



## TEMPORARY DENTAL SIMULATOR PROTOTYPE WITH FLUID RESIN

**Blanca Estela Estrada Esquivel**

Clinical and Laboratory teacher of the Faculty of Stomatology of the Autonomous University of Puebla Benemérita BUAP (México) & 10 B Sur # 3720-301 Col Anzures

**Elsa Deni Perez Hernandez\***

Student of 10th grade Faculty of Stomatology of Autonomous University of Puebla Benemerita BUAP (México) \*Corresponding Author

**ABSTRACT** The constant dental abrasion with etiology due to emotional stress, where the incisal edges of the upper and lower anterior teeth are worn away, as well as the occlusal faces of the posterior teeth over time. If not controlled, the result is the loss of the dental vertical dimension, that is, the teeth decrease their cervical-incisal diameters. And simultaneously causes problems at the level of the Temporo-Mandibular joint. The treatment plan must be carried out carefully and show the patient in advance how the rehabilitation of their teeth would be before preparing them. Therefore, a clinical procedure is presented before tooth wear, so that the patient knows and sees in his mouth how the treatment would look like in the future, it is shown by means of a *Temporary Simulator Prototype* of the future oral rehabilitation of the patient who will use it for a short time.

**KEYWORDS :** Dental abrasion, Dental simulator prototype, Gnatological waxing.

### INTRODUCTION

Patients suffering from stress, one of the sequels are to grind and clench the teeth that are commonly known as Bruxism and can be daytime, nighttime, bruxism in centric, bruxism in eccentric. The term of Bruxism was first handled by Marie Pietkiewicz in (1907) but the literature reports that this term was assigned to Frohman in (1931). However, in (1999) Carlsson and Magnusson, it is who is awarded the definition of bruxism as we know it today; like the grinding and clenching of the teeth at different times.<sup>1</sup>

Once the problem of clenching and grinding is established, the enamel begins to wear, which is the most noticeable sign of the problem, and the place where it starts is the anterior teeth, several investigations mention that bruxism is one of the most functional dental disorders prevalent, complexes and destructive that exist.<sup>2</sup>

Therefore, bruxism is defined by various authors as a neuro-physiological disorder of the movements of the jaw, which may or may not affect generating sounds in the temporomandibular joint.

However, it is a multi-etiological alteration, but the stress is that it is currently considered the main cause. But it is mentioned that they can also influence psychological, pathophysiological and morphological factors (2-6). Similarly, the bruximo is classified into two types: Central, which are those most preferably daytime squeezers. And the eccentric bruximo, which in clinical examination shows the wear on occlusal faces of the posterior and incisal edges of the anterior teeth.

The treatment will be depending on whether it is a Central or Eccentric bruxism, which is associated with wear. And it can be a Reversible treatment; which is the control of the factor that originates it, the use of drugs and occlusal splints. Irreversible treatment; it is only with the occlusal adjustment and with the appropriate oral rehabilitation to return the new lost vertical dimension.

As the case presented, it is a patient with symptoms of an Irreversible bruxism, due to the wear on the incisal edges of the anterior and the time of evolution, which needs to be rehabilitated to recover the vertical dimension lost in the anterior teeth. To do this, a temporary prototype was made of how his rehabilitation will be at the end.

### OBJETIVE

The importance of performing a temporary simulator prototype of the future rehabilitation, with fluid resin, so that the patient compares and evaluates the results of the definitive, functional and aesthetic treatment.

### MATERIALS AND METHODS

Clinical case; A 42-year-old female patient comes to the dental office to request dental rehabilitation because she feels very uncomfortable with the shape of her teeth. The clinical examination shows greater wear to the middle third of the two central incisors, wear of the incisal third of the lateral and upper canine incisors. Radiographically it has good root length with good bone support.

The definitive treatment plan is the rehabilitation with porcelain crowns in the central incisors, and in the lateral and canine incisors the placement of porcelain veneers. But the patient was not encouraged to wear the necessary wear for future rehabilitation. Therefore, the proposal presented was made, the realization of a Temporary Simulator Prototype, to use it for a while and realize the change in occlusion (function) as well as, aesthetic changes. The patient must be aware and know the entire procedure to which she will be subjected and how the final rehabilitation will be, and her aesthetic finish is favorable for the patient.

The clinical procedure began with photographs of how the patient's mouth was (Figure 1.2.3), subsequently the records of the two jaws were taken, which were articulated in a semi-adjustable Whip-mx model 222 articulator. where a gnatological waxing of the shape and size of the future crowns and veneers was performed and how they would be (Figure 4). When the wax was taken, an impression is made of silicone, such as the light and heavy Polivinyl Siloxane from the 3M commercial house (Figure 5).

From which a working model was obtained (Figure 6), where the waxing of gnatological diagnosis was made with the proposed new vertical dimension. Subsequently, in the model a protector was made with acetate of the caliber 60 (Figure 7) that will be the guide for the simulator prototype in the patient's mouth. Several authors propose that an acrylic Bis Resin was used for this procedure, but the simulator lasts for a short time, so a new way of performing the simulator is presented, which is to condition the enamel with adhesion systems, which in this case it was with 7% phosphoric acid and universal adhesive, and use fluid resin, so that the prototype lasted long enough that the patient needed to make the decision to perform the definitive treatment. (Figure 8)

**Figure 1 Abrasion of anterior teeth** **Figure 2 Anterior zone view**



Own source: Estrada, B (2019)



Own source: Estrada, B (2019)

**Figure 3 Profile of anterior teeth**



Own source: Estrada, B (2019)

**Figure 4 Waxed gnathological**



Own source: Estrada, B (2019)

**Figure 5 Duplicate**



Own source: Estrada, B (2019)

**Figure 6 Work model**



Own source: Estrada, B (2019)

**Figure 7 duplicated with acetate**



Own source: Estrada, B (2019)

**RESULTS**

The temporary simulator prototype of the dental treatment lasted longer than agreed with the patient, due to the adhesion of the fluid resin to the enamel, unlike with the biomaterial of the Acrylic Bis resin, and helped the final decision making for its rehabilitation where it She already knew the final result of her dental rehabilitation, which allowed her to be calmer, since she is a patient with emotional stress disorders.

In addition, those provisional crowns were obtained from the same waxing.

This technique helps the patient to visualize their final rehabilitation.

**Figure 8 Final result**



Own source: Estrada, B (2019)

**CONCLUSIONS**

The present diagnostic technique by means of a temporary simulator prototype now made with a material different from what other authors propose, such as the fluid resin, due to the characteristics of the resin, the patient could perform all her functions without fear. To fall in a few days, the durability was 1 month that was when the treatment began and there were still resins, being that the acrylic bis resin lasts approximately 2 weeks. It is performed in the dental office and without tooth wear, which is a great advantage for the patient.

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