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3D printing leads to lightweight knee brace for the elderly

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A lighter but more robust knee brace for older people with knee problems was developed locally by the Singaporean engineering company Delsson, in collaboration with 3D printing specialists at Nanyang Technological University, Singapore (NTU Singapore).

Using 3D printing techniques - also known as additive manufacturing - the team succeeded in reducing the weight of a traditional exoskeleton knee brace (usually constructed of metal) by 30%, thanks to an innovative design that uses lightweight plastic and assistance springs.

In 2017, it was reported that 20% of people aged 60 and over in Singapore suffer from chronic pain, and 40% of people over 70 will develop osteoarthritis of the knee.

Based on a prototype orthopedic orthosis 3D printed by scientists at NTU, Delsson and the Singapore Orthopedic Center have developed a unique product, named X-Brace, which resembles the elegant knee brace used by Batman in the movie, The Dark The Knight Rises.

This Singapore-designed knee brace, which has just been launched on the market, will benefit elderly patients who often need help with relieving the load on their joints, helping them to climb stairs, unlike the rest of the knee braces in the UK. region market.

It may also benefit patients who have had knee replacement surgery or torn ligament reconstruction in their rehabilitation and recovery.

The research collaboration is supported by the National Additive Manufacturing Innovation Cluster (NAMIC) and demonstrates how Singapore's strong R&D capabilities can transform conventional products and boost the competitiveness of our local SMEs.