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Sagittal Cephalometric Characteristics in Females With Turner Syndrome

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Objectives Objectives: The primary aim of this meta-analysis was to assess the sagittal cephalometric characteristics in females with Turner Syndrome (TS) as compared to non-syndromic females.

Methods Methods: A literature search was carried out using six electronic databases to identify controlled studies investigating the sagittal lateral cephalometric characteristics in females with TS, with the last search performed in February 2024. Cephalometric measurements analyzed in three or more studies were put to meta-analysis, using the random-effects model. Subgroup meta-analyses were subsequently carried out based on karyotype (45,X karyotype, mosaic, isochromosome). Risk of bias in the included studies was evaluated with the modified AXIS tool.

Results Results: From the initial 195 records identified, seventeen studies and eleven sagittal cephalometric measurements were analyzed. 417 unique patients with TS, coming from 10 different European countries, participated. All the sagittal linear measurements compared – namely S-N, N-Ba, Go-Gn, Go-Pg, and ANS-PNS - were significantly reduced in those with TS. Concerning the six angular measurements compared, the A-N-B angle showed no difference between the groups, whereas the S-N-A, S-N-B and S-N-Pg angles were significantly reduced, and the N-S-Ba and the N-S-Ar angles significantly increased. The subgroup meta-analyses for karyotype consistently revealed greater differences for the 45,X karyotype group than those of the mosaic and isochromosome karyotypes.

Conclusions Conclusions: The sagittal lateral cephalometric characteristics of females with TS differ significantly from those of non-syndromic females, with the 45,X karyotype showing the greatest deviation. Bimaxillary retrognathia, and reduced anterior cranial base, maxillary and mandibular lengths, were observed, without this resulting in any difference in the sagittal intermaxillary relationships for females with TS, in comparison to controls. While informative, the results of this meta-analysis should be considered in conjunction with the respective moderate to high risk of bias of each study.