

Mesenchymal Stem Cell-Derived Extracellular Vesicles for Tissue Repair Across Multiple Body Systems: A Narrative Review

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Summary

This narrative review synthesizes 40 peer-reviewed studies from 2017 to 2026 on MSC-derived extracellular vesicles in orthopedic, neurological, cardiac and skin repair. Across those systems, the cited studies reported less inflammation and apoptosis, more angiogenesis and active regenerative signaling. The review supports formal clinical investigation. No MSC-EV product is FDA approved for any use.

Exosome and mesenchymal stem cell-derived extracellular vesicle products are not approved by the FDA for any indication. This paper describes published scientific literature. It does not describe an available treatment.

A companion paper, the structured review of MSC exosome and extracellular vesicle study designs, tabulates how published preclinical and early-phase studies were designed and what their authors reported.

Questions this paper covers

- What are mesenchymal stem cell extracellular vesicles?
- What do studies show about MSC extracellular vesicles in tissue repair?
- Which body systems have MSC-EV tissue repair research?
- Why are umbilical cord and Wharton's jelly MSC sources studied?
- What has to happen before MSC-EVs can be used in patients?

Sources

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4. FDA Public Safety Notification on Exosome Products, Dec 6, 2019
5. 21 CFR Part 312 (IND requirement)

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