APPENDIX A

Sample size estimation

TRUE EPISTAT (Epistat Services, Texas, 1991) calculated appropriate sample size for an unpaired comparison of means.

$$n = \frac{2s_p^2}{d^2} \left[t_{(\alpha,\, 2n-2)} + t_{(\beta,\, 2n-2)} \right]^2$$

where d = the smallest difference you wish to detect

and s_p^2 = estimated pooled variance

$$= \frac{(n_1 - 1)(s_1)^2 + (n_2 - 1)(s_2)^2}{n_1 + n_2 - 2}$$

APPENDIX B

Errors of measurements

The errors of measurements by the intrainvestigator and the interinvestigator were presented in Table 15 and Table 16 respectively. The statistical values showed no significant difference (p< .05) between the first and second measurements by t-test. The correlation coefficients between the first and second measurements (range = 0.9-1.0) indicated the high correlations in the repeated measurements.

Table 15 The comparisons of the first and second measurements between the intrainvestigators

Variables	1 st measurement		2 nd measurement		t - value	r
	$\overline{X}$	SD	$\overline{X}$	SD		
SKELETAL						
NSBa (deg)	128.07	5.227	128.17	5.185	1.146	0.998
SNA (deg)	83.1	2.494	83.133	2.453	0.564	0.996
SNB (deg)	81.3	3.358	81.267	3.39	0.564	0.998
ANB (deg)	1.8	2.411	1.867	2.518	1	0.995
WITS (mm)	-6.6	5.065	-6.633	5.087	1	1
SN-PP (deg)	8.733	2.542	8.833	2.44	1.382	0.995
SN-GoGn (deg)	38.267	6.062	38.3	6.041	0.367	0.998
PP-GoGn (deg)	29.533	6.14	29.5	6.259	0.435	0.999
Ar-GoGn (deg)	129.0	6.367	129.03	6.416	0.564	0.999
NSGn (deg)	71.667	4.065	71.7	4.092	1	1
Ar-Go (mm)	48.733	4.682	48.7	4.709	0.564	0.999
TAFH (mm)	131.13	6.531	131.03	6.404	1.871	1
UAFH (mm)	56.933	3.229	56.9	3.208	1	0.999
LAFH (mm)	74.2	4.891	74.133	4.794	1.468	1
UAFH/LAFH	0.77	0.06	0.77	0.06	0.204	0.999
TPFH (mm)	81.833	5.897	81.8	5.924	0	0.999
UPFH (mm)	46.633	2.209	46.633	2.225	0	0.996
LPFH (mm)	35.2	5.274	35.167	5.273	0.564	0.999
UPFH/LPFH	1.356	0.241	1.36	0.239	1.31	0.999
TPFH/TAFH	0.624	0.039	0.625	0.039	1	0.999
DENTAL						
UI-NA (deg)	33.967	6.805	33.867	6.776	1.871	1
LI-NB (deg)	36.6	8.917	36.433	8.95	2.092	0.999
UI-SN (deg)	116.9	7.654	116.9	7.569	0	0.999
LI-GoGn (deg)	97.233	9.169	97.367	9.357	1.468	0.999
UI-LI (deg)	107.77	11.28	107.83	11.321	1.468	1
Overbite (mm)	-3.033	1.778	-3.067	1.792	1	0.997
UADH (mm)	30.433	3.099	30.467	2.937	0.435	0.997
LADH (mm)	46.0	4.158	46.0	4.175	0	0.999
UPDH (mm)	28.133	2.279	28.133	2.24	0	0.997
LPDH (mm)	36.433	3.479	36.467	3.477	1	0.999
UPDH/UADH	0.929	0.086	0.929	0.085	0.239	0.991
LPDH/LADH	0.793	0.044	0.793	0.044	0	0.997
SOFT TISSUE						
Sn-Stm$_s$ (mm)	24.933	2.103	25.0	2.138	1.468	0.997
Stm$_s$-UI (mm)	1.2	1.74	1.233	1.761	1	0.997

* p < .05, ** p < .01, *** p < .001

Table 16 The comparisons of the first and second measurements between the interinvestigators

Variables		1 st measurement		2 nd measurement		t - value	r
		$\overline{X}$	SD	$\overline{X}$	SD		
SKELETAL							
NSBa	(deg)	128.07	5.631	128.33	5.653	0.129	0.906
SNA	(deg)	82.067	2.359	83.067	2.506	1.125	0.935
SNB	(deg)	80.2	3.058	81.233	3.133	0.914	0.985
ANB	(deg)	1.867	2.78	1.833	2.603	0.034	0.976
WITS	(mm)	-8.033	4.103	-6.7	4.407	0.858	0.877
SN-PP	(deg)	10.033	3.232	9.467	3.27	0.477	0.943
SN-GoGn	(deg)	38.433	5.8	38.4	6.13	0.015	0.992
PP-GoGn	(deg)	28.367	6.052	28.933	6.425	0.249	0.986
Ar-GoGn	(deg)	128.6	5.877	128.67	6.51	0.029	0.959
NSGn	(deg)	71.533	3.857	71.833	3.972	0.21	0.994
Ar-Go	(mm)	48.933	4.902	48.7	4.57	0.135	0.92
TAFH	(mm)	130.83	6.694	131.33	6.527	0.207	0.99
UAFH	(mm)	57.333	4.021	57.467	3.578	0.096	0.969
LAFH	(mm)	73.5	4.796	73.867	4.696	0.212	0.982
UAFH/LAFH		0.783	0.072	0.78	0.063	0.108	0.963
TPFH	(mm)	81.333	5.294	81.9	5.723	0.282	0.965
UPFH	(mm)	45.767	2.321	46.7	2.328	1.099	0.971
LPFH	(mm)	35.567	4.64	35.2	5.031	0.207	0.955
UPFH/LPFH		1.308	0.211	1.354	0.226	0.583	0.964
TPFH/TAFH		0.622	0.037	0.624	0.038	0.136	0.949
DENTAL							
UI-NA	(deg)	36.8	6.839	35.633	7.605	0.442	0.931
LI-NB	(deg)	35.167	9.067	36.133	8.963	0.294	0.978
UI-SN	(deg)	119.07	6.66	118.43	7.688	0.241	0.94
LI-NB	(deg)	96.433	9.702	97	9.223	0.164	0.972
UI-LI	(deg)	106.43	11.709	106.8	10.717	0.089	0.975
Overbite	(mm)	-3.067	2.17	-3.1	1.91	0.045	0.98
UADH	(mm)	29.467	3.308	30.033	3.204	0.477	0.981
LADH	(mm)	45.867	4.103	46	4.04	0.09	0.994
UPDH	(mm)	26.933	1.907	27.833	2.16	1.21	0.977
LPDH	(mm)	35.867	3.456	36.467	3.518	0.471	0.982
UPDH/UADH		0.921	0.088	0.934	0.086	0.387	0.951
LPDH/LADH		0.786	0.046	0.794	0.048	0.429	0.938
SOFT TISSUE							
Sn-Stm$_s$	(mm)	23.967	2.696	25.133	2.066	1.331	0.969
Stm$_s$-UI	(mm)	1.3	1.699	1.233	1.668	0.108	0.976

* $p < .05$, ** $p < .01$, *** $p < .001$

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