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THE EDITOR'S CORNER

Controlling the Vertical Dimension

The vertical dimension of the face, or facial height, is one of the more esoteric concepts in dentistry. The online Medical Dictionary defines it as “the linear dimension in the midline from the hairline to menton.” Anterior facial height is rather self-evidently described as “the sum of upper and lower facial heights, the lower limit of the latter variously defined as the pogonion, gnathion, or menton. Posterior facial height is often measured from the gonion to the condylare, sella, or center of face point.” The occlusal correlate of facial height is the vertical dimension of occlusion (VDO).

Controlling the VDO is a concern to practically every dental specialty, with the possible exception of public health. Loss of vertical dimension is associated with a variety of negative outcomes, ranging from protrusion of the chin point and nasal tip to a “bulldog appearance”.¹ In an excellent online post on the Perio-Implant Advisory, Dr. Evelyn Shine points out, “As vertical dimension is lost, the proportions of the face are altered; one’s chin becomes recessed, the lower half of the face may look short, and the angles of the mouth can develop chelitis. Loss of vertical dimension results in facial collapse, wrinkles by the nasolabial fold, and appearance of compressed and thin lips, which makes one appear older.”²

First recognized as an issue in full-denture prosthodontics, the VDO and facial height were addressed in the early days of orthodontics by the likes of Calvin Case, Norman Kingsley, and Charles Tweed. Orthodontists are less concerned about reducing vertical dimension than we are about increasing it—in other words, opening the bite. Considering that by anatomical necessity, the point of force application for moving a tooth is usually coronal to the tooth’s center of rotation, the trigonometry of vector analysis dictates that extrusion and resultant bite opening are inevitable side effects of tooth movement, unless the vertical dimension is intentionally controlled from the outset. We use this principle to our advantage when dealing with a low-angle deep bite, which is characterized by overclosure, often manifesting as an overbite in excess of

100%. In such a case, any bite-opening side effects are welcome, provided they are properly managed. But they are anathema in a high-angle case, especially one with an anterior open bite, where control of the vertical dimension is absolutely critical.

This issue of JCO includes one article dealing with excessive vertical dimension and facial height and another addressing overclosure and the accompanying short face. The case report by Drs. Nasib Balut and Laura Gil of Mexico City is an excellent illustration of how to control the VDO in a high-angle Class II case using a passive self-ligating appliance and en-masse retraction. In years past, such a situation would have mandated extractions of at least four first premolars—and I know a number of orthodontists who would have considered extracting first molars as well. By utilizing a more contemporary approach with miniscrew anchorage and advanced appliances, Drs. Balut and Gil were able to bring this case to an exemplary finish without extractions. The final facial esthetics were enhanced by an advancement genioplasty.

At the other end of the facial-height spectrum, an international cadre of authors including Drs. James Cheng-Yi Lin, Stacy Chen, and Eric

Jein-Wein Liou of Taiwan; Dr. Kenji Ojima of Tokyo; and our own Contributing Editor, Dr. S. Jay Bowman, present an article detailing four short-face cases. Again applying the latest treatment methods, the authors resolved these facial disharmonies by means of an esthetic interdisciplinary approach featuring Invisalign. Conceding that some tooth movements are still unpredictable with clear aligners alone, they summoned the resources of prosthodontics, periodontics, restorative dentistry, cosmetic treatment, and orthognathic surgery to address what they call “the complex facial, smile, and dental problems of short-face adults”.

While controlling the vertical dimension remains no less of a challenge than it was during the time of Case, Kingsley, and Tweed, our options for dealing with that challenge are now much broader, as these two articles demonstrate.

RGK

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2. Shine, E.: Opening vertical dimension: How do you do it? *Peri-Implant Advis.*, April 2014, accessed July 30, 2017.

Founding Subscribers

In the 50th-anniversary issue of JCO, to be published in September 2017, we'd like to recognize those of you who have subscribed since the inception of the journal in 1967. Because our subscription records don't go back to the beginning, we need you to let us know who you are. Please e-mail editor@jco-online.com, or call us at (303) 443-1720, and we will be happy to acknowledge your 50 years of support to the profession in our anniversary edition.

Introducing JCO Webinars

We are pleased to announce the first-ever JCO Webinar, to be held at 8 p.m. Eastern time on Thursday, Sept. 14. Join us for this *free* session, as Dr. Christian Groth reviews the latest CAD/CAM software applications for 3D printing and how to integrate them into your office. Dr. Groth's presentation will last about 30 minutes, followed by 15 minutes for Q&A.

This free webinar is limited to the first 100 participants. Register online at <https://attendee.gotowebinar.com/register/2703224488070636290>. If you cannot make the live webinar, a recording will be available soon on our new website at www.jco-online.com.