

**IN-HOUSE COMPUTER-AIDED DESIGN AND MANUFACTURING VERSUS TRADITIONAL OPEN REDUCTION AND INTERNAL FIXATION FOR MANDIBULAR TRAUMA.**

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**Purpose:** Computer-aided design and manufacturing (CAD/CAM) are revolutionizing oral and maxillofacial surgery. Current methods utilize virtual surgical planning (VSP) sessions and custom plate fabrication via third-party vendors, which is costly and time consuming, negating the effectiveness in the treatment of acute facial trauma. The purpose of this study was to investigate the feasibility, operative time, and quality of reductions between an in-house CAD/CAM method versus traditional open reduction and internal fixation (ORIF).

**Methods:** After receiving approval from our university's institutional review board, an analysis of 20 patients who were treated for acute mandible fractures was completed. The control group received traditional ORIF. The experimental group consisted of patients treated with a preoperative in-house CAD/CAM method and preoperatively bent plates. The primary outcome variable was the overall operative time and the quality of postoperative reductions.

**Results:** The 20 patients included in the study had a mean age of 49 years. The average operative time for the control group was  $154 \pm 35.5$  minutes versus  $108.3 \pm 19.1$  minutes in the experimental group ( $P < .0021$ ). The time of in-house preoperative VSP was  $21.2 \pm 2.51$  minutes and 3-D print time (including post-print and cure times) was  $90.7 \pm 3.5$  minutes.

**Conclusion:** This investigation demonstrated that in-house CAD/CAM methods are feasible and decrease operative time for the management of acute mandibular fractures.