Who cuts the better occlusal rest seats? GDPs versus academics

The size of occlusal rest seats prepared for removable partial dentures by P. F. Culwick, P. G. T. Howell , and M. J. Faigenblum Br Dent J 2000; 189: 318-322

Objective
The aim of this study was to test whether rest seats cut by a group of general dental practitioners for a removable partial denture differed in size and shape from those prepared by either a group of postgraduate students or their academic teachers.

Method
The occlusal surfaces of a number of plastic teeth were scanned by a laser profilometer. Each tooth was then placed in a set of articulated phantom head dental arches. 30 dental practitioners, 16 postgraduates and 11 dental academics were asked to cut a rest seat preparation in the mesial marginal ridge suitable for the construction of a removable chromium cobalt partial denture. The tooth was removed from the models, rescanned, and this data converted to grey level images for measurement of the width, length and area of each rest seat. Depth was calculated as the difference between the pre and post preparation scanned profiles.

Results
There was a wide variation in the size of the individual rest seat preparations. There was no significant difference between the measured parameters from the images of the preparations made by academic staff and postgraduate students. The two sets of data were therefore combined. The length, width and area of the rest seats prepared by the staff and postgraduate group were significantly greater than those cut by the dental practitioner group. However, there was no significant difference in the depths measured. The outline form of the rests prepared by the dental practitioners was often round with sharply defined margins contrasting with the smooth triangular preparations of the staff and postgraduates.

Conclusion
A 'refresher' in tooth modification for GDPs designing partial dentures would improve the longterm success of the prosthesis.

In Brief
- GDPs tended to cut small, sharply defined, round or oval rest seats on the crest of the marginal ridge.
- The rest seats prepared by the PGs and their academic tutors were generally larger and triangular in shape and blended smoothly into the tooth's natural contour.
- Nearly all preparations were too shallow and would require the opposing cusp to be reduced if the rest was to have adequate thickness and strength.

Comment

This interesting paper has a predictable outcome in that the postgraduate and academic group produced rests seat preparations which adhere more to the accepted standards. On the face of it this probably reflects a better understanding of the function of rest seats and an understanding of the problems associated with casting and fitting cobalt chrome appliances in the academic group. However, there may be wider issues than these.

The paper does prompt the question 'Why should there be such a great distinction between the two groups for a category of treatment which really falls into primary dental care?'

Undergraduate training includes this aspect of prosthetic treatment in the curriculum. The apparent lack of knowledge reflected in the general dental practitioner group may have occurred for one of two reasons. Firstly there may have been a failure to acquire the information and necessary skills as an undergraduate. Or secondly there may be a type of 'disused atrophy' of the knowledge gained as an undergraduate.

Many undergraduate programmes have now reduced requirements for toothborne removable prostheses. In addition the provision of cobalt chrome toothborne dentures under the National Health system is uncommon. As a consequence the knowledge gained at an undergraduate level may not be applied. This latter issue is probably compounded by the fact that many dental practitioners do not plan or design their toothborne dentures. Despite Basker's article,[1] this aspect of work is still undertaken to a significant degree by dental technicians. As a result occlusal rests are often an 'add on' rather than a planned feature.

It would have been valuable to know, within the general dental practice group, whether there was any relationship between the year of qualification and the type of rest seat preparation. The numbers for the study would have prevented this comparison by the authors but this could be a subject of a follow-up study. In addition, if the postgraduate group could have been assessed prior to starting the prosthetic dentistry course, an assessment of knowledge gained in this aspect could have been made. It may well be that the postgraduate group reflects a more knowledgeable and motivated practitioner group who had already acquired this information prior to the programme start.

The answer to these questions would be of interest to teachers of prosthetic dentistry throughout the country. The lack of this knowledge and skill is probably a symptom of an overall failure of general dental practitioners to survey, design and plan their partial dentures as well as an NHS fee structure which discourages the provision of this type of work.

The results of the study would indicate that Section 63 courses aimed at improving practitioner knowledge of this field of dentistry would be valuable as part of continuing professional development. However, one may not see a significant improvement in the clinical standards without a change in the NHS fee.

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1 Basker R M, Harrison A, Davenport J C, Marshall J L. Partial denture design in general dental practice — 10 years on. *Br Dent J* 1988; **165:** 245-249.