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Healing of large defects treated with calcium sulfate pellets containing demineralized bone matrix particles

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Calcium sulfate (OsteoSet, Wright Medical Technology, Inc, Arlington, Tenn) and calcium sulfate/demineralized bone matrix (DBM) pellets (OsteoSet DBM, Wright Medical Technology, Inc) have been evaluated preclinically in a bilateral medullary defect model of a canine humerus. In this model, both short (6 week) and long (26 week) time points have been evaluated. An analysis of bone response to the pellets was conducted using radiological, histological, mechanical, and quantification techniques. The calcium sulfate/DBM pellets exhibited more rapid trabecular bone remodeling as demonstrated by the absence of the ringlet bone structure typically seen with calcium sulfate pellets. We concluded that calcium sulfate and calcium sulfate/DBM pellets are both effective bone graft substitutes.