

## DENTAL CONTACTS INVESTIGATION IN CLINICALLY STABLE TERMINAL OCCLUSION

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\*study published within the PHD thesis

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**ABSTRACT** The diseased and unbalanced oral and facial system represents a well defined clinical entity, which affects the population of our country with increasingly large frequency. In the present study we want to establish the frequency of this diseased system, existing, even if not accompanied by clinical signs. The investigations effectuated show a large number of deficiency in the dental contacts, which is usually responsible for the occlusal changes revealed in t-scan.

The diseased and unbalanced oral and facial system represents a well defined clinical entity, which affects the population of our country with increasingly large frequency.

The clinical manifestation may vary, as do the manifestation for the dysfunctional syndrome, but the changes in the terminal occlusion usually represent a constant clinical sign.

In the present study we want to establish the changes made in the system, which may lead to the syndrome, but are not accompanied yet by all the clinical signs relevant.

All the volunteers in the study had clinically stable occlusion, but presented modified occlusal parameters.

### MATERIAL AND METHOD

We had a study group of 32 young volunteers, students in the 3<sup>rd</sup> year of Medical School of Dentistry, which had no clinical signs of dysfunctional syndrome. The average age was 23.4 years (all between 22 – 26 years) and they were 57% women and 43% men.

The patients were investigated thus: clinical investigation, occlusion diagram, plaster model study, T-scan analysis.

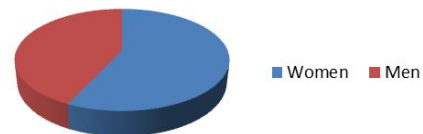


Fig. 1. Sex distribution

### 1. Clinical investigation

- Routine investigations done in our prosthetic clinic, in the purpose of finding signs and symptoms of the dysfunctional syndrome.

### 2. Occlusion diagram

- The examining doctor marks the signs of the dental contacts on the occlusion diagram, registered with the aid of articulating paper. The contacts will be analyzed for length, quality and number of surfaces in contact.

### 3. Plaster model study

- We had plaster model made after impression on each patient. Every occlusion parameter has been registered by using occlusion wax.

### 4. T-scan analysis

- This was done to show occlusal instability, premature contacts, etc. The analysis of the dental contacts will show the number and positioning of them on the arch, but also the strength and time limits of the positions.

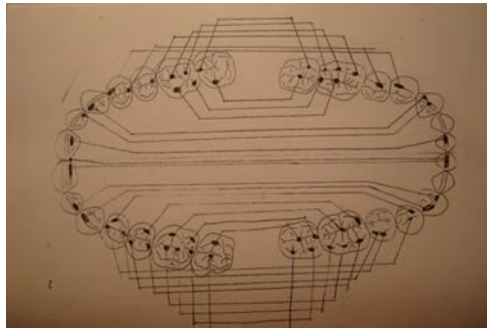


Fig. 2

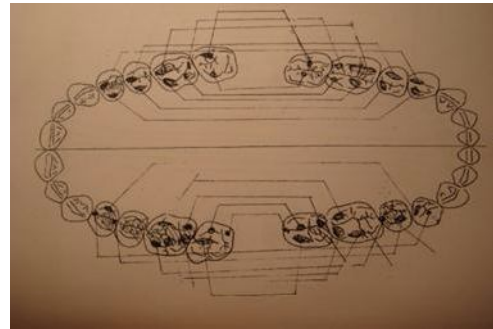


Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7

## RESULTS

In the normal patient there are almost normal parameters of the occlusion, and different forms of the dental contacts. This differences show existing but not symptomatic disease of the system.

The present study wants to show the importance of early detection of this signs.

In the dynamic occlusion exam, several occlusal relations were examined:

a. Terminal occlusion, which can be:

- Terminal occlusion of maximum intercuspitation - muscular position (we register the final position and the route to go there)

- Terminal centric occlusion – ligamentary position, is important to follow the centric clothing trajectory, done on the pure rotation axis.

b. Dynamic occlusion – forward bite and lateral bite

In the study group, the following modifications were registered – on the occlusion diagram:

- Absence of the 3<sup>rd</sup> molar – absence of dental contacts in frontal group
- Total reduction of contact numbers
- Uneven contacts
- Abrasive surfaces.

Asymmetric dental arch will lead to changes in the dental contact pattern and the

static lateral deviation of the mandible.

The absence of one lateral tooth will determine larger contacts, unevenly distributed, on the side of the cusps, total reduction of the interarch contacts, and the absence of any contacts in the antagonists.

Discreet malpositions lead to the change of the contact to incisal margin or oral surfaces, and uneven distribution on each dental surface involved.

Frontal open occlusion will translate on the diagram through multiple lateral contacts, unevenly distributed without respecting the tripod principle.

Ectopic canine and over number tooth associated with lateral deviation lead to changing the contact on the guidance cusp, from the support cusp.

In conclusion: in the group study, 25.7%

- Normal occlusion diagrams

The majority of the patients showed disease signs – several differences in the dental contacts.

In two of the cases occlusal instability was revealed – the treatment was selective polishing.

T-scan analysis allows instant localization, view of the time period of installation of dental interferences and dental contacts, by use of a sensor, placed in the patient's mouth, well centered.

Dental contacts will appear on the arch – number, placement, length.

This analysis can be done in 3D, and in this case the values of the dental contacts are viewed as a chart.

This image represents the dental contacts made in four different sequences in the same patient.

In time, the contacts change position on the occlusal area.

Another possible investigation T-scan is represented by the *Imagine zu forze* selection, which shows, under the form of a 3D chart, the value of the forces registered on the occlusal area.

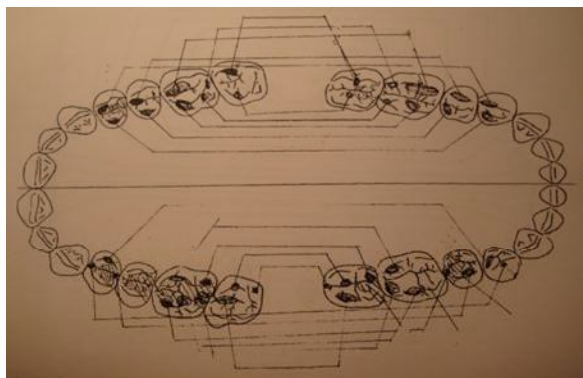


Fig. 8

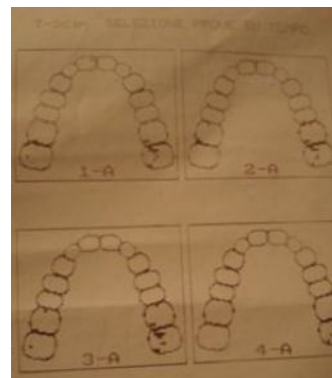


Fig. 9



Fig. 10

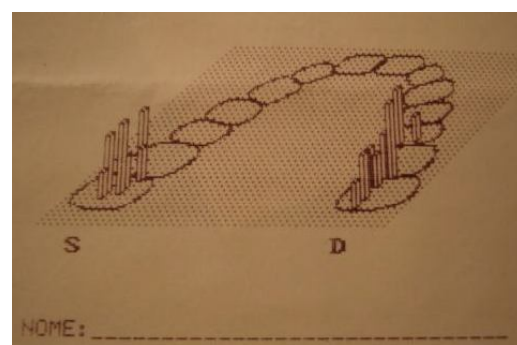


Fig. 11

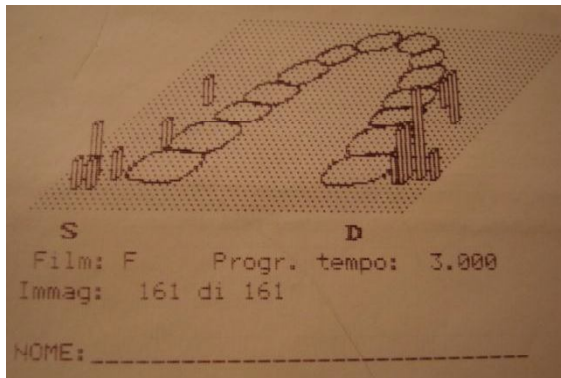


Fig. 12

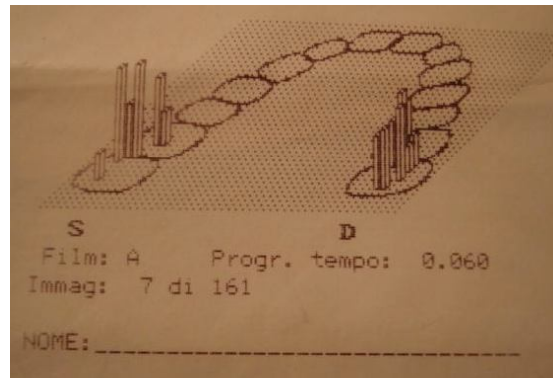


Fig. 13

The analysis made on different time periods shows a certain occlusal instability, with different values, on different contacts.

In a time period of 10 seconds, the contact can migrate on the occlusal area, and his strength can weaken or grow.

### CONCLUSIONS

- Even in “normal” occlusion, the closing trajectory in maximum intercuspitation or centric relations is variable;
- The T-scan analysis can view different phases of the occlusion, different in between, and can follow each other until the final closing.

- The value of clinical investigation cannot be overseen;
- This remains one of the mandatory elements of the examination of the patient;
- In the study group there were many modifications in the dental contacts schematics;
- Also a state of general occlusal instability is present – this can be easily overseen by the physician;
- This kind of instability can be at the origin of the disturbance in the occlusal parameters, thus generating the trauma occlusion mainly responsible for the dysfunctional syndrome.

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