

A Comparison of Accuracy of Different Dental Restorative Materials between Intraoral Scanning and Conventional Impression-taking: An In Vitro Study

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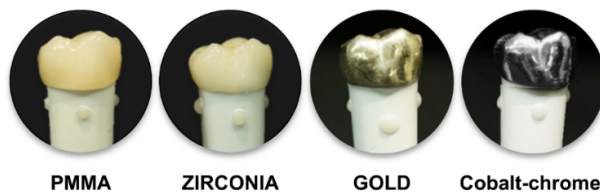
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MATERIALS COMPARED IN THE PRESENT STUDY



DIGITIZATION PROTOCOLS COMPARED



Figure S1. Fabricated experimental models and digitization protocols.

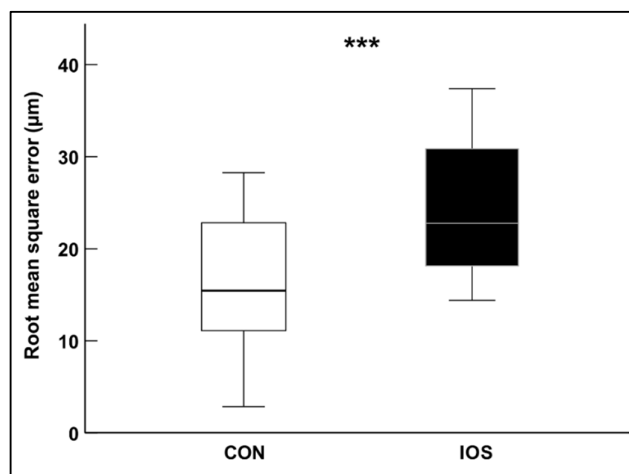


Figure S2. Comparison of accuracy between the table top scanner and intraoral scanner. $P < 0.001$.

Table S1. Accuracy comparison of non-metallic restorative materials with different impression acquisition methods (RMSE, μm).

Materials	CON			IOS			IOS-P		
	Mean \pm SD	Median	IQR	Mean \pm SD	Median	IQR	Mean \pm SD	Median	IQR
Precision									
PMMA	13.95 \pm 5.09	12.50 ^{Aa}	7.38	11.19 \pm 0.99	11.30 ^{Aa}	1.53	15.75 \pm 13.71	11.80 ^{Aa}	6.05
Zirconia	16.42 \pm 5.69	14.95 ^{Aa}	8.05	40.16 \pm 21.48	43.20 ^{Bb}	42.08	46.12 \pm 30.22	36.75 ^{Bb}	57.38
Trueness									
PMMA	18.03 \pm 4.40	17.25 ^{Aa}	8.83	23.15 \pm 2.37	23.45 ^{Aa}	4.50	44.40 \pm 4.29	44.90 ^{Ba}	7.53
Zirconia	20.90 \pm 4.78	21.90 ^{Aa}	8.50	23.53 \pm 5.64	25.55 ^{Aa}	11.60	49.65 \pm 12.06	54.70 ^{Ba}	23.65

The different uppercase letters indicate significant differences within the group. The lowercase letters show statistical differences between the two materials with same impression protocol. Same small and large script letters indicate no significant differences in horizontal row and vertical column ($p < 0.05$). IQR, interquartile range (q3-q1).

Table S2. Accuracy comparison of metallic restorative materials with different impression acquisition methods (RMSE, μm).

Materials	CON			IOS			IOS-P		
	Mean \pm SD	Median	IQR	Mean \pm SD	Median	IQR	Mean \pm SD	Median	IQR
Precision									
Gold	19.61 \pm 6.76	19.50 ^{Aa}	8.35	38.68 \pm 20.87	36.90 ^{Ba}	34.03	43.59 \pm 23.26	45.70 ^{Ba}	42.23
Co-Cr	21.01 \pm 6.01	20.10 ^{Aa}	6.60	40.62 \pm 22.71	46.35 ^{Ba}	38.73	38.95 \pm 17.30	37.75 ^{Ba}	26.63
Trueness									
Gold	17.91 \pm 7.68	16.65 ^{Aa}	13.85	25.06 \pm 7.50	23.25 ^{Aa}	11.33	65.01 \pm 18.67	68.25 ^{Ba}	33.58
Co-Cr	13.24 \pm 4.75	12.10 ^{Aa}	9.08	36.50 \pm 9.18	33.25 ^{Bb}	13.73	52.60 \pm 10.34	51.95 ^{Ca}	17.15

The different uppercase letters indicate significant differences within the group. The lowercase letters show statistical differences between the two materials with same impression protocol. Same small and large script letters indicate no significant differences in horizontal row and vertical column ($p < 0.05$). IQR, interquartile range (q3-q1).

Table S3. Accuracy comparison of conventional impression with different materials (RMSE, μm).

Materials	Precision			Trueness		
	Mean \pm SD	Median	IQR	Mean \pm SD	Median	IQR
PMMA	13.95 \pm 5.09	12.50 ^{Aa}	7.38	18.03 \pm 4.40	17.25 ^{Aa}	8.83
Zirconia	16.42 \pm 5.69	14.95 ^{Aa}	8.05	20.90 \pm 4.78	21.90 ^{Aa}	8.50
Gold	19.61 \pm 6.76	19.50 ^{BCa}	8.35	17.91 \pm 7.68	16.65 ^{Aa}	13.85
Co-Cr	21.01 \pm 6.01	20.10 ^{Ca}	6.60	13.24 \pm 4.75	12.10 ^{Aa}	9.08

Same uppercase letters indicate no significant differences in vertical column ($p < 0.0083$). IQR, interquartile range (q3-q1).