

Morphological characteristics of the deciduous teeth

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The morphology of the deciduous teeth was investigated. The mean mesiodistal crown dimensions of the deciduous canine, first and second molars and the mean buccolingual crown dimensions of the deciduous second molars in both dental arches of boys were significantly larger than that of girls. The upper deciduous first molar of girls was slender buccolingually and the lower deciduous second molar of boys was slender mesiodistally.

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INTRODUCTION

Information about the morphologic characteristics of the individual deciduous teeth is useful for pediatric operative dentistry. In order to improve the quality of dental care for children, there is a need for data on the morphology of the deciduous teeth.

The size of the teeth is dependent upon race and sex, according to Moorrees and Reed.¹ Dental measurements have been used for the description and comparison of different populations or racial groups.²⁻⁴ Though there is an earlier study⁵ about morphology of the permanent teeth, relatively few data on dental anthropometry of the deciduous teeth have been reported on Chinese in Taiwan.

The purpose of this study is to investigate the morphological characteristics of the deciduous teeth of children in Taiwan by establishing normative data on the mesiodistal and buccolingual crown dimensions and the crown shape.

MATERIALS AND METHODS

This report was based on 117 sets of dental stone models from 60 boys and 57 girls of the kindergarten in Taiwan. The models of the complete deciduous dentitions were prepared by taking alginate impressions and pouring them immediately in orthodontic stone and used for measurements. A sliding vernier caliper fitted with a digital gauge to read the nearest 0.01mm was

used to measure the teeth. The tips of the calipers were ground to a point in order to facilitate the greatest degree of accuracy.

The mesiodistal crown dimension was obtained by measuring the greatest distance between the approximate surface of the crown on a line parallel to the occlusal and buccal surfaces of the crown. If the teeth were rotated or malposed in relation to the curvatures of the dental arch, the mesiodistal crown dimension was taken between the points on the approximate surfaces of the crown, where it was considered that contact with adjacent teeth would normally occur.

The buccolingual crown dimension was obtained by measuring the greatest distance between the buccal and lingual surfaces of the crown on a line parallel to the occlusal and mesial surfaces. Measurements of the following five teeth on each side and in both dental arches were recorded: deciduous central incisor (A), deciduous lateral incisor (B), deciduous canine (C), deciduous first molar (D), and deciduous second molar (E).

The criteria for selection of the teeth for measurement was as follows:

1. No obvious loss of tooth material mesiodistally or buccolingually as a result of a caries, fracture, or excessive wear.
2. Only fully erupted deciduous teeth were measured.
3. No restoration of any kind present.
4. No congenital defect or deformed teeth.

Mean values, standard deviations, and coefficient of variations of the two crown dimensions and the crown shape (buccolingual crown dimension divided by mesiodistal crown dimension) for all of the deciduous teeth were calculated. The Student's *t* test was used to show whether or not statistically significant differences existed between right and left antimere teeth in the arch, between mesial and distal teeth in each morphological class, and between boys and girls.

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Table 1-1. Mesiodistal Crown Dimensions the Upper Deciduous Teeth

Upper Teeth	Right side						Left side						Right-Left	
	Sex	No.	Mean	S.D.	C.V.	t-test	Sex	No.	Mean	S.D.	C.V.	t-test	t-test	
A (mm)	Boys	60	6.77	0.38	5.65	NS	Boys	60	6.77	0.36	5.42	*	Boys	NS
	Girl	57	6.62	0.42	6.40		Girl	57	6.56	0.39	6.08		Girls	NS
B (mm)	Boys	60	5.50	0.31	5.71	*	Boys	60	5.53	0.33	5.96	*	Boys	NS
	Girl	57	5.36	0.33	6.21		Girl	57	5.33	0.35	6.60		Girls	NS
C (mm)	Boys	60	6.74	0.41	6.09	*	Boys	60	6.67	0.47	7.18	*	Boys	NS
	Girl	57	6.55	0.49	7.50		Girl	57	6.52	0.47	7.28		Girls	NS
D (mm)	Boys	60	7.40	0.40	5.51	**	Boys	60	7.45	0.39	5.25	**	Boys	NS
	Girl	57	7.07	0.40	5.70		Girl	57	7.10	0.40	5.68		Girls	NS
E (mm)	Boys	60	9.14	0.47	5.17	**	Boys	60	9.08	0.44	4.90	**	Boys	NS
	Girl	57	8.83	0.49	5.59		Girl	57	8.80	0.47	5.37		Girls	NS

A: deciduous central incisor, B: deciduous lateral incisor, C: deciduous canine, D: deciduous first molar, E: deciduous second molar
 S.D.: standard deviations C.V.: coefficient of variations * P<0.05 ** P<0.01 NS: not significant

However, where the data were significantly skewed or where the intra-group variances differed significantly then the Mann Whitney 'U' test was used instead. The Spearman's Rank correlation analysis of the mesiodistal and buccolingual crown dimensions and the crown shape for all of the deciduous teeth was done.

RESULTS

The mean values, standard deviations, and coefficient of variations of the two crown dimensions and the crown shape are shown in Tables 1 to 3. The size relationships of the two crown dimensions and the crown shape in each morphological class of the deciduous teeth are shown in Tables 4 and 5.

1. Mesiodistal crown dimensions (Table 1 and Table 4)

In the mean mesiodistal crown dimensions, there was no statistically significant difference between right and left antimere teeth for all of the deciduous teeth in both sexes. The deciduous second molars have the greatest diameter in both dental arches of both sexes, while the upper lateral and the lower central incisors in each arch of both sexes have the smallest. The mean mesiodistal crown dimensions for the upper deciduous lateral incisor, the upper and lower deciduous canine, and the upper and lower deciduous first and second molars were significantly larger in boys than in girls.

The coefficient of variations for all of the deciduous teeth except the lower deciduous central and lateral incisors and the lower right deciduous first molar were larger in girls than in boys. The deciduous second molars have the smallest coefficient of variations in both dental arches of both sexes, with the deciduous

canines in upper arch and the deciduous lateral incisors in lower arch of both sexes have the largest.

In the size relationships of the mean mesiodistal crown dimensions in each morphological class of the deciduous teeth, the data of boys and girls had the same result. The upper deciduous central incisor was significantly larger than the lateral incisor, the lower deciduous lateral incisor was significantly larger than the central incisor, and the deciduous second molar was significantly larger than the first molar in both dental arches.

2. Buccolingual crown dimensions (Table 2 and Table 4)

In the mean buccolingual crown dimensions, there was no statistically significant difference between right and left antimere teeth for all of the deciduous teeth in both sexes except the lower deciduous first molar in girls. The deciduous second molars have the greatest diameter in both dental arches of both sexes, with the upper lateral and the lower central incisors in each arch of both sexes have the smallest. The mean buccolingual crown dimensions for the upper deciduous first and second molars, the lower deciduous lateral incisor, and the lower deciduous second were significantly larger in boys than in girls.

Of the 20 coefficient of variations of the buccolingual crown dimensions for all of the deciduous teeth, 15 were larger in girls than in boys. The deciduous second molars have the smallest coefficient of variations in both dental arches of both sexes, with the deciduous lateral incisors in upper arch and the deciduous central incisors in lower arch of both sexes have the largest.

In the size relationships of the mean buccolingual crown dimensions in each morphological class of the

Table 1-2. Mesiodistal Crown Dimensions of the Lower Deciduous Teeth

Lower Teeth	Right side						Left side						Right-Left	
	Sex	No.	Mean	S.D.	C.V.	t-test	Sex	No.	Mean	S.D.	C.V.	t-test	t-test	
A (mm)	Boys	60	4.19	0.27	6.57	NS	Boys	60	4.21	0.31	7.55	NS	Boys	NS
	Girl	57	4.11	0.25	6.22		Girl	57	4.11	0.24	5.97		Girls	NS
B (mm)	Boys	60	4.71	0.32	6.84	NS	Boys	60	4.74	0.33	7.02	NS	Boys	NS
	Girl	57	4.64	0.30	6.52		Girl	57	4.63	0.30	6.48		Girls	NS
C (mm)	Boys	60	5.92	0.27	4.66	*	Boys	60	5.95	0.30	5.17	*	Boys	NS
	Girl	57	5.80	0.31	5.43		Girl	57	5.77	0.33	5.75		Girls	NS
D (mm)	Boys	60	8.25	0.47	5.78	**	Boys	60	8.21	0.43	5.33	**	Boys	NS
	Girl	57	7.85	0.43	5.56		Girl	57	7.83	0.44	5.64		Girls	NS
E (mm)	Boys	60	10.1	0.40	3.98	**	Boys	60	10.2	0.41	4.03	**	Boys	NS
	Girl	57	9.68	0.52	5.42		Girl	57	9.73	0.54	5.57		Girls	NS

A: deciduous central incisor, B: deciduous lateral incisor, C: deciduous canine, D: deciduous first molar, E: deciduous second molar
 S.D.: standard deviations C.V.: coefficient of variations * P<0.05 ** P<0.01 NS: not significant

deciduous teeth, the same results as the mesiodistal crown dimensions were obtained.

3. Crown shape (Table 3 and Table 5)

There were no statistically significant differences in the mean value of the crown shape between right and left antimere teeth for all of the deciduous teeth except the upper deciduous central incisor in girls, the lower deciduous lateral incisor in boys, and the lower deciduous first molar in girls. The mean values of the upper deciduous first molars and the lower deciduous second molars were significantly larger in girls than in boys. The deciduous first molars have the greatest value in both dental arches of both sexes, with the central incisors in both dental arches of both sexes have the smallest.

The coefficient of variations for the upper deciduous lateral incisors, the upper deciduous first and second molars, and the lower deciduous central incisors were larger in boys than in girls. The deciduous second molars have the smallest coefficient of variations in both dental arches of both sexes. In upper arch the deciduous canines in girls and the deciduous lateral incisors in boys and in lower arch the deciduous central incisor in boys and the deciduous lateral incisor in girls have the largest coefficient of variations.

In the value relationships of the crown shape in each morphological class of the deciduous teeth, boys and girls obtained similar results. The upper deciduous lateral incisor was significantly larger than central incisor and the deciduous first molars were significantly larger than second molars. However, there was no statistically significant difference between the lower deciduous central and lateral incisors.

4. Spearman's Rank correlation analysis

The mesiodistal and buccolingual crown dimensions and the crown shape for the individual tooth had the highest correlation coefficients with the antimere teeth.

Of the 190 possible correlation coefficients between individual mesiodistal crown dimensions, 181 in boys and 180 in girls were significantly different from zero at the P<0.01 significance level. In boys, the upper deciduous central incisor and canine had high correlations with the antagonist teeth, and the other teeth had high correlations with the proximal teeth. In girls, the lower deciduous molars had high correlations with the antagonist teeth, and the other teeth had high correlation with the proximal teeth.

Of 190 possible correlation coefficients between individual buccolingual crown dimensions, 162 in boys and 176 in girls were significantly different from zero at the P<0.01 significance level. In boys, the deciduous canines had high correlations with the antagonist teeth, and the other teeth had high correlation with the proximal teeth. In girls, the deciduous second molars had high correlations with the antagonist teeth, and the other teeth had high correlations with the proximal teeth.

Of 190 possible correlation coefficients between individual crown shape, 35 in boys and 38 in girls were significantly different from zero at the P<0.01 significance level (Table 6). In boys, the deciduous molars had high correlations with the proximal teeth, the deciduous incisors and canines had high correlations with both proximal and antagonist teeth. In girls, all of the deciduous teeth had high correlations with the proximal teeth.

Morphological characteristics of the deciduous teeth

Table 2-1. Buccolingual Crown Dimensions of the Upper Deciduous Teeth

Upper Teeth	Right side						Left side						Right-Left	
	Sex	No.	Mean	S.D.	C.V.	t-test	Sex	No.	Mean	S.D.	C.V.	t-test	t-test	
A (mm)	Boys	60	4.89	0.22	4.61	NS	Boys	60	4.95	0.25	5.13	NS	Boys	NS
	Girl	57	4.78	0.36	7.70		Girl	57	4.87	0.34	7.09		Girls	NS
B (mm)	Boys	60	4.71	0.36	7.68	NS	Boys	60	4.70	0.40	8.59	NS	Boys	NS
	Girl	57	4.58	0.37	8.13		Girl	57	4.65	0.36	7.78		Girls	NS
C (mm)	Boys	60	5.74	0.41	7.28	NS	Boys	60	5.73	0.39	6.95	NS	Boys	NS
	Girl	57	5.65	0.42	7.55		Girl	57	5.64	0.46	8.17		Girls	NS
D (mm)	Boys	60	8.91	0.44	4.97	*	Boys	60	8.97	0.41	4.64	**	Boys	NS
	Girl	57	8.70	0.45	5.19		Girl	57	8.74	0.43	4.93		Girls	NS
E (mm)	Boys	60	10.1	0.45	4.52	**	Boys	60	10.1	0.44	4.38	**	Boys	NS
	Girl	57	9.85	0.47	4.83		Girl	57	9.89	0.42	4.28		Girls	NS

A:deciduous central incisor, B: deciduous lateral incisor, C:deciduous canine, D: deciduous first molar, E: deciduous second molar
 S.D.:standard deviations C.V.: coefficient of variations * P<0.05 ** P<0.01 NS: not significant

Table 2-2. Buccolingual Crown Dimensions of the Lower Deciduous Teeth

Lower Teeth	Right side						Left side						Right-Left	
	Sex	No.	Mean	S.D.	C.V.	t-test	Sex	No.	Mean	S.D.	C.V.	t-test	t-test	
A (mm)	Boys	60	3.80	0.28	7.59	*	Boys	60	3.79	0.29	7.86	NS	Boys	NS
	Girl	57	3.69	0.27	7.36		Girl	57	3.70	0.30	8.12		Girls	NS
B (mm)	Boys	60	4.41	0.30	6.82	**	Boys	60	4.32	0.25	5.78	*	Boys	NS
	Girl	57	4.25	0.28	6.80		Girl	57	4.20	0.31	7.40		Girls	NS
C (mm)	Boys	60	5.54	0.33	6.09	NS	Boys	60	5.52	0.35	6.38	NS	Boys	NS
	Girl	57	5.52	0.36	6.57		Girl	57	5.43	0.32	5.90		Girls	NS
D (mm)	Boys	60	7.80	0.50	6.48	NS	Boys	60	7.68	0.51	6.66	*	Boys	NS
	Girl	57	7.71	0.54	7.07		Girl	57	7.42	0.57	7.78		Girls	**
E (mm)	Boys	60	9.20	0.41	4.52	*	Boys	60	9.13	0.44	4.86	*	Boys	NS
	Girl	57	8.98	0.46	5.15		Girl	57	8.95	0.46	5.19		Girls	NS

A:deciduous central incisor, B: deciduous lateral incisor, C:deciduous canine, D: deciduous first molar, E: deciduous second molar
 S.D.:standard deviations C.V.: coefficient of variations * P<0.05 ** P<0.01 NS: not significant

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Table 3-1. Crown Shape (buccolingual crown dimension divided by mesiodistal crown dimension) of the Upper Deciduous Teeth

Upper Teeth	Right side						Left side						Right-Left	
	Sex	No.	Mean	S.D.	C.V.	t-test	Sex	No.	Mean	S.D.	C.V.	t-test	t-test	
A	Boys	60	0.72	0.03	5.11	NS	Boys	60	0.73	0.04	6.41	NS	Boys	NS
	Girl	57	0.72	0.04	6.23		Girl	57	0.74	0.04	6.59		Girls	*
B	Boys	60	0.85	0.06	8.03	NS	Boys	60	0.85	0.07	8.70	NS	Boys	NS
	Girl	57	0.85	0.06	7.58		Girl	57	0.87	0.06	7.44		Girls	NS
C	Boys	60	0.85	0.05	5.99	NS	Boys	60	0.86	0.06	7.18	NS	Boys	NS
	Girl	57	0.86	0.07	9.01		Girl	57	0.86	0.07	8.20		Girls	NS
D	Boys	60	1.20	0.06	5.56	*	Boys	60	1.20	0.05	4.23	**	Boys	NS
	Girl	57	1.23	0.06	4.95		Girl	57	1.23	0.05	4.14		Girls	NS
E	Boys	60	1.11	0.04	4.05	NS	Boys	60	1.11	0.04	4.02	NS	Boys	NS
	Girl	57	1.11	0.04	4.03		Girl	57	1.12	0.04	3.64		Girls	NS

A:deciduous central incisor, B: deciduous lateral incisor, C:deciduous canine, D: deciduous first molar, E: deciduous second molar
 S.D.:standard deviations C.V.: coefficient of variations * P<0.05 ** P<0.01 NS: not significant

Table 3-2. Crown Shape (buccolingual crown dimension divided by mesiodistal crown dimension) of the Lower Deciduous Teeth

Lower Teeth	Right side						Left side						Right-Left	
	Sex	No.	Mean	S.D.	C.V.	t-test	Sex	No.	Mean	S.D.	C.V.	t-test	t-test	
A	Boys	60	0.90	0.06	7.37		Boys	60	0.90	0.07	8.63		Boys	NS
	Girl	57	0.89	0.06	6.79		Girl	57	0.90	0.05	6.56		Girls	NS
B	Boys	60	0.93	0.05	5.44		Boys	60	0.91	0.06	6.77		Boys	*
	Girl	57	0.91	0.07	7.85		Girl	57	0.90	0.06	7.15		Girls	NS
C	Boys	60	0.93	0.04	5.23		Boys	60	0.93	0.05	5.70		Boys	NS
	Girl	57	0.95	0.06	6.40		Girl	57	0.94	0.05	6.26		Girls	NS
D	Boys	60	0.94	0.06	6.65		Boys	60	0.93	0.06	7.26		Boys	NS
	Girl	57	0.98	0.07	7.32		Girl	57	0.94	0.07	7.80		Girls	*
E	Boys	60	0.90	0.04	4.51		Boys	60	0.89	0.04	4.58		Boys	NS
	Girl	57	0.93	0.04	4.95		Girl	57	0.92	0.04	4.77		Girls	NS

A:deciduous central incisor, B: deciduous lateral incisor, C:deciduous canine, D: deciduous first molar, E: deciduous second molar
 S.D.:standard deviations C.V.: coefficient of variations * P<0.05 ** P<0.01 NS: not significant

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Table 4. Size relationships of mesiodistal and buccolingual crown dimensions in each morphological class of the deciduous teeth

Tooth		Sex	Right side	Left side
Upper	Incisors	Boys	A > B **	A > B **
		Girls	A > B **	A > B **
	Molars	Boys	E > D **	E > D **
		Girls	E > D **	E > D **
Lower	Incisors	Boys	B > A **	B > A **
		Girls	B > A **	B > A **
	Molars	Boys	E > D **	E > D **
		Girls	E > D **	E > D **

A: deciduous central incisor, B: deciduous lateral incisor, C: deciduous canine, D: deciduous first molar, E: deciduous second molar
 ** P<0.01

DISCUSSION

Metrical studies of the tooth provide valuable data needed both in anthropology and in dentistry. Many researchers⁶⁻⁸ used basically similar techniques in recording the mesiodistal tooth dimension. The best method appears to employ sliding calipers with a vernier scale, measuring the greatest mesiodistal diameter at the contact point parallel to the occlusal surface of the teeth and also parallel to the vestibular surface of the model.

Richardson and Malhotra⁷ found that the permanent tooth size was larger in males than in females. The greatest difference was found in canines, and the least difference was in incisors. This study found that both of the mean mesiodistal and buccolingual crown dimensions of the deciduous teeth were larger in boys than in girls, and the differences in the incisors and canines were small and in the molars were large.

There were some differences about the tooth size between Japanese⁹ and Chinese in this study. The mean mesiodistal crown dimensions of the deciduous second molars of both dental arches in Japanese were larger than in Chinese. The mean buccolingual crown dimensions of the upper deciduous incisors and canines in Japanese were larger than in Chinese, whereas, the lower deciduous first molar was larger in Chinese than in Japanese.

Heredity is a factor in the determination of tooth size. Variability is an important component in the make-up of the human dental structure. As with the same research result from Japanese,⁹ the deciduous anterior teeth had larger coefficient of variations than the deciduous second molars. Tooth size may also be influenced by environment. It is considered that the deciduous anterior teeth are influenced by environment more often than

Table 5. Size relationships of crown shape in each morphological class of the deciduous teeth

Tooth		Sex	Right side	Left side
Upper	Incisors	Boys	B > A **	B > A **
		Girls	B > A **	B > A **
	Molars	Boys	D > E **	D > E **
		Girls	D > E **	D > E **
Lower	Incisors	Boys	B > A **	A = B (NS)
		Girls	A = B(NS)	A = B (NS)
	Molars	Boys	D > E **	D > E **
		Girls	D > E **	D = E (NS)

A: deciduous central incisor, B: deciduous lateral incisor, C: deciduous canine, D: deciduous first molar, E: deciduous second molar
 (NS) not significant
 ** P<0.01

the deciduous second molars, so the deciduous anterior teeth have large coefficient of variations and high incidence of congenital missing and malformation in comparison with the deciduous molars.¹⁰⁻¹¹

With regard to the mean mesiodistal and buccolingual crown dimension in each morphological class of the deciduous teeth, the distal teeth were larger than the mesial ones except the upper incisors. This was different from the result of study⁵ about the permanent teeth; the mesial teeth were larger than the distal ones except the lower incisors.

Sex differences in the crown shape of the upper deciduous first molar and the lower deciduous second molar were found. The shape of upper deciduous first molar of boys were nearly square and that of girls were slender buccolingually, whereas, the shape of lower deciduous second molar of boys were slender and that of girls were nearly square mesiodistally.

In the relationships of the crown shape in each morphological class of the deciduous teeth, it was found that the value of the upper deciduous lateral incisor was larger than central incisor and the value of the deciduous first molars were larger than second molars. It means that the upper deciduous lateral incisor was relatively thicker than the upper deciduous central incisor and the lower deciduous first molars were nearly square in comparison with the lower deciduous second molars. These data are useful for restoring the crown of deciduous teeth and understanding the occlusion of deciduous dentition in pediatric dentistry.

The correlation coefficients between individual mesiodistal and between individual buccolingual crown dimensions were higher than that between individual crown shape. And only the deciduous canines in boys

Table 6. Correlation Coefficient of Spearman Rank Order Correlation - Crown Shape

M	UR-E	UR-D	UR-C	UR-B	UR-A	UL-E	UL-D	UL-C	UL-B	UL-A	LL-E	LL-D	LL-C	LL-B	LL-A	LR-E	LR-D	LR-C	LR-B	LR-A
F		0.504**	0.070NS	0.244NS	0.161NS	0.613**	0.527**	0.161NS	0.109NS	0.160NS	-0.06NS	0.04NS	0.201NS	0.218NS	0.050NS	0.250NS	0.014NS	-0.043NS	0.282*	-0.041NS
UR-E	0.500**		0.261*	0.114NS	0.129NS	0.399**	0.725**	0.308NS	0.099NS	-0.025NS	-0.017NS	0.215NS	0.379NS	0.295*	0.196NS	0.116NS	0.263*	0.057NS	0.197NS	-0.037NS
UR-D	0.106NS	0.149NS		0.183NS	0.094NS	0.038NS	0.246NS	0.745**	0.273*	0.016NS	0.113NS	0.173NS	0.344**	0.079NS	0.231NS	-0.081NS	-0.002NS	0.344**	0.055NS	0.081NS
UR-C	0.174NS	0.140NS	0.544**		0.366**	-0.146NS	-0.002NS	0.245NS	0.706**	0.429NS	0.137NS	0.113NS	0.490**	0.282*	0.156NS	0.245NS	-0.126NS	0.415**	0.475**	0.293*
UR-B	0.250NS	0.060NS	0.435**	0.566**		0.182NS	0.126NS	0.044NS	0.366**	0.599**	-0.111NS	0.124NS	0.433**	0.231NS	0.153NS	0.149NS	0.126NS	0.319*	0.275*	0.191NS
UR-A	0.606**	0.429**	0.104NS	0.202NS	-0.030NS		0.534**	0.049NS	-0.161NS	-0.008NS	-0.023NS	0.102NS	0.166NS	0.077NS	-0.038NS	0.081NS	0.255*	-0.064NS	0.107NS	-0.125NS
UL-E	0.461**	0.685**	0.043NS	0.205NS	0.070NS	0.409**		0.267*	-0.008NS	-0.098NS	-0.234NS	0.221NS	0.309NS	0.108NS	0.004NS	-0.054NS	0.233NS	0.073NS	0.048NS	-0.203NS
UL-D	-0.021NS	0.108NS	0.663**	0.329NS	0.204NS	0.051NS	-0.081NS		0.322*	-0.045NS	0.163NS	0.151NS	0.407**	0.040NS	0.275*	-0.007NS	0.080NS	0.231NS	0.154NS	0.145NS
UL-C	0.163NS	0.152NS	0.658**	0.710**	0.616**	0.181NS	0.080NS	0.412**		0.489**	0.157NS	0.162NS	0.466**	0.364**	0.373**	0.267*	0.073NS	0.323*	0.434**	0.453**
UL-B	0.182NS	0.050NS	0.432**	0.507**	0.813**	-0.101NS	0.020NS	0.313**	0.651**		-0.062NS	-0.005NS	0.289*	0.287*	0.279*	0.127NS	0.008NS	0.157NS	0.194NS	0.222NS
UL-A	0.243NS	-0.047NS	0.006NS	0.062NS	0.264NS	0.060NS	-0.130NS	-0.058NS	0.164NS	0.326*		0.219NS	0.034NS	0.054NS	0.133NS	0.432**	0.245NS	0.167NS	0.165NS	0.283*
LL-E	0.241NS	0.185NS	0.006NS	0.091NS	0.163NS	0.062NS	0.312NS	-0.101NS	0.105NS	0.345**	0.254NS		0.169NS	0.105NS	0.091NS	0.443**	0.483**	0.281*	0.045NS	0.012NS
LL-D	0.021NS	0.260NS	0.251NS	0.286NS	0.109NS	0.219NS	0.140NS	0.441**	0.280**	0.147NS	-0.133NS	-0.070NS		0.216NS	0.254NS	0.126NS	0.112NS	0.466**	0.314NS	0.227NS
LL-C	0.048NS	-0.016NS	0.339**	0.392**	0.392**	0.210NS	-0.077NS	0.366**	0.450**	0.306**	0.041NS	-0.063NS	0.531**		0.341**	0.267**	0.170**	0.383**	0.642**	0.340**
LL-B	0.259NS	-0.003NS	0.285*	0.331**	0.384**	0.135NS	-0.050NS	0.411**	0.317**	0.340**	0.111NS	0.007NS	0.182NS	0.482**		0.164NS	0.198NS	0.149NS	0.168NS	0.611**
LL-A	0.396**	0.132NS	-0.029NS	0.112NS	0.285**	0.210NS	0.053NS	0.046NS	0.072NS	0.336**	0.702**	0.433**	0.004NS	0.020NS	0.116NS		0.261*	0.101NS	0.280*	0.281*
LR-E	0.172NS	0.169NS	0.134NS	0.096NS	0.169NS	0.155NS	0.255NS	0.074NS	0.184NS	0.247NS	0.204NS	0.691**	0.084NS	0.210NS	0.093NS	0.318*		0.185NS	-0.008NS	0.106NS
LR-D	0.005NS	0.082NS	0.175NS	0.214NS	-0.040NS	0.184NS	0.055NS	0.189NS	0.176NS	-0.071NS	0.068NS	-0.076NS	0.666**	0.540**	0.068NS	-0.002NS	0.075NS		0.185NS	0.316*
LR-C	-0.173NS	-0.038NS	0.237NS	0.415**	0.178NS	0.094NS	-0.144NS	0.312**	0.359**	0.193NS	0.119NS	-0.085NS	0.523**	0.702**	0.188NS	0.024NS	0.132NS	0.492**		0.370**
LR-B	0.288*	0.114NS	0.078NS	0.334**	0.277**	0.079NS	-0.012NS	0.180NS	0.289**	0.282NS	0.244NS	-0.088NS	0.199NS	0.394**	0.587**	0.069NS	-0.012NS	0.148NS	0.337*	
LR-A																				

UR:upper right, UL: upper left, LL: lower left, LR:lower right, A:deciduous central incisor, B: deciduousslateral incisor,C: deciduous canine, D: deciduous first molar,E: deciduous second molar, M: boys, F: girls
* P<0.05 ** P<0.01NS: not significant

and the deciduous second molars in girls had high correlation with the antagonist teeth in both mesiodistal and buccolingual dimensions. It is suggested that the mesiodistal and buccolingual crown dimensions for the individual tooth is controlled in the respectively different gene. Further studies are necessary to reveal the mode of inheritance of the crown shape and twin studies comparing monozygous and dizygous twins would enable an estimation of the extent of their inheritance.

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