F3 Maximum Jaw Opening (mm), Prevalence, and Width of Maxillary Diastemas of Children Ages 2-18 Years

Rhea M. Haugseth, DMD, 2155 Post Oak Tritt Road, Ste 450, Marietta, GA 30062*

After attending this presentation, attendees will understand the range of maximum jaw opening of the mandible relative to the maxilla in millimeters of various age ranges with the average noted for each group. Statistical relevance and variances will also be determined. In addition, the prevalence of maxillary central incisor dental diastemas and the size measurements of the diastema were gathered and then analyzed by age and gender.

This presentation will impact the forensic science community by discussing the results which suggest that additional study may be needed to evaluate the data and its application to pattern injury analysis.

Regarding maximum jaw opening, measurements were gathered from a random group of 500 subjects over a six-month period in 2013 in a pediatric dental office. This study was undertaken to evaluate the maximum jaw openings (in mm) of children age 2-18 years old. The study was completed to determine if there exists a difference in maximum opening of the mandible relative to the maxilla in children and adolescents compared to adults. If so, can an average range of maximum opening be determined and segregated into age groups? Is there a minimum and maximum measurement of maximum jaw openings that can be determined for each yearly age of a child from age 2-18.

This information may be of use when analyzing bitemarks, possibly helping to determine inclusion or exclusion of various suspects based on age. The expectation is that there is a difference of maximum jaw openings relative to age, but not for gender.

Regarding width of maxillary diastemas, measurements were gathered from a random group of 500 subjects over a six month period in 2013 in a pediatric dental office. Data was collected as to the existence of a maxillary diastema between maxillary central incisors and its measurement for the same subject. Data for each subject's year of age and gender was also gathered, evaluated, and compared. While the existence of multiple spacings of the maxillary anterior teeth is common in the primary dentition, this study focused only on the space between maxillary central incisors as being a more distinctive and unusual finding. There is an expectation that the presence of a maxillary central incisor diastema in the primary dentition will not be different for gender or age. The presence of a maxillary central incisor diastema in the mixed and permanent dentitions may appear less frequently, in ages 6 through 18 years, due to the tooth size increase of permanent central incisors versus primary central incisors. The eruption of permanent maxillary incisors may eradicate any spacing present in the same subject in their primary dentition. This study did not attempt to monitor or note this change. All measurements were taken in one specific moment of time for each individual subject. The expectation is that there will be no statistical difference in the subjects relative to gender for the findings of a maxillary central incisor diastema in the primary, mixed, and permanent dentitions.

The results suggest that additional studies may be needed to evaluate data from more subjects and its application to pattern injury analysis.

Diastemas, Jaw Opening, Pattern Injury

 ** Presenting Author*