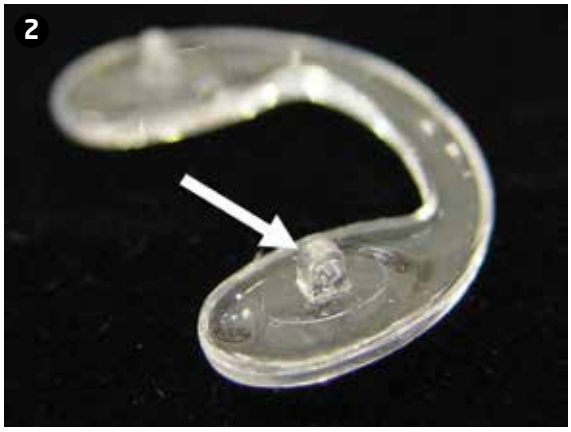
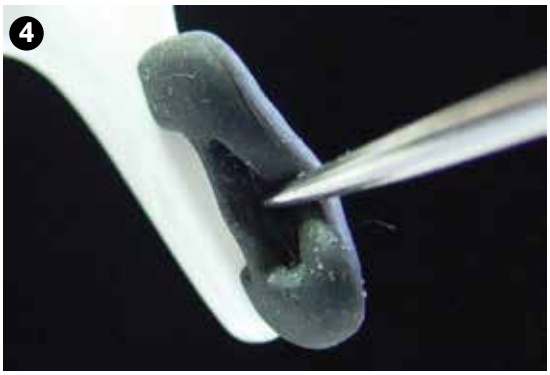




1 Non-adjustable bridge
2 Silicone bridge, nosepad post (arrow)
3 Nosepad post in nosepad opening
4 Position of drilling

Adapting frames

Piggy-backing a saddle bridge

Jia-Yu Liang, **Huai-Te Hsieh** and **Santos Tseng** explain how they adapted a frame for a patient whose nasal bridge was too flat for her to wear standard frames comfortably

The bridges on most frames are designed to fit most noses. As such, they typically have very little means for adjustment for noses that fall outside of the average range of sizes and shapes. In this article we describe a technique we used to help fit a frame to a patient whose nose was too flat to support wear of a frame.

A 16-year-old teenager and her mother presented to our optical clinic with a pair of wrap-around sports sunglasses purchased from another store. The girl was a nationally ranked competitive golfer, and her mother purchased the sunglasses to help protect her daughter's eyes from the sun. The girl's nose, however, was too flat to support the frame properly on her face. They were aware of this issue at the time of purchase, but because there wasn't any alternative frame that fitted, they bought them anyway.

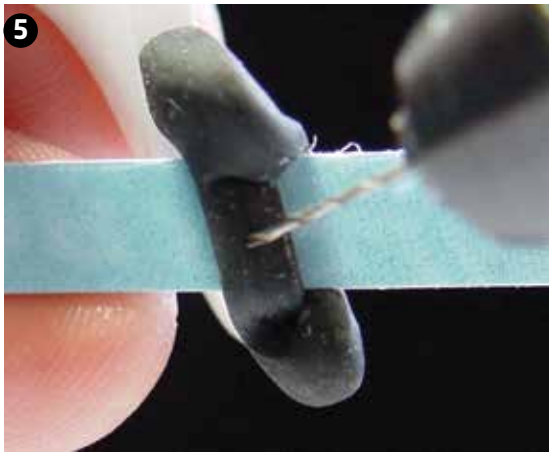
After a few days of wear, it became clear the fit was unacceptable. The frame's wrap-around shape caused the bridge to completely vault her face, so that when the lenses were held by the hands at the proper height, there was virtually no contact between her nose and the frame. If simply left to rest on her face, the frame would rest on her cheeks, causing the lenses to get dirty and giving her a fit that was both uncomfortable and unstable. It was with these fitting concerns that the girl and her mother presented to us.

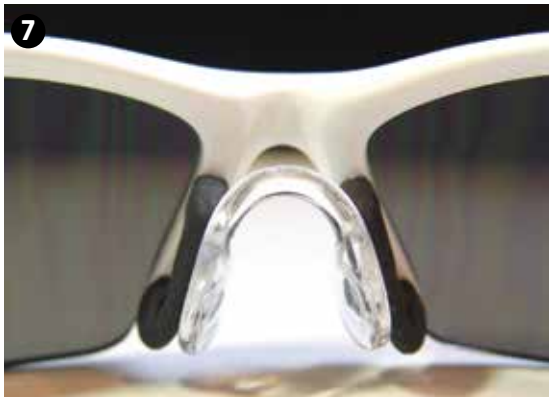
The frame was made of plastic and had large, soft rubber nosepads intended to provide padding and comfort during sports activities. The frame front was of a one-piece, wrap-around style that didn't allow for any type of adjustments (Figure 1). The girl's mother asked us if there was any means to modify the frame so that her daughter could wear it.

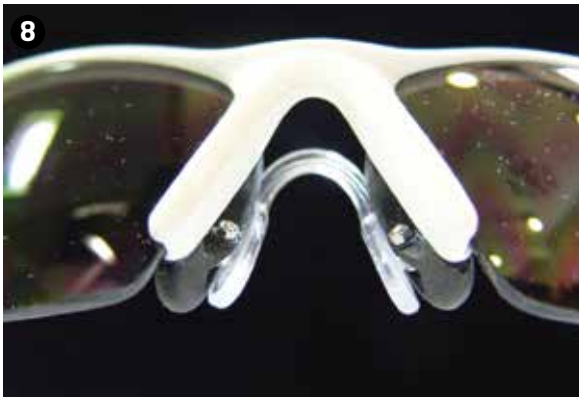
Although the frame was too steep for her face, the distance between her nose and the nosepads was narrow enough to be gapped by a nosepad. We thus decided to piggyback a silicone saddle bridge (Figure 2) onto the frame's nosepads to allow the frame to be properly worn.

For reasons of comfort and fit, rubber nosepads typically have holes in them to allow for the exchange of air (Figure 1). The openings allowed for convenient insertion (Figure 3) of the nosepad posts (the outcropping on the back of nosepads that retain the screw, Figure 2, arrow), and gave us a means to affix the silicone bridge to the frame.

Figure 4 shows the position on the anterior-half of the nosepad where a hole could be created to allow for insertion of a screw. Figure 5 shows us creating a hole using a small-diameter drill bit. A piece of thin rectangular plastic (blue item, Figure 5) was used







5 Drilling of hole
6 Saddle bridge fixed to nosepad
7 Piggybacked bridge (posterior view)
8 Piggybacked bridge (frontal view)
9 Frame being worn
10 Piggybacked bridge, different frame

to prevent the posterior half of the nosepad from being damaged by the drill, as well as preventing the drill from penetrating the frame front. The hole that was created allowed us to screw the nosepad posts of the silicone bridge into place in a manner similar to how nosepads are normally fixed into frames.

Mounting of the silicone bridge was simply a matter of inserting a long screw through the post and into the hole we just created. A nut was placed at the end of the screw to secure it in position (Figure 6). A drop of superglue was also added to prevent the nut from coming loose. The result was a sport sunglass frame that had a silicone saddle bridge piggybacked onto its nosepads that the wearer could now wear comfortably and securely (Figures 7-9).

For frames with slightly different nosepad designs, slight modifications to this technique can be made. Figure 10 shows a similar adaptation we made to a wrap-around sports sunglass frame with an Rx insert that already had a saddle bridge. Like the case above, the frame vaulted the patient's face, but by piggy-backing a second saddle bridge onto the existing bridge, the frame could be worn.

In this case, due to the thickness of the rubber saddle bridge, we did not use a nut to secure the screw. Instead, the hole we created was drilled only to 'half-depth', and a small amount of glue was applied to the tip of the screw to secure it.

We note that given the stability of saddle bridges on faces, the technique we describe may be used to modify frames that fit well on patients' faces but whose wearers could benefit from an additional level of stability. Athletes in particular, may benefit from this type of modification.

We hope you find this technique both interesting and useful to your practice and your patients.

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