

# The Efficacy of Cream Adhesives for Prosthesis Evaluated by the Wearer of Acrylic Total Prosthesis

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*The purpose of the study was the clinical evaluation of two types of adhesive cream for prostheses. The group consisted of 46 whole-edged toothless male and female patients treated with acrylic total prosthesis. 23 of the study participants used Corega Neutro (GlaxoSmithKline) and other 23 of the patients used Fixodent Neutral (P & G) adhesive. The patients used the adhesive for 7 consecutive days. After a day's break, patients filled in a questionnaire in which they appreciated the different qualities of adhesive cream such as a total improvement of the denture retention, improved chewing and phonetic function, or ease of use. The use of the two types of adhesive creams improved significantly in approximately equal proportions the retention of total prostheses, masticatory function and phonetic function. There were no statistically significant differences between the main properties of the tested adhesive creams.*

**Keywords:** adhesive cream for prostheses, retention, mastication

The chewing function is one of the most important functions of the dental jaw. The total toothless status threatens this process characterized by alternating phases of physiological inactivity, food intake, initial food trituration, food bolus formation and swallowing [1].

Since literature data reported that total prosthetic patients often experience: various degrees of prosthetic instability, discomfort and / or reduction in masticatory and speech function [2], the success of total toothless treatment by prosthesis has based on the use of the whole arsenal by the dentist: techniques tailored to each patient's clinical situation, continuous information, knowledge and familiarity with all the options for managing possible inconveniences characteristic of total prosthesis. In this regard, improving the maintenance and stability of total prosthetic works is the target of each practitioner. Adhesives for prosthesis were introduced into dental practice at the end of the 18th century, the first to describe the mechanism of action of adhesives was Shay in 1991 [3].

Adhesives for prosthesis have been an important point in the research for more than a century [2], studies of their effectiveness in the context of improving the retention, stability and functionality of the masticator function of total prostheses, but also on biocompatibility, the potential for microbial contamination or potential development in the oral mucosa of *Candida albicans* and  $\alpha$ -hemolytic streptococci in case of a prolonged use [2,4,5]. Other studies on prosthetic adhesives included aspects related to the attitude and assessment of knowledge about them, both for dentists and for patients with total prosthesis [6,7].

The dentist's knowledge of the properties of the prosthetic adhesives is necessary in the therapeutic approach of the patient. The identification of patients requiring the use of prosthetic adhesives and the education of patients for their correct application is an objective to be met within the medical profession.

The dentist's explanation for the advantages and drawbacks of using prosthetic adhesives implies knowledge of certain features such as their mechanism of action, the effect on the masticatory function, the effect on the oral mucosa, the efficacy at certain time intervals.

## Experimental part

The study aims at clinical evaluation of two types of prosthetic adhesive creams with by patients with total prostheses. The group consisted of 46 patients of both sexes edged with total toothless unimaxilar. Patients compensated for general disorders who did not previously have dental prostheses and who had no traumatic, premalignant or malignant potential in the oral cavity were included in the study. The 46 participants in the study come exclusively from the urban environment and are aged between 56 and 78 years old (the average age is 67 years). With regard to the gender distribution, 78.26% are women and 21.74% are men.

The initial retention of the denture by the study participants in the two groups recorded the maximum percentage in group A of 60.87% and in lot B of 52.17%, both values being attributed to satisfactory retention.

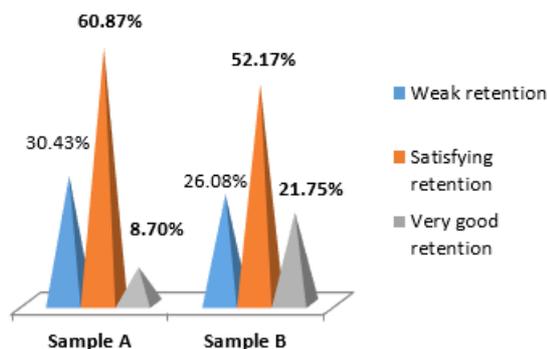


Fig. 1 Initial retention of the prosthesis

In this study, the effectiveness of the two adhesive creams on total prosthesis retention was analyzed, investigating some qualitative aspects subjectively reported by the patients in the context of 60 -70% reported in the specialized literature, patients experiencing difficulty in retention and stability of the prosthesis [8]. According to the respondents' answers to the survey, more than 65% of them considered that the use of the two types of adhesive creams significantly improved the denture retention. 8.7% of the patients in group A or group B, respectively, considered it unnecessary to use the adhesive in the total

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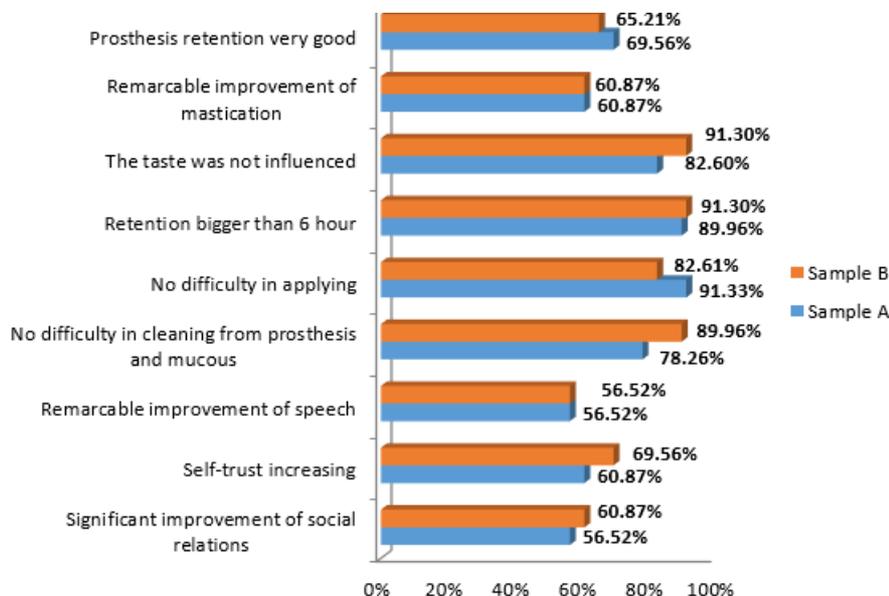


Fig. 2 The distribution of responses to assess the qualities of the two types of prosthetic adhesive creams

denture retention. Fujimori et al. found in their research that prosthetic adhesives improved the masticatory function especially in subjects whose prostheses were judged to be unsatisfactory or at most acceptable [9].

Subjects in both batches found a unique 60.87% improvement in mastication after use of the adhesive cream. This result is consistent with the results obtained by Kelsey which indicated a substantial improvement in secondary mastication of prosthetic adhesive use. [10]As to the influence on the taste with the use of adhesive creams, there is a difference of approximately 9% between the two batches attributed to the majority response *taste was not influenced*. To this question, no patient considered that the prosthetic adhesive, regardless of the type, had altered the taste throughout its use to a great extent. We do not consider this difference to be significant, because assessments of influencing taste may be subjective. The retention of total prostheses after application of the adhesive was greater than six hours in both groups of patients, with significant percentages of 89.96% (Corega) and 91.30% (Fixodent), respectively.

These results correspond to the data reported by Grasso, which noted that the adhesive produced a significant improvement in the retention and stability of the maxillary prosthesis during various chewing, swallowing and speech activities for up to 8 hours [11-13]. Grasso was also the one who tested the effectiveness of Fixodent adhesive on jaw and mandibular prostheses immediately two to four hours after application, the results indicating that the adhesive significantly reduced the jaw and mandibular jaw movement during food incision and mastication; and the improvement occurred immediately after application of the adhesive and was maintained for the four hours of follow-up [14-16].

Most participants did not encounter difficulties in using the two types of adhesive creams, both in application and in the cleaning of adhesive on the prosthetic piece or oral mucosa.

The patient should be informed of the requirement of daily cleaning of the adhesive on both the oral mucosa and the total prosthesis, to allow the regeneration of the mucosa [17-20].

More than half of the participants found remarkable improvement in speech after using adhesive creams. In addition to improving retention and mastication, the results of the study highlight the increased self-confidence of

patients in considerable proportions about 65% of the participants, irrespective of the type of adhesive paste used.

From this point of view, we may consider a direct consequence the fact that over 55% of patients experienced a significant improvement in social relations.

It is very important to emphasize that adhesives should not be used to avoid clinical and laboratory inaccuracies that occur in the dental prosthesis [21-24].

### Conclusions

The two types of adhesive cream evaluated significantly improved the retention of total jaw and mandibular prostheses, bringing remarkable benefits in providing an effective masticatory and phonetic function. Adhesive creams for prostheses are easily tolerated and easy to use by total toothless patients.

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Manuscript received: 13.09.2017