



SMART CLOTHING CAN PREVENT BACK PAIN

 TELECOMMUNICATIONS

A new smart suit can help prevent back pain by providing support for back muscles only when needed.

According to research by the [National Institutes of Health](#), as much as 20 percent of people between the ages of twenty and fifty-nine may suffer from chronic lower back pain. On top of this, back pain is estimated to cost billions in medical expenses and lost productivity in the U.S. each year. Now, a team of engineers at [Vanderbilt University](#) is doing its part to tackle back pain with a performance-boosting supersuit.

Researcher Karl Zelik, assistant professor of mechanical engineering at Vanderbilt, came up with the idea for the smart clothing after experiencing back pain when lifting his toddler son. The suit is made up of two fabric sections, for the chest and legs and rubber pieces at the lower back and glutes, connected by straps across the back. Unlike other support clothing, the suit is only activated when needed. A double tap engages the straps, and another double tap releases them. The device can also be controlled by an app which allows users to engage with the smart clothing wirelessly via Bluetooth.

During testing, Zelik's team found that the device reduced activity in the lower back extensor muscles by an average of 15 to 45 percent during lifting. In the future, Zelik hopes to improve the suit with sensors that can monitor stress levels on the lower back, and automatically engage when they reach a certain point.

The suit was debuted recently at an American Society of Biomechanics conference in Boulder, Colorado, and has already earned an International Society of Biomechanics Young Investigator Award in mechanical engineering for Ph.D. student Erik Lamers, who helped develop the design. With smart

clothing also being developed to help wearers [heat up and cool off](#), and to [filter air pollution](#), how else might smart clothing one day help us to live better?

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