Kaohsiung J Med Sci 16: 299 — 307, 2000

CROWN DIAMETERS OF THE DECIDUOUS TEETH OF TAIWANESE

Huei-Hsien Liu, Shing-Zeng Dung** and Yi-Hsin Yang*

The purposes of this study were (1) to characterize the crown diameters of the deciduous teeth of Taiwanese; (2) to compare the differences in the deciduous crown diameters between different populations. The results might provide odontometric information in making preformed stainless steel crowns of the Chinese population. Study casts of 90 children (51 boys and 39 girls) of aged 3 to 6 years were used in this study. The maximum mesiodistal crown diameter (the greatest distance between the contact points of the approximal surfaces) and the buccolingual crown diameter (the greatest distance at a right angle to the mesiodistal measurement) were obtained by using an electronic digital caliper. Significant differences between antimeres were found in the mesiodistal diameters of maxillary canine and maxillary molars ($p<0.001$) as well as in the buccolingual diameters of mandibular molars ($p<0.05$). Excellent correlations between the antimeres of the corresponding teeth were found ($r=0.70$ to 0.96). Boys generally had larger crown diameters than girls with the exception of mesiodistal diameters of maxillary and mandibular canines, and mandibular lateral incisor, whereas the statistically significant gender difference was only found in the buccolingual diameter of mandibular second molar ($p<0.05$). The higher the percentage of sexual dimorphism, the larger the gender differences. The percentage of sexual dimorphism ranged from 0.09 to 1.94 for mesiodistal diameters and 0.04 to 2.86 for buccolingual diameters. The mandibular second molar was the most dimorphic tooth. Variations in the crown diameters of the deciduous teeth existed among and within different populations. Deciduous mesiodistal crown diameters of Taiwanese were, in general, smaller than those of Australian aborigines, Taiwan Chinese aborigines, and Hong Kong Chinese, but larger than those of American whites. When considering the buccolingual crown diameters, our data were significantly smaller than those of Icelanders, western Indians, and whites.

Key words: crown diameters, deciduous teeth, Taiwanese

(*Kaohsiung J Med Sci* **16**: 299 — 307, 2000)

Department of Dental, Veterans General Hospital-Kaohsiung, Kaohsiung 813, **Yang-Ming University, School of Dentistry, Taipei *Graduate Institute of Oral Health Sciences, Kaohsiung Medical University, Kaohsiung 807, Taiwan
Received: January 8, 2000 Accepted: May 8, 2000
Address for reprints: Huei-Hsien Liu, Department of Dental, VGH-Kaohsiung, No. 386, Ta-Chung 1st Rd., Kaohsiung, Taiwan

Data derived from odontometric studies are useful in many fields, such as to compare prehistoric and modern populations in anthropology [1]; to evaluate the heritabilities and chromosomal influences in genetics [2,3]; to determine the sex in modern forensic science [4]; and to study the normal and abnormal dental traits [5]. Furthermore, odontometric data regarding deciduous crown diameters can be used to study the development of occlusion during transition of the

dentition in the daily pedodontic and orthodontic practices. Previous investigations on deciduous crown diameters have shown variations among the populations [6-12]. However, limited information concerning Asian populations has been published [1,8,12,13]. In addition, it may be necessary to measure tooth size in more than one sample of a population before drawing a conclusion concerning the odontometric findings and the racial origin of a population. The purposes of this study were (1) to characterize the crown diameters of the deciduous teeth of Taiwanese; (2) to compare the differences in the deciduous crown diameters between different populations. Our results may provide odontometric information in making preformed stainless steel crowns of the Chinese children.

MATERIALS AND METHODS

Subjects

A total of 500 preschool children in southern Taiwan aged from 3 to 6 years were randomly screened for this study. The following criteria for the selection of children were used: (1) absence of dental caries or restorations; (2) no malposition or malocclusion; and (3) no clinical evidence of gingival inflammation or gingival recession. Eventually, a total of 90 children (51 boys and 39 girls) were selected for this study.

Measurements

Impressions of the dentitions were made with regular-setting alginate materials (Jeltrate, Caulk Dentsply, Milford, U.S.A.). Super-hard white stones were used to pour the casts. The tooth was selected for measurement only if it was fully erupted, not noticeably reduced in size by attrition, not fractured into or below the marginal gingiva, and not anomalous in crown morphology or tooth size.

According to the method described by Moorrees [6], the maximum mesiodistal crown diameter was obtained by measuring the greatest distance between the contact points in its approximal surfaces, using an electronic digital caliper held parallel to the occlusal and vestibular surfaces. The buccolingual crown diameter was obtained by measuring the greatest distance between the vestibular and lingual surfaces at right angles to the mesiodistal measurement. If a tooth was missing or unsuitable for measuring, the opposite side also would be excluded. All measurements were made by the same investigator.

Statistical analyses

The statistical analyses of this study were used to 1) investigate bilateral asymmetry, 2) compare gender differences and sexual dimorphism, 3) compare the study data with different ethnic populations, and 4) classify the tooth size according to cluster analysis. For the bilateral asymmetry, the Pearson's correlation coefficients were computed between right and left sides of the corresponding teeth. A series of two-sample t-tests were used to compare the crown diameters between genders. Furthermore, sexual dimorphism was assessed by the method described by Garn and coworkers [2]. The crown diameters of the present study were compared with those of other ethnic groups by using one-sample t-test.

RESULTS

Bilateral asymmetry and correlation

Table 1 shows the coefficients of correlation and the differences between the crown diameters of the right and left sides of the corresponding teeth. Significant differences between antimeres were found in the mesiodistal diameters of maxillary canine and maxillary molars as well as in the buccolingual diameters of mandibular molars. These differences were fairly small (0.001 to 0.077 mm). Therefore, the averaged diameter of antimere was used as the measurement for the following statistical analyses. Excellent correlations between the antimeres of the corresponding teeth were found, with the smallest coefficient being mesiodistal diameter of mandibular canine ($r=0.70$). Additionally, all these correlations were highly significant ($p<0.001$).

Gender difference and sexual dimorphism

Comparison of crown diameters of the deciduous teeth between genders and the percentage of sexual dimorphism are shown in Table 2. Boys generally had larger crown diameters than girls with the exception of mesiodistal diameters of maxillary and mandibular canines, and mandibular lateral incisor, whereas a statistically significant gender difference was only found in the buccolingual diameter of mandibular second molar ($p<0.05$).

The percentage of sexual dimorphism ranged from 0.09 to 1.94 for mesiodistal diameters and 0.04 to 2.86 for buccolingual diameters. Regarding the mesiodistal crown diameters, mandibular central incisor was the least dimorphic tooth; while mandibular second molar as well as maxillary central incisor were the most dimorphic teeth. As for the buccolingual diameters, mandibular lateral incisor was the least dimorphic tooth, and the mandibular second molar was

Table 1. Bilateral asymmetry and correlation of deciduous crown diameters[¶]

	Variable (left)	By variable (right)	Difference (mm) (right -left)	Standard error of difference	Pearson's correlation (r)
	i^1	i^1	-0.0169	0.0126	0.96***
Mesiodistal	i^2	i^2	-0.0264	0.0142	0.93***
	c^1	c^1	0.0773***	0.0212	0.84***
	m^1	m^1	0.0392***	0.0161	0.93***
	m^2	m^2	0.0752***	0.0181	0.95***
	i_1	i_1	0.0116	0.0169	0.92***
	i_2	i_2	-0.0297	0.0182	0.89***
	c_1	c_1	-0.0029	0.0390	0.70***
	m_1	m_1	-0.0137	0.0194	0.94***
	m_2	m_2	-0.0168	0.0187	0.94***
Buccolingual	i^1	i^1	0.0067	0.0146	0.93***
	i^2	i^2	-0.0205	0.0149	0.93***
	c^1	c^1	-0.0171	0.0186	0.92***
	m^1	m^1	0.0381	0.0216	0.88***
	m^2	m^2	0.0059	0.0219	0.90***
	i_1	i_1	0.0029	0.0124	0.95***
	i_2	i_2	0.0010	0.0160	0.91***
	c_1	c_1	0.0090	0.0220	0.88***
	m_1	m_1	0.0744**	0.0260	0.89***
	m_2	m_2	0.0571*	0.0217	0.92***

*** $P < 0.001$; ** $0.001 < P < 0.01$; * $0.01 < P < 0.05$

[¶] i^1: maxillary central incisor; i^2: maxillary lateral incisor; c^1: maxillary canine; m^1: maxillary first molar; m^2: maxillary second molar; i_1: mandibular central incisor; i_2: mandibular lateral incisor; c_1: mandibular canine; m_1: mandibular first molar; m_2: mandibular second molar

the most dimorphic tooth.

Cluster analysis

The crown diameters from 54 observations with complete measurements were used in the cluster analysis. The hierarchical cluster analysis was first used to identify the number of groups needed. When comparing the Ward's statistics for the number of groups, relatively large changes can be found until number three. Hence three groups were decided for clustering these diameters. After the number of groups was decided, the K-means method in cluster analysis was then used to classify the observations into three groups.

Table 3 demonstrates the averaged crown diameters of these three groups related to tooth size. Cluster 1 compromised 26% (14 / 54) of observations, displaying the largest tooth size. Cluster 2 (50%) had a relatively medium tooth size. Cluster 3 (24%) exhibited the smallest tooth size.

DISCUSSION

Bilateral asymmetry and correlation

Bilateral asymmetry of the present study was found to be statistically significant at the one per cent level for only three measurements and the absolute differences were fairly small. This finding agreed with previous investigations and justified the use of the averaged size from antimeres [6,8-13].

There was a consensus that one person exhibiting a smaller (larger) right deciduous tooth was likely to have a smaller (larger) left corresponding tooth. However, there has been little scientific information regarding the correlation between crown diameters of the right and left sides of the corresponding teeth. Our results, exhibiting an excellent correlation between the crown diameters of the antimeres, provided the scientific evidence to support this hypothesis.

Gender difference and sexual dimorphism

Previous studies demonstrated that boys had larger crown diameters than girls in all or most of the

Table 2. Comparison of deciduous mesiodistal & buccolingual crown diameters (mm) between genders[¶]

	Tooth	Boy		Girl		Difference	Percent dimorphism[‡]
		Mean (1)	S E*	Mean (2)	S E*	(1)-(2)	
Mesiodistal	i^1	6.76	0.06	6.63	0.06	0.13	1.94
	i^2	5.46	0.05	5.36	0.05	0.10	1.78
	c^1	6.65	0.04	6.72	0.06	-0.07	-0.99
	m^1	7.13	0.06	7.05	0.06	0.08	1.11
	m^2	9.07	0.07	9.05	0.10	0.02	0.21
	i_1	4.19	0.06	4.19	0.05	0.00	-0.09
	i_2	4.66	0.05	4.67	0.05	-0.01	-0.21
	c_1	5.76	0.06	5.81	0.05	-0.05	-0.89
	m_1	8.02	0.07	7.93	0.08	0.10	1.24
	m_2	10.03	0.08	9.84	0.08	0.19	1.94
Buccolingual	i^1	4.78	0.05	4.68	0.06	0.10	2.17
	i^2	4.53	0.05	4.47	0.06	0.06	1.45
	c^1	5.53	0.06	5.51	0.07	0.02	0.36
	m^1	8.45	0.05	8.31	0.07	0.14	1.67
	m^2	9.96	0.07	9.79	0.07	0.17	1.75
	i_1	3.53	0.05	3.51	0.05	0.02	0.45
	i_2	3.95	0.05	3.95	0.05	0.00	-0.04
	c_1	5.13	0.06	5.11	0.06	0.02	0.44
	m_1	7.28	0.07	7.08	0.07	0.20	2.80
	m_2	9.24	0.08	8.99	0.08	0.26[†]	2.86

* SE: standard error

‡ Percent dimorphism = (1) – (2) / (2) x 100

† two-sample t-test, p-value < 0.05

¶ i^1: maxillary central incisor; i^2: maxillary lateral incisor; c^1: maxillary canine; m^1: maxillary first molar; m^2: maxillary second molar; i_1: mandibular central incisor; i_2: mandibular lateral incisor; c_1: mandibular canine; m_1: mandibular first molar; m_2: mandibular second molar

Table 3. The averaged deciduous mesiodistal and buccolingual crown diameters (mm) according to cluster analysis[¶]

	Cluster	N	i^1	i^2	c^1	m^1	m^2	i_1	i_2	c_1	m_1	m_2
Mesiodistal	1	14	7.09	5.76	7.05	7.57	9.65	4.45	4.97	6.25	8.45	10.39
	2	27	6.64	5.42	6.69	7.14	9.03	4.18	4.65	5.83	7.85	9.93
	3	13	6.39	5.09	6.45	6.77	8.76	3.89	4.41	5.48	7.74	9.68
Buccolingual												
	1	14	5.12	4.82	5.91	8.86	10.41	3.72	4.16	5.49	7.64	9.79
	2	27	4.75	4.57	5.64	8.49	9.95	3.53	4.00	5.25	7.35	9.11
	3	13	4.45	4.21	5.09	7.98	9.55	3.20	3.61	4.74	6.72	8.68

N: number of teeth

¶ i^1: maxillary central incisor; i^2: maxillary lateral incisor; c^1: maxillary canine; m^1: maxillary first molar; m^2: maxillary second molar; i_1: mandibular central incisor; i_2: mandibular lateral incisor; c_1: mandibular canine; m_1: mandibular first molar; m_2: mandibular second molar

deciduous teeth [1,4,6-11,13]. This trend was reflected in this study. However, our results disagreed with previous investigations of crown diameters of the deciduous dentition, in which more than half of measurements exhibited significant gender differences [1,4,6,9-11]. In the present study, the buccolingual crown diameter of

the mandibular second molar was the only measurement demonstrating a statistically significant gender difference. In general, our findings confirmed previous data from Chinese populations that there was no major gender difference and that boys had larger crown diameters than girls with the exception of anterior teeth [8,13]. There might be some variations among populations as gender differences are addressed.

Table 4 shows the magnitude of sexual dimorphism in the deciduous crown diameters of different populations. It appeared that the magnitude and ranking of sexual dimorphism in deciduous tooth size varied among and within populations. The higher the percentage of dimorphism, the larger the gender differences. Comparing with other populations, Chinese populations seemed to have a smaller magnitude of sexual dimorphism in deciduous tooth size [8, 13]. Our results supported previous findings that the deciduous dentition displayed much less sexual dimorphism than the permanent dentition and there were no pattern characteristics of sexual dimorphism in the deciduous dentition [2,4,7,10,13]. In addition, the finding from this study was similar to those of previous studies, in which the deciduous canines did not display as much dimorphism as the permanent canines [2,4,13].

Contrary to the results of a previous Icelandic study, there was a complete reversal in the dimorphism ranking for the mesiodistal crown diameter of mandibular central incisor and for the buccolingual crown diameter of mandibular lateral incisor and mandibular second molars [10]. Garn *et al.* [2] have indicated that the magnitude of sexual dimorphism in the permanent tooth size has a genetic basis. Population differences in sexual dimorphism shown in the present study might imply that there is a similar genetic control in the deciduous tooth size. However, we still need more evidence, such as sibling difference comparisons to verify the genetic hypothesis.

Comparisons of different populations

Comparisons of averaged buccolingual and mesiodistal crown diameters of different ethnic populations are shown in Tables 5 and 6, respectively. The crown diameters of the deciduous teeth were compared with those of other populations by using one-sample t-test. For the mesiodistal crown diameters, the averaged measurements from Australian aborigines [9] and Taiwan Chinese aborigines [8] were mostly significantly different from our data ($p<0.05$), whereas the results from Icelanders [10], western Indians [1], northern Americans [6], and Hong Kong Chinese [13] had less significant differences. In general, our results demonstrated that mesiodistal crown diameters of Taiwanese were smaller than those of Australian aborigines [9], Taiwan Chinese aborigines [8], and Hong Kong Chinese [13] with the exception of maxillary central incisor of Taiwan Chinese aborigines, central incisors and maxillary canine of Hong Kong Chinese. On the other hand, the northern Americans [6] exhibited smaller

Table 4. The magnitude (%)† and ranking # of sexual dimorphism in deciduous mesiodistal crown diameters¶

	Taiwanese		Hong Kong Chinese[13]		Taiwan aborigines[8]		westeran Indians[1]		Australian aborigines[9]		northern Americans[6]		Whites[7]		Icelanders[10]	
	%	rank	%	rank	%	rank	%	rank	%	rank	%	rank	%	rank	%	rank
i^1	1.94	1	0.06	10	1.23	3	3.22	6	2.66	2	1.71	10	1.84	3	0.93	9
i^2	1.78	3	0.31	9	0.89	7	3.58	4	1.01	10	1.72	9	1.69	6	1.33	7
c^1	0.99	6	0.91	6	1.79	2	4.44	3	2.63	3	3.15	1	1.80	4	1.16	8
m^1	1.11	5	1.97	1	0.68	8	4.49	2	3.71	1	2.45	5	1.52	7	1.85	5
m^2	0.21	8	1.02	5	1.06	5	1.43	10	2.33	5	2.71	3	0.57	9	0.33	10
i_1	0.09	10	1.10	3	0.93	6	3.20	7	2.27	6	2.51	4	1.71	5	9.49	1
i_2	0.21	8	0.81	7	0.00	10	2.14	9	1.63	8	2.37	6	2.97	1	2.84	2
c_1	0.89	7	0.32	8	1.18	4	2.42	8	1.94	7	3.13	2	0.34	10	2.06	4
m_1	1.24	4	1.10	3	0.60	9	4.76	1	1.35	9	1.96	8	1.42	8	2.81	3
m_2	1.94	1	1.47	2	1.98	1	3.32	5	2.34	4	1.97	7	1.96	2	1.61	6

† percentage sexual dimorphism= (male-female) / female x 100

Rank was arrangement of the absolute values of percentage sexual dimorphism in descending order.

¶ i^1: maxillary central incisor; i^2: maxillary lateral incisor; c^1: maxillary canine; m^1: maxillary first molar; m^2: maxillary second molar; i_1: mandibular central incisor; i_2: mandibular lateral incisor; c_1: mandibular canine; m_1: mandibular first molar; m_2: mandibular second molar

Table 5. Comparisons of averaged buccolingual crown diameters (mm) of deciduous teeth of different ethnic populations[¶]

Gender	Tooth	Taiwanese Mean (1)	Icelanders[10] (2) (1)-(2)	W. Indians[1] (3) (1)-(3)	Whites[7] (4) (1)-(4)
Boy	i^1	4.78	-0.30*	-0.47*	-0.35*
	i^2	4.53	-0.48*	-0.41*	-0.18*
	c^1	5.53	-0.84*	-0.66*	-0.58*
	m^1	8.45	-0.42*	-0.62*	-0.38*
	m^2	9.96	-0.14*	-0.19*	0.42*
	i_1	3.53	-0.38*	-0.35*	-0.33*
	i_2	3.95	-0.50*	-0.40*	-0.42*
	c_1	5.13	-0.58*	-0.51*	-0.47*
	m_1	7.28	-0.07	-0.23*	-0.09
	m_2	9.24	0.15	-0.08	0.34*
Girl	i^1	4.68	-0.33*	-0.36*	-0.51*
	i^2	4.47	-0.46*	-0.24*	-0.17*
	c^1	5.51	-0.76*	-0.45*	-0.46*
	m^1	8.31	-0.38*	-0.45*	-0.25*
	m^2	9.79	-0.09	0.04	0.43*
	i_1	3.51	-0.27*	-0.36*	-0.33*
	i_2	3.95	-0.34*	-0.26*	-0.40*
	c_1	5.11	-0.50*	-0.27*	-0.44*
	m_1	7.08	-0.21*	-0.19*	-0.23
	m_2	8.99	-0.03	0.12	0.29*

*one-sample t-test, p-value < 0.05

[¶] i^1: maxillary central incisor; i^2: maxillary lateral incisor; c^1: maxillary canine; m^1: maxillary first molar; m^2: maxillary second molar; i_1: mandibular central incisor; i_2: mandibular lateral incisor; c_1: mandibular canine; m_1: mandibular first molar; m_2: mandibular second molar

mesiodistal crown diameters than the Taiwanese in the present study, except for canines and mandibular lateral incisor. When considering the buccolingual crown diameters, our data were almost significantly smaller than those of Icelanders [10], western Indians [1], and whites [7] with the exception of second molars.

Cluster analysis

Cluster analysis has been applied in many fields of dentistry, such as in periodontal research to describe patterns of microorganism and gingival phenotypes observed among cases [14-16]; in temporomandibular disorder to describe psychological characteristics of chronic pain [17]; in orthodontics to classify malocclusion subtypes and diagnostic index [18,19]; and in pediatric dentistry to identify caries pattern in children [20]. Nevertheless, limited odontometric studies have dealt with cluster analysis [21,22] and none of these studies focused on the deciduous dentition.

The deciduous crown diameters of the study data were classified into three clusters by the cluster analysis. The averaged crown diameters of the three clusters (shown in Table 3) correspond to small, median, and large sizes. Hence, these sizes can be used as references for making preformed stainless steel crowns for the Chinese population. The nickel-chrome crown, commonly called the stainless steel crown (SSC), has proved to be the most successful restoration for large cavities in primary molar teeth. There are six different sizes of preformed stainless steel crown currently available on the market (e.g. Ion NiChro, 3M Dental Products, St. Paul, U.S.A.), sized from 2 to 7. Ideally, it needs minimal adaptation as long as the appropriate size of the SSC is used. As compared the mesiodistal crown diameters of the cluster 2 in this study (medium size, 50% of study sample) with those of SSC on the market, the sizes of upper first and second molars were between sizes 2 and 3 (difference = 0.11 to 0.43 mm for m^1 and 0.08 to 0.31 mm for m^2, respectively). The sizes of lower first and second molars were between sizes 3 and 4 (difference = 0.02 to

Table 6. Comparisons of averaged mesiodistal crown diameters (mm) of deciduous teeth of different ethnic populations[¶]

	Taiwanese	Australian aborigines[9] (2)	Taiwan aborigines[8] (3)	Hong Kong Chinese[12] (4)	W. Indians[1] (5)	Icelanders[10] (6)	Northern Americans[6] (7)	Whites[7] (8)	
Gender	Tooth	Mean(1)	(1)-(2)	(1)-(3)	(1)-(4)	(1)-(5)	(1)-(6)	(1)-(7)	(1)-(8)
Boy	i^1	6.76	-0.58*	0.34*	0.08	0.03	0.27*	0.21*	0.36*
	i^2	5.46	-0.53*	-0.06	0.00	-0.04	0.11*	0.14*	0.22*
	c^1	6.65	-0.76*	-0.19*	-0.09*	-0.17*	-0.33*	-0.23*	-0.13*
	m^1	7.13	-0.42*	-0.29*	-0.27*	-0.31*	-0.04	0.01	0.44*
	m^2	9.07	-0.59*	-0.42*	-0.18*	-0.14	0.07	-0.01	0.23*
	i_1	4.19	-0.31*	-0.05	0.03	0.01	-0.08	0.11	0.15*
	i_2	4.66	-0.34*	-0.11*	0.00	-0.10	-0.04	-0.08	0.08
	c_1	5.76	-0.55*	-0.25*	-0.14*	-0.15*	-0.18*	-0.16*	-0.07
	m_1	8.02	-0.22*	-0.30*	-0.16*	-0.13	0.04	0.22*	0.178
	m_2	10.03	-0.89*	-0.29*	-0.26*	-0.21*	-0.08	0.20*	0.15
Girl	i^1	6.63	-0.52*	0.13*	-0.04	0.11	0.20*	0.19*	0.11
	i^2	5.36	-0.57*	-0.21*	-0.08	0.05	0.08	0.13*	0.03
	c^1	6.72	-0.50*	0.00	0.04	0.19*	-0.18*	0.05	0.06
	m^1	7.05	-0.23*	-0.32*	-0.21*	-0.07	0.01	0.10	0.46*
	m^2	9.05	-0.39*	-0.34*	-0.11	-0.03	0.08	0.21*	0.26*
	i_1	4.19	-0.21*	-0.09	-0.02	0.14*	0.29*	0.21*	0.09
	i_2	4.67	-0.25*	-0.10	-0.03	0.01	0.10	0.04	-0.05
	c_1	5.81	-0.38*	-0.13*	-0.07	0.04	-0.01	0.07	0.00
	m_1	7.93	-0.20*	-0.34*	-0.16*	0.15	0.12	0.28*	0.19*
	m_2	9.84	-0.83*	-0.28*	-0.30*	-0.11	-0.11	0.20*	0.15

* one-sample t-test, p-value < 0.05

[¶] i^1: maxillary central incisor; i^2: maxillary lateral incisor; c^1: maxillary canine; m^1: maxillary first molar; m^2: maxillary second molar; i_1: mandibular central incisor; i_2: mandibular lateral incisor; c_1: mandibular canine; m_1: mandibular first molar; m_2: mandibular second molar

0.37 mm for m_1 and 0.04 to 0.57 mm for m_2, respectively). The difference is small; however, the minimal adaptation can turn out to be a clinical liability. Therefore, it might help clinicians to minimize clinical time in performing a SSC made from the Chinese population. However, we still need more information on three-dimensional measurements to make more appropriate sizes of SSC for Chinese children.

ACKNOWLEDGMENTS

We express our thanks to our colleagues, Dr. L-L Shih, B-G Tzeng, and Ms. S-M Huang for their technical support. This study was financially supported by Veterans General Hospital-Kaohsiung (VGHKS 86-05).

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臺灣孩童之乳牙牙冠直徑大小之探討

劉惠仙　董醒任　楊奕馨

本報告目的在於探討南臺灣幼童之乳牙牙冠直徑大小之特性，與其他不同種族或地區幼童之乳牙牙冠大小做一比較。而且由於不同種族之牙冠直徑大小各有差異，臨床上採用歐美種族之乳牙牙冠直徑大小而製成的不銹鋼成型乳牙牙套，有時極為耗時，因而本報告可提供牙齒測量學的基本資料庫，以作為將來製作中國人專屬之不銹鋼成型乳牙牙套之參考。　研究對象為 90 名三到六歲幼童(51 名男孩，39 名女孩)，利用藻膠印模再灌取石膏模型，然後在模型上以電動游標尺量取每顆乳牙牙冠之近遠心及頰舌向之最大直徑；並以統計方式觀察左右兩側之對稱性、性別上之差異與同質二形性。結果顯示左右兩側乳牙牙冠直徑有極高的相關性(r =0.70-0.96)，而僅有上顎乳犬齒及乳臼齒之左右近遠心牙冠直徑 ($p<0.001$)及下顎乳臼齒之頰舌向牙冠直徑 ($p<0.05$)有顯著之差異。至於性別方面，無論是近遠心或頰舌向，男孩較女孩之牙冠直徑來得大，但其差異除了下顎第二乳臼齒之頰舌向牙冠直徑外，都無統計學上意義。就性別同質二形性而言，比值愈高代表性別差異愈大，近遠心牙冠直徑之比值為 0.09-1.94，而頰舌向牙冠直徑比值為 0.04-2.86，下顎第二乳臼齒之牙冠直徑是性別差異最明顯之乳牙。若與其他不同種族或地區做一比較，本研究所得之乳牙近遠心牙冠直徑比澳洲原住民、臺灣原住民及香港華人來得小，但大於美國白種人；而頰舌向牙冠直徑則小於冰島、西印度及白種人。

(高雄醫誌 **16**: 299 — 307, 2000)

高雄榮民總醫院　牙科　** 陽明大學　牙醫科學研究所
高雄醫學大學　口腔衛生科學研究所
收文日期：89 年 1 月 8 日　　接受刊載：89 年 5 月 8 日
索取抽印本處：劉惠仙　813 高雄市左營區大中一路 386 號
高雄榮民總醫院牙科