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SEMINARS

THE NASOLABIAL ANGLE IN DIAGNOSIS*

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The aim of this presentation is to expand upon the advantages of early combined activator-headgear orthopedics, and to contrast these with the effects of other therapies. Essentially we aim to control dentoalveolar tipping and jaw growth sagittally, so that optimal balance and harmony are achieved in the facial profile. Thus we may concentrate our diagnostic directives to the nasolabial angle as the final criterion.

In the lower arch, we can minimise dentoalveolar tipping and incisal proclination by established techniques; whilst in the upper arch similar techniques are combined with high-pull headgear to control the occlusal plane and upper incisor angulation. Taken together these methods can effectively contain the dentitions, to allow us to achieve maximal modification of basal structures. Understanding this *containment principle* is essential in our choice of the appropriate functional appliance for each case. These ideas have been clearly stated by Teuscher, and others.

The choice of functional appliance to help modify the profile depends on our diagnostic criteria. What do we wish to achieve? The features that constitute a facial profile are the nasal bridge, the size and orientation of the nose, the nasolabial angle, the position and fullness of the lips, and the position of the chin. As orthodontists, the control we can exercise over these features increases in degree as we descend. Incorrectly planned treatment leads (as will be exemplified) to an unsightly obtuse nasolabial angle.

We have no control over the nasal area. We have increasing control of upper and lower incisor positions with their effect on the lips; and we can influence maxillary and mandibular positions. Each of these factors must also be considered in the longer term perspective of growth and development. The nasolabial angle, at the junction of the unalterable nasal area and the treatment-influenced labial area, is responsive to finely controlled modification if correctly diagnosed and managed.

Look first at an unfavourable scenario. In early fixed appliance Class II treatment, uprighting the upper incisors and proclining the lower incisors has the effect of limiting the amount of forward mandibular movement and backward maxillary restraint we may induce. This limitation of basal modification is a particular feature of early expansion therapy, and of most mixed dentition fixed appliance treatment. Limiting basal adjustment leaves a more receding chin and potentially a more obtuse nasolabial angle in our long term results.

Against this, let us look at a more favourable scenario. Using early combined activator-headgear orthopedics, we hold the maxillary dentition where it is; we can even retract and intrude the incisors. We encourage mandibular growth without proclining the lower incisors; we can even retrocline these before commencing the functional phase of treatment. The limits to basal jaw modification are thus extended.

In understanding this *limitation principle*, we appreciate the importance of *containing* the dentitions by our use of early combined activator-headgear treatment.

Mentalis muscle activity has an important influence on the nasolabial angle. In most patients some contraction of the mentalis muscle is required to allow the lips to be brought together. The amount of contraction required depends on hard and soft tissue features, some of which we can control. Contraction becomes extreme in the higher angle Class II division 1 case. By encouraging forward mandibular growth we effectively carry the origin of the mentalis muscle forward. By retroclining lower incisors, lip closure is facilitated, whereas lips tend to slide apart over proclined incisors.

By correct assessment of the nasolabial angle, and by initiating appropriate therapy early, we can expect that our dental and basal modifications are synergistic rather than antagonistic.

In summary then, the advantages of using early combined activator-headgear orthopedics are:

1. To augment the normal therapeutic benefits of growth manipulation on the mandible.
2. To provide a method of horizontal and vertical control of the maxilla and its dentition.
3. To minimise the need for intermaxillary traction.
4. To help to counteract the clockwise rotation effect induced by the use of intermaxillary traction or headgear, in unfavourably growing individuals.
5. To permit these controls to be effected during the mixed dentition period, so that adolescent growth can be continued in a more harmonious functional environment, to the advantage of the facial profile.

The community instinctively respond to the more harmonious profiles we produce. The patient and parents see the changes occurring early, and the patient's overall psychologic adjustment is thereby enhanced.

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