

STATEMENT

From Assoc. Prof. Dr. Miroslava Mileti Dinkova, DMD, PhD, DMSc

Department of Orthodontics, FDM- Sofia, Medical University of Sofia

Member of the Scientific Jury according to order No P-109-240/ 06.06.2022 of the Rector of MU-Varna

Regarding: Acquiring of scientific and educational degree "Doctor, PhD" in the field: Higher education: 7. Health care and sport. Professional domain: 7.2 Dental medicine. PhD-Program: "Orthopedic Dentistry" Department of Orthodontics

Author: Dr. Iliyana Georgieva Atanasova- assist. professor at Faculty of Dental Medicine, Mu- Varna.

PhD- program: regular-PhD student in full-time training in the procedure for acquiring a scientific and educational degree "Doctor"

Department of Orthodontics

PhD-Thesis: "Evaluation of individual indicators for orthodontic treatment of children with mixed and permanent dentition"

Scientific Supervisor: Assoc. Prof. Hristina Ivanova Arnautska DMD, PhD head of Department of Orthodontics, Faculty of Dental Medicine, MU- Varna

Biography notes

Dr. Iliyana Atanasova completed her secondary education in high school "Sveti Kliment Ohridski" -city of Varna in profiled program with foreign languages in 1996. In 1999, she graduated with excellent grade from Medical College - Varna specialty Pharmacy with professional qualification -assistant pharmacist. In 2011, she graduated from Faculty of Dental Medicine at Medical University of Varna and acquired master degree in Dentistry. As the first of "Class 2011", she has been awarded with a "GOLDEN HIPPOCRATES" and Diploma "STUDENS OPTIMUS" – Prof. Dr. Slavcho Davidov for excellent accomplishments and high student achievement in the academic, scientific and creative activities of the class of 2011. In 2016 Dr Atanasova started her post-graduate training in Orthodontics at MU-Varna. Since 2017, she is a full-time employed assistant professor at the Department of Orthodontics, FDM at MU-Varna. In 2020, Dr. Atanasova acquired a specialty in Orthodontics. In 2019, she was assigned a full-time PhD student in the Department of Orthodontics and was elected as administrative assistant of the Department of Orthodontics. Dr. Atanasova presents lectures and teaches students in practical classes of under-graduate program in Orthodontics for Bulgarian and English speaking students from the FDM-Varna. She also attended many courses for continuing professional development in Bulgaria, Australia, and Russia. She is fluent in English and Russian.

Regular member of the Bulgarian Dental Association, Bulgarian Orthodontic Society, Australian Dental Association, European Orthodontic Society.

Dr Atanasova is author and co-author of 20 publications and participated 22 national and international conferences and symposiums.

Notes and commentary on the procedure and the PhD-student

The set of materials provided to me on paper copy and flash memory device related to the dissertation is complete and is in accordance with the Law on the development of academic staff in the Republic of Bulgaria and the regulations for its implementation, as well as with the Regulations of MU-Varna for awarding with the scientific and academic degrees.

Notes and commentary on the documents

The PhD- thesis developed by Dr. Iliyana Georgieva Atanasova contains 138 pages and the dissertation was illustrated with 39 tables, 55 figures, 5 schemes and 16 application. The bibliographical references includes 161 literature sources, of which 7 in Cyrillic and 154 in Latin. The abstract of the PhD- thesis has been structured correctly and corresponds to the content of the dissertation. It has been developed according to the requirements.

Relevance of the PhD-thesis

Comprehensive knowledge and understanding of the principles and concepts of growth and development allow the dental practitioner to differentiate variations of norm and pathology, to accurately diagnose and plan the proper time for active treatment and retention.

The growth process is influenced by a combination of factors including genetic, climatic, racial, nutritional, social economic. Each individual in its ontogenetic development grows and matures according to their own biological clock, and their physiological maturity is evaluated comprehensively by examining the maturation of different tissues and systems. Inductive feedback and mechanism for internal communication between cells and tissues has been proven. Somatic and craniofacial growth are genetically related, but the ratio between them is difficult to predict.

This determines the interest in the relationship between maturation and the time of growth of the craniofacial structures. The peak of maxillofacial growth is the most significant period for the optimal treatment of dentoalveolar and skeletal discrepancies. Growth and development indicators have been widely explored in a number of fields, but still no method has been found to answer all growth and development issues.

There are few studies of the relationship between chronological and skeletal age, as well as the relationship between the degrees of mineralization of teeth and the stages of skeletal maturation evaluated by the Baccetti et al. method in Bulgarian children. Knowledge of facial growth and the determination of periods of growth acceleration, volume and direction is fundamental to clinical orthodontic practice. The understudied indicators of growth and development in our country, the need to create guidelines for the initiation of orthodontic treatment and protocols for the purposes of timely orthodontic treatment and planning, defines the topic of the dissertation work as timely and up-to-date.

The purpose of the dissertation is clearly formulated; the tasks for its implementation are well defined and set allowing the PhD student to make methodical conclusions and logical scientific conclusions.

Understanding of the topic

The analysis of 161 literature sources presented by the PhD student in a volume of 40 pages of the literature review summarizes the extend of study of the indicators of growth and development, as well

as the degree of reliability of the individual methods for assessing growth. The periods of growth, the principles of development of the facial skeleton and the concepts of development of dentition and general growth are described. Indicators for assessing growth and development, as well as methods for evaluation of dental and skeletal age are included. The analyses of the literature data and the conclusions at the end of the literature review give me reason to believe that the PhD student knows the theories and principles of growth and development of the facial skeleton, as well as the methods for assessing growth.

Materials and Research methodology

In the dissertation, the criteria for selection of patients for the purpose of the study were described in details. To each of the tasks set, optimally selected contemporary methods were elected to enable obtaining of representative results. They are precisely formulated and allow the dissertant to obtain significant qualitative and quantitative results. The results and discussion chapters consist of four logically related parts, each containing the results of the relevant research stage.

Characteristic and evaluation of the dissertation and contributions

The dissertation has been developed according to the requirements of the Law on the development of academic staff in the Republic of Bulgaria and the legal regulation of MU-Varna in appropriate scientific language. The research conducted is characterized by theoretical and scientifically -applied nature with clinical significance. The contribution with an original character for the country is developing a model for determining the puberty period of growth on orthopanthogram by assessing individual indicators of growth and development. A study of the dental age evaluation was conducted by two methods – Demirjian and Willems among Bulgarian children aged 7-16 years. A comparison was made between the two methods - which of them has greater accuracy relative to the chronological age.

Contributions of a scientific and theoretical nature are the establishment of the mean chronological age in girls and boys prior to the peak of puberty at maturational stage CVM II, at the peak of puberty in stage CVM III and post pubertal development stage CVM IV by the Baccetti method. The stages of mineralization of target teeth were defined during the different periods of skeletal maturation and the correlations between the stages of calcification of the same teeth and the stages of skeletal age evaluated by the Baccetti method were studied and outlined.

Contributions of a scientifically applied nature are the establishment of a mean chronological age of girls and boys for the most effective treatment of Class III and Class II malocclusions. The correlation between the mineralization of target teeth and the stages of bone age has been determined. The results obtained enable the dissertant to accumulate theoretical and practical experience for assessing individual indicators of the growth and development of Bulgarian children, which will aid to develop an algorithm for orthodontic treatment based on the assessment of dental and skeletal age and their correlation.

Personal participation of the PhD-student

The results of the research conducted were partially popularized in three publications, personally written by the author and presented during attendance of three national and international scientific forums.

Abstract

The abstract of the PhD- thesis has been developed according to the requirements and has corresponded to the content of the dissertation. The abstract is appropriately illustrated and the tables and figures presented accurately reflects the accents and key points of the study and results achieved.

Conclusion

The dissertation "Evaluation of individual indicators for orthodontic treatment of children in mixed and permanent dentition" by Dr. Iliyana Georgieva Atanasova for obtaining of scientific and educational degree "Doctor, PhD" is an actual and contemporary research with scientific and practical value. From the analysis of dissertation carried out by me, I believe that by the amount of research work and the results achieved, the dissertation meets the requirements of the Law on development of the academic staff of the Republic of Bulgaria and the legal regulation of MU-Varna for awarding with the doctoral degree the PhD-student. The dissertation shows that the PhD student demonstrates in-depth theoretical knowledge and professional skills in the scientific field of Orthodontics, and skills for conducting scientific research.

In conclusion: I give a positive assessment and I will vote with "YES" for the award of educational and scientific degree "Doctor" in the field: Higher education: 7. Health care and sport. Professional domain: 7.2 Dental medicine. PhD-Program: "Orthopedic Dentistry" Department of Orthodontics at the Faculty of Dental Medicine, MU-Varna to Dr. Iliyana Georgieva Atanasova.

The Statement was prepared by:

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8th of July, 2022

City of Sofia