

UDK 37

ISSN 2545 – 4439

ISSN 1857 - 923X

# INTERNATIONAL JOURNAL

Institute of Knowledge Management

# KNOWLEDGE



Scientific Papers

Vol. 61.4

MEDICAL SCIENCES AND HEALTH

KIJ

Vol. 61

No. 4

pp. 499 - 844

Skopje, 2023



**KNOWLEDGE**



**INTERNATIONAL JOURNAL**

**SCIENTIFIC PAPERS  
VOL. 61.4**

*December, 2023*



**INSTITUTE OF KNOWLEDGE MANAGEMENT  
SKOPJE**



# **KNOWLEDGE**

## **International Journal Scientific Papers Vol. 61.4**

### **ADVISORY BOARD**

Vlado Kambovski PhD, Robert Dimitrovski PhD, Siniša Zarić PhD, Maria Kavdanska PhD, Mirjana Borota – Popovska PhD, Veselin Videv PhD, Ivo Zupanovic PhD, Savo Ashtalkoski PhD, Zivota Radosavljević PhD, Laste Spasovski PhD, Mersad Mujevic PhD, Milka Zdravkovska PhD, Drago Cvijanovic PhD, Predrag Trajković PhD, Lazar Stosic PhD, Krasimira Staneva PhD, Nebojsa Pavlović PhD, Daniela Todorova PhD, Lisen Bashkurti PhD, Zoran Srzentić PhD, Itska Derijan PhD, Sinisa Opic PhD, Marija Kostic PhD

**Print:** GRAFOPROM – Bitola

**Editor:** IKM – Skopje

**Editor in chief**

Robert Dimitrovski, PhD

**KNOWLEDGE - International Journal Scientific Papers Vol. 61.4**

**ISSN 1857-923X (for e-version)**

**ISSN 2545 – 4439 (for printed version)**



---

**INTERNATIONAL EDITORIAL BOARD**

**President:** Academic Prof. Vlado Kambovski PhD, Skopje (N. Macedonia)

**Vice presidents:**

Prof. Robert Dimitrovski PhD, Institute of Knowledge Management, Skopje (N. Macedonia)

Prof. Sinisa Zaric, PhD, Faculty of Economics, University of Belgrade, Belgrade (Serbia)

Prof. Mersad Mujevic PhD, Public Procurement Administration of Montenegro (Montenegro)

Prof. Tihomir Domazet PhD, President of the Croatian Institute for Finance and Accounting, Zagreb (Croatia)

**Members:**

- Prof. Azra Adjajlic – Dedovic PhD, Faculty of criminology and security, Sarajevo (Bosnia & Herzegovina)
- Prof. Aleksandar Korablev PhD, Faculty of economy and management, Saint Petersburg State Forest Technical University, Saint Petersburg (Russian Federation)
- Prof. Anita Trajkovska PhD, Rochester University (USA)
- Prof. Aziz Pollozhani PhD, Rector, University Mother Teresa, Skopje (N.Macedonia)
- Prof. Anka Trajkovska-Petkoska PhD, UKLO, Faculty of technology and technical sciences, Bitola (N. Macedonia)
- Prof. Aneta Mijoska PhD, Faculty of Dentistry, University “St. Cyril and Methodius”, Skopje (N. Macedonia)
- Prof. Alisabri Sabani PhD, Faculty of criminology and security, Sarajevo (Bosnia & Herzegovina)
- Prof. Artan Nimani PhD, Rector, University of Gjakova “Fehmi Agani” (Kosovo)
- Prof. Ahmad Zakeri PhD, University of Wolverhampton, (United Kingdom)
- Prof. Ana Dzumalievova PhD, South-West University “Neofit Rilski”, Blagoevgrad (Bulgaria)
- Prof. Ali Hajro, PhD, Military Academy “Mihailo Apostolski”, Skopje (N. Macedonia)
- Prof. Branko Sotirov PhD, University of Rousse, Rousse (Bulgaria)
- Prof. Branko Boshkovic, PhD, College of Sports and Health, Belgrade (Serbia)
- Prof. Branimir Kampl PhD, Institute SANO, Zagreb (Croatia)
- Prof. Branislav Simonovic PhD, Faculty of Law, Kragujevac (Serbia)
- Prof. Bistra Angelovska, Faculty of Medicine, University “Goce Delcev”, Shtip (N.Macedonia)
- Prof. Cezar Birzea, PhD, National School for Political and Administrative Studies, Bucharest (Romania)
- Prof. Cvetko Andreevski, Faculty of Tourism, UKLO, Bitola (N.Macedonia)
- Prof. Drago Cvijanovic, PhD, Faculty of Hotel Management and Tourism, University of Kragujevac, Vrnjacka Banja (Serbia)
- Prof. Dusan Ristic, PhD Emeritus, College of professional studies in Management and Business Communication, Novi Sad (Serbia)
- Prof. Darijo Jerkovic PhD, Faculty of Business Economy, University “Vitez”, (Bosnia & Herzegovina)
- Prof. Daniela Todorova PhD, “Todor Kableshev” University of Transport, Sofia (Bulgaria)
- Prof. Dragan Kokovic PhD, University of Novi Sad, Novi Sad (Serbia)
- Prof. Dragan Marinkovic PhD, High health – sanitary school for professional studies, Belgrade (Serbia)
- Prof. Itska Mihaylova Derijan PhD, University Neofit Rilski, Faculty of pedagogy, Blagoevgrad (Bulgaria)
- Prof. Dzulijana Tomovska, PhD, Faculty of Biotechnical sciences, Bitola (N.Macedonia)

- Prof. Evgenia Penkova-Pantaleeva PhD, UNWE -Sofia (Bulgaria)
- Prof. Fadil Millaku, PhD, University “Hadzi Zeka”, Peja (Kosovo)
- Prof. Fatos Ukaj, University “Hasan Prishtina”, Prishtina (Kosovo)
- Prof. Georgi Georgiev PhD, National Military University “Vasil Levski”, Veliko Trnovo (Bulgaria)
- Prof. Halit Shabani, PhD, University “Hadzi Zeka”, Peja (Kosovo)
- Prof. Halima Sofradzija, PhD, University of Sarajevo, Sarajevo (Bosnia and Herzegovina)
- Prof. Haris Halilovic, Faculty of criminology and security, University of Sarajevo, Sarajevo (Bosnia and Herzegovina)
- Prof. Helmut Shramke PhD, former Head of the University of Vienna Reform Group (Austria)
- Prof. Hristina Georgieva Yancheva, PhD, Agricultural University, Plovdiv (Bulgaria)
- Prof. Hristo Beloev PhD, Bulgarian Academy of Science, Rector of the University of Rousse (Bulgaria)
- Prof. Hristina Milcheva, Medical college, Trakia University, Stara Zagora (Bulgaria)
- Prof. Izet Zeqiri, PhD, Academic, SEEU, Tetovo (N.Macedonia)
- Prof. Ivan Marchevski, PhD, D.A. Tsenov Academy of Economics, Svishtov (Bulgaria)
- Prof. Ibrahim Obhodjas PhD, Faculty of Business Economy, University “Vitez”, (Bosnia & Herzegovina)
- Doc. Igor Stubelj, PhD, Faculty of Management, Primorska University, Koper (Slovenia)
- Prof. Ivo Zupanovic, PhD, Faculty of Business and Tourism, Budva (Montenegro)
- Prof. Ivan Blazhevski, PhD, Institute for Sociological, Political and Juridical Research, Skopje (N.Macedonia)
- Prof. Isa Spahiu PhD, AAB University, Prishtina (Kosovo)
- Prof. Ivana Jelik PhD, University of Podgorica, Faculty of Law, Podgorica (Montenegro)
- Prof. Islam Hasani PhD, Kingston University (Bahrein)
- Prof. Jamila Jaganjac PhD, Faculty of Business Economy, University “Vitez”, (Bosnia & Herzegovina)
- Prof. Jova Ateljevic PhD, Faculty of Economy, University of Banja Luka, (Bosnia & Herzegovina)
- Prof. Jonko Kunchev PhD, University „Cernorizec Hrabar“ - Varna (Bulgaria)
- Prof Karl Schopf, PhD, Akademie fur wissenschaftliche forchung und studium, Wien (Austria)
- Prof. Katerina Belichovska, PhD, Faculty of Agricultural Sciences, UKIM, Skopje (N. Macedonia)
- Prof. Krasimir Petkov, PhD, National Sports Academy “Vassil Levski”, Sofia (Bulgaria)
- Prof. Kamal Al-Nakib PhD, College of Business Administration Department, Kingdom University (Bahrain)
- Prof. Kiril Lisichkov, Faculty of Technology and Metallurgy, UKIM, Skopje (N.Macedonia)
- Prof. Krasimira Staneva PhD, University of Forestry, Sofia (Bulgaria)
- Prof. Lidija Tozi PhD, Faculty of Pharmacy, Ss. Cyril and Methodius University, Skopje (N.Macedonia)
- Prof. Laste Spasovski PhD, Vocational and educational centre, Skopje (N.Macedonia)
- Prof. Larisa Velic, PhD, Faculty of Law, University of Zenica, Zenica ( Bosnia and Herzegovina)
- Prof. Łukasz Tomczyk PhD, Pedagogical University of Cracow (Poland)
- Prof. Lujza Grueva, PhD, Faculty of Medical Sciences, UKIM, Skopje (N.Macedonia)
- Prof. Lazar Stosic, PhD, Association for development of science, engineering and education, Vranje (Serbia)



- Prof. Lulzim Zeneli PhD, University of Gjakova “Fehmi Agani” (Kosovo)
- Prof. Lisen Bashkurti PhD, Global Vice President of Sun Moon University (Albania)
- Prof. Lence Mircevska PhD, High Medicine School, Bitola, (N.Macedonia)
- Prof. Ljupce Kocovski PhD, Faculty of Biotechnical sciences, Bitola (N.Macedonia)
- Prof. Marusya Lyubcheva PhD, University “Prof. Asen Zlatarov”, Member of the European Parliament, Burgas (Bulgaria)
- Prof. Marija Magdinceva – Shopova PhD, Faculty of tourism and business logistics, University “Goce Delchev”, Shtip (N. Macedonia)
- Prof. Maria Kavdanska PhD, Faculty of Pedagogy, South-West University Neofit Rilski, Blagoevgrad (Bulgaria)
- Prof. Vaska Stancheva-Popkostadinova, PhD, Faculty of Public Health and Sport, SWU Neofit Rilski, Blagoevgrad (Bulgaria)
- Prof. Mirjana Borota-Popovska, PhD, Centre for Management and Human Resource Development, Institute for Sociological, Political and Juridical Research, Skopje (N.Macedonia)
- Prof. Mihail Garevski, PhD, Institute of Earthquake Engineering and Engineering Seismology, Skopje (N.Macedonia)
- Prof. Mitko Kotovchevski, PhD, Faculty of Philosophy, UKIM, Skopje (N.Macedonia)
- Prof. Milan Radosavljevic PhD, Dean, Faculty of strategic and operational management, Union University, Belgrade (Serbia)
- Prof. Marija Topuzovska-Latkovikj, PhD, Centre for Management and Human Resource Development, Institute for Sociological, Political and Juridical Research, Skopje (N.Macedonia)
- Prof. Marija Knezevic PhD, Academic, Banja Luka, (Bosnia and Herzegovina)
- Prof. Margarita Bogdanova PhD, D.A.Tsenov Academy of Economics, Svishtov (Bulgaria)
- Prof. Mahmut Chelik PhD, Faculty of Philology, University “Goce Delchev”, Shtip (N.Macedonia)
- Prof. Mihajlo Petrovski, PhD, Faculty of Medical Sciences, University “Goce Delchev”, Shtip (N.Macedonia)
- Prof. Marija Mandaric PhD, Faculty of Hotel Management and Tourism, University of Kragujevac, Vrnjacka Banja (Serbia)
- Prof. Marina Simin PhD, College of professional studies in Management and Business Communication, Sremski Karlovci (Serbia)
- Prof. Miladin Kalinic, College of professional studies in Management and Business Communication, Sremski Karlovci (Serbia)
- Prof. Marijan Tanushevski PhD, Macedonian Scientific Society, Bitola (N. Macedonia)
- Prof. Mitre Stojanovski PhD, Faculty of Biotechnical sciences, Bitola (N.Macedonia)
- Prof. Miodrag Smelcerovic PhD, High Technological and Artistic Vocational School, Leskovac (Serbia)
- Prof. Nadka Kostadinova, Faculty of Economics, Trakia University, Stara Zagora (Bulgaria)
- Prof. Natalija Kirejenko PhD, Faculty For economic and Business, Institute of Entrepreneurial Activity, Minsk (Belarus)
- Prof. Nenad Taneski PhD, Military Academy “Mihailo Apostolski”, Skopje (N.Macedonia)
- Prof. Nevenka Tatkovic PhD, Juraj Dobrila University of Pula, Pula (Croatia)
- Prof. Nedžad Korajlic PhD, Faculty of criminal justice and security, University of Sarajevo (Bosnia and Herzegovina)
- Prof. Nikola Sabev, PhD, Angel Kanchev University of Ruse, Ruse (Bulgaria)
- Prof. Nonka Mateva PhD, Medical University, Plovdiv (Bulgaria)
- Prof. Nikolay Georgiev PhD, “Todor Kableshev” University of Transport, Sofia (Bulgaria)
- Prof. Nishad M. Navaz PhD, Kingdom University (India)
- Prof. Nano Ruzhin PhD, Faculty of Law, AUE-FON University, Skopje (N.Macedonia)

- Prof. Oliver Dimitrijevic PhD, High medicine school for professional studies “Hipokrat”, Bujanovac (Serbia)
- Prof. Paul Sergius Koku, PhD, Florida State University, Florida (USA)
- Prof. Primoz Dolenc, PhD, Faculty of Management, Primorska University, Koper (Slovenia)
- Prof. Petar Kolev PhD, “Todor Kableshkov” University of Transport, Sofia (Bulgaria)
- Prof. Pere Tumbas PhD, Faculty of Economics, University of Novi Sad, Subotica (Serbia)
- Prof. Rade Ratkovic PhD, Faculty of Business and Tourism, Budva (Montenegro)
- Prof. Rositsa Chobanova PhD, University of Telecommunications and Posts, Sofia (Bulgaria)
- Prof. Rossana Piccolo PhD, Università degli studi della Campania - Luigi Vanvitelli (Italy)
- Prof. Rumen Valcovski PhD, Imunolab Sofia (Bulgaria)
- Prof. Rumen Stefanov PhD, Faculty of public health, Medical University of Plovdiv (Bulgaria)
- Prof. Rumen Tomov PhD, University of Forestry, Sofia (Bulgaria)
- Prof. Sasho Korunoski PhD, UKLO, Bitola (N.Macedonia)
- Prof. Snezhana Lazarevic, PhD, College of Sports and Health, Belgrade (Serbia)
- Prof. Vasil Markov PhD, Faculty of Arts, SWU Neofit Rilski, Blagoevgrad (Bulgaria)
- Prof. Stojna Ristevska PhD, High Medicine School, Bitola, (N. Macedonia)
- Prof. Suzana Pavlovic PhD, High health – sanitary school for professional studies, Belgrade (Serbia)
- Prof. Sandra Zivanovic, PhD, Faculty of Hotel Management and Tourism, University of Kragujevac, Vrnjacka Banja (Serbia)
- Prof. Shyqeri Kabashi, College “Biznesi”, Prishtina (Kosovo)
- Prof. Temelko Risteski PhD, Faculty of Law, AUE-FON University, Skopje (N. Macedonia)
- Prof. Todor Krystevich, D.A. Tsenov Academy of Economics, Svishtov (Bulgaria)
- Prof. Todorka Atanasova, Faculty of Economics, Trakia University, Stara Zagora (Bulgaria)
- Prof. Tzako Pantaleev PhD, NBUniversity , Sofia (Bulgaria)
- Prof. Vojislav Babic PhD, Institute of Sociology, University of Belgrade (Serbia)
- Prof. Volodymyr Denysyuk, PhD, Dobrov Center for Scientific and Technological Potential and History studies at the National Academy of Sciences of Ukraine (Ukraine)
- Prof. Valentina Staneva PhD, “Todor Kableshkov” University of Transport, Sofia (Bulgaria)
- Prof. Venus Del Rosario PhD, Arab Open University (Philippines)
- Prof. Vjollca Dibra PhD, University of Gjakova “Fehmi Agani” (Kosovo)
- Prof. Yuri Doroshenko PhD, Dean, Faculty of Economics and Management, Belgorod (Russian Federation)
- Prof. Zlatko Pejkovski, PhD, Faculty of Agricultural Sciences, UKIM, Skopje (N.Macedonia)
- Prof. Zivota Radosavljevik PhD, Faculty FORCUP, Union University, Belgrade (Serbia)
- Prof. Zorka Jugovic PhD, High health – sanitary school for professional studies, Belgrade (Serbia)

### **REVIEW PROCEDURE AND REVIEW BOARD**

Each paper is reviewed by the editor and, if it is judged suitable for this publication, it is then sent to two referees for double blind peer review.

The editorial review board is consisted of 67 members, full professors in the fields 1) Natural and mathematical sciences, 2) Technical and technological sciences, 3) Medical sciences and Health, 4) Biotechnical sciences, 5) Social sciences, and 6) Humanities from all the Balkan countries and the region.



---

**CONTENTS**

CARDIAC REHABILITATION AND RISK MANAGEMENT OF COMPLICATIONS IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION.....	517
Tanya Popova.....	517
Dimitrina Blagoeva.....	517
INCIDENCE OF CATHETER ABLATIONS PERFORMED FOR THE TREATMENT OF CARDIAC ARRHYTHMIAS OVER A PERIOD OF THREE YEARS .....	523
Aneta Ristovska.....	523
Gordana Kamceva Mihailova.....	523
INCIDENCE OF ACUTE MYOCARDIAL INFARCTION IN THE PERIOD OF 2017-2019 AT THE UNIVERSITY CLINIC OF CARDIOLOGY, SKOPJE, NORTH MACEDONIA .....	527
Monika Trpeska.....	527
Gordana Kamceva Mihailova.....	527
RISK FACTORS OF EPILEPSY IN ELDERLY POPULATION: RETROSPECTIVE OBSERVATIONAL STUDY .....	531
Blerim Ademi.....	531
Leartha Alili Ademi.....	531
MOTOR NEUROREHABILITATION IN PATIENTS WITH MULTIPLE SCLEROSIS .....	537
Danche Vasileva.....	537
Marija Slavkoska.....	537
INCIDENCE OF HYDROCEPHALUS IN A TERTIARY CARE CENTER IN SKOPJE, REPUBLIC OF NORTH MACEDONIA IN THE PERIOD OF 2019-2021 .....	545
Jasminka Spasovska.....	545
Gordana Kamceva Mihailova.....	545
INCIDENCE AND OUTCOME OF CRANIOCEREBRAL INJURIES – ROLE OF THE NURSE IN CARE AND TREATMENT.....	549
Biljana Mileska .....	549
Gordana Kamceva Mihailova.....	549
MEANING OF HbA1c IN THE DIAGNOSIS AND SCREENING OF DIABETES MELLITUS .....	553
Mire Spasov .....	553
Hristijan Spasov .....	553
A CASE OF MONONEURITIS MULTIPLEX WITH GIANT CELL ARTERITIS.....	559
Behidzhe Sadarzanska-Terzieva.....	559
Plamen Tsvetanov .....	559
Silvia Tsvetkova .....	559
BLOOD SUPPLY AND INNERVATION OF CLAVICLE BONE.....	565
Parvan Yanev .....	565
SURGICAL TREATMENT AND RISK PREDICTION OF PATHOLOGICAL FRACTURES WITH MIREL'S SCORE DUE TO METASTASES OF THE APPENDICULAR SKELETON .....	571
Monika Stefanovska .....	571
Gordana Kamceva Mihailova.....	571
COMPARISON OF THERAPEUTIC EFFECTS OF FREE GINGIVAL GRAFT VERSUS MUCOGRAFT IN MUCOGINGIVAL ESTHETIC SURGERY – CYTOLOGICAL EVALUATION .	577
Zaklina Menceva .....	577
Aneta Terzievska.....	577
Daniela Veleska Stevkovska .....	577
Biljana Evrosimovska .....	577
Stavre Trajculeski.....	577
Biljana Rusevska .....	577

CLINICAL METHOD FOR ORTHODONTIC DIGITAL CONSTRUCTION BITE .....	581
Gergana Gurgurova .....	581
Greta Yordanova - Kostova.....	581
THE USE OF ARTIFICIAL INTELLIGENCE IN DENTAL PRACTICE AND PATIENTS’ ATTITUDES TOWARDS IT.....	587
Iliyan Kostov.....	587
Mirela Georgieva.....	587
ANALYSING TREATMENT RESULTS BY SUPERIMPOSITION OF CBCTs .....	593
Emanuel Emilianov .....	593
Greta Yordanova-Kostova .....	593
FREQUENCY OF THE PHENOMENON "HYPERDONTIA" IN LATERAL MAXILLARY AND MANDIBULAR AREAS.....	599
Mario Grancharov .....	599
NECESSITY OF PRELIMINARY CONSTRUCTIONS IN FIXED PROSTHODONTICS – HISTORICAL ANALYSIS .....	605
Mariana Dimova-Gabrovska .....	605
Iva Taneva.....	605
Stefan Rangelov .....	605
HIGHLIGHTS OF THE APPLICATION OF THREE-DIMENSIONAL PRINTING TO DENTAL MEDICINE .....	611
Mariana Yordanova Dimova-Gabrovska .....	611
Yoana Rumenova Brusarska .....	611
MYOPIA CONTROL BY OPTICAL MEANS.....	619
Tsvetelina Mihova .....	619
Blagoya Patsova .....	619
PRIMARY PTERIGIUM RECCURENCE TIME AFTER SURGICAL EXCISION WITH AUTOTRANSPLANTATION LIBERA WITH THE GRAFT FROM SUPERIOR OR INFERIOR TEMPORAL CONJUNCTIVA.....	625
Vesna Cheleva Markovska.....	625
DISLOCATED INTRAOCULAR LENS .....	631
Alek Topov .....	631
Strahil Gazepov .....	631
Alen Georgiev .....	631
Renata Pavleva .....	631
Stefanija Jordanova.....	631
Aleksandra Butnejska Shaleva .....	631
A PECULIAR CLINICAL PROFILE OF SYMPTOMATIC EYELID MYOCLONUS AND ATONIC SEIZURES IN EARLY CHILDHOOD: A CASE REPORT .....	635
Leartha Alili Ademi.....	635
Teodora Spasovska .....	635
COVID-19 PATIENTS CLINICAL EXPERIENCE WITH OCULAR INVOLVMENT .....	641
Slavena Stoykova .....	641
CONTROL OF MYOPIA .....	647
Simona Mitusheva .....	647
Kaloyan Varlyakov.....	647
DERMOID CYST .....	651
Dragana Velickovska .....	651
Strahil Gazepov .....	651
Biljana Gjorgieva .....	651
Doruntina Selimi Ademi .....	651
Jovanka Ristova.....	651

Sanja Shopova.....	651
PREVENTION OF CHILDREN'S VISION .....	657
Viktoriya Ilova .....	657
Simona Mitusheva .....	657
Kaloyan Varlyakov.....	657
NEUROREHABILITATION IN PATIENTS WITH PERIPHERAL FACIAL NERVE PARESIS.....	661
Lence Nikolovska.....	661
Fadil Rustemi .....	661
INFLUENCE OF KINESITHERAPY IN LUMBAR DISC HERNIATION.....	665
Danche Vasileva.....	665
Ivana Dimik .....	665
STRENGTHENING THE PELVIC FLOOR FOR EASING AND PREVENTING LOW BACK PAIN. 30 MINUTE HOME EXERCISE PROGRAM .....	671
Inna M. Ivanova .....	671
Vanina Mihailova - Alakidi.....	671
EFFECT OF PROPRIOCEPTIVE EXERCISES ON BALANCE IN PATIENTS WITH ANKLE FRACTURES.....	677
Steliyana Valeva.....	677
ROLE OF ELASTIC RESISTANCE, MANUAL MOBILIZATION TECHNIQUES AND DEEP OSCILLATION IN THE TREATMENT OF ANKLE FRACTURES .....	683
Steliyana Valeva.....	683
Lyubomira Sazdova.....	683
FUNCTIONAL RESULTS OF KINESITHERAPY AFTER ARTHROSCOPIC TREATMENT OF THE ELBOW .....	689
Nazife Bekir .....	689
Lyubomira Sazdova.....	689
PREVALENCE AND RISK FACTORS OF INJURIES IN CHILDREN PRACTICING COMBAT SPORTS.....	697
Yordan Georgiev .....	697
EFFECT OF A 20 DAY TRAINING PROGRAM ON GRIP STRENGTH IN ELITE WEIGHTLIFTERS .....	703
Dobrin Popov .....	703
Kostadin Kanalev .....	703
Mariana Bachelova.....	703
Nikolay Boyadjiev .....	703
Ian Raichev .....	703
Penka Angelova.....	703
KINESITHERAPY AFTER ARTHROSCOPIC TREATMENT OF THE ELBOW CONTRACTURE IN ATHLETE – CLINICAL CASE.....	707
Nazife Bekir .....	707
INFLUENCE OF PAIN ON THE RECOVERY PROCESS AFTER SOFT TISSUE INJURY IN THE KNEE JOINT .....	713
Nora Taneva-Georgieva.....	713
ACTIVE VIDEO GAMES AS A MEANS TO OVERCOME HYPOKINESIA IN OVERWEIGHT PRESCHOOL CHILDREN .....	721
Vanya Pavlova .....	721
Ruska Paskaleva.....	721
Violeta Ivanova.....	721

---

SHORT- WAVE DIATHERMY - POSSIBLE THERAPEUTIC BENEFITS OF HIGH-FREQUENCY ELECTROMAGNETIC FIELD THERAPY IN PHYSICAL PRACTICE.....	727
Galina Mratskova .....	727
Todor Cvetanov.....	727
Sider Dimitrov.....	727
IMPACT OF ONLINE LEARNING ON THE MENTAL HEALTH OF PHYSIOTHERAPIST STUDENTS .....	735
Violeta Ivanova .....	735
Ruska Paskaleva.....	735
Vanya Pavlova .....	735
THE EFFECT OF HYPERTHERMIC STRESS AT DIFFERENT DEVELOPMENTAL PERIODS IN THE WHITE RAT ON DNA CONTENT IN ADRENAL GLANDS .....	741
Mire Spasov .....	741
GLUTEN ALLERGY.....	747
Verica Jakjimoska.....	747
STUDY OF THE RESOURCE PROVISION AND MEDICAL CARE OF THE POPULATION IN THE FIGHT OF HEALTHCARE-ASSOCIATED INFECTIONS IN THE SILISTRA DISTRICT.....	751
Nikolina Valkanova.....	751
Nikolina Voynova .....	751
PREGNANCY COMPLICATIONS IN MATERNAL'S HYPERTHYROIDISM AND HYPOTHYROIDISM.....	759
Sanja Markova (Baldzieva).....	759
Svetlana Jovevska.....	759
Ljupka Lazareva.....	759
READINESS OF MOTHERS TO BREASTFEED.....	767
Aneta Rasheva.....	767
Diana Ivanova .....	767
EFFICACY OF MYO-INOSITOL AND D-CHIRO-INOSITOL COMBINATION ON MENSTRUAL CYCLE REGULATION AND IMPROVING INSULIN RESISTANCE IN YOUNG WOMAN WITH POLYCYSTIC OVARY SYNDROME (CASE STUDY).....	773
Ljupka Lazareva.....	773
Svetlana Jovevska.....	773
Sanja Markova (Baldzieva).....	773
PSYCHOLOGICAL ASPECTS OF WOMEN'S HEALTH CARE ABORTION ON MEDICAL GROUNDS .....	777
Svetlana Radeva .....	777
DETERMINANTS OF STRESS IN THE PERIOD OF CLIMACTERIUM IN WOMEN .....	783
Antoaneta Dimitrova .....	783
Iliana Sokolova.....	783
Delyana Hadzhideleva .....	783
CHALLENGES AND LIMITATIONS IN APPLYING ADHERENCE IN THE EVERYDAY PRACTICE OF HEALTHCARE WORKERS.....	789
Lana Lekić .....	789
Ervin Alibegović .....	789
Jasna Rahimić .....	789
Bojan Pavlović .....	789
Alisa Kazić.....	789
BLOOD CONTACT VIRAL INFECTIONS AMONG MEDICAL AND HEALTH CARE PROFESSIONALS – RISK REDUCTION, POST-EXPOSURE PREVENTION.....	795
Preslava Zhekova .....	795
Nikola Sabev.....	795



---

NON-FERMENTING GRAM-NEGATIVE BACTERIA - LET'S BE CAUTIOUS .....	801
Rozalina Yordanova .....	801
Vangeliya Mihaylova.....	801
Nevena Nedeva .....	801
APPROACHES TO SPEECH AND LANGUAGE CONSULTATION - SCOPE AND THEORETICAL BASIS OF COUNSELLING GOALS .....	807
Tsvetomira Braynova.....	807
Miglena Simonska.....	807
COMMUNICATION TRAINING FOR STUDENTS – ACQUIRING SKILLS AND QUALITIES NECESSARY TO WORK WITH CHILDREN AND PERSONS WITH COMMUNICATION DISORDERS.....	811
Tsvetomira Braynova.....	811
Elka Goranova.....	811
ASSESSMENT AND EXPECTATIONS OF PATIENTS AND STAFF OF THE EMERGENCY HOSPITAL REGARDING ACCESS, TECHNICAL AND INFORMATION PROVISION.....	815
Valentin Dimitrov.....	815
Nigyar Dzhafer.....	815
Evelina Veleva .....	815
PILOT STUDY: ADAPTATION AND VALIDATION OF A TOOL FOR ASSESSING CLINICAL REASONING IN NURSING STUDENTS.....	821
Mariana Bacheva .....	821
BURNOUT SYNDROME IN NURSES.....	831
Fahira Imamović .....	831
Amela Ramović.....	831
Senada Džebo.....	831
Sabina Radonja.....	831
A REVIEW OF THE EFFECTIVENESS OF HEALTH PROMOTION ACTIVITIES AMONG OLDER PEOPLE.....	839
Monika Obreykova.....	839
Zlatka Dimitrova .....	839

---

### DISLOCATED INTRAOCULAR LENS

Alek Topov

Acibadem city hospital, Tokuda, R. Bulgaria [topovalek@yahoo.com](mailto:topovalek@yahoo.com)

Strahil Gazepov

University 'Goce Delcev' Stip, N. Macedonia, [strahil.gazepov@ugd.edu.mk](mailto:strahil.gazepov@ugd.edu.mk)

Alen Georgjiev

Clinical Hospital Stip, N. Macedonia, [drageorgjiev@yahoo.mk](mailto:drageorgjiev@yahoo.mk)

Renata Pavleva

University 'Goce Delcev' Stip, N. Macedonia, [renata\\_pavleva@yahoo.com](mailto:renata_pavleva@yahoo.com)

Stefanija Jordanova

University 'Goce Delcev' Stip, N. Macedonia, [stefi.stoilovska94@gmail.com](mailto:stefi.stoilovska94@gmail.com)

Aleksandra Butnejska Shaleva

PZU" D-R SASHKA" Stip, N. Macedonia, [Pzu\\_dr\\_saska@yahoo.com](mailto:Pzu_dr_saska@yahoo.com)

**Abstract:** Lens ectopy is a condition in which the natural crystalline lens is dislocated. The lens may be completely dislocated out of the hyaloid fossa, float freely in the vitreous body, or be dislocated in the anterior chamber of the eye or lie directly on the retina. If the lens stays within the space of the objective and is minimally displaced, it is called a subluxated lens.

There are a few reasons that may cause lens ectopy, but it usually occurs after an eye trauma. Other possible causes are systemic and ocular diseases.

The treatment of the patient depends on the etiology. If the dislocation of the lens occurs as a result of trauma, it may cause other complications of the eye, such as glaucoma, refractive changes, destruction of the retina, and blindness.

Etiology: Systemic and ocular diseases, as well as eye trauma, are the main causes of lens dislocation. Traumatic lens ectopy is usually a result of direct injury to the eye, but it may also occur after a head injury. This condition must be diagnosed as soon as possible to start treatment.

The diagnosis is based on the ophthalmic examination, which includes vision assessment, refractometry, tonometry, and examination with a biomicroscope. The biomicroscope exam can reveal if the lens is totally dislocated or minimally displaced (subluxated). The fundus is also examined because retinal ablation is another possible cause of lens ectopy.

Patients with lens ectopy may experience symptoms such as epiphora, a feeling of a foreign body in the eye, hyperemic conjunctiva, and pain. The treatment depends on the degree of lens dislocation and whether there are complications.

If the lens is dislocated in the anterior chamber, the treatment includes surgically removing the lens and replacing it with a new one.

Dislocated intraocular lens is a rare but serious complication in which the intraocular lens is dislocated from its natural position in the eye.

Globally, lens dislocation occurs at a rate of 0.2% to 3%.

**Keywords:** Ectopy, lens, etiology, treatment

### ДИСЛОКАЦИЈА НА ЛЕЌА

Алек Топов

Адибадем Сити Клиник болница- Токуда Р.Бугарија [topovalek@yahoo.com](mailto:topovalek@yahoo.com)

Страхил Газепов

Универзитет "Гоце Делчев", Штип, РС Македонија, [strahil.gazepov@ugd.edu.mk](mailto:strahil.gazepov@ugd.edu.mk)

Ален Георгјиев

Клиничка Болница- Штип, [drageorgjiev@yahoo.mk](mailto:drageorgjiev@yahoo.mk)

Рената Павлева

Универзитет "Гоце Делчев", Штип, РС Македонија, [renata\\_pavleva@yahoo.com](mailto:renata_pavleva@yahoo.com)

Стефанија Јорданова

Универзитет "Гоце Делчев", Штип, РС Македонија, [stefi.stoilovska94@gmail.com](mailto:stefi.stoilovska94@gmail.com)

Александра Бутнејска Шалева

ПЗУ "Д-Р САШКА" Штип, РС Македонија, [Pzu\\_dr\\_saska@yahoo.com](mailto:Pzu_dr_saska@yahoo.com)

Александра Бутнејска Шалева  
ПЗУ ” Д-Р САШКА”Штип, РС Македонија, [Pzu\\_dr\\_saska@yahoo.com](mailto:Pzu_dr_saska@yahoo.com)

**Апстракт:** Ектопија на леќата е состојба кога природната кристална леќа е дислоцирана. За дислоцирана леќа зборуваме кога леќата лежи целосно надвор од хијалоидната јама, може да лебди слободно во стаклестото тело, да биде изместена во предна комора или пак да лежи директно на ретината. Доколку леќата останува во просторот на објективот и истата е минимално поместена тогаш зборуваме за сублуксирана леќа. Постојат повеќе причини кои што може да доведат до ектопија на леќата но најчесто настанува после траума на окото. Како можни причинители се и системски и окуларни болести.

Третманот на пациентот ќе зависи од етиологијата. Доколку се работи за трауматска дислокација истата може да предизвика дополнителни компликации на окото како што се глауком, рефракторни промени, оштетување на мрежницата и слепило.

Етиологија- системска или окуларна болест и траума се главни причини за дислокација на леќата. Трауматската ектопија на леќата обично е резултат на директна повреда на окото, но истата може да се појави и при повреда на глава.

Со цел навремен третман потребно е и брзо дијагностицирање.

Дијагнозата се поставува со офталмолошки преглед. Офталмолошкиот преглед вклучува проверка на видот и неговата острина, рефрактометрија, тонометрија и преглед со процепна ламба односно со биомикроскоп. Со биомикроскопскиот преглед се гледа дали леќата е целосно дислоцирана или пак е минимално поместена – сублуксирана. Се испитува и фундусот бидејќи одлегувањето на мрежницата е можна причина за ектопија на леќата.

Пациентите со ектопија на леќа имаат симптоми како што се зголемено солзење, чувство на страност во окото, хиперемична конјуктива и болка.

Лекувањето ќе зависи од тоа колку е леќата изместена и дали има компликации.

Доколку дислоцираната леќа мигрира во предната комора, третманот се состои од хируршко отстранување на леќата и заменување со нова.

Дислоцирана интраокуларна леќа е ретка, но сепак сериозна компликација при што интраокуларната леќа се поместува од својата нормална положба во окото. На Светско Ниво дислокација на леќа се јавува со стапка од 0,2% до 3%.

**Клучни зборови:** Ектопија, леќа, етиологија, третман

## 1. ВОВЕД

Ектопија на леќата е клиничка состојба кај која настанува дислокација на природната леќа во предниот сегмент на окото. Дислоцирана интраокуларна леќа е ретка, но сепак сериозна компликација при што интраокуларната леќа се поместува од својата нормална положба во окото. На Светско Ниво дислокација на леќа се јавува со стапка од 0,2% до 3%. Оваа клиничка состојба произлегува најчесто од траума на окото односно директна повреда на окото но многу често е поврзана и со системски болести, присуство на интраокуларни тумори, Марфанов синдром, Веил-Марчесани синдром и друго.

Поради тоа најважно е навремено откривање на етиологијата за да може соодветно да се третира болеста која довела до оваа состојба.

Пациентите со ектопија на леќа имаат симптоми како што се зголемено солзење, чувство на страност во окото, хиперемична конјуктива, болка и намалена видна острина. Дијагнозата се поставува со офталмолошки преглед со биомикроскоп со процепна ламба и ултразвук на око.

Лекувањето ќе зависи од тоа колку е леќата изместена и дали има компликации. Доколку леќата е минимално сублуксирана хируршки третман веднаш не е потребен, ваквата состојба во голем број на случаеве не прави никакви компликации. Кај овие пациенти потребно е да се прават почетни офталмолошки прегледи со цел следење на состојбата на леќата, очниот притисок и видната острина.

Доколку дислоцираната леќа мигрира во предната комора, третманот се состои од хируршко отстранување на леќата и заменување со нова.

Компликации кои што се јавуваат најчесто кога има предна дислокација на леќата се: акутен глауком, увеитис и оштетување на рожницата. Поради тоа потребно е брза дијагноза и хируршки третман.

## 2. ЦЕЛ

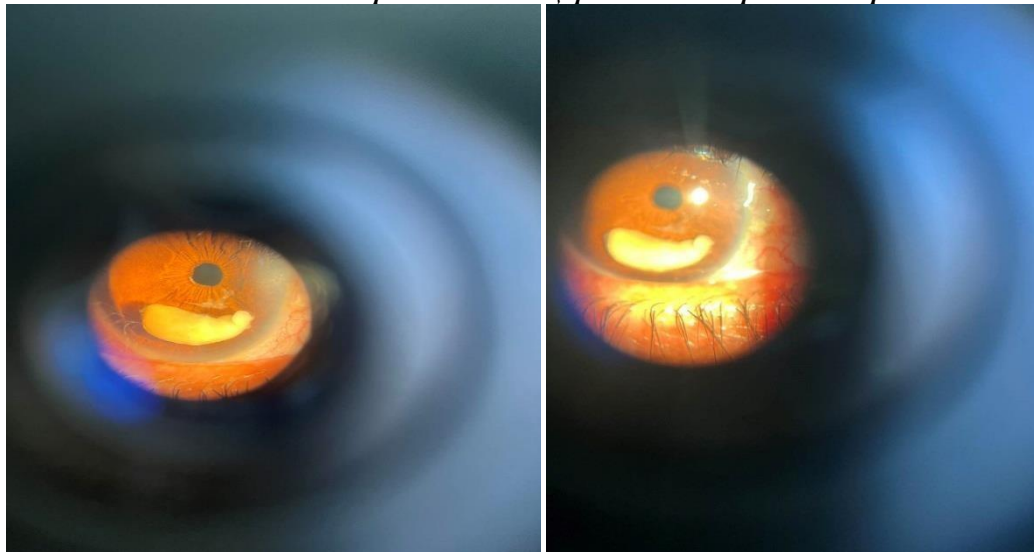
Целта на овој труд е да се обарне повеќе внимание кога е во прашање една ваква ретка состојба каде

што нормалната природна леќа е изместена во предната комора на окото, бидејќи брзата дијагноза и третман спречуваат сериозни компликации..

### 3. ПРИКАЗ НА СЛУЧАЈ

Во офталмолошката амбуланта доаѓа 55 годишен маж кој се жали на болка во десно око. Дава анаместички податок дека при сечење на дрва за огрев добил удар во десното око со дрво. Истиот почувствувал силна болка и чувство на страно тело во десно око проследено со солзење и хиперемija на конјуктивата. Офталмолошкиот преглед со биомикроскоп покажа дислоцирана леќа во предна комора и се забележа афакија. На самиот преглед во предна комора се гледа пролапс на *corpus vitreum*. После ширење на зеница со мидријатик и преглед со офталмоскоп се виде раскината задна капсула. На направената рефрактометриска анализа се покажа вредност од +12 dsph, додека тонометријата беше во референтни вредности од 17mmHg. За дефинитивен третман на оваа состојба се направи екстракција на леќата која се наоѓаше во предна комора, а паралелно се имплантира интраокуларна леќа со што добивме вид на повреденото око.

**Слика. 1 Приказ на дислоцирана леќа во предна комора**



### 4. ЗАКЛУЧОК

Дислокација на леќата или поместување на природната кристална леќа иако е ретка станува збор за сериозна компликација. Дислокацијата на леќата може да се случи поради траума, окуларна болест или системска болест. Траумата е најчеста причина поради која доаѓа до оваа состојба. Навремена дијагноза и соодветен третман спречуваат понатамошни компликации. Најсоодветен третман е хирушкиот третман.

### КОРИСТЕНА ЛИТЕРАТУРА

- Clarke, Clement C. "Ectopia lentis: a pathologic and clinical study." *Archives of Ophthalmology* 21.1 (1939): 124-153.
- Grassi P, Mudhar HS, Cornish KS. Traumatic suprachoroidal dislocation of crystalline lens. *Ophthalmol Retina*. 2020;4:856.
- Kaur K, Gurnani B. Ectopia Lentis. *StatPearls*. Treasure Island (FL) 2022.
- Chandra, Aman, Philip J. Banerjee, and David G. Charteris. "Grading in ectopia lentis (GEL): a novel classification system." *British Journal of Ophthalmology* 97.7 (2013): 942-943.
- Liu X, Niu L, Zhang L, et al. Clinical and genetic findings in Chinese families with congenital ectopia lentis. *Mol Genet Genomic Med* 2023
- Chee SP, Ti SE, Chan NS. Management of the subluxated crystalline lens: A review. *Clin Exp Ophthalmol*. 2021 Dec;1091-1101
- Chandra, A., and D. Charteris. "Molecular pathogenesis and management strategies of ectopia lentis." *Eye* 28.2 (2014): 162-168.
- Omulecki W, Wilczynski M, Gerkowicz M. Management of bilateral ectopia lentis et pupillae syndrome. *Ophthalmic Surg Lasers Imaging*. 2006 Jan-Feb. 37(1):68-71.
- Kanski JJ, Bowling B. *Kanski's clinical ophthalmology: a systematic approach*. 8th ed. Edinburgh: Elsevier; 2016.. Kosta Janev 2012 – opsta oftalmologija, tretto izdanie Skopje
- Nevenka Laban Guceva (2020) *Oftalmologija*, Shtip

