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Masseter muscle thickness and maxillary dental arch width.

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The purpose of the present investigation was to study the relationship between the ultrasonographic thickness of the masseter muscle and the width of the maxillary dental arch. The sample comprised 60 consecutive orthodontic patients (37 females, 23 males), 7-18 years of age with a Class I relationship and minor malocclusion. The thickness of the masseter muscle was measured ultrasonographically. Recordings were performed bilaterally with the muscles both in relaxation and under contraction. Maxillary intermolar width was measured with an electronic calliper as the distance between the palatal surfaces of the first permanent molars. Intermolar width showed no association with age and gender. However, masseter muscle thickness showed a direct, significant ($P < 0.0001$) association with these two factors together, i.e. the masseter muscle was thicker in older individuals and in males. In the female group, maxillary intermolar width showed a direct, significant association with masseter thickness both during contraction ($P < 0.006$) and relaxation ($P < 0.013$), i.e. females with thicker masseter muscles had a wider maxillary dental arch. In the male group, however, no significant relationship was found between maxillary intermolar width and masseter thickness. The findings of this study indicate that the functional capacity of the masticatory muscles may be considered as one of the factors influencing the width of the maxillary dental arch.

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