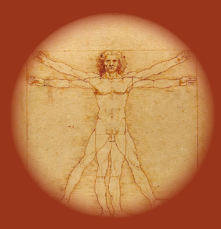

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Anatomia clinica

Applicazioni terapeutiche delle cellule staminali

Biologia delle cellule staminali

Dalle cellule al tessuto

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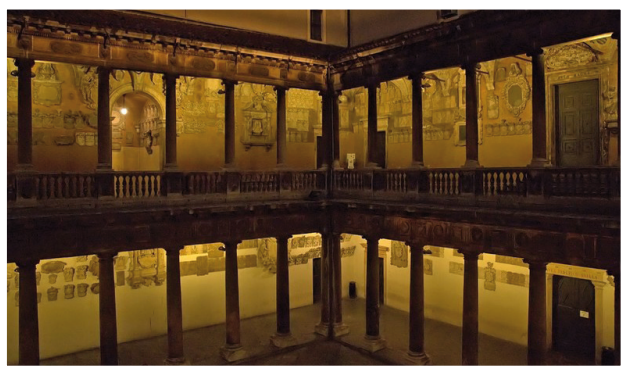

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Integrins in masseter muscle in unilateral crossbite patients: an immunohistochemical and molecular study

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Integrins are a large family of transmembrane heterodimeric receptors that play a key role in cell adhesion, differentiation, remodelling and tissue repair. b1D isoform is detected only in skeletal and cardiac muscle, while very low amounts of b1A were detected by immunoblot in striated muscles. b1D isoform was associated with a7A and a7B in adult skeletal muscle. Although many studies have been performed on the integrins in adult skeletal muscle, insufficient data exist on behaviour of these proteins in masseter muscle. About this muscles it was demonstrated that they have several differences in respect to limb and trunk muscles. Generally, fibers in the masseter muscle are smaller than fibers in limb and trunk muscles. Consequently, the smaller muscle fibers may be advantageous for the jaw muscles. On this basis, we performed an immunohistochemical and molecular study in order to analyze the behaviour of integrins in normal masseter muscle of both side; moreover, to better comprehend the role of these proteins, we also analyzed masseter muscles of patients affected by unilateral crossbite. Interestingly, our result, integrating with astatistical analysis, showed that, on patients affected by right crossbite, the integrins are substantially less, in both masseters, than those observed in control subjects; in right masseter, the amount of integrin appeared less than the amount of integrins detected in left counterpart. Since kinematics and electromyography study have been demonstrated that masseters of the crossbite side were less active than non-affected side, our results, showing a decrease of integrins in the masseter of crossbite side, allow to hypothesize that the integrins, and in particular alfa7A and beta1A integrins, could play a crucial role in the control of contraction activity.

Keywords: integrins, masseter muscle, malocclusion, crossbite, skeletal muscle.

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