

Scientists discover promising protein to treat osteoarthritis

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New research from Queen Mary, University of London suggests that a protein found predominantly in healthy cartilage, a type of tissue that allows the smooth movement of joints, could hold the key to treating osteoarthritis.

Osteoarthritis is a painful condition that results from the cartilage breaking down at the joints and leads to difficulties in moving around and being active.

Researchers at the Institute of Bioengineering in Queen Mary's School of Engineering and Materials Science created a synthetic gel of damaged cartilage similar to osteoarthritis in the lab, and added a protein called CNP that is naturally found in healthy [cartilage tissue](#).

They compressed and exposed the gel to forces that are similar to when a person does moderate exercise in real life.

Examining the gel samples after the experiment, they found two new protective proteins that have anti-inflammatory and reparative effects. They also found that the effects of CNP change as person gets older and has more diseased cartilage.

"While these are early results, the findings could be useful in treating osteoarthritis, which is the most common type of arthritis and affects more than 8 million people in the UK," explains Dr Nick Peake, co-author of the study from Queen Mary's Institute of Bioengineering.

Dr Nick Peake added: "The important observation is the complementary effect of the CNP protein and the effect of compression on the cells. This multiplies the beneficial effects of both resulting in reduced inflammation and [cartilage repair](#)."

Lead researcher, Dr Tina Chowdhury, also from Queen Mary's Institute of Bioengineering, said: "We are very excited about the potential for this work and the next step is to replicate results in a diseased animal model before the benefits can be translated to patients.

"We are working closely with [pharmacologists](#) and clinicians at the William Harvey Research Institute and Royal London Hospital to make the work clinically feasible in the next five years."

Arthritis Research UK's Medical director, Professor Alan Silman welcomed the results of the study, adding: "This is an exciting piece of research. We know that exercise is essential to keep cartilage healthy and protect the joints against arthritis.

"Applying this knowledge to the treatment of [osteoarthritis](#), where [cartilage](#) loss is substantial, has been challenging. If these preliminary results are validated in further research they could offer a novel and much needed approach to treating the underlying cause of this distressing disorder and not just reducing the symptoms."

The research is funded by Arthritis Research UK and published in the journal *Arthritis Research and Therapy*.

Provided by Queen Mary, University of London

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