

Be a Science Fact-Checker

Learn how to evaluate science-based claims in the media.



IF YOU HAVE EVER SCANNED NEWS STORIES on social media, you've likely scrolled through headlines that make surprising, or false science claims. Some, such as those that say Earth is flat, can be relatively easy to spot. But articles that are misleading—as opposed to outright fake—may be harder to recognize.

For instance, social media is packed with articles about how different behaviors or products affect your health. These scientific claims should be supported by evidence collected through rigorous scientific research. Unfortunately, many health claims found in internet articles are not backed up by solid evidence.

In 2008, the *New York Daily News* published an online article titled “Sugar as Addictive as Cocaine, Heroin.” It discussed a study that investigated the effects of sugar on rats. The scientists found evidence that rats on a high-sugar diet developed a physical dependence on it. In addition, they saw that the diet caused changes in brain areas related to addiction. But the study didn't compare these changes with the effects of cocaine or heroin. It also didn't show that these brain changes happen in humans, which a reader might think based on the headline. Ultimately, the headline claim was not supported by evidence collected in the study.

Most science articles from reputable sources are accurate. But it's important to think critically about what you read and where you get your information. Asking some simple questions can often help you determine if the latest health story is based on solid science—or if it shouldn't be believed.

Five Questions to Ask as You Evaluate a Science or Health Article

ID the Site



The ending of a URL provides clues on how to evaluate the content on a website.

.com = commercial. Often for-profit companies

.edu = educational institution. Often universities

.gov = government. Usually federal, state, and local agencies

.net = network. Could be any site

.org = organization. Could be any site

MORE INFO: For additional facts about science and your health, visit [scholastic.com/headsup](https://www.scholastic.com/headsup) and [teens.drugabuse.gov](https://www.teens.drugabuse.gov).

From Scholastic and the scientists of the National Institute on Drug Abuse, National Institutes of Health, U.S. Department of Health and Human Services



1) Where is the story published?

Some websites publish articles that are not checked for accuracy. Information published by reliable organizations, such as legitimate news agencies or government sites, like the National Institutes of Health, goes through rigorous fact-checking procedures. If you aren't sure about the reliability of a site, ask a librarian or teacher for advice.

2) Does the headline make a very surprising claim?

Headlines are sometimes exaggerated to catch readers' attention. Read the story carefully to see if the author presents scientific evidence to back up the headline. If the article suggests something very

different from other studies, or doesn't provide supporting evidence on the topic, you should be more skeptical.

3) What is the original source?

When scientists conduct research, a detailed description of their study methods and results is usually first published in peer-reviewed scientific journals. Before an article can be published, researchers from the same field analyze the method the scientists used to make sure the scientific process was carried out carefully. If the research was not peer-reviewed, it may not be reliable.

4) Who conducted the research?

Sometimes the people who conduct scientific studies may have a bias. For example, a company that makes a health

product may carry out a study about how it affects humans. The fact that the company wants to sell the product may affect how data in the study are interpreted. Find out if the research was paid for by a company that would benefit from a particular outcome. If so, it may be unreliable.

5) Who, or what, did the scientists study?

Scientists often do research on animals to learn about health topics. Animal studies are critical in developing treatments for human disease. But finding something in mice doesn't always mean it is true in humans. Sample size is also important. The results of a medical study are more reliable if a large number of people are included in the study.

CAN YOU SPOT MISLEADING NEWS?

In the article “Be a Science Fact-Checker,” you learned that news articles are sometimes misleading. If inaccurate news spreads, it can have serious consequences.

For example, in 1980, a paragraph written by two researchers appeared in the letter to the editor section of a scientific journal. The scientists presented data about how often

addiction developed in patients who had been given opioid drugs in the hospital. Opioids are powerful pain medications that are highly addictive. But according to the letter, few hospital patients developed addiction.

The letter has frequently been cited in other articles as evidence that opioids are not addictive. But it is now known that this conclusion was

misleading. Drug companies that make opioid medications used the letter to persuade doctors that the drugs had a very low risk of addiction. In the following years, the number of opioid prescriptions increased dramatically. This inaccurate interpretation has contributed to the growing misuse of the drugs and has led to a deadly overdose crisis.

ACTIVITY

DIRECTIONS: In this activity, you’ll use the tools you learned in “Be a Science Fact-Checker” to critically analyze a misleading news article about the letter described above. Read the article “Drugs Don’t Cause Addiction” (at right) and identify ways in which it is misleading. Then answer the questions below on a separate piece of paper.

QUESTIONS

1. How is this article misleading?

Use the five critical-reading questions from the article “Be a Science Fact-Checker” to analyze the article. What is inaccurate or misleading in this article? Describe at least two factors that support your argument.

2. What evidence is missing? The article contains other clues that the claim that opioids are not addictive is not backed by sufficient evidence. Think critically about how the study was conducted. Did the scientists collect all of the relevant data to support the conclusion? Describe at least one limitation of the study. Cite evidence from the text to support your answer.

