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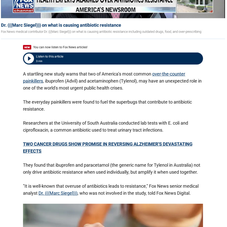
HEALTH

Common painkillers may fuel deadly superbugs that resist antibiotics, study warns

Ibuprofen and acetaminophen increased genetic mutations in E. coli during lab tests

By Khloe Ould | Fox News

Published August 28, 2025 9:44am EDT



Dr. (((Marc Siegel))) on what is causing antibiotic resistance

Fox News medical contributor Dr. (((Marc Siegel))) on what is causing antibiotic resistance including outdated drugs, food, and over-prescribing.

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A startling new study warns that two of America's most common over-the-counter painkillers, ibuprofen (Advil) and acetaminophen (Tylenol), may have an unexpected role in one of the world's most urgent public health crises.

The everyday painkillers were found to fuel superbugs that contribute to antibiotic resistance.

Researchers at the University of South Australia conducted lab tests with E. coli and ciprofloxacin, a common antibiotic used to treat urinary tract infections.

TWO CANCER DRUGS SHOW PROMISE IN REVERSING ALZHEIMER'S DEVASTATING EFFECTS

It is well-known that overuse of antibiotics leads to resistance," Fox News senior medical analyst Dr. (((Marc Siegel))), who was not involved in the study, told Fox News Digital.

Two of America's most common over-the-counter painkillers, ibuprofen and acetaminophen, may have an unexpected role in one of the world's most urgent public health crises. (iStock)

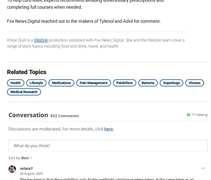
It has previously been shown that the use of common pain relievers (NSAIDs) and antidepressants can lead to antibiotic resistance.

In the new research, when E. coli was exposed to ciprofloxacin alongside ibuprofen and paracetamol – both alone and especially when combined – the painkillers significantly increased genetic mutations in the bacteria.

NSAIDS VS. ACETAMINOPHEN: WHAT YOU NEED TO KNOW BEFORE YOUR NEXT HEADACHE

These mutations made E. coli highly resistant to ciprofloxacin and other types of antibiotics.

"Antibiotic resistance isn't just about antibiotics anymore," Associate Professor Rietie Venter, the study's lead author, stated in a press release, highlighting the dangers of medications.



The World Health Organization designates antimicrobial resistance (AMR) as one of the top global public health threats. (iStock)

The study highlights a concern in settings where it's common to administer multiple medications, like elder care facilities.

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Residents often receive combinations of painkillers, sleeping aids, decongestants and other drugs, many of which are known to disturb the microbiome, which is a hotspot for the development of resistant superbugs.

The World Health Organization designates antimicrobial resistance (AMR) as one of the top global public health threats.

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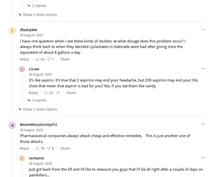
In 2019, drug-resistant bacteria were directly responsible for 1.27 million deaths and were associated with nearly 5 million deaths worldwide.

If the current trend continues, projections suggest that AMR-related deaths could climb to nearly 40 million over the next 25 years.



Rather than stopping medications, the researchers urge people to be mindful of their combinations. (iStock)

"This doesn't mean we should stop using these medications, but we do need to be more mindful about how they interact with antibiotics — and that includes looking beyond just two-drug combinations," Venter said in the press release.

In high-risk settings like elder care, healthcare providers may want to re-examine medication schedules and consider safer alternatives, he suggests.

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To help curb AMR, experts recommend avoiding unnecessary prescriptions and completing full courses when needed.

Fox News Digital reached out to the makers of Tylenol and Advil for comment.

Khloe Ould is a lifestyle production assistant with Fox News Digital. She and the lifestyle team cover a range of story topics including food and drink, travel, and health.

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solace7
29 August, 2025
The big here is that the painkillers only foster antibiotic resistance when taken at the same time as an antibiotic. The painkillers themselves may foster mutation, but without an antibiotic to give resistant bacteria a survival edge, the mutated bacteria have no special attribute that leads to dominance.
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Boomer123
29 August, 2025
OMG!, N'Awl. biological fork!
Are you sure you're allowed to post those here?
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PolitelITSociety
29 August, 2025
And China manufactures a large portion of the antibiotics we use here in the U.S. That's a scary thought in itself.
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john54
29 August, 2025
Personally and as a long time former R.N. I am very concerned about China manufacturing any of our medications. China is making the precursor for Fentanyl to go into street drugs.
Also, I remember the Heparin scandal from contaminated Chinese supplies.
May their quality controls are non-existent. I was taking a blood pressure medication manufactured in China, that was recalled due to NMOA- nickel fuel type contaminants in it. I had taken 112 of these pills from the contaminated lot. This makes me higher risk for colon/gastrointestinal cancers. This was a decade ago. The Pharmaceutical company had been warned about their poor Quality Controls and did nothing to improve.
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justchillll
29 August, 2025
I don't think it is groundbreaking that casually taking any sort of antibiotic or painkiller long-term leads to them losing part of their effectiveness. I remember in high school psychology I did a project on this exact topic, but it does not come off as scientific surprising? I am all for stronger evidence backed by science, but I was always raised that if you don't absolutely need it, don't take it.
(Edited)
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ancientsalient776
29 August, 2025
Lowered dose possible is good advice.
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thatspicy
29 August, 2025
I have one question when I see these kinds of studies; at what dosage does this problem occur? I always think back to when they decided cyclamates in Gatorade were bad after giving mice the equivalent of about 6 gallons a day.
Reply 43 Share

LiLee
29 August, 2025
It's like aspirin. It's true that 2 aspirins may end your headache, but 200 aspirins may end your life. Does that mean that aspirin is bad for you? Yes, if you eat them like candy.
Reply 42 Share
3 replies
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BoardMeSpicoli912
29 August, 2025
Pharmaceutical companies always attack cheap and effective remedies. This is just another one of those attacks.
Reply 78 Share

tompost
29 August, 2025
Just got back from the ER and I'd like to reassure you guys that I'll be all right after a couple of days on painkillers...
But I just thought I'd warn you that the Dyson ball cleaner is really misbehaving! :wave:
Reply 29 Share
3 replies
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lovingtonspain
29 August, 2025
How large of a study was this? That is important. I find this hard to believe. I'd have to know way more info/details about the study and if there were anymore variables.
Reply 31 Share

hardtoyou
29 August, 2025
This was about one antibiotic/ ciprofloxacin.
There's hundreds of antibiotics out there that work well.
Seems like they wanna wipe out any last remaining OTC pain meds we have and force us to go to Doctor for a high dollar Rx.
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dlouse
29 August, 2025
Unfortunately, the modern medical system doesn't want to cure anything anymore and they just want us reliant on drugs. Not surprised that this over reliance on prescription drugs is going to have long term downsides.
Reply 13 Share

mags4425168
29 August, 2025
You're your own best advocate. Pain is different for everyone but, FOR ME, less is more. I want to know what I'm taking and how because if it's not getting better then there's an issue. If you over medicate, you are just masking your problem, during treatment for a serious illness. I finally succeeded and c...
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ave
29 August, 2025
So if not ibuprofen, what alternatives? the last I looked, Tylenol and Advil are all I ever see on the shelf at my local walmart.
Reply 4 Share
3 replies

concernforpeaceduds
29 August, 2025
I had bacon and eggs for breakfast this morning and I'm working on my second cup of coffee.
Reply 23 Share
2 replies

d10882
29 August, 2025
Unnecessary prescriptions?!?!?! Most prescriptions are unnecessary. Rather than do their jobs, doctors are required to write prescriptions regardless of need.
Reply 19 Share

jonstarr796
29 August, 2025
It doesn't help that big pharma is allowed to advertise on TV, which causes a lot of self-diagnosis. It also gives people "comfort" in knowing that there is a pill for nearly every symptom of their unhealthy habits. The food industry need pharma for better than it feeds humans.
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