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## Sagittal mandibular bone splitting osteotomy versus regular vertical osteotomy in distraction osteogenesis (a histological study)

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**Objective:** To evaluate the regenerative capacity of goat mandibles following sagittal split osteotomy and distraction osteogenesis compared with vertical body osteotomy.

**Methods:** Vertical body osteotomy was performed on the left side of the mandibles of 18 goats, and sagittal splitting was performed on the right sides. All animals were started on bilateral distraction after a 5 day latency period. The distraction period lasted for 10 days at 1mm/day. Animals were sacrificed at the end of the distraction period and at 10 and 35 days later. The specimens were subjected to micro-CT imaging, followed by decalcification and staining with hematoxylin and eosin. Bone volume and density, as determined by micro CT, were compared.

**Results:** Thirty-five days after the end of distraction, sagittal splitting was characterized by more robust lamellar bone formation bridging the distraction gap than vertical body osteotomy. The volume of newly formed bone and bone mineral density were significantly higher after sagittal split than after vertical body osteotomy ( $P < 0.0001$ ).

**Conclusion:** Both histological and micro computed topographical analysis showed that sagittal split osteotomy results in better regenerative capacity than vertical body osteotomy. The significantly higher bone volumes and mineral density observed after sagittal split osteotomy suggest more consolidation.

### Biography

Walid A Abdullah finished his Master degree in oral and maxillary coal surgery from Mansoura University, Egypt in 2000. He finished his PhD in oral and maxillary coal surgery from the same University in 2005. He is working as Associate Professor in King Saud University, Saudi Arabia and in Mansoura University, Egypt. He has about 18 publications.

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