

A Bite Orthotic for the Resting Period Between Two Phases of Treatment

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Many skeletal Class II malocclusions are now treated during the mixed dentition, using such “non-compliance” systems as the Herbst appliance,* the MARA,** SAIF Springs,*** or the Eureka Spring.† These orthopedic changes

are best accomplished with comprehensive first-phase therapy before complete eruption of the permanent teeth. Orthopedic correction produced by mechanical forces tends to relapse, however, unless it is retained for a minimum of six months. That presents a problem: Both interarch and intra-arch corrections have to be retained simultaneously during the resting period before the second phase of treatment.

Because traditional single-arch retainers will not hold interarch corrections, the Starnes Bite Orthotic was developed. It is indexed to the upper and lower permanent incisors and first molars, leaving the cuspid and bicuspid areas free for the transition from the primary to the permanent dentition (Fig. 1).

*Registered trademark of Dentaureum, Inc., 10 Pheasant Run, Newtown, PA 18940.

**Allesee Orthodontic Appliances, P.O. Box 725, Sturtevant, WI 53177.

***Pacific Coast Manufacturing, 15604 163rd Ave. N.E., Woodinville, WA 98072.

†Eureka Spring Co., 1312 Garden St., San Luis Obispo, CA 93401.

‡PAR Orthodontic Laboratory, P.O. Box 30010, Laguna Niguel, CA 92607.

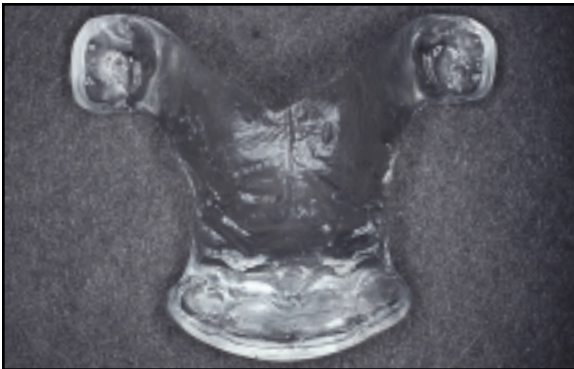


Fig. 1 Starnes Bite Orthotic.

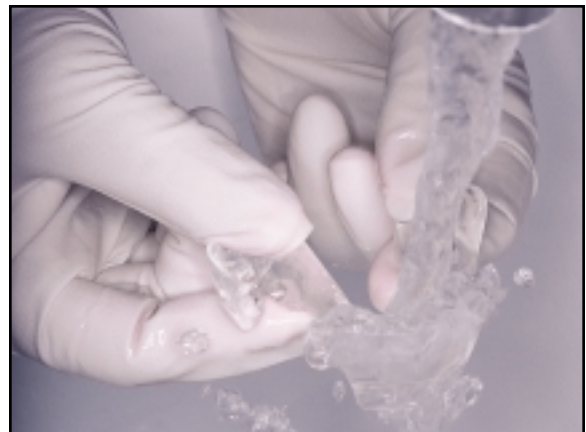


Fig. 2 Heating orthotic with warm tap water makes it flexible enough for easy insertion.

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Fabrication and Delivery

The orthotic is made from a heat-sensitive impact plastic that is fairly rigid at body temperature, but becomes flexible enough for easy insertion after being heated with hot tap water (Fig. 2). At least two laboratories are currently able to fabricate the Starnes Bite Orthotic—Allesee Orthodontic Appliances** and PAR Orthodontic Laboratory.† All the lab needs are upper and lower casts and a bite registration, which is made from four thicknesses of baseplate wax.

A functional effect can be built into the orthotic by registering the bite with the mandible advanced. A helpful hint is to heat the wax under warm tap water, then squeeze the posterior portion of the wafer so that it is thinner than the anterior portion (Fig. 3). Otherwise, the molars may be deflected by the thick wax during the bite registration. With a little practice, it is easy to guide the mandible forward to the desired anterior tooth relationship. My rule of thumb to maintain the orthopedic correction is to register the

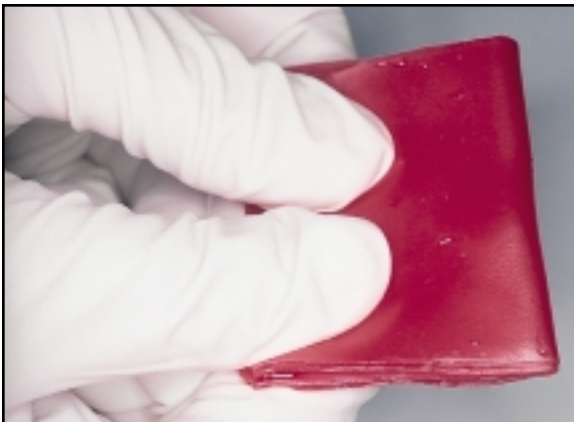


Fig. 3 After wax bite is heated with warm tap water, posterior portion is squeezed to make it thinner than anterior portion.

teeth edge to edge, with a 1mm clearance between the upper and lower incisal edges (Fig. 4).

Completely covering the clinical crowns, so they are totally indexed into the orthotic, keeps the appliance from falling out during sleep (Fig. 5). The patient should be requested to insert the orthotic 30-60 minutes before going to bed. This programs physical and mental awareness and reduces the likelihood that the patient will unconsciously remove the appliance while sleep-



Fig. 4 Orthopedic correction can be retained by taking bite registration with mandible advanced to edge-to-edge position and 1mm of clearance between incisal edges.



Fig. 5 Clinical crowns completely covered with plastic for optimal retention.



Fig. 6 A. 8-year-old male skeletal Class II patient before treatment. B. After 21 months of Phase I treatment. C. After 36-month resting period, with Starnes Bite Orthotic worn to maintain correction. D. After 23 months of Phase II treatment.

ing. If a few nights are missed and the teeth move slightly, the patient can heat the appliance with warm tap water to make it flexible enough for reinsertion.

Conclusion

The Starnes Bite Orthotic has demonstrated good compliance, perhaps due to the enthusiasm of this age group. I find that patients can routine-

ly wear the orthotics for 12 to 18 months, or even longer (Fig. 6). Seeing them at the standard six-month observation intervals allows for the relief of material that may occasionally impede eruption of the permanent teeth.

A colleague is successfully using the orthotic as a sleep apnea appliance. Its characteristics of heat sensitivity, retentiveness, and comfort seem to make it suitable for that application as well. □