

Brain-injury scientist retires amid investigation of five studies on pigs

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A longtime University of Pennsylvania scientist has left the school amid an investigation into "inconsistencies" in five experiments that involved injuring the brains of piglets and juvenile pigs, the results of which have

now been retracted by the scientific journals that published them.

William M. Armstead has shut down the lab where he did the research, testing various drugs to treat the pigs so as to identify possible therapies for humans with [traumatic brain injury](#). As described in the published findings, several of the drugs appeared to hold promise. But in each case, Armstead told the journals that the published data did not match the results that his team recorded when doing the experiments, editors wrote in notices of the retractions.

Neither the journals nor Penn officials provided details about the discrepancies in the results, such as whether they were the result of mistakes or deliberate misconduct. But given that issues arose on five separate occasions, the latter scenario is plausible, said physician Ivan Oransky, co-founder of Retraction Watch, the science news site that first reported on Armstead's departure.

"It looks an awful lot like a pattern," said Oransky, who teaches medical journalism at New York University.

Armstead did not respond to requests for comment from The Inquirer sent to what appeared to be his LinkedIn account and via a letter left at his home in Center City. Efforts to reach several of his co-authors also were unsuccessful.

Asked about the research, Penn officials said in a statement:

"When a journal made us aware of inconsistencies in data submitted by Dr. Armstead, we evaluated the concerns in accordance with our process and reported our findings to all appropriate agencies. Dr. Armstead is no longer a faculty member at Penn, has closed his lab and ended his animal research activities."

A university spokesperson said he left during the past academic year. On the LinkedIn page that matches his credentials, a Penn scientist named William Armstead is listed as starting a new job in March at a medical education company. But a receptionist at that company said no one named Armstead is now working there.

In one study, Armstead and his co-authors described the technique they used to injure each of the pigs' brains in precisely the same way. They drilled a hole in each pig's skull, positioned a cylinder of fluid against the exposed outer layer of the brain, then delivered a "pressure pulse" to the brain by striking the other end of the cylinder with a weighted pendulum.

There is no indication that Penn's investigation or the federal review involves questions about the research technique itself. Such experiments have been performed on pigs for years by Armstead's team and others. But if the results of such experiments are invalid due to misconduct, that's an affront not only to the animals, but to taxpayers and other scientists, said Retraction Watch's Oransky.

"If you hurt an animal for no reason, because you're actually committing fraud, that's pretty heinous," he said.

As originally published, the study results suggested several drugs were effective in treating the injuries. But all five studies were retracted between April and August.

Three were published in the *Journal of Neurotrauma*, one in *Pediatric Critical Care Medicine*, and another in *Pediatric Research*.

Mary Ann Liebert Inc., which publishes the *Journal of Neurotrauma*, said Armstead had emailed to request the retraction of the studies due to "substantive questions" about the findings. He declined to provide more

details, according to an editor's note.

"On three separate occasions, both the publisher and editor requested additional information detailing the specifics of the questions which were raised that invalidated the findings in the study, but did not receive a response from Dr. Armstead," the note stated. "Despite being unable to ascertain more unambiguous information, the Editor-in-Chief of the *Journal of Neurotrauma* agreed to Dr. Armstead's request for a retraction after receiving agreements from the article's coauthors."

University investigations into allegations of research misconduct generally must be reported for review by the Office of Research Integrity, a unit of the U.S. Department of Health and Human Services that is tasked with overseeing the proper use of federal research funds.

The office does not publicly confirm it is reviewing the results of university investigations until they are resolved. But in this instance, the agency said it is "conducting an oversight review and will take appropriate actions" in an email to Stop Animal Exploitation NOW!, an Ohio-based nonprofit that opposes experiments on animals. The organization posted the email on its website.

In a resume posted on the website of a neuroscience research society, Armstead is listed as starting at Penn in 1992. In the 1990s, he also was affiliated with Children's Hospital of Philadelphia, the resume says. As of June, Penn's web site said Armstead "may no longer be affiliated" with the university's Perelman School of Medicine, and now it says he has "retired."

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