

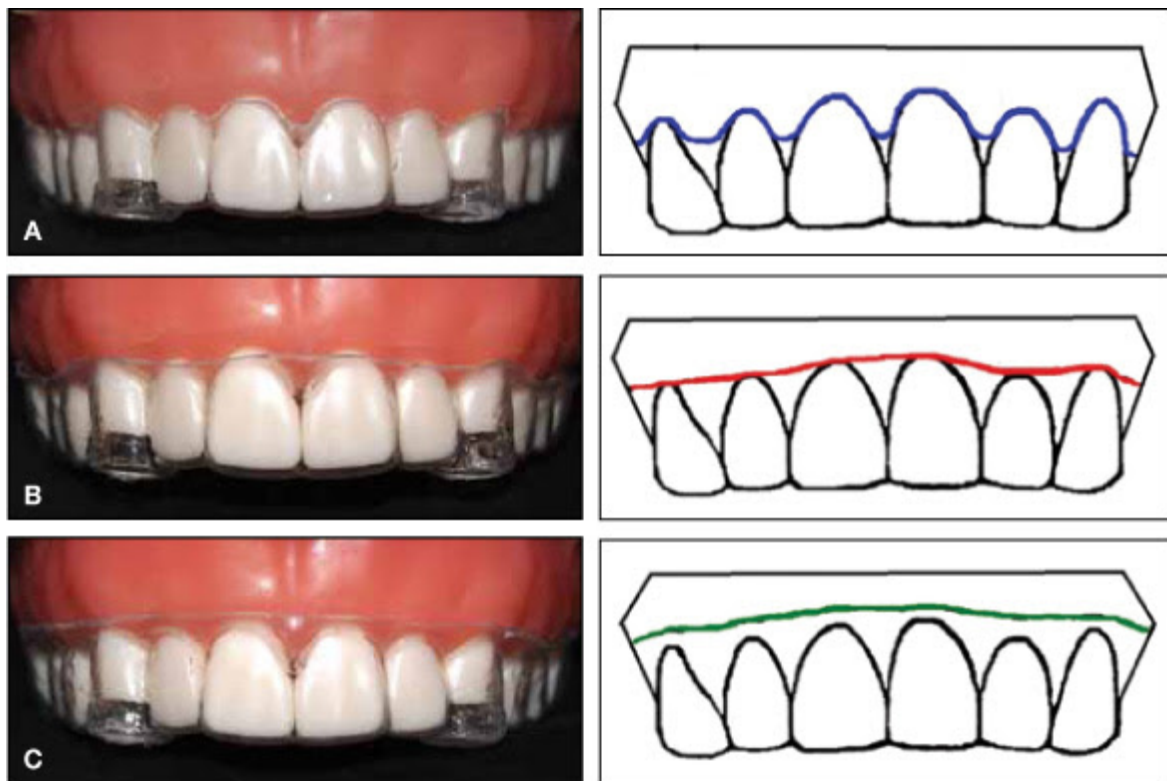
## IMPROVE ALIGNER & RETAINER RETENTION VIA CUTLINE TYPE

How you cut a Zendura aligner's or retainer's final cutline makes a big difference in its teeth retention/movement capability and durability.

### WE'RE TRIMMING DIFFERENTLY TO MAKE RETENTION 2X - 4X STRONGER

*Excerpted from ClearCorrect Blog by CARL JONARD*

In a [published study](#)<sup>\*</sup>, doctors from the Orthodontic Department of the University of Nevada School of Dentistry compared the retentive strength of three trimming techniques:

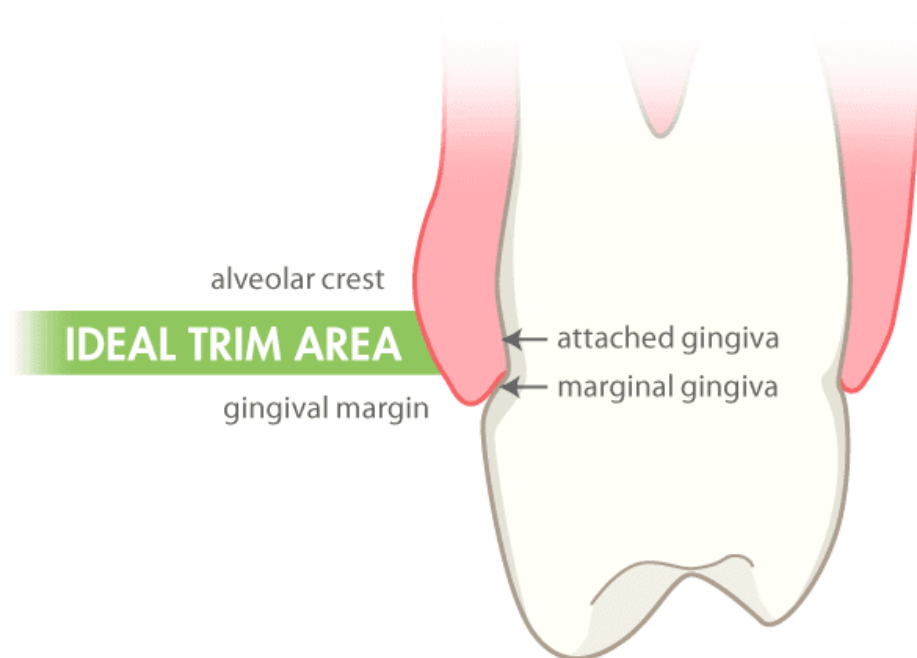


- A) a scalloped margin,
- B) a straight cut at the gingival zenith, and
- C) a straight cut at 2 mm above the gingival zenith.

The difference between the techniques was remarkable. For clear aligners without engagers (attachments), the straight cutline 2 mm above the gingival zenith was about twice as retentive as the scalloped cutline. For clear aligners with engagers, the straight cutline 2 mm above the gingival zenith was over four times as retentive as the scalloped cutline.

Trimming the aligners differently had a bigger impact than adding or removing engagers. Scalloping the aligners right at the margin is the technique employed by “the other guys.” Traditionally, most aligner producers loosely scalloped aligners slightly over the gumline.

Based on these findings, trimming aligners with a smoother contour and a larger overlap with the margins is clearly a very good idea. This technique should improve the efficiency of the aligners and may reduce the need for engagers in some cases. Also, aligners should move teeth more effectively, especially when performing difficult movements like torquing.



Aligners should also be more comfortable, because there will be less risk of their impinging on the unattached marginal gingiva. Also, the edge of the aligner will be concealed further under patients' lips during everyday use, so this should also slightly improve the discreetness of the aligners.

**\*"THE EFFECT OF GINGIVAL-MARGIN DESIGN ON THE RETENTION OF THERMOFORMED ALIGNERS" BY DANIEL P. COWLEY, JAMES MAH, AND BRENDAN O'TOOLE IN THE JOURNAL OF CLINICAL ORTHODONTICS: JCO 11/2012; 46(11):697-702. ILLUSTRATION USED WITH PERMISSION.**

[Click here](#) to read published study.