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editorial

Breastfeeding and craniofacial development: orthodontic prevention beginning at birth

Breastfeeding is universally recognised as the nutritional gold standard for the neonate, with well-established benefits on immunological, metabolic, and relational levels. However, in light of the evidence accumulated over recent years, limiting its value to the nutritional dimension alone is reductive. Breastfeeding also represents a powerful functional modulator of craniofacial growth and, consequently, an early potential determinant of orthodontic health. Suckling at the breast activates a complex neuromuscular pattern involving the tongue, lips, mandible, and perioral musculature in a coordinated and physiological manner. This functional pattern, which is more demanding and dynamic than artificial feeding, generates mechanical stimuli that are essential for the modelling of the hard palate, transverse expansion of the maxilla, and the correct maxillo-mandibular balance. In accordance with the functional matrix principle, bone growth is not an autonomous process but responds to the functional stimuli of the soft tissues: breastfeeding constitutes, during the first months of life, one of the principal biological inputs capable of directing such development.

Epidemiological evidence reinforces this biological rationale. The meta-analysis by Peres et al. [2015] documented a significant reduction in the risk of malocclusion in breastfed children compared to those fed formula. Likewise, Boronat-Catalá et al. [2017] identified a dose-response association between duration of breastfeeding and lower prevalence of occlusal anomalies in the primary and mixed dentitions. Subsequent observational studies confirmed a reduced risk of anterior open bite and posterior crossbite in subjects breastfed for longer periods. The data pertaining to duration are particularly noteworthy: the protective effect appears to be more pronounced the longer breastfeeding is maintained. This suggests that the window of the first months of life represents a critical period of craniofacial plasticity, during which functional stimuli may exert a lasting influence on morphological development.

Major health institutions have progressively incorporated these findings into their recommendations. The American Academy of Pediatrics, in the 2022 policy statement [Meek and Noble], highlights the contribution of breastfeeding to oro-facial functional development. Similarly, the Ministry of Health recommends exclusive breastfeeding for the first six months and its continuation until two years of age or beyond, acknowledging its impact on harmonious child development.

Within the dental and orthodontic fields, these data warrant reflection: breastfeeding can no longer be regarded as an “external” factor with respect to dentofacial prevention. On the contrary, it represents the first natural functional orthodontic intervention, capable of reducing the incidence of malocclusions and oro-facial dysfunctions through the early



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modulation of muscular and respiratory stimuli.

Methodological limitations remain in the available literature, however: diagnostic heterogeneity, variability in the definition of breastfeeding duration, and the presence of confounding factors such as dummy/pacifier use, non-nutritive sucking habits, and genetic predisposition. Controlled longitudinal studies are required that integrate standardised clinical assessments and objective functional analyses, in order to clarify causal mechanisms and more precisely quantify the magnitude of the protective effect.

Notwithstanding these limitations, the clinical message is already sufficiently robust: promoting breastfeeding means investing not only in the child's systemic health but also in early orthodontic prevention. In an era in which the interception of malocclusions is occurring at increasingly early ages, it would be paradoxical to overlook the most physiological and primary of all functional stimuli.

Orthodontic prevention begins at birth. And it begins, above all, with breastfeeding.

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