

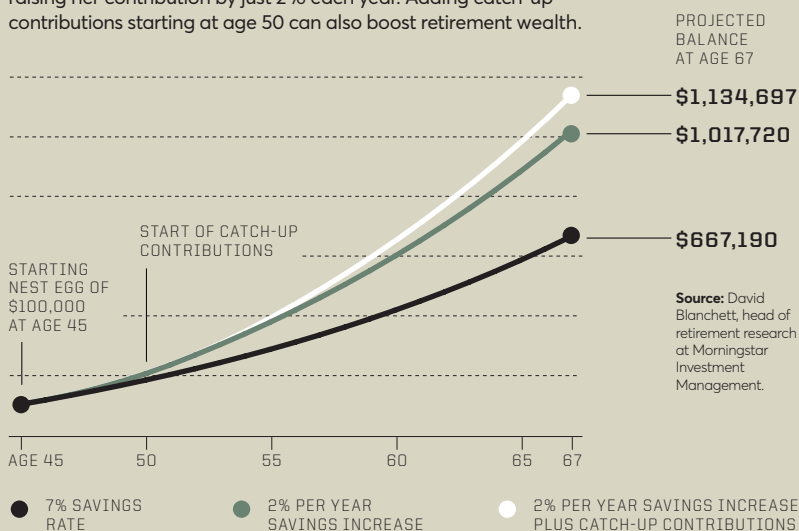
Despite the challenges, it's not too late to achieve a comfortable retirement. "Gen X is at an age where—if they focus—they have time to catch up," says Catherine Collinson, CEO and president of the Transamerica Center. For boomers and millennials as well, the key is to follow a disciplined savings and planning strategy, as we'll explain.

1. SCRUTINIZE YOUR FINANCES. No matter how scary or depressing it seems, you have to face the financial facts of your life head-on. Get a handle on how much you bring home every month after taxes and deductions, and then how much you spend each month. You can do this relatively easily with online tools such as Mint (free) or YNAB (\$84 a year), which can help you monitor your transactions. Your bank or credit card website may also track these numbers for you.

2. CUT THE WASTE. The previous step may lead you to discover fat in your spending, such as paying for overlapping streaming services or making auto-renew payments for a service you no longer need. "I noticed there were Netflix charges month after month," says Guy Richie, 52, a Realtor in Brentwood, Tenn. "They weren't

SMALL CHANGES, BIG GAINS

Someone starting with a \$100,000 balance and saving 7% of her salary in a 401(k) plan can greatly increase her nest egg by raising her contribution by just 2% each year. Adding catch-up contributions starting at age 50 can also boost retirement wealth.



Notes: For workers, the maximum 401(k) contribution is \$19,000 in 2019; those 50 or older can make an additional catch-up contribution of \$6,000. Assumes 7% average annual returns, 2% annual inflation, and wage increases.

significant—\$8 to \$12—so I didn’t spot them before, but it turns out my wife had signed up for a subscription but didn’t even realize she still had it.”

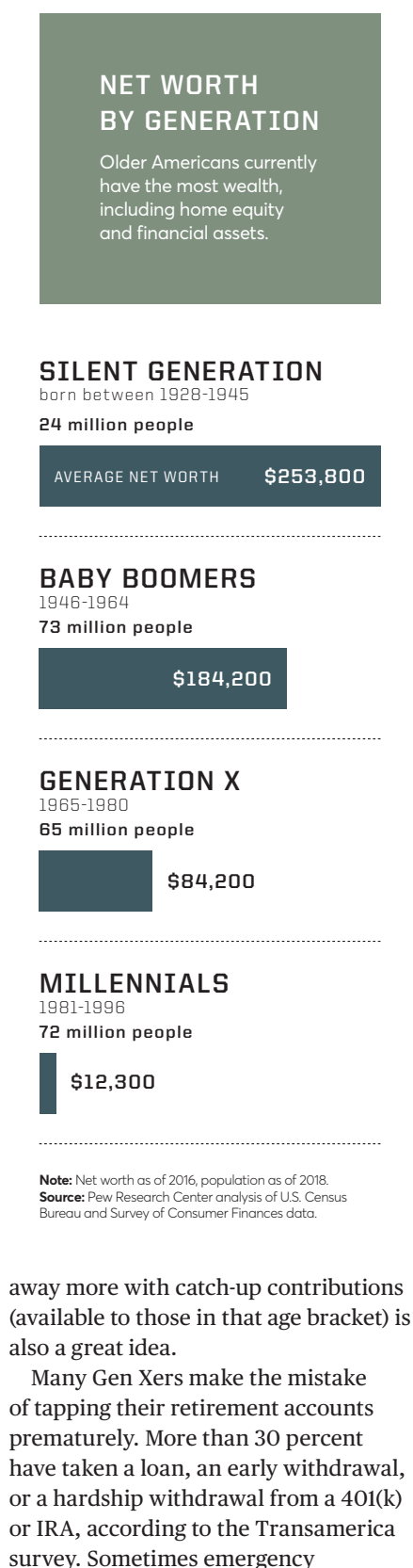
3. DEAL WITH DEBT. If you have credit card debt at a high interest rate, say, 17 or 18 percent, make it a priority to pay that balance down as soon as you can. Mounting credit card debt can be a financial disaster at any age, but once you’ve reached midlife, it can wreck your retirement. “This is a Gen Xer’s kryptonite,” says Mari Adam, a certified financial planner in Boca Raton, Fla. “High-rate credit card debt is toxic.”

The most effective strategy is to target the highest-rate debt first, which will result in a quicker reduction of the balance. But if you need a psychological kick-start, pay off smaller balances first. That “convinces people they’re making progress,” explains Ryan Marshall, a Gen Xer who’s a certified financial planner in Wyckoff, N.J.

4. TAKE A HARD LOOK AT BIG-TICKET ITEMS. To free up significant amounts of cash, you might need to focus on your biggest budget items, which are typically cars, vacations, and housing. For many families, opting for a staycation or postponing a new-car purchase is relatively doable.

It’s tougher to cut back on housing because home prices in many areas are rising. But downsizing may be a practical option, especially if you’re willing to change neighborhoods. “It used to be mainly retirees who left for lower-cost areas,” Marshall says, “but I’m seeing more people in their 50s considering this move.”

5. TREAT RETIREMENT SAVINGS AS SACRED. For Gen Xers and baby boomers with employer-sponsored retirement plans, it’s crucial to take full advantage of the opportunity to save in tax-deferred accounts and get any matching contributions. (If you don’t have a company retirement program or you’re self-employed, opt for an IRA or a solo 401(k) plan instead.) If you’re over 50 and you have the cash to spare, socking



withdrawals are unavoidable, but if you can, try to find another way. When Mari Berryman, a 44-year-old social worker in Los Angeles, wanted to save for a down payment as well as college costs and retirement, the divorced mother of four took part-time jobs in addition to her full-time job at a kidney dialysis center. “I’m trying hard not to touch my 401(k), so I pretend like it’s not there,” says Berryman, who expects to reach her down-payment goal in early 2020.

6. STAY EMPLOYABLE. One of the most effective ways to improve your financial security is to work longer, says Geoff Sanzenbacher, associate director of research at the Boston College Center for Retirement Research (CRR). The average annual growth rate of workers 55 years old and older is projected to be 1.8 percent this year, more than three times the rate of growth for the overall labor force, according to the Bureau of Labor Statistics. Someone earning an average wage who starts saving at age 45 would need to put away 27 percent of his salary annually to retire comfortably at age 65, according to CRR’s research. Aim to retire at age 70 and he would need to save just 10 percent.

But the harsh reality is that many older workers get pushed out of their jobs. A recent AARP survey of 3,900 adults ages 45 and older found that 61 percent reported they had experienced or witnessed age discrimination in the workplace. To stay employable, take advantage of training opportunities offered by your employer or develop new skills outside your workplace, says Kerry Hannon, author of “Great Jobs for Everyone 50+: Finding Work That Keeps You Happy and Healthy ... and Pays the Bills” (Wiley, 2017). Or start planning to make a transition to a second career, a process that could take three to five years, or find a part-time job.

—Additional reporting by Tobie Stanger

BEYOND
MEAT



MEAT GETS

New plant-based patties are showing up in restaurants and in meats may be coming soon. Are they safe? Healthy? Tasty? And

++
SPECIAL
REPORT



IMPOSSIBLE
BURGER

A MAKEOVER

grocery stores, and lab-grown
will they save the environment?

BY
RACHEL
RABKIN
PEACHMAN

PHOTOGRAPHS
BY
SAM
KAPLAN

A writer walks into a burger joint with a mission: to sample the burger options—whether made from plants or animals.

Why? The offerings have recently become more plentiful, interesting, and confusing now that companies—in particular Beyond Meat and Impossible Foods—have started selling high-tech plant-based patties.

Designed to have the look and feel of meat, these new-generation veggie burgers are targeted to people looking to reduce their beef consumption and swap in, they hope, nutritious meatlike meals that take less toll on the environment than factory farming, don't harm animals, and still taste good.

Also on the horizon—but not yet on the menu—are lab-grown meats and fish. These are foods made by taking cells from animals and multiplying them into fleshy, edible muscle tissue in a bioreactor rather than raising animals on farms to slaughter.

In other words, "meat" as we know it is getting a makeover. And to fully understand the new offerings, I had to see, smell, feel, and, of course, taste them myself.

So a few colleagues and I headed to a Bareburger, a chain that specializes in organic and vegetarian food, and ordered a beef burger and three plant-based ones: a Beyond patty, an Impossible patty, and a bean-and-veggie patty.

I found the Beyond and Impossible burgers to be surprisingly meatlike. (For a professional take from CR's taste testers, as well as a nutritional analysis, see the facing page.)

But even meatier was the discussion about how these alternatives might impact the marketplace, our health, the environment, and the future of food. Are the new options harbingers of a food revolution that will feed the world without animal cruelty or environmental

harm? Or will they unleash unforeseen health risks and disruptions to our ecosystem? Or something in between?

Finding answers to those and other questions isn't easy, partly because there's not yet much research on some of the products. CR's food safety experts, in fact, caution that some companies may be moving faster than the research warrants.

Still, people are intrigued. Though plant-based "meat" accounts for less than 1 percent of retail meat sales, the market for the products grew 13 percent last year, with 15 million U.S. households purchasing them at least once, according to the Good Food Institute, an organization that promotes plant- and cell-based foods.

Other evidence of growing consumer interest: Impossible Foods says popular demand led to temporary shortages of its burgers in restaurants over the summer. And Beyond Meat's initial public offering last May was wildly successful, with its stock trading about 600 percent above its initial price when we went to press.

Perhaps seeing the opportunities, Tyson, a major producer of chicken, beef, and pork, says it plans to launch its own plant-based nuggets and "blended" burgers, made with plant proteins and meat. The company has also invested in lab-grown-meat companies, such as Memphis Meats and Future Meat Technologies.

But many consumers are unclear on what these foods are. And 40 percent of Americans don't think that food produced in a lab to look and taste like meat should even be called meat, according to a recent nationally representative CR survey of 1,018 adults. Also, more people think "lab-grown" or "synthetic" better describes the meat than the terms the industry favors: "cultured" or "clean."

To clear up the confusion, we talked to nutritionists, agriculture experts, and company scientists cooking up these creations.



Beyond
Burger

WHAT IS IT?

The Beyond Burger is an all-plant, gluten-free patty with protein from peas, mung beans, and rice, plus beet and pomegranate to provide meatlike redness. It gets fat from canola and coconut oils, plus cocoa butter; those last two ingredients also give the product its marbled look, the company says. The burger, made by Beyond Meat, has no genetically modified organisms (see page 46 for more on GMOs). The company also makes other plant-based "meats," such as a sausage and "crumbles" (think ground beef).

IS IT HEALTHIER THAN BEEF?

Not necessarily. It does have zero dietary cholesterol—though that has less effect on the cholesterol levels in your blood than does saturated fat. And on that more important measure, as well as for total fat and calories, a Beyond Burger and a typical 80 percent lean beef burger are similar. The Beyond Burger has much more sodium, too. Plus, "while its starting materials may be plants, the main ingredients are all highly processed concentrates, oils, and flavors," says Amy Keating, R.D., a CR nutritionist and taste tester. Research links such foods to obesity and heart disease. "If you want the health benefits of plants, eat them as whole foods with their nutrients and fiber naturally present."

IS IT BETTER FOR THE ENVIRONMENT?

Probably, but how much is debatable. Replacing meat raised in feedlots with plant-based foods is a win for the environment, says Charlotte Vallaeys, senior food policy

analyst at CR. That's in part because cows release methane, a greenhouse gas. And industrial beef production creates runoff that contaminates water. Feedlot farming also tends to sicken cows, contributing to the overuse of antibiotics, which breeds superbugs and undermines the effectiveness of those medications.

An analysis commissioned by Beyond Meat concluded that one of its burgers generates 90 percent fewer greenhouse gases and requires 46 percent less nonrenewable energy than a comparable feedlot-raised beef burger. "Those are reliable estimates," says Nicole Tichenor Blackstone, Ph.D., at Tufts Friedman School of Nutrition Science and Policy, who has conducted similar research but was not involved in this analysis.

But "switching to grass-fed animals can also be beneficial," Vallaeys says. One farm that raises such animals, White Oaks Pastures, in Bluffton, Ga., commissioned the same kind of analysis as Beyond Meat. It concluded that White Oaks' methods may have a net positive effect on the climate by taking carbon out of the atmosphere and putting it back into the soil. But note that these analyses involve controversial assumptions and require additional study.

WHERE CAN YOU BUY IT?

Restaurants and grocery stores.

HOW MUCH DOES IT COST?

Two ¼-pound patties at the grocery store costs about \$6 to \$7, or \$12 to \$14 a pound, compared with about \$4 a pound for regular ground beef and \$6 for organic. Restaurant prices vary by location and toppings.

Anatomy of Meat vs. Meatless Burgers

Two of CR's expert tasters, Amy Keating and Claudia Gallo, headed to three Bareburgers near our Yonkers, N.Y., headquarters to taste a Beyond Burger and an Impossible Burger. (Separately, they tasted an Amy's brand veggie burger that did well in CR's previous tests.) The verdict? Both are impressive imitations of real beef, but the Impossible Burger is closer in look and taste: browned on the edges with a pink center, plus a savory, char flavor and a juicy, fatty mouthfeel. The Beyond Burger has a milder, charred flavor and a slight vegetal or grainlike aftertaste. The Amy's burger doesn't try to taste like meat, but it does taste good: a big mushroom and nutty flavor with a crispy exterior and chewy grains. It's also healthier, with less sodium, fat, and calories, and fewer highly processed ingredients.

Sources: Nutrients for 80% lean ground beef, cooked and broiled (plain, unsalted), from USDA National Nutrient Database for Standard Reference, 2018. All other values from Nutrition Facts panel on package or company's website.

	Ground Beef, 80% Lean 1 patty (113 g)	Amy's Organic California Veggie Burger, Light in Sodium 1 patty (71 g)	Beyond Burger 1 patty (113 g)	Impossible Burger 1 patty (113 g)
INGREDIENTS	Beef	13, all organic, including mushrooms, bulgur wheat, onions, celery, carrots, oats, walnuts, wheat gluten, potatoes, high oleic safflower and/or sunflower oil, sea salt, and garlic	At least 17, including pea, mung bean, and rice proteins; canola and coconut oils; cocoa butter; methylcellulose; potato starch; pomegranate powder; and beet juice extract	At least 20, including soy and potato proteins, coconut and sunflower oils, methylcellulose, yeast extract, cultured dextrose, food starch modified, and soy leghemoglobin
CALORIES	306	150	250	240
TOTAL FAT (G)	20	5	18	14
SAT. FAT (G)	7.5	0.5	6	8
CHOLESTEROL (MG)	100	0	0	0
SODIUM (MG)	85	270	390	370
CARBOHYDRATES (G)	0	21	3	9
FIBER (G)	0	4	2	3
PROTEIN (G)	29	6	20	19
NON-GMO	Can be	Yes	Yes	No
USDA ORGANIC	Can be	Yes	No	No

GROUND BEEF

BEYOND BURGER

AMY'S ORGANIC CALIFORNIA VEGGIE BURGER

IMPOSSIBLE BURGER





Impossible Burger

WHAT IS IT?

This all-plant, gluten-free burger gets its protein from soy and its fat from a mix of coconut and sunflower oils. But what makes the burger unique, and controversial, is something called soy leghemoglobin.

The compound, which comes from the root of soybean plants, is chemically similar to the heme iron found in meat. Putting it in a veggie burger gives the patty some of the taste, texture, and juicy, bloody look of beef.

Why controversial? For one, though humans have eaten soy for centuries, we haven't eaten soy leghemoglobin before. And CR's scientists advise caution when introducing anything new into the food supply.

Further, manufacturing the compound to scale requires some fancy genetic lab work. Company scientists insert soy leghemoglobin genes into a genetically engineered yeast called *Pichia pastoris*, then let it ferment. The process produces large quantities of the compound, along with dozens of other proteins.

To document the safety of this new protein, Impossible Foods points to research showing similarities between soy leghemoglobin and other substances humans have long consumed. In addition, company scientists fed it to rats for 28 days and compared them with other rats on a normal diet. "All the studies we did indicated that there was no risk of allergenicity or toxicity," says Sue Klapholz, M.D., vice president of nutrition and health at Impossible Foods.

But thanks to the oddities of the U.S. food safety system, it's up to the company, not the Food and Drug Administration, to prove the compound's safety. Though the FDA did review research provided by Impossible Foods—and said it had no questions about the company's assessment—the FDA has not conducted any independent tests to confirm the compound's safety, nor does it have to.

Still, some experts have concerns. Dana Perls, of Friends of the Earth, an environmental organization, says that rats fed soy leghemoglobin in the company's safety study developed changes in their blood chemistries that could indicate kidney or other health problems—issues that require follow-up.

What's more, "there are still no long-term studies of soy leghemoglobin in humans," says Michael Hansen, Ph.D., a senior scientist at CR. He notes that the process of making it yields at least 45 other proteins as byproducts, which we also consume, and which also need further evaluation. "Is it possible that soy leghemoglobin is safe? Sure," Hansen says. "Do we know that for sure? No. We just don't have enough data either way yet."

IS IT HEALTHIER THAN BEEF?

Not so much. The Impossible Burger's nutrition profile is fairly close to the Beyond Burger's: zero dietary cholesterol but not much lower than ground beef in fat and saturated fat. Plus, it has more sodium than beef. And, like the Beyond Burger, the Impossible patty is "ultra processed,"

says Fabrice DeClerck, Ph.D., science director of the EAT Foundation, a nonprofit that focuses on environmental sustainability. Last, some research suggests that heme iron may contribute to the increased risk of colon cancer and other health problems that have been associated with red meat. And it's still unknown whether the heme iron from soy leghemoglobin may pose that same risk.

IS IT BETTER FOR THE ENVIRONMENT?

Yes, more or less to the same extent as the Beyond Burger, according to a study commissioned by Impossible Foods. The analysis found that an Impossible Burger generates 89 percent less in greenhouse gases and uses 87 percent less water than a beef burger. Blackstone, the independent expert from Tufts, says that the research is solid.

But DeClerck worries that relying on high-tech foods could contribute to other problems. "Most of our foods—about 60 percent—come from soy, rice, maize, and wheat, and we're just perpetuating a system that is based on monocultures," he says. "I'd rather see a low-density grazing system with grass-fed beef than to have that land converted into soybeans."

Perls, at Friends of the Earth, adds that the hype around meat alternatives distracts from better solutions to climate problems. She also notes that we won't know the true energy costs of the new foods until they're produced at a larger scale. "Rather than creating new products that require more energy, more money, and more processed chemicals," she says, "why not invest in a truly sustainable system," like organic farms.

WHERE CAN YOU BUY IT?

At Bareburger, Burger King, White Castle, Qdoba, and other restaurants. The company has also debuted its sausage at Little Caesars pizza restaurants. As we went to press, Impossible Foods said it expects to introduce its products in grocery stores this fall. The delay had been getting approval from the FDA for the use of soy leghemoglobin as a color additive, which the agency just granted this past summer.

HOW MUCH DOES IT COST?

It can cost \$1.99 for an Impossible Slider at White Castle, \$5.59 for an Impossible Whopper at Burger King, and about \$14 at Bareburger. At press time, the company had not yet set a price for its products in grocery stores.

What Are GMOs?



A genetically modified organism is one whose genetic material has been altered, often by combining it with DNA from another organism. In agriculture, it's frequently used to



Lab-Grown Meat

WHAT IS IT?

The short answer: It's meat tissue grown from animal cells isolated and multiplied in a lab. Several companies, including Just, Memphis Meats, and Mosa Meat, are trying this, mainly with chicken and beef. Others, including Finless Foods and Wild Type, are working on lab-grown fish.

Though each company has its own technology, they all follow the same general steps, says Kate Krueger, Ph.D., research director of New Harvest, a New York-based research institute focused on cellular agriculture. Start with a prime specimen, then collect cells by biopsying the animal (alive or after slaughter) or by extracting stem cells from its blood or an embryo. Next, let the cells proliferate in a solution of nutrients, hormones, and growth agents in a sterile bioreactor. If all goes right, voila, you've got meat tissue—or at least something like it.

Proponents foresee it as revolutionary, eliminating the

need for feedlots and slaughter. "Theoretically, from a single chicken you can generate cells to make chicken meat to feed the world," says Vitor Espirito Santo, Ph.D., director of cellular agriculture at Just.

But for now, the companies have yet to bring a single meat product to market (and may not for a while; see below). And what they have manufactured in the lab, and shown in limited demonstrations, is more akin to ground meat—or "unstructured" meat—than, say, a chicken breast or beef steak.

IS IT HEALTHIER THAN BEEF?

Santo, at Just, says that because lab-grown meat will be real meat, it will have a similar nutritional profile, too. But because it is not yet on the market or available for independent analysis (we asked), that's still not certain.

A potential benefit of lab-grown meat is that it may be less prone to contamination with *E. coli*, salmonella, or other bacteria, says Steve Myrick,

vice president of operations at Memphis Meats. "Because our meat is produced in a controlled production environment and doesn't involve animal slaughter, we expect to greatly reduce the risk of harmful bacterial contamination that can lead to foodborne illnesses."

But Hansen, at CR, points out that bacterial contamination can occur in labs, too. And antibiotics are often needed to curb bacteria in cultured cell products from drug companies.

IS IT BETTER FOR THE ENVIRONMENT?

Probably, according to an analysis commissioned by Just similar to those for Beyond Meat and Impossible Foods. But what lab-grown meat production will look like in full swing is still unknown, so its real energy requirements remain unclear.

WHERE CAN YOU BUY IT?

Nowhere, yet. Josh Tetrick, CEO of Just, hopes the company will debut lab-grown chicken nuggets in Asia, which has different regulations than the U.S., by the end of 2019. And, he says, the company is working with the Department of Agriculture and the Food and Drug Administration, and internationally, to develop appropriate regulations.

Myrick, at Memphis Meats, says he expects a U.S. product

"soon." And Mosa Meats—which created the first cell-grown beef burger in 2013—says it hopes to have a beef product by 2021.

But Krueger sees challenges that could delay production, such as making enough of the cell-growth medium. Though drugmakers have long done something similar when making biopharmaceuticals, it's expensive—and complicated. "Making a low-cost, food-grade cell-growth medium is a big challenge," she says.

Scientists are working on alternatives, including trying to avoid using serum from the blood of fetal cows (which is often used now), because it's costly and undermines the products' appeal to people concerned about animal welfare. But Krueger predicts it will be four to six years before "ground" meats are available and a decade or more before we see cuts like steaks.

HOW MUCH WILL IT COST?

That depends on how effectively companies can scale up. Memphis Meats' first serving of lab-grown chicken, in 2017, cost tens of thousands of dollars. But it can now make that same serving for less than \$100. Just says it can also make chicken nuggets for less than \$100, and the "cost will continue to fall as we plan for our restaurant debut."

create crops tolerant to herbicides, such as glyphosate, the chemical in Roundup. Most corn, canola, and soybeans (including those used in the Impossible Burger) grown in the U.S. are genetically

engineered to withstand doses of that or other herbicides. Since GMO crops were first marketed in the 1990s, the use of toxic pesticides has increased sharply. That has fueled

the emergence of superweeds resistant to the chemicals, requiring farmers to use ever stronger doses that pose risks to human health and the environment.

Whether consuming GMO

ingredients in foods poses direct risks to people who eat them is still unclear, though no big red flags have been raised. Still, CR's Michael Hansen has concerns. "GMOs have not been around long

enough for us to know their long-term health risks or environmental impact," he says. "If you want to avoid GMOs, choose organic or look for the Non-GMO Project Verified food label."



DANGER

AT THE

DELI

Regularly eating even small amounts of cold cuts increases your risk of cancer and heart disease. And choosing 'uncured' products won't help. Here's what you need to know.

BY
TRISHA
CALVO

WHEN YOU'RE LOOKING for a healthy deli sandwich, you probably choose lean turkey over fatty salami. And if you're like close to half the deli-meat eaters in a recent nationally representative CR survey of 1,000 people, you'd probably go for the meat labeled "no nitrates or nitrites added."

But while turkey is among the leanest deli meats, in the big picture it may not be healthier than other types. That's because all cold cuts are processed meats, like bacon and hot dogs. Regularly eating them—even in amounts less than what you probably put in a sandwich—clearly increases the risk of cancer. They've also been linked to heart disease, stroke, and type 2 diabetes. And though avoiding nitrates and nitrites is a good idea—they're probable carcinogens, according to the World Health Organization—choosing "no nitrite"

(also labeled uncured) meats isn't better.

Why not? "Thanks to the topsy-turvy world of government food labeling rules, 'no nitrites' doesn't mean no nitrites," says Charlotte Vallaey, senior food and nutrition policy analyst at CR. Instead, it means that the nitrates and nitrites used to "cure"—or preserve and flavor—meat come from celery or other natural sources, not synthetic ones, such as sodium nitrate or nitrite.

To further confuse matters, "their chemical composition is absolutely the same, and so are the health effects," says Joseph Sebranek, Ph.D., Morrison Endowed Chair in meat science at Iowa State University.

But don't "uncured" cold cuts at least have lower amounts of those compounds? Nope, according to CR's recent tests of 31 deli meats. Products cured with nitrates and nitrites from

natural sources had average levels of the chemicals that were similar to those cured with synthetic ones. And it didn't matter what type of meat it was—chicken, ham, roast beef, turkey, or salami.

Nitrates and nitrites aren't the only problem with deli meats, either. Some contain coloring agents that may pose health risks. They're also often loaded with sodium. To top it off, cold cuts are prone to contamination with *Listeria monocytogenes*, a potentially deadly type of bacteria.

That's why CR looked not only at nitrate and nitrite levels but also at sodium, *listeria*, and a compound called 4-MEI, a potentially harmful byproduct of some caramel colors.

Here's what we found—and what you need to know about deli meat to stay safe and healthy.

The Risks of Nitrites

Nitrates and nitrites prevent bacterial growth and give deli meat its distinctive color and flavor. But there's a downside. Nitrates convert to nitrites, and when nitrites interact with protein, that creates compounds called nitrosamines—which may cause cancer.

The North American Meat Institute (NAMI), an industry group, says that most nitrites in our diets come from vegetables. “But there's little protein in vegetables, so their nitrites don't easily convert to nitrosamines,” says Michael Hansen, Ph.D., a senior scientist at CR. “It may also be that antioxidants or other compounds in vegetables prevent nitrites from becoming nitrosamines.”

Synthetic nitrites have been used since the 1920s to speed up the curing process. But when health concerns about them surfaced in the 1960s, some manufacturers began processing meat without any nitrites.

“These were gray, didn't hold flavor, and were susceptible to bacterial spoilage,” Sebranek says. To alert consumers to those products, which are now rare, the Department of Agriculture required that they be labeled “uncured.”

Then, in the 1990s, companies developed new ways to cure meats with celery or other natural nitrate/nitrite sources. But the USDA decided that because the source of the compounds differed, meats made with them must be labeled “uncured” and “no nitrates or nitrites added,” Sebranek says, “even though everyone in the meat industry realizes it's not technically correct.”

Though uncured meats must also be labeled with a statement that clarifies that they have nitrates and nitrites from natural sources, that language is usually buried in fine print and doesn't explain that those compounds are chemically identical to synthetic ones.

Many meat processors believe that all deli meat should be labeled “cured,” no matter which curing process is used, according to NAMI.

CR and the Center for Science in the Public Interest are asking the USDA to update its labeling rules. “‘Uncured’ and ‘natural nitrates/nitrites’ makes people think these meats are healthier, but they aren't,” says CR's Vallaey.

The USDA told CR that it is evaluating the effectiveness of vegetable-based curing agents and what would be required to change the current rules.

What CR's Tests Found

CR focused on nitrates and nitrites, but we also looked at 4-MEI, listeria, and sodium.

Nitrates and nitrites: We tested 31 packaged deli meats—name brands and store brands—including chicken, ham, roast beef, salami, and turkey. (See “CR's Deli Meat Test Results,” on page 52.)

All samples had levels below the federal government's thresholds for deli meats: 500 micrograms per gram for nitrate and 200 micrograms for nitrite. But our tests also showed how confusing the labels can be. There were 10 “cured” meats in our tests and 21 “uncured.” On average, the nitrate and nitrite levels were essentially the same.

4-MEI: We tested 12 packaged deli meats with caramel color in the

ingredients list for 4-MEI—a byproduct of some caramel colors used in deli meat, colas, and other foods. Animal studies suggest that 4-MEI increases cancer risk, and in California any food that exposes consumers to more than 29 micrograms per day must carry a cancer warning label.

None of the meats we tested had more than that amount of 4-MEI in a 3-ounce serving. But some had high levels, up to 21 micrograms. “So some deli meats could add a significant amount of 4-MEI to your diet, especially if you eat a lot of them or get the compound from other sources,” says Sana Mujahid, Ph.D., manager of food safety testing at CR.

Listeria monocytogenes: Cold cuts are known to be a risky food for listeria, and meats sliced at deli counters are more likely to be contaminated than packaged ones. CR tested 133 samples of sliced meat purchased in New York City delis. Two of them contained the bacteria—one with a strain involved in an outbreak of illnesses linked to deli meat and cheese that put eight people in the hospital (one person died). CR notified the NYC Department of Health and Mental Hygiene of our findings, and it addressed the issues.

Listeriosis, the illness caused by listeria, is rare but serious: More than 90 percent of people who get it are hospitalized, and 1 in 5 dies. The very old or young, and people with compromised immune systems, are more vulnerable. So are pregnant women, because the illness can cause miscarriage and stillbirth. The Centers for Disease Control and Prevention says that people in those high-risk groups should avoid deli meat entirely.

Sodium: CR nutritionists reviewed the sodium in 124 packaged deli meats from a variety of brands and compared it with the sodium in similarly sized portions of fresh meats, such as grilled chicken. On average, deli meats had 8 to 11 times the sodium content (see “CR's Deli Meat Test Results,” on page 52).

Too much sodium raises the risk of

14,524

CANCER CASES LINKED TO
PROCESSED MEAT EACH YEAR.

57,766

DEATHS FROM HEART DISEASE,
STROKE, AND TYPE 2 DIABETES
TIED TO PROCESSED MEAT
EACH YEAR.

Sources: JNCI Cancer Spectrum,
June 2019 and JAMA, March 2017.



What Deli Meat Labels Really Mean

+ Uncured

These meats are almost always cured, but the curing agents are nitrates or nitrites derived from natural sources such as celery, not synthetic ones, such as sodium nitrite.

+ Organic

The meat must come from animals given organic feed and raised without antibiotics or added hormones. They may contain natural curing agents, but not synthetic ones, such as sodium nitrite. Caramel colorings that contain 4-MEI can't be used.

+ Reduced Sodium or Lower in Sodium

These terms don't mean low sodium—which is defined as 140 mg or less per serving. Rather, they mean that a food has at least 25 percent less sodium than a serving of a comparable product. The lowest sodium count in the meats in our tests was 150 mg, but many had far more.

+ Natural

Meat with this term is supposed to be "minimally processed." But the Department of Agriculture's definition of that term doesn't clarify whether that includes the curing process. That omission allows manufacturers to use "natural" on deli meat labels—even though it is processed.

+ Healthy

Meats with this claim have to be low in fat and saturated fat, and have no more than 480 mg sodium per serving. But the claim doesn't take the other health risks of processed meat into consideration.

+ No Added Hormones

This is a helpful term for deli meats made from beef, but it's misleading for those made with poultry and pork. That's because cattle can be raised with added hormones, but poultry and pork cannot. So even poultry or pork products without a "no hormones" label don't have added hormones.

high blood pressure and heart disease. Experts advise keeping it under 2,300 mg a day. Cold cuts, and other cured meats, are the fourth-largest contributors of sodium in the U.S. diet, according to the CDC. “Cutting back on deli meat is an effective way to cut back on sodium,” says CR nutritionist Amy Keating, R.D.

The Toll on Public Health

Processed meats can also contain other harmful substances. These include

heterocyclic amines and polycyclic aromatic hydrocarbons, chemicals formed in meat cooked at high temperatures. And research suggests that too much of the iron found in beef and pork may enhance the conversion of nitrites to nitrosamines.

It’s the combined effect of those and other factors that makes processed meat such a health hazard, says Fang Fang Zhang, M.D., associate professor at the Friedman School of Nutrition Science

and Policy at Tufts University. Her research found that more than 14,500 new colorectal and other cancer cases in the U.S. annually could stem from processed meat. Other studies suggest a link between the meat and bladder and breast cancer. The World Health Organization, in fact, calls processed meat a known human carcinogen. It may also be responsible for almost 58,000 deaths from heart disease, stroke, and type 2 diabetes each year, according to a 2017 analysis in JAMA.

Most Americans consume more than enough processed meat to pose risks. It doesn’t take much: Harvard researchers found that increasing processed red meat intake by just half a serving a day (½ ounce deli meat, ½ hot dog, or 1 slice bacon) raised the risk of dying over the next eight years by 13 percent. According to a 2019 study in the Journal of the Academy of Nutrition and Dietetics, on average we eat about 6½ ounces of processed meat each week, with deli meat as the top source. CR’s recent survey found that almost half of Americans eat deli meat at least once a week. Among those with children under 12, 57 percent said their kids eat deli meat at least weekly.

Must You Give Up Deli Meat?

No, but you should sharply limit how much you eat. “There is no known safe level of processed meat,” Zhang says.

Keating, at CR, suggests that “when it comes to your lunch, think outside the box.” Try sandwiches made with tomatoes and mozzarella, roasted or fresh vegetables with avocado or hummus, or nut butters with apples, berries, or bananas instead of jam. Egg salad, canned salmon, or light tuna can also be good options.

When you do opt for meat, choose fresh meat. Stick with small amounts—about 3 ounces—of cooked turkey, chicken, or lean cuts of beef.

—Additional reporting by Maggie Veatch and Nicole Wetsman



CR's Deli Meat Test Results

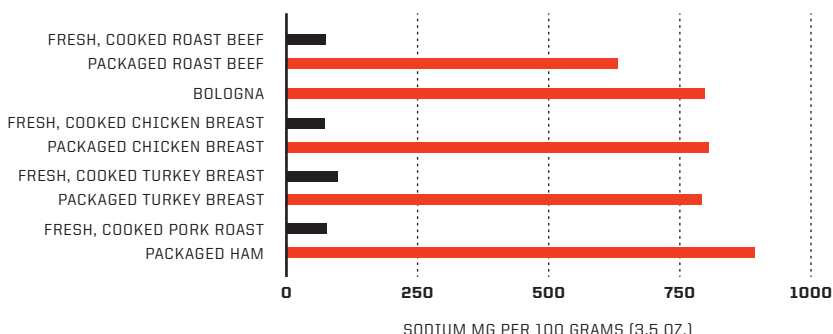
NITRATES AND NITRITES IN DELI MEAT: CURED VS. UNCURED

CR tested 31 packaged deli meats from nine companies for nitrates and nitrites: 365 Everyday (Whole Foods), Applegate Farms, Boar’s Head, Great Value (Walmart), Hillshire Farm, Hormel, Open Nature, Oscar Mayer, and Plumrose. On average, the levels were almost the same for cured and uncured meats.



SODIUM LEVELS: COLD CUTS VS. FRESH CUTS

CR’s review of sodium levels in 124 packaged deli meats found that deli meat contains on average 8 to 11 times more sodium than a comparable type of fresh meat.





STAY AHEAD
OF THE CURVE
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RATINGS, NEWS
& ADVICE™

ROAD REPORT

AHEAD OF THE CURVE

Defeating Drowsy Driving

The National Highway Traffic Safety Administration estimates that drowsiness is a factor in about 2.5 percent of automobile crashes. But a 2018 study by the AAA Foundation for Highway Safety concluded that it **could contribute to about 9 percent of accidents**. Almost every major automaker offers some kind of driver monitoring system to detect fatigue or inattention, but we think Cadillac's Super Cruise hands-free driver assistance feature is the best system available today. Though the company says it's not designed to detect drowsy driving, **the system uses a camera to make sure a driver's eyes are open** and looking at the road ahead. It would be even better if the camera were always on, not just while the vehicle's driver assistance feature is engaged.

ASK OUR EXPERTS

My car makes a sloshing sound turning corners. What could it be?



The most common cause is a clogged drain trapping water in the heating and cooling system. The water, formed by condensation, usually empties onto the ground. But a clogged drain can cause it to back up, leading to the sloshing sound and even dampness on the passenger-side floor. **The fix is typically quick and easy but best handled by a mechanic.** Most vehicles have several drain holes, including in the doors, trunk, and sunroof. When these become blocked, water can collect and cause damage, including corrosion. If the drains are clear, the cause could be the engine cooling system, which should be checked by a professional.

RECALL

Honda & Acura

Honda is recalling 1.6 million Honda and Acura vehicles in the final phase of its Takata airbag recall. The airbags, which were installed in 41.6 million vehicles from 19 manufacturers, are being replaced because faulty inflators can spray sharp metal fragments when the airbag deploys, causing injury or death.

What to do: Honda will replace the airbag inflators at no cost and provide a free loaner car while the work is being done. For information, go to hondaairbaginfo.com or call 888-234-2138.

THE VITAL STATISTIC

23.2
MILLION

Number of Volkswagen Beetles produced between 1945 and 2019, before the last model rolled off the assembly line in mid-July. CR first evaluated the Bug in 1951, noting that the \$1,280 model cruised nicely but lacked power—and a gas gauge.

Source: Volkswagen of America.

DASHBOARD DECODER

What Does This Icon Mean?



- ☐ NO WHITE SHOES AFTER LABOR DAY
- ☐ BRAKE SHOE NEEDS ATTENTION
- ☐ YOUR SHOE MAY BE STUCK UNDER THE FLOOR MAT
- ☐ DEPRESS BRAKE TO START CAR

Joking aside, this symbol appears in cars with a push-button ignition. It's meant to remind drivers that they need to press the brake pedal to start the car, then shift into whichever gear they want.

What's So Great About Used Cars?

Shopping smart can get you a safer, more fuel-efficient vehicle than the one you may be driving now. We steer you to top choices.

by Jeff S. Bartlett

MANY CONSUMERS STILL SEE a used-car purchase as a compromise. But buying a lightly used vehicle with modern conveniences, onboard entertainment, and the latest safety features can be a smart move if you know what to look for. And the average price of a 3-year-old used car is a little less than half what it would cost new, according to the latest sales data from Kelley Blue Book. Many vehicles coming off leases and returning to dealerships as used cars tend to be in good shape and have low mileage, says Mel Yu, a CR auto analyst.

Buying used might make even more sense now because many 2016 models are equipped with the advanced safety features that Consumer Reports says all models should come with: forward collision warning (FCW), automatic emergency braking (AEB), pedestrian detection, and blind spot warning (BSW).

Leased vehicles now make up nearly one-third of new-car sales. That means more than 4 million of them will become available for purchase as used cars this year, according to the National Automobile Dealers Association. And there should be a substantial supply of these desirable used cars for years to come, says Patrick Manzi, a senior economist for the association. Ride-share drivers, such as those who

work for Uber and Lyft, are taking advantage of the influx of quality, well-equipped used cars, says Anil Goyal, executive vice president of operations at Black Book, an automotive pricing data company. Consumers benefit by being able to hire ride-share drivers who are using these almost-new cars featuring advanced safety features.

Despite all of these selling points, some shoppers favor new cars to avoid the risks associated with secondhand vehicles. Concerns about reliability are understandable, because used cars are often out of warranty and may have been driven for tens of thousands of miles. Each one also has a unique maintenance and repair history. But our annual surveys routinely find that many cars are quite reliable even after a few years of service.

And there are ways to mitigate the risks. One way to feel more confident about buying secondhand is to get a certified pre-owned (CPO) vehicle. These typically combine a detailed vehicle inspection with reconditioning by the dealership, and they're sold with a warranty. A CPO car does cost more, but it can reduce stress for used-car buyers.

No matter where you buy, be sure to go to nhtsa.gov/recalls to see if the car has any open recalls, so that you can have the work done if necessary.

Beware of Pitfalls

Regardless of model or age, every used car has had an individual road experience and requires a close look to avoid expensive surprises. Here are steps you can take to better protect yourself: **Check the vehicle history report.** Carfax, AutoCheck, and similar services can tip you off to a potential problem or questionable history. But CR has found that vehicle reports might not capture all incidents, especially those that are recent.

Look for hidden signs of crash damage. Paint that doesn't match or uneven spacing between body panels indicates previous bodywork.

Check for flood damage. Inspect difficult-to-clean places for mud and debris, such as gaps between panels in the trunk and under the hood. Check the seat-mounting screws for rust.

Push the buttons. Try out all of the car's features and functions. This can reveal some common problems, such as air conditioning that doesn't blow cold or a window that doesn't work properly.

Tires. Check older tires for uneven wear. That can indicate a lack of maintenance or a suspension problem.

Second opinion. Always pay a mechanic you trust for a bumper-to-bumper inspection before you buy.





CR'S PICKS FOR THE BEST USED CARS

TO ARRIVE AT THESE recommendations, we analyzed our road-test scores for 2016 models from when they were new to compile a list of high-scoring vehicles. We reviewed our exclusive reliability and satisfaction survey data from CR members to find out which of these cars were standouts as used vehicles. (Our Annual Auto Survey covers almost

half a million vehicles of various models and years.)

Based on that data, we've highlighted 10 used cars drawn from several popular categories and price ranges. These models are noteworthy for both their scores and prices. Prices for each model represent the retail range, from a bare-bones base version to a well-equipped top-trim version. The most common are priced in the middle of the range.

We've also provided alternatives in each category. These models shined in our tests, too, and CR members reported them to be reliable used cars.

Many advanced safety systems that are now standard on several vehicles were only optional in 2016, so make sure the car you're considering is equipped with the safety features you want.



Smart Bargains



2016
KIA SOUL

74 **26 mpg**
ROAD TEST FUEL
\$11,475-\$16,125
USED PRICE RANGE

COMPACT
CAR

70

OVERALL
SCORE



RELIABILITY



OWNER
SATISFACTION



2016
**CHEVROLET
EQUINOX**

69 **18 mpg**
ROAD TEST FUEL
\$12,325-\$18,025
USED PRICE RANGE

MIDSIZE
SUV

67

OVERALL
SCORE



RELIABILITY



OWNER
SATISFACTION

CR'S TAKE: Why settle for a boring small car when you can choose something with personality? The spirited Soul shines as a used-car value, thanks to its low initial cost and steep depreciation. You can upgrade with comfort and convenience features commonly associated with upscale models, such as a heated rear seat. Passenger space is generous for a car of this size.

BEST VERSION TO GET: The midlevel trim (Plus) is nicely equipped and comes with the bigger, 2.0-liter engine. But the top trim (Exclaim) can be found with optional FCW.

OTHERS TO CONSIDER: Honda Fit, Subaru Impreza

CR'S TAKE: The Equinox is a "tweener" that competes with midsize SUVs but is priced like a small one. CR considers it a smart used-car value backed by much better than average reliability. The Equinox shrugs off bumps and ruts, and its handling is responsive.

BEST VERSION TO GET: Choose a V6-powered Equinox with at least an LT trim for power amenities and available BSW. Step up to the pricier LTZ trim for more comfort features, plus the available Driver Confidence Package II with FCW and lane departure warning (LDW).

OTHERS TO CONSIDER: Kia Sorento, GMC Terrain



Under \$20,000



2016
MAZDA6

79 **32 mpg**
ROAD TEST FUEL
\$14,000-\$17,925
USED PRICE RANGE

MIDSIZE
SEDAN

72

OVERALL
SCORE

↑
RELIABILITY
↑
OWNER
SATISFACTION



2016
**HYUNDAI
SANTA FE
SPORT**

73 **23 mpg**
ROAD TEST FUEL
\$15,600-\$19,625
USED PRICE RANGE

MIDSIZE
SUV

73

OVERALL
SCORE

↑
RELIABILITY
↑
OWNER
SATISFACTION

CR'S TAKE: The price of the sleek Mazda6 undercuts the more popular Honda Accord and Toyota Camry in the used-car market, plus our testers think it's more fun to drive. Its fuel economy is class-leading at 32 mpg, better than many compact sedans. Despite being smaller than its key rivals, the Mazda6 cabin is roomy and comfortably fits a wide range of test drivers.

BEST VERSION TO GET: The midlevel Touring has desirable features, like a power driver's seat, BSW, and rear cross traffic alert. Models with the Touring Technology Package get FCW and heated seats.

OTHERS TO CONSIDER: Toyota Camry, Subaru Legacy

CR'S TAKE: We consider the five-passenger Santa Fe Sport to be one of the most well-rounded two-row SUVs on the market. It's stylish, functional, and a used-car bargain. Its comfortable ride, simple controls, and spacious cargo area make it easy to live with.

BEST VERSION TO GET: Stick with the 2.4-liter engine. There are no trims to choose from, but look for a vehicle with the Premium Equipment package for leather upholstery, upscale amenities, BSW, and rear cross traffic alert. The Tech Package adds niceties, such as heated rear seats and a panoramic sunroof.

OTHERS TO CONSIDER: Subaru Forester, Toyota RAV4, Honda CR-V



Under \$27,000



2016
LEXUS ES

78-77 **25-36 mpg**
ROAD TEST FUEL
\$23,075-\$25,025
USED PRICE RANGE

LUXURY
MIDSIZE
SEDAN

80

OVERALL
SCORE

↑
RELIABILITY
↑
OWNER
SATISFACTION



2016
BMW X3

82 **23 mpg**
ROAD TEST FUEL
\$21,475-\$26,500
USED PRICE RANGE

LUXURY
COMPACT
SUV

73

OVERALL
SCORE

↑
RELIABILITY
↑
OWNER
SATISFACTION

CR'S TAKE: The ES is comfortable, quiet, and efficient. The smooth, strong V6 engine returns a good 25 mpg overall, and the impressive hybrid version got 36 mpg in our tests. A used ES is a rewarding upgrade from a plain family sedan, bringing panache and luxury for the money. Plus, a full suite of safety gear is available.

BEST VERSION TO GET: We recommend the hybrid ES 300h with the Premium and Luxury packages, plus optional BSW. If you can, avoid models with the distracting mouselike controller that operates the infotainment screen.

OTHERS TO CONSIDER: Toyota Avalon, Hyundai Azera

CR'S TAKE: The X3 combines SUV utility with luxury-car appointments and a sporty demeanor. Our testers found it to be functional and entertaining to drive. The steady ride, agile handling, responsive powertrain, and quiet cabin create a premium feel. The firm, supportive front seats position the driver high and upright, which makes for good visibility.

BEST VERSION TO GET: Stick with the punchy 28i but look for one with the Premium package and rearview camera. Snow-belt drivers will appreciate the features in the Cold Weather package.

OTHERS TO CONSIDER: Audi Q3, Lexus NX 200t, Audi Q5



Under \$30,000



2016
**INFINITI
Q70**

90 **21 mpg**
ROAD TEST FUEL
\$22,375-\$28,925
USED PRICE RANGE

LUXURY
MIDSIZE
SEDAN

73

OVERALL
SCORE



RELIABILITY



OWNER
SATISFACTION

CR'S TAKE: The Q70 is a sporty luxury sedan that's engaging to drive, with agile handling and quick steering. The base V6 engine delivers excellent performance. The interior is nicely detailed with padded surfaces, rich-looking wood, and tasteful stitching. The Q70 offers a premium experience that really stands out at this price.

BEST VERSION TO GET: Go for models with the V6 engine and the optional FCW and BSW. Consider AWD if you have to drive in snow. Avoid the Sport package because it stiffens the ride. A longer "L" version adds 6 inches of rear legroom.

ANOTHER TO CONSIDER: Mercedes-Benz E350



2016
**TOYOTA
HIGHLANDER**

84 **20 mpg**
ROAD TEST FUEL
\$21,525-\$30,225
USED PRICE RANGE

MIDSIZE
SUV

82

OVERALL
SCORE



RELIABILITY



OWNER
SATISFACTION

CR'S TAKE: The Highlander is a midsize SUV that is perennially top-rated by our testers and members, and it excels in comfort and family-friendliness. The driver's seat is roomy and supportive. The foldaway third row adds kid-toting versatility.

BEST VERSION TO GET: The popular XLE trim level offers many desirable features, including standard leather upholstery, a moonroof, and a power tailgate. But stretch to the Limited, if you can, to get advanced safety features, such as FCW and BSW. The pricier hybrid adds a 25 percent increase in fuel economy.

OTHERS TO CONSIDER: Hyundai Santa Fe, Kia Sorento



Specialty



2016
**MAZDA
MX-5 MIATA**

80 **34 mpg**
ROAD TEST FUEL
\$16,950-\$19,275
USED PRICE RANGE

SPORTS
CARS

83

OVERALL
SCORE



RELIABILITY



OWNER
SATISFACTION

CR'S TAKE: The MX-5 Miata's sparkling combination of nimble handling, fuel efficiency, and solid reliability have made it a fun favorite at our test track. And owners agree, rating it high for satisfaction. It's light and playful, with quick acceleration and cat-like reflexes. Plus, the manual top is a cinch to use.

BEST VERSION TO GET: The Club trim delivers a bang for the used-car buck, and its upgraded suspension and tires boost the car's agility. For comfort, choose the Grand Touring trim. It rides better, and it has heated leather seats and BSW.

OTHERS TO CONSIDER: Scion FR-S, Subaru BRZ



Truck



2016
**TOYOTA
TUNDRA**

59 **15 mpg**
ROAD TEST FUEL
\$18,950-\$37,450
USED PRICE RANGE

PICKUP
TRUCKS

61

OVERALL
SCORE



RELIABILITY



OWNER
SATISFACTION

CR'S TAKE: The Tundra is a capable workhorse with standout reliability based on our survey. That combination makes it shine as a used vehicle. The truck is available in numerous body configurations, with three cab sizes and two bed lengths.

BEST VERSION TO GET: The 4.6-liter V8 engine is good for basic chores, but demanding drivers will want a version with a 5.7-liter and a tow package. Skip the SR5 trim and start shopping at the Limited and above for creature comforts, trailer-brake controls, a 38-gallon fuel tank, and optional BSW.

ANOTHER TO CONSIDER: Ford F-150

Ratings ➤ **Used Car Top Picks** Our special Overall Score gives you the tools to find the vehicle that meets your needs and budget the best.

	Make & model	Overall Score	Price Range	Survey Results		Test Results	
Rec.				Overall reliability	Owner satisfaction	Road-test score	Overall mpg
COMPACT ELECTRIC CARS/HYBRIDS							
✓	Toyota Prius	74	\$18,225–\$20,100	⬆️	⬆️	75	52
✓	Toyota Prius V	73	\$18,375–\$20,000	⬆️	⬇️	73	41
✓	Toyota Prius C	66	\$14,275–\$15,150	⬆️	⬇️	55	43
	Ford C-Max Hybrid	55	\$12,350–\$15,050	⬇️	⬆️	77	37
	BMW i3	52	\$13,650–\$16,275	⬇️	⬇️	66	139 ¹
	Chevrolet Volt	52	\$15,175–\$17,825	⬇️	⬆️	70	105 ¹ /38 ²
	Ford Focus Electric	37	\$12,325–\$13,900	⬇️	⬇️	68	107 ¹
	Nissan Leaf	34	\$9,400–\$13,700	⬇️	⬇️	71	106 ¹
	Mitsubishi i-MiEV	33	\$8,225–\$9,500	⬇️	⬇️	35	111 ¹
CARS: SUBCOMPACT							
✓	Scion iA	65	\$11,850–\$12,000	⬆️	⬇️	60	35
✓	Honda Fit	65	\$13,225–\$16,175	⬆️	⬇️	67	33
	Hyundai Accent	60	\$9,925–\$10,700	⬆️	⬇️	65	31
	Kia Rio	59	\$9,675–\$11,225	⬇️	⬇️	64	30
	Toyota Yaris	55	\$10,325–\$11,800	⬆️	⬇️	47	32
	Chevrolet Sonic (1.8L)	50	\$8,550–\$12,050	⬇️	⬇️	66	28
	Nissan Versa Note	43	\$9,225–\$11,225	⬇️	⬇️	61	31
	Chevrolet Spark	40	\$8,675–\$9,375	⬇️	⬇️	47	33
	Smart Fortwo	39	\$6,750–\$10,500	⬇️	⬇️	41	36
	Ford Fiesta	38	\$8,225–\$15,100	⬇️	⬇️	64	33
	Nissan Versa (sedan)	34	\$8,900–\$10,500	⬇️	⬇️	56	32
	Fiat 500	29	\$8,500–\$13,500	⬇️	⬇️	54	33
CARS: COMPACT							
✓	Subaru Impreza	76	\$14,200–\$18,175	⬆️	⬇️	79	27
✓	Toyota Corolla	71	\$12,800–\$15,900	⬆️	⬇️	71	32
✓	Kia Soul	70	\$11,475–\$16,125	⬆️	⬇️	74	26
✓	Scion iM	66	\$13,125–\$14,000	⬆️	⬇️	64	31
✓	Volkswagen Jetta (1.4T)	66	\$10,775–\$17,450	⬇️	⬇️	79	32
✓	Kia Forte (1.8L)	66	\$10,725–\$13,450	⬇️	⬇️	78	28
✓	Mazda3 (2.0L)	65	\$12,650–\$17,400	⬇️	⬇️	72	33
✓	Volkswagen Jetta Hybrid	64	\$15,775–\$17,450	⬇️	⬇️	75	37
✓	Hyundai Elantra (1.8L)	62	\$11,800–\$13,750	⬇️	⬇️	75	29
	Honda Civic (1.5T)	60	\$13,750–\$18,050	⬇️	⬇️	75	31

	Make & model	Overall Score	Price Range	Survey Results		Test Results	
Rec.				Overall reliability	Owner satisfaction	Road-test score	Overall mpg
	CARS: COMPACT <i>Continued</i>						
	Volkswagen Golf (1.8T)	56	\$10,600–\$15,825	⬇️	⬆️	82	28
	Chevrolet Cruze (1.4T)	55	\$10,950–\$14,925	⬇️	⬇️	77	30
	Dodge Dart (2.4L)	53	\$9,650–\$13,925	⬇️	⬇️	68	27
	Mitsubishi Lancer	48	\$10,625–\$13,325	⬇️	⬇️	62	25
	Mini Clubman (1.5T)	45	\$16,725–\$19,050	⬇️	⬇️	67	28
	Volkswagen Beetle (1.8T)	42	\$11,750–\$20,375	⬇️	⬇️	59	27
	Nissan Sentra	40	\$11,050–\$13,325	⬇️	⬇️	62	31
	Ford Focus (2.0L)	40	\$9,925–\$13,450	⬇️	⬇️	67	29
	Fiat 500L	27	\$10,425–\$13,025	⬇️	⬇️	50	27
	CARS: MIDSIZED						
✓	Toyota Camry Hybrid	83	\$17,175–\$19,600	⬆️	⬆️	87	38
✓	Toyota Camry (4-cyl.)	82	\$15,050–\$17,775	⬆️	⬆️	84	28
✓	Subaru Legacy (2.5L)	77	\$15,075–\$19,325	⬇️	⬆️	89	26
✓	Honda Accord (4-cyl.)	75	\$15,200–\$21,950	⬇️	⬇️	85	30
✓	Mazda6	72	\$14,000–\$17,925	⬇️	⬇️	79	32
	Kia Optima (2.4L)	69	\$13,450–\$20,700	⬇️	⬇️	86	28
	Hyundai Sonata Hybrid	69	\$13,250–\$19,850	⬇️	⬇️	80	39
	Ford Fusion (1.5T)	68	\$12,825–\$16,100	⬇️	⬇️	81	24
	Hyundai Sonata (2.4L)	68	\$13,250–\$19,850	⬇️	⬇️	78	28
	Ford Fusion Hybrid	67	\$13,100–\$18,025	⬇️	⬇️	80	39
	Volkswagen Passat (1.8T)	66	\$11,650–\$18,075	⬇️	⬇️	82	28
	Nissan Altima (4-cyl.)	61	\$13,300–\$17,275	⬇️	⬇️	71	29
	Chrysler 200 (4-cyl.)	60	\$12,250–\$17,675	⬇️	⬇️	63	30
	Chevrolet Malibu (1.5T)	51	\$12,975–\$18,575	⬇️	⬇️	80	29
	Chevrolet Malibu Hybrid	51	\$14,850–\$16,650	⬇️	⬇️	79	41
	CARS: LARGE						
✓	Kia Cadenza	83	\$16,625–\$18,400	⬆️	⬇️	83	22
✓	Toyota Avalon (V6)	81	\$17,525–\$21,950	⬆️	⬆️	80	24
✓	Hyundai Azera	80	\$16,200–\$18,375	⬆️	⬇️	80	23
✓	Nissan Maxima	72	\$17,950–\$21,300	⬇️	⬇️	81	25
✓	Ford Taurus (3.5L)	71	\$14,675–\$22,850	⬆️	⬇️	72	21
	Dodge Charger (V6)	67	\$18,025–\$22,850	⬇️	⬆️	82	22
	Buick LaCrosse (V6)	67	\$15,325–\$23,325	⬇️	⬇️	76	20

¹ Miles-per-gallon equivalent (MPGe). ² Miles per gallon while running on gas engine.

	Make & model	Overall Score	Price Range	Survey Results		Test Results	
Rec.				Overall reliability	Owner satisfaction	Road-test score	Overall mpg
CARS: LARGE <i>Continued</i>							
	Chrysler 300 (V8)	65	\$17,625–\$22,600	⬇️	⬆️	84	20
	Chevrolet SS	64	\$33,300–\$36,750	⬇️	⬆️	87	17
	Chevrolet Impala (V6)	64	\$11,575–\$18,675	⬇️	⬆️	91	22
CARS: LUXURY ENTRY-LEVEL							
✓	Lexus CT 200h	64	\$18,450–\$20,000	⬆️	⬇️	65	40
✓	Acura ILX	61	\$16,550–\$18,500	⬆️	⬇️	61	28
	Volkswagen CC (2.0T)	57	\$13,900–\$19,325	⬇️	⬇️	78	26
	Mercedes-Benz CLA250	54	\$20,300–\$35,275	⬇️	⬇️	64	28
	Audi A3 (1.8T)	52	\$17,300–\$28,225	⬇️	⬇️	77	27
	Buick Verano (2.4L)	43	\$11,650–\$15,600	⬇️	⬇️	73	24
CARS: LUXURY COMPACT							
✓	Audi A4 (2.0T, Quattro)	73	\$18,150–\$21,225	⬆️	⬇️	74	25
✓	Buick Regal (2.0T)	72	\$13,475–\$20,675	⬇️	⬇️	83	24
✓	Volvo S60 T5 Drive-E	70	\$15,350–\$25,500	⬇️	⬇️	80	25
✓	Mercedes-Benz C300 (4MATIC)	68	\$19,775–\$45,300	⬇️	⬇️	85	26
✓	BMW 328i	65	\$17,750–\$26,475	⬇️	⬇️	84	28
	Infiniti Q50 (3.0t, AWD)	54	\$18,450–\$30,625	⬇️	⬇️	85	22
	Lexus IS 300 (AWD)	52	\$20,775–\$28,400	⬇️	⬇️	56	21
	Acura TLX (2.4L)	48	\$18,325–\$22,750	⬇️	⬇️	79	27
	Cadillac ATS (2.0T)	44	\$16,750–\$38,650	⬇️	⬇️	79	23
CARS: LUXURY MIDSIZED							
✓	Lexus ES 350	80	\$23,075–\$25,025	⬆️	⬆️	78	25
✓	Lexus ES 300h	80	\$23,075–\$25,025	⬆️	⬆️	77	36
✓	Mercedes-Benz E350	77	\$23,825–\$56,475	⬆️	⬇️	86	21
✓	Infiniti Q70 (V6)	73	\$22,475–\$29,025	⬇️	⬆️	90	21
✓	Infiniti Q70 Hybrid	69	\$22,375–\$25,975	⬇️	⬆️	82	25
	Acura RLX Tech	64	\$21,325–\$26,400	⬇️	⬇️	75	23
	Hyundai Genesis (V6, AWD)	63	\$22,075–\$25,175	⬇️	⬆️	89	20
	Audi A6 (3.0T, Quattro)	60	\$19,750–\$29,425	⬇️	⬆️	90	22
	Lexus GS 350	59	\$23,325–\$46,400	⬇️	⬆️	83	21
	Cadillac CT6 (3.6L, AWD)	58	\$27,050–\$39,650	⬇️	⬇️	95	22
	BMW 535i	58	\$21,950–\$31,350	⬇️	⬇️	81	23
	Cadillac XTS	57	\$18,650–\$28,875	⬇️	⬆️	82	22

	Make & model	Overall Score	Price Range	Survey Results		Test Results	
Rec.				Overall reliability	Owner satisfaction	Road-test score	Overall mpg
CARS: LUXURY MIDSIZED <i>Continued</i>							
	Lincoln MKZ (2.0T)	55	\$17,350–\$23,375	⬇️	⬇️	84	23
	Lincoln MKZ Hybrid	55	\$18,350–\$20,475	⬇️	⬇️	83	34
	Lincoln MKS (3.7L)	51	\$18,425–\$21,475	⬇️	⬇️	66	20
	Jaguar XF (V6)	50	\$20,100–\$34,025	⬇️	⬇️	83	21
	Cadillac CTS (3.6L, AWD)	49	\$19,550–\$31,500	⬇️	⬇️	83	22
	Maserati Ghibli S Q4	46	\$27,175–\$32,525	⬇️	⬇️	71	19
CARS: ULTRA LUXURY							
✓	Lexus LS 460L	88	\$36,300–\$63,925	⬆️	⬆️	89	21
✓	Audi A8 L	76	\$34,700–\$64,225	⬇️	⬆️	91	21
	BMW 750i xDrive	73	\$36,600–\$43,400	⬇️	⬇️	99	21
	Tesla Model S P85D	73	\$38,800–\$80,350	⬇️	⬆️	100	87 ⁽¹⁾
	Porsche Panamera	68	\$47,925–\$107,725	⬇️	⬆️	81	20
	Mercedes-Benz S550 (4MATIC)	61	\$40,750–\$89,325	⬇️	⬆️	96	18
	Jaguar XJL (V6)	50	\$32,150–\$66,800	⬇️	⬇️	82	19
SPORTS/SPORTY CARS (UNDER \$30,000)							
✓	Mazda MX-5 Miata	83	\$16,950–\$19,275	⬆️	⬆️	80	34
✓	Scion FR-S	76	\$18,575–\$19,100	⬆️	⬆️	78	30
✓	Subaru BRZ	74	\$18,625–\$20,875	⬆️	⬆️	79	30
✓	Hyundai Veloster	68	\$13,400–\$15,500	⬆️	⬇️	67	31
	Nissan 370Z (coupe)	60	\$20,525–\$29,700	⬇️	⬇️	81	23
	Buick Cascada	55	\$18,075–\$18,775	⬇️	⬇️	53	22
	Volkswagen GTI	54	\$17,075–\$19,300	⬇️	⬆️	82	29
	Mini Cooper S	52	\$17,525–\$19,500	⬇️	⬇️	81	30
	Subaru WRX	52	\$19,700–\$29,125	⬇️	⬇️	75	26
	Ford Mustang (2.3T)	46	\$18,300–\$22,750	⬇️	⬆️	76	25
	Ford Focus ST	43	\$16,925–\$18,450	⬇️	⬇️	74	26
	Ford Fiesta ST	43	\$15,050–\$16,400	⬇️	⬇️	74	29
	Fiat 500 Abarth	35	\$12,825–\$13,600	⬇️	⬇️	66	28
SPORTS/SPORTY CARS (\$30,000 AND UP)							
✓	Porsche 911 Carrera S	78	\$64,225–\$137,125	⬇️	⬆️	95	23
✓	Chevrolet Camaro (V8)	77	\$26,825–\$30,875	⬇️	⬆️	85	20
✓	Audi TT Coupe (2.0T)	74	\$29,150–\$35,250	⬇️	⬆️	84	26

	Make & model	Overall Score	Price Range	Survey Results		Test Results	
Rec.				Overall reliability	Owner satisfaction	Road-test score	Overall mpg
SPORTS/SPORTY CARS (\$30,000 AND UP) <i>Continued</i>							
	BMW M235i	72	\$22,325–\$33,000	⬇️	⬆️	98	25
	Porsche Boxster 2.7	71	\$37,325–\$63,675	⬇️	⬆️	83	23
	Chevrolet Corvette Stingray	63	\$36,675–\$60,625	⬇️	⬆️	92	20
	Dodge Challenger (V8)	63	\$19,775–\$48,050	⬇️	⬆️	70	20
	BMW Z4 sDrive28i	59	\$26,800–\$60,625	⬇️	⬆️	74	28
	Ford Mustang (V8)	50	\$25,175–\$41,700	⬇️	⬆️	84	19
WAGONS (ALL-WHEEL DRIVE)							
✓	Subaru Outback (4-cyl.)	72	\$18,150–\$22,625	⬇️	⬆️	82	24
✓	Volvo V60 Cross Country	68	\$16,775–\$26,000	⬇️	⬆️	73	21
MINIVANS							
✓	Honda Odyssey	73	\$17,000–\$27,000	⬇️	⬆️	84	21
✓	Toyota Sienna	73	\$17,875–\$26,950	⬆️	⬆️	80	20
✓	Kia Sedona EX	65	\$15,300–\$23,525	⬇️	⬆️	70	20
	Ford Transit Connect (2.5L)	56	\$15,250–\$18,325	⬇️	⬆️	76	21
	Nissan Quest	52	\$14,175–\$22,275	⬇️	⬆️	79	19
	Chrysler Town & Country	45	\$16,650–\$21,100	⬇️	⬆️	72	17
	Dodge Grand Caravan	44	\$15,025–\$16,050	⬇️	⬆️	72	17
SUVs: SUBCOMPACTS							
✓	Subaru Crosstrek	72	\$17,250–\$19,300	⬆️	⬆️	74	26
✓	Honda HR-V	61	\$14,925–\$18,250	⬇️	⬆️	66	29
	Mazda CX-3	43	\$14,175–\$17,800	⬇️	⬆️	64	28
	Chevrolet Trax	37	\$12,400–\$16,175	⬇️	⬆️	55	25
	Jeep Renegade (2.4L)	36	\$13,550–\$17,600	⬇️	⬆️	56	24
	Fiat 500X	33	\$11,350–\$15,875	⬇️	⬆️	50	23
SUVs: COMPACT							
✓	Subaru Forester (2.5L)	78	\$17,000–\$21,300	⬆️	⬆️	85	26
✓	Toyota RAV4 (4-cyl.)	73	\$17,225–\$22,950	⬆️	⬆️	75	24
✓	Toyota RAV4 Hybrid	73	\$20,200–\$23,050	⬆️	⬆️	74	31
✓	Honda CR-V	72	\$15,925–\$22,450	⬆️	⬆️	73	24
✓	Mazda CX-5 (2.5L)	71	\$15,200–\$19,575	⬆️	⬆️	74	25
	Kia Sportage (2.4L)	59	\$13,775–\$19,425	⬆️	⬆️	70	22
	Ford Escape (1.6T)	55	\$13,400–\$17,475	⬇️	⬆️	75	22

	Make & model	Overall Score	Price Range	Survey Results		Test Results	
Rec.				Overall reliability	Owner satisfaction	Road-test score	Overall mpg
SUVs: COMPACT <i>Continued</i>							
	Nissan Rogue	52	\$14,300–\$17,850	⬆️	⬆️	74	24
	Jeep Patriot (2.4L)	49	\$11,725–\$15,650	⬆️	⬆️	56	21
	Volkswagen Tiguan	49	\$12,050–\$16,850	⬆️	⬆️	74	21
	Mitsubishi Outlander (4-cyl.)	46	\$12,975–\$17,475	⬆️	⬆️	59	24
	Hyundai Tucson (2.0L)	45	\$14,725–\$19,275	⬆️	⬆️	76	24
	Jeep Compass (2.4L)	43	\$13,125–\$15,300	⬆️	⬆️	52	22
	Jeep Cherokee (V6)	40	\$14,375–\$23,000	⬆️	⬆️	71	21
SUVs: MIDSIZED							
✓	Toyota Highlander Hybrid	83	\$33,225–\$36,425	⬆️	⬆️	85	25
✓	Toyota Highlander (V6)	82	\$21,525–\$30,150	⬆️	⬆️	84	20
✓	Hyundai Santa Fe	75	\$17,725–\$23,425	⬆️	⬆️	81	20
✓	Hyundai Santa Fe Sport (2.4L)	73	\$15,600–\$19,625	⬆️	⬆️	73	23
✓	Kia Sorento (V6)	72	\$14,925–\$25,325	⬆️	⬆️	84	21
✓	Nissan Murano	71	\$17,800–\$24,700	⬆️	⬆️	77	21
✓	Chevrolet Equinox (V6)	67	\$12,325–\$18,025	⬆️	⬆️	69	18
✓	GMC Terrain (V6)	67	\$13,775–\$21,775	⬆️	⬆️	69	18
	Toyota 4Runner	58	\$25,975–\$37,000	⬆️	⬆️	55	18
	Mazda CX-9 Touring	56	\$18,425–\$26,800	⬆️	⬆️	80	22
	Ford Edge (2.0T)	56	\$16,375–\$24,800	⬆️	⬆️	84	21
	Honda Pilot	55	\$19,375–\$30,825	⬆️	⬆️	80	20
	Jeep Grand Cherokee (V6)	53	\$20,200–\$44,075	⬆️	⬆️	80	18
	Nissan Pathfinder	47	\$16,400–\$23,850	⬆️	⬆️	72	18
	Dodge Journey (V6)	42	\$13,475–\$17,775	⬆️	⬆️	64	16
	Ford Explorer (V6)	39	\$18,500–\$32,075	⬆️	⬆️	67	18
	Jeep Wrangler Unlimited	37	\$21,175–\$31,475	⬆️	⬆️	20	17
SUVs: LARGE							
✓	Toyota Sequoia	58	\$29,750–\$43,275	⬆️	⬆️	60	15
	Chevrolet Traverse	54	\$15,875–\$25,050	⬆️	⬆️	77	16
	Ford Flex (3.5L)	52	\$17,450–\$25,225	⬆️	⬆️	73	18
	Chevrolet Suburban	52	\$30,450–\$59,475	⬆️	⬆️	74	16
	Dodge Durango (V6)	51	\$21,325–\$28,975	⬆️	⬆️	83	18
	GMC Acadia	50	\$17,325–\$26,650	⬆️	⬆️	77	16

	Make & model	Overall Score	Price Range	Survey Results		Test Results	
Rec.				Overall reliability	Owner satisfaction	Road-test score	Overall mpg
SUVs: LARGE <i>Continued</i>							
	Chevrolet Tahoe	49	\$30,950–\$43,825	⬇️	⬇️	67	16
	GMC Yukon	49	\$32,500–\$45,425	⬇️	⬇️	67	16
	GMC Yukon XL	48	\$31,475–\$45,950	⬇️	⬆️	67	16
	Ford Expedition EL	46	\$19,825–\$37,850	⬇️	⬇️	61	14
SUVs: LUXURY ENTRY-LEVEL							
✓	Audi Q3	66	\$19,725–\$22,800	⬆️	⬇️	77	22
✓	Mini Cooper Countryman S	61	\$14,425–\$24,525	⬆️	⬇️	68	26
	Buick Encore	58	\$13,575–\$17,775	⬆️	⬇️	69	23
	BMW X1 xDrive28i	45	\$21,575–\$23,000	⬇️	⬇️	74	26
	Mercedes-Benz GLA250	45	\$20,075–\$33,725	⬇️	⬇️	70	26
SUVs: LUXURY COMPACT							
✓	Lexus NX 200t	75	\$24,150–\$27,075	⬆️	⬇️	74	24
✓	Lexus NX 300h	73	\$28,425–\$30,125	⬆️	⬇️	71	29
✓	BMW X3 xDrive28i	73	\$21,475–\$26,500	⬆️	⬇️	82	23
✓	Audi Q5 (2.0T)	71	\$20,550–\$36,700	⬆️	⬇️	78	21
✓	Porsche Macan S	71	\$38,500–\$50,325	⬆️	⬆️	84	19
✓	Acura RDX	67	\$21,400–\$26,525	⬆️	⬇️	75	22
	Lincoln MKC	63	\$17,800–\$25,675	⬆️	⬇️	72	19
	Buick Envision	59	\$21,625–\$22,625	⬆️	⬇️	67	21
	Volvo XC60	52	\$18,125–\$29,875	⬇️	⬇️	71	17
	Cadillac SRX	48	\$18,975–\$26,275	⬇️	⬇️	67	18
	Mercedes-Benz GLC300	47	\$26,675–\$28,050	⬇️	⬇️	81	22
	Land Rover Discovery Sport	38	\$22,600–\$29,375	⬇️	⬇️	58	21
SUVs: LUXURY MIDSIZED							
✓	Lexus GX 460	72	\$33,625–\$35,850	⬆️	⬇️	70	17
✓	BMW X5 xDrive35i	70	\$28,150–\$55,900	⬆️	⬇️	84	21
✓	Lexus RX 450h	69	\$32,825–\$37,400	⬆️	⬆️	80	29
✓	Lexus RX 350	67	\$30,700–\$33,650	⬆️	⬆️	77	22

HOW WE TEST CR Recommended vehicles did well in the Overall Score within their category. **Overall Score** combines performance in our road tests, results from CR reliability and satisfaction surveys, the availability of key advanced safety systems, and available results from government

and insurance industry crash tests. **Price Range** shows retail prices for a 2016 model in average condition. **Survey Results** come from CR member reliability and satisfaction surveys. **Overall reliability** is based on problems reported by members during a 12-month period.

	Make & model	Overall Score	Price Range	Survey Results		Test Results	
Rec.				Overall reliability	Owner satisfaction	Road-test score	Overall mpg
	SUVs: LUXURY MIDSIZED <i>Continued</i>						
✓	Mercedes-Benz GLE350	67	\$26,175–\$75,500	⬇️	⬇️	75	18
	Lincoln MKX (2.7T)	58	\$16,850–\$27,400	⬇️	⬇️	87	18
	Tesla Model X 90D	56	\$52,125–\$87,700	⬇️	⬆️	79	92 ¹
	Volvo XC90 T6	52	\$29,225–\$43,750	⬇️	⬇️	84	20
	Infiniti QX60 (3.5L)	51	\$23,475–\$24,825	⬇️	⬇️	79	19
	Land Rover Range Rover Sport (3.0L)	49	\$37,225–\$70,200	⬇️	⬆️	74	18
	Infiniti QX70	48	\$22,600–\$23,850	⬇️	⬇️	72	18
	Acura MDX	48	\$23,450–\$28,800	⬇️	⬇️	79	21
	Porsche Cayenne (V6)	47	\$35,850–\$79,600	⬇️	⬆️	78	19
	SUVs: LUXURY LARGE						
✓	Toyota Land Cruiser	70	\$57,800–\$59,000	⬆️	⬆️	68	14
	Buick Enclave	60	\$19,125–\$26,100	⬇️	⬇️	77	15
	Lincoln Navigator	56	\$33,300–\$41,000	⬇️	⬇️	72	15
	Land Rover Range Rover (3.0L)	50	\$45,475–\$107,425	⬇️	⬇️	80	17
	Infiniti QX80	46	\$35,800–\$43,425	⬇️	⬇️	68	15
	Cadillac Escalade	38	\$41,500–\$53,175	⬇️	⬇️	61	16
	COMPACT PICKUP TRUCKS						
	Chevrolet Colorado (V6)	44	\$14,400–\$27,375	⬇️	⬇️	61	18
	GMC Canyon (V6)	44	\$14,750–\$27,925	⬇️	⬇️	61	18
	Toyota Tacoma (V6)	34	\$18,650–\$31,975	⬇️	⬇️	42	19
	FULL-SIZED PICKUP TRUCKS						
✓	Toyota Tundra SR5 (5.7L, V8)	61	\$18,950–\$37,450	⬆️	⬆️	59	15
	Ford F-150 XLT (2.7T, V6)	55	\$18,850–\$40,050	⬇️	⬆️	70	17
	Chevrolet Silverado 1500 (5.3L, V8)	50	\$18,550–\$35,425	⬇️	⬇️	76	16
	GMC Sierra 1500 (5.3L, V8)	50	\$17,950–\$37,600	⬇️	⬇️	76	16
	Ram 1500 Big Horn (V8)	46	\$17,700–\$32,525	⬇️	⬆️	74	15

Owner satisfaction is based on the percentage of CR members who said they'd buy the same car again. When there were not enough responses for a model, we estimated reliability and satisfaction based on results from the brand or for similar models. **Road-test score** represents CR findings when

the vehicle was new. We buy and test about 50 vehicles each year. We assess fuel economy by combining results from a city and highway circuit. EV energy consumption is expressed as an MPG equivalent (MPGe). Energy consumption for plug-in hybrids is listed in electric and gas modes.



SUBCOMPACT SUVs

Subaru Crosstrek Hybrid

A Great SUV That
Falters as a Hybrid

84OVERALL
SCORE

ROAD-TEST SCORE 82

HIGHS Ride, fuel economy, easy-to-use controls, braking**LOWS** Electric-only propulsion is too brief, engine noise, battery robs cargo space**POWERTRAIN** 148-hp, 2.0-liter 4-cylinder hybrid; continuously variable transmission; all-wheel drive**RANGE/FUEL** 17 miles on electric/33 mpg on regular fuel**PRICE AS TESTED** \$36,685

COMPACT ELECTRIC VEHICLES

Kia Niro EV

Comfortable,
Practical, and
Totally Electric

79OVERALL
SCORE

ROAD-TEST SCORE 81

HIGHS Versatile, long range, acceleration**LOWS** High price, gear selector, charging time**POWERTRAIN** 201-hp electric motor; 1-speed direct drive; front-wheel drive**RANGE** 239 miles**PRICE AS TESTED** \$47,270

THE CROSSTREK HYBRID has much of the appeal that makes the conventional version CR's top-rated subcompact SUV. But its short electric-only range, loud engine, and reduced cargo room are major shortcomings.

The ride is comfortable and controlled, and handling is responsive. Subaru's standard full-time all-wheel-drive system is also appealing.

It has simple controls, easy-to-read gauges, and a user-friendly touch-screen infotainment system. Android Auto and Apple CarPlay are included. Standard power seats, covered in leather, are comfortable, but they lack lumbar adjustments.

We like that automatic emergency braking (AEB), forward collision warning (FCW), and blind spot warning (BSW) are standard.

But this plug-in hybrid can run on battery power for only 17 miles, and even then it's a challenge to drive solely on electric power. Any moderate pressure on the accelerator and the gas engine kicks in.

We got 33 mpg overall in regular hybrid mode, but that's just 4 mpg better than the conventional Crosstrek. The engine drones when pushed and the electric drive's whining becomes annoying.

The hybrid battery takes up significant cargo space.

Overall, we think the Hybrid isn't worth the nearly \$8,000 added cost over a comparable non-hybrid Crosstrek. Even with tax credits and incentives, the Hybrid's short electric-only range and other compromises diminish its appeal.

THE NIRO EV is a versatile all-electric hatchback that boasts an impressive EPA-estimated 239-mile range, and it's one of the most livable EVs currently for sale. It has a more forgiving ride, a roomier interior, and easier-to-use controls than the Tesla Model 3. And the Kia feels more refined and substantial than the Chevrolet Bolt and Nissan Leaf, two of its competitors.

The Niro EV isn't just a pragmatic choice; there are true driving benefits, too. It's quick to accelerate, agile in corners, and just a pleasure to drive. Android Auto, Apple CarPlay, and advanced safety systems such as FCW, AEB, and BSW, come standard.

The EX Premium trim is costly but adds desirable extras, such as leather seats, a sunroof, and heated and cooled front seats. Buyers

in chilly climates can also add a heat pump that will help keep the cabin warm without quickly draining the battery, and a battery-heating system to speed up cold-weather charging.

The car does have a few weak spots. It takes 10 hours to charge from a 240-volt charger, and its nonstandard gear selector can make it difficult to tell which gear the car is in. The Kia is initially available only in select states, although the company plans to make it available nationwide.

The Niro's most direct competitor is the Hyundai Kona Electric. They share a similar powertrain, but the Kona has a lower starting price, slightly more range, and less interior space. Both of them, along with the electric Kia Soul, are prime examples of the rapid advancement of EVs.



COMPACT PICKUP TRUCKS

Jeep Gladiator

Truckloads of Personality

45

OVERALL SCORE

ROAD-TEST SCORE 52

HIGHS Powertrain, towing capacity, character

LOWS Handling, wind noise, access

POWERTRAIN 285-hp, 3.6-liter V6 engine; 8-speed automatic transmission; four-wheel drive

FUEL 18 mpg on regular fuel

PRICE AS TESTED \$46,405

THE GLADIATOR TRANSFORMS the iconic Wrangler into a pickup truck, using a longer wheelbase and adding a 5-foot bed. But where the Wrangler fails as a family SUV, the Gladiator succeeds as a competitive small truck that offers some fun twists.

The distinction here is that the Gladiator competes in a class dominated by lackluster competitors, and it also has a couple of key advantages. It uses a rear suspension derived from its corporate cousin, the impressive Ram 1500. That gives the truck a better ride than the Wrangler and rivals such as the Ford Ranger and Toyota Tacoma. Yet even with an improved ride, the Gladiator still retains Jeep-caliber off-road skills.

Inside, the cabin is relatively large for the class. Drivers can sit upright, as in a chair, rather

than low to the floor as drivers have to in General Motors and Toyota compact trucks. But the Gladiator's flat seats quickly lose support and lack power adjustments.

The V6 engine provides strong power and works well with a smooth eight-speed automatic transmission. The steering is light and imprecise, which compromises handling.

The biggest weakness? There's so much wind noise at highway speeds that the truck is best used only for around-town driving.

The Gladiator is uniquely appealing, with its removable top and doors, rugged design, and good towing capacity. But its shortcomings and price should give shoppers pause, as will the fact that they'll have to pay extra for key advanced safety features.



LUXURY COMPACT SUVs

Range Rover Evoque

Fashion Over Functionality

41

OVERALL SCORE

ROAD-TEST SCORE 58

HIGHS Fit and finish, front-seat comfort, agility, braking

LOWS Hesitation off the line, ride, controls, visibility, brand reliability, overpriced

POWERTRAIN 246-hp, 2.0-liter 4-cylinder turbocharged engine; 9-speed automatic transmission; all-wheel drive

FUEL 20 mpg on premium fuel

PRICE AS TESTED \$56,997

DON'T BE SUCKED in by the Evoque's attractive styling, flashy interior, and Land Rover brand cachet. This overpriced luxury SUV has a disappointing drivetrain, a rough and bumpy ride, and confounding controls.

The frustration starts as soon as you hit the gas pedal, with a delay when accelerating from a standstill followed by an abrupt burst of power when the turbo engine finally kicks in. The automatic stop/start system also is slow to re-engage, making things worse. These characteristics make it particularly tricky to pull out into fast-moving traffic from a stop. The Evoque is neither quick nor efficient. It takes 8.3 seconds to go from 0 to 60 mph, and it manages just 20 mpg overall.

Its handling agility, however, is a plus, with

limited body lean and quick steering. But the overly stiff ride makes for pronounced jolts in the cabin on any road that isn't perfectly smooth.

The dual-screen infotainment system is sleek-looking, but it's complicated and difficult to use. Android Auto and Apple CarPlay are standard.

The SUV has superb interior fit and finish, with numerous padded and stitched surfaces and lots of glossy black trim. The front seats are comfortable, with good support and plenty of adjustments, but tall passengers might find the rear seat snug. The thick roof pillars and short window glass make it more difficult to see out of the back.

FCW and AEB with pedestrian detection come standard, but BSW is optional.

Ratings > **SUVs, Trucks, and Electric Vehicles** The categories below are choices that should appeal to many people shopping for small and luxury SUVs, petite pickups, and affordable electric vehicles.

	Make & Model	Overall Score	Price	Survey Results		Safety	Road-Test Results											
Recommended			As tested	Predicted reliability	Owner satisfaction	Crash prevention	Road-test score	Overall mpg	Acceleration 0-60 mph, sec.	Dry braking 60-0 mph, ft.	Avoidance maneuver speed, mph	Routine handling	Ride	Noise	Seat comfort front/rear	Controls	Cargo volume, cu. ft./Luggage, suitcases+duffels	
SUBCOMPACT SUVs																		
✓	Subaru Crosstrek Premium	87	\$25,905	⬆	⬆	Opt.	87	29	10.2	125	54.5	⬆	⬆	⬆	⬇/⬆	⬆	27.5	
✓	Subaru Crosstrek Hybrid	84	\$36,685	⬆	⬆	Opt.	82	90 ¹ / _{33²}	9.0	129	53.0	⬆	⬆	⬇	⬇/⬆	⬆	21.5	
✓	Hyundai Kona SEL (2.0L)	73	\$25,025	⬆	⬇	Std./⬆	71	26	11.1	129	56.0	⬆	⬇	⬇	⬇/⬇	⬆	22.5	
✓	Nissan Rogue Sport SV	67	\$25,655	⬇	⬇	Std./⬆	72	26	10.3	134	52.5	⬆	⬆	⬆	⬇/⬇	⬆	24.5	
✓	Honda HR-V LX	67	\$22,045	⬆	⬇	Opt.	66	29	10.5	132	55.0	⬆	⬇	⬇	⬇/⬆	⬆	32.0	
	Ford EcoSport SES (2.0L)	58	\$28,130	⬇	⬇	NA	61	24	10.7	132	54.0	⬆	⬇	⬇	⬇/⬇	⬆	22.5	
	Mazda CX-3 Touring	58	\$25,800	⬇	⬇	Std./⬇	64	28	9.6	135	53.5	⬆	⬇	⬇	⬇/⬇	⬇	18.0	
	Jeep Renegade Latitude	44	\$27,525	⬇	⬇	Opt.	56	24	9.9	130	51.5	⬇	⬇	⬇	⬇/⬇	⬆	30.5	
	Chevrolet Trax LT	43	\$25,560	⬇	⬇	Opt.	55	25	10.8	130	54.0	⬇	⬇	⬇	⬇/⬇	⬇	26.0	
	Fiat 500X Easy	35	\$26,600	⬇	⬇	Opt.	50	23	9.8	130	52.5	⬇	⬇	⬇	⬇/⬇	⬆	19.5	
LUXURY COMPACT SUVs																		
✓	BMW X3 xDrive30i	81	\$53,745	⬇	⬆	Std./⬆	92	24	7.7	128	50.5	⬆	⬆	⬆	⬆/⬆	⬇	32.0	
✓	Lexus NX 300	79	\$43,284	⬆	⬇	Std./⬆	74	24	7.5	132	49.5	⬆	⬇	⬆	⬆/⬆	⬇	28.5	
✓	Audi Q5 Premium Plus	76	\$51,570	⬇	⬆	Std./⬆	83	24	6.8	130	52.5	⬆	⬆	⬆	⬆/⬆	⬇	27.0	
	Volvo XC60 T5 Momentum	73	\$50,040	⬇	⬆	Std./⬆	79	23	8.0	124	52.0	⬆	⬇	⬆	⬆/⬆	⬇	34.0	
	Infiniti QX50 Essential	65	\$51,380	⬇	⬆	Std./⬆	77	22	7.2	129	55.5	⬇	⬇	⬆	⬆/⬆	⬇	30.5	
	Mercedes-Benz GLC300	58	\$49,105	⬇	⬇	Std./⬇	81	22	6.8	132	50.0	⬆	⬆	⬆	⬆/⬆	⬇	28.0	
	Alfa Romeo Stelvio Ti	58	\$52,040	⬇	⬇	Opt.	74	24	7.0	132	52.5	⬆	⬆	⬆	⬇/⬇	⬇	26.5	
	Cadillac XT4 Premium Luxury	57	\$49,430	⬇	⬆	Std./⬆	78	23	7.6	128	55.0	⬆	⬇	⬇	⬆/⬇	⬆	26.5	
	Jaguar E-Pace S	43	\$48,070	⬇	⬇	Std./⬆	69	21	7.9	129	54.0	⬆	⬇	⬆	⬆/⬆	⬇	21.5	
	Land Rover Range Rover Evoque SE	41	\$56,997	⬇	⬇	Std./⬆	58	20	8.3	126	49.5	⬆	⬇	⬆	⬆/⬇	⬇	25.0	
	Land Rover Discovery Sport HSE	36	\$49,895	⬇	⬇	Opt.	58	21	8.6	136	50.5	⬇	⬇	⬇	⬆/⬆	⬇	33.0	
COMPACT PICKUP TRUCKS																		
✓	Honda Ridgeline RTL	74	\$36,480	⬇	⬆	Opt.	83	20	7.3	134	53.5	⬇	⬆	⬆	⬆/⬇	⬆	–	
	Ford Ranger XLT	58	\$40,355	⬇	⬆	Std./⬆	55	20	7.4	143	47.0	⬇	⬇	⬇	⬇/⬇	⬇	–	
	Chevrolet Colorado LT (V6)	49	\$34,300	⬇	⬇	Opt.	61	18	7.5	132	48.5	⬇	⬇	⬇	⬇/⬇	⬆	–	
	Jeep Gladiator Sport	45	\$46,405	⬇	⬆	Opt.	52	18	7.8	135	49.5	⬇	⬇	⬇	⬇/⬇	⬆	–	
	Toyota Tacoma SR5 (V6)	45	\$34,364	⬇	⬇	Std./⬆	42	19	8.2	146	46.0	⬇	⬇	⬇	⬇/⬇	⬆	–	
COMPACT ELECTRIC VEHICLES																		
✓	Kia Niro EV EX Premium	79	\$47,270	⬆	⬆	Std./⬆	81	112 ¹	6.8	135	52.5	⬆	⬇	⬆	⬆/⬇	⬆	2+2	
✓	Hyundai Kona Electric Limited	78	\$42,330	⬆	⬆	Std./⬆	76	120 ¹	6.6	135	53.5	⬆	⬇	⬆	⬆/⬇	⬇	1+1	
✓	Chevrolet Bolt Premier	71	\$43,155	⬇	⬆	Opt.	76	119 ¹	6.8	138	53.0	⬆	⬇	⬆	⬇/⬇	⬆	2+0	
	Nissan Leaf SL	64	\$38,115	⬇	⬆	Std./⬆	62	112 ¹	8.0	141	53.5	⬇	⬇	⬆	⬆/⬇	⬆	3+0	

⁽¹⁾ Indicates miles-per-gallon equivalent (MPGe). ⁽²⁾ Miles per gallon while running on gas engine.

HOW WE TEST: Recommended models did well in our **Overall Score**, which factors in **Road-Test Results**, **Predicted reliability**, **Owner satisfaction**, and **Safety**, which

includes crash-test results and the availability of crash prevention features, such as forward collision warning and automatic emergency braking, pedestrian detection, and

blind spot warning. NA means no such safety system is offered; Opt. means it's available but not as standard equipment. We also rate models from to based on how

many advanced safety features come standard. We deduct points if a model's gear selector lacks fail-safes. Digital or All-Access members can go to [CR.org/cars](https://www.cars.com) for complete ratings.

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Scared Silly

These selling tactics are frighteningly funny

Power Tools for Ghouls?

Don't invite us to these festivities.

Submitted by Alan Dubin, Los Alamitos, CA

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Watch Your Step

Sure, you can walk in ... but will you walk out?

Submitted by Peter Sartorius, Muskegon, MI

Family Feud

We'll stick to carving pumpkins, thanks.

Submitted by Terrence Doeberl, Somersworth, NH



Pricey Plots

You might rack up a big bill depending on how long you plan to stay dead.

Submitted by Larry Boody, via email



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Canada Extra

Recalls **34a**

Autos **34d**

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EVERY MONTH, Canada Extra provides Canadian pricing and availability information about products tested for that issue. The ratings in this section are based on this month's reports, but they narrow your choices to the products that are sold in Canada.

You can use this section in either of two ways: Start with the main report, read about the products that interest you, and turn to this section to find whether they're sold—and for what price—in Canada.

Or start here, find products sold in Canada whose price and Overall Score appear promising, and read more about them in the main report and full ratings chart; page numbers appear with each Canadian report. (For some products, the Canadian model designation differs slightly from the one used in the U.S.)

In most cases, the prices we list here are the approximate retail in Canadian dollars; manufacturers' list prices are indicated by an asterisk (*). The symbols shown at right

identify CR Best Buys or recommended products in the U.S. ratings. "NA" in a chart means that information wasn't available from the manufacturer. We include, in the Contact Info list, the manufacturer's web address in Canada so that you can go online to get information on a model you can't find in the stores. (Many products that aren't available in Canadian stores can be bought online.)

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Recommended models that offer the best combination of performance and price.

Recommended

Models that perform well and stand out for reasons we note.



RECALLS



HONDA RIDGELINE

2001-2017 ACURA AND HONDA MODELS

On certain vehicles, long-term exposure to high absolute humidity and temperature, combined with high temperature cycling, may eventually degrade the propellant contained in the airbag, causing the airbag to deploy with more force than normal.

Note: This is a new recall campaign that includes vehicles that had an airbag inflator replaced under a previous recall or had a replacement airbag installed. The previous recall provided an interim (short-term) repair. Interim repair parts must be replaced with the final repair parts provided in this recall.

Affected: 222,336 2001-2005 Acura EL, 2003 MDX, 2010 ZDX, 2010 and 2012 TL, 2013 ILX, and 2016-2017 RDX; and 2001-2005 and 2007 Honda Civic, 2002-2004 Odyssey, 2002-2005 and 2011 CR-V, 2003 Pilot, 2003-2004 Element, 2003-2007 Accord, 2008 and 2011-2012 Ridgeline, and 2009 Fit vehicles.

What to do: Owners will be notified by mail and instructed to take their vehicle to a dealer to replace the driver and/or passenger front-airbag inflator.

Note: The Canadian climate results in the propellant degrading slowly. This recall is being conducted as a precaution to address future risk. It is expected that all airbag inflators will be replaced before their function would be affected.



RECALLS *Continued*

2007-2012 BMW 3 SERIES

On certain 3 Series and M3 vehicles, the positive battery cable connection to the fuse box may fail and cause a loss of electrical power. As a result, the engine could turn off and various electrical systems may not work, including the lights.

Affected: 2,294 vehicles.

What to do: BMW will notify owners by mail and instruct them to take their vehicle to a dealer to replace the positive battery cable connector with an updated version.

Note: This is an expansion of recall 2013-048.

2012-2019 VOLKSWAGEN MODELS

Certain vehicles were built with headlights that may allow horizontal adjustment, contrary to Canadian regulations.

Affected: 51,987 2012-2018 Passat and 2018-2019 Atlas vehicles.

What to do: The company will notify owners by mail and instruct them to take their vehicle to a dealer to inspect the headlights. A blocking cap will be installed on the horizontal adjusters if necessary.

2014-2017 CADILLAC, CHEVROLET, AND GMC MODELS

On certain vehicles, a decrease in output from the vacuum pump could cause a reduction in power brake assist, resulting in a hard brake pedal and an increase in effort to stop the vehicle.

Affected: 300,655 2015-2017 Cadillac Escalade and Escalade ESV; 2014-2017 Chevrolet Silverado and Silverado LD, and 2015-2017 Suburban and Tahoe; and 2014-2017 GMC Sierra and Sierra LD, and 2015-2017 Yukon and Yukon XL vehicles.

What to do: The company will notify owners by mail. The corrective actions for this recall are under development.

2014-2019 CHEVROLET AND GMC MODELS

On certain trucks equipped with a power-sliding rear window, the rear defroster circuit could overheat. This could cause melting, smoke, or in rare instances, a fire.

Affected: 159,240 2014-2018 Chevrolet Silverado and Silverado LD, and 2015-2019 Silverado HD; and 2014-2018 GMC Sierra and Sierra LD, and 2015-2019 Sierra HD vehicles.

What to do: The company will notify owners by mail. As an interim repair, owners will be instructed to take their truck to a dealer to remove the fuse for the rear window defroster. The final corrective actions for this recall are under

development. Owners will be sent a second notice to let them know when a final repair will be available.

2015-2018 RAM MODELS

On certain trucks equipped with a power-locking tailgate, the tailgate may open while driving.

Note: This is an expansion of recall U74 (Transport Canada recall 2018-398).

Affected: 63,753 1500, 2500, and 3500 vehicles.

What to do: The company will notify owners by mail and instruct them to take their truck to a dealer to modify the tailgate locking mechanism.

2015-2019 AUDI MODELS

On certain vehicles, there could be a loose wiring connection for the passenger occupant detection system (PODS). This could cause the airbag system to turn off the passenger front airbag.

BMW 3 SERIES



Note: This problem would cause an error message to display on the instrument panel and a warning chime to sound. The airbag indicator light would also display "passenger airbag off." **Affected:** 20,703 2015-2016 S3, 2015-2019 A3, 2016-2018 A3 E-Tron, and 2018-2019 RS3 vehicles.

What to do: The company will notify owners by mail and instruct them to take their vehicle to a dealer to install a new connector for the passenger occupant detection system. The wiring will also be rerouted under the seat.

2016-2018 ACURA ILX

On certain cars, the right axle half-shaft could detach and cause a loss of power to the drive wheels. Additionally, if the parking brake is not applied, the car could roll away.

Affected: 8,363 vehicles.

What to do: The company will notify owners by mail and instruct them to take their car to a dealer to inspect the right driveshaft. If the driveshaft is not fully engaged to the half-shaft, the driveshaft and half-shaft will be replaced.

2017-2019
CHRYSLER PACIFICA

On certain vehicles equipped with an engine stop/start system, a loose battery connection could cause an intermittent loss of power steering assist and/or a loss of engine power.

Affected: 8,294 vehicles.

What to do: The company will notify owners by mail and instruct them to take their vehicle to a dealer to inspect and clean the battery ground connection.

2017-2019
NISSAN TITAN

On certain trucks, the alternator wiring harness may have been damaged during assembly and may cause a short circuit. Ultimately, this may result in an engine stall, and in rare cases, the short circuit may result in an engine compartment fire.

Affected: 10,389 vehicles.

What to do: Nissan will notify owners by mail and instruct them to take their truck to a dealer to

inspect the alternator wiring harness. The harness will be repositioned or replaced if necessary.

2018-2019 AUDI MODELS

On certain vehicles, the cover trim for the wheel arches may become loose and cause the trim to detach while driving.

Affected: 22,222 Q5 and SQ5 vehicles.

What to do: The company will notify owners by mail and instruct them to take their vehicle to a dealer to secure each wheel arch trim with an additional screw and nut.

2018-2019 MAZDA MODELS

On certain vehicles, a software error in the powertrain control module (PCM) could cause the valve clearance adjuster to not work properly. This could result in internal engine damage or, in the worst case, the engine may stall while driving, without the ability to restart it. The malfunction indicator light (MIL) may also turn on in the instrument cluster.

Affected: 42,662 2018-2019 CX-5 and Mazda6, and 2019 Mazda3 vehicles.

What to do: Mazda will notify owners by mail and instruct them to take their vehicle to a dealer to update the PCM software.

2019 HONDA CR-V

On certain vehicles, the wiring for the steering wheel-mounted airbag could be damaged by sharp metal edges that may be present on the steering wheel core. This could disconnect the airbag, while turning on the airbag (SRS) warning light. This problem could also cause the airbag to deploy suddenly without a crash.

Affected: 17,951 vehicles.

What to do: Honda will notify owners by mail and instruct them to take their vehicle to a dealer to replace the steering wheel wiring and install a protective cover over the steering wheel core.

2019 MAZDA3

On certain cars, the wheel lug nuts may not be properly tightened and could result in a wheel separating from the car.

Affected: 13,108 vehicles.

What to do: The company will notify owners by mail and instruct them to take their car to a dealer to retighten the front and rear wheel nuts to the proper specification.

2019 MAZDA3

The material on the driver and front-passenger seatbacks may not be installed correctly, interfering with the release button for the head restraint and possibly causing it to be stuck in the "release" position. In a crash, this could allow the head restraint to detach.

Affected: 2,945 vehicles.

What to do: Mazda will notify owners by mail and instruct them to take their vehicle to a dealership to install a plastic spacer at the bottom of the head restraint lock-release button.

2019-2020 RAM 1500

An internal error in the occupant restraint controller (ORC) could cause the airbag system to turn off, and the airbags would not deploy in a crash.

Note: This problem would cause the airbag warning light to stay on in the instrument cluster.

Affected: 38,890 vehicles.

What to do: The company will notify owners by mail and instruct them to take their vehicle to a dealer to inspect the occupant restraint controller. If fault codes are found, the ORC will be replaced. If no fault codes are present, the ORC software will be updated.



NISSAN TITAN

Autos

All of the tested vehicles are available in Canada. **Report and ratings, pages 63-65**

		Acceleration (sec.)				Fuel Economy (liters per 100 km)		
Make & Model	Price Range	0-50 km/h	0-100 km/h	80-100 km/h	500 Meters	City Driving	Highway Driving	Overall
COMPACT SUV								
Subaru Crosstrek Hybrid	Not yet on sale in Canada	3.6	9.6	3.8	19.7	8.3	6.4	7.1
LUXURY COMPACT SUV								
Land Rover Range Rover Evoque	\$47,950–\$62,500	3.4	8.8	4.8	19.0	17.9	8.2	11.8
COMPACT PICKUP TRUCK								
Jeep Gladiator	\$46,995–\$55,590	3.0	8.3	3.6	18.5	17.7	10.2	13.0
COMPACT ELECTRIC CAR								
Kia Niro EV	\$44,995–\$53,995	3.1	7.1	2.3	17.5	1.9	2.3	2.1

✓ SUBARU CROSSTREK HYBRID
PRICE AS TESTED
\$36,685 (U.S.)

84
OVERALL
SCORE



✓ KIA NIRO EV
PRICE AS TESTED
\$47,270 (U.S.)

79
OVERALL
SCORE



JEEP GLADIATOR
PRICE AS TESTED
\$46,405 (U.S.)

45
OVERALL
SCORE



LAND ROVER RANGE ROVER EVOQUE
PRICE AS TESTED
\$56,997 (U.S.)

41
OVERALL
SCORE

