Freiburg University Hospital, Germany
Outpatient Clinic for Dental Prosthetics
Medical Director: Prof. J.R. Strub

Authoren: ZA Panos Lampropoulos, Freiburg
Dipl.-Math. Dr. Thomas Gerds, Freiburg
PD Dr. Jens C.Türp, Freiburg/Basel

Reconstruction of tooth positions using the Staub Cranial System

Aim: The Staub Cranial System, developed by master dental technician Karl-Heinz Staub (Neu-Ulm, Germany), is based on defined anatomical reference points which should be present in every jaw model with unalterable positions. The aim of the study was to check the ability of the Staub method to reconstruct the former position of lost teeth in an edentulous jaw.
Materials and methods: Two maxillary alginate impressions were taken and filled with hard plaster in each of 20 completely dentulous subjects with no history of orthodontic treatment. All teeth were erased with a plaster cutter in one of the two models made for each participant in the study. Master dental technician Staub, who was unaware of the baseline situation, drew up a list of tooth positions for each of the 20 edentulous models. The spaces were subsequently determined between the mesiobuccal cusp tips of replacement teeth 16 and 26, between the canine tips of replacement teeth 13 and 23, and between the cutting edge of replacement tooth 11 and the highest point of the gingival margin. Measurements were made using the principle of stripe projection, a non-contact method of recording surface contours, and using specially developed software (*Topoline*; Institute of Laser Technology in Medicine and Measurement Technology at Ulm University, Germany). The 20 control models were measured in the same way. Then the number of reconstructed models was determined whose distances measured deviated > 5 % from the mean values of the distances measured for the 20 control models.

Results: Table 1 shows the estimated rates at which a tooth position can be reconstructed with no, one, two or three deviations. Tooth positions could be reproduced with no, or at the most one, deviation in 80 % of the models (95 % CL = 56-94%).

Deviations	**none**	**1**	**2**	**3**
Number	7/20	9/20	3/20	1/20
Rate	35%	45%	15%	5%
95% CL	15-59%	23-68%	3-38%	0.1-25%

Table 1: Number of deviations of the distances measured. 95% CL = 95% confidence limits.

Discussion: The results indicate that the Staub method is astonishingly well able to reconstruct the former position of lost teeth.

For further information:

Staub Cranial GmbH, Wilhelmstraße 13, D-89231 Neu-Ulm
Fon: +49 (731) 840 75, Fax: +49 (731) 840 76
e-mail: info@staub-cranial.de
www.staub-cranial.de