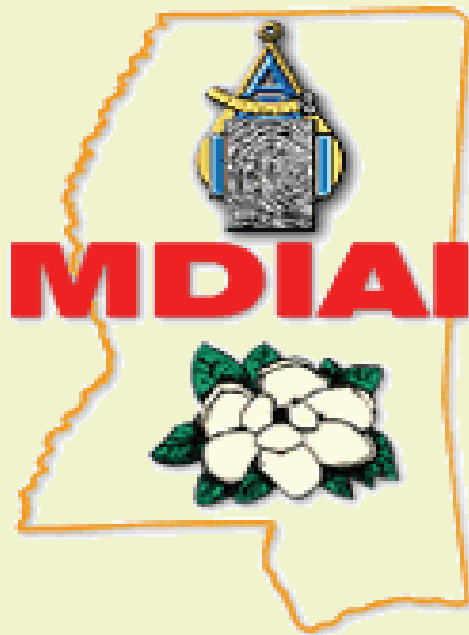


The Magnolia Print

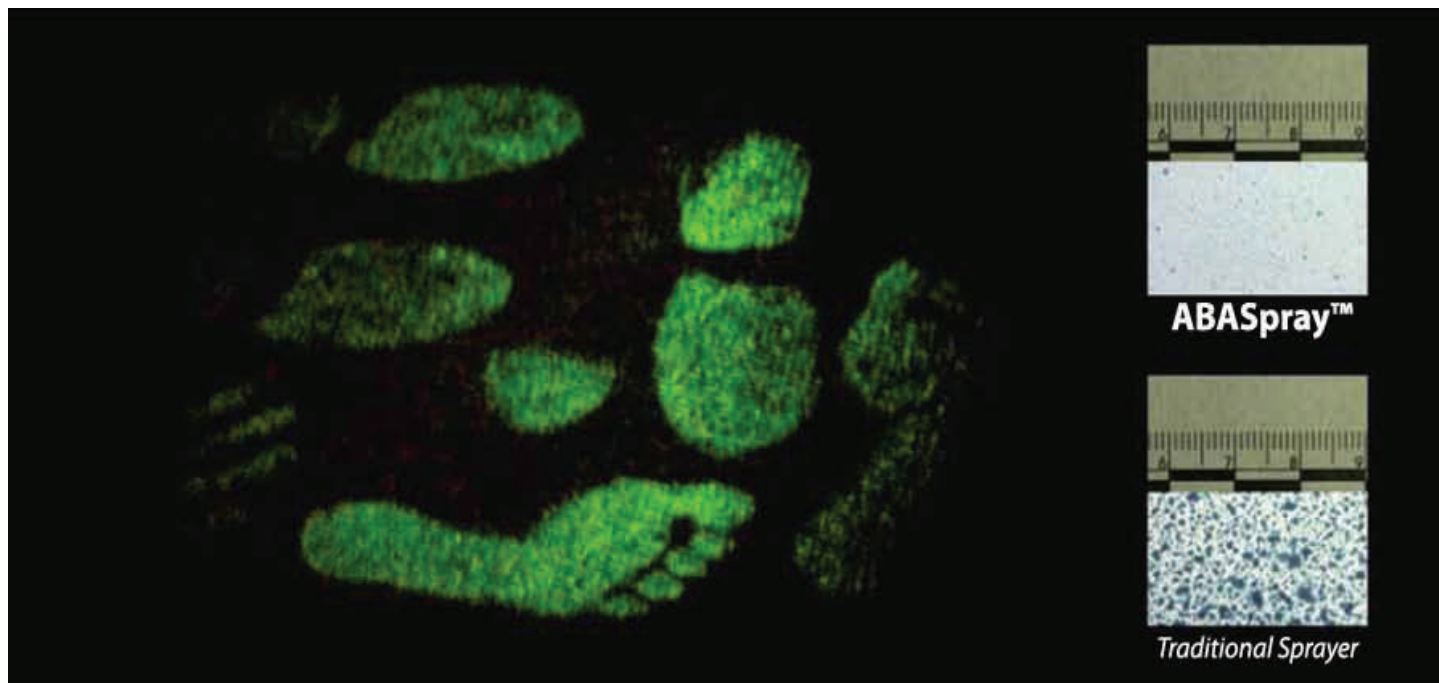


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The following article was obtained from NewScientist, Magazine Issue 2734
<http://www.newscientist.com/article/mg20427345.300-cocaine-and-pepper-spray--a-lethal-mix.html>
For more information, go to www.newscientist.com

Cocaine and pepper spray – a lethal mix? 13 November 2009 by Shanta Barley

Deaths in US police custody during the early 1990s may have been the result of an interaction between capsaicin, the key ingredient in pepper sprays, and psychostimulant drugs, an experiment in mice suggests.

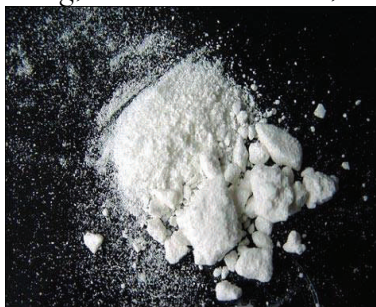
Reports emerged in the US of people dying after being sprayed by police. At post-mortem, many of these people showed signs of having taken cocaine, so John Mendelson of the Addiction and Pharmacology Research Laboratory at St. Luke's Hospital in San Francisco wondered if capsaicin and cocaine could interact fatally in the body. If the two have a fatal interaction in people, then police forces might have to rethink their use of pepper spray as a non-lethal weapon.

To investigate, his team injected cocaine, capsaicin or both at once into the abdomens of several groups of about 30 mice. Injections allowed them to control the dose of capsaicin the mice received, which wouldn't have been possible if the mice were simply sprayed, says Mendelson. One group of mice had cocaine injected at a dose of 60 milligrams per kilogram of mouse weight, which killed just a few of them. However, when the team gave another group of mice the same amount of cocaine plus capsaicin, the death toll rose to half. "The presence of capsaicin in mice makes smaller amounts of cocaine more lethal," Mendelson says.

His team also reviewed autopsy and police reports between 1993 and 1995 of people who died shortly after being subdued with pepper spray. They noted that 19 of them had evidence of psychostimulants in their blood and nine had cocaine. Mendelson suspects that a fatal interaction takes place in the brain between capsaicin and psychostimulants, although he admits "We don't actually know how capsaicin reacts with cocaine to produce a lethal effect."

Toxicologists are intrigued, but say further evidence is needed because in real-life situations, humans inhale pepper spray (instead of having it injected directly) and we don't know how much of the capsaicin sprayed in someone's face makes it into their bloodstream.

Although the study adds weight to the ACLU's concern that pepper spray could be fatal, law enforcement indicate that it is impossible to know if someone is under the influence of cocaine, another drug, has a mental illness, or simply resisting arrest.



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The following article was obtained from Science Daily, the September 12, 2002 Release

<http://www.sciencedaily.com/releases/2002/09/020912070003.htm>

For more information, go to www.sciencedaily.com

New DNA Typing Method Could Id Remains Of Some 9/11 Victims

A collaboration by Bruce McCord, Assistant Professor of Chemistry and Biochemistry at Ohio University; John Butler, National Institutes of Standards and Technologies; Nancy Tatarek, Assistant Professor of Anthropology at Ohio University; Yin Shen, Denise Chung, and Kerry Opel all of Ohio University

Along with a \$453,000 grant from the U.S. Department of Justice, scientist Bruce McCord is developing a new DNA analysis technique for damaged human remains that can't be identified with the U.S. government's current protocol for deaths and missing person cases. Fire, major accidents and exposure to the elements can deteriorate remains, making it difficult for authorities to distinguish the dead. McCord, a former Federal Bureau of Investigation scientist, leads the project with collaboration from the federal National Institutes of Standards and Technologies, a physical science research laboratory, as well as another professor and students from Ohio University. McCord and his team began work on the new method last year [2001], but found an opportunity to test the science after the 9/11 terrorist attacks to help authorities identify the remains of victims of the when conventional tests would not work.

When law enforcement authorities find blood, bone or other human tissue at a crime scene, a sample is taken to a laboratory, where scientists chemically break down the matter to isolate DNA. Next, forensic scientists look for the absence or presence of certain DNA markers on the chromosomes, including repeated sequences of DNA. The patterns of these sequences (which researchers have dubbed "genetic stutter" or "junk DNA") are used to identify individuals, and so are invaluable to the forensic chemist, McCord said. Factors such as fire, an airplane crash or prolonged exposure to the elements can break down the DNA in a human body into very small fragments - so small that they won't hold up in the standard DNA typing test used by government authorities, which examines a suite of 13 key genetic markers. Scientists have turned to a technique called mitochondrial DNA typing as a back up, but it provides results that don't match the national database of DNA profiles of criminal offenders, McCord said. "It's not very informative," he said. "It's kind of a last-resort alternative."

McCord and his colleagues had been developing a smaller set of reliable DNA markers called a "miniplex" that forensic scientists can use to study minute genetic material. They were unable to work directly with remains from the World Trade Center (blood and bone samples), but test kits were sent to authorities in New York, where the technique was used successfully to help match DNA remnants to missing people. This method created could offer forensic scientists a new tool to examine badly degraded remains — such as those at the World Trade Center disaster site — and could help police name perpetrators of crimes from evidence recovered from the crime scene, such as DNA from blood, hair and semen samples. Several more years of research will be required, however, before the technique will be ready for more extensive use on criminal cases.

The following article was obtained from Science Daily, the May 13, 1999 Release

<http://www.sciencedaily.com/releases/1999/05/990513065136.htm>

For more information, go to www.sciencedaily.com

Florida Anthropologists Study Techniques To Solve Mysteries of Dead Bodies University of Florida

Police and forensic anthropologists often are frustrated by the way Florida's wildlife eats and scatters human remains, making it difficult, if not impossible, to determine whether the person was a victim of an accident or foul play, or even where the death occurred. UF anthropologists are using the vast Austin Cary Forest near Gainesville as a natural laboratory and the bodies of pigs as substitute victims to see how the call of the wild and nature's forces can alter the remains of a human being.

"In many ways, we're blessed by our environment and cursed by it," said Tony Falsetti, a UF forensic anthropologist and director of the C.A. Pound Human Identification Laboratory on campus. "Everybody has different stories about buzzards and dead bodies, and we have a lot of wildlife in Florida, which will carry off remains. There are panthers, several kinds of foxes, buzzards and turtles, which are very effective at moving things."

By determining what happens naturally to a body, Falsetti said he hopes to be able to tell medical examiners, law enforcement and others when something is not right. "People do wander away and die naturally, but if somebody has revisited a scene, it may show that they tried to hide the body, which addresses the issue of intent," said Falsetti, who directed at the study and presented some of the findings at the American Academy of Forensic Sciences meeting in March.

In addition to problems caused by wandering critters are the Sunshine State's muggy climate, sandy soil and rapidly-growing vegetation "What happens to a body after death really depends on where that body is," said Mike Warren, a UF visiting anthropology professor and one of the project's researchers. "Much depends on the body's location, the climate, moisture, rainfall, the population of scavengers and what insects can be found. The reason we did the study is we need to know what happens in Florida."

Although there has been research elsewhere in the country about how natural forces alter and scatter human skeletons, no studies have been done here, Falsetti said. Because Florida is relatively temperate, grasses grow very quickly, making it difficult to tell from disturbances in the soil that a body is present, he said.

One case Falsetti is researching involves a badly burned body found chained to a tree, surrounded by burned insects. "Because we know that insects come to a body after death, there's something about the time frame, the sequence of events, that will help law enforcement in terms of charging an individual," he said. "Not only did the perpetrator kill the person, but they returned later to try to alter the scene."

While a forensic botanist's search for clues might zero in on a new clump of bushes or trees that could be fertilized by a human body, a forensic anthropologist's work is more difficult because depressions in the ground that might indicate the presence of a buried body aren't as easy to see in places with sandy soil such as Florida, Falsetti said. For that reason, remote sensing devices are used increasingly, he said.

One of the study's main findings so far is that searches for skeletons usually need to be extended over a much greater area than previously believed, Falsetti said. "This kind of work is important because we do get a number of calls about informants who say they didn't do it, but "know" or "heard" where a body is located," he said. "With a little background research, we might be able to help recover the body."

Wayne McIntire, detective sergeant in charge of the Gainesville Police forensic crime unit, said the research will be useful to law enforcement. "Anytime you have anything that affects the integrity of the scene, and especially when you have a body that's been in the wild for awhile, you have many varmints come up and drag these bones away," he said. "Even birds of prey have been known to carry body parts away from a scene."

Adapted from materials provided by University Of Florida.



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