

## Mesenchymal stem cell in curing rheumatoid arthritis

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Rheumatoid arthritis is an autoimmune disease that causes chronic inflammation in joints and results in joint pains, swellings and other damages to the body. In this condition, the immune system of the body attacks its own cells or tissues and if left for a long time, may attack and damage its own organs leading to more complications. If the inflammation is not treated, with time it will lead to weak bones, bone erosion or deformations of bones. The annual occurrence of rheumatoid arthritis (RA) in the world is 3 cases per 10,000 populations. The occurrence of RA increases with age and can be mostly found between the ages of 35 to 50 years. There is no particular treatment for RA; however, stem cell therapy could be a potential treatment that might reduce the inflammation and pain caused due to RA as well as increase the number of healthy cells in the body of the patient. As we know, mesenchymal stem cells (MSCs) are a type of stem cells that can develop into cartilages and bones. In MSC therapy, synovial MSCs are directly injected into the surrounding inflamed joints as synovial MSCs have a greater proliferation rate and are an attractive cell source for cartilage regeneration. Scientists have also found out that MSCs are also able to suppress the immune system to an extent and reduce the inflammatory response which also protects against cancerous cells. This makes MSC therapy a potential solution for RA patients. This research is still in progress and has been tested on mice which have shown some potential results; however, it also demonstrated that MSC treatment increased regulatory T cells levels while lowering levels of cells that promote inflammation. Hence, the Food and Drug Administration has not approved it yet and scientists are still conducting further research on improvising the methods to reduce side effects like infections. However, stem cell therapy could potentially be a successful treatment in the future to cure autoimmune diseases like RA and type 1 diabetes.

*Keywords: Rheumatoid arthritis, Inflammation, Mesenchymal stem cells, Autoimmune diseases*

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