

APPENDIX A

Sample Size Estimation

The sample size estimation of 3 groups study for one way ANOVA (Zar 1996).

$$\phi = \sqrt{\frac{n \delta^2}{2kS^2}}$$

ϕ = Power related quantity coefficient of association

δ = Difference among population means (minimum detectable difference)

k = Number of groups

APPENDIX B

Measurement Errors

The errors of measurement by the intrainvestigator and the inter investigator were presented in Table 6 and 7 respectively. The statistical value showed no significant difference ($p < 0.05$) between the first and second measurements (range = 0.9-1.0) indicated the high correlations in the repeated measurements

Table 6 The comparisons of the first and second measurements between the intrainvestigators

Variables	1 st measurement		2 nd measurement		t-value	r
	X	SD	X	SD		
SKELETAL						
SNA (deg)	83.4500	2.2540	83.6500	2.2367	-2.449	.993
SNB (deg)	79.2000	2.4967	79.4100	2.4228	-2.641	.995
ANB (deg)	4.2500	2.3834	4.2400	2.2604	.077	.986
NSBa (deg)	131.8000	5.0067	131.7500	5.2612	.287	.995
SArGo (deg)	144.3500	5.6571	144.2000	5.6184	.896	.996
ArGoGn (deg)	120.1000	3.6576	120.0500	3.4996	.429	.996
NSGn (deg)	68.4500	2.8132	68.4000	2.9702	.557	.997
SNGoGn (deg)	29.6500	4.0073	29.4000	4.1553	1.861	.995
SNPP (deg)	10.8500	3.5672	10.8500	3.5516	.000	.996
PPGoGn (deg)	18.8000	4.3729	18.5500	4.3681	1.627	.994
TAFH (mm)	127.6000	11.0750	127.4000	10.8546	1.309	.999
UAFH (mm)	58.9000	4.8178	58.8000	4.7854	1.500	.999
LAFH (mm)	68.7000	7.6456	68.6000	7.3628	.557	.998
UAFH/LAFH	.86322	8.1989E-02	.86225	.07659	.317	.995
TPFH (mm)	85.5000	8.2899	85.5000	8.2158	.000	.999
UPFH (mm)	47.0000	3.4881	46.9000	3.5808	1.500	.999
LPFH (mm)	38.5000	5.6814	38.6000	5.4863	-.802	.998
RH (mm)	51.5500	4.3234	51.5000	4.5826	.264	.993
UPFH/LPFH	1.23789	.15518	1.2298	.1427	1.351	.995
TPFH/TAFH	.67040	3.3647E-02	.67132	.03172	-.810	.996
DENTAL						
UINA (deg)	28.1500	6.9204	28.1000	6.8912	.557	.999
UISN (deg)	112.0500	6.4007	112.0000	6.4377	.557	.999
LINB (deg)	31.2500	5.0346	31.0500	5.0522	1.809	.998
LIGoGn (deg)	102.5000	5.2652	102.3500	5.2231	1.964	.999
UILI (deg)	115.8500	9.8828	115.8500	9.8349	.000	1.000
Overbite (mm)	4.7000	2.5408	4.6500	2.4950	.557	.994
UADH (mm)	30.4500	3.9892	30.5000	4.0757	-.557	.998
UPDH (mm)	25.7000	3.2335	25.7000	3.3599	.000	.996
LADH (mm)	46.1000	5.6853	46.2500	5.6137	-1.406	.998
LPDH (mm)	36.2500	4.6203	36.6000	4.3512	-2.689	.998
UPDH/UADH	.8456	4.187E-02	.8437	3.736E-02	.457	.955
LPDH/LADH	.7865	3.114E-02	.7923	3.339E-02	-1.914	.959
SOFT TISSUE						
Sn-Stms (mm)	25.5000	2.8382	25.5500	2.9669	-.429	.993
Stms-UI (mm)	2.6500	1.2030	2.7000	1.2517	-1.000	.992

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

Table 7 The comparisons of the first and second measurements between the interinvestigators

Variables	1 st investigator		2 nd investigator		t-value	r
	X	SD	X	SD		
SKELETAL						
SNA (deg)	83.4500	2.2540	83.6000	2.1705	-1.152	.983
SNB (deg)	79.2000	2.4967	79.3500	2.4158	-.818	.973
ANB (deg)	4.2500	2.3834	4.2500	2.4410	.000	.957
NSBa (deg)	131.8000	5.0067	132.1500	4.8077	-1.105	.980
SArGo (deg)	144.3500	5.6571	144.3000	6.3561	.107	.976
ArGoGn (deg)	120.1000	3.6576	120.3500	4.0964	-.785	.973
NSGn (deg)	68.4500	2.8132	68.3500	2.7391	.349	.947
SNGoGn (deg)	29.6500	4.0073	29.6000	4.5203	.208	.991
SNPP (deg)	10.8500	3.5672	10.6500	3.1802	.802	.979
PPGoGn (deg)	18.8000	4.3729	18.9500	4.7167	-.429	.973
TAFH (mm)	127.6000	11.0750	127.7500	10.8532	-.605	.998
UAFH (mm)	58.9000	4.8178	58.6000	5.1629	1.327	.992
LAFH (mm)	68.7000	7.6456	69.2000	7.5982	-1.581	.991
UAFH/LAFH	.86322	8.1989E-02	.85306	9.2403E-02	1.446	.975
TPFH (mm)	85.5000	8.2899	85.7500	8.4894	-.728	.992
UPFH (mm)	47.0000	3.4881	46.8500	3.6213	.669	.981
LPFH (mm)	38.5000	5.6814	38.9000	5.4914	-1.809	.993
RH (mm)	51.5500	4.3234	51.7500	4.7155	-.712	.984
UPFH/LPFH	1.23789	.15518	1.2171	.1239	1.763	.989
TPFH/TAFH	.67040	3.3647E-02	.67134	3.3479E-02	-.309	.959
DENTAL						
UINA (deg)	28.1500	6.9204	28.4104	7.3033	-1.167	.997
UISN (deg)	112.0500	6.4007	112.2500	7.0838	-.488	.987
LINB (deg)	31.2500	5.0346	31.5000	4.6188	-.832	.984
LIGoGn (deg)	102.5000	5.2652	103.0000	5.0990	-2.372	.992
UILI (deg)	115.8500	9.8828	115.4000	9.7263	1.335	.994
Overbite (mm)	4.7000	2.5408	4.6500	2.6463	.429	.991
UADH (mm)	30.4500	3.9892	30.4000	3.9215	.165	.971
UPDH (mm)	25.7000	3.2335	25.8000	3.1109	-.452	.976
LADH (mm)	46.1000	5.6853	45.9000	5.8157	1.500	.998
LPDH (mm)	36.2500	4.6203	36.2000	4.6975	-.688	.995
UPDH/UADH	.8456	4.187E-02	.8510	4.742E-02	-.973	.931
LPDH/LADH	.7865	3.114E-02	.7892	3.580E-02	-.884	.968
SOFT TISSUE						
Sn-Stms (mm)	25.5000	2.8382	25.3500	3.0555	1.406	.996
Stms-UI (mm)	2.6500	1.2030	2.6500	1.0554	.000	.965

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

APPENDIX C

Variable Correlations

The correlation between 27 dentofacial measurements in the Class I deepbite and Class II div. 1 deepbite groups based on 1 % significant level were presented in Table 8 and 9 respectively.

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APPENDIX D

Prediction Equations

Class I Deepbite (Table 10)

Degree of overbite in Class I deepbite = $-5.422 + 0.05420 \text{ UI LI} + 0.07967 \text{ LADH}$

$$Z_{\text{Class I anterior deepbite}} = 0.582 Z_{\text{UI LI}} + 0.302 Z_{\text{LADH}}$$

Table 10 The predictor variables for the Class I deepbite

Variables	B	SE(b)	Beta	t-value
UI LI	0.05420	0.010	0.582	5.306***
LADH	0.07967	0.029	0.302	2.756**
Constant	-5.422	2.100		-2.582*

R=0.549 R²=0.302 F=14.461***

Class II Div.1 Deepbite (Table 11)

Degree of overbite in Class II div. 1 deepbite = -36.812 - 0.362 UINA - 0.513 LADH - 0.407
 LPDH - 0.543 LINB + 0.435 LIGoGn + 0.240
 UISN + 17.183 TPFH/TAFH

$$Z_{\text{Class II div. 1 deepbite}} = -1.394 Z_{\text{UINA}} + 1.065 Z_{\text{LADH}} - 0.693 Z_{\text{LPDH}} - 1.315 Z_{\text{LINB}} \\ + 1.472 Z_{\text{LIGoGn}} + 0.918 Z_{\text{UISN}} - 0.423 Z_{\text{TPFH/TAFH}}$$

Table 11 The predictor variables for the Class II division 1 deepbite

Variables	B	SE(b)	Beta	t-value
UINA	-.362	.056	-1.394	-6.511***
LADH	.513	.080	1.065	6.412***
LPDH	-.407	.100	-.693	-4.055***
LINB	-.543	.074	-1.315	-7.354***
LIGoGn	.435	.067	-1.472	6.531***
UISN	.240	.059	.918	4.049***
TPFH/TAFH	-17.183	7.300	-.423	-2.354***
Constant	-36.812	5.616		-2.354*

R=.830 R²=.690 F=19.689***

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