OP05 ASSESSMENT OF GINGIVAL THICKNESS AT THE MANDIBULAR INCISORS OF ORTHODONTIC PATIENTS WITH FOUR DIFFERENT METHODS. A CROSS-SECTIONAL STUDY

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AIM: To find the most accurate and reliable method for measuring gingival thickness at the mandibular incisors of orthodontic patients.

MATERIALS AND METHOD: Probing with a periodontal probe was set as the standard method for measuring gingival thickness bucco-lingually, as this may be considered the gold standard in everyday practice for gingival biotype evaluation. This method was compared to three alternative procedures, namely needle measurements, as those used in acupuncture procedures, ultrasonic measurements with a special ultrasonic device and probing with the Hu-Friedy Colorvue® Biotype Probe. Orthodontic patients were examined consecutively with all techniques 2 mm below the margin of the keratinised gingiva at the labial gingival side of the two central mandibular incisors. Pocket depth and bleeding on probing were also recorded. The new methods were plotted versus the standard one. Violation of data normality assumptions were tested both graphically and via Shapiro-Wilk tests. The independence of the differences found was tested via Pearson's correlation coefficient. In the case of magnitude-dependence, data were transformed and retested for normality.

RESULTS: Needle and ultrasonic measurements provided increased measurements when compared to the standard technique. The estimated magnitude of disagreement was +0.24 mm (95% CI = [0.21, 0.27]) for the needle measurement and +0.17 mm (95% CI = [0.14, 0.21]) for the ultrasonic measurement estimated at tooth #31. Similar results were obtained at tooth #41: +0.20 mm (95% CI = [0.17, 0.23]) and +0.13 mm (95% CI = [0.10, 0.16]), respectively. There seems to be an increasing trend for larger differences, when the average of the measurements between the compared methods increases, as indicated by the statistically significant positive Pearson's correlation coefficients. The biotype probe consistently confirmed gingival biotype when compared with the other procedures.

CONCLUSIONS: The findings suggest that the standard technique for assessing gingival biotype, i.e. probing with a periodontal probe, may underestimate gingival thickness at the mandibular incisors.