

Singapore deploys 3D printing to make knee brace for elderly

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Braces are usually prescribed to the elderly patients to help alleviate the burden on their knee joints, as well as to assist patients who have undergone surgery on their knees

A lighter, yet more robust knee brace for the elderly who suffer from knee problems has been developed locally by Singapore engineering firm Delsson, in a collaboration with 3D printing specialists from Nanyang Technological University, Singapore (NTU Singapore).

Using 3D printing techniques – also known as additive manufacturing - the team has managed to reduce the weight of a traditional exoskeleton knee brace, typically built using metal, by 30 percent, thanks to a new design that uses lightweight plastic and assistive springs.

Based on the prototype assistive orthopaedic brace 3D-printed by NTU researchers, Delsson and the Centre for Orthopaedics in Singapore have developed a unique product, named X-Brace, which looks similar to the sleek knee brace used by Batman in the movie, *The Dark Knight Rises*. It weighs about 720 grams, 30 percent lighter than the typical metal orthopaedic braces that weigh over 1 kg.

The X-Brace is expected to be available in the market now at a price of SGD\$1,000 (\$782) depending on the user's required configuration. The product is distributed by Wearable Kinetics, a subsidiary company of Delsson.