COMPARATIVE ANALYSIS OF SPECTROPHOTOMETRIC VS VISUAL TOOTH COLOR DETERMINATION

Accurate tooth color determination is crucial in producing esthetically pleasing restorations. This study aims to compare the effectiveness of Spectrophotometric and visual tooth color determination in standardized conditions.

Methodology: 100 patients age 18-60, were selected for this study with specific inclusion and exclusion criteria. Tooth color assessments were conducted using Spectrophotometric ShadePilot and VITA 3D Master Shade Guide under standardized D65 daylight conditions. The color difference (ΔE) between the two methods was calculated using the CIEDE2000 formula.

Results: The mean ΔE value for Spectrophotometric ShadePilot vs VITA 3D Master Shade Guide color determination was calculated as 2.6, indicating a significant difference in color assessment. The correlation coefficient between the two assessment techniques was determined to be 0.87, indicating a strong positive correlation in color determination. However, statistical analysis using a Pearson correlation test revealed a p-value of 0.03, signifying a significant difference in the correlation strength between the two methods.

Conclusion: The notable difference in ΔE values and the high level of significance support the superiority of Spectrophotometric ShadePilot over the VITA 3D Master Shade Guide. Moreover, conducting visual color assessment under standardized conditions provides a consistent and controlled environment for accurate comparison. Dental professionals are encouraged to use spectrophotometers into their practice to enhance the reliability and precision of tooth color evaluations.