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# The effect of finishing line designs and occlusal surface reduction schemes on vertical marginal fit of full contour CAD/CAM zirconia crown restorations (a comparative *in vitro* study)

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**Purpose:** The purpose of this study is to evaluate and compare the effect of using different finishing line designs (deep chamfer and shoulder) with different occlusal surface reduction schemes (planar and flat) on the vertical marginal fit of full contour CAD/CAM zirconia crown restorations.

**Materials & Methodology:** Thirty-two sound maxillary first premolar teeth of comparable size and shape freshly extracted for orthodontic purposes were collected to be used in this *in vitro* study. To minimize confounding variables, one-way ANOVA test was performed for each dimension and no statistically significant difference was found among the four subgroups. Teeth were divided into two main groups according to the design of finishing line used (n=16): Group A: Deep chamfer; Group B: Shoulder. Each group was then subdivided into two subgroups according to the scheme of occlusal reduction used (n=8): (A1, B1) Planar; (A2, B2) Flat. Standardized preparation for full contour zirconia crown restorations was carried out with finishing lines depth 1.0 mm, total convergence angle of 6 degrees and axial height 4 mm (buccally and palatally). The teeth were then scanned directly using digital intra-oral scanner technique (Sirona AC Omnicam camera). Full contour zirconia crowns were then fabricated using Sirona In-Lab MC X5 milling device. Vertical marginal gaps were

measured at four points on each tooth surface using a digital microscope with a magnification of (280X).

**Results:** The results of this study showed that there were statistically highly significant differences (p<0.01) using one-way ANOVA analysis and Student's t-test.

**Conclusions:** Deep chamfer with planar occlusal reduction scheme provided better marginal fit compared to that obtained with shoulder. On the other hand, shoulder with flat occlusal reduction scheme provided better marginal fit compared to that obtained with deep chamfer.

## Biography

Dr. Lena studied B.D.S in dentistry at Al Yarmouk University College, Lena S Abdullah pursued her Master' Degree in the Department of Restorative and Aesthetic Dentistry from the College of Dentistry at the University of Baghdad, Iraq & she is a specialist dentist (M.Sc.) in conservative and esthetic department, she has a specialized dental health center in Morocco Street, Baghdad Health Department Rusafa Municipalities Sector & Specialty Dental Center in Alawiya from 2012 to 2013 in Baghdad, Iraq.

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