

## Opinion

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МЕДИЦИНСКИ УНИВЕРСИТЕТ  
ПЛОВДИВ

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**Author of the PhD thesis:** Doctor Atanas Vaskov Doshev

**Topic:** "Retrospection on the colour change of temporary constructions in fixed dentures".

**Director of studies:** Professor Diyan Slavchev, PhD, department "Prosthetic Dental Medicine", Faculty of Dental Medicine, Medical University - Plovdiv

The presented set of materials on paper is in conformity with Article 115 (1) of the Procedure on conferring the educational-academic degree "PhD" in Medical University - Plovdiv.

The PhD thesis is written on 199 pages, it includes 22 tables, 62 figures and 46 diagrams. The PhD thesis contains the following sections: 1. Used abbreviations – 2 pages; 2. Introduction – 2 pages; 3. Literature overview – 50 pages; 4. Objective and tasks – 1 page; 5. Materials and methods – 20 pages; 6. Results and discussion – 69 pages; 7. Conclusion – 3 pages; 8. Findings – 3 pages; 9. Acknowledgements - 2 pages; 10. Bibliography – 33 pages; 11. Appendices – 9 pages. Additionally, it includes "Contents" and "Curriculum vitae".

The topic of the PhD thesis is of current significance because the recovery of patient's aesthetical appearance is essential for prosthetic treatment' success rate. The reproduction of teeth's optimal colour via denture constructions is among the main components for achieving good aesthetics, whereas this holds true for the long-term, as much as for the temporary constructions.

The continuous elaboration of new dental materials for the aesthetic recovery of teeth makes it possible to achieve almost all the desired effects when it comes to colour reproduction. Nevertheless, when it comes to temporary constructions, the aesthetical effect, frequently is compromised because colour stability is being influenced by numerous ingredients, with which the dentition gets in contact when consuming food and beverages.

The PhD thesis is aimed at researching the changes that occur in the colour of fixed temporary constructions in laboratory and clinical conditions. Additionally, comparative analysis of colour stability towards various colouring ingredients was performed of the three most frequently used materials for the preparation of temporary constructions.

The literature overview is well-structured; it contains material of significant volume that reflects the scientific achievements in the sector so far.

The author has cited 230 literature sources, of which 33 in Cyrillic and 197 in Latin alphabet. The research of dental literature demonstrates the development of scientific research in this sector throughout the years. The author has covered all the most important aspects of the topic. Detailed classification of temporary constructions is presented. The author considers in detail the materials for their elaboration, from historical point of view, as well as through the eyes of many contemporary authors. He critically analyses the impact on their qualities, as well as their chemical and physical properties, and the laboratory procedures for constructions' elaboration.

We have reviewed the optical processes that impact the colour perception and methods for colour characterization. We have discussed the factors that change the teeth colour and have presented the operational principle of the most popular devices for

measuring the colour characteristics. The author has analysed the experience from laboratory research works reported in dental literature on colour stability of the trial templates treated with various solutions.

The information is presented with clear expression and precise formulations. The literature overview makes it evident that the PhD candidate has exhaustively researched the theoretical and methodologic issues concerning the colour of dental prosthetic constructions.

Analysis was performed of the data found in dental literature, in which they have defined the solved, partially solved and unresolved issues related to the discussed topic. The partially solved and unresolved issues that were established on the topic determine the current and useful character of the research work done in the PhD thesis.

On the grounds of the analysis of literature overview, the **objective** of the PhD thesis is outlined – follow up the colour change of the fixed temporary constructions in laboratory and clinical environment and define the material for preparing them has the greatest colour stability towards various colouring ingredients. In order to achieve the objective, four tasks have been set. The objective and tasks are clearly and precisely formulated.

**The material**, used in the PhD thesis, includes 180 inquired doctors of dental medicine; analysis of the colour of 150 sample bodies from three materials for temporary constructions – Protemp II, Protemp IV and LuxatempStar; analysis of the colour of 45 temporary constructions – 11 crowns and 34 bridge constructions. The defined material is of sufficient volume for resolving the assigned tasks and getting objective results.

**The research methods** applied in the PhD thesis, are accurately selected in order to achieve the defined tasks.

In view of the **first task**, an inquiry card was created and the opinion of dental doctors was surveyed on the colour changes of temporary constructions.

In order to achieve the **second task**, an innovative matrix was created with individual parameters and design, via which it is got trial bodies for the research purposes. The method of preparing the matrix created by the author is described in detail.

During the **third task** a laboratory research was performed concerning the colour changes of the created trial bodies under the impact of various solutions, and during the **fourth task** clinical monitoring of colour changes of temporary fixed constructions was performed. In order to perform the 3<sup>rd</sup> and the 4<sup>th</sup> task, apparatus colour-definition was performed while using the two types of contemporary spectrophotometers for dental application – Vita Easyshade and Spectro Shade.

**The results** are described accurately and in great detail. They are presented in well-structured tables and are visualized thanks to abundant photo material.

Concerning the first task, after the performed inquiry research, the opinion expressed by doctors of dental medicine was established on the colour stability of temporary constructions, as well as the most frequently used methods and materials for their elaboration.

Concerning the second task, brass matrix was created and approved in order to elaborate optic bodies that resemble as much as possible the anatomic configuration of natural teeth via which opportunity is provided for better result comparison.

Concerning the third task, the changes that occurred in the colour of trial bodies have evaluated, while taking into consideration the impact produced by the time of stay inside the solution and by its ingredients.

Concerning the fourth task, those materials among the researched ones for making temporary constructions that have better colour stability inside the real environment of human mouth were established.

The data were subjected to precise statistical processing. The author has selected statistical methods that are suitable for the research purposes, being the prerequisite for

The publications reflect the stages of PhD thesis development, whereas two of them are related correspondingly to the performed inquiry research and the creation of matrix with its own design for the elaboration of trial bodies. The third article is an overview that comments on the precision of temporary crowns in the marginal area. The fourth article presents the results from the laboratory research of colour stability inherent to the various materials for temporary constructions.

3 participations in Bulgarian scientific forums were presented.

Additionally, PhD candidate's participation in scientific research project №14/2018 that was successfully implemented in the Faculty of Dental Medicine, Medical University – Plovdiv of a topic, related to the PhD thesis, was mentioned.

**The abstract of the dissertation** is written onto 60 pages and prepared in conformity with the requirements. It contains all the requisite parts for the full-value PhD thesis presentation and the main results and contributions. It includes 16 tables, 38 diagrams and 31 figures that supplement and illustrate in suitable manner the performed research work.

**Conclusion:** The PhD thesis by Doctor Atanas Vaskov Doshev of the topic “Retrospection on the colour change of temporary constructions in fixed dentures” has all the qualities of well-structured and finalized scientific paper that is in conformity with all the requirements of the Academicians Development in the Republic of Bulgaria Act (ADRBA), the Rules on the implementation of the ADRBA and the particular Rules of the Medical University – Plovdiv.

The PhD thesis is PhD candidate's own elaboration with scientific-applied and original contributions for the dental science and practice. This demonstrates author's qualities and skills for individual performance of the scientific research and shows that Doctor Atanas Vaskov Doshev possesses the necessary theoretical knowledge and professional skills of the scientific speciality “Prosthetic dental medicine”.

In view of the abovementioned, I give my **positive assessment** of the PhD thesis and would vote firmly “For” conferring the educational and scientific degree “PhD” to Doctor Atanas Vaskov Doshev, in the PhD program “Prosthetic dental medicine”.

1.09.2021  
Sofia

Asoc. prof. Zhanina Pavlova, PhD:

