

What has happened to removable partial prosthodontics?

A recent article in the *Journal of Prosthetic Dentistry*¹ has prompted me to comment on the state of the art in removable partial dentures, or RPDs. The authors of the cited article used the Third National Health and Nutrition Survey, or NHANES III, data set² to evaluate the prevalence and quality of RPDs. The results of the evaluation were not indicative of high quality in this area of clinical dentistry.

Of 17,884 patients, 1,303 patients with RPDs had complete records and were included in the study. Quality of RPDs was judged by the following criteria: integrity, tooth wear, the presence of temporary reline material or adhesive, stability and retention. The following results were considered highly significant at $P < .0001$. Sixty-five percent of the RPDs had at least one defect, with lack of stability being the most common. Mandibular RPDs had signifi-

cantly more problems related to retention, and maxillary dentures had more problems with presence of reline material. Tooth wear problems were related to the patient's age. One-third of the RPDs were considered satisfactory, according to the NHANES III criteria.

In this article, I discuss the state of the art in RPDs and make suggestions regarding potential methods of improving this area of dentistry.

MAGNITUDE OF THE PROBLEM

Millions of people in the United States wear RPDs. It is my belief, after speaking to thousands of dentists, that RPDs and complete dentures are the areas of dentistry that receive the most complaints from patients. Because of the challenges with this area of dentistry, many dentists will not make complete or RPDs. Often patients are positive and accepting while the prosthesis is being made, but dissatisfied later because of the

myriad postoperative challenges that arise. Common complaints about RPDs are that they do not have acceptable esthetics, they do not allow normal chewing forces, they fall out, they are not stable, they are too big and bulky, they cause pain while chewing and even while not in function, they break during service, they wear and appear smaller than the original natural teeth and many other problems. Ask any dental clinician about the relative success of RPDs in practice; his or her comments will support these statements.

Even though I am a prosthodontist and have many years of experience, I agree with the frustration expressed in the complaints about RPDs. The antithesis of RPD therapy is treatment with fixed prostheses. In most cases, the patients like both the esthetic result and the functioning of fixed partial dentures. This is one of the reasons that implants and fixed partial dentures supported by implants

have become so popular. The magnitude of the problem with RPDs is significant.

NEED FOR EASIER, MORE PREDICTABLE TECHNIQUES

Many schools teach techniques for RPDs that can provide acceptable clinical results, but the procedures often are too time-consuming and difficult for routine use in practice. As a result, the neophyte practitioner begins practice both inexperienced and with knowledge of only time-consuming RPD techniques. After a few failures, the new practitioner finds any way possible to avoid making an RPD.

Dentistry needs far simpler and more predictable techniques. I published a column on easier procedures in *JADA* a few years ago.³ My favorite technique for Kennedy Class I, II and IV RPDs follows (Kennedy Class III RPDs can be made easily with alginate impressions in a metal stock tray, because they are tooth-borne).

- Make preliminary impression in a stock tray with alginate impression material.
- Make a diagnostic cast.
- Make a custom tray in easy-to-use light-curing tray material (Triad, Dentsply Trubyte, York, Pa.).
- Make the initial layer of the final impression in the custom tray using elastomer material (preferably addition-reaction silicone) placed only on the edentulous areas of the partially edentulous arch.
- Trim the initial layer of final impression material away to prevent any contact with tooth structure.
- Make the secondary layer of the final impression in lighter-viscosity elastomer, covering

both the initial layer of the final impression already in the tray and the dentate areas.

- Fabricate the framework and the denture in the customary way.

This technique provides force on the edentulous areas during placement of the secondary layer of the final impression, because the already-set initial

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layer of the final impression firmly seats onto the soft tissue in the absence of any tooth contact. The clinical result is much like that of the so-called “split cast” or “altered cast” procedure that is taught in many schools but soon is abandoned by almost all practitioners.

CHANGING THE EDUCATIONAL PROCESS

I suggest that dental school administrators observe the faculty members who have responsibility for teaching RPD technique and note the content of their courses. In case they find that this area of dentistry could be updated in their schools, I suggest the recruitment of local general dentists or prosthodontists known for their expertise in RPDs. Almost any community in which a dental school is located has competent prosthodontic practitioners who will be willing to serve as part-time faculty members. Usually, successful practitioners have developed techniques that are

efficient, clinically acceptable and financially rewarding. Their positive influence in dental education cannot be underestimated.

INCREASING LABORATORY TECHNICIANS' INVOLVEMENT IN DENTAL EDUCATION

The lack of laboratory technicians involved in educating dental students is appalling. As I have strongly stated before, dentists and laboratory technicians are part of the same team, and they need to work together in educating both dental and dental technology students.⁴ I suggest the incorporation of competent laboratory technicians into dental school prosthodontic faculties. These part-time faculty members can provide “real world” information for dental students, so the shift from student to dentist is not so threatening.

IMPROVED EDUCATION ABOUT IMPLANT DENTISTRY

One potentially major way to improve the state of the art in RPDs is to increase education about dental implants. For many years, I have placed implants both underneath RPDs for additional support and retention and as abutments to allow the placement of fixed partial dentures over the implants. The result has been significantly better acceptance of the prosthodontic therapy.

FEES FOR REMOVABLE PARTIAL DENTURES

I have always been puzzled about why RPDs garner such relatively low fees. The average cost of an entire RPD is about the same as the cost of one porcelain-fused-to-metal crown.

The time, energy and effort required to produce the RPD is far more than what is required for a typical crown. Additionally, the typical RPD requires much more of the dentist's time post-operatively than does a typical crown. Why does this inequity exist? Producing better-quality RPDs requires a re-examination and adjustment of RPD fees.

CONCLUSION

It is apparent to clinicians that patients' acceptance of RPDs is among the lowest of all areas of dentistry. There are identifiable reasons for the problem, some of

which I have discussed in this article. It is suggested that efforts to improve the situation be made by both the dental and dental technology professions. ■

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. Hummel SK, Wilson MA, Marker VA, Nunn ME. Quality of removable partial dentures worn by the adult U.S. population. *J Prosthet Dent* 2002;88:37-43.

2. U.S. Department of Health and Human Services and National Center for Health Statistics. Third National Health and Nutri-



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tion Examination Survey, 1988-1994: NHANES III examination data file (CD-ROM). Hyattsville, Md.: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 1996. Public use data file documentation 76,200.

3. Christensen GJ. Making better removable partial dentures. *JADA* 1995;126:1041-4.

4. Christensen GJ. A needed remarriage: dentistry and dental technology. *JADA* 1995;126:115-7.