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REVIEWER'S REPORT

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Regarding the dissertation submitted for the award of the educational and scientific degree "Doctor" (PhD)
Professional field: Medicine (7.1)
Doctoral programme: Plastic-Reconstructive and Aesthetic Surgery, 03.01.43

Author: Dr Stancho Stoyanov Prodanov
Form of doctoral training: Independent study
Department: Propaedeutics of Surgical Diseases
Section: Burns and Plastic Surgery
Title: *Electrical Injuries: Contemporary Aspects of Pathogenetic Mechanisms and Surgical Management*
Thesis Supervisor: Assoc. Prof. Elean Ivanov Zanzov, MD, PhD
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1. General overview of the procedure and the doctoral candidate

The dossier submitted in hard copy and electronic form complies with Art. 70(1) of Section I "Acquisition of the educational and scientific degree 'Doctor' and the scientific degree 'Doctor of Sciences'" at the Medical University – Plovdiv, and with the Regulations of the Medical University – Plovdiv dated 28 January 2021, and includes the following documents:

– Application to the Rector of MU–Plovdiv for initiation of the procedure for defence of the dissertation
– Curriculum vitae in the European (Europass) format, signed by the doctoral candidate
– Notarised copy of the higher-education diploma
– Orders for enrolment in the doctoral programme and for discharge with the right to defend
– Order for an examination under the individual study plan and the corresponding record certifying the doctoral minimum passed in the specialty
– Minutes of the Departmental Council on the preliminary discussion of the dissertation and the decisions to open the procedure and appoint the scientific jury
– Dissertation
– Author's abstract
– List of scientific publications related to the dissertation topic
– Copies of the scientific publications
– Declaration of originality and authenticity of the submitted documents
– Other documents pertinent to the procedure (68 credits earned within the Doctoral School of MU–Plovdiv).

Dr Stancho Prodanov graduated in Medicine from MU–Plovdiv (2000–2006), obtained the specialty in Plastic-Reconstructive and Aesthetic Surgery (2014), and a Master's degree in Health Management (2015). His professional experience includes consecutive positions at MBAL Pazardzhik (2006–2007); UMHAT "St George" – Plovdiv (2007–2016; General/Operative Surgery and Plastic-Reconstructive Surgery);

UMHATEM "N. I. Pirogov" – Sofia (2016–2021); and, from 2022 to the present, roles as plastic surgeon and Managing Director of the Medical Centre "PRO Academy" in Plovdiv. Since September 2025 he has also served as a plastic surgeon at University Hospital "St. Ekaterina", Sofia. He has been an Assistant at the Clinic of Burns, UMHATEM "N. I. Pirogov", since 2017, and since December 2021 he has been a doctoral candidate by independent study at MU–Plovdiv on a topic dedicated to electrical injuries. He has accumulated substantial international experience through specialisations and intensive courses abroad (France, Poland, Sweden, Slovenia, Romania, Italy, Australia, among others), with a strong focus on aesthetic and reconstructive surgery of the breast and body. He is proficient in French and English. He is a member of the Bulgarian Association of Plastic, Reconstructive and Aesthetic Surgery (BAPREH) and the Bulgarian Medical Association (BMA).

2. Relevance and timeliness of the topic

The topic of electrical injuries is of indisputable clinical and public-health significance owing to the high risk of severe local and systemic damage, the frequent occurrence in occupational and domestic accidents, and the need for a comprehensive, multidisciplinary approach. Optimising the surgical strategy is pivotal to reducing complications, length of hospital stay, and functional deficits. In this context, the dissertation addresses a timely, practice-oriented problem, relevant to burn and plastic surgery centres as well as to emergency medicine and public health.

3. Knowledge of the subject

The literature review is extensive in volume and scope (281 sources; 17 in Cyrillic, 264 in Latin script), attesting to a thorough command of the topic and current trends in the field. The author demonstrates awareness of the historical evolution of classifications, contemporary concepts of the pathophysiology of electrical injury, and the relevant reconstructive principles, and appropriately situates the present study within the leading publications and clinical guidelines.

4. Research methodology

The study is a two-centre, retrospective, descriptive analysis with a clearly defined study population and units of observation. A total of 707 patients were included: 519 from UMHATEM "N. I. Pirogov", Sofia, and 188 from UMHAT "St George", Plovdiv. Data were recorded in a standardised clinical case form (Appendix 1) and analysed using SPSS Statistics 25.0 and MedCalc 14.8.1. The methodology is commensurate with the aims and objectives; standard descriptive and comparative procedures were employed, together with tests of distribution, correlation and regression analyses, and ROC curve evaluation where appropriate. The doctoral candidate's personal involvement in data collection and processing is explicitly stated, thereby strengthening the study's internal validity.

5. Characteristics and appraisal of the dissertation and contributions

The dissertation is clearly structured and of ample empirical scope—204 pages, 75 tables, 39 figures, and 3 appendices.

The literature review is analytical and comprehensive, appropriately situating the study within contemporary knowledge on electrical injuries—pathogenesis, clinical typology, surgical strategies, and multidisciplinary management. The aim is clearly formulated and is accompanied by seven specific objectives, whose fulfilment can be traced through to the results achieved.

The Materials and Methods section is concise (8 pages) and methodologically robust: a two-centre, retrospective, descriptive study with clearly defined study population and units of observation.

In the Results and Discussion sections, the data are presented logically, with comparison to the literature and a clear orientation towards clinical decision-making—from early surgical tactics to reconstructive approaches. The argumentation is coherent, and the conclusions are commensurate with the evidentiary base.

Taken together, the dissertation meets the criteria for originality, methodological rigour, and clinical applicability. The contributions are clearly formulated, demonstrable, and practice-oriented, making a substantive contribution to the standardisation of the diagnostic and therapeutic approach to electrical injuries and to reducing variability in the care of these patients.

The strengths include: (1) consolidation of a large clinical dataset from two highly specialised centres; (2) standardised recording of variables; and (3) statistically grounded interpretation of findings directed at clinical decision-making. The practical contributions consist in the systematisation of the typological spectrum of electrical injury, the delineation of factors associated with an unfavourable course/complications, and the formulation of recommendations for surgical management and subsequent reconstruction.

6. Appraisal of the publications and the doctoral candidate's personal contribution

Dr Prodanov's publications comprise three peer-reviewed articles, in two of which he is the first author. Foremost is an international paper in *Dermatologic Therapy*, indexed in Web of Science (JCR 2018 JIF = 1.740; current indicative JIF ≈ 3.4). The remaining two publications are in national peer-reviewed journals: one in *Meditsinski Pregled* ("Medical Review"), indexed in CABI/EBSCO, and another in *Khirurgiya* ("Surgery")—the official journal of the Bulgarian Surgical Society.

Applying the current points-based scheme for academic output, this set of publications meets the requirements for dissertation defence; the cumulative contribution exceeds the minimum threshold under the standard regulations and complies with the Regulations of MU–Plovdiv. This configuration ensures both international dissemination and national visibility of the results, in full alignment with the thematic scope of the dissertation. In this way, Dr Prodanov's contributions are effectively communicated to the target professional communities in burn care and plastic-reconstructive surgery in Bulgaria and abroad. Based on the submitted materials and publication activity, I consider the doctoral candidate's personal contribution to be leading and decisive.

7. Author's abstract

The author's abstract accurately reflects the aim, objectives, materials and methods, principal results, and contributions, maintaining consistency with the dissertation in both content and terminology. The formulations are clear, appropriately concise, and strike a sound balance between factual detail and interpretation; the doctoral candidate's publications are presented in the required format.

CONCLUSION

The dissertation contains scientific, applied-scientific and practical results constituting original contributions to the field, and meets the requirements of the Law for the Development of the Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for its implementation, and the Regulations of

the Medical University – Plovdiv. The submitted materials and results fully conform to the specific requirements adopted pursuant to MU–Plovdiv's Regulations for the application of the LDASRB. The minimum publication output and the points-based criteria (including weighting for JCR/IF and first authorship) are fulfilled.

The dissertation demonstrates that the doctoral candidate, Dr Stancho S. Prodanov, possesses in-depth theoretical knowledge and professional skills in the scientific specialty of Surgery (Plastic-Reconstructive and Aesthetic Surgery / thermal injury), and exhibits the qualities and ability to plan, conduct and interpret scientific research independently.

In view of the above, I confidently give a positive assessment of the study as presented through the dissertation, the author's abstract, the results achieved and the stated contributions, and I recommend that the esteemed scientific jury award the educational and scientific degree "Doctor" to Dr Stancho S. Prodanov in the doctoral programme in Plastic-Reconstructive and Aesthetic Surgery.

13 October 2025

Prof. Dimitar P