

## Meniscal Substitution

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There are two scaffold products designed for meniscal reconstruction or substitution of partial meniscal defects that are currently available: the collagen meniscus implant (CMI; Ivy Sports Medicine, Gräfelfing, Germany) and the polyurethane scaffold (Actifit, Orteq Bioengineering, London, United Kingdom). The CMI has been developed in the early nineties and has demonstrated improved clinical outcomes compared with baseline in patients with postmeniscectomy syndrome with follow-up of more than 10 years. The lateral CMI also proved to reduce symptoms. In a recent multicentric study, 58% of patients reported activity levels similar to their preinjury values whereas 95% of them reported that they were satisfied with the procedure, at two-years follow-up. There are also some comparative studies that report improved clinical outcomes in patients with chronic medial meniscus symptoms treated with CMI versus repeated meniscectomy, and a lower reoperation rate.

More recently, the Actifit scaffold has been developed. Overall, it has been shown improved clinical outcomes in patients with chronic postmeniscectomy symptoms of the medial or lateral meniscus at 5 years follow-up. Patients without chondral injuries showed a better MRI aspect of the scaffold in terms of size and morphology. However, the available data does not support the use of medial meniscal substitution with a polyurethane scaffold when an open-wedge high tibial osteotomy is being performed. Despite an abnormal MRI appearance suggesting the meniscal scaffold is not fully mature after 5 years, the functional scores and cartilage status are stable at this time point.

In summary, partial replacement using both classes of scaffolds achieves significant and encouraging improved clinical results when compared with baseline values or with controls when present in chronic patients, without adverse reaction related to the device.

The use of meniscal scaffolds in the acute setting has not been found to result in improved outcomes in most studies.

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