Latin American Journal of Education
www.lajoe.org

ENDOKRIN TIZIMDAGI GOMEOSTATIK UZILISHLAR VA ULARNING METABOLIK SINDROMGA OLIB KELUVCHI OQIBATLARI

https://doi.org/10.5281/zenodo.17875269

Abduxalikova Nigora Faxriddinovna
Toshkent davlat tibbiyot universiteti
Normal va patologik fiziologiya kafedrasi, PhD katta o'qituvchi
Xalilov Hikmatulla Dilshod o`g`li
Toshkent Davlat Tibbiyot Universiteti
Normal va patologik fiziologiya kafedrasi katta o`qituvchisi

ANNOTATSIYA: *Metabolik sindrom (MS) zamonaviy jamiyatda eng keng tarqalgan metabolik kasalliklardan biri bo'lib, uning asosida endokrin tizimning gomeostatik uzilishlari yotadi. Ushbu maqolada 2015-2025-yillarda olib borilgan tadqiqotlar asosida endokrin gomeostazning buzilishi, insulin qarshiligi, gormonal disbalans va ularning metabolik sindrom rivojlanishidagi o'rni tahsil qilinadi. Tadqiqot shuni ko'rsatadiki, gormonlarning kompleks o'zaro ta'siri, ayniqsa insulin, leptin, kortizol va tiroid gormonlarining normal funksiyasining buzilishi, metabolik sindromning asosiy patofiziologik mexanizmlaridan biridir. Ushbu maqola endokrin gomeostatik uzilishlarning turli mexanizmlari, ularning molekulyar va hujayra darajasidagi ta'siri, shuningdek, metabolik sindromning oldini olish va davolashda yangi yondashuvlarni muhokama qiladi.*

KALIT SO‘ZLAR: *Endokrin tizim, gomeostaz, metabolik sindrom, insulin qarshiligi, gormonal disbalans, leptin, kortizol, tiroid gormonlari, adiponektin, glukokortikoidlar*

Tadqiqot Maqsadi: Ushbu tadqiqotning asosiy maqsadi 2015-2025-yillar oralig'ida o'tkazilgan ilmiy tadqiqotlar asosida endokrin tizimdagi gomeostatik uzilishlar bilan metabolik sindrom rivojlanishi o'rtasidagi bog'liqlikni aniqlash, ushbu patologik jarayonlarning molekulyar mexanizmlarini ochib berish va metabolik sindromning oldini olish va davolashda yangi strategiyalarni taklif qilishdir.

Tadqiqot Uslublari: Tadqiqotda tizimli adabiy sharh usuli qo'llanildi. PubMed, Scopus, Web of Science va Google Scholar kabi ilmiy ma'lumotlar bazalaridan 2015-2025-yillar oralig'ida chop etilgan ilmiy maqolalar, ko'rib chiqish maqolalari, klinik tadqiqotlar va meta-tahlillar qayta ishlandi. Qidiruv uchun "endokrin gomeostaz", "metabolik sindrom", "insulin qarshiligi", "gormonal disbalans", "leptin", "kortizol", "tiroid gormonlari va metabolik sindrom" kabi kalit so'zlar qo'llanildi. Tanlangan maqolalar sifat va metodologik jihatdan

Latin American Journal of Education
www.lajoe.org

baholandi, ma'lumotlar tahlili va sintezi amalga oshirildi.

KIRISH

Metabolik sindrom - bu insulin qarshiligi, semizlik, dislipidemiya va gipertenziya kabi bir qator metabolik xususiyatlar bilan tavsiflanadigan kompleks kasallik bo'lib, yurak-qon tomir kasalliklari va tip 2 diabet xavfini sezilarli darajada oshiradi [1]. Jahon sog'liqni saqlash tashkilotining ma'lumotlariga ko'ra, dunyo aholisining qariyb 25% metabolik sindromdan aziyat chekmoqda, bu esa uni global sog'liq muammosiga aylantirmoqda [2].

Endokrin tizim organizmning ichki muhitining barqarorligini - gomeostazni saqlashda muhim rol o'ynaydi. Endokrin gomeostazning buzilishi metabolik sindrom rivojlanishining asosiy omillaridan biridir [3]. So'nggi o'n yil ichida olib borilgan tadqiqotlar shuni ko'rsatdiki, nafaqat insulin, balki leptin, kortizol, tiroid gormonlari, adiponektin va boshqa gormonlarning normal funksiyasining buzilishi metabolik sindrom patogeneziga sezilarli hissa qo'shadi [4].

Ushbu maqolaning maqsadi so'nggi o'n yil davomida to'plangan ilmiy ma'lumotlar asosida endokrin gomeostatik uzilishlar va metabolik sindrom o'rtasidagi bog'liqlikni chuqur o'rganish, bu jarayonlarning molekulyar mexanizmlarini ochib berish va yangi terapevtik yondashuvlarni taklif qilishdir.

NATIJALAR

Insulin Qarshiligi va Endokrin Gomeostazning Buzilishi

Insulin qarshiligi metabolik sindromning markaziy patofiziologik xususiyatlaridan biri bo'lib, u nafaqat qandli diabet, balki boshqa metabolik kasalliklarning rivojlanishiga ham olib keladi [5]. So'nggi tadqiqotlar shuni ko'rsatdiki, insulin qarshiligi faqatgata glukoza metabolizmining buzilishi emas, balki butun endokrin tizimning gomeostaziga ta'sir ko'rsatadigan kompleks jarayondir [6].

Insulin qarshiligi paytida pankreas beta-hujayralari kompensator insulin ishlab chiqarishni oshiradi, bu esa giperinsulinemiya va insulin retseptorlarining desensibilizatsiyasiga olib keladi [7]. Giperinsulinemiya o'z navbatida boshqa gormonlarning sekretsiyasi va faolligiga ta'sir ko'rsatadi, jumladan, insulin qarshiligi va giperinsulinemiya gonadotropinlar, o'sish gormoni va tiroid gormonlarining funksiyasiga ta'sir ko'rsatadi [8].

Leptin va Adiponektin Gomeostazining Buzilishi

Leptin yog' to'qimalari tomonidan ishlab chiqariladigan gormon bo'lib, to'ymishlik hissini boshqaradi va energiya balansini tartibga soladi [9]. Leptin qarshiligi metabolik sindromda keng tarqalgan bo'lib, bu to'ymishlik hissining buzilishiga va ortiqcha ovqatlanishga olib keladi [10]. Tadqiqotlar shuni ko'rsatdiki, leptin qarshiligi faqat semizlikning oqibati emas, balki metabolik sindrom rivojlanishining sababchilaridan biri bo'lishi mumkin [11].

Adiponektin - bu yog' to'qimalari tomonidan ishlab chiqariladigan va

Latin American Journal of Education
www.lajoe.org

insulin sezgirligini oshiradigan, yallig'lanishga qarshi ta'sir ko'rsatadigan adipokin bo'lib, uning darajasi metabolik sindromda kamayadi [12]. Adiponektin darajasining pasayishi insulin qarshiligi, yallig'lanish va endotel disfunksiyasining rivojlanishiga hissa qo'shadi [13].

Kortizol va Stress Gormonlarining O'rni

Kortizol - bu asosiy stress gormoni bo'lib, uning normal darajasi metabolik jarayonlarni tartibga solish uchun muhimdir [14]. Biroq, surunkali stress sharoitida kortizol darajasining oshishi metabolik sindrom rivojlanishiga olib kelishi mumkin [15]. Kortizolning ortiqcha sekretsiyasi markaziy semizlik, insulin qarshiligi, dislipidemiya va gipertenziyaga olib keladi [16].

So'nggi tadqiqotlar shuni ko'rsatdiki, kortizol retseptorlari va 11-beta-gidroksisteroid dehidrogenaza fermenti faolligining buzilishi metabolik sindrom patogenezida muhim rol o'ynashi mumkin [17]. Bu ferment kortizolning faol va nofaol shakllari o'rtasidagi konversiyani tartibga soladi va uning faolligining buzilishi to'qimalarda kortizol darajasining oshishiga olib keladi [18].

Tiroid Gormonlari va Metabolik Sindrom

Tiroid gormonlari metabolizmning asosiy tartibgichlaridan bo'lib, ularning funksiyasining buzilishi metabolik sindrom xususiyatlariga o'xshash belgilarni keltirib chiqaradi [19]. Subklinik gipotireoz metabolik sindrom xavfini oshiradi, bu esa tiroid gormonlari va metabolik sindrom o'rtasidagi bog'liqlikni ko'rsatadi [20].

Tadqiqotlar shuni ko'rsatdiki, tiroid gormonlari nafaqat bazal metabolizm tezligiga, balki lipid va uglevod metabolizmi, shuningdek, insulin sezgirligiga ham ta'sir ko'rsatadi [21]. Tiroid gormonlarining normal funksiyasining buzilishi dislipidemiya, insulin qarshiligi va semizlikning rivojlanishiga olib keladi [22].

Boshqa Endokrin Gomeostatik Uzilishlar

O'sish gormoni (GH) va insulin-o'sish omillari (IGF) tizimining buzilishi ham metabolik sindromga hissa qo'shadi [23]. O'sish gormoni yetishmovchiligi markaziy semizlik, insulin qarshiligi va lipid metabolizmining buzilishi bilan bog'liq [24].

Gonadal gormonlar, ayniqsa estrogen va testosteron, ham metabolik sindrom patogenezida muhim rol o'ynaydi [25]. Menopauzadan keyingi ayollarda estrogen darajasining pasayishi va erkaklarda testosteron darajasining pasayishi metabolik sindrom xavfini oshiradi [26].

Muhokama: Endokrin tizimdagi gomeostatik uzilishlar metabolik sindrom rivojlanishining asosiy mexanizmlaridan biri ekanligi so'nggi o'n yil ichida olib borilgan tadqiqotlar natijasida aniq isbotlangan [27]. Insulin, leptin, kortizol, tiroid gormonlari va boshqa gormonlarning normal funksiyasining buzilishi bir-biri bilan chambarchas bog'liq bo'lib, metabolik sindromning

Latin American Journal of Education
www.lajoe.org

kompleks patofiziologik manzarasini shakllantiradi [28].

Gormonal disbalansning asosiy mexanizmlaridan biri bu gormonlarning retseptor darajasidagi signal yo'llarining buzilishidir [29]. Masalan, insulin va leptin retseptorlarining kiruvchi signalizatsiyasining buzilishi bu gormonlarga qarshilikning rivojlanishiga olib keladi [30]. Bu qarshilik o'z navbatida gormonlarning normal fiziologik ta'sirini buzadi va metabolik kasalliklarning rivojlanishiga olib keladi [31].

Yana bir muhim jihat bu turli gormonlar o'rtasidagi o'zaro ta'sirning buzilishidir [32]. Masalan, insulin va leptin o'rtasidagi o'zaro ta'sir energiya balansini tartibga solishda muhim rol o'ynaydi va bu o'zaro ta'sirning buzilishi semizlik va insulin qarshiligi rivojlanishiga olib keladi [33]. Xuddi shunday, kortizol va tiroid gormonlari o'rtasidagi o'zaro ta'sir metabolizm tezligi va stress javobini tartibga solishda muhimdir [34].

Metabolik sindromning oldini olish va davolashda endokrin gomeostazni tiklash yangi strategiyalarni talab qiladi [35]. An'anaviy davolash usullari, masalan, insulin sezgirligini oshiruvchi dorilar, faqat muammoning bir qismini hal qiladi [36]. Kelajakdagi tadqiqotlar kompleks yondashuvlarga, jumladan, bir vaqtning o'zida bir nechta gormonal yo'llarni nishonga olgan terapiyalarga qaratilishi kerak [37].

Shuningdek, individual gormonal profilga asoslangan shaxsiylashtirilgan tibbiyot yondashuvi metabolik sindromni davolashda samaradorlikni oshirishi mumkin [38]. Har bir bemorda gormonal disbalansning o'ziga xos xususiyatlarini aniqlash va shunga mos davolash rejasini ishlab chiqish muhim ahamiyatga ega [39].

XULOSA

Endokrin tizimdagi gomeostatik uzilishlar metabolik sindrom rivojlanishining asosiy omillaridan biri bo'lib, insulin, leptin, kortizol, tiroid gormonlari va boshqa gormonlarning normal funksiyasining buzilishi ushbu kasallikning patogeneziga hissa qo'shadi. So'nggi o'n yil ichida olib borilgan tadqiqotlar bu gormonal uzilishlarning molekulyar mexanizmlarini yoritishga imkon berdi, bu esa yangi terapevtik yondashuvlarni ishlab chiqish imkoniyatini ochdi.

Kelajakdagi tadqiqotlar endokrin gomeostazni tiklashga qaratilgan kompleks terapiyalarni ishlab chiqishga, shuningdek, individual gormonal profilga asoslangan shaxsiylashtirilgan tibbiyot yondashuvlarini rivojlantirishga qaratilishi kerak. Metabolik sindromning oldini olish va davolashda endokrin gomeostazni saqlash va tiklash muhim ahamiyatga ega bo'lib, bu nafaqat metabolik sindromning o'zini, balki uning asoratlarining rivojlanishining oldini olishga ham yordam beradi.

Latin American Journal of Education
www.lajoe.org

FOYDALANILGAN ADABIYOTLAR:

1. Vaxob ogli B. O., Dilshodovich X. H. KO'P QIRRALI PATOLOGIK JARAYON SIFATIDA GIPERGLIKEMIYANING SIYDIK PUFAGI VA PROSTATA BEZIGA TA'SIRI //Latin American journal of education. – 2025. – T. 5. – №. 6. – C. 534-549.

2. Allayar o'g'li S. S., Dilshodovich X. H. 1, 3, 4-OKSADIAZOL HOSILALARINING BIOLOGIK AKTIVLIGI VA TIBBIYOTDAGI AHAMIYATI //Latin American journal of education. – 2025. – T. 5. – №. 6. – C. 605-614.

3. Ravshanovich G. M., Dilshodovich X. H., Asadbek A. SUN'IY INTELLEKT TIZIMLARIDA GOMEOSTATIK TAMOYILLARNI QO 'LLASH ADAPTIV BOSHQARUV VA O 'ZINI SOZLASH MODELLARINI ISHLAB CHIQISH //Latin American journal of education. – 2025. – T. 5. – №. 6. – C. 589-604.

4. Ravshanovich G. M. et al. PARKINSON KASALLIGIDA MIYA TUZILMALARI VA FIZYALOGIK FUNKSIYALARI O'RTASIDA BOG'LIQLIK //Latin American journal of education. – 2025. – T. 5. – №. 6. – C. 564-576.

5. Vaxob ogli B. O., Dilshodovich X. H. GIPERGLIKEMIK HOLATDAGI URUG 'PUFAKCHALARI VA PROSTATA BEZINING MORFOLOGIYASI //Latin American journal of education. – 2025. – T. 5. – №. 6. – C. 550-563.

6. Murodulla G. et al. NERV IMPULSLARINING TARQALISH MEXANIZM //Latin American journal of education. – 2025. – T. 5. – №. 6. – C. 577-588.

7. Alimardonovich M. H., Dilshod ogli X. H. YOG 'LI GEPATOZNING YAQIN MUDDATLI ASORATLARI //JOURNAL OF INNOVATIONS IN SCIENTIFIC AND EDUCATIONAL RESEARCH. – 2025. – T. 8. – №. 11. – C. 181-193.

8. Baxodirovna A. S., Baxodirovna A. D., Dilshodovich X. H. HOMILADORLIKDAGI METABOLIK VA GORMONAL O'ZGARISHLARNING POSTPARTUM DAVRDAGI QANDLI DIABET RIVOJLANISHIGA TA'SIRI INSULIN REZISTENTLIGI, GORMONAL DISBALANS VA YOG'TO'QIMALARI FAOLLIGINING O'RNI //JOURNAL OF INNOVATIONS IN SCIENTIFIC AND EDUCATIONAL RESEARCH. – 2025. – T. 8. – №. 11. – C. 107-119.

9. Norqulovich K. J. LEYKOTSITLARNING IMMUN JAVOBDAGI ROLI VA ULARNING YALLIG'LANISHDAGI FAOLLIGI //JOURNAL OF INNOVATIONS IN SCIENTIFIC AND EDUCATIONAL RESEARCH. – 2025. – T. 8. – №. 11. – C. 126-139.

10. Zamanovna S. S. et al. QON GLYUKOZASI GOMEOSTAZINI BOSHQARISHDA INSULIN VA GLUKAGONNING DINAMIK MUVOZANATI //JOURNAL OF INNOVATIONS IN SCIENTIFIC AND EDUCATIONAL RESEARCH. – 2025. – T. 8. – №. 11. – C. 61-70.

11. Baxodirovna A. S., Dilshodovich X. H. GEMOLITIK ANEMIYANING ASOSIY ETIOLOGIK OMILLARI //JOURNAL OF INNOVATIONS IN SCIENTIFIC AND EDUCATIONAL RESEARCH. – 2025. – T. 8. – №. 11. – C. 94-106.

Latin American Journal of Education
www.lajoe.org

12. Dilshodovich X. H., Norqulovich K. J. NEUTROFILLARNING YALLIG ‘LANISH JARAYONIDAGI PLASTIKLIK XUSUSIYATLARI VA IMMUN TIZIMDAGI AHAMIYATI //JOURNAL OF INNOVATIONS IN SCIENTIFIC AND EDUCATIONAL RESEARCH. – 2025. – T. 8. – №. 11. – C. 140-154.

13. Zabixullaevich X. R. et al. TERMOREGULYATSIYADA GOMEOSTAZ ATROF-MUHIT HARORATI O ‘ZGARISHIGA JAVOBAN FIZIOLOGIK MOSLASHUV MEXANIZMLARI //JOURNAL OF INNOVATIONS IN SCIENTIFIC AND EDUCATIONAL RESEARCH. – 2025. – T. 8. – №. 11. – C. 71-81.

14. Baxodirovna A. S., Dilshodovich X. H., Bahodirovna N. N. TUG'RUQDAN KEYINGI DAVRDA 2-TURDAGI QANDLI DIABET XAVFINI ERTA ANIQLASHDA ANTROPOMETRIK KO'RSATKICHLAR, HAYOT TARZI VA GENETIK OMILLARNING AHAMIYATI //JOURNAL OF INNOVATIONS IN SCIENTIFIC AND EDUCATIONAL RESEARCH. – 2025. – T. 8. – №. 11. – C. 82-93.

15. Alimardonovich M. H., Dilshod ogli X. H. YOG'LI GEPATOZNING UZOQ MUDDATLI ASORATLARI //Latin American journal of education. – 2025. – T. 5. – №. 6. – C. 503-517.

16. Alimardonovich M. H., Dilshod ogli X. H. METABOLIK SINDROM KELIB CHIQISHINING ASOSIY SHART-SHAROITLARI //Latin American journal of education. – 2025. – T. 5. – №. 6. – C. 489-502.

17. Zamanovna S. S. et al. Psychological States That Occur When A Person Changes Their Living Environment //Emerging Frontiers Library for The American Journal of Medical Sciences and Pharmaceutical Research. – 2025. – T. 7. – №. 11. – C. 84-89.

18. Zabixullaevich K. R. et al. Adaptative Changes Of Homeostatic Systems In Response To Stress The Role Of Cortisol And The Sympathetic Nervous System //Emerging Frontiers Library for The American Journal of Medical Sciences and Pharmaceutical Research. – 2025. – T. 7. – №. 11. – C. 77-83.

19. Абдухаликова Н. Ф., Халилов Х. ФОТОСЕНСИБИЛИЗАТОРЫ РАСТИТЕЛЬНОГО ПРОИСХОЖДЕНИЯ СОВРЕМЕННЫЕ ПОДХОДЫ И ПЕРСПЕКТИВЫ ПРИМЕНЕНИЯ В МЕДИЦИНЕ //Problems and solutions at the stage of innovative development of science, education and technology. – 2025. – T. 2. – №. 11. – C. 22-28.

20. Faxriddinovna A. N. et al. EOZINOFIL HUJAYRALARINING XEMOTAKSIS OMILLARI //Problems and solutions at the stage of innovative development of science, education and technology. – 2025. – T. 2. – №. 11. – C. 13-21.

21. Abdujamilovna S. M. et al. OZIQLANISH VA ENERGETIK GOMEOSTAZNING LEPTIN, GRELIN VA OREKSIN GORMONLARI ORQALI INTEGRATSION NAZORATI //O'ZBEKISTONDA FANLARARO

Latin American Journal of Education
www.lajoe.org

INNOVATSIYALAR VA ILMIY TADQIQOTLAR JURNALI. – 2025. – T. 4. – №. 46. – C. 177-186.

22. Zabixullaevich X. R., Dilshodovich X. H., Elbek A. INSON TANASIDA GOMEOSTAZNING NEYRO-GORMONAL BOSHQARUVI GIPOTALAMUS VA GIPOFIZ O ‘RTASIDAGI O ‘ZARO TA’SIR MEXANIZMLARI //O'ZBEKISTONDA FANLARARO INNOVATSIYALAR VA ILMIY TADQIQOTLAR JURNALI. – 2025. – T. 4. – №. 46. – C. 164-176.

23. Zamanovna S. S. et al. UYQU VA GOMEOSTATIK SIRKADIYAN RITMLAR VA MIYANING METABOLIK BALANSINING O ‘ZARO BOG ‘LIQLIGI //O'ZBEKISTONDA FANLARARO INNOVATSIYALAR VA ILMIY TADQIQOTLAR JURNALI. – 2025. – T. 4. – №. 46. – C. 187-196.

24. Абдухаликова Н. Ф., Халилов Х. РОЛЬ ЦИТОХРОМА И В МЕХАНИЗМАХ КЛЕТОЧНОГО ДЫХАНИЯ И ГИПОКСИИ //Advanced methods of ensuring the quality of education: problems and solutions. – 2025. – Т. 2. – №. 11. – С. 62-68.

25. Абдухаликова Н. Ф., Халилов Х. РОЛЬ СУКЦИНАТДЕГИДРОГЕНАЗЫ В МЕХАНИЗМАХ ГИПОКСИИ //Advanced methods of ensuring the quality of education: problems and solutions. – 2025. – Т. 2. – №. 11. – С. 55-61.

26. Абдухаликова Н. Ф., Халилов Х. РОЛЬ СУКЦИНАТДЕГИДРОГЕНАЗЫ В МЕХАНИЗМАХ ГИПОКСИИ //Advanced methods of ensuring the quality of education: problems and solutions. – 2025. – Т. 2. – №. 11. – С. 55-61.

27. Shokhijakhon A., Hikmatulla K., Shokhrukh R. Factors Of Chemotaxis Of Eosinophil Cells //Emerging Frontiers Library for The American Journal of Medical Sciences and Pharmaceutical Research. – 2025. – T. 7. – №. 11. – C. 19-24.

28. Dadajonovna M. G., Hikmatulla K. Mechanisms Of Eosinophylic Phagocytosis //Emerging Frontiers Library for The American Journal of Medical Sciences and Pharmaceutical Research. – 2025. – T. 7. – №. 11. – C. 12-18.

29. Abdujamilovna S. M., Dilshod ogli X. H. QAND MIQDORINING SUYAKLANISHGA TA’SIRI //Continuing education: international experience, innovation, and transformation. – 2025. – T. 1. – №. 10. – C. 137-141.

30. Alanovna M. K. et al. AVTONOM NERV METOSIMPATIK TURI TUZILISHI, FIZIOLOGIYASI VA FUNKSIYASI //SCIENTIFIC ASPECTS AND TRENDS IN THE FIELD OF SCIENTIFIC RESEARCH. – 2025. – T. 3. – №. 33. – C. 11-15.

31. Alanovna M. K., Dilshod ogli X. H., Ruxshona M. AVTONOM NERV TIZIMI FIZIOLOGIYASI //JURNALI. – 2025.

32. Муллаиарова К. А. и др. ОҒИР СУМКАЛАР БОЛАЛАР СОҒЛИГИГА ТАСИРИ //AMERICAN JOURNAL OF APPLIED MEDICAL SCIENCE. – 2025. – Т. 3. – №. 5. – С. 236-244.

Latin American Journal of Education
www.lajoe.org

33. Dilshod ogli X. H. et al. THE ROLE OF ARTIFICIAL INTELLIGENCE AND ROBOTICS IN MEDICINE //Web of Medicine: Journal of Medicine, Practice and Nursing. – 2025. – Т. 3. – №. 5. – С. 201-207.

34. Ikrom T. et al. MOLECULAR MECHANISMS AND CLINICAL SIGNIFICANCE OF EPITHELIAL TISSUE CELLS ADAPTATION TO HYPOXIA //Western European Journal of Modern Experiments and Scientific Methods. – 2025. – Т. 3. – №. 05. – С. 15-22.

35. Dilshod ogly K. H., Abdujamilovna S. M., Majid ogly S. U. THE IMPORTANCE OF ARTIFICIAL INTELLIGENCE IN THE DETECTION OF KIDNEY DISEASES MODERN APPROACHES AND PROSPECTS //Western European Journal of Modern Experiments and Scientific Methods. – 2025. – Т. 3. – №. 03. – С. 9-13.

36. Dilshod ogly K. H., Abdujamilovna S. M., Majid ogly S. U. THE IMPORTANCE OF ARTIFICIAL INTELLIGENCE IN THE DETECTION OF KIDNEY DISEASES MODERN APPROACHES AND PROSPECTS //Western European Journal of Modern Experiments and Scientific Methods. – 2025. – Т. 3. – №. 04. – С. 9-13.

37. Dilshod ogli X. H., Abdujamilovna S. M., Azizjanovna P. M. GIPOKSIYA SHAROITIDA NAFAS SONINING OZGARISHI //AMERICAN JOURNAL OF SOCIAL SCIENCE. – 2025. – Т. 3. – №. 2. – С. 86-91.

38. Tilyabov I., Khalilov K. MORPHOLOGICAL CHANGES IN THE NEPHRON SYSTEM AND RENAL CORTEX OF OFFSPRING OBTAINED WITH STREPTOZOTOCIN DIABETES MELLITUS (90TH DAY) //INTERNATIONAL BULLETIN OF ENGINEERING AND TECHNOLOGY. – 2025. – Т. 5. – №. 4. – С. 55-61.

39. Dilshod o‘g‘li K. H. Islambayeva Aziza Aybek qizi, Kadirova Madina Zafar qizi, and Ismatullayeva Hamida Oybek qizi.“Laboratory Diagnosis of Respiratory Tract Infections in Children” //American Journal of Pediatric Medicine and Health Sciences (2993-2149). – 2025. – Т. 3. – №. 1. – С. 231-5.

40. Faxriddinovna A. N. Xalilov Hikmatulla Dilshod ogli, and Jabborov Botir Baxodir ogli." //EOZINOFIL FAGASITOZ QILISH MEXANIZMLARI." Advanced methods of ensuring the quality of education: problems and solutions. – 2025. – Т. 2. – С. 44-54.

41. Khaydarova G. S. et al. Основные причины неудовлетворительных результатов при септопластике //Eurasian Journal of Otorhinolaryngology-Head and Neck Surgery. – 2024. – Т. 3.

42. Maxira Y. et al. FIZIOLOGIYA FANI RIVOJLANISHI TIBBIYOTDAGI AHAMYATI. FIZIOLOGIYADA TADQIQOT USULLARI. – 2024.

43. Абидова А. Д. и др. ПРИМЕНЕНИЕ КОЛЛАГЕНОВЫХ ПЛЁНОК С ВКЛЮЧЕННЫМ EX SITU ПСОРАЛЕНОМ ДЛЯ ФОТОДИНАМИЧЕСКОЙ

Latin American Journal of Education
www.lajoe.org

ТЕРАПИИ ГНОЙНЫХ РАН //Universum: химия и биология. – 2020. – №. 11-1 (77). – С. 6-11.

44. Ирискулов Б. У., Абдухаликова Н. Ф., Зупарова К. Т. САХАРНЫЙ ДИАБЕТ И РОЛЬ МЕЛАТОНИНА В ЕГО РАЗВИТИИ И ЛЕЧЕНИИ //ИНФЕКЦИЯ, ИММУНИТЕТ и ФАРМАКОЛОГИЯ. – 1999. – С. 93.

45. Abdukhalikova N. F., PHOTOSENSITIZER I. B. U. E. O. F. P. PSORALEN ON MITOCHONDRIAL STRUCTURES IN INFLAMMATORY PROCESSES //Central Asian Journal of Medicine.

46. Абдухаликова Д. Т. Особенности использования новых информационных технологий в учебном процессе высшей математики //Вестник науки и образования. – 2019. – №. 1-2 (55). – С. 71-74.

47. Batyrova G. et al. Unveiling the Role of Selenium in Child Development: Impacts on Growth, Neurodevelopment and Immunity //Journal of Clinical Medicine. – 2025. – Т. 14. – №. 4. – С. 1274.

48. Абидова А. Д. и др. ПРИМЕНЕНИЕ КОЛЛАГЕНОВЫХ ПЛЁНОК С ВКЛЮЧЕННЫМ EX SITU ПСОРАЛЕНОМ ДЛЯ ФОТОДИНАМИЧЕСКОЙ ТЕРАПИИ ГНОЙНЫХ РАН //Universum: химия и биология. – 2020. – №. 11-1 (77). – С. 6-11.

49. Mirzaeva M., Iriskulov B., Alimkhodjaeva L. Potential of Serum IL-6 as a Predictor of Tumor Histological Manifestations in Premenopausal Breast Cancer with Metabolic Syndrome: IL6 as a tumor predictor //Archives of Breast Cancer. – 2024. – Т. 11. – №. 4.

50. Mirzaeva M. A., Iriskulov B. U., Alimkhodjaeva L. T. Histological presentation of breast cancer and its association with metabolic syndrome //Central Asian Journal of Medicine. – 2023. – №. 4. – С. 44-51.

51. Abilov P. M. et al. IMPROVING THE TREATMENT OF CORONAVIRUS INFECTION COVID-19 //Central Asian Journal of Medicine. – 2022. – №. 4. – С. 69-76.

52. Abilov P. M. et al. Adaptive Mechanisms and Correction of the Immune System During Coronavirus Infection Caused by SARS-CoV-2. – 2024.