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Little pressure needed to stab someone

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Pioneering research into stabbing has revealed that the forces required to stab someone are frighteningly low.



Aisling Ní Annaidh, engineering lecturer at University College Dublin, has developed a formula to calculate the minimum force needed for a blade or implement to penetrate bare skin in a stabbing incident.

“My research showed that the force required to stab bare skin is surprisingly low,” said Dr Ní Annaidh. “It’s in the order of 10 to 20 newtons, which corresponds to the weight of a bag of flour of 1 to 2 kilos in your hand. That’s really not very much,.”

The forces associated with stabbing someone with a screwdriver or closed scissors are about three times higher than with a knife, the research found.

“The motivation behind the project was for forensic scientists and medical professionals to quantify how much force is involved in a stab,” said Dr Ní Annaidh, who carried out the research in collaboration with State pathologist Marie Cassidy and deputy State pathologist Michael Curtis as part of her PhD.

“When they walk into court at the moment, they are asked what sort of force was involved and the answer is critical in determining how much intent there was.”

“My task was putting a number on that – so instead of saying it was mild or severe, to say it was 10 or 20 newtons.”

Dr Ní Annaidh said that, following further development, the formula could potentially be used by pathologists to give more precise findings about the forces involved in stabbing incidents.

“We haven’t included clothing yet on the model or damage to underlying bone, and they would need to be added to it so it could be used in a courtroom scenario,” said Dr Ní Annaidh.

Her research paper, ‘Toward a Predictive Assessment of Stab-Penetration Forces’, will be published in the American Journal of Forensic Medical Pathology next month.

Dr Curtis said that, when further developed, the work would lead to “a proper arithmetic assessment of the forces required for a particular weapon involved in a stabbing incident to have penetrated the body”.

“Hopefully what it will lead to is that if you recover a weapon at the scene, you will be able to quantify what force was required for this to happen,” he said. “This research shows how frighteningly little force is needed to get through the skin.”

“Once you go through the skin, the blade will continue under its own momentum until it encounters something hard like bone.

“It also indicates that the run-on scenario [where somebody is holding a knife, but claims that the injured party ran onto them], is a more possible scenario than we’d have thought in the past.

“Obviously, you have to take other factors into account like the number of wounds inflicted, the track direction in the body and the presence of defensive wounds.”

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