



Fit assessment of soft milled Co-Cr and zirconia fixed dental prosthesis compared to cast Co-Cr.

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Purpose: To compare marginal and internal fit of soft milled Co-Cr, zirconia and cast Co-Cr FDPs .

FDPs (Amann Girrbach AG)	N=60	Milled Co-Cr (Ceramill Sintron)	n=20	Milled Zi (Ceramill Zi)	n=20	Cast Co-Cr (Girobond NB)	n=20
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Material and Methods

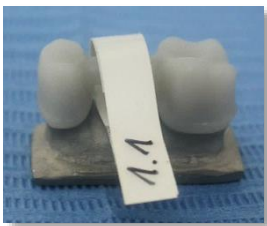
- Maxillary first premolar and first molar prepared (1.2- mm chamfer, 2- mm occlusal reduction)
- Metal model generated (N=60).
- Dies assigned to 3 groups to receive FDPs from presintered Co-Cr, presintered zirconia, or cast Co-Cr
- Each framework seated on its model.
- Replica technique used for marginal and internal fit evaluation in mesiodistal and buccolingual planes

Null hypothesis

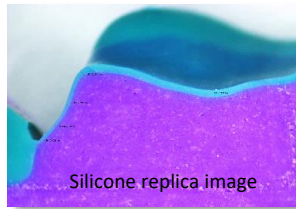
- No statistical difference would be found in marginal and internal fit comparison between groups.

Statistical Analysis

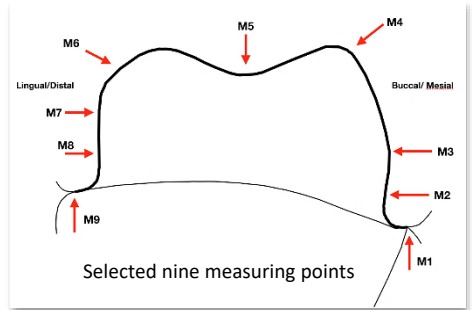
Discrepancy values between materials and abutments compared using Levene and t tests. ANOVA and Bonferroni correction used for multiple pairwise comparisons. Equality of variances assessed using the Levene test. ($\alpha=.05$).



Zirconia milled prosthesis



Silicone replica image



Selected nine measuring points

Results

- For overall mean discrepancy values:
- In mesiodistal planes: CS/CZ ($P=.026$), GI/CS ($P=.537$) and GI/CZ ($P=.569$).
- In the buccolingual axis, no significant difference between groups.
- Statistical differences at several measurement points found at the inter- or intra-material level.
- Increase in discrepancy values between marginal and occlusal measurements in all groups

Dependent Variable	Material		Mean Difference	Sig.
Total (MD)	CS	GI	-9.644	.537
	CS	CZ	-19.055	.026
	CZ	GI	9.411	.569
Total (BL)	CS	GI	-8.446	.051
	CS	CZ	-.734	1.000
	CZ	GI	-7.712	.087

CS: Ceramill Sintron
 CZ: Ceramill Zi
 GI: Cast Co-Cr

Pairwise comparison: Measured gap in mesiodistal (MD) and buccolingual (VL) planes. ($P<.05$).

Discussion and Conclusions

- Significant difference reported between CS and CZ in mesiodistal planes.
- Axial and marginal fit values for all groups clinically acceptable, but not in the occlusal area.
- When comparing premolar to molar, similar internal and marginal gaps with no apparent framework distortion after sintering process.

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