

Review

By Assoc. Prof. Dr. Desislava Konstantinova, PhD, Department of Dental Material Science and Propaedeutic of Prosthetic Dental Medicine, Faculty of Dental Medicine, Medical University "Prof. Dr. Paraskev Stoyanov"- Varna, 9000, Tsar Osvoboditel Blvd №84, e-mail: dr.konstantinova@gmail.com, **member of a scientific jury, included by order of the Rector of MU-Varna № P – 109-87/23.02.2022.**

Subject: Dissertation work "*Tinnitus and auditory changes in patients with temporomandibular joint dysfunction*" for awarding the educational and scientific degree "Doctor" in scientific specialty "**Orthopedic dental medicine**", professional direction **7.2. Dental medicine**, field of higher education **7. Healthcare and sports**.

Author: Dr. Boris Yankov Borisov, PhD student in full time training at the Department of Dental Material Science and Propaedeutic of Prosthetic Dental Medicine, Faculty of Dental Medicine, Medical University "Prof. Dr. Paraskev Stoyanov"- Varna.

Scientific supervisor: Prof. Dr. Mariana Yordanova Dimova-Gabrovska, DSc and Assoc. Prof. Mario Petrov Milkov, MD, PhD

1. General presentation of the procedure

The presented set of documents on paper and electronic media is in accordance with the requirements of Article 69 of the Regulations for the development of the academic staff of MU - Varna.

2. Short biographical data about the doctoral student

Dr. Boris Yankov Borisov was born on November 27, 1971 in the town of Shumen. He has graduated his education at the "Milan Borisov" Professional School in Shumen in 1989. Afterwards he has graduated at the Medical University of Plovdiv in 1997 and has acquired a Master's degree in Dental Medicine. Since 2017 Dr. Borisov has been a full-time assistant at the Department of Dental Materials Science and Propaedeutic of Prosthetic Dentistry, Faculty of Dental Medicine, MU-Varna.

He is a member of the Bulgarian Dental Association.

He declares that he is fluent in written and spoken English and Russian.

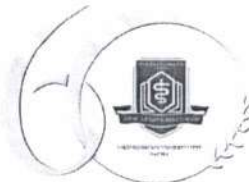
3. Relevance of the topic and expediency of the set goals and objectives

In the scientific literature, tinnitus is considered a symptom with many etiological factors, not as a separate disease. That is why the topic of the presented dissertation is relevant.

The goal is clearly stated and the tasks are selected and performed correctly using modern multidisciplinary methods.

4. Knowledge of the problem





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PROSPERITAS VESTRA FINIS NOSTRA!

Dr. Boris Borisov conducts a theoretical study on the developed topic, which is based on 27 pages of bibliographic reference (includes 325 sources).

The doctoral student has made a detailed literature review, covering 48 pages of the dissertation and after reviewing and critically analyzing the literature used, he concluded that new studies are needed to refine the diagnosis and optimize the treatment of these patients.

The aim of the dissertation of Dr. B. Borisov is *"to study and evaluate the relationship between problems in the temporomandibular joint and tinnitus in patients with audiovestibular diseases."*

To achieve this goal, Dr. Borisov has set the following **five** tasks:

1. To systematize the demographic and clinical information for patients who have undergone prosthetic treatment in connection with temporomandibular dysfunction (TMD).
2. To examine patients with tinnitus:
 - 2.1. to assess tinnitus;
 - 2.2. to investigate TMJ dysfunction.
3. To investigate and evaluate the relationship between tinnitus and TMJ dysfunction.
4. To prepare a risk profile of patients with tinnitus and TMJ dysfunction.
5. To create an algorithm for the diagnosis of patients with tinnitus and TMJ dysfunction, enriched with a closely specialized diagnostic protocol for TMD in collaboration with an ENT specialist.

There are also **two hypotheses**:

1. There is a link between tinnitus, TMJ dysfunction in patients in need of prosthetic treatment.
2. Tinnitus and TMJ dysfunction are independent of the changes that occur in edentulous jaws, and they are influenced by other factors.

5. Research methodology

In the implementation of **the first task** the demographic and clinical information for patients who underwent prosthetic treatment in FDM and UMDC - Varna for a period of 2 years has been systematized in connection with temporomandibular dysfunction. The study involved 152 patients. Gender, age, concomitant diseases, reasons for visiting the dentist, reasons for the need for prosthetic treatment, causes of tooth loss, parafunction, condition of TMJ are registered.

In **the second task**, an ENT specialist assesses tinnitus and TMJ pain in 150 patients. The assessment of tinnitus was performed using a specialized questionnaire, which is completed by the patient and two functional tests were performed - tympanometry and audiometry by an ENT specialist. Clinical examination of patients for functional pathology includes bilateral palpation of the TMJ.



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The third task examines the relationship between TMJ dysfunction and tinnitus in patients undergoing prosthetic treatment. To perform this task, the relationship between the results of the study of tinnitus, tympanogram, audiogram and the five points, at which TMJ dysfunction was studied, was analyzed.

Under **the fourth task**, a risk profile of patients with tinnitus and TMJ dysfunction is prepared. The results obtained under tasks 1, 2 and 3 were used to create the risk profile of patients with tinnitus and TMJ dysfunction.

Under **the fifth task**, an algorithm for the diagnosis of patients with tinnitus and TMJ dysfunction is created, enriched with a closely specialized diagnostic protocol for TMD in collaboration with an ENT specialist.

The specialized software SPSS v. 20.0 for Windows has been used for statistical analysis of the data from the conducted researches.

6. Characteristics and evaluation of the dissertation and contributions

The dissertation of Dr. Borisov presented for review is properly structured and contains all the basic elements: introduction, literature review, aim and tasks, material and methodology, results and discussion, conclusions, contributions, bibliography and applications.

Dr. Borisov presented a development of 173 pages. It is illustrated with 9 tables, 89 figures, 4 photos and 4 applications. The literature used includes 325 sources, 20 of which are in Cyrillic. The results were analyzed using specialized software SPSS v. 20.0.

The dissertation of Dr. Boris Borisov ends with a conclusion, naturally arising from the discussion of the results and summaries made by them.

7. Contributions and significance of development for science and practice

The doctoral student presented six contributions, which I divide into two groups - scientific and scientific-applied. I believe that scientific - applied contributions deserve a stronger emphasis. These include the development of an algorithm for the diagnosis of patients with tinnitus and the development of a protocol in dental practice for the differential diagnosis of TMJ dysorders in patients with tinnitus.

8. Evaluation of the dissertation publications

Three publications related to the dissertation are presented, which quantitatively and qualitatively meet the legal requirements. Dr. Borisov is a single author in two of them.

9. Abstract

The abstract is presented in 64 pages and meets the requirements of the Law for the development of the academic staff of the Republic of Bulgaria and the Regulations for the development of the academic staff of MU - Varna.



10. Critical remarks and recommendations

In order to provoke the precision and depth of the author's research in perspective, I would make the following remarks to the author:

1. In Bulgarian "prosthetics untreated patients" couldn't be substituted with the used synonym (p. 134). The two concepts have different scope and should be distinguished.
2. The arrangement of the literature sources does not correspond to the numbering in the text, e.g. №176 (p.31), №272 (p.34), №194 (p.34), №130 (p.35), №160 (p.35), №196 (p.396) and others. I accept the shuffling of sources as a technical omission.

These notes do not diminish the theoretical, methodological and research merits of the presented dissertation. In its entirety, it has the qualities of one according of LDASRB and the Regulations for its application and the Regulations of MU - Varna for obtaining the educational and scientific degree "Doctor".

Conclusion:

In conclusion, I believe that the presented dissertation on "Tinnitus and auditory changes in patients with temporomandibular joint dysfunction" covers a current, multidisciplinary problem and **meets the requirements of the Requirements of The Law for the Development of the Academic Staff in the Republic of Bulgaria (LDASRB) and the Regulations for its application and the Regulations of MU - Varna.**

Based on the above, I have every reason to give a **positive** assessment of the work presented and to propose to the honourable members of the Scientific Jury to award the **educational and scientific degree "Doctor"** in the doctoral program "**orthopedic dental medicine**", professional field 7.2. Dental Medicine, field of higher education 7. Health and sports **of Dr. Boris Yankov Borisov.**

25.03.2022

Varna


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