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THE EDITOR'S CORNER

Some Thoughts About Symmetry

The facial photographs that most orthodontists take for before-and-after records can play an important part in the diagnostic process. Although frontal analysis is generally neglected, both a frontal radiographic hard-tissue analysis and a frontal photographic analysis should be routine. Without these, clinical evaluation can easily overlook asymmetries and midline deviations.

In two studies of the effect of asymmetries on esthetics, tolerance of asymmetries varied among orthodontists, dentists, and patients and parents in one¹ and among orthodontists, general dentists, and lay people in the other.² Even orthodontists showed a range of tolerance for deviation in dental midlines and other aspects of the esthetics of the teeth and mouth. It seems likely, however, that many people—especially young girls, who spend a good deal of time examining their faces in the mirror—are less tolerant of midline deviations and other asymmetries than these study panels were. Also, where midline deviations exist, more than esthetics is probably involved.

To make a careful photographic assessment of dental midline and facial symmetry, there are certain requirements:

1. The face should be photographed in a true horizontal and true frontal orientation. Symmetry cannot be analyzed if there is even a slight deviation in any direction. The cephalometric headholder could be useful in this regard. Coenraad Moorrees has written an excellent commentary on head position that is well worth reading.³
2. There must be two frontal photographs—one with the mouth closed to analyze facial symmetry, and one smiling to analyze the dental midline and vertical orientation.
3. The soft-tissue outline of the face must be seen at least up to eye level.
4. The photos must be large enough—at least 3" high—to allow accurate location of reference points and lines.
5. Locations of the center of the nose bridge, the nose tip, the philtrum, the dental arch, and the chin should be ascertained by measurement, not by eyeballing.

To make these measurements, a clear plastic grid can be overlaid on a standard photographic print, or a computerized grid can be overlaid on a digital image. The overlay is aligned horizontally with the orbital plane and centered by placing vertical lines tangent to the outer limits of the zygomatic arches. In a symmetrical face, the lip line will be horizontal; the facial soft tissue will be distributed among the grid squares, with equal amounts showing in the left and right boxes along the facial outline; and the vertical midline will pass through the midpoint of the nose bridge and through the midpoints of the nose, philtrum, lip, dentition, and chin. If this is not the case, the grid can be realigned to try various combinations. The nose bridge and nose may line up, and the rest not. The dentition and chin centers may line up at an angle to the upper midline. Checking grid alignments in this way reveals what and where the asymmetry is. Millimetric measurements can be made with a caliper, either manual or computerized.

The cover of this month's issue of JCO demonstrates a phenomenon, discovered by a Russian scientist named Yarbus, that biases the way people look at faces. Yarbus showed, using an eye-tracking technique, that in viewing a photo of a face, the preponderance of attention goes to the eyes and mouth. This may explain why we sometimes overlook asymmetries. Therefore, one should purposefully avoid concentrating on the eyes. It may also help to turn the image upside down. You are then dealing with just a shape. Beyond that, each segment of the face, especially the chin, can be isolated by blocking out the rest of the face. Still another way to dehumanize the face and emphasize asymmetry is to draw the facial outline and midline on tracing paper.

Photographic analysis can be complicated by soft-tissue variations. Ears and eyes may not be level, and noses may be off-center. Even rec-

ognizing these limitations, however, it is possible to see whether the dental midline is perpendicular to certain horizontal lines, such as the ocular, orbital, or zygomatic planes and the lip line; how well all of these line up; and whether the soft-tissue jaw and the dental arch are asymmetrical.

A tilting of the incisal plane from the frontal view can be overlooked because of the standard practice of trimming models to the desktop. It may be important to supplement photographic analysis by having the patient bite on a tongue blade or a 2" × 3" plastic or metal rectangle. If a tilted incisal plane were left uncorrected, wouldn't that have some effect on the function and stability of the occlusion?

Undoubtedly, the body makes accommodations for some asymmetries, but are we sure that a certain amount of so-called relapse is not occlusal malfunction due to muscular imbalances associated with facial asymmetries?

The face is where we work, and symmetry or lack of it is one of its characteristics. Ignoring asymmetry won't make it go away. Studying it may help us avoid some errors in diagnosis and treatment. Many asymmetries can be corrected—and future techniques may allow us to do more about them, and earlier, than we do today—but first they must be identified. With a minimum of time and effort, any clinician can routinely apply a methodical approach such as the one outlined here. Only by bringing awareness of midline deviations and facial asymmetries to the forefront will we set out on the road to understanding, and possibly to correction. ELG

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