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## **Abstract of doctoral thesis**

Clinical and experimental studies on the effects of bruxism on the oromaxillofacial system in children and adolescents

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Bruxism is one of the most increasingly common oral parafunctions that if found in dental practice. The correct diagnosis, monitoring and contribution to the establishment of an effective treatment in the case of this parafunction are extremely important elements in our activity as dentists.

Bruxism is considered to be the most harmful of the parafunctional activities of the stomatognathic system, being responsible for tooth wear, periodontal damage, and joint and / or muscle damage.

Measuring bruxism activity using an intraoral device has an advantage over clinical assessment modalities represented by the use of a questionnaire, clinical examination or observation of tooth wear, as it allows quantitative assessment of actual bruxism activity. Among the various bruxism assessment methods, EMG recording has been commonly used to directly measure nocturnal bruxism activity.

The therapeutic approach to bruxism in children and adolescents is complex and involves the objectification of parafunctional activity at the level of the masticatory muscles, followed by the training of prophylactic measures to protect the dental arches against the destructive mechanisms of action produced by bruxism.

In **the general part** of the thesis, based on recent data from the specialized literature, a synthesis is presented regarding one of the most common parafunctions in the oro-maxillo-facial area, nocturnal bruxism.

In this section of the thesis, the particularities of nocturnal bruxism among children and young adolescents are presented with an accent on the diagnostic possibilities of the parafunction, as well as the most effective and innovative therapeutic options currently described in the literature.

The **personal contribution** is structured in three studies, after the presentation of the Working Hypothesis and the General Methodology.

Our first study, from the personal contribution entitled "**Determining the prevalence of nocturnal bruxism and other possible oral parafunctions in children and adolescents**" was carried out on the basis of a self-designed questionnaire comprising 7 closed questions, 2 open questions and a visual scale. This questionnaire which was distributed to a sample of 210 children between the ages of 5 and 18, was completed by clinical intraoral and exobuccal examinations performed on each subject involved in the study. The subjects included in the study completed an informed consent,

signed by each patient in the case of people over 18 years old or by the legal representative in the case of minor patients.

The second study, entitled "**Registration and monitoring of nocturnal bruxism in children and adolescents with Bruxoff device**" aimed to highlight, through surface EMG of the masseter muscle, the muscle activity in subjects with bruxism, the evaluation of the activity of the masticatory muscles, the number of episodes of bruxism per night, sleep durations and the diagnosis of bruxism based on these records. Recordings were made with the help of the portable Bruxoff device on a triaged group of 51 subjects divided into two groups, a control group with 15 patients and a study group with 36 patients.

The third study, entitled "**Comparative study on occlusal characteristics in children and young people with nocturnal bruxism. A classical versus computerized paraclinical analysis**" aimed to evaluate the static and dynamic dental occlusion using the T-Scan III system and comparing it on the study models, in children and young people diagnosed with nocturnal bruxism. It was also aimed to identify a possible correlation between the occlusal aspects and the parameters of the EMG examinations in the second study. Occlusal recordings were made with the T-Scan III system on a group of 7 subjects. The occlusion ratios in the closing/opening movement of the oral cavity, the maximum intercuspation position and the centric relation position were evaluated. Also, the participating patients were given an impression of both dental arches, based on which study models were made.

The **results** of our research were compared with recent data from the specialized literature, and the clinical relevance of the studies is given by the fact that the optimal and effective treatment for this parafunction is individualized for each individual patient.

Thus, following the analysis of the results obtained during the studies, the seventh chapter was outlined, which includes the **General Conclusions** of the doctoral thesis. They are clearly and concisely worded, with practical value and applicability.

The **bibliographic references** are presented in the order of their citation in the text, at the end of the doctoral thesis.