

# Autologous chondrocyte implantation in the knee: systematic review and economic evaluation

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## Plain English summary

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## Plain English summary

**D**amage to the cartilage that covers the ends of the knee bones is common, especially in sportspeople. The ability of cartilage to repair itself is very limited. The damage may lead to later osteoarthritis and a need for knee replacements.

Attempts to repair the damaged cartilage have mostly used a procedure called microfracture (MF), involving drilling small holes into the bone under the damaged area. A clot of blood then covers the damaged area and over time forms scar tissue called fibrocartilage. This relieves symptoms, but fibrocartilage is not as tough as natural cartilage, and wears out after a few years.

In the procedure called autologous chondrocyte implantation (ACI), a small piece of healthy cartilage is removed from the knee, and the cartilage-producing cells (chondrocytes) are cultured in the laboratory until there are many millions of them. They are then used to patch the area of damaged cartilage. The hope is that the chondrocytes will form natural cartilage, which will last longer than fibrocartilage.

We reviewed trials and other studies that reported that ACI gave better long-term results than MF. The main limitation was the lack of long-term follow-up data from modern methods of ACI. However, we thought that data on the cartilage formed using older methods of ACI could be applied to modern methods.

Our analysis suggested that ACI is cost-effective, taking into account short-term improvements in symptoms and reduced need for further repairs and, in the long term, knee replacements.

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