

TOTAL PROSTHETICS IN FUNCTION

Mariana Dimova, Hrizdana Hadjieva
Department of Prosthetic Dentistry, Faculty of Stomatology,
Medical University - Sofia, Bulgaria

ABSTRACT:

Introduction. Biologic, physiologic and mechanical principles need to be considered and carefully coordinated in the establishment of the total denture design and occlusion.

The **aim** of the authors is to share their experience with total denture treatment by patients, edentulous more than 6 years, using the method of intraoral registration of the position of the lower jaw by **Gerber** and arranging the artificial teeth by **Körholz**.

Material and methods. Fourteen patients, six men and eight women, mean age 61 years, edentulous more than 6 years were treated. After all the requirements of a functional impressions and determining of the vertical jaw relation are kept, the central position of the lower jaw was fixed by intraoral registration by Gerber, using the face bow "Kavo" and transferring plates. The models were mounted into an articulator "Protar" IV and the artificial teeth (Ivoclar-ortotype) were arranged by the method of Körholz.

Results and discussion. The patients were asked about their experience and comfort with the new dentures and subjective tests for estimation of dentures' stability were applied. The quick and full adaptation to the dentures and the scarce need of corrections allow us to recommend this method of treatment by patients, edentulous from seven years and with advanced atrophy of the jaws.

Conclusions: Using the intraoral graphic registration of the central position is a substantial step towards denture accuracy and stability. The arrangement of the teeth by **Körholz** is a prime factor to this goal.



Fig. 1. Intraoral graphic registration by Gerber

INTRODUCTION.

The functional stability of a removable denture depends mainly on its good fitness to the jaw relief and on the correct interrelation between both teeth arches (1, 2, 3). By patients with total dentures more than 5 years the anatomic orientations are lost or changed and the restoration of the normal relation between the jaws and the artificial teeth is quite difficult (4, 6).

In 1999 Karl Heinz Körholz (5) summarized and described his own understanding and strategy of the basic principles of total dentures' prosthetic treatment under the title "Totalprothetik in Funktion". The author presents there the basic steps and analysis of the cast models for the arrangement of the artificial teeth

The **aim** of the authors is to share their experience with total denture treatment by edentulous patients, using the method of intraoral registration of the position of lower jaw by Gerber and arranging the artificial teeth by Körholz.

MATERIAL AND METHODS.

Fourteen patients, six men and eight women, mean age of 61 years and mean age of edentulousness of 7 years. All patients had old dentures of age 3 to 5 years.

After the classical procedures of taking the functional impressions and determination of the vertical jaw relation, the central position of the lower jaw was fixed by intraoral registration by Gerber, using the face bow "KaVo" and transferring plates (Fig. 1). The models were mounted into an articulator "Protar" IV and the artificial teeth (Ivoclar-ortotype) were arranged by the method of Körholz (Fig. 2).



Fig. 2. Mounting of the models in an articulator with individual parameter "Protar" IV

RESULTS AND DISCUSSION.

Mounting of the cast models in an articulator, with individual hinge axis allows a construction of the total dentures in the closest functional conditions, optimally simulating the patients' individual parameters.

On the maxillary casts are marked the middle of papilla incisive, the projection of the first "ruga palatinae" on the alveolar ridge and the centre of tuber maxillae. These points are basic for the orientation and placement of the teeth (Fig. 3). The contact point between the central



Fig. 3. The line of the basic static's in maxillae runs through the positions of premolars and the middle of tuber maxillae

On the lower cast the orientation points are the middle of trigonum retromolare and the projection of the insertions of frenuli buccales on the alveolar ridge. The line

incisors corresponds to the middle of papilla incisive and the vestibular surfaces of the central incisors should be placed no more than 7-8 mm from that point. The projection of the first rugae palatinae on the alveolar ridge represents the place of the canine and next to it is the place of the first bicuspid. The line which connects the middle of the first premolar and the middle of tuber maxillae is the line over which the bearing palatine tubercles of the upper distal teeth are situated (Fig. 5, 6).

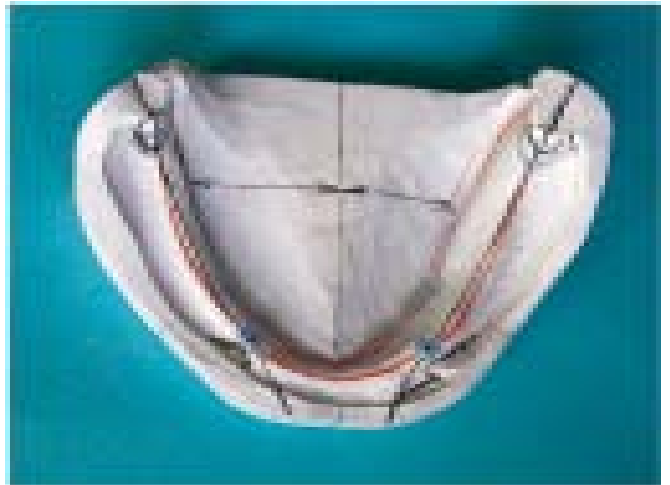


Fig. 4. The basic static's line in mandible connects the position of the first premolar and the middle of trigonum retromolare

connecting these points represents the central fissure of the lower molars (Fig. 4).



Fig. 5. Upper jaw scheme with the outer (lilac zone) and inner (green zone) correcting diapason zones by Prof. Gerber

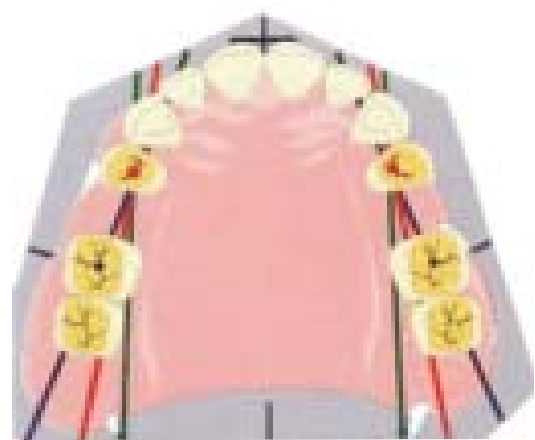


Fig. 6. Scheme of upper jaw with placed teeth by Köhrholz



Fig. 7: Arranged teeth by Köhrholz



Fig. 8: The finished prostheses - lateral view



Fig. 9: The finished prostheses - frontal view



Fig. 10: The intraoral view of the same prostheses

The Köhrholz considerations and guidelines for the cast models marking allows us to establish the most suitable places for the artificial teeth thus reaching the closest imitation of the previous teeth of the patients. The prostheses' constructions by TIF course guidelines create an optimal prerequisite for the success of total dentures treatment from the functional, esthetic and prophylactic point of view.

The quick and full adaptation to the dentures and the absence of corrections allow us to recommend this

method of treatment by edentulous patients with advanced atrophy of the jaws.

Conclusions.

The prosthetic treatment with total dentures is the most difficult dental prosthetic treatment and gives sometimes-dissatisfactory results. It demands a lot of precise procedures, patience and skill. The TIF course' rules could satisfy those requirements.

REFERENCES:

1. Boyanov, B., V. Kurljanski: Prosthetic treatment of edentulous patients, *Medizina I fizkultura*, Sofia, 1964
2. Popov, N.: Clinical aspects of prosthetic dentistry. *Medizina I fizkultura*, Sofia, 1996
3. Boucher, C., J. Hickey, G. Zarb: Prosthodontic treatment of edentulous patients, ed7, St Louis, 1975, The CV Mosby, 133-158
4. Hupfauf, L., W. Gernet, R. Horn, et al: Totalprothesen, *Praxis der zahnheilkunde* 7, Urban&Schwarzenberg, Muenchen -Wien-Baltimore, 1987, 77- 97
5. Köhrholz, K.: Totalprothetik in Funktion, Quintessenz Verlags-GmbH, 1999
6. Woelfel, J., C. Winter, T. Igarashi. Five years cephalometric study on mandibular ridge resorption with different posterior occlusal forms, *J. Prosthet. Dent.*, 1976, 36, 4, 602- 623