Short Communication

Influence of the Occlusal Concept of Complete Dentures on Patient Satisfaction in the Initial Phase After Fitting: Bilateral Balanced Occlusion vs Canine Guidance

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This clinical single-blind study aimed to evaluate the influence of 2 occlusal concepts (OCs) on patient satisfaction in the initial phase after fitting new complete dentures (CDs). Thirty-eight edentulous patients received 1 new maxillary CD and 2 almost identical mandibular CDs, which differed only in their OC (bilateral balanced occlusion vs canine guidance). After 2 weeks, the patients' satisfaction was evaluated and the OC was changed. Two weeks later, the patients' satisfaction was reevaluated. After 2 and 4 weeks, 63% and 47% of the patients preferred bilateral balanced occlusion and 5% and 11% preferred canine guidance, respectively. Thus, a bilateral balanced occlusion primarily facilitates the adaptation of a new CD. *Int J Prosthodont 2008;21:60–61.*

Although the percentage of edentulous patients is slowly decreasing,¹ a noteworthy number of patients still require complete dentures (CDs). Static and dynamic occlusion are important criteria for the success of CD treatment.² However, the debate about the ideal occlusal concept (OC)–bilateral balanced occlusion (bbO) versus canine guidance (cG)– is controversial.

It is generally accepted that occlusal interferences may provoke neuromuscular hyperactivities, which in turn are regarded as the proximate cause for both recurring pressure spots underneath CDs and a general decrease in function.^{2,3} The rationale behind the concept of bbO for CDs is to prevent rocking movements via additional balancing contacts on molars during protrusive and Bennett movements.⁴ In contrast, some authors suggest maintaining the OC of the natural dentition in CD cases to prevent parafunctional activities, ie, the cG concept.⁵

Ultimately, patient satisfaction is the decisive factor regarding the overall success of prosthodontic treat-

ment in CD cases. Hence, it was the objective of this clinical single-blind crossover study to evaluate the impact of the OC (bbO versus cG) on patient satisfaction in the initial phase after fitting new CDs.

Materials and Methods

One maxillary and 2 nearly identical mandibular CDs were fabricated for 38 edentulous patients (24 women, 14 men; age range: 50 to 87 years) according to a standardized protocol using a duplicating technique to produce 2 identical mandibular CDs. The inclusion criteria were patients wearing CDs for at least 6 months with insufficient occlusion who provided informed consent. The exclusion criteria were CD cases with adequate bbO or cG.

The dentures were fabricated using a methacrylatebased resin (PalaXpress, Heraeus Kulzer) and acrylic resin denture teeth (lvoclar Vivadent). Subsequently, the 2 mandibular CDs were labeled and grinded to achieve either bbO (CD-01) or cG (CD-02). The labeling allowed the patients to distinguish between the 2 mandibular CDs without knowing the differences between them in order to avoid bias (single-blind study). After fitting (day of delivery of all dentures), the patients were asked to change the 2 mandibular CDs alternately each day. After 2 weeks, each patient's preference regarding the CDs (CD-01 versus CD-02)-and consequently the preferred OC-was evaluated using a standardized questionnaire. In the same appointment, the OC of the CDs was inversely changed. The denture with cG (CD-02) was grinded to achieve bbO (Fig 1). In contrast, cG (Fig 2)

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Fig 1 Bilateral balanced occlusion: Denture with balancing contacts on the molars during protrusive/Bennett movements.

was established using transparent resin base material (Palapress, Heraeus Kulzer), which was colored (tooth shade) prior to buildup on the bbO dentures (CD-01). Except for the change of OC, the CDs were comparable to the originals. All occlusal adjustments were performed after gothic arch registration in an adjustable articulator.

The patients were not informed about the change and were asked to wear the dentures for 2 more weeks prior to reevaluation after a total of 4 weeks. The chisquare test was used for statistical analysis (P = .05).

Results

Table 1 shows the results regarding the patients' preference. Two weeks after fitting, patients preferred the CDs with the bbO (P<.01). After 4 weeks, significant differences were observed only between the cG group and the remaining 2 groups (bbO and no preference) (P<.05).

Discussion

This study aimed to assess the influence of the OC on patient satisfaction in the initial phase after fitting new CDs. Directly after fitting, the majority of the patients preferred the dentures with bbO. The results indicate that bbO facilitates the adaptation of CDs for the patient. This may be explained by the fact that bbO minimizes rocking movements during protrusive and Bennett movements and consequently reduces the neuronal stimuli. Adaptation in its physiologic sense is only complete when the patient no longer perceives the new CD as a "foreign body," which in turn produces additional neuronal stimuli.

Consequently, it is hypothesized that bbO produces fewer neuronal stimuli compared to cG, which helps patients adapt to their new oral situation. However, with ongoing time during adaptation, the difference between both OCs becomes more and more insignificant.



Fig 2 Canine guidance: Denture with guidance surfaces on the anterior and canine teeth during protrusive/Bennett movements.

Table 1Patients' (n = 38) Preference Regarding theOcclusal Concept 2 and 4 Weeks After Fitting theComplete Dentures

Preference	After 2 weeks*	After 4 weeks**
No preference	32%	42%
Bilateral balanced occlusion	63%	47%
Canine guidance	5%	11%

P* < .01; *P* < .05 (chi-square test).

Conclusion

The OC of CDs is not as crucial as often anticipated for long-term clinical success in terms of patient satisfaction. However, the results suggest that bbO helps patients adapt to a new CD.

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