INTRODUCTION

Edentulous patients seek denture treatment to restore function and esthetics in the most comfortable fashion. Among the principles considered essential for complete denture success is occlusion. An optimal occlusal surface design/scheme is essential for successful complete denture retention, stability, and support.

Fish stated that complete dentures are made up of three surfaces; the impression or intaglio surface, the polished surface, and the occlusal surface. The retention, stability, and support of the dentures are governed by the design of these three surfaces.

The denture acts as one unit, and any force applied to a single denture tooth will be directly transferred to the rest of the denture. To overcome this limitation, several occlusal concepts for complete dentures have emerged. Altering the posterior tooth morphology and occlusal scheme has been suggested to impact the lateral forces on the denture and residual ridge. It has been argued that any occlusal force applied to one segment of the denture must be balanced by force applied to the other denture segment, i.e., balanced occlusion.

An optimal occlusal surface design/scheme is essential for successful complete denture retention, stability, and support. Unfavorable masticatory forces can induce undesirable denture movements; however, these can be reduced by ensuring contact between the maximal number of teeth on both sides of the arch during centric and all excursive mandibular movements.
Complete denture occlusion, in its broadest concept, is the closure of the maxillary and mandibular teeth in centric relation and throughout the range of functional and nonfunctional movements of the mandible. Occlusion must be developed to function efficiently and with the least amount of trauma to the supporting tissues.

Many types of occlusal forms and posterior tooth arrangements have been used in complete dentures for almost 200 years. The search continues for a posterior tooth form that will satisfy patients’ expectations regarding (1) esthetic requirements, (2) comfort, and (3) masticatory efficiency.\cite{16-17}

Denture teeth must be placed in the same relative position as the teeth they replace.\cite{12-15} Hardy and Passamonti\cite{16} cautioned that the esthetic and functional problems exhibited by these patients cannot be solved by bizarre or improper tooth replacement.

Becker et al.\cite{6} described the use of a “lingualized occlusion,” a combination of anatomic teeth for the maxillary denture and modified nonanatomic teeth for the mandibular denture, in “an attempt to maintain the esthetic and food penetrating advantages of the anatomic teeth while maintaining the mechanical freedom of the nonanatomic form.”

Occlusal scheme is defined as the form and the arrangement of the occlusal contacts in natural and artificial dentition. The choice of an occlusal scheme will determine the pattern of occlusal contacts between opposing teeth during centric relation and functional movement of the mandible. With dentures, the quantity and the intensity of these contacts determine the amount and the direction of the forces that are transmitted through the bases of the denture to the residual ridges. That is why the occlusal scheme is an important factor in the design of complete dentures.\cite{5}

Selection of an occlusal scheme for a patient should include correlation of the characteristics of the patient with those of the various occlusal schemes. The characteristics of the patient include: Height and width of the residual ridge, esthetic demands of the patient, skeletal relations (Class I/II/III), neuromuscular control, and tendency for parafunctional activity. The multiple characteristics of the occlusal schemes were reviewed in this article. Considering all of those factors in relation to a specific patient, the dentist should be able to decide on the most suitable occlusal scheme for the case.\cite{18-23}

An optimal occlusal surface design/scheme is essential for successful complete denture retention, stability, and support. Unfavorable masticatory forces can induce undesirable denture movements. Several schemes have been proposed of which Balanced Occlusion, Lingualized Occlusion, Canine Guided Occlusion, and Monoplane Occlusion are commonly used.

**MATERIALS AND METHODS**

A questionnaire containing questions on awareness of occlusal concepts in complete denture was given to a total of 100 general practitioners in Chennai. The questionnaire included questions on the preferred type of occlusion for different types of maxillary and mandibular arches.

The data collected were computerized and analyzed statistically.

**Statistical Analysis**

The collected data were analyzed with IBM.SPSS statistics software 23.0 Version. To describe about the data, descriptive statistics, frequency analysis, and percentage analysis were used for categorical variables and the mean and SD were used for continuous variables. To find the significant difference between the bivariate samples in the independent groups, the Unpaired sample t-test was used. For the multivariate analysis, the one-way ANOVA with Tukey’s post hoc test was used. In both the above statistical tools, the probability value 0.05 is considered as significant level.

**RESULTS**

A total of 100 questionnaires were distributed and collected back for analysis [Figures 1-8].

**DISCUSSION**

According to the survey, 82 dentists picked the most suitable occlusal concept for patients with U-shaped arches to be balanced occlusion, 13 picked canine guided occlusion, and 5 picked lingualized occlusion. The details are as follows:

An optimal occlusal concept do you think is suitable for patients with U-shaped arches?

![Figure 1: Which occlusal concept do you think is suitable for patients with U-shaped arches?](Image)
The most suitable occlusal concept with for patients with V-shaped arches: 50 dentists picked canine guided occlusion, 30 picked balanced occlusion, 16 picked lingualized occlusion, and 4 picked monoplane occlusion.

The most suitable occlusal concept for patients with increased interarch space: 41 dentists picked balanced occlusion, 27 picked lingualized occlusion, 17 picked monoplane occlusion, and 15 picked canine guided occlusion.

The most suitable occlusal concept for patients with decreased interarch space: 36 picked monoplane occlusion, 36 picked canine guided occlusion,
Prithvi Udhayaraja, et al.

The most suitable occlusal concept for patients with a Skeletal Class III relationship: 40 picked lingualized occlusion, 29 picked balanced occlusion, 29 picked canine guide occlusion, and 2 picked monoplane occlusion.

Although complete dentures are one of the most basic prosthodontic treatments, many important treatment variables have not been scientifically validated. Today, complete denture treatment is faced with numerous challenges, including the scarcity of expertise regarding high-quality complete dentures, greater proportions of elderly patients with a significant need for advanced care, and lack of sound evidence supporting specific guidelines.\(^\text{[11]}\)

In general, anatomical teeth are preferred over flat teeth in both subjective and objective assessments. The studies comparing anatomical teeth to flat teeth confirmed the superiority of anatomical teeth.\(^\text{[17]}\)

Rehmann et al.\(^\text{[18]}\) found that balanced occlusion may enhance patient adaptation in the early phase of denture insertion. The authors attributed this benefit to the enhanced stability of dentures with balanced occlusion.\(^\text{[18]}\)

For the dentist and dental technician, the construction of a set of dentures with Bilateral Balanced Occlusion (BBO) is more complex and time-consuming than the construction of canine-guided dentures. Both BBO and canine guidance include simultaneous contact in centric occlusion, but they differ in eccentric movements. It was supposed that BBO would provide greater masticatory efficiency by bringing a larger amount of grinding surfaces into contact at each movement.\(^\text{[19]}\) Trapozzano’s study\(^\text{[20]}\) \((n = 12)\), nine patients showed greater masticatory efficiency with balanced occlusion, but the degree of difference was decisive in only two of them. In three patients, the masticatory efficiency was slightly greater with the nonbalanced occlusion.

According to Pound,\(^\text{[21]}\) BBO centralizes forces on the residual alveolar ridges to protect alveolar bone from resorption. It has been explained that BBO protects against bone resorption because it promotes symmetrical distribution of stress on the alveolar ridges; however, because during mastication there is no balancing contact, there is no force distribution on both sides of the arches.

Lingualized occlusion yielded cross-arch balance. This resulted in improved denture stability and enhanced patient comfort.\(^\text{[22]}\) According to Payne, maxillary lingual cusps were to maintain contact with mandibular teeth in centric and eccentric positions, while maxillary buccal cusps were never to contact opposing surfaces in any maxillomandibular relationship.\(^\text{[23]}\) Second, lateral forces were reduced.
because maxillary lingual cusps provided the sole contact with mandibular posterior teeth. As a result, potentially damaging lateral forces were minimized.

CONCLUSION
The knowledge and awareness about occlusal concepts among general dental practitioners should be improved, and the occlusal concept should be selected depending on the situation of the patient.

REFERENCES
5. Tarazi E, Ticotsky-Zadok N. Occlusal schemes of complete dentures—a review of the literature. Refu’at Ha-peh Ve-ha-Shinayim 1993;24:56-64.

Source of support: Nil; Conflict of interest: None Declared