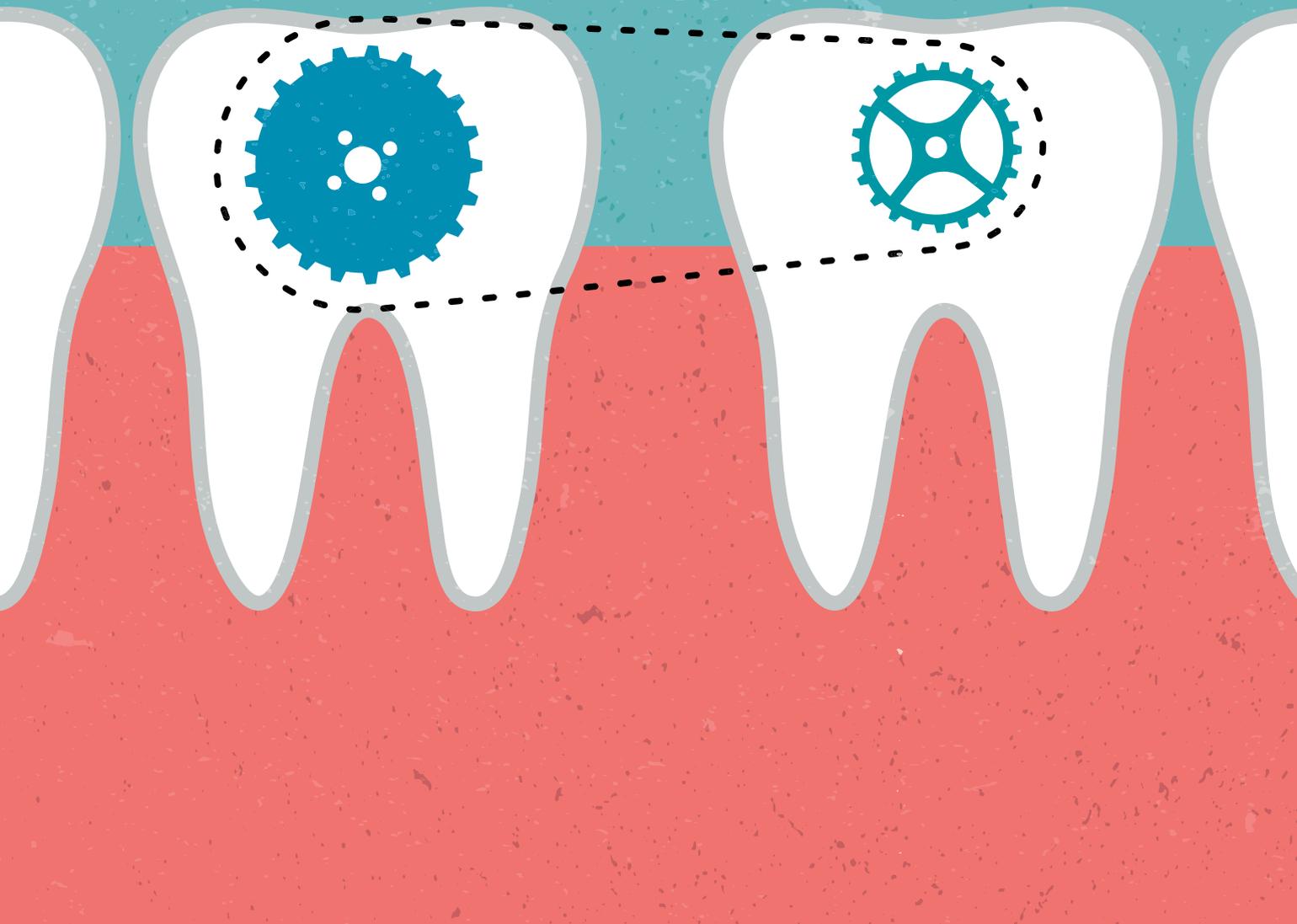


# A New Class of Appliance

THE HARNICK SECTIONAL DISTALIZER



# A seasoned ortho's creation for treating Class 2 patients

by David Harnick, DDS

## Introduction

The correction of Class 2 malocclusions is a routine part of orthodontic practice. There are many systems that are used, including headgear, Class 2 elastics, functional appliances and noncompliance repositioning appliances in conjunction with complete fixed appliances.

Yet, even with so many options, the complete correction of Class 2 malocclusions is difficult and elusive.

The American Board of Orthodontics has an objective grading system, and incomplete correction of Class 2 buccal segments is listed as one of the major reasons for failure. These cases generally represent the best attempts by the clinician and may not be what is typically achieved in the routine practice of orthodontics.

I have noticed in some of my cases that while attempting to completely correct the Class 2, there can be a lack of complete seating of the maxillary buccal cusps in the lower embrasures. In transfer cases, I've observed the same common problem.

The orthodontic literature is replete with Class 2 correction mechanics. Distalizing jigs in conjunction with Class 2 elastics has been used in techniques like bioprogressive for years. Recently, the Carriere Distalizer was introduced for the correction of Class 2 malocclusions.

**David Harnick, DDS, MD,** is a diplomate of the American Board of Orthodontics, and master in the Academy of General Dentistry.



It is unique in that there is no cross arch stabilization when applying Class 2 elastic force to the appliance. It has been shown to be effective in the correction of Class 2 malocclusions prior to the application of the fixed appliances.

The Harnick Sectional Distalizer concept is useful with all fixed appliances without any modification to prescription or archwire slot. However, this concept does require patient cooperation in the wearing of Class 2 elastics. It does not replace the noncompliance appliances.

## Technique

For best results, it is recommended that traditional archwire sequencing progress to 19x25ss archwires in a .022 slot. Prescription of the appliance has no effect on the HSD. A maxillary posted archwire is then sectioned mesial to the canines leaving the post as hook for the Class 2 elastic. If a posted wire is not available, a simple bend of the archwire suffices. (Fig. 1)



*Fig. 1 Typical response to HSD. Note the archwire is segmented mesial to the canine and the post becomes the Class 2 elastic hook. Another choice is to simply bend a loop for the elastic.*



Fig. 2 Transfer in photographs. Note dumped arches, rotations, marginal ridges discrepancies, CI3 canine left, midlines, poor bracket placement and a deep bite.



Fig. 3 Transfer in pano. Note blocked out LR5 and ledge distal to LLE.



Fig. 4 One year progress. Archwires were 19x25ss. The first attempt of an HSD. The archwire was sectioned and tied back.



Fig. 5 One week of HSD showing progress of Class 2 correction.

To have the best patient cooperation possible, it is important to educate the patient. The patient is shown what a Class 1 canine relationship is. It's also important to remind the patient that if the elastic is not worn, the teeth will not move into the correct positions.

The anterior section is usually replaced with a round wire from lateral to lateral. It is important to ligate the anterior teeth to prevent spacing. There will be significant spacing if this step is omitted. Quarter-inch medium (4.5 ounce) elastics are started and can be switched to quarter-inch heavy (6 ounce) if necessary. It can be used unilaterally if necessary.

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Fig. 6 After five weeks of HSD.

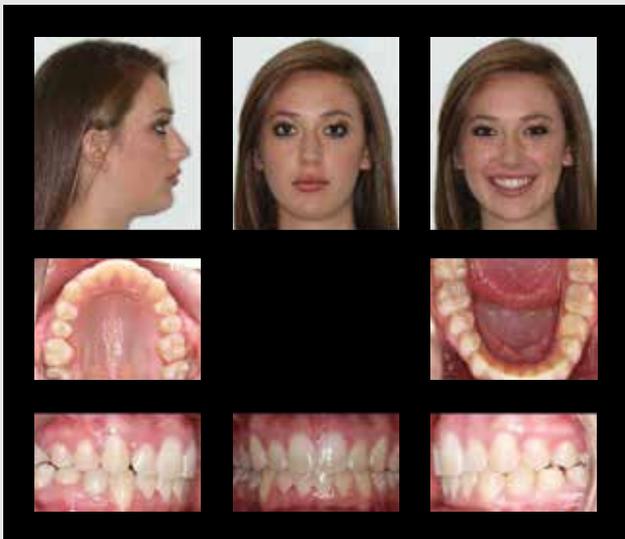


Fig. 7 Final records after 16 months of treatment after transfer. A nice solution to a difficult problem.



Fig. 8 Result.

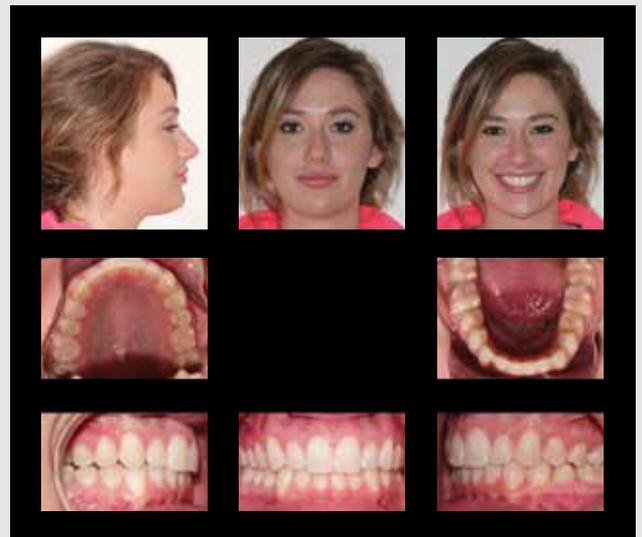


Fig. 9. Three-year post-treatment photos. Note slight return of Class 2 on the right side. This was due to insufficient treatment time with HSD.

each appointment, “Are you Class 1?” By engaging the patient in this manner, there can be excellent cooperation and results.

Initially, the HSD concept was utilized for only final correction of the buccal segments after other Class 2 mechanics. This use can be accomplished in as few as six weeks. Excellent buccal interdigitation is possible. After the efficiency and effectiveness of the technique was confirmed, it was then used for the correction of full Class 2 malocclusions. The buccal segments distalize relatively rapidly. With cooperation, Class 2s are corrected in less than six months, while full step Class 2s can take up to a year.

### Pros and cons

One negative effect of this treatment is loss of alignment and control of the anterior section relative to the distalized sections. Open bites with poor tongue posture can be a contraindication for an HSD. The patient/parent needs this to be explained. It is easily recoverable once the buccal segments are seated in a C11 relationship with nickel titanium wires. A 19x25 heat-activated wire is mostly used, and the alignment and leveling are recovered in six weeks.

One of the proposed benefits of the Carriere Distalizer is that a C11 platform is achieved prior to fixed appliances,

potentially creating more stability. The HSD Class 2 correction occurs during the fixed phase of treatment. I’ve found the HSD Class 2 correction to be stable—but it is a relatively new concept.

Another benefit of using the HSD is it is unnecessary to have the bite open prior to Class 2 elastic wear. Since the buccal segments are independent, it makes no difference if the maxillary anterior teeth are clear of the lower brackets. In fact, the anterior segment sometimes intrudes during the distalization phase.

The concept is also effective in the use of Invisalign and other clear aligner treatments.

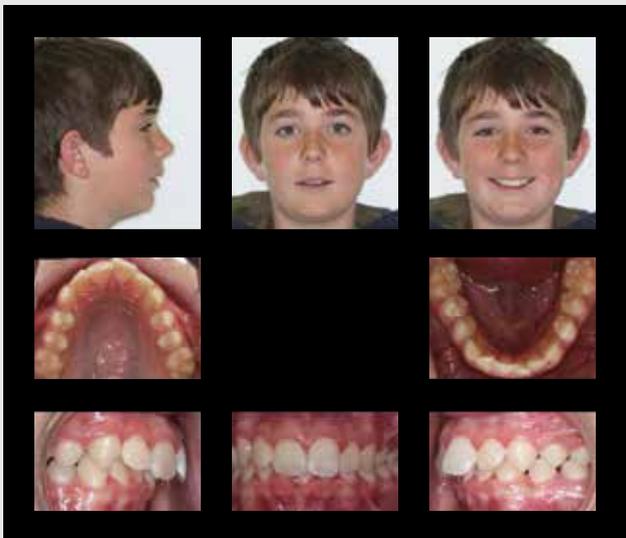


Fig. 10 12-year-old patient with Class 2, excess overjet and overbite, V-shaped maxillary arch and a midline discrepancy.



Fig. 11 Note the use of power chain to help de-rotate teeth.



Fig. 12 After six months, 19x25 SS archwires were placed and unilateral HSD was started.



Fig. 13 Eight months of using HSD.



Fig. 14 initial/final cephs after 22 months of treatment. Note lower incisor control.



Fig. 15 2 years post treatment photographs showing excellent stability of Cl2 correction.

## Case presentation

Like many inventions, the HSD was born out of necessity. The first case it was used on was a transfer case. The patient had been in treatment for approximately one year, and the parents were unhappy with the progress. (Figs. 2 and 3, see p. 44)

Apparently, the LR7 was erupting mesially and it took a while for it to upright. However, space was not maintained for the LR5 and it became blocked out. There was significant dumping of the arches, severe midline discrepancy, deep bite, rotated teeth with poor bracket placement, the

left side was Cl3 canines, and the right side Class 2.

The patient was very cooperative and was wearing headgear every night. To complicate things, she was a junior in high school and was going away to school in less than 16 months. My estimate was it

would take approximately 12 months to align the arches, and then another 8–12 months for AP correction and finalization of the occlusion.

Figure 4 (p. 44) shows the progress after 12 months. There were now only four months to finish the case before she went away to school. Due to this timeframe, a quicker way of correcting Class 2s was necessary.

The decision was made to section the wire and use a 6 ounce/quarter-inch Class 2 elastic. The HSD was born. (Fig. 5, see p. 44)

She was seen one week later—because of concerns that the buccal segment might flare out labially—which did not occur. (Fig. 6, see p. 45)

A progress photo was taken four weeks later, showing almost full C11 canine. (Fig. 7, see p. 45) The case was debanded 12 weeks later. Although not an excellent result, given the time constraints and difficulty of the case, an acceptable result was

obtained. A nice esthetic result was achieved. (Fig. 8, see p. 45)

She was seen recently for new retainers—three years post-treatment—and photos were taken. (Fig. 9, see p. 45)

There was some slippage of the Class 2 correction. Not surprising, considering the Class 2 correction was accomplished in such a short period of time. Today, it is recommended to continue the HSD for at least three months after C11 has been achieved.

### Case #2

After the success with Case #1, the HSD was used only for finalization and improvement of the buccal segments prior to deband. This case was the first case that used the HSD as the only Class 2 mechanics on a growing patient. The patient was a 12-year-old male. Diagnosis included: Class 2 Div1 with an overjet of 7mm and a deep

bite of 5mm, convex retrognathic profile, mild to moderate crowding, V-shaped maxillary arch and the lower midline to the right 3mm. (Fig. 10)

Level and aligning stage with use of power chain helped to de-rotate teeth. (Fig. 11) After six months 19x25ss arch wires were placed and the HSD began. (Fig. 12)

After eight months of HSD, the Class 2 was corrected. Total treatment time was 22 months and the result remained stable at the two-year post treatment check. (Figs. 13–15)

### Conclusion

The HSD represents a new simple, cost effective approach to correcting Class 2 malocclusions with fixed appliances. It requires no special brackets or wires and can be used with any system, including Invisalign. ■

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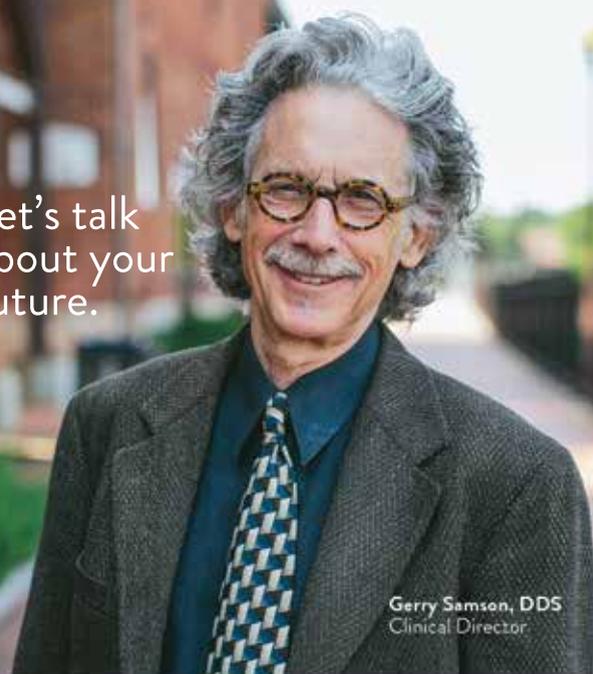
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