

A New Labial Palatal Expander and Stabilizer

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Most palatal expansion devices, whether fixed or removable, are attached palatally to molar bands or palatal implants. This article describes a new removable appliance that fits around the buccal and labial aspects of the maxillary teeth to expand, contract, or stabilize the upper arch.

Appliance Design

The U-shaped Nitom* expander fits into the buccal headgear tubes of the upper first molar bands (Fig. 1). Clasps on both ends hold the expander in place and allow the patient to remove it for cleaning if required. Available in several sizes, the expander has omega loops for fine adjustments. It can be worn either full-time or part-time, depending on the case.

With a buccal expander, there are no palatal keys or screws to turn. The Nitom expander does not interfere with or traumatize the tongue, and does not trap food against the palate.



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A



B



C

Fig. 1 A. Available sizes of Nitom expander. B. Expander with clasp closed. C. Expander with clasp open.

*Trademark of Ortho-Care (U.K.) Ltd., 5 Oxford Place, Bradford, West Yorkshire BD3 0EF, England; www.orthocare.co.uk.



Fig. 2 Nitom expander clasp fitted to headgear tube on first molar band.



Fig. 3 Nitom expander size selected using patient's study cast.



Fig. 4 A. Expander adjusted on patient's right side until left clasp lies just outside molar tube. B. Process repeated on opposite side.

Fitting and Adjustments

Before the fitting appointment, check the fit of the Nitom expander clasps to the molar tubes (Fig. 2). Select the correct size expander using the patient's study cast (Fig. 3). The fit of the expander is adjusted similarly to an inner facebow. Insert one clasp into the molar tube, and adjust the appliance until the opposite clasp lies just outside its molar tube (Fig. 4A). Then remove the first clasp from its tube, insert the second clasp, and adjust the second side until the first clasp lies just outside its molar tube (Fig. 4B).

The ends of the clasps can be trimmed down to make it easier for the patient to insert them into the headgear tubes (Fig. 5). Adjust the omega loops to adapt the expander to the labial tooth surfaces and to lengthen or contract the device as needed (Fig. 6).

When the second molars are not included in the fixed appliance, the Nitom expander can be fitted either way up, depending on the operator's preference and patient comfort. We usually insert



Fig. 5 End of clasp trimmed down for easier insertion into molar tube.



Fig. 6 Omega loops on main wire and clasp adjusted to make expander longer or shorter.

it with the clasps pointing down before insertion and the omega loops on the main wire also pointing down (see Fig. 9B). If the second molars are banded and the first molar headgear tubes are placed gingivally, the appliance must be oriented in this direction to avoid interference with the archwire. If the headgear tubes are placed occlusally, however, the clasps and the omega loops on the main wire should point up (Fig. 7).

Clinical Applications

The Nitom expander can be used with only upper molar bands to correct a bilateral or unilateral buccal crossbite (Fig. 8). The patient should wear the appliance full-time, except for contact sports and cleaning. The crossbite will be rapidly corrected, allowing the patient to progress to fixed appliance therapy as needed.

If a crossbite develops during fixed appliance treatment, whether because of growth, inadvertent mechanics, or the effects of headgear, the Nitom expander can be fitted to the headgear tubes without having to remove the upper molar bands



Fig. 7 If second molars are banded and first molar headgear tubes are placed occlusally, omega loops on main wire and clasps should point up.

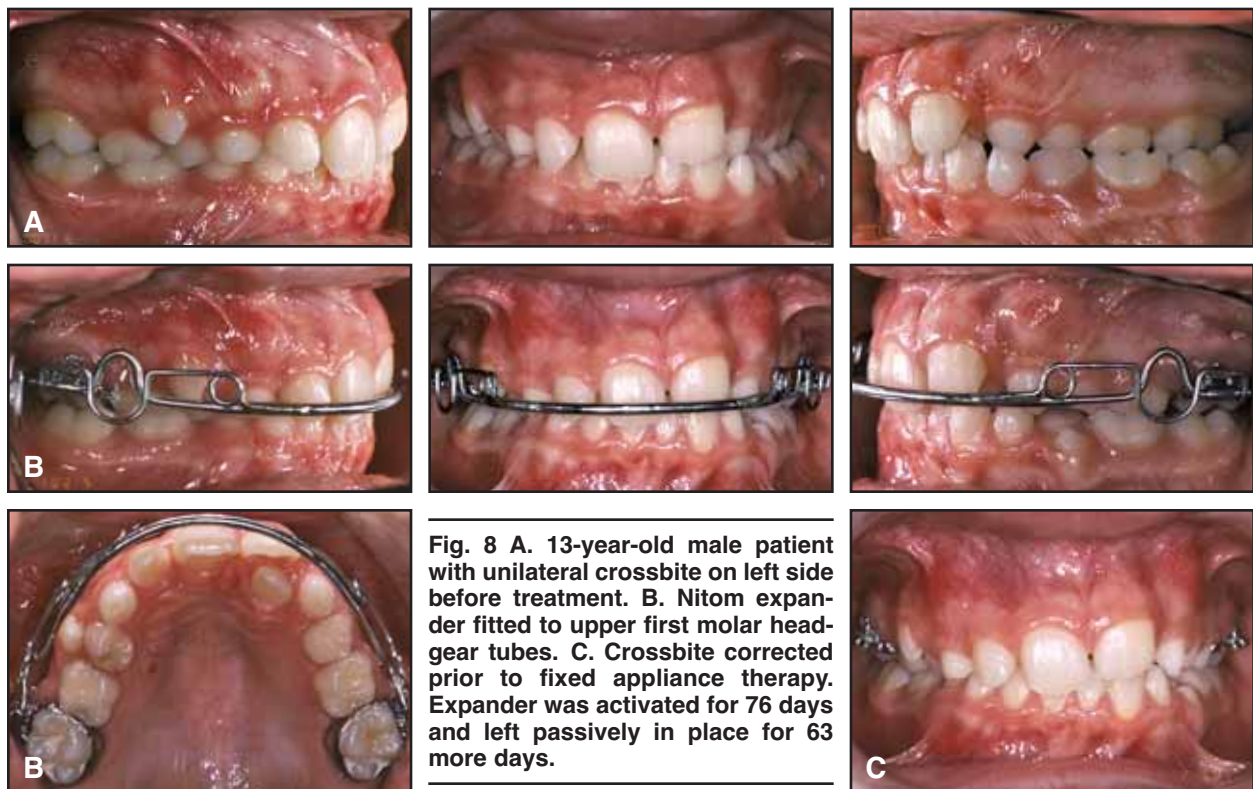


Fig. 8 A. 13-year-old male patient with unilateral crossbite on left side before treatment. B. Nitom expander fitted to upper first molar headgear tubes. C. Crossbite corrected prior to fixed appliance therapy. Expander was activated for 76 days and left passively in place for 63 more days.

(Fig. 9). The expander should be adjusted to fit closely to the upper fixed appliance, then slightly expanded to correct the crossbite.

After maxillary segmental surgery, a Nitom expander can be used to maintain the lateral dimension during the seating phase (Fig. 10). The expander is fitted passively into the headgear tubes

when the arch bars are removed. Once the occlusion has been properly seated, the Nitom expander is removed.

In skeletal Class II patients requiring surgical mandibular advancement, the maxilla often needs a slight amount of expansion to help seat the occlusion after surgery (Fig. 11). The best time to



Fig. 9 A. 14-year-old female patient who developed crossbite on right side during fixed appliance treatment. B. Nitom expander fitted and activated for crossbite correction. C. After removal of fixed appliances. Expander was worn for 123 days.



Fig. 10 A. 19-year-old female patient immediately after maxillary segmental surgery (continued on next page).

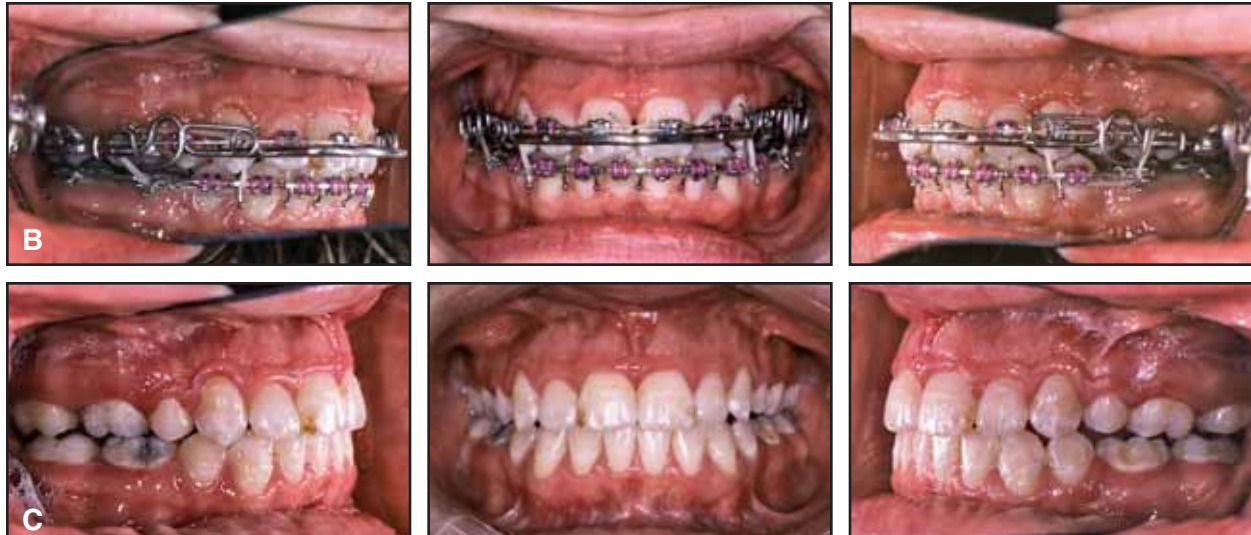


Fig. 10 (cont.) B. After removal of arch bars, Nitom expander fitted passively to support lateral dimension during use of seating elastics. C. After removal of fixed appliances. Expander was worn for 111 days.



Fig. 11 A. 24-year-old female before surgical mandibular advancement. B. Nitom expander fitted after surgery to produce slight maxillary expansion during use of seating elastics. C. After removal of fixed appliances. Expander was worn for 122 days.



Fig. 12 Distal-facing hooks soldered to Nitom expander in canine regions for attachment of cross-elastics to help correct midlines.

fit and adjust the expander is at the last presurgical appointment, when access and cooperation will be optimal. The patient will find it much easier to learn how to place the device at this stage. After surgery, the expander is activated to expand the upper arch slightly and thus help seat the buccal occlusion.

Modifications to the Nitom Expander

Auxiliaries can be soldered to the expander for correction of other clinical problems. For example, to help correct midline discrepancies during fixed appliance treatment, anterior cross-elastics can be attached between hooks on the archwire and distal-facing hooks soldered to the expander in the canine regions (Fig. 12).



Fig. 13 Clasps removed and mesial-facing hooks soldered to Nitom expander to allow ligation to molar tubes.

Some clinicians may prefer to ligate the expander to the upper first molar bands so it cannot be removed by the patient. The laser-welded Nitom clasps are easy to remove, and mesially oriented hooks can then be soldered just in front of the omega loops for ligation to hooks on the molar tubes (Fig. 13). □