

3-D-printed templates aid mandibular fracture repair

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(HealthDay)—A three-dimensional (3-D)-printed short-segment

template prototype is feasible for management of complex mandibular fractures, according to a study published online April 26 in *JAMA Facial Plastic Surgery*.

Parul Sinha, M.B.B.S., from the Washington University School of Medicine in St. Louis, and colleagues conducted a feasibility study using maxillofacial computed tomography data of three patients with comminuted mandibular [fractures](#) who required preoperative planning with a perfected complete mandible model. Each reduced mandible design was divided to create 3-D templates for six fracture sites. Sessions were conducted in which the mandibular fracture plates were contoured in a preoperative setting against the 3-D-printed short-segment templates and in an intraoperative setting against the complete mandible model.

The researchers found that the total time for 3-D modeling and printing was less than three hours per short-segment template. Precontouring the fracture plates resulted in a median intraoperative time saved of seven, five, and seven minutes for the angle, body, and symphyseal/parasymphyseal segments, respectively, with operating room charge equivalents of \$350.35, \$250, and \$350.35. The total costs were less than \$20 for a single 3-D-printed template compared with about \$2,200 for a perfected complete model.

"We demonstrate that patient- and site-specific 3-D-printed short-segment templates can be created within the timeframe required for mandibular fracture repair," the authors write. "These novel 3-D-printed templates also demonstrate cost efficiency in the preoperative planning for complex mandibular fracture management."

More information: [Abstract/Full Text](#)

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