Clin Oral Invest (2013) 17:1027–1028
DOI 10.1007/s00784-013-0931-5

LETTER TO THE EDITOR

Responding to manuscript CLOI-D-10-00562: Reliability of shade selection using an intraoral spectrophotometer

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Received: 12 December 2012 / Accepted: 24 January 2013 / Published online: 15 February 2013

The questions raised by Sabour and colleagues are justified and require explanations. In our original submission, we calculated general statistics to measure repeatability and reliability. One reviewer asked us to calculate instead the mean color difference from the mean which is a quantity to evaluate measurement uncertainties given the L^*, a^*, and b^* values. This is a specific and supposed to be an established measure in color technology. To give a better picture of the data, we now provide the general measurements such as the intraclass correlation (reliability coefficient estimate) [1], with information of the variance between and within teeth (Table 1). These values show that the spectrophotometer gives repeatable results: the intraclass correlation is close to 1 in all scenarios (ranging from 0.92 to 0.99). In addition, the outcome measures are also reliable since observers 1 and 2 (reflecting changed environmental conditions) provide the same agreement (intraclass correlation ranges from 0.96 to 0.99). This is in line with our conclusion.

To the second point, Sabour and colleagues are absolutely right: validity and reliability are two completely different methodological issues. Our study can only give information about repeatability and reliability. For validity, however, one needs to compare the measurements with a gold standard.

References

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Table 1 Mean (*M*), variance between teeth (Vb), variance within teeth (Vw), intraclass correlation (ICC) (reliability coefficient estimate)

	Observer 1												Observer 2											
	*L**				*a**				*b**				*L**				*a**				*b**			
	M	Vb	Vw	ICC	*M*	Vb	Vw	ICC	*M*	Vb	Vw	ICC	*M*	Vb	Vw	ICC	*M*	Vb	Vw	ICC	*M*	Vb	Vw	ICC
Cervical	73	150	0.29	0.98	2.6	17	0.05	0.97	20	85	0.1	0.99	74	129	0.26	0.98	2.7	16.6	0.09	0.94	20	87	0.7	0.92
Body	74	130	0.13	0.99	0.97	5.9	0.02	0.96	17	95.4	0.1	0.99	75	115	0.15	0.99	0.98	7	0.02	0.97	17	98	0.09	0.99
Incisal	70	85	0.11	0.99	0.8	4.7	0.02	0.95	14	80	0.09	0.99	70	75	0.16	0.98	0.76	5.2	0.02	0.97	13.8	86	0.1	0.99