

# Orthopedic Bone Marrow Stem Cell Research Summary (1997-2014)

Some physicians and scientists argue that we don't have much research supporting the use of bone marrow stem cells to treat orthopedic conditions. While this may be true for the use of fat stem cells (which have about 2% of the published research of bone marrow), nothing could be farther from the truth for bone marrow. Here I list all significant publications from the late 90s through 2014. Each circle represents a research study and is hyperlinked to the abstract in the U.S. National Library of Medicine or the full text article. The main author is listed, the type of treatment, the number of patients involved, and the type of bone marrow cells used (either Autologous Bone Marrow Concentrate (BMC), Autologous Cultured Mesenchymal Stem Cells (Cult MSC), or the allogeneic version of cultured cells (Cult MSC-allo). The icons represent the three types of delivery techniques: injection, surgical, or both.

1997



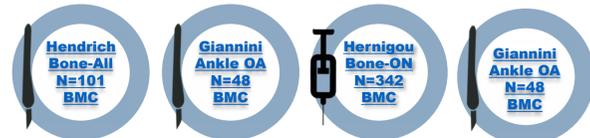
2000



## n=5,029 patients

(The n is approximate as a few studies list joints instead of patients, on the other hand, several later case studies and small case series were also excluded due to significance.)

2005



2010



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