

# Assessment of convergence angles of tooth preparations for complete crowns among dental students\*

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**Summary Objectives:** Convergence angles for complete crown preparations have been recommended at 4-12°. However, practitioners have difficulty meeting these recommendations. This study measured and compared the convergence angles of tooth preparations for complete crowns prepared at three Colleges of Dentistry: the University of Tanta, Egypt, King Abdulaziz University, Saudi Arabia, and The Ohio State University, Columbus, Ohio

**Methods:** The convergence angles of 499 tooth preparations for complete crowns were evaluated. These comprised of a random sample of 262 teeth prepared by third-year dental students at the University of Tanta on extracted molars under normal preclinical conditions, 37 preparations on molar teeth on typodonts done by first-year dental students. The Ohio State University and 200 molar typodont complete crown preparations done by fourth-year dental students at King Abdulaziz University, Saudi Arabia. The bucco-lingual and mesio-distal convergence angles of each preparation were measured with a goniometer microscope. Mean convergence angles were calculated, and differences between groups were tested for statistical significance with analysis of variance (ANOVA) at 5% level of confidence.

**Results:** Convergence angle measurements were significantly different between the groups and the dimensions ( $P < 0.001$ ). The greatest convergence value ( $19.8 \pm 10.0$ ) was for bucco-lingual measurements prepared by Egyptian dental students. The smallest convergence value ( $14.1 \pm 3.8$ ) was for mesio-distal measurements prepared by Saudi dental students.

**Conclusions:** This study emphasized the difference between what is taught at dental schools (what is theoretically possible) and the school results of actual practice. There was a considerable disparity between the convergent angles recorded in this study and the ideal configurations recommended in fixed prosthodontic textbooks and the dental literature.