

Poster presentation

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Analysis of the compatibility of dental implant systems in fibula free flap reconstruction

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As a result of major ablative surgery, head and neck oncology patients can be left with significant defects in the orofacial region. The resultant defect raises the need for advanced reconstruction techniques. The reconstruction in this region is aimed at restoring function and facial contour.

Endosteal implants are being used to restore the masticatory function by the way of prosthetic replacement of the dentition. Implant rehabilitation usually leads to improved facial appearance, function, restoration of speech and mastication.

Suitable dental implant placement's site requires satisfactory width, height and quality of bone. Reconstruction of hard tissue defects therefore will need to be tailored to meet the needs for implant placement.

The aim of this study was to assess the compatibility of five standard commercially available dental implant systems (Biomet 3i, Nobel Biocare, Astra tech, Straumann and Ankylos) for placement into vascularised fibula graft during the reconstruction of oromandibular region.

Radiographs of the lower extremities from 142 patients in the archives of the Department of Radiology in University College London Hospital (UCLH) were analysed in this study. These radiographs were from 61 females and 81 males. Additionally, 60 unsexed dry fibular bones, 30 left side and 30 right side, acquired from the collection of the Department of Anatomy, University College London (UCL) were also measured.

In the right fibula (dry bone), 90% of the samples measured had a width of 13.1 mm. While in the left fibula (dry bone), 90% of the samples measured had a width of 13.3 mm; fibulas measured on radiographs had a width of 14.3 mm in 90% of the samples.

The length ranges of the dental implants used in this study were: 7–13 mm (Biomet 3i), 10–13 mm (Nobel biocare), 8–13 mm (Astra Tech), 8–12 mm (Straumann) and 8–11 mm (Ankylos).

This study concludes that the width of fibula is sufficient for placement of most frequently used dental implants for oral rehabilitation after mandibular reconstructive procedure.