

Precautions to be Aware of With Clear Plastic Appliances

There has been a flurry of interest in clear plastic appliances to align teeth without the esthetic compromise associated with fixed appliances. However, there are precautions that the clinician should be aware of when using clear plastic appliances, and these are: (1) to avoid the possibility of demineralizing enamel, and (2) grossly disrupting the occlusion.

Demineralization

Any plastic appliance that covers some or all of the teeth is, in effect, a tray. When fluoride is placed in the appliance, the enamel becomes more resistant to decay likewise when bleach is placed in it, the teeth become whiter. However, when acidic beverages are retained in the appliance, it becomes an acid-containing trench causing the enamel to become susceptible to demineralization. This is one of the reasons that clear plastic retainers are to be worn only at night, after brushing and flossing — to preclude the possibility of demineralization of acid-containing beverages that could be retained in the appliance.

When any full-arch clear plastic appliance is used, it is incumbent on the clinician to inform the patient of the dental side effects of acid-containing beverages when wearing these devices full-time, and to flush the mouth with water immediately after drinking acid-containing beverages (soft drinks, fruit juice cola beverages etc.) Commercially available daily fluoride rinses are also recommended. These precautions may prevent incisal edges from being marred by unsightly decalcification (Figs. 1A,B).

Disturbance in Occlusion

Additionally, if a full coverage plastic appliance is used to move teeth, or is used as a full-time retainer for extended periods, it should be equilibrated since it could cause significant premature occlusal contacts in the posterior teeth and, in turn, induce an anterior open bite due to the “1 to 3” prosthetic concept — 1mm of bite-opening on the terminal molars will induce 3mm of bite-opening on the incisors because prior to translation the initial opening movement from centric relation is purely rotational with a hinge-axis (center of rotation) around the condyles. When a full coverage plastic appliance is seated, the thickness of the appliance between the terminal molars will inevitably cause a hinge-axis interference, and will induce a disproportionately larger anterior open bite. (Fig. 2A) *This dilemma is avoidable* — simply equilibrate full-arch clear plastic appliances when they are initially seated. If only one device is needed, equilibrate it. If upper and lower appliances are worn concurrently, place one and equilibrate it. Then place the other and equilibrate it until reasonable occlusal and incisal bites are established. (Fig. 2B)

In summation, the clinician should be aware of the potential for demineralization, and/or the occlusal and incisal disruptions that full time appliances can generate, no matter what their purpose. Then, the steps necessary to nullify, or at least diminish these effects can be initiated.



Fig. 1A Appearance of enamel prior to wearing a plastic appliance (surgical splint) that covered the incisal edges of the maxillary anterior teeth.



Fig. 1B. Incisal edges demineralized due to drinking a cola beverage and constantly wearing the appliance.

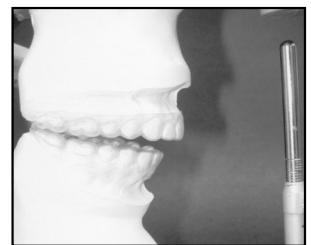


Fig. 2A. The open bite induced when upper and lower full coverage plastic appliances were placed.



Fig. 2B. Occlusion after equilibration with plastic appliances in place.