Letters to the Editor

Dear Sir,

Re: Modification of a Bite Registration Device

An important part of functional appliance construction is bite registration. However, difficulty may be encountered in obtaining the desired jaw relationship if the patient lacks adequate proprioceptive feedback to position the mandible reliably into a simple wax bite. The use of a preformed bite registration device can overcome this problem. One example is the Projet® (Projet Bite Wafer®, Orthocare (UK) Limited, 5 Oxford Place, Bradford, West Yorkshire BD3 0EF, U.K.); this consists of a plastic bite wafer, with a projecting rod incorporating opposing notches (one upper and three lower, to permit differing degrees of mandibular protusion) into which the patient locates the incisors. The manufacturer's instructions state that the single notch should face superiorly, with the clinician locating one of the three lower notches on the mandibular incisors. Softened wax (or silicone putty) is adapted to the posterior wafer, the device is placed in the mouth, and the patient postures forward and closes the maxillary incisors into the upper notch, registering the bite. Some clinicians may prefer to locate the device on the upper arch initially; this can cause problems if the patient cannot find the 'correct' lower notch as the mandible is protruded, but these can be overcome simply by inverting the bite fork.

Whichever way up the device is used, a potential source of error is distortion of the wafer arms if these do not lie passively within the posterior interocclusal space. As the patient closes, the wafer may make contact with the posterior teeth, occlusal forces causing deformation as the patient closes. This deformation recovers on removal of the wafer from the mouth. The plastic wafer is relatively thick and the occlusal forces cannot necessarily be replicated on the articulator without the risk of fracturing the working models. This results in an incorrect recording of the posterior vertical dimension, a particular problem with appliances, such as the Clark Twin-Block as extensive chairside adjustment may be required.

To overcome this problem we are suggesting a relatively simple and easy modification. The posterior arms of the Projet wafer are removed and replaced with a length of 1.25 mm soft stainless steel wire. This is achieved by drilling a hole of suitable diameter through the projecting rod at the point where the plastic has been sectioned, feeding a length of wire through and then fashioning it into an archform, with horizontal loops to facilitate retention of the bite recording material. It is important that the wire is free to rotate in the vertical plane. Softened wax or silicone putty is then applied to the wire loops, and the bite is recorded in the normal way. If wax is used it should be allowed to cool fully before removal from the mouth to minimize shrinkage. Leaving the wire uncovered at its insertion to the plastic will facilitate any need for sectioning the bite record if required (see below). As the wire is free to rotate within the plastic, the wire loops and bite registration material can deflect during closure of the mandible without producing distortion. It is then possible to reproduce the bite accurately on the articulator. It should normally be possible to seat the incisors fully into the notches, assuming that this position was achieved during the clinical bite recording. Figures 1 and 2 illustrate the difference between the modified and unmodified versions when seated on articulated models; the deformation of the posterior arms of the former is evident. If the technician suspects that there is still some residual distortion present, it is possible to section the bite into right and left halves by cutting through the wire either side of the midline and discarding the plastic rod eliminating the risk of fracturing the study casts. Early clinical results have shown this modification to be effective and to give accurate records for appliance construction with little need for chairside adjustment.

FIG. 1

FIG. 2

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