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Dental morphology of Down's syndrome children and adolescents residing in an institution in Jaffna, Sri Lanka

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Down's syndrome is a genetic condition characterized by an excess chromosome in the 21st pair. By this excessiveness they show several anatomical and physiological anomalies. The main objective of the present study was to investigate the morphological variations in the dentition of children and adolescents with Down's syndrome in an institution in Jaffna, Sri Lanka. We further investigated the sexual dimorphism and bilateral dental asymmetry of metric and non-metric dental features. Twenty six dental casts of Down's syndrome individuals were used. Buccolingual and mesiodistal diameters of teeth of left and right side were measured using digital Venire caliper to the nearest 0.01mm. Fifteen on-metric features were also recorded referring to the Arizona State University (ASU) dental anthropology system. Sexual-dimorphism and bilateral dental asymmetry were analysed by sing SPSS statistical software. Teeth were generally smaller in Down's syndrome individuals than healthy contemporary individuals. Tooth- dimensions were greater in males than females. However, statistically significant differences were observed only in mandibular central incisors, and mandibular first and second molars. They showed higher prevalence of winging 16%), shoveling (30%) and double shoveling (15%) in maxillary central incisors than those of ealthy Sri Lankans. In addition higher prevalence was observed in cusp 5 (95.2%) and cusp of arabelli (80.9%) in maxillary first molar, multiple lingual cusps (89.4%) in mandibular second premolars, hypocone (83.3%) in maxillary second molar and anterior fovea (70%) in mandibular first molar. Deflecting wrinkle in mandibular first molar showed the lowest revalence (5%). Study group showed high bilateral asymmetry in Y-shaped groove pattern, and cusp 6 in mandibular first molar. Bilateral dental asymmetry was higher in metric than non-metric characteristics. Tooth dimensions in Down's syndrome individuals are smaller with minimal sexual dimorphism. Bilateral dental asymmetry in non-metric traits is more common in Down's syndrome individuals than those of healthy contemporary Sri Lankans. Down's syndrome individuals show mixture of sinodont and indodont dental patterns. These variations in the dentition reveals the disturbances occurred during development of the dentition.