

OCCLUSION OF THE PRIMARY DENTITION IN KOREAN

(3rd Report)

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INTRODUCTION

In modern orthodontics, the most emphasized problems are, as Bjork said in his literature, how to control entirely the growth and development and conservation of teeth: how to diminish the damages of orthodontic treatment to the teeth.

As a solution of these problems Bjork introduced the method of early orthodontic treatment.

But early orthodontic treatment has many problems such as difficulties of early diagnosis.

The study of occlusion of primary dentition has two main purposes:

1. To observe the change of occlusion as age increases.
2. To predict the change of occlusion to make early diagnosis possible.

From early nineteenth century, Bogue (1908) started the study of occlusion of primary dentition, followed by Bonnar (1956—1960), Kisling (1973—1976), Ravn (1975), Foster (1969), Moyer (1969), etc. These studies have been used in the diagnosis of preventive orthodontics.

In Korea, the study of occlusion of primary dentition was started in 1977. The second study was reported in 1978. Through the third report in 1979, author will introduce sagittal relations in the canine and incisor regions of Korean children.

MATERIALS AND METHODS

113 children were selected by random sampling of the population aging from 3 to 5 years.

Alginate impression of the upper and lower dental arches were taken and the model was observed using the following criteria (Foster and Hamilton 1969).

1. Spacing; a lack of contact between adjacent teeth.
2. Molar occlusion
 - a) Class 1. the distal surface of upper and lower second primary molars in the same vertical plane in centric occlusion.
 - b) Class 2. the distal surface of the lower second primary molars in posterior relationship to that of the upper second primary molar in centric occlusion.

- c) Class 3. the distal surface of the lower second primary molar in anterior relationship to that of the upper second primary molar in centric occlusion.
- 3. Canine relationship**
- a) Class 1. the tip of upper primary canine tooth in the same vertical plane as the distal surface of the lower primary canine tooth in centric occlusion.
- b) Class 2. the tip of the upper primary canine tooth in anterior relationship to the distal surface of the lower primary canine tooth in centric occlusion.
- c) Class 3. the tip of the upper primary canine tooth in posterior relationship to the distal surface of the lower primary canine tooth in centric occlusion.
- 4. Overjet**
- a) Ideal. a positive incisor overjet not exceeding 2 mm measured on the primary upper central incisors.
- b) Increased. a positive incisor overjet of more than 2mm.
- c) Edge-to-edge. upper and lower primary central incisors in an edge to edge position in centric occlusion.
- d) Reversed. the lower primary central incisors in anterior relationship to the upper primary central incisor in centric occlusion.
- 5. Overbite**
- a) Ideal. the incisor tips of the primary lower central incisors contacting the palatal surfaces of the upper primary central incisors in centric occlusion.
- b) Reduced. the incisal tip of the primary lower central incisors not contacting the upper incisors or the palate in centric occlusion, there being a positive overbite.
- c) Anterior open bite. the incisal tips of the lower primary central incisors being below the level of the incisors in centric occlusion.
- d) Increased. the incisal tips of the lower primary central incisors touching the palate in centric occlusion.
- 6. Crossbite.** the upper primary molars occluding in lingual relationship to the lower primary molars in centric occlusion.

RESULT

The frequencies with which the specific characters occurred were the same as those in the children in 1978, 2nd report.

Table 1. Sagittal relations in the canine and incisor regions with 59 (44.3%) same plane relationship in the 2nd primary molars region out of 133 three to five years old with normal transversal relations. In most instances the characters 67.8% occurred with the same pattern in 2nd primary molar and canine regions.

The sagittal incisor relations are between 0mm to 3mm.

Table 2. Sagittal relations in the canine and incisor regions with 8(6.1%) distal step relationship in the 2nd primary molar region out of 133 children with normal transversal relations. In most instances the characters 75% occurred with the same

Table 1.

Sagittal rel.

2nd prim. mol. reg.	Canine reg.	Inc. reg.
Same plane 59 (44.3%)	Same pl 40 (67.8%)	less than 0 1
		0—1.0mm 25
		1.1—2.0mm 12
		2.1—3.0mm 2
	distal 4 (6.80%)	1.1—2.0mm 2
		2.1—3.0mm 2
	mesial 12 (20.3%)	0—1.0mm 6
		1.1—2.0mm 4
		2.1—3.0mm 2
	diff (R to L) 3 (5.10%)	1.1—2.0mm 1
2.1—3.0mm 1		
3.1—4.0mm 1		

Table 2.

Sagittal rel.

2nd prim. mol. reg.	Canine reg.	Inc. reg.
Distal step 8 (6.1%)	Same pl 1 (12.5%)	0—1.0mm 1
		1.1—2.0mm 2
	distal 6 (75.0%)	2.1—3.0mm 1
		3.1—4.0mm 3
		over 0—1.0mm 1
mesial 1 (12.5%)	0—1.0mm 1	

Table 3.

Sagittal rel.

2nd prim. mol. reg.	Canine reg.	Inc. reg.
Mesial Step 43 (32.3%)	Same pl. 4 (0.30%)	0—1.0mm 2
		1.1—2.0mm 2
	Mesial Step 35 (81.4%)	less than 0 1
		0—1.0mm 21
		1.1—2.0mm 13
	diff 4 (9.30%)	0—1.0mm 1
		1.1—2.0mm 3

pattern in 2nd primary molar and canine regions.

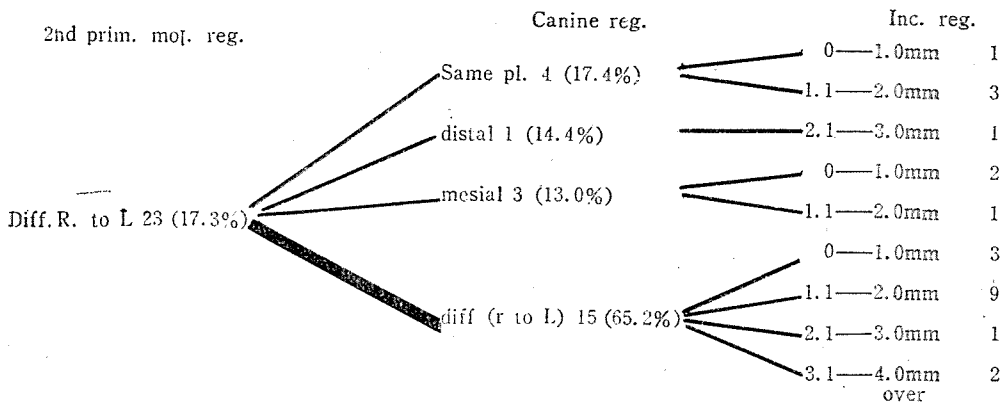
The sagittal incisor relations are between 0 and 4mm over.

Table 3. Sagittal relations in the canine and incisor regions with 43(32%) mesial step relationship in the 2nd primary molar region out of 133 children with normal transversal relations. In most instances the characters 81.4% occurred with the same frequencies in the 2nd primary molar and canine regions.

The sagittal incisor relations are between 0 and 2mm.

Table 4. Sagittal relations in the canine and incisor regions with 23 (17.3%) different sagittal relations from side to side in the 2nd primary molar region out of 133 children with normal transversal relations. 65% occurred with the same frequencies in the 2nd primary molar and canine regions. The sagittal incisor relations are between 0 and 4mm over.

Table 4. Sagittal rel.



DISCUSSION

It is certain that the primary second molar is unsuitable for assessment purposes until eruption of first permanent molars, since it is impossible to assess the mutual relationship of distal surfaces because the distal gingiva covers the distal point of the contact and because the incline of the distal surface in the maxilla in relation to the distal surface in the mandibular arch makes a precise assessment of the distal termination pattern difficult. (Lysell 1951)

Since the primary canines erupt earlier than the primary second molars, the observation of the occlusion of younger age group will be more convenient and more precise if the primary canines were used.

It is simpler to observe cuspal relation than to determine the biting relation of posterior teeth where it is necessary and difficult to retract the lip sufficiently to observe the occlusion without disturbing the child.

Cuspid interdigitation can be easily observed from one side of the chair and then the other in order to insure an undistorted view of the teeth.

In the case of Foster & Hamilton (1969) and Ravn (1975), the point of departure was taken as the tip of the upper primary canine cusp, which presents no problem in analyzing such a young group but which might produce difficulties in an older age group due to wear on the canine tooth.

For this reason a number of observers, including Reichenbach & Taatz (1955), and Baume (1959), chose to express their assessments of canine tooth occlusion as the distance between the distal surface of the antagonists. Until now, the second

primary molars were generally used in assessment of occlusion of primary dentition.

But the relation of the primary canines must be emphasized. So author tried to know the interrelationship of the primary second relations and the primary canine relations. In the present study, when molar relation is same plane, 67.8% show same plan in canine relation.

When molar relation is distal step, 75% show distal step in canine relation. When molar relation is mesial step, 81.4% show mesial step in canine relation. When molar relation is difficult on right and left, 65.2% show different relation in canine relation.

So, Author thought that there would be close interrelationship between canine relation and molar relation.

In the study of Ravn, in case with normal canine relationship, 90% having normal or straight termination of distal surface on the primary second molar. On the other hand, in the case of distal canine occlusion only 58% had distal termination of primary second molars, and 32.7% the primary second molar had a normal or straight termination. Ravn thought the sucking habit would have a relation with the primary occlusion.

But in this study, such result as Ravn's distal canine occlusion was not revealed. So Author thought that the prevalence of sucking habit of Korean child would be lower than that of the Danish child.

SUMMARY

The Author on the occlusion of the primary dentition Through-out three years. 1st. Report was Occlusal pattern of 1624 Danish Children Age to five years old. 2nd Report was on 133 Korean children about Sagittal molar and canine region each other.

3rd Report about Sagittal molar and Canine relationship were as follows.

- 1) Same plane in the 2nd primary molar occurred with 67.8% of canine Sagittal region.
- 2) Distal step in the 2nd primary molar occurred with 75% of canine Sagittal region.
- 3) Mesial step in the 2nd primary molar occurred with 81.4% of canine Sagittal region.
- 4) Different right to left in the 2nd primary molar occurred with 65% of canine region.

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