

of the carpus. The preservation of the soft tissues may reduce the risk of osteonecrosis.

### Three-Dimensional Printing Models in the Preoperative Planning of Carpal Fractures and Academic Education

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**Objective:** We present the use of 3-dimensional printing models with fused deposition modeling for carpal fractures surgery, and its feasibility in the preoperative planning and academic training. Nowadays, our market provides stereolithographic printers for this purpose, but their higher costs had made them little known and difficult to access. Fused deposition modeling is a low-cost technology that creates 3-dimensional models with high quality and definition. **Material and Methods:** We studied two patients with carpal fractures, an hamate fracture, and a scaphoid pseudarthrosis. The initial assessment included computed tomography imaging study, and the digital file was processed into Stereo Lithography format. After this, the model was printed in polylactic acid, using an “open source” fused deposition modeling technology printer manufactured in Uruguay. The resulting models were carefully evaluated and used for academic training. Different preoperative approaches were studied, analyzing fracture patterns, calculating and enabling a precise selection of bone graft and selection of osteosynthesis screws, according to the characteristics of each patient. **Results:** We achieved a real scale with a 1:1 proportion models. All measurements were concordant, and the screws had an accurate longitudinal measure. Total operative time was 20% reduced. Plastic surgery teachers and residents were satisfied using the models for preoperative clinical discussion and planning, emphasizing the advantage of manipulating real scale models compared with 3-dimensional imaging. The models allow us to analyze the fractures in complete way and not just seeing the face of the bone exposed by the surgical approach or by the x-ray intraoperative image. **Conclusions:** We have created models of low cost, high quality, and accuracy, for the preoperative planning of carpal fractures, accomplishing to reduce surgical time and improving the academic learning of the plastic surgery residents.

### Semi-occlusive Dressing for the Management of Fingertip Amputations

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**Objective:** The objective of the study was to present an alternative therapeutic option that could replace local skin flaps in the management of fingertip amputations and to report the results from a functional, aesthetic, and general satisfaction point of view. **Method:** Descriptive study in adult population which included patients with fingertip amputations treated with semi-occlusive dressing consisting of a polyurethane adhesive. The injuries were classified according to the Allen classification. All lesions received a 3 liters of saline solution wash, debridement, administration of single dose of prophylactic antibiotic, tetanus vaccination by hospital policy, and application of a semiocclusive dressing under transient ischemia of the affected finger. There was no intervention in the exposed bone even though its exposition might be located at the level of amputation or beyond. At the time of discharge, all cases were studied with radiograph and ultrasound, measuring the thickness of soft tissue distal to the bone level. The 400 Points Test and QuickDASH, validated for the Chilean population, were applied 1 month after discharge. All patients were presented with the option of psychological check. For the data analysis, Stata 12.1 was used. **Results:** A total of 67 injuries were obtained. The average age of treated patients was 43 years old (SD = 14.7). According to Allen’s classification, lesions were: level 1 35.82%, level 2 37.31%, level 3 25.37%, and level 4 1.49%. All cases achieved full healing in the injured finger. The mean time of disability was 60.58 days (SD = 16.66). The length of soft tissue growth distal to the bone level as measured by ultrasound had an average of 3.66 mm (SD = 0.72). All patients achieved full functional and aesthetic satisfaction, with a median for 400 Points and QuickDASH Test of 90 and 12.6, respectively. There were no complications such as infection, scarring, neuroma, or osteitis. No supplementary flap or additional therapeutic action was required. **Conclusions:** Semi-occlusive dressing for the treatment of fingertip amputations is a valid option for obtaining satisfactory results from a functional, aesthetic, and global point of view. It is a very easy method to execute in emergency rooms and has a very low cost and a high reproducibility. No complications have been recorded, and it is an excellent alternative to local skin flaps. However, we believe that future studies that incorporate more complex methodological designs should be made to be able to present a greater external validity.

### Two Reverse Pedicle Flaps for Repairing Soft Tissue Defects of the Finger: A Comparative, Prospective Study

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