

# Five Old Lines and Three New Lines That Can Help When Designing a Male Temporal Hairline or When Transplanting the Frontotemporal Apex

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## The Importance of the Temporal Hairline

One of the main goals of hair transplantation is to create a “frame for the face.” A picture frame has four sides to control the gaze and center the focus. A “hair frame” has three or four sides.

There has been a great deal of attention paid to the design of the frontal hairline, including discussion about the proper height of the central peak, the shape of the hairline, and the methods used to make the transplanted hairline look more irregular and more natural.

The frontal hairline, however, is just the top of the frame. The temporal hairlines are the two sides of the frame and they are often less than perfect.

## Defining the Components of the (Anterior) Temporal Hairline

If you look at Figure 1, the **temporal point** will be described as the triangular projection forward from the rest of the temporal hairline. The **frontotemporal (FT) apex** is the point at which the frontal and temporal hairlines meet. The **superior (anterior) temporal hairline** will be defined as that part of the hairline between the frontotemporal apex and the tip of the temporal point.

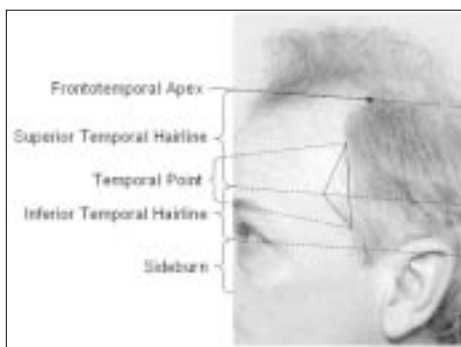


Figure 1. Components of the temporal hairline

The **inferior (anterior) temporal hairline** will be the part of the hairline between the tip of the temporal point and the sideburn. The **sideburn** will be described as commencing inferior to a horizontal line between the lateral canthus and the attachment of the helix of the ear.

## Five “Old” Lines

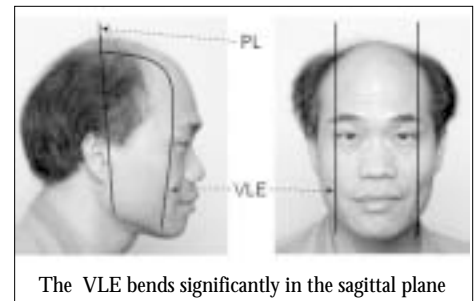
The **vertical lateral epicanthal line (VLE)**. This line, extending vertically upward from the lateral epicanthus in the frontal view, has long been used to determine the placement of the frontotemporal apex.

Marritt, Alt, and Norwood stated years ago that the frontal hairline should be horizontal when viewed in profile.<sup>1</sup> Stough and Shapiro both use the VLE when describing how to build up the temporal fringes to keep the frontal hairline horizontal.

Stough made specific recommendations that, in profile, the frontotemporal apex should fall on a horizontal extension of the VLE and should be 1–2cm behind the receding temporal fringe or anterior sideburn, but that it should not be behind the **pretragal line (PTL)**. He also noted that the distance from the central peak to the frontotemporal apex should be 4–7cm<sup>2</sup>.

Shapiro described building up a lateral hump on the temporal fringe, when required, to place the frontotemporal apex on the VLE about 1cm anterior to the auditory meatus. He allowed that the frontotemporal apex could be slid downward and forward, when appropriate.<sup>3</sup>

In the frontal view, the VLE is easy to visualize but, in profile, the VLE bends significantly in the sagittal plane (see Figure 2). This makes it a less reliable landmark for beginners.



The VLE bends significantly in the sagittal plane

Figure 2. The vertical lateral epicanthal (VLE) line and the pretragal line (PL)

## Mayer's Temporal Points and Mayer's Lines

Mayer has studied temporal points and has created a classification system.<sup>4</sup>

He has described an elegant rule that defines the tip of the temporal point as falling on the intersection of a line from the nasal tip through the pupil (which will be called **NTP**) with a line from the base of the ear to the central peak of the frontal hairline (which will be called **ECP**).

Mayer's classification system relates the temporal points to the **anterior sideburn line** (which will be called **ASL**). His **N(ormal)** and **T(hinning)** classes have the tip of the temporal point in the usual location. In his **P(arallel)** class, there is no temporal point and the temporal hairline lies along the ASL. In his **R(eversal)** class, the temporal hairline indents posterior to the ASL. Figure 3 shows the NTP, ECP, and ASL lines.

## Three New Lines

### Goals

Through observation and trial-and-error, intersecting lines were sought that could define a “usual” location for the frontotemporal apex.

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## Five Old Lines

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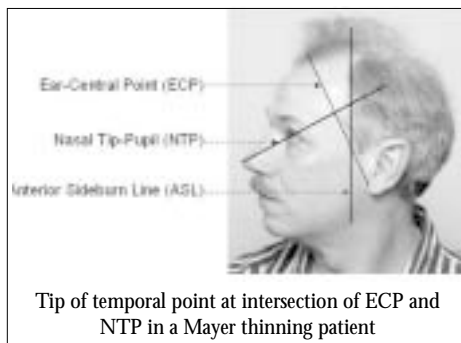


Figure 3. Mayer's Lines

Bony landmarks were preferred because they provide fixed reference points. It was also hoped that these lines would work universally and bony landmarks might allow for different shapes and sizes of skulls and faces.

Finally, a line was sought that could define a reasonable location for transplantation for the superior (anterior) temporal hairline that would allow for future aging and future hair loss and that would funnel focus away from the hair back toward the eyes.

### The New Lines Described

- The **mental tubercle—lateral orbital (MTLO)** line extends from the mental tubercle (or palpable bump on the side of the chin) through the palpable lateral orbit (or medial body of the zygoma).
- The **nasal tip—supraorbital notch (NTS)** line extends from the tip of the nose through the usually palpable supraorbital notch.
- The **mandibular angle—posterior sideburn (MAPS)** line extends from the palpable mandibular angle along the posterior sideburn.

The landmarks for these lines are often easier *felt* than seen. The bony landmarks for these lines are shown in Figure 4.

The lines, especially the NTS, do curve around the skull slightly in both the coronal plane and the sagittal plane. A flexible tape measure is a useful tool for checking these lines.

The MTLO, NTS, and MAPS lines are shown in Figure 5. (Due to the curve of the skull, the NTS does not

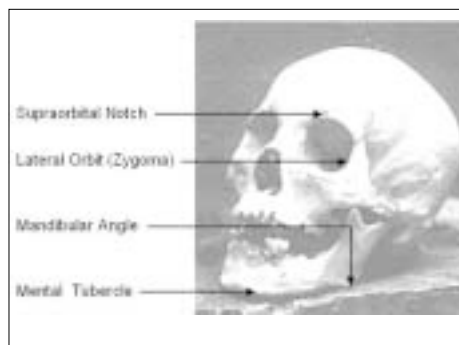


Figure 4. Bony landmarks



Figure 5. New lines

look like it crosses the supraorbital notch in the remaining figures.)

### Application of the Lines

While beginners may actually draw parts of these lines first, experienced hair transplant surgeons are more likely to draw the hairline(s) first and check later.

### Designing the (Anterior) Temporal Hairline

#### Observations

In girls, women, boys, young men, or in some men without hair loss, the frontal hairline may be horizontal or slope downward and backward from the central peak. The frontotemporal (FT) apex may be between the mid-pupillary line and the VLE in the frontal view, and may be well anterior to the anterior sideburn in profile. The superior temporal hairline may be vertical or may slope downward and forward or may slope downward and backward from the FT apex. There may or may not be a small temporal point and the inferior temporal hairline will usually slope or curve backward and downward from the temporal point.

In most mature men, the frontal hairline will be horizontal in profile. The FT apex will be on the VLE in the

frontal view, and will be above the sideburn, between the ASL and the MAPS, in profile. The superior temporal hairline will slope downward and forward from the frontotemporal apex or will be vertical, in line with the anterior sideburn line. Unless there has been temporal recession, there will be a temporal point and the inferior temporal hairline will slope or curve backward and downward from the temporal point. The curve of the inferior temporal hairline may parallel the curve of the superior lateral orbit.

**The frontotemporal (FT) apex.** Many patients will not need transplantation in the frontotemporal apex.

The location of the FT apex can be checked, in profile, in seconds, with the intersection of the MTLO, NTS, and MAPS lines with a flexible tape measure or string. In profile, the frontal hairline should be horizontal. Face-on, the apex should be on the VLE.

In those patients with strong anterior temporal hairlines, the FT apex may be advanced forward and downward along the NTS, in a similar manner to Shapiro's method, but should not cross the ASL.

In those patients with marked recession of the anterior temporal hairline, the FT apex can be shifted backward and upward along the NTS but should not be brought back behind the pretragal line. The frontal hairline will need to be proportionately higher.

**The superior (anterior) temporal hairline.** Many patients will not need transplantation in the superior temporal hairline.

In those patients with strong anterior temporal hairlines and/or temporal points but significant downward recession of the temporal fringes, the superior temporal fringes can be transplanted to have either the ASL or the MTLO form the anterior temporal hairline. For some, the area between the ASL and the MTLO could be thought of as a transition zone with the defined, dense zone starting at the MTLO.

**The temporal points.** Most patients will not or should not have transplantation to the temporal points, but in mature patients with ample donor hair and few signs of further significant

temporal thinning, temporal point reconstruction, as per Mayer, can make a significant cosmetic improvement. This author has yet to transplant temporal points.

**The inferior temporal hairline.** Rarely patients with other causes of alopecia will require inferior temporal hairline transplantation. This author has not transplanted the inferior temporal hairline to date.

## Examples

Sample plans using some of these lines and principles are shown in Figures 6 and 7.

## Precautions

Hair transplantation to the FT apex and/or any part of the temporal hairline uses up more donor hair and increases the chance that further hair transplantation will be required after there is further temporal recession.

The temporal hairline is highly visible and any mistake in angle, direction, graft size, or growth will be obvious.

## Conclusions

Transplanting the frontotemporal apices and/or superior temporal hair-

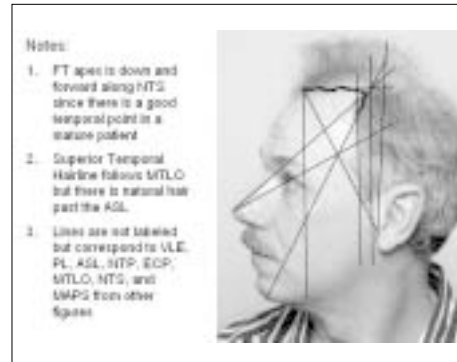


Figure 6. The plan

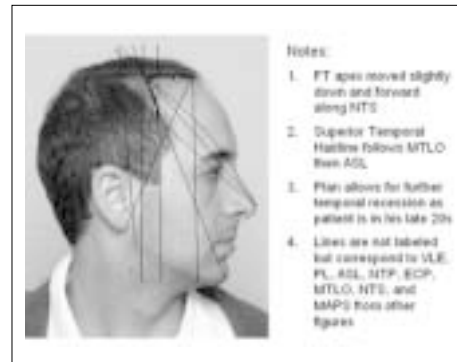


Figure 7. The plan

lines can significantly improve the “frame of the face” but must be done judiciously, carefully, and well. The design must allow for aging and future

hair loss. Some old lines and some new lines have been presented to assist with or to check the hairline design. These recommendations may place the FT apex in a more anterior position than previous recommendations. Ultimately, regardless of lines and rules, before commencing hair transplantation, the hair transplant surgeon has to stand back and examine his or her design to see if it “looks right.” ♦

## BIBLIOGRAPHY

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