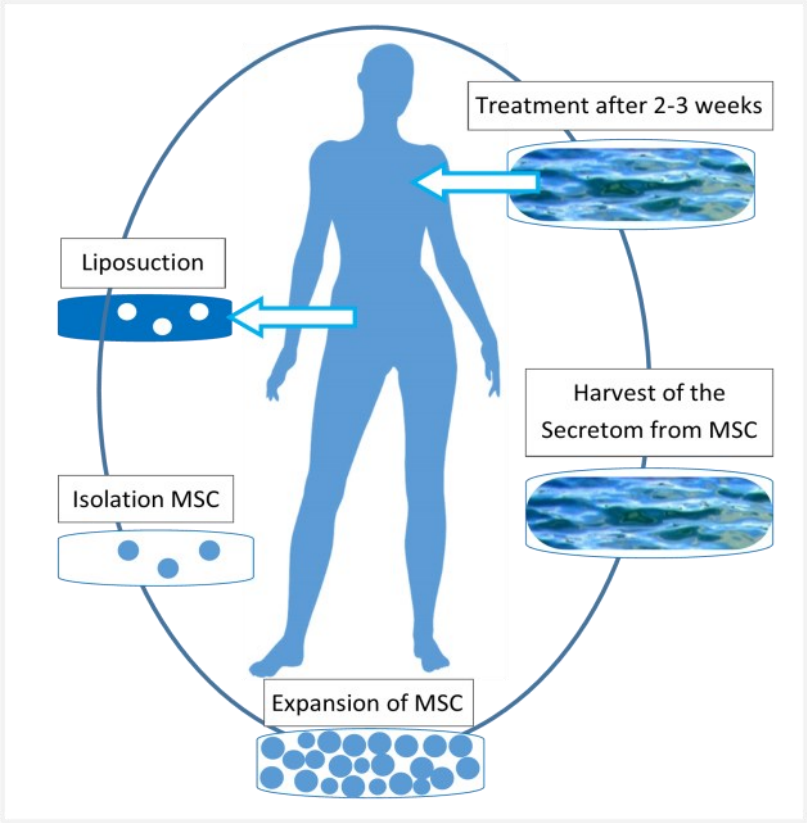

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Osteoarthritis

Safety of adipose-derived mesenchymal stem cells

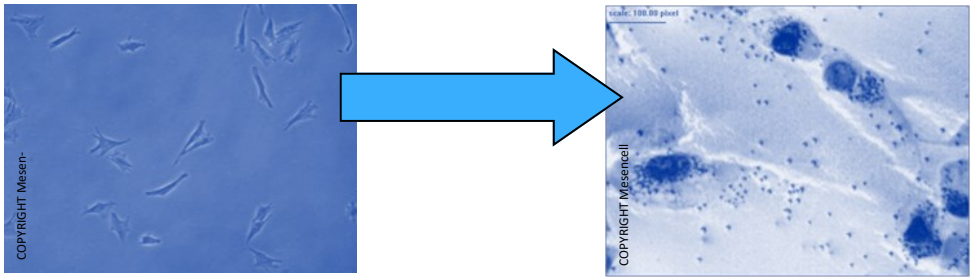
Safety of autologous and allogenic adipose-derived mesenchymal stem cells has been shown in numerous human clinical studies. [Ref.1,2]

Absence of toxicity of human adipose-derived mesenchymal stem cells was proven at a dose of 2.5 x 10^8 cells/kg body weight in mice. [Ref.1]

Absence of tumorigenicity of adipose-derived mesenchymal stem cells was proven. [Ref.1]

Differentiation into chondrocytes and expressing lubricin and collagen types I and II

Adipose tissue derived stem cells can be differentiated into chondrocytes. Results showed that hyaline cartilage is formed which expresses collagen I and II and most importantly lubricin. [Ref.3]



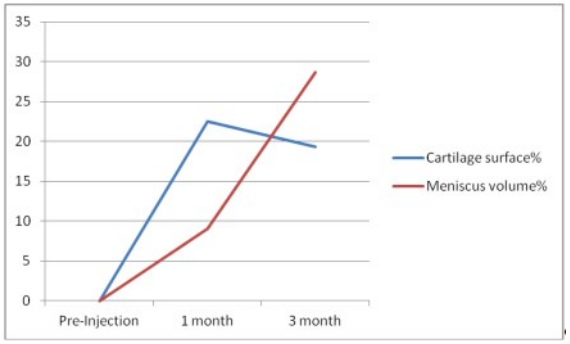
Increased cartilage volume [Ref.5]

Increase of cartilage surface volume from pre-injection (4020 mm^3) to 4 weeks (4924 mm^3) to 3 months (4795 mm^3)

Increase of meniscus from pre-injection (5178 mm^3) to 4 weeks (5647 mm^3) to 3 months (6661 mm^3)

Increase of cartilage surface : 22.49%

Increase of meniscus : 28.64%

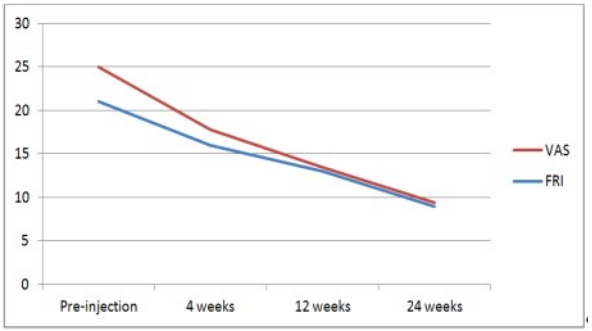


Decreased scores in pain assessment [Ref. 4,5]

Visual analog scale (VAS) and functional rating index (FRI) in Ref. 5

FRI and VAS in study Ref 4:Patient 3 (Ref. 4) : decrease of FRI from 36 to 16 to 13 and decrease of VAS from 7 to 2 to 1

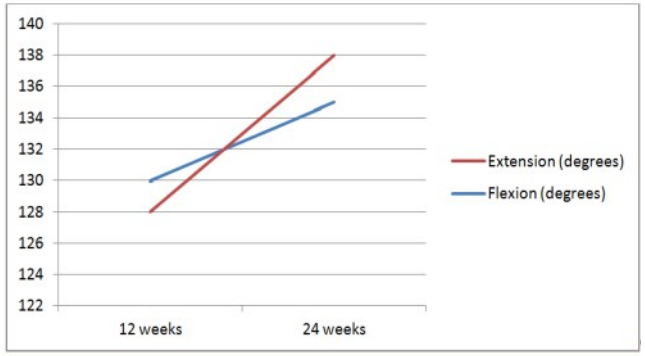
Patient 4 (Ref. 4) : decrease of FRI from 36 to 20 to 13 and VAS from 8 to 4 to 1



Better range of motion [Ref. 4,5]

Improvement of Flexion of knee from 130° to 135°, Improvement of Extension from -2° to +3° (Ref. 5)

Patient 3 (Ref. 4) : flexion degrees improvement from 110 to 130



Ref. 1. Ra et al.: Stem cell treatment for patients with autoimmune disease by systemic infusion of culture-expanded autologous adipose tissue derived mesenchymal cells. Journal of Translational Medicine 2011, 9:181. Ref. 2. Ra et al: Safety of intravenous infusion of human adipose tissue derived mesenchymal stem cells in animals and humans. Stem Cell Dev 2011, 20(8): 1295-6. Ref. 3. Musumeci et al.: Mesenchymal stem cells from adipose tissue which have been differentiated into chondrocytes in three-dimensional culture express lubricin. Exp Biop Med (Maywood).2011 Nov 1; 236(11):1333-41. Re. 4 . Jaewoo Pak: Regeneration of human bones in hip osteonecrosis and human cartilage in knee osteoarthritis with autologous adipose-tissue-derived stem cells: a case series. Journal of Medical Case Reports 2011, 5:296. Ref. 5 : Centeno et al.: Increased knee cartilage volume in degenerative joint disease using percutaneously implanted, autologous mesenchymal stem cells. Pain Physician 2008; 11:3:343-353