

# A STUDY ON THE ERUPTION OF DECIDUOUS TEETH IN KOREAN INFANTS

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## 1. Introduction

Various conditions concerning the eruption of deciduous teeth were examined and statistically evaluated by Schour I. & M. Massler <sup>1) 2)</sup> in their study in 1940, in which they computed the standard values regarding the formation of dental embryos, crowns and roots of the human body. There have been others, including Thompson, <sup>3)</sup> Jorgensen, <sup>4)</sup> Kitamura, <sup>5)</sup> Mukino, <sup>6)</sup> Okamoto, <sup>7)</sup> who reported the standard values concerning the eruption of deciduous teeth.

There are no records available on the eruption of deciduous teeth of Korean Children, and so, as far as the standard values of the eruption of deciduous teeth are concerned, when necessary foreign records have been borrowed.

In this survey, the author examined various stages of the eruption of deciduous teeth as well the relationship between the stature and body weight of pediatric out-patients who underwent health examinations in the Su-Do Medical College Hospital.

## 2. Subjects

The subjects were relatively healthy 699 infants ranging in age from 3 months to 3 years and 9 months, who underwent health examinations at the Pediatrics Department of the Su-Do Medical College Hospital between 1948 and 1950. It must be made clear that, in this survey, the subjects family conditions and living circumstances were not taken into consideration. The number of subjects of each age group is shown in Table 1. The age (full age) of each infant was standardized based upon the date admitted.

Table-1 Number of infants of each age(in months) group

Months	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Boys	16	12	17	24	20	26	17	18	12	17	12	11	14	7	9	6	8	9	9	7	14	9
Girls	3	9	9	15	13	12	11	6	10	12	10	8	8	7	6	8	6	8	9	6	6	5
Total	19	21	26	39	33	38	28	24	22	29	22	19	22	14	15	14	14	17	18	13	20	14
Months	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	Total	
Boys	9	7	9	6	7	6	3	5	5	9	6	12	8	12	5	4	5	2	3	3	421	
Girls	8	6	7	6	7	5	8	5	4	3	5	4	2	4	5	3	1	1	2	5	278	
Total	17	13	16	12	14	11	11	10	9	12	11	16	10	16	10	7	7	3	5	8	699	

## 3. Method of Survey

The stature and body weight of each infant were measured by a weight scale and a stature measure

which were installed in the out-patients' clinic of pediatrics of the Su-Do Medical College Hospital, and various conditions regarding the eruption of deciduous teeth were examined in the dental clinic of the same hospital, using dental mirrors.

The eruption of the crown above the gingiva in each tooth was set as 1, and various degrees of eruption were not recorded.

#### 4. Method of Calculation

The age of an individual infant was computed in terms of day, and the total number of days of each infant's age was again converted into X months (1 month equals 30.5 days) and X days.

The subjects were divided into pertinent age groups (classification age unit is 1 month), and the author examined the time of the eruption of each deciduous tooth, and the standard values, which are expressed in months, were calculated based on the ages of infants surveyed (in days).

In calculating the standard values, each mean value was calculated down to two places of decimals and the average error was added to it. The fraction was ignored.

The method of calculation is as follows:

$$M \dots \dots \dots \text{Arithmetrical average} = \frac{100n}{N}$$

$$m \dots \dots \dots \text{Error of arithmetrical average} = \frac{\hat{\sigma}}{\sqrt{N}}$$

$$\sigma \dots \dots \dots \text{Standard error} = \sqrt{\frac{\sum(fx^2)}{N}}$$

$$V \dots \dots \dots \text{Variation coefficient} = \frac{100\hat{\sigma}}{M}$$

#### 5. Result of Servey

The lower right deciduous lateral incisors were in eruption in a female with a weight of 8.40 kg and stature of 67cm who was 169 days or 5 months and 16 day old, while in a male aged 1,126 days or 37 months and 17 days, D|A D were still not in eruption. This boy had a weight of 13.50kg and a stature of 95cm, which are the standard weight and stature of the age group it belonged to: therefore, this case was considered a partial anodontia, for the lower and upper deciduous central incisors, canines, and 2nd deciduous molars erupted, and in all other cases, all the upper and lower teeth were in eruption 30 months or 945 days after birth. Observation revealed that the eruption of deciduous dentition of a Korean infant starts in the 5th month after birth and is completed in the 30th month after birth in the following order: lower deciduous central incisors, upper deciduous central incisors, deciduous lateral incisors, deciduous 1st molars, deciduous canines, and deciduous 2nd molars.

##### 5-1 Condition of the eruption of each deciduous tooth (Figure. 1) (Figure. 2)

Fig. 1 Statistics on the eruption of each deciduous tooth in each month after birth (males)

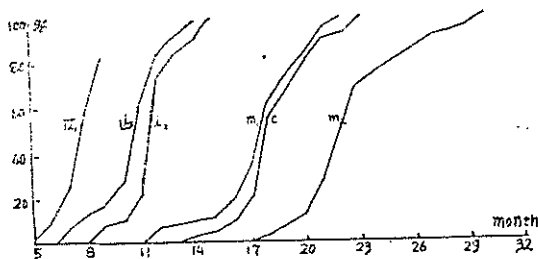
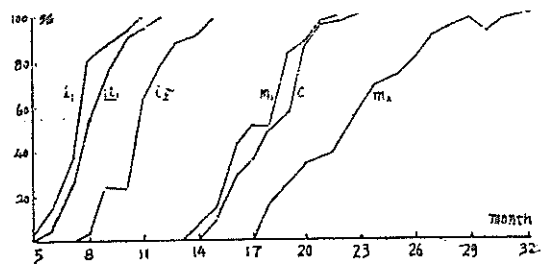


Fig. 2. Statistics on the eruption of each deciduous tooth in each month after birth (females)



**5-1-1 Lower deciduous central incisors:**

In boys, eruption started in the 5th month after birth and was completed at the age of 11 months. By the time they were 7 months old, only less than half of the infants surveyed showed deciduous teeth eruption, but after the 8th month, more than half of them had eruption of deciduous dentition, and it markedly increased in the 9th and 10th months after birth.

In the case of girls, eruption started in the 5th month after birth; however, the number of eruption of deciduous teeth gradually increased until the 8th month after birth, and during the period of 2 months (8th and 9th months) eruption increased rapidly.

It was believed that, in the case of girls, eruption was completed earlier than in the case of boys; however, the average eruption age of girls was comparatively younger than that of boys.

**5-1-2 Upper deciduous central incisors:**

In the case of boys, eruption started in the 7th month after birth and was completed after one full year. In the 9th month, eruption was seen in more than 50% of the subjects surveyed, and it was observed that eruption was increasing gradually until the 12th month. Among girls, over 50% of the subjects showed eruption in the 10th month, and it was completed in the 13th month. It was concluded that the 11th month after birth would be the standard for the normal eruption.

**5-1-3 Deciduous lateral incisors:**

Both in the upper and lower jaws of male infants, eruption started in the 8th month after birth, and in the 9th month in female infants. The time of completion of eruption was the same both in boys and girls—the 14th month after birth, but 50% completion came in the 11th month after birth in boys, while it came in the 12th month in girls.

**5-1-4 Deciduous canines:**

Eruption started, in the case of boys, in the 13th month after birth, and was completed in the 22nd month; on the other hand, in girls, it started in 12th month after birth and came to completion in the 21st month.

It means that the time for completion comes one month earlier in girls than in boys. There could be found no marked difference between the upper and lower jaws, excepting that, in the case of boys, the time of 50% completion was in the 16th months after birth for the upper jaw and in the 17th month for the lower jaw.

**5-1-5 Deciduous 1st molars:**

In the case of girls, eruption started in the 12th month after birth and was completed in the 20th month, while, in the case of boys, most of the deciduous dentition, except the lower left 1st deciduous molar, started eruption in the 13th month after birth and was completed in the 21st month. There were no notable differences between the right and the left as well as between the upper and the lower.

**5-1-6 Deciduous 2nd molars:**

Only one among the girls had the eruption of upper deciduous 2nd molars in the 18th month after birth and, in the rest of them, eruption started in the 20th month and was completed in the 30th month after birth.

Half of the subjects had their eruption completed in the 22nd month after birth in the case of girls, and in the 23rd month in the case of boys. There was no remarkable difference between the upper and the lower as well as between the left and the right.

**5-2 Average age for the eruption of each deciduous tooth (Table-2)**

The average age for the eruption of each deciduous tooth is shown as follows according to the

order of eruption.

Table-2 Arithmetrical average, standard error, and variation coefficient of each deciduous tooth eruption age.

Jaw	Side	Tooth	Oka Moto						C. D. Kee					
			Boy			Girl			Boy			Girl		
			$\bar{M} \pm m$	$\sigma$	V	$\bar{M} \pm m$	$\sigma$	V	$\bar{M} \pm m$	$\sigma$	V	$\bar{M} \pm m$	$\sigma$	V
Upper	Right	m <sub>2</sub>	26.40±0.46	4.55	17.25	26.83±0.45	4.42	16.47	25.11±0.34	2.51	10.09	25.11±0.52	2.86	11.38
		m <sub>1</sub>	16.23±0.27	2.66	16.39	16.34±0.23	2.34	14.32	18.59±0.45	2.33	10.53	18.49±0.57	2.49	13.46
		c	16.98±0.39	3.89	22.92	17.40±0.25	2.54	14.69	18.42±0.46	2.71	14.71	18.98±0.45	2.75	14.48
		i <sub>2</sub>	11.26±0.23	2.31	20.52	11.98±0.26	2.58	21.55	12.03±0.38	2.71	22.52	13.50±0.51	2.38	17.62
		i <sub>1</sub>	10.03±0.22	2.15	21.44	10.49±0.21	2.07	19.92	11.37±0.38	2.91	25.59	12.19±0.44	2.11	17.30
	Left	i <sub>1</sub>	10.00±0.22	2.17	21.69	10.41±0.21	2.08	19.98	11.47±0.39	2.96	25.80	12.19±0.44	2.11	17.30
		i <sub>2</sub>	11.26±0.24	2.41	21.60	11.95±0.23	2.29	19.16	12.03±0.38	2.64	21.94	13.54±0.50	2.42	17.87
		c	16.93±0.30	2.29	17.71	17.27±0.27	2.72	15.75	18.45±0.38	2.27	12.30	18.98±0.39	2.03	10.69
		m <sub>1</sub>	16.27±0.28	2.81	17.27	16.37±0.25	2.48	15.15	18.62±0.45	2.34	12.56	18.49±0.57	2.49	13.46
		m <sub>2</sub>	26.36±0.39	3.90	10.43	27.18±0.45	4.57	16.71	25.11±0.34	2.51	10.09	25.11±0.52	2.86	11.38
Lower	Right	m <sub>2</sub>	24.87±0.40	3.46	13.85	24.99±0.35	3.98	15.99	25.44±0.43	3.21	12.61	24.65±0.38	3.13	12.65
		m <sub>1</sub>	17.20±0.28	2.77	16.24	16.98±0.25	2.56	14.96	19.34±0.56	2.76	14.27	18.72±0.53	2.15	11.48
		c	17.87±0.29	2.86	16.01	18.32±0.27	2.71	14.86	19.24±0.40	2.12	11.01	19.01±0.50	2.68	14.09
		i <sub>2</sub>	12.57±0.29	2.93	23.25	13.13±0.27	2.65	20.18	12.65±0.37	2.30	18.18	13.21±0.66	2.82	21.34
		i <sub>1</sub>	7.86±0.20	2.04	27.99	8.00±0.23	2.27	27.29	8.75±0.55	2.61	29.82	9.09±0.55	2.96	32.56
	Left	i <sub>1</sub>	8.32±0.22	2.19	28.51	8.05±0.24	2.35	29.23	8.78±0.35	2.55	29.04	9.09±0.45	2.36	25.96
		i <sub>2</sub>	12.54±0.31	3.05	24.32	12.95±0.26	2.59	20.00	12.62±0.41	2.45	19.41	13.18±0.59	2.68	20.33
		c	17.87±0.28	2.84	15.89	18.32±0.30	2.97	16.22	19.24±0.42	2.22	11.53	19.01±0.50	2.68	14.09
		m <sub>1</sub>	17.14±0.28	2.75	16.04	16.91±0.25	2.46	14.55	18.00±0.43	2.22	12.33	18.75±0.56	2.20	11.73
		m <sub>2</sub>	25.00±0.41	3.39	13.56	24.82±0.34	3.36	13.44	25.44±0.43	3.21	12.61	24.65±0.38	3.12	12.65

5-2-1 Lower deciduous central incisors:

In boys, the average eruption age was 8.75±0.55 months in the right side, 8.75±0.35 months in the left side, and in girls, 9.09±0.55 months in the right side, and 9.09±0.45 months in the left side. The eruption age came a little earlier in boys than in girls.

The standard eruption age was concluded to be from the 8th to 9th month after birth.

5-2-2 Upper deciduous central incisors:

In the case of boys, the average eruption age was represented by 11.37±0.38 months for the right side, and 11.47±0.39 months for the left side. In girls, it was 12.19±0.44 months both for the left and right sides. Boys were a little earlier than girls in eruption. The average eruption age was 11.0±0.29 months, so the standard age for eruption was considered from the 11th to 12th month after birth.

5-2-3 Upper deciduous lateral incisors:

In the case of boys, the eruption occurred at the same time in the right and left sides, with the average value of 12.03±0.38 months. In girls, the values were 13.50±0.51 months for the right side and 13.54±0.50 months for the left side. Girls were a little later than boys in eruption. The average age was 12.77±0.34 months; so the standard age of eruption was believed to be from the 12th to 13th month.

**5-2-4 Lower deciduous lateral incisors:**

In the case of boys, the average eruption age was  $12.65 \pm 0.27$  months for the right, and  $12.62 \pm 0.41$  months for the left, and, in the case of girls, the average eruption age was  $13.21 \pm 0.66$  months for the right, and  $13.18 \pm 0.59$  months for left. These figures indicate that eruption was a little earlier in boys than in girls. The average was  $12.91 \pm 0.35$  months. So, the standard value was believed to be from the 12th month to the 13th month.

**5-2-5 Deciduous 1st molars:**

The average eruption ages were as follows:

Boys:	Upper right.....	$18.59 \pm 0.45$ months
	Upper left .....	$18.62 \pm 0.45$ months
	Lower right .....	$19.34 \pm 0.56$ months
	Lower left .....	$18.00 \pm 0.43$ months
Girls:	Upper right .....	$18.49 \pm 0.57$ months
	Upper left .....	$18.72 \pm 0.53$ months
	Lower right .....	$18.75 \pm 0.56$ months
	Lower left .....	$18.75 \pm 0.56$ months

There were no distinctive differences between boys and girls. Though the lower side was slightly later in eruption than the upper side, the difference was almost negligible. The average was  $18.62 \pm 0.32$  months, which led the author to conclude the standard age of eruption to be from the 18th to 19th month.

**5-2-6 Deciduous canines:**

The average ages of eruption were as follows:

Boys:	Upper right, $18.42 \pm 0.46$ months:	Upper left, $18.45 \pm 0.38$ months:
	Lower right, $19.24 \pm 0.40$ months:	Lower left, $19.24 \pm 0.42$ months.

The lower was behind the upper in eruption.

Girls:	Upper right, $18.98 \pm 0.45$ month:	Upper left, $18.98 \pm 0.39$ months;
	Lower right and left $19.01 \pm 0.50$ months.	

The lower was slightly behind the upper in eruption.

The standard age of the eruption of deciduous canines was represented by  $18.92 \pm 0.30$  months, which means that deciduous canines were slightly later in eruption than 1st deciduous molars, but there was no marked difference in eruption time between the former and the latter. It was concluded that the standard eruption age was from the 18th to 19th month after birth.

**5-2-7 Deciduous 2nd molars:**

The average eruption age for boys was represented by  $25.11 \pm 0.34$  months for the upper jaw, both right and left. As for the lower jaw, both right and left, the average age was  $25.44 \pm 0.43$  months. Eruption came to the upper jaw a little later than to the lower jaw, but there could be found no notable difference between the upper and lower jaws. As far as girls are concerned, the average eruption age for the upper right and left was represented by  $25.11 \pm 0.52$  months and that for the lower right and left was  $24.65 \pm 0.38$  months.

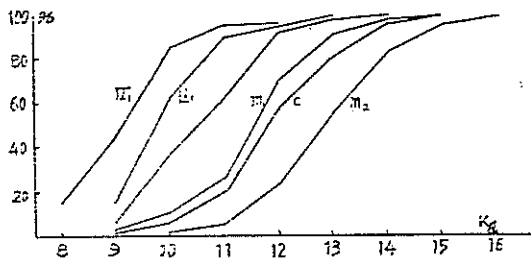
The eruption in the lower jaw was in time a little behind the upper jaw. The standard value was represented by  $25.07 \pm 0.28$  months, which means the standard eruption time was from the 24th and 25th month.

5-3 Relationship between the eruption of deciduous teeth and body weight (Table-3) (Figure-3)

Table-3 Relationship between the eruption age for each deciduous tooth and body weight and stature.

Jaw	teeth	Deciduous teeth eruption			Body weight (kg)						Stature (cm)						
		Stand- ard eruption period	Eruption age		On pertinent age			Average on eruption age			On upertinent age			Average on eruption age			
			Aver- age	From	To	M	m	$\sigma$	M	m	$\sigma$	M	m	$\sigma$	M	m	$\sigma$
Upper	i <sub>1</sub>	11-12	11.80	7	13	9.9	0.01	0.71	10.0	0.11	1.80	74.9	0.29	1.18	80.5	0.22	3.74
	i <sub>2</sub>	12-13	12.77	8	13	10.2	0.17	0.92	11.1	0.07	1.06	77.2	0.11	0.99	81.4	0.30	4.77
	c	18-19	18.72	12	22	11.9	0.33	1.10	12.7	0.12	1.73	83.0	0.56	1.97	83.5	0.25	2.66
	m <sub>1</sub>	18-19	18.54	12	21	11.9	0.33	1.10	12.6	0.11	1.70	83.0	0.56	1.97	83.0	0.24	2.89
	m <sub>2</sub>	25-26	25.11	18	30	13.4	0.45	1.34	13.7	0.14	1.80	85.4	0.31	1.30	91.0	0.29	4.13
Lower	i <sub>1</sub>	8-9	8.92	5	11	9.0	0.18	0.93	10.1	0.07	1.14	70.4	0.13	1.10	76.5	0.25	3.85
	i <sub>2</sub>	12-13	12.91	9	14	10.2	0.17	0.92	11.1	0.08	1.08	77.2	0.11	0.99	81.6	0.24	3.63
	c	19-20	19.12	12	22	12.6	0.43	1.30	12.7	0.12	1.71	84.0	0.75	2.25	83.5	0.25	2.68
	m <sub>1</sub>	18-19	18.70	12	21	11.9	0.33	1.10	12.6	0.11	1.66	83.0	0.56	1.97	80.1	0.37	4.30
	m <sub>2</sub>	25-26	25.04	20	30	13.4	0.45	1.30	13.7	0.13	1.62	85.4	0.31	1.30	91.0	0.23	4.13

Fig-3 Relationship between the eruption of each deciduous tooth and body weight



5-3-2 Upper deciduous central incisors:

Infants weighing 9.0 kg on an average started having eruption, and the eruption was completed when they weighed 11.0 kg. The average body weight of infants in eruption stage was 10.0±0.11 kg. So, the average weight of infants in eruption was a little heavier in comparison with the average body weight(9.9±0.01kg) of all subject infants in the 11th and 12th months after birth, which was equivalent to the average eruption age of upper central incisors. But no marked difference could be found.

5-3-3 Deciduous lateral incisors:

Eruption started when infants weighed 9.0kg on an average and was completed when their average weight reached 13.0kg. The average body weight of infants in eruption stage was represented by 11.1±0.07kg. The standard weight for the eruption of lower deciduous lateral incisors was 11.1±0.08kg, which is a little heavier than the average weight (10.2±0.17kg) of infants who were in the 12th and 13th month after birth-the standard eruption age.

5-3-4 Deciduous 1st molars:

Eruption began to occur to infants with an average body weight of 9.0kg and was completed when

5-3-1 Lower deciduous central incisors:

On an average, eruption started with a body weight of 8.0kg and was completed with a body weight of 11.0kg. The average body weight of infants in eruption was a little heavier compared with the average weight of 9.0±0.18kg of all infants surveyed at the age of 8-9 months. The standard weight for the eruption of lower deciduous central incisors was 10.1±0.07kg.

their average weight reached 14.0kg. The average weight of infants in eruption was  $12.6 \pm 0.11$ kg. This weight is a little heavier than the standard weight of  $11.9 \pm 0.33$ kg at the age of 18-19 months.

#### 5-3-5 Deciduous canines:

The eruption of deciduous canines started with a body weight of 9.0kg, and ended with a body weight of 14.0kg. The standard body weight in this stage was  $12.7 \pm 0.12$ kg. The average weight for the eruption of upper deciduous canines was  $11.9 \pm 0.33$ kg, and that for lower deciduous canines  $12.6 \pm 0.43$ kg, both at the age of 18-19 months which is the standard age for the eruption of deciduous canines. The average weight of infants in the eruption of upper deciduous canines was slightly heavier than that of infants who were in eruption stage of deciduous in general; however, in the case of the lower jaw, the value was almost the same.

#### 5-3-6 Deciduous 2nd molars:

10.0kg was the average body weight for starting eruption in the upper jaw, and in the case of the lower jaw, the average was 11.0kg. 15.0kg was the average body weight for completion of eruptions both in the upper and lower jaws. The standard weight of infants was  $13.7 \pm 0.14$ kg at the time of eruption in the upper jaw and  $13.7 \pm 0.13$ kg at the time of eruption in the lower jaw. The average weight of infants at the age of 25 to 26 months, which is the standard eruption age of these teeth, was  $13.4 \pm 0.45$ kg. This is almost the same as the standard weight of those in eruption.

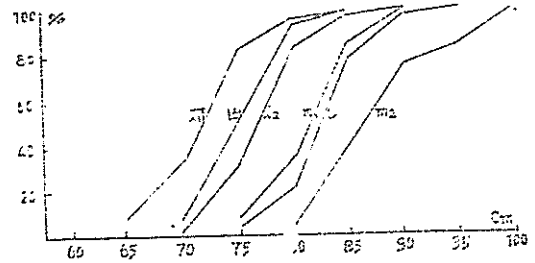
#### 5-4 Investigation of the eruption of deciduous teeth in comparison with stature

##### (Table-3) (Figure-4)

##### 5-4-1 Lower deciduous central incisors:

Eruption started on an average with a stature of 65cm, and was completed when it reached 80cm. The average of those in the course of eruptions was  $76.5 \pm 0.25$ cm, while that of all subjects of this survey in the standard eruption period of these teeth was  $70.4 \pm 0.13$ cm. Comparison showed that the average stature of infants who were in the eruption of these teeth was 6cm higher than that of the whole subjects in the standard eruption period of the same teeth.

Fig-4 Relationship between the eruption of each deciduous tooth and the infant's stature.



##### 5-4-2 Upper deciduous central incisors:

The eruption of these teeth started to occur on an average with a stature of 70cm and came to an end with 80cm of stature. The average stature of infants having the eruption of these teeth was  $80.5 \pm 0.22$ cm, and that of all infants who were involved in this survey and in the standard eruption period of the same teeth was  $74.9 \pm 0.29$ cm, the former being about 6cm higher than the latter.

##### 5-4-3 Deciduous lateral incisors:

The eruption of these teeth started with an average stature of 70cm in the upper jaw and was completed by the time the average stature reached 85cm.

The average stature of infants in this period was  $81.4 \pm 0.30$ cm at the time of eruption in the upper jaw and  $81.6 \pm 0.24$ cm at the time of eruption in the lower jaw.

The average stature of all subjects whose ages corresponded to the standard eruption period of these teeth was  $77.2 \pm 0.11$ cm, which was about 4cm shorter than that of those who were actually in eruption.

#### 5-4-4 Deciduous 1st molars:

The eruption of these teeth started with a stature of 75cm and was completed with a stature of 85cm. The average stature of infants in eruption was  $83.0 \pm 0.24$ cm at the time of eruption in the upper jaw and  $80.1 \pm 0.37$ cm at the time of eruption in the lower jaw; and the average stature of all subjects whose ages corresponded to the standard eruption period of these teeth was  $83.0 \pm 0.56$ cm, which was similar to the value for the upper jaw, and accordingly, the average stature of infants actually in eruption was 3cm shorter at the time of eruption in the lower jaw than at the time of eruption in the upper jaw.

#### 5-4-5 Deciduous canines:

These teeth started eruption with an average stature of 75cm and was completed at 85cm. The average stature of all subjects whose ages corresponded to the standard eruption period was  $83.5 \pm 0.25$ cm, and that of those in actual eruption of the same teeth was  $83.0 \pm 0.56$ cm at the time of eruption in the upper jaw and  $84.0 \pm 0.78$ cm at the time of eruption in the lower jaw. These two values were similar.

#### 5-4-6 Deciduous 2nd molars:

In the case of these teeth, eruption started with a stature of 80cm and was completed at 95cm. The average stature of infants having actual eruption was  $91.0 \pm 0.23$ cm, which was about 6cm taller than  $85.4 \pm 0.31$ cm, the average stature of all subjects who were in age in the standard eruption period of these teeth.

## 6. Discussion

This survey was designed to examine various conditions regarding the eruption of deciduous teeth of Korean infants in comparison with the standard eruption periods of deciduous teeth currently warranted in America and the standard eruption periods of deciduous teeth<sup>1) 4)</sup> and the standard eruption ages of deciduous teeth currently accepted in Japan<sup>5) 6)</sup>. As a result of this survey, it has been found that Korean infants are notably later in reaching both the standard eruption periods and standard eruption ages than American infants, but are similar to Japanese infants.

In the case of Korean infants, lower deciduous central incisors starts erupting at the age of 5 months; however, only 17% of all infants involved in this survey had eruption at the age of  $6\frac{1}{2}$  months, which is the standard age for the eruption of deciduous teeth in American infants, and in the 6th month after birth, more than half of the infants surveyed showed 60% eruption. So it may be concluded that the eruption of deciduous teeth in general in Korean infants comes about 2 months later than in American infants, but occurs at the same age with Japanese infants (Table-4). Korean infants have a wide span of eruption period (from the 5th month to the 11th month after birth). Upper deciduous central incisors erupted about 3 months later in Korean infants than in American infants, and about one month later than in Japanese infants. But in deciduous lateral incisors and deciduous canines of both upper and lower, eruption came about one month earlier in Korean infants than in Japanese infants. The time of this eruption was about 3 months late compared with that of American infants.

In the case of deciduous molars, the eruptions of 1st and 2nd molars are later than those of American and Japanese infants. In general, it is considered that the eruption starts later in Korean infants than in American infants, but almost at the same age with Japanese infants.

As for the relationship between eruption and body weight and stature, the average weight and stature of infants in eruption was larger than the average weight and stature of all subjects in the



standard deciduous eruption period, but the difference was very slight. This phenomenon proves that eruption starts when infants have grown mature to a certain degree. Eruption periods are parallel to the growth of infants, i. e. the degree of maturity of infants, and it is presumed that the fact that Korean infants are later in eruption than American infants but are similar to Japanese infants can be attributable to racial physical characteristics.

Table-4 The period of each deciduous tooth eruption.

Jaw	teeth	Schour & Massler	Muki No		C. D. Kee	
		Standard eruption age(M)	Eruption period	Standard eruption age(M)	Eruption period	Standard eruption age (M)
Upper	i <sub>1</sub>	7 $\frac{1}{2}$	5-16	10-11	7-13	11-12
	i <sub>2</sub>	8	8-19	13-14	8-13	12-13
	c	16-20	12-25	17-18	12-22	18-19
	m <sub>1</sub>	12-16	12-24	16	12-21	18-19
	m <sub>2</sub>	20-30	17-32	26	18-30	25-26
Lower	i <sub>1</sub>	6 $\frac{1}{2}$	4-5	8-9	5-11	8-9
	i <sub>2</sub>	7	8-19	13-14	9-13	12-13
	c	16-20	13-25	18-19	12-22	19-20
	m <sub>1</sub>	12-16	12-25	17	12-21	18-19
	m <sub>2</sub>	20-30	17-32	24	20-30	25-26

M.....month

## 7. Summary

Various conditions of the eruption of deciduous teeth were observed in a total of 699 infants (421 boys and 278 girls) and the following results have been obtained.

1. The order of eruption of deciduous teeth was as follows: lower deciduous central incisors-upper deciduous central incisors-deciduous lateral incisors-deciduous 1st molars-deciduous canines-and deciduous 2nd molars. Girls were later in eruption than boys.

2. The eruption of deciduous teeth started at the age of 5 months and was completed at the age of 30 months, and the eruption period of each deciduous tooth and the standard eruption age were: in the upper jaw; 7-13 months, 11-12 months for deciduous central incisors; 8-13 months, 12-13 months for deciduous lateral incisors; 12-22 months, 18-19 months for deciduous canines; 12-21 months, 18-19 months for deciduous 1st molars; and 18-30 months, 25-26 months for deciduous 2nd molars; and in the lower jaw; 5-11 months, 8-9 months for deciduous central incisors; 9-13 months, 12-13 months for lateral incisors; 12-22 months; 19-20 months for deciduous canines; 12-21 months, 18-19 months for deciduous 1st molars; and 20-30 months, 25-26 months for deciduous 2nd molars.

3. As for the relationship between deciduous teeth eruption and body weight, the standard body weight of infants in eruption of each tooth was heavier than that of all infants who were surveyed and whose ages corresponded to the standard period of eruption. However, there was no marked difference.

4. As for the relationship between the eruption of deciduous teeth and stature, there was 3-4cm difference between the average stature of infants having eruption of each tooth and that of all subjects surveyed whose ages corresponded to the standard eruption age.

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—國文抄錄—

## 韓國乳兒乳齒萌出狀況

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男兒421名 女兒278名 總699名의 乳齒萌出狀況을 觀察하고 그結論을 다음과 같이 얻었다.

1. 그 乳齒萌出順位는 下顎乳中切齒, 上顎乳中切齒, 乳側切齒, 第一乳白齒, 乳犬齒, 第二乳白齒에 次例로 萌出함을 보았다. 그리고 女兒가 男兒보다 늦게 萌出되고 있었다.
2. 乳齒의 萌出은 生後5個月부터 始作하여 30個月에 完了되고 各乳齒의 萌出期間과 標準萌出時期는 上顎에서 乳中切齒가 7—13個月과 11—12個月, 乳側切齒가 8—13個月과 12—13個月, 乳犬齒가 12—22個月과 18—19個月, 第一乳白齒가 12—21個月과 18—19個月, 第二乳白齒가 18—30個月과 25—26個月이고 下顎은 乳中切齒가 5—11個月과 8—9個月, 乳側切齒가 9—13個月과 12—13個月, 乳犬齒가 12—22個月과 19—20個月, 第一乳白齒가 12—21個月과 18—19個月, 第二乳白齒가 20—30個月과 25—26個月이었다.
3. 乳齒萌出과 體重의 關係는 各乳齒 萌出期間中의 乳齒萌出幼兒平均體重이 標準乳齒萌出時期幼兒의 平均體重보다 많았다. 그러나 큰차는 없었다.
4. 乳齒萌出과 身長의 關係는 各乳齒 萌出期間中의 乳齒萌出幼兒平均身長이 標準乳齒萌出時期幼兒의 平均身長보다 약 3—4cm 程度 높은 差를 보여주었다.