ABSTRACTS

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Occlusal Adaptation by CAD/CAM

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Occlusal adaptation of a crown has been the object of continuous research in our profession and in all techniques of prosthetic reconstruction, dental computer must effectively contribute to establishing a safe and harmonious occlusion. It is logical to find the dental CAD/CAM like one of the first of them.

The question today is: Is it possible to create a correct occlusal diagnosis and surface with the dental CAD/CAM?

On seven CAD/CAM systems, one copy a manual building occlusal surface (Colay) two of them propose an alternative for the full-computer static adaptation (DentiCam and Japanese Syst.) and only one for a static and dynamic one (Sopha) CAD/CAM.

After the construction of more than 3000 crowns, around 500 in occlusion, at USC (Los Angeles) from September 1989 we could estimate that the CAD/CAM offers us much more than a simple modification of our work but an complete integration of the well-known concepts in the history of our profession.

Computerized Diagnosis of Occlusion

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For the occlusal diagnosis, researches have been made widely from two aspects; the mandibular positioning and the functional movement. From related studies in Japan, here I report some problems which were made to be clear by the studies on the functional movement.

Previously many studies were made by the analysis of the trajectories or the acceleration of the incisal point, or the movement of the outer point of the condyle. But they hadn't sufficient information for the examination of the functional movements. Recently the analyzing systems of mandibular movement which can measure 6 degrees of freedom were developed. I’ll discuss the contribution of them; the relationship between the guide function of teeth and the functional movement, which was studied by the analysis of sliding movement of occlusal surface and the three dimensional analysis of the condyle movement when the occlusal pressure was performed, which are the basic studies for analyzing masticatory functions. And we constructed a database for the examination and diagnosis of jaw functions by means of the intra-national communication network system, and on the basis of the database, we made a prototype of the assistant expert system for the diagnosis. I’ll outline this also.