A simple, effective, universal, and reusable osteotomy tool for jaw reconstructions with microvascular fibula transplants

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Precise, expensive individual saw guides are used with increasing frequency for the reconstruction of mandibular defects with fibular grafts. In this report, an alternative is presented - the Multiuse Cutting Jig (MUC-Jig, proprietary development). It is reusable, suitable for all patients, requires simple planning based on conventional CT imaging, and is more economical.; To investigate its precision, we conducted a nonblinded experimental study, with ten participating craniomaxillofacial surgeons. Osteotomies of four different fibula segments were carried out at the same angulation, with groups defined according to the proximal and distal fixed angulation: 45ř, 30ř, 15ř, or 0ř. The sagittal cut was performed proximally, with the coronal cut performed distally. The resulting 40 segments (n/=/40) were analyzed with their Tx length (primary endpoint) and osteotomy angles, and compared to the original planning.; The mean (SD) relative deviation of all grafts from the original planning was -0.08/mm (1.12) in length and -0.71ř (3.15) for the angle. Only 45ř (-2.04/ś/3.71ř) and 30ř (-1.07/ś/2.52ř) cuts differed significantly (p <0.05) from smaller angle grafts. The mean (SD) absolute deviation was 0.81/mm (0.27) in length and 2.13ř (0.93) in graft angles. For individual transplants, 45ř cuts (1.28/ś/1.03/mm) differed significantly (p <0.005) from others. We observed no differences in relative length or absolute angle deviation.; The MUC-Jig is precise and cost-effective for osteotomies with medium angles and smooth reconstructions of template-guided procedures.

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