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RESEARCH HIGHLIGHT | 23 August 2024

## What *Science* and *Nature* are good for: causing paper cuts

**Experiments reveal that human skin is most reliably cut by specific thicknesses of paper, including the kind used to print certain high-profile journals.**



Paper that is 65 micrometres thick poses the greatest danger of causing a paper cut, a model shows. Credit: Getty

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A combination of experiments and theoretical work reveals why only certain types of paper can cut into human skin<sup>1</sup>.

Paper cuts can lead to pain and infection. Despite the prevalence of this injury, scientists have not uncovered the connection between paper thickness and the probability of cutting skin.

To explore this link, Sif Fink Arnbjerg-Nielsen and her colleagues at the Technical University of Denmark in Kongens Lyngby used various types of paper to slice into gelatin – a substance, derived from animal parts, whose mechanical properties resemble those of human skin.

Their experiment showed that paper thinner than 50 micrometres is unlikely to inflict a cut because it lacks the structural integrity needed to resist buckling. Paper thicker than 100 micrometres also has a low cutting probability, because its applied force is distributed over a relatively large area. A model of paper cutting based on these findings suggests that the most hazardous thickness is 65 micrometres. Testing of a dozen different kinds of paper revealed that the pages of *Science* and *Nature* were among the five paper types most likely to inflict a cut.

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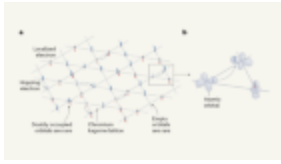
## References

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1. Arnbjerg-Nielsen, S. F., Biviano, M. D. & Jensen, K. H. *Phys. Rev. E* **110**, 025003 (2024).
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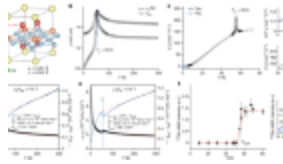
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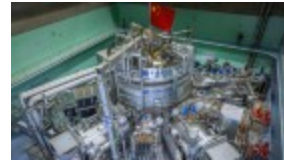
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