

## REVIEW

from

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**Subject:** Competition for the academic position of "Associate Professor", in the field of higher education 7. Health and Sports, professional field 7.1. Medicine, specialty " Endocrinology " at the Medical University of Varna, Faculty of Medicine, Second Department of Internal Medicine/Department of Endocrinology and Clinic of Endocrinology and Metabolic Diseases at the University Hospital "St. Marina" - Varna, according to an announcement in the State Gazette No. 30 of 08.04.2025.

### I. INFORMATION ABOUT THE PROCEDURE

Based on Order No. R-109-259/06.06.2025 of the Rector of MU - Varna and by decision of the Scientific Jury (Protocol No. 1/17.06.2025), I have been appointed to prepare a review regarding the competition for Associate Professor at MU - Varna and University Hospital "St. Marina" - Varna in the specialty "Endocrinology".

The competition was announced in the State Newspaper, issue 30/08.04.25. It complies with the Act on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its implementation at MU - Varna.

Based on the above-mentioned legal documents, all procedural requirements for announcing the competition, the deadline for submitting documents and the selection of the Scientific Jury have been met.

Application documents for the competition were submitted by Dr. Radina Stoyanova Dimitrova, PhD.

### II. BRIEF BIOGRAPHICAL DATA ABOUT THE CANDIDATE

Dr. Radina Stoyanova Dimitrova was born in 1985. in the city of Shumen. In 2010 she graduated with honors from the Medical University of Sofia. "Prof. Dr. Paraskev Stoyanov" - Varna. After graduating, she worked successively as a doctor at the MCSMCH "Euromedics" and at the MHAT "Eurohospital", Varna. Since March 2011, she has been working at the UMHAT "Sv. Marina", initially for 2 years in the team of the Emergency Department. Since 2014, Dr. Dimitrova has been part of the team of the Clinic of Endocrinology and Metabolic Diseases . In 2018, she acquired a specialty in "Endocrinology and Metabolic Diseases". In 2019, Dr. Dimitrova was certified to perform ultrasound of the neck and for the highly-specialised activity "Ultrasound-guided fine-needle aspiration biopsy of the cervical region". Her main scientific and clinical interests are in the field of osteoporosis, thyroid pathology and diabetology.

Dr. Dimitrova's academic career began as an assistant professor at the Medical University of Varna in 2016. In 2022, she obtained the educational and scientific degree of "Doctor" with a dissertation on the topic "Comparative characteristics of metabolic markers in the assessment of bone health in postmenopausal age". Since the same year she has been a chief assistant at the Second Department of Internal Medicine. She leads lectures and exercises on endocrinology for students of medicine and medical cosmetology, is part of the semester and state examination committees of medical students. She participates as a lecturer in theoretical courses on endocrinology for specializing doctors. In addition, she is a mentor and supervisor of endocrinology residents .

She is fluent in written and spoken English.

### **III. SCIENTIFIC ACTIVITY**

Dr. Dimitrova has publications in Bulgarian and international journals, is a co-author of a textbook , and has participated in over 40 reports in national and international scientific forums. She has a number of certificates from national and international congresses and conferences (BDE, EASD, ADA, ETA, ECE, ISPAD, NEURODIAB, ATTD, etc.).

The total number of scientific papers of Dr. Radina Stoyanova Dimitrova during the period from 2015 to 2025, which covers 10 active research years, include:

- Textbooks – co-author: **1**;
- Dissertation for the scientific and educational degree "doctor": **1 pc.**;
- Habilitation thesis - Monograph: **1 pc.**;

- Full-text articles: **22 pcs.**;
- Participations with reports in national congresses and conferences with international participation with published abstracts: **11 pcs.** ;
- Posters with reports presented and abstracts published at national and international congresses and conferences: **16 pcs.**;
- Participations in national congresses and conferences with presentations without published abstracts: **22.**

Dr. Dimitrova has active research profiles on Google Scholar; ORCID, Scopus and Research Gate. He is a reviewer in scientific journals such as *Folia Medica*, *Scripta Scientifica Medica*, *Pharmacia*, *Cureus*.

The candidate participated in the competition for the academic position of Associate Professor with the following publications:

- Abstract of dissertation work: **1 pc.**;  
**(number of points A1: 50)**
- Habilitation thesis - Monograph: **1 pc.**;  
**(number of points B3: 100)**
- Full-text articles published in scientific journals , indexed and referenced in the global database of scientific information ( Scopus/Web of Science): **4 pcs.**;
- Full-text articles published in non-refereed journals with scientific review: **12 pcs.**;
- Publications of reports presented in proceedings of national congresses and conferences: **2 issues.**  
**(total number of points G7-G8: 208.54)**

Dr. Dimitrova also presents 1 full-text publication in a scientific journal, beyond the minimum scientometric requirements for holding the title of Associate Professor.

In the submitted full-text articles and reports for participation in the competition, the candidate is:

- first author in 8 (in 1 of the publications he is an independent author);
- second author in 7;
- third and subsequent author in 2 of them.

This proves her personal contribution both in terms of scientific issues and in the presentation of the obtained scientific results and their final publication.

The candidate participates in the competition with 7 citations (excluding auto-citations) of 5 of the publications, as follows:

- **1** is cited in scientific publications, referenced and indexed in world-renowned databases of scientific information;
- **3** citations in 2 peer-reviewed monographs;
- **3** citations in non-refereed journals with scientific review.

**(total number of points D10-12: 60)**

#### **IV. SCIENTIFIC CONTRIBUTIONS**

The presented scientific papers and research results can be thematically divided into the following scientific areas:

##### **1. Bone health – prevention, prophylaxis and treatment of osteoporosis (A 1; B 3; D 7.3; D 8.5; D 8.7; D 8.12)**

Scientific work in the field of bone health are dedicated to both female and male genders.

The dissertation on the topic "Comparative characteristics of metabolic markers in the assessment of bone health in postmenopausal age" provides valuable data on the relationship of a number of metabolic markers with bone characteristics in postmenopausal women from the Bulgarian population. This is what determines the most significant scientific and scientific-applied contributions of the dissertation. Of interest is the proposed diagnostic and therapeutic algorithm for the prevention and treatment of osteoporosis, consistent with the risk profile for bone health in postmenopausal age derived in the analysis. In addition to the confirming results for the leading importance of age, menopause duration and body weight, the estimated dependencies between bone parameters and changes in arterial pressure are original for the country, as well as the relationship with the use of some antihypertensive medications. Abnormalities in uric acid levels, carbohydrate and lipid metabolism, as well as the treatment of these disorders, can also affect bone integrity. **(Indicator A1; Publications: D 7.3; D 8.7).** On the other hand, GLP-1 receptor agonist therapy can maintain homeostasis of bone formation and resorption in healthy bones and restore it in pathologically altered bones. **(Publication D 8.5)**

Based on a thorough literature review, the monograph "On Osteoporosis in Men" presents a detailed analysis, discussing both well-known and controversial issues concerning bone health in men. Combined with the accumulated practical experience, the author draws generally valid conclusions for practice, which are summarized in a clear form in the form of a diagnostic and therapeutic algorithm.

Osteosarcopenia is another major geriatric problem, characterized by the simultaneous loss of bone, muscle mass, and strength. The adverse consequences that can occur (fractures, immobilization, poor quality of life and increased mortality, more pronounced in men)

necessitate the need to understand and study this phenomenon. The study of the pathophysiological relationships between bones and muscles shows that osteoporosis will probably not be considered an isolated disease in the future. Knowledge of this condition, its timely diagnosis and taking adequate measures would prevent the deterioration of the quality of life among a large number of elderly people. (*Publication D 8.12*)

**2. *Thyroid pathology – skeletal effects of thyroid dysfunction and diagnostic and therapeutic guidelines for various thyroid diseases***  
(*D 7.1; D 7.2; D 8.1; D 8.11; D 8.13; Annex 19: reports 5; 8; 11*)

Dr. Dimitrova's scientific developments in the field of thyroid pathology include both topics related to the importance of thyroid function for the physical and neuropsychiatric well-being of the individual, as well as valuable diagnostic and therapeutic guidelines for various thyroid diseases.

**2.1. Skeletal effects of thyroid dysfunction**

(based on publications D 7.1, D 8.1, D 8.13; annex 19: report 8)

In her work, Dr. Radina Dimitrova thoroughly analyzes the impact of thyroid dysfunction on the skeletal system, presenting a clear and well-reasoned relationship between disorders in thyroid hormone balance and changes in bone mineral density. Particular attention is paid to the pathophysiological mechanisms through which both hypothyroidism and thyrotoxicosis lead to changes in bone metabolism.

It is emphasized that even at an early age — including during intrauterine development — abnormal levels of thyroid hormones have a serious negative impact on the growth and skeletal maturity of the fetus. It is indicated that in children with untreated hypothyroidism, disorders in endochondral ossification and retardation in bone age are observed. In adult patients, delayed bone turnover, increased cortical density, but nevertheless, paradoxically increased risk of fractures - probably related to impaired bone quality and reduced physical activity.

Dr. Dimitrova also examines the impact of levothyroxine therapy. She systematizes the effects of treatment in different clinical situations and emphasizes the need for an individualized approach to TSH target values. The analysis also includes a schematic summary of therapeutic guidelines depending on the etiology of the disease.

The second article defines thyrotoxicosis as an important risk factor for secondary osteoporosis with high bone turnover. The mechanisms of osteoclast activation mediated by the

binding of T3 to the thyroid receptor TR $\alpha$  are presented, as well as the hypothesis of the role of low TSH in bone resorption. Dr. Dimitrova notes that despite normalization of thyroid function after adequate therapy, bone density does not always recover completely, and the fracture risk remains elevated, especially in old age. These data have important implications for clinical practice in the care of patients with thyrotoxicosis and contribute to more precise prevention of secondary osteoporosis.

## **2.2. Diagnostic and therapeutic guidelines for thyroid diseases** (based on publication D 8.11; appendix 19: reports 5 and 11)

In another paper, Dr. Dimitrova reviews modern approaches to diagnosis and monitoring of patients with autoimmune thyroid pathology. She focuses on thyrotropin receptor antibodies (TRAb) as the main immunological marker for Graves' disease, but emphasizes their heterogeneity and the importance of their individual fractions for identifying disease activity.

The author makes a clear distinction between TRAb and stimulating immunoglobulins (TSI), emphasizing that the latter have the potential for more precise monitoring of therapeutic response. This places additional emphasis on the practical applicability of immunological markers in long-term follow-up.

In Dr. Dimitrova's works, special attention is paid to ultrasound diagnostics, which is presented as an indispensable method in clinical practice - both for initial clarification and for monitoring of thyroid diseases. In this regard, she emphasizes the importance of an integrated approach in the treatment and follow-up of patients with thyroid pathology.

## **3. *Diabetes mellitus - modern approaches to treatment*** **(D 8.3; D 8.4; D 8.10)**

Dr. Radina Dimitrova's scientific research in the field of diabetes mellitus is focused primarily on modern therapeutic approaches.

In her works, Dr. Dimitrova highlights key areas in the modern treatment of diabetes mellitus, emphasizing the personalized therapeutic approach and new strategic paradigms in the clinical management of patients with various forms of the disease.

Of interest is the presentation on latent autoimmune diabetes in adults (LADA), which is characterized by some clinical features and pathophysiological characteristics. The topic is illustrated with a clinical case in which CGM technology was used to assess the response to

treatment . The importance of timely initiation of insulin or incretin-based therapy is emphasized, as well as the potential benefits of the combined use of both therapeutic classes. Empirical data are presented, according to which the co-administration of insulin and a DPP-4 inhibitor (gliptin) leads to a longer-term preservation of beta-cell function, measured by C-peptide levels, compared with insulin monotherapy. Despite the more accelerated transition to insulin treatment in LADA compared with type 2 diabetes mellitus, approximately 44% of patients remain without the need for insulin therapy for a period of more than 12 years after diagnosis. These data lay the foundations for the concept of individualized, stepwise and pathogenetically based treatment in this subtype of autoimmune (type 1) diabetes. (Publication D 8.3)

In a number of her publications, Dr. Radina Dimitrova also examines the issue of type 2 diabetes mellitus (T2DM) as a chronic metabolic disease of pandemic scale, affecting millions of people worldwide. Particular attention is paid to the high degree of combination of T2DM with obesity, which complicates therapeutic control and increases the risk of complications. Morbid obesity in combination with chronic hyperglycemia forms a high-risk profile, which requires an intensive and multifactorial therapeutic approach.

Cardiovascular complications continue to be the leading cause of premature mortality among patients with T2DM, accounting for between 65% and 80% of all deaths according to various epidemiological studies. In this context, the importance of metabolic control is emphasized, and the so- called so-called "clinical inertia". The author argues for the need for timely application of fixed drug combinations, which not only improve glycemic control, but also facilitate adherence to the therapeutic regimen, creating prerequisites for more effective long-term management of the disease. (Publication G 8.10)

In line with current therapeutic trends, Dr. Dimitrova proposes a conceptual framework for interventions aimed not only at reducing glycemia, but also at preventing microvascular and macrovascular complications. In this context, a special place is given to the drug classes with cardiovascular and renal benefits – GLP-1 receptor agonists and SGLT-2 inhibitors. Their combined use, based on complementary mechanisms of action, is presented as a promising therapeutic strategy, especially suitable for patients with high cardiovascular risk. Data from clinical studies support the synergistic effect of these drugs to reduce HbA1c, reduce cardiovascular morbidity and slow the progression of diabetic nephropathy. (Publications and G 8.4; Appendix 19: Publication 18)

#### **4. *Rare endocrine diseases – challenges in clinical practice*** **(G 7.4; G 8.2; G 8.6; G 8.8; G 8.9; out - 1)**

Rare diseases, including endocrine diseases, represent a significant challenge in clinical practice due to their low incidence, variable clinical presentation and limited therapeutic arsenal. The diagnostic process in these conditions is often delayed due to the low level of clinical suspicion, the often overlapping symptoms with more common diseases and the need for specific, often difficult to access diagnostic tests. All this limits the possibilities for their effective and timely treatment. Due to the complex nature of rare endocrine diseases, their diagnosis and care require a multidisciplinary approach, involving close collaboration between endocrinologists, geneticists, hematologists, imaging specialists and other clinical experts. In this context, the presentation of literature reviews supported by clinical cases from practice is a real contribution to enriching scientific knowledge and improving diagnostic and therapeutic strategies.

As an illustration of the above, Dr. Dimitrova examines in her work a number of rare clinical cases such as:

- Primary intrathyroidal non-Hodgkin lymphoma (Publication D 7.4);
- Thyrotoxic periodic paralysis (Publication D 8.2);
- Endocrine disorders in Thalassemia major (Publication D 8.6);
- TSH-producing pituitary adenoma ( Publication D 8.8);
- Thyroid hormone resistance syndrome (Publication D 8.9);
- Spontaneously cured acromegaly (additional publication);
- Familial variant of medullary thyroid carcinoma (Appendix 19: reports 10).

In all the cases presented, a thorough history, family history, and physical examination are crucial for timely diagnosis. They guide the clinician to the correct diagnostic algorithm, which often includes molecular genetic evaluation. Such an approach is not only essential for early recognition and optimal treatment of the patient, but also for the implementation of preventive measures in relatives or at-risk groups and their referral to expert care.

**In summary**, the research and clinical activities of Dr. Radina Stoyanova Dimitrova cover a spectrum of topics in modern endocrinology, characterized by both theoretical depth and direct practical applicability. Her focus includes both widespread and socially significant endocrine diseases – including osteoporosis, diabetes mellitus and various forms of thyroid dysfunction – as well as rare and complex nosological entities, among which genetically determined familial for thyroid diseases, pituitary adenomas and combined endocrine disorders developing in the context of systemic diseases.



Dr. Dimitrova emphasizes the need for early diagnosis, a multidisciplinary approach, and individualized therapeutic behavior based on modern clinical guidelines and scientific evidence. She argues for the importance of proactive prevention strategies and timely treatment as a key tool for minimizing the risk of complications, improving long-term prognosis, and limiting the health-economic burden on the public system.

Dr. Radina Dimitrova's scientific contribution is distinguished by the integration of fundamental and applied knowledge, oriented towards achieving high diagnostic precision and therapeutic effectiveness. Her developments not only expand contemporary paradigms in endocrinology, but also contribute to improving clinical practice in the management of both common and rare endocrine conditions that pose a challenge to clinical practice.

#### **V. TEACHING AND EDUCATIONAL ACTIVITY**

Dr. Radina Dimitrova was elected as a full-time assistant professor at the Department of Internal Medicine in 2016, and since 2022 she has been a chief assistant professor at the Department of Internal Medicine, Second Department of Internal Medicine. according to this indicator, it meets the minimum requirements according to the PPZRASRB and the Regulations for Academic Development of MU-Varna.

A report on the teaching workload over the past 5 years shows an average teaching workload of **237.6 hours** with practical exercises and lectures in the training of Bulgarian-speaking students of medicine and medical cosmetology. Dr. Dimitrova leads theoretical courses in endocrinology for specializing doctors. She is currently a mentor and supervisor of two endocrinology residents . In addition, Dr. Dimitrova was a mentor to three students in the project "Student Practices - Phase 2" (Project BG05M2OP001-2.013-0001/ 2020). Participates in semester and state examination committees of medical students, in exams of doctoral students and assistants at the Board of Endocrinology.

Dr. Dimitrova is a co-author in a teaching aid for healthcare professionals.

#### **VI. PARTICIPATION IN SCIENTIFIC PROJECTS**

In connection with her dissertation work, Dr. Dimitrova participated as the principal investigator, administrative and financial manager in the project "Comparative characteristics of metabolic markers in postmenopausal women with osteopenia and osteoporosis". The project was funded by the Science Fund of MU - Varna and was implemented in the period from 2018 to 2021.

Currently, Dr. Dimitrova is a participant in another ongoing project (from 2022) at the Science Fund of the Medical University of Varna on the topic "Bone health and fracture risk in men depending on androgen status".

## **VII. CLINICAL DIAGNOSTIC AND TREATMENT ACTIVITY**

Dr. Dimitrova has been actively involved in the diagnostic and therapeutic activities at the Clinic of Endocrinology and Metabolic Diseases at the University Hospital "St. Marina" Varna for over 10 years. Her work at the clinic includes performing highly specialized activities such as ultrasound diagnostics of the cervical region and performing fine-needle aspiration biopsy under ultrasound control of the thyroid, parathyroid glands, lymph nodes and tumor formations in the cervical region. In addition, she is a member of the "Endocrine Tumors" subcommittee.

In addition, Dr. Dimitrova has experience with clinical trials evaluating innovative therapies for type 2 diabetes mellitus. She participated as a co-investigator in SUSTAIN 11, PIONEER PLUS, and REIMAGINE 2.

Dr. Dimitrova is also a member of a number of specialized hospital committees for home treatment: for drug treatment of patients with type 1 and type 2 diabetes mellitus; for prescribing medical devices for use with insulin pumps and sensors in type 1 diabetes mellitus; for treatment of patients over 18 years of age with growth hormone deficiency; for treatment of patients with increased production of growth hormone; for treatment with calcitriol of patients with phosphorus metabolism disorders and post-procedural hypoparathyroidism, for treatment of patients with hyperprolactinemia, treatment of osteoporosis with the drug Teriparatide.

All of the above demonstrates the candidate's clinical competence and professional maturity, which are evident from her active participation in the treatment of complex clinical cases and working in a multidisciplinary team. Her ability to responsibly and precisely deal with diagnostic and therapeutic challenges is evidence of her dedication to patients, especially in cases requiring an individualized approach. Her pursuit of continuous professional development allows her to apply the most current approaches in clinical practice and successfully integrate them into her academic activities.

The combination of high professionalism, scientific training and commitment makes Dr. Dimitrova not only an excellent clinician, but also a valuable academic, capable of being a mentor to young specialists and an active participant in scientific research in the field of endocrinology.

## **VIII. CRITICAL NOTES**

Over the past years in the clinic and as a lecturer, Dr. Dimitrova has gained considerable professional experience, a taste for scientific research and mentoring novice doctors. I strongly

recommend that she realize her creative ideas with greater confidence by initiating, developing and shaping scientific research (including reviews and clinical cases) and presenting them in publications that are refereed and indexed in world-renowned databases of scientific information, as well as presenting them at international congresses. This will give her the opportunity to gain confidence in her scientific developments and to begin to successfully attract followers among younger colleagues.

#### IX. CONCLUSION

Chief Assistant Professor Dr. Radina Dimitrova, doctor, is presenting herself in the competition with scientometric indicators that meet the minimum national requirements of the Bulgarian Academy of Sciences and Arts and the Bulgarian Academy of Sciences Varna. The total number of points collected by the candidate in Appendix 1 exceeds the minimum requirements by groups of indicators for the academic position of "associate professor" - 400 points. Her youth and purposefulness suggest many future successes and give me reason to vote positively and to propose to the esteemed scientific jury to elect Chief Assistant Dr. Radina Stoyanova Dimitrova , DM to occupy the academic position of "associate professor" for the needs of MU Varna.

05.08.2025

Signature:.....

Заличено на основание чл. 5,  
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/Prof. Dr. V. Iotova/

