Impact of the Occlusal Morphology of Artificial Teeth on Bimaxillary Denture Treatment in Elderly Individuals: A Clinical Trial

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**Purpose:** To evaluate the performance of complete dentures (CDs) with anatomical and nonanatomical teeth in totally edentulous elderly individuals regarding oral health–related quality of life (OHRQoL), satisfaction, masticatory performance (MP), need for adjustment after CD placement, and patient preference for occlusal type. **Materials and Methods:** A randomized crossover clinical trial comprising 50 edentulous elderly individuals was conducted. The participants were divided into two groups: AT-NT (rehabilitated initially with anatomical teeth and 3 months later with nonanatomical teeth) and NT-AT (rehabilitated initially with nonanatomical teeth and 3 months later with anatomical teeth). OHRQoL was analyzed using the OHIP-EDENT; a satisfaction questionnaire was applied; MP was evaluated by the median particle size (X50) after chewing an artificial test food; and the number of adjustments of the prosthesis base was assessed quantitatively. **Results:** Overall, 34 elderly individuals (mean age: 69 years) were analyzed. No significant difference was observed between CD users with anatomical and nonanatomical teeth for OHRQoL ($P = .674$), satisfaction ($P = .725$), MP ($P = .849$), or number of adjustments ($P = .135$). Most subjects (52.9%) did not express a preference for any occlusal surface type. However, among those with a preference, the majority (32.4%) opted for nonanatomical teeth. **Conclusion:** Both posterior tooth types are eligible for oral rehabilitation in elderly users of conventional CDs, as the variables were not influenced by occlusal morphology. However, further studies are warranted in highly resorbed mandibular edges or in cases of adaptation difficulties, as the results may differ. Int J Prosthodont 2021;34:309–316. doi: 10.11607/ijp.7117

Conventional complete dentures (CDs) have mucous support and exhibit different biomechanical characteristics than natural teeth. Under the action of occlusal loads, the artificial teeth of CDs act as a unit, and any force applied to a single tooth will be transferred directly to the rest of the prosthesis, which can compromise its retention, stability, and/or support. In this context, several occlusal concepts for CDs have been described to reduce this biomechanical limitation. Among these concepts, the occlusal morphology of artificial teeth stands out, with special emphasis on nonanatomical teeth or zero-degree cusps.

However, there is still no consensus on the advantages of using this type of occlusal morphology. In previous studies, it was observed that teeth with a flat occlusal surface transmit less pressure on the soft tissues than those with cusps, with no significant difference in terms of masticatory performance (MP) or maximum occlusal strength. However, some studies have demonstrated the superiority of anatomical teeth in relation to teeth in the straight occlusal plane, mainly in relation to patient preference.

Few clinical trials have been conducted to evaluate the effectiveness of the flat occlusal surface in CDs. Initial studies subjectively assessed patient preference in relation to the type of occlusal surface, but with no adequate clinical control or defined inclusion criteria. Furthermore, studies that compared different types of teeth and the
The occlusal relationship in the same patient did not make the standardization of the prosthesis clear. In other studies, data were collected early in the adaptation period, after 3 weeks' or 1 or 2 months after placement of the new prostheses.

In view of the gaps found in the literature, this study aimed to evaluate the performance of CDs with non-anatomical teeth in totally edentulous elderly individuals regarding oral health–related quality of life (OHQoL), satisfaction, MP, need for adjustment after placement of the CDs, and patient preferences regarding the type of treatment. The null hypothesis is that there would be no statistical difference between the types of anatomical surfaces studied (anatomical or nonanatomical teeth) in relation to the aspects analyzed.

**MATERIALS AND METHODS**

A randomized controlled crossover clinical trial was conducted from 2015 to 2019 at the Dentistry Department of the Federal University of Rio Grande do Norte, Brazil, after approval by the Research Ethics Committee of Hospital Universitário Onofre Lopes (CAAE 44769415.4.0000.5292) and registration at the Brazilian Clinical Trials Registry Platform (ReBEC; RBR-3CQBW8). This study conforms to recognized standards required by the Declaration of Helsinki.

The study population consisted of elderly individuals (60 years or older) using maxillary and mandibular removable CDs selected from the analysis of the Department of Dentistry’s screening sector’s patient registry. Participants were aware that this was an evaluation for research purposes, and those who accepted the invitation were subjected to physical and history-taking examinations.

The inclusion criteria were as follows: conventional CD users; completely edentulous for at least 5 years; in good general health; and absence of intraoral injuries or oral changes that would make the use of new prostheses difficult. Patients with poor health who could not continue the treatment and undergo the data collection sessions were excluded from this study.

The sample calculation was based on the MP results of a previous study. The difference of means was 0.141, with SDs of 0.166 and 0.198. Therefore, the sample size resulted in 34 participants. Considering a possible percent loss of approximately 30%, the final sample was 50.

The 50 participants were randomized by simple drawing into two groups that started the experiment with different treatments: rehabilitation with anatomical teeth (AT; Orthognath 28° Classic, Kulzer), or rehabilitation with nonanatomical teeth (NT; Orthocal 0° Classic, Kulzer). The literature reports a period of 3 months for neuromuscular adaptation. Therefore, after 3 months, the treatment between the groups was reversed to obtain two different treatment sequences: AT-NT and NT-AT.

The random sequence of randomization was carried out by a researcher who did not participate in the enrollment phase or in the manufacture of the prostheses. The same researcher drew sequentially numbered opaque and sealed envelopes containing the participant’s intervention for the allocation of each participant.

The prostheses were made by following the stages of anatomical molding, functional molding, adjustment of the orientation planes, maxillomandibular registration, semi-adjustable articulator assembly (SAA) using a Camper table, wax teeth testing, placement, and posterior controls. The teeth were mounted in a balanced bilateral occlusion and with vertical and horizontal transfers of approximately 1 mm between the anterior teeth. Before placement, the SAA prostheses were reassembled.

At placement, the occlusal adjustment was checked to eliminate excessive contacts if needed. The posterior teeth of both arches were adjusted to touch simultaneously with uniform distribution of the occlusal contacts in centric occlusion and in bilateral balanced occlusion. Adjustments to the anatomical teeth were performed with small wear on the bottom of the pit or strands, without wear on cusp tips. In nonanatomical teeth, adjustments were made to maintain two points of contact between the occlusal surfaces.

The participants had control consultations after 24 and 48 hours and on days 7, 15, and 30. The objective was to make adjustments to CD bases in the regions of ulcerated fibromucosa resulting from excessive compression to provide comfort to the patient. The patients wore the CDs for a period of 3 months, during which adjustments would be made if needed.

**Alteration of the Occlusal Concept**

The alteration of the posterior teeth was done in a maximum of 2 days, and the patient did not use prostheses during this period. This change was made by a single dental prosthesis technician (R.G.C.). For this purpose, an intraoral occlusal registration in red self-curing resin (Duralay, Reliance) was obtained at three points. At the base of the prosthesis, a model was made with a layer of laboratory condensation silicone (Zetalabor, Zhermack) and type III stone plaster type. Then, the assembly was performed in an SAA of the maxillary model with the Camper table and of the mandibular model through the register.

The posterior teeth were removed from the base of the prosthesis, and wax orientation planes were made to maintain the reference of the occlusal plane. The new teeth were assembled in wax, and the prosthesis was included in a metal muffle and processed conventionally. The models were repositioned on the plaster bases in the SAA with methyl cyanocrylate glue, and an occlusal adjustment was performed to eliminate possible dimensional changes. After polishing, the prostheses were...
placed in the patient following the same procedures previously discussed. Control visits were performed after 24 and 48 hours and on days 7, 15, and 30. These visits continued for a period of 3 months if further adjustments were necessary.

Data Collection and Analysis
The first day of the study was considered the day of placement of the new CDs. Data collection was performed 3 and 6 months after the start of the study. The researcher responsible for data collection did not participate in the random allocation nor in any of the clinical steps for the manufacture of the new CDs or alteration of the occlusal concept (A.K.B.M.).

The inversion of treatment between the groups occurred after application of the first tests. Thus, patients had equal periods of time to adapt to both proposed occlusal patterns. At the end of the study, the participants were asked about their preferences with regard to the occlusal pattern, with three possible responses: (1) anatomical teeth; (2) nonanatomical teeth; (3) or had not noticed a difference. When necessary, a new change of teeth was conducted by the professionals.

The dependent variables consisted of OHRQoL, patient satisfaction, masticatory performance, and number of adjustments after placement of the prostheses.

The impact on OHRQoL was measured using the OHIP-Edent questionnaire, a modified version of the Oral Health Impact Profile. The Portuguese version was validated by Souza et al.,13 the domains of which were evaluated and presented according to Souza et al.14

For the satisfaction analysis, an adapted version of the questionnaire developed by Sato et al.15 was used. In the present study, satisfaction was assessed using a visual analog scale (VAS) ranging from 0 (dissatisfied) to 100 (very satisfied) in relation to the following criteria: chewing, tasting, phonetics, painful symptoms, esthetics, adaptation, retention, and comfort. The general score was obtained from the sum of each evaluated factor. Subsequently, the score was categorized as dissatisfied (< 70 points) or as satisfied or very satisfied (≥ 70 points).

MP was assessed by chewing 3 g of cubes of Optocal artificial food for 20 masticatory cycles and evaluated by the sieve method.16,17 The content obtained after chewing the test food was poured into the upper part of a set of seven granulometric sieves (Bertel, Indústria Metalúrgica) with openings of 5.6, 4.0, 2.8, 2.0, 1.4, 1.0, 0.710, and 0.500 mm, coupled in descending order according to the size of the hole opening. After drying, the mass contained in each container was measured separately on an analytical balance with an accuracy of 0.001 g (Model AD330, Scientific Industries). The weighing values for each patient (in grams) separated by the different meshes of the sieve system were tabulated and analyzed via median particle diameter (X50) through application of the Rosin-Rammler Equation.17-20

The number of necessary adjustments on the bases of the CDs in regions of painful points or traumatic ulcers in the fibromucosa was recorded in a clinical record during all scheduled control sessions.

Data Analysis
The data obtained were inserted and analyzed in the SPSS Statistics version 20 (IBM) software through a descriptive analysis of the variables. The analysis was performed by a researcher who did not participate in the clinical stages of the study (R.S.L.). To analyze the data of the crossover study, the two treatment sequences were considered to be dependent variables. The MP, OHRQoL, and satisfaction within the same group of individuals at different times were analyzed using Wilcoxon nonparametric test.

The analysis of the influence of the type of occlusal morphology (anatomical and nonanatomical) was performed for the dependent variables OHRQoL, chewing performance, and number of adjustments on the base of the prostheses using Mann-Whitney nonparametric test. Chi-square test was used to verify the association between satisfaction after categorization (satisfied or dissatisfied) and the type of occlusal surface. The categorization of this variable was performed for statistical purposes, and the cut-off point was based on the study by Sato et al.15

The patient’s preference for the type of treatment was described in a descriptive manner. The age, time of edentulism, and time of use of the mandibular prosthesis were compared regarding the preferred treatment (anatomical and nonanatomical) using Mann-Whitney nonparametric test. Fisher exact test was also used to compare this variable with gender and height of the mandibular ridge. In all tests, a significance level of 5% was considered statistically significant.

RESULTS
Of the 135 individuals who were eligible to participate in the study, 50 were selected and randomized. Figure 1 describes the stages of the study from the recruitment phase, showing the number of participants who received the intervention and the losses that occurred.

The final sample of the study was composed of 34 elderly individuals (AT-NT group = 19; NT-AT group = 15). There were no significant differences in age (P = .258), time of use of the mandibular CD (P = .727), gender (P = .571), or height of the mandibular ridge (P = .613) between the participants of the two study groups, indicating that the groups were homogenous. In the sample, 82.4% (n = 28) presented prostheses with poor technical quality, 11.8% prostheses with regular quality, and only 5.9% with good quality.
After the analysis described in Table 1, the results were able to be grouped according to the type of occlusal surface within the same participant, which allowed for an increase in the sample number.

Table 2 shows that the four OHIP-Edent domains evaluated had low mean (and median) values and did not show significant differences with regard to the type of occlusal surface used for OHRQoL.

The satisfaction variable was analyzed in relation to the type of occlusal surface. In Table 3, after categorization as unsatisfied (< 70 points) or satisfied/very satisfied (≥ 70 points), in both occlusal types, most participants were satisfied or very satisfied homogenously between the groups, demonstrating that the type of occlusal surface was not significantly associated with satisfaction.

Similarly, it appears that MP did not differ significantly in terms of the type of occlusal surface (Table 4) or the number of necessary adjustments (Table 5). However, the number of adjustments was significantly higher for the mandibular CD when compared to the maxillary CD in both groups evaluated.

At the end of the research period, after using the prostheses with both occlusal types, the majority of participants did not express a preference for any type of occlusal

Assessed for eligibility (n = 135)
- Excluded (n = 85)
  - Did not meet inclusion criteria (n = 84)
  - Declined to participate (n = 1)

Randomized (n = 50)
- Anatomical teeth (n = 25)
- Nonanatomical teeth (n = 24)

Allocation
- Anatomical teeth: Received allocated intervention (n = 24)
  - Declined to participate (n = 1)
- Nonanatomical teeth: Received allocated intervention (n = 21)
  - Declined to participate (n = 4)

Follow-up: 3 mo
- Anatomical teeth: Evaluated (n = 24)
- Nonanatomical teeth: Evaluated (n = 17)
  - Lost to follow-up (n = 4)

Alteration of occlusal concept
- Nonanatomical teeth: Received intervention (n = 19)
  - Excluded for refusing intervention (n = 5)
- Anatomical teeth: Received intervention (n = 15)
  - Excluded for refusing intervention (n = 2)

Follow-up: 6 mo
- Nonanatomical teeth: Evaluated (n = 19)
- Anatomical teeth: Evaluated (n = 15)

Analysis after grouping data according to occlusal morphology
- Anatomical group analyzed (n = 34)
- Nonanatomical group analyzed (n = 34)

Fig 1 Study flowchart.
Among those with a preference, the majority chose the prostheses with nonanatomical teeth (32.4%). However, when analyzing the choice of the type of occlusal surface in relation to the treatment sequence, it was observed that the type of final surface (the second treatment) was more frequent. Among the three patients who preferred the type of initial occlusal surface (one patient in the AT-NT sequence and two patients in the NT-AT sequence), when indicating the exchange of the final surface for the initial one, the patients reported they were satisfied with the final prosthesis and did not accept a new substitution.

Table 1  Impact on Oral Health–Related Quality of Life (OHIP-Edent Score), Satisfaction, and Masticatory Performance (X50) Divided According to Treatment Sequence

<table>
<thead>
<tr>
<th>Sequence AT-NT</th>
<th>Sequence NT-AT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants, n</td>
<td>Median (Q25–Q75)</td>
</tr>
<tr>
<td>OHIP-Edent</td>
<td></td>
</tr>
<tr>
<td>T₁</td>
<td>19</td>
</tr>
<tr>
<td>T₂</td>
<td>19</td>
</tr>
<tr>
<td>P</td>
<td>.021*</td>
</tr>
<tr>
<td>Satisfaction</td>
<td></td>
</tr>
<tr>
<td>T₁</td>
<td>19</td>
</tr>
<tr>
<td>T₂</td>
<td>19</td>
</tr>
<tr>
<td>P</td>
<td>.221</td>
</tr>
<tr>
<td>X50</td>
<td></td>
</tr>
<tr>
<td>T₁</td>
<td>19</td>
</tr>
<tr>
<td>T₂</td>
<td>19</td>
</tr>
<tr>
<td>P</td>
<td>.557</td>
</tr>
</tbody>
</table>

Wilcoxon test. AT-NT = anatomical tooth followed by nonanatomical tooth; NT-AT = nonanatomical tooth followed by anatomical tooth. T₁ = 3-mo follow-up; T₂ = 6-mo follow-up.

Table 2  Total and Domain Scores of OHIP-Edent for Both Occlusal Types

<table>
<thead>
<tr>
<th>Anatomical teeth</th>
<th>Nonanatomical teeth</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teeth, n</td>
<td>Median (Q25–Q75)</td>
<td>Teeth, n</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>4.00 (1.00–6.00)</td>
</tr>
<tr>
<td>Chewing</td>
<td>1.50 (0.00–2.00)</td>
<td>0.00 (0.00–2.00)</td>
</tr>
<tr>
<td>Discomfort and psychologic disability</td>
<td>0.00 (0.00–1.00)</td>
<td>0.00 (0.00–0.00)</td>
</tr>
<tr>
<td>Social disability</td>
<td>0.00 (0.00–0.00)</td>
<td>0.00 (0.00–0.00)</td>
</tr>
<tr>
<td>Ache and physical discomfort</td>
<td>2.00 (1.00–3.25)</td>
<td>2.00 (1.00–3.00)</td>
</tr>
</tbody>
</table>

Mann-Whitney nonparametric test.

Table 3  Association Between Type of Occlusal Morphology and Level of Satisfaction of Study Participants

<table>
<thead>
<tr>
<th>Dissatisfied, n (%)</th>
<th>Satisfied or very satisfied, n (%)</th>
<th>P</th>
<th>RP (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of occlusal morphology</td>
<td>AT 8 (23.5)</td>
<td>26 (76.5)</td>
<td>.725</td>
</tr>
<tr>
<td>NT 9 (26.5)</td>
<td>25 (73.5)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assessed using chi-square test. AT = anatomical teeth; NT = nonanatomical teeth. PR = prevalence ratio.
participants who preferred nonanatomical teeth had significantly shorter edentulism time than those who opted for teeth with cusps ($P = .025$).

**DISCUSSION**

The null hypothesis that the type of occlusal surface of the posterior teeth (anatomical or nonanatomical) in CDs does not influence OHRQoL, satisfaction, chewing performance, and the number of adjustments needed for the base of the total denture was accepted.

The impact on OHRQoL was assessed using the OHIP-Edent, a validated and specific instrument for edentulous patients. The low overall score and domain scores indicated that the oral condition did not have a negative influence on the quality of life, regardless of the occlusal surface. The fact that the domains of physical pain and functional limitation (with problems related to chewing) had the highest scores indicates that these factors were the main ones responsible for the negative impact, even if small. This is justified by the mucosal support of the CDs and the possibility of movement, especially in the mandibular CD, as it has more deficient retention and greater difficulty in defining the limits of the area that can be covered, which can cause trauma, discomfort, and pain.

Regarding satisfaction related to chewing with bilateral balanced occlusion using the anatomical teeth, a previous study showed that satisfaction was lower for occlusion with nonanatomical teeth; for esthetics-related satisfaction, nonanatomical teeth showed less satisfactory results. However, in the present study, this difference was not identified. Satisfaction values were high regardless of the type of posterior teeth, demonstrating the positive effect of using new dentures.

As satisfaction can be positively influenced by the technical quality of the prosthesis, this aspect justifies the satisfaction of most patients. All prostheses were made and placed under strict control of clinical and laboratory procedures, as well as guidelines and

<table>
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<tr>
<th>Table 4</th>
<th>Masticatory Performance (×50, mm) for Both Types of Occlusal Surface</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anatomical tooth</td>
</tr>
<tr>
<td></td>
<td>Teeth, n</td>
</tr>
<tr>
<td>X50</td>
<td>34</td>
</tr>
</tbody>
</table>

Assessed using Mann-Whitney nonparametric test.

<table>
<thead>
<tr>
<th>Table 5</th>
<th>Median Number of Adjustments to the Bases of the Prostheses for the Maxilla and Mandible in Relation to the Type of Occlusal Morphology</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anatomical teeth</td>
</tr>
<tr>
<td></td>
<td>Participants, n</td>
</tr>
<tr>
<td>Maxilla</td>
<td>19</td>
</tr>
<tr>
<td>Mandible</td>
<td>19</td>
</tr>
<tr>
<td>$P$^	ext{b}</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

^	ext{a}Mann-Whitney no-parametric test.  
^	ext{b}Wilcoxon nonparametric test.

<table>
<thead>
<tr>
<th>Table 6</th>
<th>Participant Preference Regarding Occlusal Morphology in Relation to Age, Time of Edentulism, and Time of Use of the Mandibular Prosthesis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anatomical teeth</td>
</tr>
<tr>
<td></td>
<td>Participants, n</td>
</tr>
<tr>
<td>Age, y</td>
<td>5</td>
</tr>
<tr>
<td>Time of edentulism, y</td>
<td>5</td>
</tr>
<tr>
<td>Time of use of the mandibular prosthesis, y</td>
<td>5</td>
</tr>
</tbody>
</table>

Assessed using Mann-Whitney nonparametric test.
adjustments after placement. In addition, the rehabilita-
tion was performed by a single specialist experienced in 
prostheses, which may have had a positive impact on 
the final quality of the prostheses and the satisfaction of 
the patient.²⁴ It is worth mentioning that this satisfac-
tion may also be positively influenced by the good rela-
tionship and communication developed between the dentist 
and the patients.²⁵

An objective method considered to be the gold stan-
dard was used to assess the MP through sieves to obtain 
the X50 value.¹⁷⁻²⁰ It is known that anatomical teeth, 
owing to their own morphology, have a larger occlusal 
contact area compared to nonanatomical teeth, there-
fore requiring less masticatory force to penetrate food,²⁶
a fact that could result in better MP. However, the results 
obtained indicate that there is no superiority of anato-
mical teeth in this respect. Also, it is important to note 
that the MP was considerably low in the present study, 
and the X50 value was 2 to 3 times higher than those 
described in studies that evaluated complete dentition 
and shortened dental arch with or without removable 
partial dentures using similar methods.²⁷,²⁸

In the present study, it was possible to isolate the 
occlusal anatomy intervention variable of the posterior 
teeth, as the comparisons were made between the same 
patients, which eliminated the interference of individual 
characteristics of the participants, such as ridge anatomy 
and muscle strength. In addition, comparisons were 
made between prostheses differentiated only by the 
anatomy of the posterior teeth, with the base and maxil-
lomandibular relationships maintained after the substitu-
tions. A similar previous study also found no significant 
difference between bilateral balanced occlusion with 
anatomical and nonanatomical teeth in relation to MP 
and maximum occlusal strength.⁴

Regarding the adaptation of the patients to new pros-
theses, this period may be difficult for some patients, as 
it corresponds with a period of neuromuscular adapta-
tion of the supporting tissues to the total prosthesis. Dur-
ing this period, patients may experience some symptoms 
of discomfort or pain in the fibromucosa caused by areas 
of greater compression at the base of the prosthesis. In 
order to protect the health of oral structures and reha-
bilitate their function, an adjustment of the base of the 
prosthesis is commonly necessary.⁶,¹⁰

Previous studies suggest that the occlusal scheme 
with nonanatomical teeth imposes less deformation in 
the area of support when compared to the anatomical 
occlusal surface, which can result in fewer traumatic 
ulcers during the adaptation period.²,³ However, this 
finding was not confirmed in the present study. When 
quantifying the number of adjustments in the period of 
up to 3 months, it was observed that, although without 
a statistical difference, patients initially rehabilitated with 
nonanatomical teeth had a greater need for adjustments. 
Similar studies in which prostheses with nonanatomical 
teeth needed more adjustments after placement than 
those with other types of occlusal schemes corroborate 
the present results.⁵,¹⁰

In view of the results, it is understandable that most 
patients (n = 18) did not show a preference for a specific 
type of occlusal surface, and that 13 patients preferred 
the final type. As the second evaluation was performed 
6 months after placement of the first prosthesis, the 
time effect may have influenced this result.

When patients receive new prostheses, especially af-
after a long period of edentulism, the muscles and the 
oral condition need an adaptation period.²⁹ In the lit-
erature, there are reports of a recommended time of 3 
months.²⁵ However, a period between 3 and 6 months 
may be necessary for adaptation.²⁶ In the present study, 
3 months may not have been enough, which would 
justify the significant reduction in OHIP-Edent values 
observed 6 months after placement of the CDs in the 
same patients, regardless of the treatment sequence 
employed. Thus, the initial evaluation period could have 
been longer. However, increasing the test period would 
have severely limited the practicality of this study owing 
to the participants’ difficulty in recollecting information. 
The period used in this study proved to be effective 
in determining between the types of occlusal surface, 
with this possible effect being offset by the different 
sequences of the crossover study. In addition, patients 
who preferred the first type of occlusal surface (n = 3) 
did not want to switch to the type of teeth that pleased 
them the most, indicating that they were also satisfied 
with the other occlusal type.

A limitation to note is that a bias was introduced, 
as it was impossible to blind the rehabilitation profes-
sional to the type of intervention. However, the meth-
odologic design sought to minimize this selection bias 
by randomizing the sample, in which each participant 
received different occlusal morphologies randomly, and 
no information was provided to the participant about 
the type of occlusal surface.

In addition to this, and unlike previously developed 
studies,⁶,⁷,³⁰ the replacement of the posterior teeth in 
this study was done without changing the base of the 
prosthesis or the vertical dimension of occlusion to re-
duce an important confounding factor: making new 
total prostheses with new bases for the same individual. 
Thus, it is believed that the positive results found for both 
occlusal types¹ may be associated with this, since there 
was no need to adapt to a new base and the participants 
did not spend many days without prostheses.

The inclusion of fully edentulous participants who had 
used CDs for at least 5 years can also be considered as 
an important factor for the results observed in terms of 
satisfaction, OHQoL, and masticatory performance, 
in which no superiority was observed of one type of
occlusal surface over the other. However, this scenario may be different in cases of very resorbed mandibular edges or in people with adaptation difficulties. In these situations, nonanatomical teeth can give more satisfactory results, as they present as advantages the centralization of the masticatory force, less pressure transmission to the soft tissues, and easier-to-obtain precise relations of the mandible.

The findings of the present study corroborate this hypothesis, since the participants who had a shorter edentulism time preferred nonanatomical teeth.

CONCLUSIONS

Both anatomical and nonanatomical posterior teeth are eligible for oral rehabilitation in elderly wearers of conventional CDAs, as the OHRQoL, satisfaction, need for adjustments, and performance were not influenced by the occlusal morphology. Thus, in the selection of artificial teeth, other relevant factors can be considered, such as esthetics and patient preference.

ACKNOWLEDGEMENTS

The authors declare that there are no conflicts of interest.

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