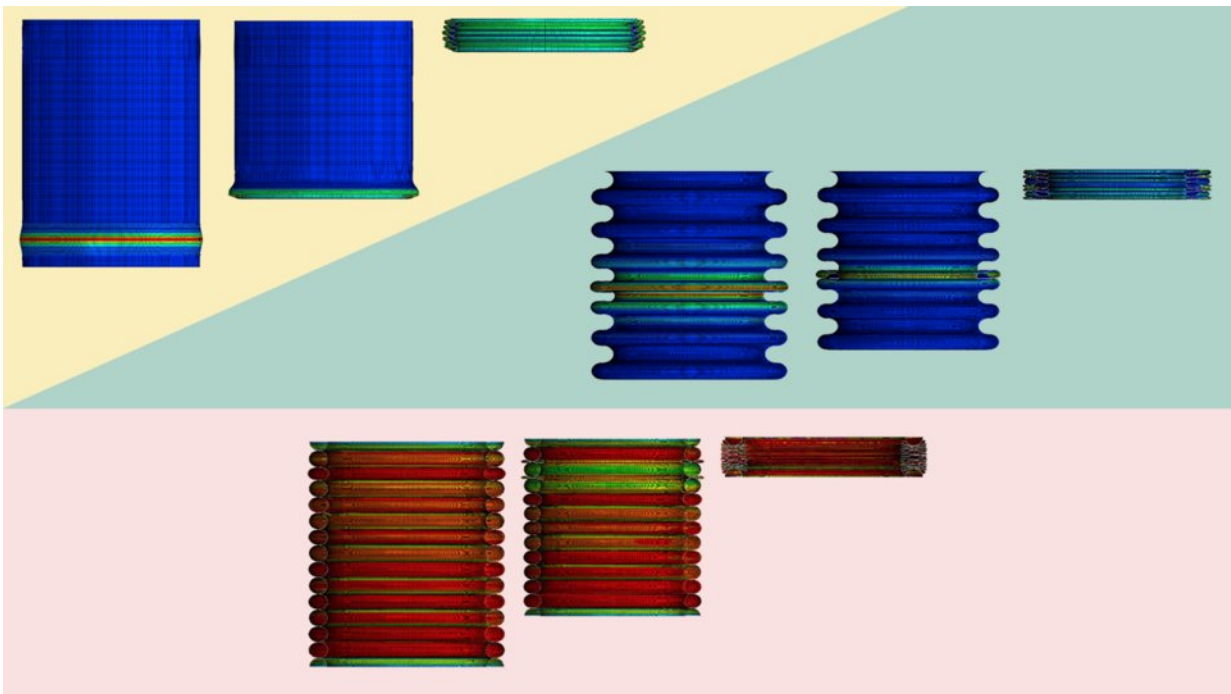


Could a cardboard principle boost vehicle safety?

December 11 2017



Composites Part B. Credit: Scott Schrage

Prior research has shown that even thin-walled tubing can effectively absorb energy, which makes it appealing to those who engineer vehicles and other structures that may endure crashes.

Straight tubes generally absorb [energy](#) more efficiently than other proposed designs, such as those with a single layer of corrugation – the

wave-like ridges and grooves often seen in cardboard. But a single-corrugated [design](#) does compress more smoothly and predictably under extreme force, helping to reduce injury risks.

Nebraska engineer Linxia Gu and her colleagues sought to balance the best qualities of both types by designing and modeling the performance of tubing with a second layer of corrugation.

The researchers found that their double-corrugated tube substantially narrowed the disparity in [energy absorption](#) while also retaining the consistent crushing behavior of single-corrugated tubing. Their findings could ultimately help inform the design of more crashworthy automobile components.

Gu and her colleagues suggested conducting experiments to verify the results of their computer model. Modifying the geometry or composition of the double-corrugated design might further improve its performance, the researchers said.

Provided by University of Nebraska-Lincoln

Citation: Could a cardboard principle boost vehicle safety? (2017, December 11) retrieved 25 April 2024 from <https://phys.org/news/2017-12-cardboard-principle-boost-vehicle-safety.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--