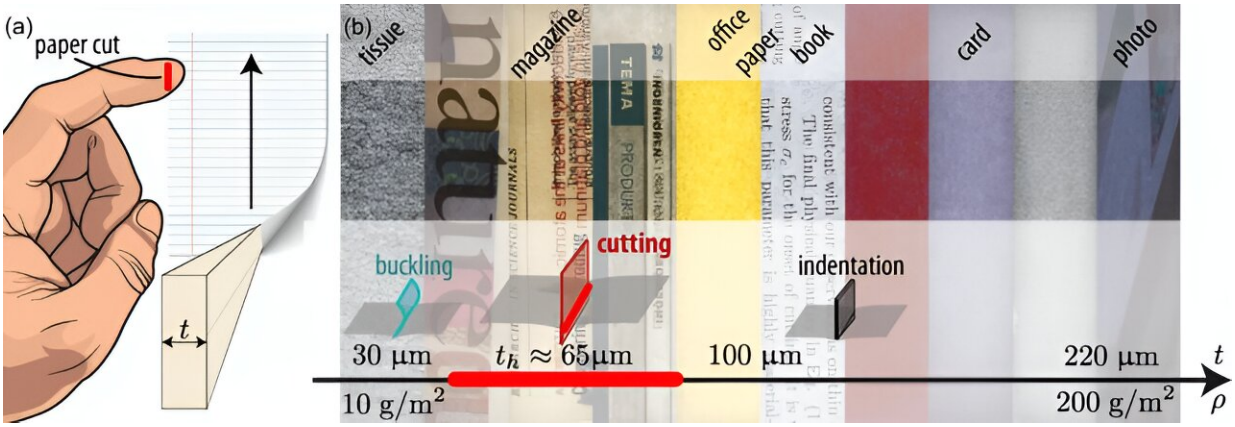
# Paper types ranked by likelihood of paper cuts

August 27 2024, by Bob Yirka




The physics of paper cuts. Credit: *Physical Review E* (2024). DOI: 10.1103/PhysRevE.110.025003

Via testing with a skin stand-in, a trio of physicists at Technical University of Denmark has ranked the types of paper that are the most likely to cause a paper cut. In an article published in *Physical Review E*, Sif Fink Arnbjerg-Nielsen, Matthew Biviano and Kaare Jensen tested the cutting ability and circumstances involved in paper cuts to compile their rankings.

Paper cuts occur through the handling of paper products. In addition to the nuisance factor due to the sudden flow of blood, there is also often a great deal of pain involved. In this new effort, the researchers noted that

most research done on the topic revolves around infection factors. They chose instead to focus on the types of paper most likely to cause a cut, thereby allowing paper users a means to reduce their chances of an injury.

To test the cutting ability of different types of paper, the researchers used ballistics gelatin as a stand-in for skin. They then attempted to cut the gelatin using multiple types of paper. They noted the sturdiness and thickness of the paper, and the angles that were involved when cutting occurred.

The research team found that paper that was the most thin was unlikely to cause a cut because it tended to buckle instead. Also, thick paper rarely led to a cut because its surface was spread over too large an area. That left paper that is neither too thick nor too thin, like the kind that is used in newspapers or dot-matrix printers—the two types tied for the title "Most likely to cut skin."

Other culprits were Post-It notes, printed magazines and office paper. Some that were less likely to cut include tissue and photo paper. They noted that to cause cuts, the paper had to be angled slightly.

The researchers also noted that some papers, such as those used in dot-matrix printers, are exceptionally good at cutting. They proved this to be the case by connecting a small piece of it to a scalpel and using the results as a "papermachete." They found their little knife was capable of slicing through vegetable skin and even some meats.

**More information:** Sif Fink Arnbjerg-Nielsen et al, Competition between slicing and buckling underlies the erratic nature of paper cuts, *Physical Review E* (2024). DOI: 10.1103/PhysRevE.110.025003

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