

Demineralized bone matrix

Prepared by acid extraction, reducing antigenicity, but preserving some osteoconductive and variable osteoinductive properties.

1. available as putty, gel, chips, granules or powder
2. primarily used as an adjunct to other grafting materials
3. CONS:
 - a) increased cost
 - b) variable efficacy between preparations and batches of the same preparation
 - c) no mechanical or structural properties

There are several main types of [bone graft substitutes](#) used in spinal fusion surgery, which can be generally categorized into three main areas:

[Demineralized Bone Matrix](#) (DBM)

Synthetic bone graft extenders

[Bone Morphogenetic Proteins](#) (BMP).

Demineralized bone matrix (DBM) is one of the fusion options that has been used in treatment of the bone defects for years. The purpose of this review is to provide an evidence-based analysis on the current evidence for effectiveness of DBM in ACDF.

A systematic search of the literature was conducted using MEDLINE, Scopus, and CENTRAL. The risk of bias was evaluated with the criteria recommended by the Cochrane Back and Neck group and the Methodological Index for Non-Randomized Studies ([MINORS](#)). The patient-reported outcome measures included the visual analog scale (VAS), Odom's criteria, Japanese Orthopaedic Association (JOA), and Neck Disability Index (NDI). Secondary outcome measures were fusion rate, non-union, subsidence, collapse, displacement, spinal alignment, and re-operation.

Twelve studies met the eligibility criteria, of which three were randomized and nine were non-randomized. Patient-reported outcomes were non-inferior for DBM compared with the autograft and other bone substitute materials. The DBM had a fusion rate comparable with other graft materials, particularly in long term (88.8-100%, after 18 months follow-up). The majority of studies reported no collapse, subsidence or displacement with DBM. The revision surgery was mainly due to the symptomatic non-union in 4.1-8.3% of the DBM cases. Preservation of the angle of cervical lordosis was acceptable with DBM fusion.

Most of the studies reported non-inferior results for DBM compared with autograft and other graft substitute materials in terms of patient-reported outcomes, fusion rate, and safety. However, the

quantity and quality of evidence is very limited ¹⁾.

¹⁾

Zadegan SA, Abedi A, Jazayeri SB, Vaccaro AR, Rahimi-Movaghar V. Demineralized bone matrix in anterior cervical discectomy and fusion: a systematic review. Eur Spine J. 2016 Nov 10. [Epub ahead of print] Review. PubMed PMID: 27832365.

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