



## OP-5 구연

**The Use of Skeletal Parameters as Predictors of Growth  
in the Timing and Modality of Orthodontic treatment  
among 7-17 year old Filipino Students**

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In the field of orthodontics, the diagnosis and treatment planning of a patient in the adolescent stage requires an evaluation of the individual's growth rate. It is through the assessment of growth and development that the orthodontist can find out the reasons for the existence of a malocclusion and decide when is the most appropriate time to begin any form of treatment. Because of the variable growth patterns known to exist among individuals, chronological age is not a good indicator of growth status. Growth is best studied on the basis of skeletal maturation, which is the degree of ossification of bone.

The hand-wrist radiograph finds its usefulness in the assessment of skeletal maturation. The ossification of the carpal and sesamoid bones, the metacarpals of the hand, and the phalanges of the fingers form a chronology of skeletal development. It is thus the gold standard for skeletal maturation assessment.

Recent studies however have shown that the development of cervical vertebrae as seen on the lateral cephalogram have also shown a chronology of events leading to skeletal maturation. A positive correlation between both methods of skeletal assessment could imply an alternative use of the lateral cephalogram in the assessment of the growth and development of the individual.

This study was done to verify if indeed such a correlation between the 2 methods of skeletal assessment could be observed in a Filipino sample. A total of 139 male and female students from the University of the Philippines Integrated school took part in this study, each having a lateral cephalogram and hand wrist radiograph taken to evaluate their skeletal maturity. It was found that both methods of skeletal maturity assessment generally agreed with each other starting in the acceleration stage of skeletal maturity or upon onset of the ossification of the adductor sesamoid bone.

## OP-6 구연

**Applicability of two non radiographic methods of mixed  
dentition analysis for Sri Lankan Sinhalese children**

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**Introduction;** Mixed dentition analysis to predict the mesio-distal dimensions of unerupted canines and premolars is an essential part of orthodontic diagnostic procedures which is carried out to determine the amount of space available for the accommodation of erupting permanent teeth. The Moyers probability tables and Tanaka Johnston equations are non radiographic methods of predictions.

**Objectives;** As it has been well established in the literature that mesio-distal tooth sizes varies considerably between different racial groups, the purpose of the present study was to determine the applicability of Moyers probability tables and Tanaka Johnston prediction equations for mixed dentition analysis for Sri Lankan Sinhalese orthodontic patients.

**Material and Method;** The sample consisted of randomly selected 134 subjects equally divided by sex. Only cases with class I malocclusions with minimal incisor irregularity were included in the study. Mesio-distal dimensions of all four mandibular incisors and canines and premolars of both arches were measured by the same investigator. Mesiodistal dimensions of canines and premolars were predicted using Moyers probability tables and Tanaka Jophnston equations for both males and females separately. True mesio-distal dimensions of mandibular canines and premolars were compared with predicted mesio-distal dimensions using t test for paired sample data.

**Results;** Results revealed for males 50<sup>th</sup> percentile level of probability was accurate and for females 75<sup>th</sup> percentile level was accurate. Therefore, the 75% level of probability as recommended by Moyers can be used satisfactorily for males. For female subjects the protection on the side of crowding as predicted by Moyers will not be available if 75% probability level is use. Therefore, Moyers prediction tables should be used for Sri Lankan Sinhalese females with caution. There were significant differences between predicted value and true value for both males and females when Tanaka Johnston prediction equation is used. ( $P < .001$ ) Both  $R^2$  value and the Standard Error of the Estimates showed the Tanaka Johnston Equations do not provide accurate tooth dimensions of premolars and canines. This may be due to both ethnic variation and sexual dimorphism.

**Conclusion.** Moyers probability tables can be applied to Sri Lankan Males with accuracy. For Sri Lankan Sinhalese females, prediction at 75% level underestimates the canine and premolar tooth dimensions. Tanaka Johnston equations do not provide accurate prediction of unerupted tooth sizes of canines and premolars. The study population needs a further investigation and development of new probability tables and regression equations using a larger sample than used in this study, if non radiographic methods are used for mixed dentition space analysis.

## OP-7 구연

### 설측교정치료의 마지막 단계에서의 완벽한 마무리와 미세 조절

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인간 치아의 설측면의 형태는 매우 다양하고 불규칙하기 때문에 각 치아에 대하여 앵글레이션, 토오크, 인-아웃이 평균적으로 정량화된 설측 브라켓을 제작하는 것은 불가능하다. 따라서 설측교정치료의 성공 여부는 많은 부분에 있어서 개별적으로 완벽하게 처방된 브라켓의 이상적인 위치에의 부착에 의존하게 된다. 즉 간접 접착 술식이 최선의 선택이다. 이러한 이유로 현재까지 소개된 간접 접착 술식은 CLASS (Custom Lingual Appliance Setup Service), IIBT (Individual Indirect Bonding Technique), BEST (Bonding with Equalized Specific Thickness), TOP (Transfer Optimized Positioning system), CLIB (Customized Lingual Indirect Bonding) 등이 있다. 그러나 이러한 간접 접착 술식을 통한 노력에도 불구하고 기공 과정에 있어서 오차가 발생하게 되고 이러한 오차가 치료 중에 발견되어 치료의 마지막 단계에서 개개 치아에 대한 마무리와 미세 조절이 대부분의 증례에 있어서 필요하다. 본 연제에서는 마지막 단계에서의 마무리와 미세 조절을 다음과 같이 분류하고 그 해결 방법에 대하여 논하고자 한다.

1. 개개 치아의 위치 조절 - 순설적인 위치 조절 (In-out control) - 수직적인 위치 조절 (Up-down control)
2. 개개 치아의 치축 조절 - 근원심적인 치축 조절 (Angulation control) - 순설적인 치축 조절 (Torque control)
3. 교합 안정화 (Settling)