

STATEMENT

from

Assoc-prof. Ilian Vangelov Hristov, DMD, PhD, Department of Prosthetic Dentistry, FDM - Plovdiv, internal member of the Scientific Jury, elected by Decision of a meeting of the Faculty Council of the FDM of the MU - Plovdiv according to Protocol No 7 / 15.07.2022 and by order No. P – 1780/ 20.07.2022 of the Rector of the MU - Plovdiv, regarding a dissertation on topic:

Comparative evaluation of the accuracy of conventional and the digital ones imprints in the "All-on-4" concept - invitro research

for the awarding of an educational and scientific degree "Doctor" under the doctoral program " Prosthetic Dentistry" in professional direction 7.2. Dentistry by field of higher education 7. Health care and sports.

External doctoral student on independent training: **Dr. Georgi Atanasov Alexandrov**

Scientific supervisor: **Prof. Hristo Kalchev Kisov, DMD, PhD**

General presentation of the procedure and the PhD student

The presented set of materials on paper and electronic media is in accordance with the procedure and regulations for the acquisition of the educational and scientific degree "Doctor" of the MU - Plovdiv.

Dr. Georgi Atanasov Alexandrov was born on August 11, 1984 in Strumica, Republic of N. Macedonia. He graduated secondary medical education in the town of Shtip, N. Macedonia - with the profile "dental technician" in 1999. In 2009 he graduated the MU - Plovdiv, majoring in "Dental Medicine". In 2011, he completed his postgraduate studies at the Department of Oral Surgery and Oral Surgery at BSMU, Minsk - Belarus , specializing in "Oral Surgery" under the supervision of Assoc.-prof. Dr. Alexander Vladimirovich Glinnik . In 2017, he completed his two-year studies at the Medical International College in the city of Münster - Germany, with a Master's degree of Science in implantology and dental surgery " (IMC- Münster , Germany) and obtained the degree of " MSc " under the supervision of Prof. Dr. Ulrich Joos. In 2019, he completed a two-year specialization in implantology and prosthetics on implants at Champions-Implants , Flonheim – Germany , with the specialty,, Experte in Implantologie und Implantatprothetik (CITC)" under the guidance of Prof. Dr. Jean-Pierre Bernard. From 2013 to 2019, he worked as a dentist in the city of Augsburg,

Germany. Since 2019, he has been practicing the profession of an independent practice with a digital dental laboratory.

Structure of the dissertation

The dissertation submitted for review is written in 152 pages, includes 44 tables, 110 figures and 22 diagrams. 246 literary sources are cited, of which 54 are in Cyrillic and 192 are in Latin.

Relevance of the topic, purpose and tasks

The " All-on-four " concept is not new, and it has both its ardent supporters and colleagues who categorically reject it. The positive thing in this case is that Dr. Alexandrov makes his own reading of the facts and with his own research enriches the accumulated practical experience of the authors who worked on this problem before him. The goal and tasks are correctly and accurately formulated. With the fulfillment of the four tasks set by the doctoral student, some of the gaps in the previous studies of other authors are filled.

Analysis of the literature review

The literature review is quite voluminous and detailed covering 52 pages. Starting with a historical overview, the dissertation makes a detailed analysis of the types of impression materials, with their advantages and disadvantages, focusing on the types of impression treys, as well as the methods of taking a detailed impression. The working process when using a digital protocol is also examined, and the advantages, problems and accuracy of intraoral scanning are examined in detail. A special place is devoted to the development of the " All-on-four " concept, from its creation to the present day, as well as clinical and experimental evaluation.

Analysis of the set goal and related tasks

After a critical analysis of the literature review, the doctoral student sets a precise and clear goal, namely: *to compare and evaluate the accuracy of conventional and digital impressions in prosthetics on implants according to All-on-four concept.* To fulfill the goal of the dissertation, Dr. Alexandrov sets himself four tasks with the materials and methods used in the research being described in great detail.

- **Regarding the first task:** from the survey it is clear that: restorations over implants is more prevalent in Germany than in Bulgaria. The percentage of German clinicians who are willing to purchase an intraoral scanner is higher compared to the Bulgarian doctors. Bulgarian colleagues use in their practice silicone impression materials and the closed impression tray technique, while in Germany they prefer polyethers and the open impression tray technique.
- **Second task:** a model staging of All-on-four concept was developed, which is as close as possible to a real clinical situation. The developed mock-up by scanning has been transformed into a digital form. The metal master model, as a working setup, is most suitable for studying the accuracy of different impression techniques, as it does not change over time and is least affected by temperature and humidity. There is a technical possibility to imitate All-on-four concept extraorally on a model, which brings the situation as close as possible to that in the mouth. Placing an artificial gingiva improves the scanning of the model and brings the situation closer to that of the mouth.
- **Third task:** two types of individual trays were made and 40 impressions were taken using two generally known and widespread impression techniques. 40 models were cast and converted into digital files. For implants with an internal taper joint used in All-on-four concept, the screwing of the impression transfers must be done with the same force for each transfer. After incorporating the laboratory analogues into the impression, there is a possibility of splinting them using a passively placed plastic skeleton to cover all the analogues. This attachment can be done by using self-polymerizing resin.
- **On the fourth task:** all the scanned models in the form of stl. files are imported into a special measurement program GOMInspectSuite, 2020. The comparative assessments are grouped into three groups. The conventional open-tray impression technique showed the smallest deviations, followed by the digital technique, and the largest deviations in accuracy were observed with the closed-tray technique.

Contributions

The doctoral student completes the dissertation with three contributions of an up-to-date nature, four of a confirmatory nature and four of a scientific-applied nature.

Publication activity of the doctoral student

The dissertation student presents four full-text publications /one in Russian, one in Bulgarian and two in German/. As well as three participations in international scientific forums.

CONCLUSION

The dissertation on the topic "**Comparative evaluation of the accuracy of conventional and digital fingerprints in the concept of "All-on-4" - invitro research**" contains scientific and applied results, representing an original contribution to science and fully meeting the Requirements of the Development Act of the Academic Staff in the Republic of Bulgaria, the Regulations for the implementation of this law and the Regulations of MU - Plovdiv.

From the material provided, it is clear that the doctoral student has made a detailed and comprehensive analysis of the literary facts. He has thoroughly familiarized himself with the research materials and methods. The contributions are significant and with a marked practical application. The dissertation indisputably proves that **Dr. Georgi Atanasov Alexandrov** possesses in-depth theoretical knowledge and practical abilities in the specialty " Prosthetic Dentistry" by demonstrating qualities and skills for independent conduct of scientific research and interpretation of the obtained results.

As a result of all above mentioned, I will vote convincingly and categorically "**FOR**" the awarding of the educational and scientific degree "**Doctor**" to **Dr. Georgi Atanasov Alexandrov** in the doctoral program " Prosthetic Dentistry" in professional direction 7.2. Dentistry by field of higher education 7. Health care and sports.

Prepared the statement:

Заличено на основание
Чл.5 §1, б."В" Регламент (ЕС)2016/679

10.09.2022

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