

TREATING BRUXISM AND CLENCHING

A problem as old as the Bible, “gnashing of teeth” continues to be a perplexing aspect of dentistry. Tooth structure is rapidly destroyed by bruxism and clenching and creates very difficult treatment situations. Most dental restorations placed into the mouth of a patient with abusive chewing habits are short-lived because of breakage or wear. Many patients do not realize they have a bruxism/clenching problem. Often, they have nearly destroyed their dentition before a dentist or dental hygienist educates them about their destructive chewing habit. What can be done to reduce the tooth destruction associated with bruxism or clenching?

This article presents several concepts to aid practitioners in the treatment of patients with bruxism or clenching. The suggestions are based on my 40 years of clinical experience, as well as on pertinent research observations. This subject is highly controversial, and the research is conflicting. I fully expect to stimulate discussion on differences of opinion.

BRUXISM AND CLENCHING

In vivo research data show that natural enamel wears about 30 micrometers per year¹ or about 0.3 millimeter in 10 years. It is difficult to measure the amount of tooth structure destroyed by patients with bruxism and clenching, but in my observations, it is not uncommon to see 2 mm of tooth wear by the mid-20s in abusive chewers. Based on potential nocturnal grinding, it is logical to assume that patients with abusive chewing habits destroy enamel at a rate up to 10 times faster than that for people without abusive chewing patterns.

Bruxism. People with bruxism are considered to grind their teeth together in eccentric positions (right and left working and nonworking, as well as canine and incisal guidance). It is extremely difficult to restore teeth in these patients, because a chewing position (centric occlusion) must be established at a location that is somewhat difficult to predict. Many practitioners provide patients with bruxism

with a long centric and wide centric occlusion without much incisal guidance or canine rise. My most successful rehabilitations of patients with bruxism have used this concept.

Clenching. People with clenching tend to bite into centric occlusion and clench their teeth together without significant right, left or forward movement. In my observations, people who clench on a long-term basis often wear their anterior teeth severely and leave the posterior teeth less destroyed. Such worn dentitions have very steep incisal and canine guidance. These patients are relatively easy to rehabilitate; this requires opening and “retreading” of the dentition while maintaining the “worn-in” chewing position and incisal and canine guidance at the same angles as those that were present preoperatively.

TREATMENT OF THE YOUNG PATIENT WITH BRUXISM/CLENCHING

During the mixed dentition period, some destructive chewing occurs, but teeth have a signifi-

cant depth of enamel on them, and wear is not often noticed until late adolescence or the early 20s. What can be done for the patient with destructive chewing habits who is observed in this young age range?

Patient education about tooth destruction caused by excessive chewing should be one of the main objectives during treatment. When patients recognize the catastrophic result of bruxism/clenching, most want to begin preventive therapy immediately. There are many theories on how to stop tooth-grinding habits, most of which I have tried. I have concluded that placing a resin splint in the mouth is the most predictable and least complicated method of preventing wear.

Occlusal splints. Occlusal splints for patients with bruxism/clenching must be sturdy and relatively thick. I have observed patients who have literally eaten through improperly constructed splints in only a few months. I suggest that occlusal splints be made of polymethyl methacrylate and be heat-cured or autocured. They can be placed on either the maxillary or mandibular arches. There should be at least 1.5 to 2.0 mm of material in the thinnest area on the posterior teeth. Every opposing tooth should have a centric stop to prevent extrusion of opposing teeth. Incisal guidance and canine rise should be present, with a stable centric-relation-occlusion position into which the patient occludes.

Retention of the splint in the mouth can be achieved by extending acrylic resin in the premolar and molar areas slightly apically beyond the teeth height of contour. The minor polymerization contraction of the resin

provides adequate retention. Although I do not use this concept frequently, wires can be placed in the splint to assist retention by extending the wires into undercuts on the teeth. Such occlusal splints have been observed to serve three to 10 years in patients with bruxism/clenching if they properly maintain them.

Nighttime and daytime wear. Patients are advised to wear the splint each night upon retiring and also during daytime hours when they are psychologically stressed. When not

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in use, the splint should be placed into a sealed plastic sandwich bag along with a few drops of water.

If tooth restorations are placed at a young age, they usually are not related to bruxism or clenching. Occlusal equilibration, thought by some to reduce or eliminate bruxism and clenching, can be accomplished if significant occlusal prematurities are present.

TREATMENT OF THE MIDDLE-AGED PATIENT WITH BRUXISM/CLENCHING

Commonly, patients are allowed to continue with their bruxism and clenching habits into midlife without being educated about their condition and without any preventive therapy. As

a result, teeth are often worn into dentin to the degree that they are unsightly and sensitive. Depending on the pattern of wear, some or all of the teeth are worn to the degree that they require restorative therapy. An occlusal equilibration is usually required before restorative therapy begins. Abnormal occlusal prematurities are removed and a harmonious occlusion is established before the new restorations are placed.

Restorative treatment. If only a few teeth require restorative treatment, it is best to use materials that do not wear opposing teeth significantly. Type 2 gold alloy, properly quenched, is my choice for these people. However, many patients will not accept gold alloy because of its appearance. In these situations, polymer or fiber-reinforced polymer crowns and fixed prostheses may be used (Artglass, Heraeus Kulzer; belleGlass, KerrLab; Sculpture/FibreKor, Jeneric/Pentron; or Targis/Vectris, Ivoclar North America). Low-fusing ceramic also has been shown to cause less wear of opposing teeth than conventional porcelain (Empress 2, Ivoclar North America; Finesse, L.D. Caulk, Dentsply; Procera, Nobel Biocare; and others).

A postoperative occlusal splint should be required for these patients. They should be advised to wear the splint every night upon retiring and during the day in times of physical or emotional stress.

Rehabilitation. I have rehabilitated many middle-aged patients with bruxism/clenching who have partially destroyed their teeth. Through education and motivation to wear a splint properly, patients can stop aggressive wear of their teeth.

TREATMENT OF THE MATURE PATIENT WITH BRUXISM/CLENCHING

Patients who have progressed through life without education about their aggressive chewing habits and without preventive therapy usually have destroyed their dentition. Although the periodontium in these people is usually healthy, the teeth require total rehabilitation. Usually, these patients have the following few choices:

- full-mouth rehabilitation with crowns and fixed prostheses at a considerable cost;
- placement of a resin splint designed to provide reduced natural tooth wear and improved esthetics;
- removal of all teeth and placement of dentures (soon to be destroyed also);

■ staying as they are until a crisis occurs.

Whatever treatment is accomplished, an acrylic resin occlusal splint should be made postoperatively. The patient should wear the splint every night and during stressful times of the day.

CONCLUSIONS

Bruxism and clenching have been present since the beginning of mankind. These conditions cause total destruction of the dentition if allowed to progress without patient education and/or preventive therapy. Conversely, proper patient education as soon as bruxism/clenching is observed, acceptable restoration of affected teeth and wearing of an acrylic resin splint allow the patient



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with bruxism or clenching to live a normal life, without significant tooth wear or other dental handicaps. ■

The views expressed are those of the author and do not necessarily reflect the opinions or official policies of the American Dental Association.

Educational information on topics discussed by Dr. Christensen in this article is available through Practical Clinical Courses and can be obtained by calling 1-800-223-6569.

1. Christensen RP, Smith SL, Aina TC. Quantifying wear in human adult teeth in vivo: 2-year report. *J Dent Res* (in press).