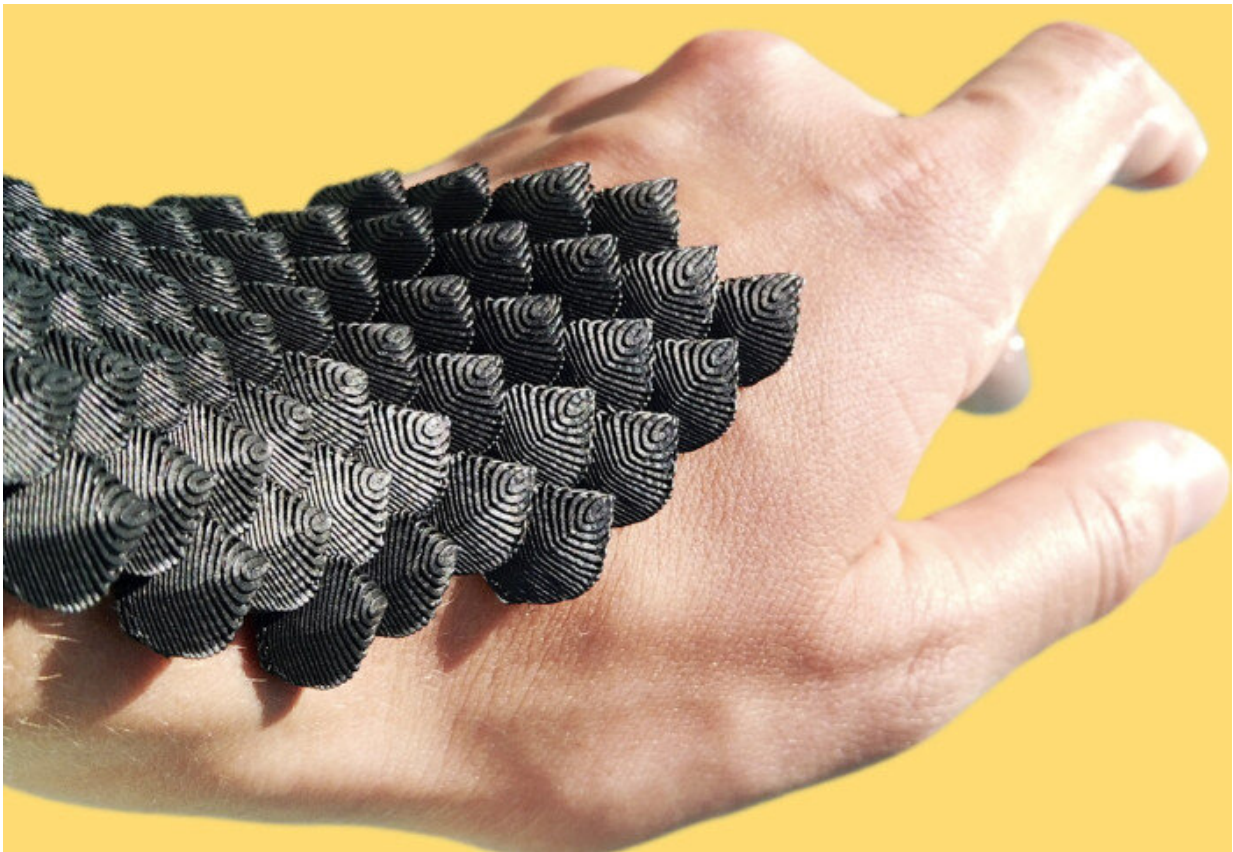


Next-generation cast inspired by animal scales could protect against injuries

September 9 2020, by Joanna Wilson



Credit: Imperial College London

An Imperial graduate has designed wearable technology inspired by protective structures found in the animal world to protect athletes from injury.

SCALED is a nature-inspired flexible wearable that could prevent injuries, improve rehabilitation and enhance sports performance.

Research shows that joint injuries are often recurrent and require lengthy and cost-intensive rehabilitation until motion, strength and function are restored, and may even result in long-term immobility. Current protective and supportive wearables (such as a cast or brace) constantly limit and support joints, which may lead to reduced [muscle strength](#) and stiffness in the affected area.

Inspired by nature

Imperial College London graduate Natalie Kerres was inspired by animals that are physically protected from threats by skin, shells or scales, designing a product that mimics natural protection and healing, while still allowing flexibility.

Bespoke interlocking protective scales provide precise motion limitation to protect the wearer. A parametric algorithm precisely controls its 3-D form, for a custom scale structure to fit the user's body shape and requirements. The scales prevent injuries from happening in the first place, without limiting motion and could be used for improving rehabilitation and enhancing sports performance.

Provided by Imperial College London

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