

# **Regenerative Medicine**

## **The Biological Repair of Joint Surface Defects**

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# Autologous Chondrocyte Implantation for the repair of a symptomatic joint surface defect

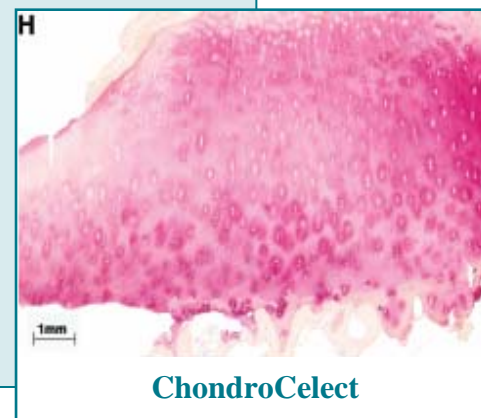
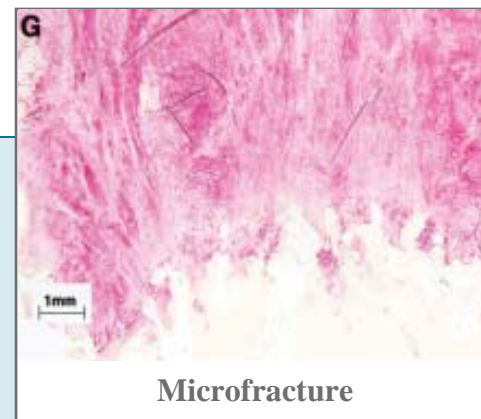


# Superior structural repair at 12 months

## Characterized Chondrocyte Implantation Results in Better Structural Repair When Treating Symptomatic Cartilage Defects of the Knee in a Randomized Controlled Trial Versus Microfracture

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**Conclusion:** One year after treatment, characterized chondrocyte implantation was associated with a tissue regenerate that was superior to that after microfracture. Short-term clinical outcome was similar for both treatments. The superior structural outcome may result in improved long-term clinical benefit with characterized chondrocyte implantation. Long-term follow-up is needed to confirm these findings.

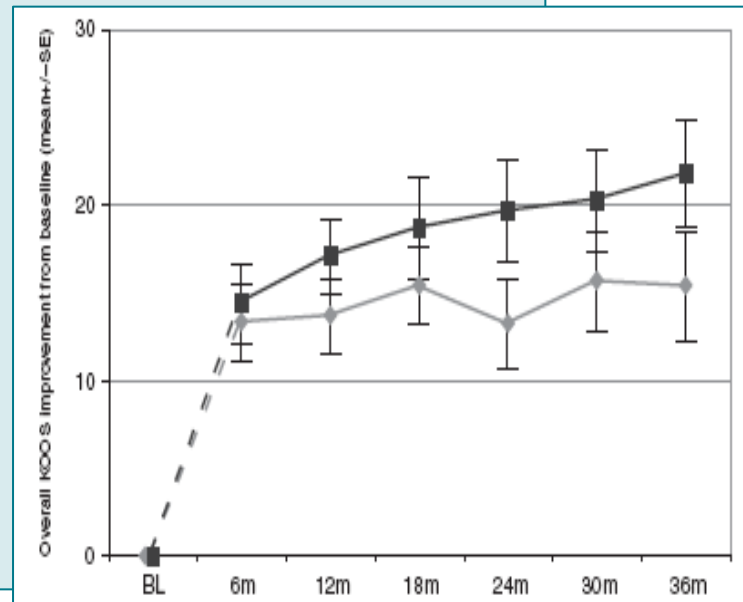


# Clinical benefit over microfracture at 36 months

## Characterized Chondrocyte Implantation Results in Better Clinical Outcome at 36 Months in a Randomized Trial Compared to Microfracture

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**Conclusion:** Characterized chondrocyte implantation for the treatment of articular cartilage defects of the femoral condyles of the knee results in significantly better clinical outcome at 36 months in a randomized trial compared with MF. Time to treatment and chondrocyte quality were shown to affect outcome



# Clinical benefit over microfracture at 36 months

## Longitudinal Analysis

### Treatment effect at 36m

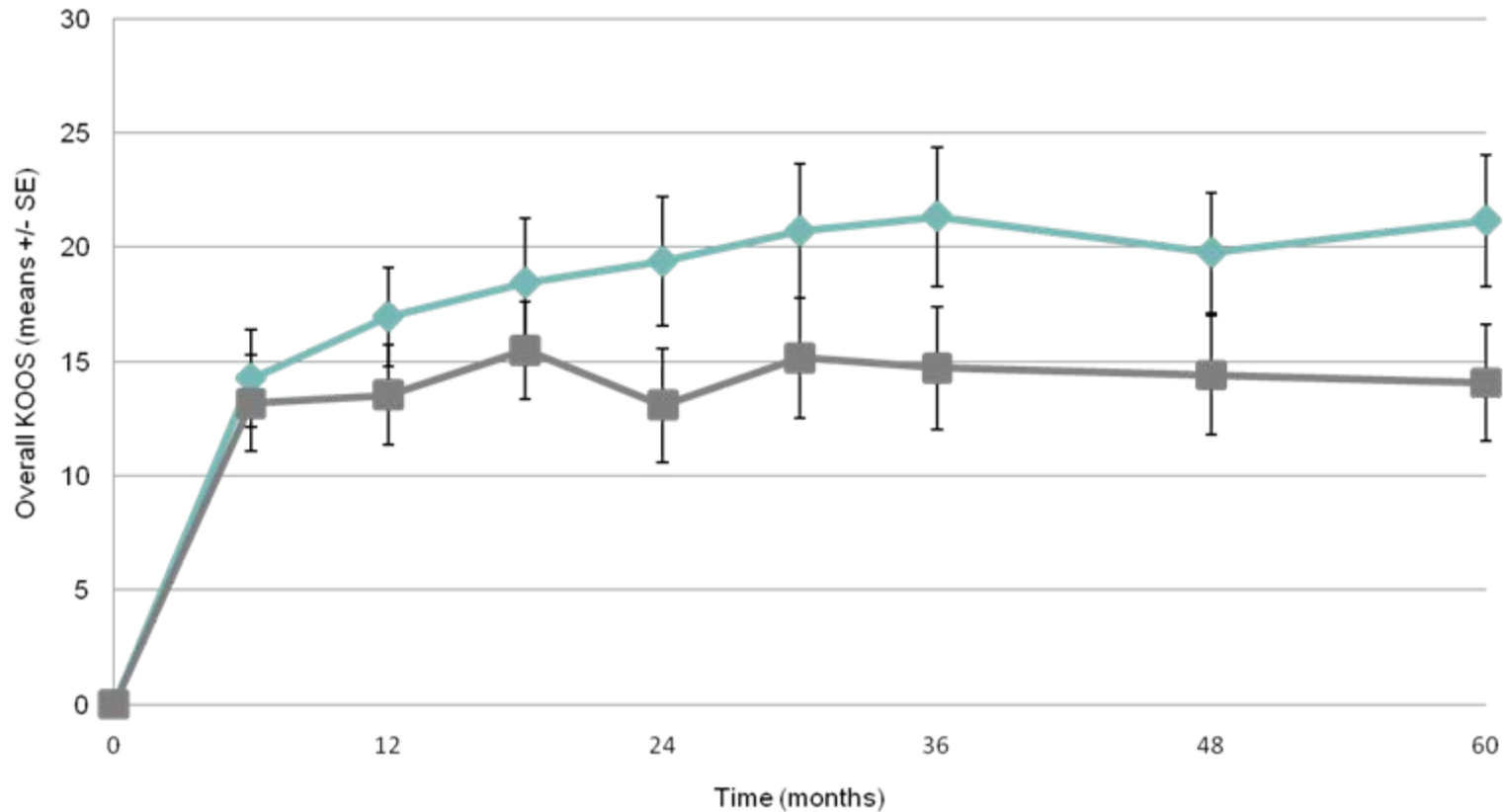
Mixed linear model (heterogenous compound symmetry with time as categorical variable)

KOOS	P-value
Overall <sup>(1)</sup>	0.048
Pain	0.044
Symptoms	0.123
Activity (ADL)	0.064
Sports	0.123
Quality of Life	0.036

(1) Knee Injury and OA Outcome Score - Average of all KOOS domains, except Sports

(2) Full Analysis Set excluding treatment failures and without imputation for missing data

KOOS improvement over time\* including all available data (long term follow-up) and LOCF for failures\*\* (means)



NCCI 51    51    51    44    45    43    42    45    43  
 NMF 61    59    57    51    52    51    51    49    55

\*average of all KOOS domains, except Sports  
 \*\* FAS with LOCF imputations for missing data of failures



# Overall conclusions

- **Structural superiority** vs. MF at 12 months
- **Clinical benefit** vs. MF at 36 months
- **Durability of effect** at 60 months follow-up
  - Clinical response at 24m predictive of long term response
  - MF failures tend to occur earlier
- No unexpected safety issues and comparable **safety profile**
- **Early treatment** results in better long term clinical outcome