Scientific studies involving Osteoallograft® Orthomix® from VTS

Independently published studies speak for themselves:

"Dogs with a TPLO gap filled with DBM were allowed to return to normal exercise 2 weeks earlier than dogs with a well-apposed TPLO site."

"Radiographic healing, duration of exercise restriction, and timing of destabilization were similar in dogs undergoing carpal and tarsal arthrodesis whether they received DBM, autogenous graft, or both."

Hoffer M, Griffon D, Schaeffer D, Johnson A, Thomas M
Clinical applications of demineralized bone matrix: A retrospective and case-matched study of 75 dogs.
Veterinary Surgery. 37:639-647, 2008.

"Autograft was used in the first 17 dogs […], and the other 97 [TTA] had an allograft."

"83.9% [were healed] within 12 weeks." "The mean time to complete radiographic healing […] was 9.4 weeks."

Lafaver S, Miller NA, Stubbs WP, Taylor RA, Boudrieau RJ
Tibial tuberosity advancement for stabilization of the canine cranial cruciate ligament-deficient stifle joint: Surgical technique, early results, and complications in 101 dogs.
Veterinary Surgery. 36:573-586, 2007.

If no allograft is used, the TTA procedure is significantly less reliable:

"Osteotomy gap healing was considered complete (grade 4) in [only] 23 stifles (59%) at recheck. Mean follow up was 14.56 +/- 5.92 weeks."

Guerrero T, Makara M, Katiofsky K, Fluckiger M, Morgan J, Haessig M, Montavon P. Comparison of Healing of the Osteotomy Gap after Tibial Tuberosity Advancement with and without Use of an Autogenous Cancellous Bone Graft. Veterinary Surgery. 40: 27–33, 2011.

"For dogs with CSM (cervical spondylotic myelopathy) at a single level, the use of a spinal locking plate in combination with a cortical ring allograft can be an effective surgical treatment."

Bergman R, Levine J, Coates J, Bahr A, Hettlich B, Kerwin S
Cervical Spinal Locking Plate in Combination with Cortical Ring Allograft for a One Level Fusion in Dogs with Cervical Spondylotic Myelopathy.
Veterinary Surgery. 37:530–536, 2008.

"DBM generates significant new bone formation."

"Demineralized bone matrix appears to offer a realistic alternative to (autogenous) bone grafting offering advantages of decreased surgical time and morbidity with limitless volume."

Veterinary Orthopedic Society

Lidbetter DA, Millis DL, Daniel GB, Stapleton J
The effects of demineralized bone matrix and cancellous bone graft on an unstable ostectomy model in dogs.
Veterinary Orthopedic Society, 2003.

None of these studies were initiated or funded by VTS.

Please see back for additional references >>>

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Selected Additional References for Use of Bone Graft in Orthopedic Applications

Comparing Allograft with Autograft

"Magnetic resonance imaging demonstrated excellent bony incorporation of both autografts and allografts."[1]

"Demineralized bone matrix has been shown to possess both osteoconductive as well as osteoinductive properties."[2]

"The authors reviewed the orthopedic surgical activity in their institution (…). Processed allografts represented 90% of all grafts used."[3]

1. Glenn RE Jr, McCarty EC, Potter HG, Juliao SF, Gordon JD, Spindler KP. Comparison of fresh osteochondral autografts and allografts: a canine model. Am J Sports Med. Jul 34(7):1084-93, 2006.
2. Wolfinbarger L, Eisenlohr L, Ruth K. Demineralized Bone Matrix: Maximizing New Bone Formation for Successful Bone Implantation. Musculoskeletal Tissue Regeneration, Orthopedic Biology and Medicine, 2: 93-117, 2008.
3. Albert A, Leemrijse T, Druez V, Delloye C, Cornu O. Are bone autografts still necessary in 2006? A three-year retrospective study of bone grafting. Acta Orthop Belg. Dec 72(6): 734-40, 2006.
4. Samartzis D, Shen FH, Matthews DK, Yoon ST, Goldberg EJ, An HS. Comparison of allograft to autograft in multilevel anterior cervical discectomy and fusion with rigid plate fixation. Spine J. Nov-Dec 3(6): 451-9, 2003.

Morbidity and Monetary Costs Associated with Autograft Harvesting

"The overall major complication rate was 8.6%. Major complications included infection, prolonged wound drainage, large hematomas, reoperation, pain greater than 6 months, sensory loss, and unsightly scars. (The) minor complication rate (was) 20.6%."[5]

"In addition to the "morbidity cost" to the patient, there is also a monetary cost incurred as a result of harvesting (..) bone."[6]

5. Younger EM, Chapman MW. Morbidity at bone graft donor sites. J Orthop Trauma. 3(3):192-195, 1989.
6. St John TA, Vaccaro AR, Sah AP, Schaefer M, Berta SC, Albert TA, Hilibrand A. Physical and Monetary Costs Associated With Autogenous Bone Graft Harvesting. Am J Orthop. Jan 32(1):18-23, 2003.

Comparing Allograft and Synthetic Bone Substitutes

"Defects filled with mixtures containing 50% or 100% Corglaes® were less dense, contained less bone and more fibrous tissue than defects with allograft, autograft, or allograft idealized with Corglaes." [7]

"When comparing percent bone height fill of the defect in the grafted area, cDFDBA (canine demineralized freeze-dried bone allograft) (65.7%) was significantly better than the control (48.9%; $P \leq 0.05$) with no statistically significant difference between control and (…) bioactive glass."[8]

7. Griffon DJ, Dunlop DG, Howie CR, Gilchrist T, Salter DM, Healy DM. Early dissolution of a morsellised impacted silicate-free bioactive glass in metaphyseal defects. J Biomed Mater Res (Applied Biomater). 58(6):638-644, 2001.
8. Hall EE, Meffert RM, Hermann JS, Mellonig JT, Cochran DL. Comparison of bioactive glass to demineralized freeze dried bone allograft in the treatment of intrabony defects around implants in the canine mandible. J Periodontol. May 70(5):526-535, 1999.

Choosing the Right Volume of Allograft

"Underfilling will delay the onset of osteogenesis within the defect."[9]

9. DeVries WJ, Runyon CL, Martinez SA, Ireland WP. Effect of volume variations on osteogenic capabilities of autogenous cancellous bone graft in dogs. Am J Vet Res. Oct 57(10):1501-1505, 1996.