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Inaccurate Publications and Poor Funding Impacts Credible Scientific Research

Inaccurate publications plague biomedical research. That's how NPR journalist and author Richard Harris sees it. Harris came to speak at the University of Illinois following the publication of his book *Rigor Mortis*. He believes that science progression is slowing down. This is for a variety of reasons: funding pressures, poor methodology, and contaminated materials.

The key issue is funding pressures. Since 2003, government funding to the National Institutes of Health decreased by 20%. This prevents the possibility of carrying out quality experiments, and also prevents thorough methodology.

"In science, you want to reproduce things because that's how you know it's real," Harris said.

Over half of scientists believe there's a crisis when it comes to publishing accurate scientific research. This is mostly because there's poor replications of studies to verify its accuracy. For example, some mistakes include confusion on what cells are being worked with. While a scientist may believe they're testing a certain cell type, they may be working with HeLa cells, one of hundreds of cell contaminants. Without reproducing the experiment, the study is inaccurately published. Things as little as a test tube model or how long a cell tissue sample sits out can compromise the accuracy and validity of a study.

Harris presents anecdotal evidence in the form of Tom Murphy, a victim of ALS. Tests on mice seemed to be cures, but when a test study came out and Murphy's condition didn't get better, it proved that the drug was ineffective. In response, the test was reproduced, and the results were the opposite of the initial findings.

"None of these drugs had much expectations that they would work," Harris explained.

This ties in with ambition. With little funding, scientists find it important to have their studies published a top scientific journal. Of 156 primary studies published, only 48.7% of them were valid.

Harris believes that scientists shouldn't work for mere publication, but rather their own personal incentives. He thinks they need to find a light in science, to find the thing that makes them strive for accuracy. But he also finds that the allocation of funds has tilted the balance between delight and ambition within the field.

Harris presents four solutions: validating ingredients, transparency, better training, and easing the financial crush. Easing the financial crunch would be the "holy grail, but least likely" of them. It would incentivize scientists to work on the quality of their experiments rather than the quantity of how many they publish.

Transitioning into the question and answer portion of the speech, those in the audience were passionate. Considering there's a substantial amount of publications releasing inaccurate studies, people wonder how the public is supposed to trust science.

Harris explains that no matter how much scientific information is presented, people are still going to bring their own beliefs and values into the matter.

Members of the audience have a wide array of feelings regarding the matter. Speaking with Tony Samara reveals one of many views.

“That’s really disheartening because it’s so difficult to get the money up to replicate something and then not have it be published,” Samara commented, regarding the amount of inaccurately published studies. “It’s a terrible problem.”