

## [Human CD34+ stem cells promote healing of diabetic foot ulcers in rats.](#)

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### **Source**

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### **Abstract**

#### **OBJECTIVE:**

Diabetic patients with foot ulcers usually manifest with high amputation and mortality rates. Preliminary evidence supports the effectiveness of stem cell (St) therapy on diabetic foot ulcers. The objective of this study was to evaluate the efficacy of stem cells in the healing of wounds among streptozotocin-induced diabetic albino rats.

#### **METHODS:**

Thirty male albino rats were divided into three groups each of 10 rats: control group, diabetic control (DC) group and St group. Diabetes was induced by intra-peritoneal injection of streptozotocin. A full thickness circular wound of ~10 mm in diameter was performed on the front of right legs of all rats. In the diabetic St group, the wounds were treated by injection of umbilical cord blood-derived CD34+ stem cells into the wound bed. Half of each group rats were sacrificed after 1 week and the rest after 2 weeks. The wound areas were used for histopathology, immunohistochemistry and transmission electron microscope studies. Assessment of wound surface area, epidermal thickness, blood vessel proliferation and collagen deposition were performed.

#### **RESULTS:**



There was a significant decrease in mean wound surface area, increase in mean epidermal thickness, blood vessel proliferation and collagen deposition in the St group compared with the DC group.

#### **CONCLUSION:**

Treatment with CD34+-enriched cells decreased wound size, accelerated epidermal healing and dramatically accelerated revascularization of the wounds compared with the DC group.

- 1- [Pan Afr Med J.](#) 2011;9:5. Epub 2011 May 18.