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Ushbu to'plamda “Research Focus” xalqaro ilmiy jurnali 6-soniga qabul qilingan ilmiy maqolalar joy olgan.

Ushbu ilmiy jurnalda O'zbekiston Respublikasi va xalqaro oliy ta'lim muassasalari professor-o'qituvchilari, mustaqil ilmiy izlanuvchilari, doktorantlari, magistrantlari tomonidan olib borilayotgan ilmiy-tadqiqot ishlari natijalari ilmiy maqola tarzida chop etildi. Shuningdek, jurnalga oliy ta'lim muassasalaridan tashqari viloyatimiz va respublikamizning boshqa ilmiy-tadqiqot institutlari, ishlab chiqarish tashkilotlari va korxonalarida faoliyat ko'rsatib, ilmiy-tadqiqot ishlari olib borayotgan xodimlarning ham ilmiy maqolalari kiritildi.

Jurnal materiallaridan professor-o'qituvchilar, mustaqil izlanuvchilar, doktorantlar, magistrantlar, talabalar, litsey-kollejlar va maktab o'qituvchilari, ilmiy xodimlar hamda barcha ilm-fanga qiziquvchilar foydalanishlari mumkin.

Eslatma! Jurnal materiallari to'plamiga kiritilgan ilmiy maqolalardagi raqamlar, hisobotlar, ma'lumotlar haqqoniyligiga va keltirilgan iqtiboslar to'g'riligiga mualliflar shaxsan javobgardirlar.

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“Research Focus” xalqaro ilmiy jurnali tahririyati
Saloydinov Sardorjon Qodirjon o'g'li - Bosh muharrir
Abdurahmonov Javohir Sobir o'g'li - Texnik muharrir

Tahrir hay'ati a'zolari

01.00.00 – Fizika-matematika fanlari

Sharibaev Nosir Yusupjonovich – Namangan muhandislik-texnologiya instituti «Energetika» kafedrası professori (fizika-matematika fanlari doktori, professor)

Tukfatullin Oskar Faritovich – O'zMU Huzuridagi Yarimo'tkazgichlar fizikasi va mikroelektronika ilmiy-tadqiqot instituti Muqobil energiya manbalari laboratoriyasi mudiri

Ergashev To'xtasin Gulamjanovich – TIQXMMI Milliy tadqiqot universiteti oliy matematika kafedrası professori v.b. fizika-matematika fanlari nomzodi

Qo'chqarov Xoshimjon Ortiqovich – Namangan davlat universiteti fizika kafedrası dotsenti fizika-matematika fanlari nomzodi

Nuriddinova Mashxura Anvarbekovna – Namangan muhandislik-texnologiya instituti fizika kafedrası o'qituvchisi PhD

Fayzullaev Qahramon Maxmudjonovich – Yarimo'tkazgichlar fizikasi va mikroelektronika ilmiy-tadqiqot instituti katta ilmiy xodimi, fizika-matematika fanlari bo'yicha PhD

Ismanova Odinxon To'liqinboevna – Namangan davlat universitetining “Fizika” fakul'teti dekani, fizika-matematika fanlari bo'yicha falsafa

Mo'minov Xurshidbek Adxamjon o'g'li – Namangan muhandislik-texnologiya instituti Energetika kafedrası dotsenti, Fizika-matematika fanlari bo'yicha falsafa doktori PhD

Anifa Paluanova – Nukus davlat-pedagogika instituti dotsenti, Fizika-matematika fanlari bo'yicha falsafa doktori PhD

Qo'chqorov Bexzod Xoshimjanovich – Namangan muhandislik-texnologiya instituti energetika kafedrası dotsenti PhD (f.-m.f)

Isayev Maxmudxoja Sharipovich – M.Ulug'bek nomidagi O'zbekiston Milliy universiteti Yarimo'tkazgichlar va polimerlar fizikasi kafedrası dotsenti Fizika-matematika fanlari nomzodi dotsent

02.00.00 – Kimyo fanlari

Abdullayev Shavkat Vaxidovich – Namangan davlat universitetining “Organik kimyo” kafedrası professori, Kimyo fanlari doktori, tabobat fanlari akademigi

Xolmurodova Dilafroz Quvatovna – Samarqand Davlat tibbiyot universiteti tibbiy kimyo kafedrası mudiri texnika fanlari doktori (DSc)

Xujaboev Safarboy Tuxtaboevich – Samarkand davlat tibbiyot universiteti umumiy xirurgiya kafedrası dotsenti Tibbiyot fanlari doktori.

Raxmatullayev Izatulla – Farg'ona jamoat salomatligi tibbiyot instituti dotsenti kimyo fanlari nomzodi dotsenti

Baykulov Azim Kenjaevich – Samarqand davlat tibbiyot universiteti Farmatsevtika va toksikologik kimyo kafedrası mudiri

Xalikov Kaxor Mirzaevich – Samarqand davlat tibbiyot universiteti biologik kimyo kafedrası mudiri Biologiya fanlari bo'yicha falsafa doktori

Xoshimov Farxod Fayzullaevich – Namangan muxandislik-texnologiya instituti Kimyo kafedrası mudiri, Texnika fanlari nomzodi Dotsent

Todjiev Jamoliddin Nasiriddinovich – Mirzo Ulug'bek nomidagi O'zbekiston Milliy universiteti kimyo fakul'teti analitik kimyo kafedrası dotsenti

03.00.00 – Biologiya fanlari

Abdullayev Shavkat Vaxidovich – Kimyo fanlari doktori, Namangan davlat universitetining “Organik kimyo” kafedrası professori, tabobat fanlari akademigi

Shodikulova Gulandom Zikriyaevna – Samarkand davlat tibbiyot universiteti 3-son Ichki kasalliklar va endokrinologiya kafedrası dotsenti, kafedra mudiri tibbiyot fanlari doktori dotsent

Amanov Baxtiyar Xushbakovich – Toshkent viloyati Chirchiq davlat pedagogika instituti Genetika va evolyusion biologiya kafedrası mudiri. Biologiya fanlari doktori Katta ilmiy xodim

Asqarov Kamoliddin Abdug'aniyevich – Farg'ona davlat universiteti Tabiiy fanlar fakul'teti dekani, biologiya fanlari bo'yicha falsafa doktori, PhD

Rasulova Moxidil Tursunaliyevna – Farg'ona jamoat salomatligi tibbiyot instituti “Davolash ishi” fakul'teti dekani

Shavazi Nargiz Nuralievna – Samarqand davlat tibbiyot universiteti 3-son akusherlik va ginekologiya kafedrası mudiri

Baykulov Azim Kenjaevich – Samarqand davlat tibbiyot universiteti Farmatsevtika va toksikologik kimyo kafedrası mudiri Biologiya fanlari bo'yicha falsafa doktori

05.00.00 – Texnika fanlari

Murzaqulov Nurqul Abdilazizovich – Qirg'iziston Respublikasi O'sh Texnika Universiteti professor texnika fanlari doktori. “Elektr energetika” mudiri.

Pakirdinov Rustam Raxmatilayevich – Qirg'iziston Respublikasi Osh texnika Universiteti Energetika fakul'teti dekani Texnika fanlari nomzodi dotsent

Muradov Rustam – Namangan muhandislik-texnologiya institutining “Tabiiy tolalarni dastlabki ishlash texnologiyasi” kafedrası professori (texnika fanlari doktori, professor)

Mamaxonov A'zam Abdumajitovich – Namangan muhandislik-texnologiya instituti Avtomatika va energetika fakulteti dekani texnika fanlari doktori, professor

Shamshidinov Israiljon Turgunovich – Namangan muhandislik-qurilish instituti kimyoviy texnologiya kafedrası professori texnika fanlari doktori professor

Sitdiqov Rashid Abduraxmanovich – Islom Karimov nomidagi Toshkent davlat texnika universiteti energetika fakulteti professori texnika fanlari doktori

Ergashev Sirojiddin Fayazovich – Farg'ona politexnika instituti ilmiy va ilmiy pedagogik kadrlarni tayyorlash bo'limi boshlig'i. Texnika fanlari doktori, dotsent

Soliyev Rustamjon Hakimjanovich – Namangan muhandislik-qurilish instituti Energetika va mehnat muhofazasi fakultet dekani. Texnika fanlari doktori, dotsent

Xankeldiyeva Guzal Sherovna – Farg'ona politexnika instituti menejment kafedrası professori iqtisod fanlari doktori professor

Yunusov Baxtiyar Xodjakbarovich – Toshkent davlat texnika universiteti: “Energetika” fakultetlari “Issiqlik energetikasi” kafedrası Mudiri, dotsent

Sharipov Farhod Fazlitdinovich – Namangan muhandislik-qurilish instituti energetika kafedrası o'qituvchisi, Texnika fanlari bo'yicha falsafa doktori (PhD)

Rayimjanova Odinaxon Sadikovna – Muhammad al Xorazmiy nomidagi Toshkent axborot texnologiyalari universiteti Farg'ona filiali Telekommunikatsiya injineri kafedra mudiri. Texnika fanlari bo'yicha falsafa doktori (PhD)

Quchqorov Akmaljon – Farg'ona politexnika instituti “Elektronika va asbobsozlik” kafedrası mudiri. Texnika fanlari nomzodi (PhD)

Muxtarov Farrux Muxammadovich – Muhammad al-Xorazmiy nomidagi Toshkent axborot texnologiyalari universiteti Farg'ona filiali telekommunikatsiya texnologiyalari va kasb ta'limi fakulteti dekani Texnika fanlari bo'yicha falsafa doktori (PhD)

Mamatqulov Orifjon Tursunovich – Namangan muhandislik-texnologiya instituti Sanoat Muhandisligi kafedrası mudiri Texnika fanlari nomzodi

Yusupov Dilshod Rashidovich – Namangan muhandislik-qurilish instituti energetika kafedrası dotsenti Texnika fanlari nomzodi

Radionova Olga Vinsetovna – Islom Karimov nomidagi Toshkent davlat texnika universiteti «Elektr stansiyalari, tarmoqlari va tizimlari» kafedra dotsenti texnika fanlari nomzodi

Davlatova Mavlyuda Baxtiyorovna – Buxoro muhandislik-texnologiya instituti Katta o'qituvchi, Texnika fanlari falsafa doktori (PhD)

Maxkamov Dilshod Ismatillayevich – Namangan muhandislik-qurilish instituti “Avtomobil yo'llari va aerodromlar” kafedrası mudiri

Nasriddinov Azizbek Shamsiddinovich – Namangan muhandislik-qurilish instituti transport vositalari muhandisligi kafedrası o'qituvchisi PhD

Akramov Abduvali Mamatxanovich – Namangan muhandislik-texnologiya instituti Korruptsiyaga qarshi kurashish va “Komlaens nazorat tizimi” boshqarish bo'yicha boshlig'i texnika fanlari nomzodi (PhD)

Vaxobova Sojidxon Komiljonovna – Namangan muhandislik qurilish instituti Energetika kafedrası dotsenti, PhD

07.00.00 – Tarix fanlari

Mirzayev Gulom Rizoqulovich – O'zbekiston Respublikasi Jamoat xavfsizligi universiteti Ijtimoiy gumanitar fanlar kafedrası dotsenti tarix fanlari bo'yicha falsafa doktori (PhD), dotsent

Yo'ldoshev Salimjon Valiyevich – Farg'ona davlat universiteti O'zbekiston tarixi kafedrası o'qituvchisi Tarix fanlari bo'yicha falsafa doktori (PhD) dotsenti

08.00.00 – Iqtisodiyot fanlari

Xonkeldiyeva Komilaxon Ravshanjon qizi – Farg'ona davlat universiteti ijtimoiy ish kafedrası o'qituvchisi Iqtisodiyot fanlari bo'yicha falsafa doktori

Xasanov Ilyos Maxmudovich – Farg'ona jamoat salomatligi tibbiyot instituti Davolash ishi fakulteti dekan o'rinbosari. Iqtisodiyot fanlari bo'yicha falsafa doktori (PhD)

Umarov Abduxamid Sattarovich – Kamoliddin Behzod nomidagi Milliy rassomlik va dizayn institutining informatika va menejment kafedrası dotsenti iqtisod fanlari nomzodi dotsent

Abdullayev Baxodir Abdug'afforovich – Andijon mashinasozlik instituti «Sanoat ishlab chiqarishini tashkil yetish» kafedrası dotsenti Iqtisod fanlari bo'yicha falsafa doktori (PhD)

Egamberdiyev Raxmonjon Ilxomovich – Namangan viloyati hokimligi xuzuridagi “Fukarolarning o'zini o'zi boshqarish organlari hodimlarining malakasini oshirish bo'yicha o'quv markazi direktori, iqtisod fanlari nomzodi dotsenti

09.00.00 – Falsafa fanlari

Xolmirzayev Nodirjon Nizomjonovich – TDTU Qo'qon filiali Ijtimoiy va aniq fanlar kafedrası mudiri Falsafa fanlari bo'yicha falsafa doktori, (PhD)

Normatova Dildor Esonaliyevna – Farg'ona davlat universiteti Falsafa kafedrası dotsenti . Falsafa fanlari nomzodi dotsent

10.00.00 – Filologiya fanlari

Abdupattoyev Muhammadtohir Tojimatovich - Farg'ona davlat universiteti o'zbek tili va adabiyoti kafedrasini mudiri filologiya fanlari doktori (DSc) dotsent
Murodov G'ayrat – Buxoro davlat universitetining o'zbek tili va adabiyoti kafedrasini professori. filologiya fanlari doktori professor

Sobirov Abdulxay SHukirovich – Alisher Navoiy nomidagi Toshkent davlat universiteti mahnaviyat va mahrifat bo'yicha prorektor, filologiya fanlari doktori, professor.

Mirzayev Murodil Abdulla ugli – Muxammad al-Xorazmiy nomidagi Toshkent axborot texnologiyalari universiteti Farg'ona filiali kengash kotibi filologiya fanlari nomzodi

Dedaxanova Muazzam Altmishbayevna – Toshkent moliya instituti O'zbek va rus tillari kafedrasini o'qituvchisi, filologiya fanlari bo'yicha falsafa doktori (PhD)

Axmedova Anorxon Nasivali qizi – O'zbekiston davlat jahon tillari universiteti Tarjimonlik fakulteti "Ingliz tili tarjima nazariyasi" kafedrasini o'qituvchisi Filologiya fanlari bo'yicha PhD

Sobirova Dilafruz Abdulhay qizi – Andijon davlat pedagogika instituti "Boshlang'ich ta'lim metodikasi" kafedrasini katta o'qituvchisi Filologiya fanlari bo'yicha falsafa doktori (PhD)

Ergashev Abduhalim Abduljalilovich – Andijon davlat universiteti Filologiya fakulteti yoshlar bilan ishlash bo'yicha dekan o'rinbosari filologiya fanlari nomzodi

Zakirova Hafiza Razaqovna – Andijon davlat universiteti o'zbek tilshunosligi kafedrasini dotsenti, filologiya fanlari nomzodi

Alimjon Tojiev Mo'yidinovich – Andijon davlat universiteti o'zbek tilshunosligi kafedrasini dotsenti, filologiya fanlari nomzodi

Qodirov Ziyoidin Mamadalievich – Andijon davlat universiteti o'zbek tilshunosligi kafedrasini katta o'qituvchisi filologiya fanlari nomzodi

SHaxobov Kamoldin Biloldinovich – Andijon davlat universiteti filologiya fakulteti o'quv ishlari bo'yicha dekan o'rinbosari, Filologiya fanlari bo'yicha falsafa doktori (PhD)

13.00.00 – Pedagogika fanlari

Obidova Gulmira Kuzibayevna – Farg'ona politexnika instituti Magistratura bo'limi boshlig'i PhD, Pedagogika fanlari bo'yicha falsafa doktori

Azizov Nosirjon Nematillayevich – Namangan davlat universiteti Sport faoliyati kaferdasi mudiri, pedagogika fanlari nomzodi, Dostent

Qurbonova Maftuna Faxriddinovna – Toshkent viloyati Chirchiq davlat pedagogika instituti Iqtidorli talabalarining ilmiy tadqiqot faoliyatini tashkil etish

bo'limi boshlig'i Pedagogika fanlari bo'yicha falsafa doktori (PhD)

Niyazova Naima Abdullajonovna – Namangan muhandislik-qurilish instituti texnik tizimlarda axborot texnologiyalari kafedrasini katta o'qituvchisi Pedagogika fanlari bo'yicha falsafa doktori (PhD)

Mirzayeva Nodira Abduxamidovna – Toshkent viloyati Chirchiq davlat pedagogika instituti "Genetika va evolyusion biologiya" kafedrasini dotsenti. Pedagogika fanlari falsafa doktori (PhD)

Valiyeva Feruza Rashidovna - Maktabgacha ta'lim tashkilotlari direktor va mutaxassislarini qayta tayyorlash va ularning malakasini oshirish intituti "Maktabgacha ta'lim menejmenti" kafedrasini mudiri. Pedagogika fanlari bo'yicha falsafa Doktori (PhD)

Yuldashov Ikromjon Abdulazizovich - Farg'ona davlat universiteti jismoniy madaniyat fakulteti dekani. Pedagogika fanlari bo'yicha falsafa doktori (PhD). Stol tennisi bo'yicha Oliy toifali hakam.

Hamidjonov Abdulaziz Usubjon o'g'li – Namangan davlat universiteti Sport faoliyati kaferdasi dotsenti, pedagogika fanlari bo'yicha falsafa doktori PhD Xalqaro sport ustasi

Qosimova Ozoda Xudoynazarovna – Samarkand davlat tibbiyot instituti pedagogika va psixologiya kafedrasini dotsenti Pedagogika fanlari bo'yicha falsafa doktori PhD

Raximov Atanazar Karimovich – Toshkent viloyati Chirchiq davlat pedagogika instituti tabiiy fanlar fakulteti dekani. Pedagogika fanlari doktori professor vazifasini bajaruvchi

Yunusova Nilufar Xamrayevna – Toshkent Moliya instituti, O'zbek va rus tili kafedrasini mudiri, pedagogika fanlari nomzodi dotsenti

14.00.00 – Tibbiyot fanlari

Ziyadullaev Shuxrat Xudayberdievich – Samarqand davlat tibbiyot universiteti ilmiy ishlar va innovatsiyalar bo'yicha prorektor

Ruziboyev Sanjar Abdusalomovich – Samarqand davlat tibbiyot instituti 2-xirurgik kasalliklar va urologiya kafedrasini dotsenti. Tibbiyot fanlar doktori

Kurbonov Nizom Azizovich – Samarqand davlat tibbiyot universiteti diplomdan keyingi tahlil fakulteti Xirurgiya, endoskopiya va anesteziologiya-reanimatologiya kafedrasini mudiri.

Daminov Feruz Asadullayevich – Samarqand davlat tibbiyot instituti tibbiy pedagogika fakulteti dekani 2-xirurgik kasalliklar va urologiya kafedrasini dotsenti

Djabbarov Sherzod Raximberdiyevich – Sog'liqni saqlash boshqarmasi Lisenziyalash va Akkreditasiyalash sektori bosh mutaxassisi Tibbiyot fanlari nomzodi

Mustafakulov Ishnazar Boynazarovich – Samarqand davlat tibbiyot institutining davolash fakulteti dekani o‘rinbosari tibbiyot fanlari nomzodi

Shonazarov Iskandar Shonazarovich – Samarqand davlat tibbiyot universiteti diplomdan keyingi ta‘lim fakulteti, Xirurgiya, endoskopiya va anesteziologiya-reanimatologiya kafedrasida o‘qituvchisi Tibbiyot fanlari nomzodi

Achilov Mirzakarim Temirovich – Samarkand davlat tibbiyot instituti diplomdan keyingi ta‘lim fakulteti xirurgiya, endoskopiya, anesteziologiya va reanimatologiya kafedrasida dotsenti tibbiyot fanlari nomzodi

Najmiddinov Otabek Baxriddin o‘g‘li – Andijon davlat tibbiyot instituti klinikasi Rengenalogiya bo‘limi vrachi PhD

Saydullayev Zayniddin Yaxshiboyevich – Samarqand davlat tibbiyot instituti “Umumiy xirurgiya kafedrasida assistenti

Ibragimova Marina Fyodorovna – Samarqand davlat tibbiyot universiteti 1-son Pediatriya kafedrasida o‘qituvchisi PhD

Kardjavova Gulnoza Abilkasimovna – Samarqand davlat tibbiyot universiteti 1-son Pediatriya kafedrasida o‘qituvchisi PhD

Murtazaev Zafar Isrofilovich – Samarqand davlat tibbiyot universiteti Umumiy xirurgiya, nurlil diagnostika va terapiya kafedrasida dotsenti

Pulatov Ulugbek Sunatovich – Samarqand davlat tibbiyot universiteti Klinik (o‘quv) bazalari bilan ishlash bo‘limi boshlig‘i

Mirzayev Ozod Voxidovich – Samarqand Davlat Tibbiyot Universiteti “3-Ichki kasalliklar” kafedrasida o‘qituvchisi, PhD

15.00.00 – Farmatsevtika fanlari

SHavazi Nurali Muxammad o‘g‘li – Samarqand davlat tibbiyot universiteti farmatsiya fakulteti dekani tibbiyot fanlari doktori professor

Xolmurodova Dilafruz Quvatovna – Samarqand Davlat tibbiyot universiteti tibbiy kimyo kafedrasida mudiri texnika fan doktori (DSc)

SHodikulova Gulandom Zikriyaevna – Samarkand davlat tibbiyot universiteti 3-son Ichki kasalliklar va endokrinologiya kafedrasida dotsenti, kafedra mudiri tibbiyot fanlari doktori dotsent

Bozorova Nigina Sobirjonovna – Samarqand davlat tibbiyot universiteti Farmatsevtika ishini tashkil qilish kafedrasida mudiri

Yuldashev Soatboy Jiyambaevich – Samarqand davlat tibbiyot universiteti farmakologiya kafedrasida mudiri

Zokirov Farxod Istamovich – Samarqand shahar 2-son tug‘ruqxonasi shifokor akusher-ginekolog PhD

Kodirov Nizomiddin Daminovich – Samarqand davlat tibbiyot universiteti farmakognosiya va farmatsevtik texnologiya kafedrasida kafedra mudiri

Babamuradova Zarrina Baxtiyarovna – Samarqand davlat tibbiyot Universitetining Pediatriya fakulteti Ichki kasalliklar kafedrasida mudiri

Kamalov Anvarjon Ibragimovich – Samarkand davlat tibbiyot universiteti ta‘lim sifatini nazorat qilish bo‘limi boshlig‘i

Kudratova Zebo Erkinovna – Samarkand davlat tibbiyot instituti Klinik laboratoriya diagnostikasi kafedrasida o‘qituvchi PhD

17.00.00 – San‘atshunoslik fanlari

Mirzayev Murodil Abdulla ugli – Muxammad al-Xorazmiy nomidagi Toshkent axborot texnologiyalari universiteti Farg‘ona filiali kengash kotibi filologiya fanlari nomzodi

Xolmirzayev Nodirjon Nizomjonovich – TDTU Qo‘qon filiali Ijtimoiy va aniq fanlar kafedrasida mudiri Falsafa fanlari bo‘yicha falsafa doktori, (PhD)

Normatova Dildor Esonaliyevna – Farg‘ona davlat universiteti Falsafa kafedrasida dotsenti . Falsafa fanlari nomzodi dotsent

22.00.00 – Sotsiologiya fanlari

Zaitov Elyor Xolmamatovich – Mirzo Ulug‘bek nomidagi O‘zbekiston Milliy universitetining “Ijtimoiy ish” kafedrasida dotsenti sotsiologiya fanlari bo‘yicha falsafa doktori (PhD) dotsent

Jurabayeva Zamira Axmedovna – Andijon davlat universiteti Boshlang‘ich va maktabgacha ta‘lim kafedrasida dotsenti, PhD

02.00.00 – Kimyo fanlari

02.00.00 – Chemical sciences

02.00.00 – Химические науки

**PHOMOIDES SPECIOSA VA PHLOMOIDES ISOCHILA
O'SIMLIK LARINING FITOKIMYOVIY TAXLILI.**

M.Mexmonxonov, Sh.Abdullayev, G'.Siddiqov, D.Xaydarova

Namangan davlat universiteti

<https://doi.org/10.5281/zenodo.8278729>

Annotatsiya: Ushbu maqola o'simliklar tarkibidagi mikro- va makro elementlarni inson organizmiga ta'siri hamda efir moylarining tarkibiy qismlarini tekshirishga qaratilgan.

Kalit so'zlar: Phlomoides speciosa, Phlomoides isochila, efir moylari, mikro- va makro elementlar, essensial, Mg, Cl, Mn, K, Na, Sm, Mo, Lu.

**ФИТОХИМИЧЕСКИЙ АНАЛИЗ РАСТЕНИЙ PHOMOIDES SPECIOSA И
PHLOMOIDES ISOCHILA.**

Аннотация: Данная статья направлена на изучение влияния микро- и макроэлементов в растениях на организм человека и компонентов эфирных масел.

Ключевые слова: Phlomoides speciosa, Phlomoides isochila, эфирные масла, микро- и макроэлементы, эссенциал, Mg, Cl, Mn, K, Na, Sm, Mo, Lu.

**PHYTOCHEMICAL ANALYSIS OF PHOMOIDES SPECIOSA AND
PHLOMOIDES ISOCHILA PLANTS.**

Annotation. This article is aimed at studying the effect of micro and macro elements in plants on the human body and the components of essential oils.

Keywords. Phlomoides speciosa, Phlomoides isochila, oils and micro and macro elements, essential, Mg, Cl, Mn, K, Na, Sm, Mo, Lu.

KIRISH

Tibbiyot nuqtai nazaridan o'simliklarning eng muhim tarkibiy qismlari flavonoidlar, alkaloidlar, glikozidlar va boshqa ko'plab organik moddalar farmakologik faol birikmalardir

Ko'pgina kimyoviy elementlar inson tanasi uchun yetishmovchilik va toksiklik o'rtasida cheklangan diapazon mavjud. O'simliklardagi mikroelementlarning miqdori o'simlik o'sadigan tuproqning geokimyoviy xususiyatlari va o'simliklarning elementlarni tanlab to'plash qobiliyati bilan belgilanadi. O'simliklar atrof-dagi havo yoki suv muhitidan elementlarni to'plashi mumkin, bu esa ba'zi o'simliklarni atrof-muhit ifloslanishi uchun biomonitor sifatida foydalanishga imkon beradi. Bir turga mansub o'simliklarning geografik kelib chiqishi tuproq xususiyatlariga va atrof muhitning ifloslanishiga qarab elementlarning turli konsentratsiyasiga va ularning biologik mavjudligiga olib kelishi mumkin.

TADQIQOT MATERIALLARI VA METODOLOGIYASI

Jahon sog'liqni saqlash tashkiloti (JST) xomashyoda faqat kadmiy ($0,3 \text{ mg/kg}^{-1}$), mishyak (1 mg/kg^{-1}) va qo'rg'oshin (10 mg/kg^{-1}) uchun ruxsat etilgan darajalar chegarasiga ishora qiladi.[1]

"Dorivor o'simlik materiallari va o'simlik dorivor preparatlarida og'ir metallar va mishyakni aniqlash" OFS loyihasiga muvofiq dorivor mahsulotlar sifatini baholash uchun ham amal qiladigan o'simlikka asoslangan BF qo'shimchalari uchun ruxsat etilgan kattalar uchun kunlik maksimal kontsentratsiyalar va optimal fiziologik ehtiyojlar 1-jadvalda ko'rsatilgan.

1-jadval. Insonning fiziologik kundalik ehtiyojlari va mikro- va makroelementlarning maksimal ruxsat etilgan kontsentratsiyasi

Elementlar	REK mk/mg	Kattalar uchun kunlik optimal fiziologik ehtiyoj, mg	Toksuklik chegarasi mg/kun	So'rilish, %
Na	-	-	-	-
K	-	2500	-	100
Mg	-	400	-	30
Cu	5	2.0 - 2.5	200	50
Ni	3	0.6 - 0.8	-	-
Fe	5	15.0 - 20.0	200	10
Mn	-	5.0 - 6.0	40	10
Zn	10	10.0 - 12.0	600	50
Ca	-	800 - 1200	-	30
Cd	1.0	-	-	-
Pb	6.0	-	-	-

2-jadval. *Phlomoides isochila* o'simligining mikro- va makroelementlar tarkibi

№	Elementlar	mkg/g	№	Elementlar	mkg/g
1	Mg	43100	18	Ce	1,21
2	Cl	2300	19	Tb	0.49
3	Mn**	28,6	20	Th	0,09
4	Na*	66,6	21	Cr**	0.42
5	K*	19000	22	Hf	3.8
6	Sm	0.059	23	Ba	21.8
7	Mo**	2,05	24	Sr**	11,6
8	Lu	0.007	25	Cs	0.03
9	U	0.11	26	Sc	10.0
10	Yb	0.059	27	Rb	4,3
11	Au	0.0024	28	Zn*	26,1
12	Nd	<1.0	29	Ni**	2,9
13	As**	0.19	30	Co*	15
14	W	<1.0	31	Ta	0,02
15	Br**	7.2	32	Fe*	420,5
16	Ca*	17600	33	Eu	1.2
17	La	0.42	34	Sb	24

* - essensial, ya'ni, hayotiy muhim mikroelementlar

** - shartli essensial, ya'ni, shartli hayotiy muhim mikroelementlar

TADQIQOT NATIJALARI

Phlomoides isochila o'simligining yer ustki qismida jami 34 ta elementlar aniqlanib, ular tarkibida og'ir metallarni konsentratsiyasining kamligi o'simlikning ekologik jixatdan toza va havfli emasligini bildiradi.

Tajriba natijalaridan ko'rinib turibdiki, o'simlik yer ustki qismida keng spektrdagi hayotiy faoliyat uchun zarur bo'lgan elementlar (makro- va mikroelementlar) mavjud bo'lib, ular quyidagi

qatorda miqdorlari ortib borgan: $K(19000) > Fe(3100) > Ca(1760) > Na(66,6) > Cr(0.52)$ (2-jadval)

Muhim “hayotiy” yoki “essensial” mikroelementlar organizmda yoq bo’lsa, yoki, yetarli bo’lmasa normal hayotiy faoliyat buzilgan bo’ladi. Bunday yetishmayotgan elementlarning miqdorini klinik aralashuv orqali to’ldirilib, tananing hayotiylikini tiklanadi.

“Toksik elementlar”ni organizmga ta’siri natijasida intoksikatsiya sindromi (toksikopatiyalar) paydo bo’ladi. [2]

O’rganilayotgan *Phlomoides isochila* o’simligida magniyning yuqori miqdori uning xlorofilning bir qismi ekanligi bilan izohlanadi. Magniy organizmdan xolesterinni olib tashlashga, ichak harakatini va safro sekretsiasini oshirishga yordam beradi. Ma'lumki, ruxning etarli miqdori T-hujayra immunitetini faollashtiradi. O’rganilayotgan dorivor o’simlik materiallari namunalarida zaharli og’ir metallar (simob, mishyak, kadmiy, qo’rg’oshin) miqdori tavsiya etilgan me’yorlardan oshmaydi [3].

Efir moylari - o'simliklar tomonidan ishlab chiqarilgan va o'ziga xos hidini keltirib chiqaradigan organik moddalarning konsentrlangan uchuvchan aromatik suyuqlik aralashmalaridir. Ushbu toifadagi birikmalar ancha yuqori darajada uchuvchanlikka ega va shuningdek, suv bug'lar bilan distillash qobiliyatiga ega bo'lganligi sababli, unga "efir" nomi berilgan. Bundan tashqari, o'zining mustahkamligi bo'yicha bu sinf yog'li o'simlik moylariga o'xshaydi, bu ularga "yog'lar yoki moylar" nomi berilgan. Efir moyi – o'zining uchuvchanligi, moysimonligi, xarakterli aromatik hidga ega ekanligi bilan harakterlanadi. Efir moylari yog'lardan farqli o'laroq dog' qoldirmasdan bug'lanadi. efir moyi o'simliklar dunyosida keng tarqalgan. Tropik va quruq subtropik o'simliklar ayniqsa efir moyiga boy. Hozirgi vaqtda 2500 dan ortiq efir moyi ko'p saqlovchi o'simliklar ma'lum bo'lib, ular turli sinflarga mansub. *Asteraceae*, *Lamiaceae*, *Apiaceae*, *Mirtaceae*, *Rutaceae*, *Pinaceae*, *Rosaceae*, *Cupressaceae*, *Ranunculaceae* va boshqa oilalar vakillari tarkibida efir moyi ko'p miqdorda bo'ladi.

O'simliklarda efir moylari gullari, mevalari, barglari, qobig'i va ildiz qismida to'planadi. O'simliklardagi efir moylarining miqdori 0,01% -5% gacha, ba'zi turlar uchun, masalan, chinnigullar kurtaklarida 20% ni tashkil qiladi. Har xil turdagi o'simliklar kamdan-kam hollarda efir moyining tarkibi bir xil bo'ladi. Xatto bir o'simlikda ham turli organlarda turli xil tarkibdagi efir moylari mavjud. Ularning to'planishi va sifat tarkibiga vegetatsiya davriga, tuproq-iqlim va agrotexnik omillar ta'siriga bog'liq ravishda o'zgaradi.

Efir moylari oshxona, parfyumeriya, mikroblarga qarshi va oziq-ovqat sanoatida keng qo'llaniladi. Meva va sabzavotlar uchun efir moylari oziq-ovqat konservantlari sifatida ishlatilishi mumkin. Sintetik birikmalar bilan taqqoslaganda, xavfsiz tabiiy manbalardan olingan efir moylari inson salomatligi uchun bezarar hisoblanadi.

Efir moylari bir qator faol moddalarga (masalan, terpenlar, terpenoidlar, karotinoidlar, kumarinlar, kurkuminlar) boy bo'lganligi sababli ular kuchli mikroblarga qarshi va saqlovchi ta'sirga ega.

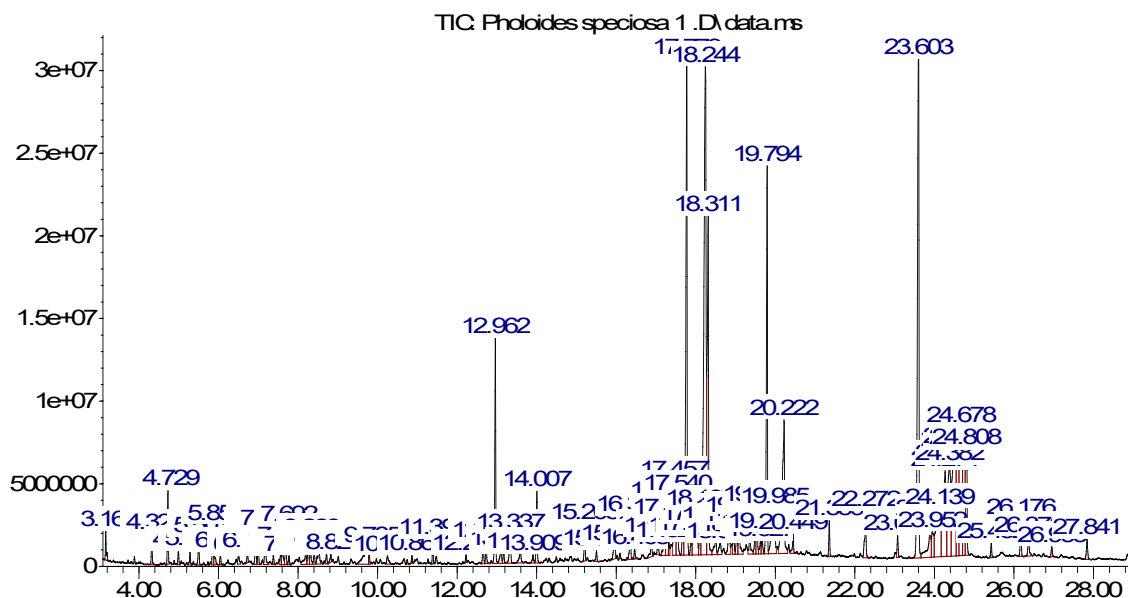
MUHOKAMA

Xushbo'y va dorivor o'simliklardan olingan efir moylari va ularning tarkibiy qismlari turli patogenlarga qarshi antibakterial, antifungal va saqlovchi xususiyatlarga ega ekanligi isbotlangan.

Phlomoides turkumiga kiruvchi *Phl. Speciosa* turidan quritilgan yer ustki qismidan, *Phl. Isochila* turidan esa gullagan yangi uzilgan yer ustki qismidan gidroditsillatsiya usuli orqali birinchi marta efir moyi ajratib olindi.

Efir moyini tekshirish uchun O'z FA Biorganik kimyo instituti laboratoriyasida Gaz Xromato-Mass-Spektrometriya (GX-MS)da tekshirildi va quyidagi spektrlar olindi.

Abundance



Time-->

1 – rasm. *Phlomis speciosa*ning yer ustki qismidan olingan efir moyi GX-MS.

Ph.speciosa ning quritilgan yer ustki qismidan GX-MS mass spektrlar bazasi asosida 27 ta modda aniqlandi.

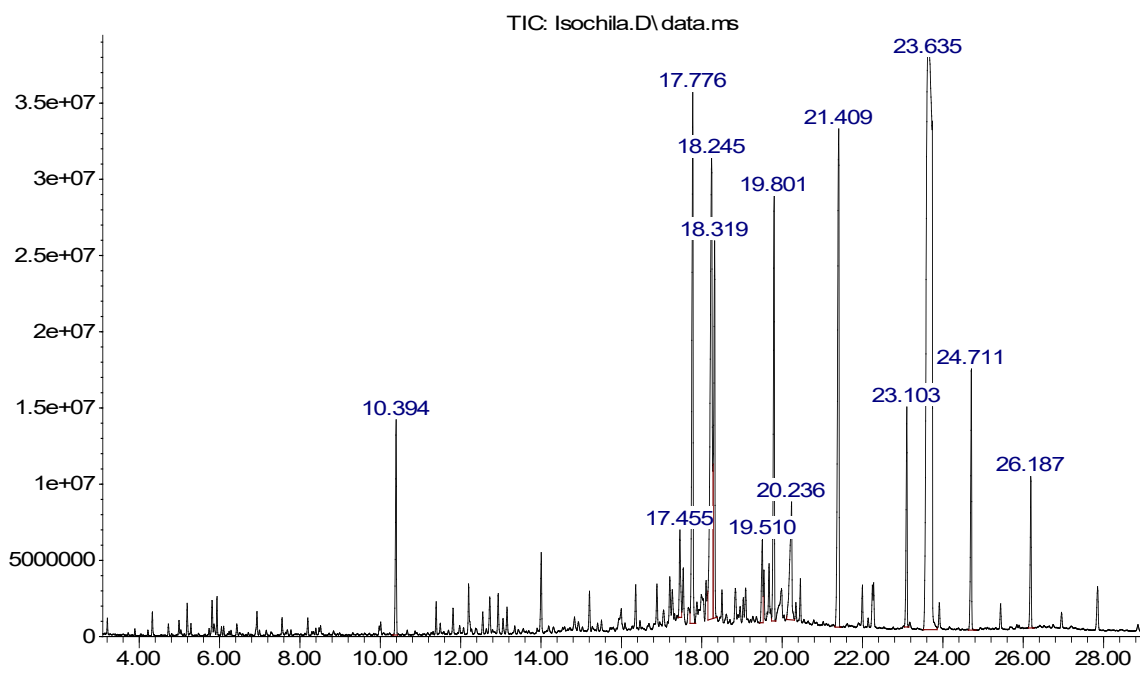
3 - jadval. *Ph.speciosa* efir moyi tarkibidagi moddalar va ularning foiz miqdori (%).

No	Efir moyi tarkibi	Efir moyi tarkibida moddaning foiz miqdori (%)	No	Efir moyi tarkibi	Efir moyi tarkibida moddaning foiz miqdori (%)
1.	α - Pinen	0.62	17.	1,2-Benzendikarboksil kislota, bi (2-metilpropil) efiri	19.50
2.	D - Limonen	0.84	18.	n-Geksadekan kislota	3.99
3.	γ -Terpinen	0.67	19.	Oktadekan, 1-xlor-	0.66
4.	Fenol, 2,6-bi (1,1-dimetiletill)	1.34	20.	4a, 7-metano-4aH-naft [1,8a-b] oksiren, oktagidro-4,4,8,8-tetrametil-	0.94
5.	Nonadekan	1.24	21.	Geksadekan, 1-xlor-	0.67

6.	Azulen, 1,2,3,3a, 4,5,6,7-oktagidro u-1,4-dimetil-7-(1-metiletetil) -, [1R- (1.alfa, 3a.beta, 4.alfa. , 7.beta.)] -	0.86	22.	9-Oktadekan kislotasi (S)-, metil efiri	1.69
7.	Geksadekan	0.65	23.	Metil stearat	9.38
8.	Geksadekan	0.87	24.	Oktadekan kislota	4.35
9.	Ftal kislotasi, monodesil efiri	1.07	25.	Geksakozan	1.91
10.	Xloroasetik kislota, pentadesil efiri	0.77	26.	[1,1'-Bifenil] -2,3'-diol, 3,4 ', 5,6'-tetrakis (1,1-dimetiletetil) -	1.86
11.	Benzoy kislotasi 1,1-dimetiletetil efiri	1.97	27.	Geksandiol kislotasi, bi(2-etilgeksil) efiri	1.30
12.	Benzoy kislotasi, 2-metilpropil efiri	1.51	28.	Geksakozan	0.97
13.	Butil benzoat	0.86	29.	Bi (2-etilgeksil) ftalat	14.23
14.	Geksadekan kislotasi, metil efiri	13.71	30.	Eykosan	5.85
15.	3-Asetil-2,6-dimetil-2,5-geptadiyen	0.84	31.	Tetrakozan	3.71
16.	Tritetrakontan	1.16			

Demak, tekshirishlar natijasida quyidagi moddalarning miqdori eng ko'pligi aniqlandi: 1,2-Benzendikarboksil kislotasi, bi (2-metilpropil) efiri- 19.50%, Bi (2-etilgeksil) ftalat – 14.23%, Geksadekan kislotasi, metil efiri – 13.71%, Metil stearat – 9.38%, Eykosan -5.85%, Oktadekan kislota – 4.35%.

Abundance



2 – rasm. *Ph. Isochila* yer ustki qismidan olingan efir moyi spektri.

Ph. Isochila ning quritilgan yer ustki qismidan GX-MS lar bazasi asosida 13 ta modda aniqlandi.

4-jadval. *Ph. Isochila* efir moyi tarkibidagi moddalar va ularning foiz miqdori (%)

Efir moyi tarkibi	Efir moyi tarkibida moddaning foiz miqdori (%)	Efir moyi tarkibi	Efir moyi tarkibida moddaning foiz miqdori (%)
Fenol, 4-siklogeksil-	2.71	Oktadekan kislota	3.24
2,2'-Bi-1,3-dioksolan, 2-fenil-	1.37	Tetrakozan	9.59
Geksadekan kislota, metil efiri	8.55	Tetrakozan	2.85
1,2-benzendikarbonik kislota, 2-metilpropil efiri	12.53	Bi (2-etilgeksil) ftalat	41.27
L-(+)-Askorbin kislota 2,6-didekanati	5.29	2-Metilgeksakozan	3.38
Geksakozan	1.35	Oktakozan, 2-metil-	1.98
Metil stearat	5.89		

XULOSA

Tekshirishlar natijasida quyidagi moddalarning miqdori eng ko'pligi aniqlandi: Bi (2-etilgeksil) ftalat – 41.27%, 1,2-Benzendikarboksil kislota, bi (2-metilpropil) efiri- 12.53%, Tetrakozan – 9.59%, Geksadekan kislota, metil efiri – 8.55%, Metil stearat – 5.89%, L-(+)-Askorbin kislota 2,6- didekanati -5.29%, 2-metilgeksakozan – 3.38%, oktadekan kislota – 3.24%.

Taqqoslash natijasida bu ikki o'simlik tarkibida o'xshash moddalar uchrashi birinchi marta aniqlandi.

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05.00.00 – Texnika fanlari

05.00.00 – Technical sciences

05.00.00 – Технические науки

ИССЛЕДОВАНИЕ ВЛИЯНИЯ ОБЛАЧНОСТИ НЕБА НА ЭФФЕКТИВНОСТЬ РАБОТЫ ГЕЛИОУСТАНОВОК

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Аннотация: Методом моделирования исследовано влияние облачности неба на эффективность работы солнечных водонагревательных установок (СВУ). Установлено, что чем часто меняется облачность, и чем меньше базовая плотность солнечной радиации, тем существеннее снижение эффективности СВУ.

Ключевые слова: Гелиоустановки, размещаемые на открытой местности подвергаются воздействию всего комплекса метеорологических факторов – солнечной радиации, влажности воздуха, осадков, циклическому изменению температуры, пыли.

RESEARCH IN FLUENCE OF OVERCAST OF THE SKY ON OVERALL PERFORMANCE OF SOLAR POWER PLANTS

Abstract: An influence of cloudiness of the sky to the efficiency of solar water-heating installations (SWHI) by method of modeling has researched. It is defined, that as more frequently changes the cloudiness, the as less the base density of solar radiation than less the efficiency of SWHI.

Keywords: Solar installations placed in an open area are exposed to the whole complex of meteorological factors – solar radiation, air humidity, precipitation, cyclical temperature change, dust.

ВВЕДЕНИЕ

Каждый из этих факторов имеет свои физико-химические механизмы и режимы воздействия на элементы и узлы гелиоустановки. Кроме этого, естественное изменение параметров одного фактора может привести к количественному, а иногда и качественному изменению воздействия других факторов.

К таким факторам можно отнести такое атмосферное явление, как облачность неба, влекущая за собой изменчивость поступления солнечной радиации на приемники гелиоустановок и изменение температуры окружающего воздуха с вытекающими отсюда последствиями.

Опыт эксплуатации гелиоустановок показывает, что переменная облачность безусловно влияет на режимы их работы. Однако данный вопрос достаточно глубоко не исследован.

В горных условиях из-за часто меняющейся облачности в течение дня, поступление солнечной радиации на гелиоустановки нерегулярны. В горах облачность неба за день меняется достаточно быстро и радикально – от 0 (безоблачное небо) до 10 баллов (сплошная облачность) и несколько раз /1/.

МАТЕРИАЛЫ И МЕТОДЫ

В данной статье приведены результаты исследований влияния режима облачности неба на режим работы гелиоустановок на примере солнечной водонагревательной установки (СВУ).

СВУ, на котором проводились эксперименты, имела два параллельно соединенных плоских солнечных водонагревательных коллектора (СВК) площадью приемной поверхности по 1,08 м² каждый и бак-аккумулятор емкостью в 100 литров.

На практике облачность атмосферы меняется спонтанно, подчиняясь законам аэродинамики, термодинамики и других закономерностей. Характер облачности также имеет бесконечные вариации: от сплошного до частичного, кучного или перистого и т.д. Поэтому четкое моделирование всех режимов облачности неба для исследований практически невозможно. Поэтому, в наших исследованиях мы имитировали режимы облачность неба в виде сочетания двух режимов поступления солнечной радиации на СВУ: ясное небо (0 баллов облачности) и небо, полностью закрытое облаками (10 баллов, при котором на СВУ поступает только рассеянная радиация (строго говоря, величина рассеянной радиации зависит от характера облаков). Это имитировалось с помощью непрозрачного экрана, устанавливаемого над СВУ и убираемого согласно программы исследований.

Экран находился на высоте 2,5 метра над поверхностью СВУ и полностью закрывал поступление прямой солнечной радиации как на СВК, так и на бак-аккумулятор СВУ.

Нами имитировались следующие режимы облачности:

1. Безоблачное небо в течение всего светового дня;
2. Три часа ясного неба и три часа неба со сплошной облачностью, т.е. в течение трех часов на СВУ попадала суммарная солнечная радиация и в течение последующих трех часов СВК и Б-А закрывались экраном и на них попадала только рассеянная радиация. Это составлял один цикл. Затем экран убирался и этот цикл продолжался в течение всего светового дня;
3. Два часа ясного неба и два часа неба со сплошной облачностью;
4. Один час ясного неба и один час неба со сплошной облачностью.

Эксперименты проводились в безоблачные дни месяца.

На рис. 1 представлены результаты исследований влияния режима облачности на температуру нагрева воды на выходе из СВК в июне месяце. Здесь кривая 1 – плотность суммарной солнечной радиации (среднее значение за период проведения экспериментов), поступающее на поверхность СВК, кривые 2,3, 4 и 5 – соответственно температура воды из СВК в первом, втором, третьем и четвертом режимах. Пунктирные линии соответствуют интервалу времени, когда СВК и СВУ в целом были открыты, а сплошные линии – когда они были закрыты. При этом соотношение прямой и рассеянной солнечной радиации в середине дня составлял около 80% на 20%.

РЕЗУЛЬТАТЫ

При этом во всех четырех режимах облачности суммарное время облучения при ясном небе (6 часов) была равнее суммарному времени при облучении в облачном небе (также 6 часов).

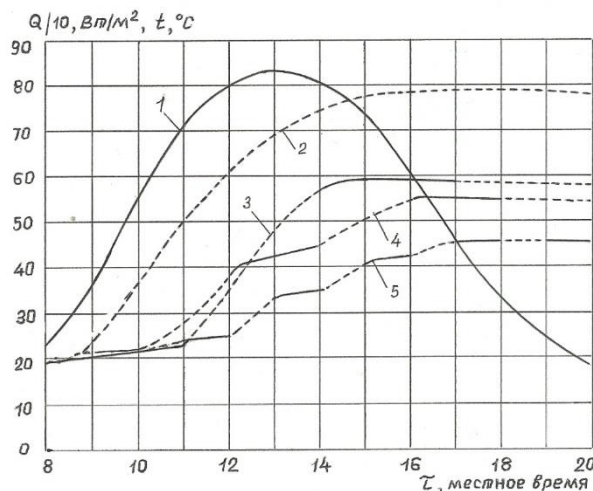


Рис.1. Зависимость температуры воды на выходе из СВК от режима облачности неба

Как видно из рисунка, максимальная температура воды на выходе из СВК в первом режиме доходит до 78°C.

В втором режиме облачности эта температура равна 59°C, в третьем – 54°C и в четвертом – 45°C.

Как и следовало ожидать, после момента закрытия СВК экраном еще на какое-то время вода продолжает выходить из СВК с повышенной температурой и затем температура уменьшается.

На рис. 2 показаны температуры воды в баке-аккумуляторе СВУ (здесь а также на рис 4 кривая 1 – плотность суммарной солнечной радиации, кривые 2,3, 4 и 5 – температуры воды в баке-аккумуляторе соответственно в первом, втором, третьем и четвертом режимах облачности.

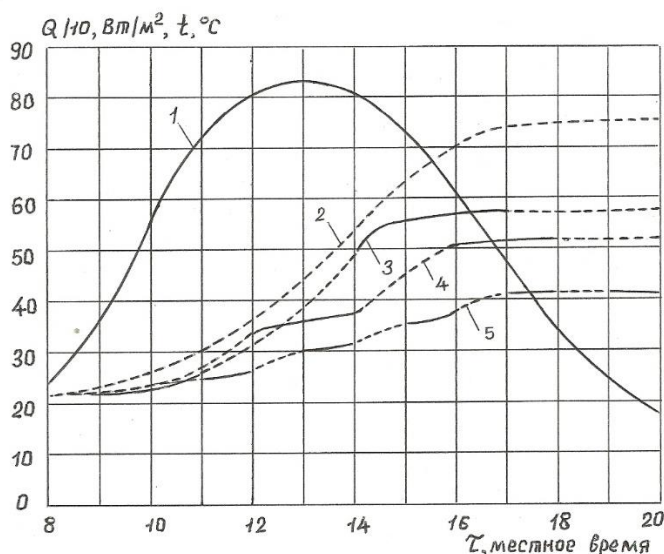


Рис.2. Зависимость температуры воды в баке-аккумуляторе СВУ от режима облачности неба

Как видно из рисунка, максимальная температура воды в баке-аккумуляторе СВУ, не закрываемого экраном достигает 74°C , в то время эти температуры равны 57 , 52 и 42°C соответственно во втором, третьем и четвертом режимах облачности атмосферы.

Аналогичные эксперименты были проведены и в сентябре месяце, когда плотность солнечной радиации имеет среднее за год значение. В дни, когда проводились эксперименты, в полдень соотношение прямой и рассеянной радиаций составлял 83% на 17% (некоторое увеличение доли прямой радиации можно объяснить уменьшением запыленности воздуха после осенних осадков). Их результаты приведены на рис. 3 и 4.

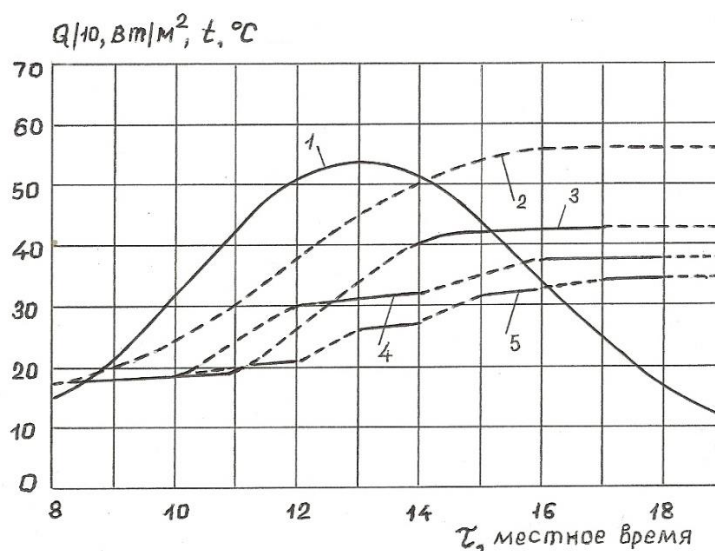


Рис.3. Зависимость температуры воды на выходе из СВК от режима облачности неба

Как видно из рисунка 3, и в этом случае наблюдается аналогичная картина. При максимальной плотности солнечной радиации в 533 Вт/м^2 максимальная температура воды на выходе из СВК на контрольной СВУ (в первом режиме) достигает 56°C . Эта температура во втором, третьем и четвертом режимах равна соответственно 41 , 38 , и 34°C .

Максимальная температура воды в баке аккумулятора СВУ при этом достигает в первом, втором, третьем и четвертом режимах соответственно 51 , 34 , 31 и 28°C . (рис.4).

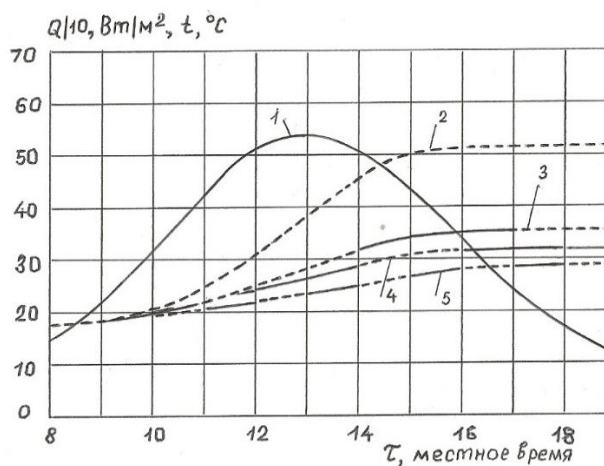


Рис.4. Зависимость температуры воды в баке-аккумуляторе СВУ от режима облачности неба

В табл 1 и 2 приведены количественные данные по проведенным экспериментам. Табл. 1 относится к экспериментам, проведенным в июне месяце, а табл. 2 – в сентябре месяце (в расчетах количеств солнечной радиации, поступивших на СВК в их закрытом экраном положении учтена также и рассеянная радиация).

Таблица 1.

№ режима	Максимальная плотность СР, Вт/м ²	Количество СР на СВК СВУ МДж	Полезная теплота, МДж	К.п.д. СВУ, %
1	831	47,46	22,73	47,9
2	831	27,98	12,67	45,3
3	831	28,14	12,05	42,8
4	831	28,74	8,40	29,2

Таблица 2.

№ режима	Максимальная Плотность СР, Вт/м ²	Количество СР на СВК СВУ, МДж	Полезная теплота, МДж	К.п.д. СВУ, %
1	533	26,68	13,02	48,8
2	533	14,84	6,40	43,1
3	533	14,94	5,64	37,8
4	533	15,60	4,43	28,4

Как видно из таблиц, к.п.д СВУ зависит от режима облачности неба. Чем часто небо закрывается облаками, тем сильнее проявляются теплоинерционные свойства СВК и других элементов СВУ и тем ниже ее кпд. Кроме этого, влияние облачности, соответственно и теплоинерционных свойств элементов СВУ сильнее сказываются на уменьшении кпд при невысоких плотностях солнечной радиации (табл.2).

Аналогичная закономерность должна иметь место и в случае солнечных воздухонагревательных коллекторов а также имеющих их в качестве генератора тепловой энергии солнечных систем отопления и солнечных сушильных установок. Однако, из-за их конструктивных особенностей (относительно меньшее содержание металла), тепловая инерция материалов СВК должна сказываться меньше, чем в случае СВУ.

ВЫВОДЫ

Таким образом, исходя из полученных результатов можно сделать следующие выводы:

1. В горных условиях, когда сильно меняется условия облачности неба, кпд СВУ существенно снижается.
2. Чем часто меняется облачность неба, тем сильнее на режим работы СВУ сказывается тепловая инерция их элементов.
3. При переменной облачности неба влияние тепловой инерции СВУ тем сильнее, чем меньше плотность поступающей солнечной радиации.

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10.00.00 – Filologiya fanlari

10.00.00 – Philology

10.00.00 – Филология

PSYCHOLOGICAL DESCRIPTIONS TO THE MAIN CHARACTERS OF THE STORY BY KATE CHOPIN, "STORY OF AN HOUR"

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Abstract: This article explores the connection between language and psychology in Kate Chopin's "Story of an Hour." The author examines how language is used to convey Louise Mallard's emotional response to her husband's death and her subsequent liberation. The use of emotive language sets the tone of despair and sadness at the beginning of the story, while descriptions of the natural world create a sense of freshness and freedom. As Louise's thoughts undergo a transformation, language reflecting her newfound independence and power is employed. Overall, Chopin's mastery of language allows readers to empathize with Louise's emotional journey.

Key words: language, psychology, emotional response, psycholinguistics, emotional state, liberation, melancholy, euphoria, independence, mental state.

ПСИХОЛОГИЧЕСКОЕ ОПИСАНИЕ ОСНОВНЫХ ПЕРСОНАЖЕЙ ИСТОРИИ КЕЙТ ШОПЕН "ИСТОРИЯ ОДНОГО ЧАСА".

Аннотация: Эта статья исследует связь между языком и психологией в "Истории одного часа" Кейт Шопен. Автор рассматривает, как язык используется для передачи эмоциональной реакции Луизы Маллард на смерть ее мужа и ее последующее освобождение. Использование эмоционального языка создает тон отчаяния и печали в начале истории, в то время как описания природного мира создают ощущение свежести и свободы. По мере трансформации мыслей Луизы, применяется язык, отражающий ее обретенную независимость и силу. В целом, мастерство Шопен в использовании языка позволяет читателю сопереживать эмоциональному путешествию Луизы.

Ключевые слова: язык, психология, эмоциональная реакция, психолингвистика, эмоциональное состояние, освобождение, меланхолия, эйфория, независимость, психическое состояние.

INTRODUCTION

Kate Chopin's "Story of an Hour" is a short story that explores the complex emotional world of a woman, Louise Mallard, who is informed of her husband's death. The story is a strong representation of how language and psychology intersect to create an emotional response to the event.

Psycholinguistics is the study of the relationship between language and the mind. This field has become an essential tool for studying the ways that we use language to communicate our thoughts, emotions, and intentions. In "Story of an Hour," the use of language plays a significant role in conveying Louise's psychological state and emotional response to her husband's death.¹

RESEARCH MATERIALS AND METHODOLOGY

At the beginning of the story, Chopin sets the tone for the reader through the use of language. The first sentence which states, "Mrs. Mallard, afflicted with a heart trouble, was taken with a sudden attack of grief" immediately conveys a sense of despair and sadness. The use of "afflicted," "sudden," and "grief" create a somber tone and helps the reader understand the magnitude of the situation. This use of emotive language continues throughout the story, filling it with a range of emotions- from melancholy to euphoria.²

As Louise struggles with the news of her husband's death, she begins to experience a sense of liberation due to the use of language. One example is when she looks through the window and sees the new life outside, with the "delicious breath of rain" and "the sparrows were twittering in the eaves."¹ Here, Chopin's language transports the readers into the world Louise is experiencing, creating a sense of freshness that helps her understand this newfound sense of freedom.

RESEARCH RESULTS

"The Story of an Hour" by Kate Chopin is a short story that explores the complex emotions and psychological experiences of its main character, Mrs. Mallard. Mrs. Mallard can be described as:

1. Emotionally repressed: At the beginning of the story, Mrs. Mallard appears to be a woman with a constrained emotional life. She is described as having "a face that was young and pretty," but it is also mentioned that "she had never been joyful."⁵ This suggests that she has long suppressed her emotions, perhaps due to societal expectations or personal circumstances.

2. Torn between societal expectations and personal desires: After receiving the news of her husband's death, Mrs. Mallard goes through a series of conflicting emotions. At first, she responds with the expected grief and weeps in her sister's arms. However, as she retreats to her room alone, a different set of emotions emerge. She begins to feel a sense of freedom and liberation, thinking about the opportunities for a life without her husband. This suggests an internal conflict between what she believes is expected of her and her own desires for independence.

3. Experiencing a transformative moment: As Mrs. Mallard reflects on her newfound sense of freedom, she undergoes a transformative moment of self-realization. She begins to embrace the idea of living for herself rather than for others. This change is described as a "storm of grief" being "held back, held for the hands of rain," indicating a release of pent-up emotions and a rebirth of sorts.⁴

4. Capable of complex thoughts and emotions: Chopin portrays Mrs. Mallard as a woman with a rich inner life. When she contemplates her future without her husband, she experiences a range of contradictory emotions, including joy, fear, and guilt. This suggests that she is capable of deep introspection and wrestles with complex emotions.

DISCUSSION

Overall, the psycholinguistic descriptions of the characters in "The Story of an Hour" reveal a complex inner world filled with conflicted emotions and desires, as Mrs. Mallard navigates societal expectations and her own personal aspirations. Moreover, the story highlights how Louise's psyche changes after hearing the news. At first, she is devastated, but as time progresses, her thoughts undergo a metamorphosis. One of the most notable examples of this is when Louise reflects on her newfound independence, Chopin's language mirrors this liberation as words like "free," "body," and "soul" encircle her thoughts.⁴ These words convey a sense of power that Louise has never felt before.

CONCLUSION

In conclusion, Chopin illustrates the importance of language and psychology in the "Story of an Hour." The story is an exemplar of how authors can use language to represent the mental state of their characters. Chopin's use of language is instrumental in conveying Louise's emotional state and her psychological response to the events that unfold. It is through the careful manipulation of language that Chopin can communicate Louise's emotions to the reader, allowing them to join her on her emotional journey.

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13.00.00 – Pedagogika fanlari

13.00.00 – Pedagogical sciences

13.00.00 – Педагогические науки

FITNES VA SOG'LOMLASHTIRISH BO'YICHA MURABBIYLIK YO'NALISHIGA KONTSEPTUAL YONDASHUV

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<https://doi.org/10.5281/zenodo.8327856>

Annotatsiya: So'nggi o'n yillikda, dunyoda sog'liqni saqlash hamda fitnes sohasining rivojlanishi bilan bir qatorda, turli sabablarga ko'ra jismoniy mashq bilan bog'liq shaxslarni boshqaradigan "murabbiylik" tushunchasiga qiziqish ortdi. Darhaqiqat, Amerika Sport tibbiyot kolleji ma'lumotlariga ko'ra, fitnes bo'yicha murabbiylik ham, sog'lomlashtirish bo'yicha murabbiylik ham dunyodagi fitnes tendensiyalari bo'yicha birinchi o'ntalikka kiradi. Ushbu tadqiqotning maqsadi sog'liqni saqlash va fitnes muassasalarini hamda menejerlar va ularning xodimlari uchun fitnes va sog'lomlashtirish tushunchalarini aniqlashtirish orqali ularning farqlarini ochib berishdir.

Kalit so'zlar: Fitnes, Sog'lom Turmush Tarzi, Murabbiylik, Intellectual Professional, Individual, Jismoniy Faollik, Kontseptual

A CONCEPTUAL APPROACH TO FITNESS AND WELLNESS COACHING

Abstract: In the last decade, along with the development of the health and fitness industry in the world, there has been an increased interest in the concept of "coaching" that guides individuals related to physical exercise for various reasons. In fact, according to the American College of Sports Medicine, both fitness coaching and wellness coaching are among the top ten fitness trends in the world. The purpose of this study is to clarify the differences between health and fitness facilities and the concepts of fitness and wellness for managers and their employees.

Keywords: Fitness, Healthy Lifestyle, Coaching, Intellectual Professional, Individual, Physical Activity, Conceptual

КОНЦЕПТУАЛЬНЫЙ ПОДХОД К ФИТНЕС- И ВЕЛНЕС-КОУЧИНГУ

Аннотация: В последнее десятилетие, наряду с развитием индустрии здоровья и фитнеса в мире, наблюдается повышенный интерес к понятию «коучинг», который ориентирует лиц, связанных с физическими упражнениями по разным причинам. На самом деле, по данным Американского колледжа спортивной медицины, как фитнес-коучинг, так и велнес-коучинг входят в десятку самых популярных фитнес-трендов в мире. Целью данного исследования является прояснение различий между оздоровительными и фитнес-центрами и концепциями фитнеса и хорошего самочувствия для руководителей и их сотрудников.

Ключевые слова: фитнес, здоровый образ жизни, коучинг, интеллектуальный профессионал, личность, физическая активность, концептуальность.

KIRISH

Odamlarning jismoniy, ma'naviy va ijtimoiy jihatdan erishgan yutuqlari, o'rganishlari natijasida jismoniy mashqlarga bo'lgan qiziqishi kundan-kunga oshib bormoqda. Xalqaro Sog'liqni Saqlash, Racquet va Sport klublari assotsiatsiyasi (International Health, Racquet and Sports Club Association IHRSA) hisobotiga ko'ra, dunyo bo'ylab sog'liqni saqlash va fitnes klublari a'zolari soni 174 milliondan oshib ketdi. Sanoat daromadi esa 87,2 milliard dollardan oshadi va 2023-yilda

daromad taxminan 113 milliard dollarga yetishi rejalashtirilgan.¹ Bundan tashqari, bugungi kunda sog'liqni saqlash va fitnes muassasalari soni 201 mingdan oshdi.²

Dunyoda sog'liqni saqlash va fitnes sohasiga bo'lgan qiziqish va rivojlanish barobarida so'nggi o'n yil ichida "murabbiylik" tushunchasiga qiziqish benihoya oshdi. Amerika Sport tibbiyoti kolleji (American College of Sports Medicine ACSM) tomonidan o'tkazilgan dunyo bo'ylab fitnes tendensiyalari bo'yicha tadqiqotda fitnes bo'yicha murabbiylik ham, sog'lomlashtirish bo'yicha murabbiylik ham sog'liqni saqlash va fitnes sohasida birinchi o'ntalikka kirishi ta'kidlandi.³

ASOSIY QISM

Fitnes va sog'lomlashtirish tushunchalari, sog'liqni saqlash va fitnes muassasalarida taqdim etiladigan xizmatning asosini tashkil etadi. Bu tushunchalar ko'plab sohalarda, ayniqsa, xususiy sektorda bir-birining o'rnida yoki noto'g'ri ma'noda ishlatiladi. Ushbu tadqiqotning maqsadi fitnes va sog'lomlashtirish tushunchalarini aniqlashtirish va murabbiylik tushunchasidagi farqlarni ochib berishdan iboratdir.

Fitnes tushunchasi, eng oddiy shaklda, jismoniy tayyorgarlikni, ya'ni tananing samarali va samarali ishlash qobiliyatini anglatadi. Fitnes shaxsning samarali ishlashiga, bo'sh vaqtdan zavqlanishiga xizmat qiladi. Sog'lom va bu gipokinetik kasalliklar yoki holatlarga qarshi turishda muhim rol o'ynaydi. Fitnes darajasining rivojlanishi ko'plab omillarga bog'liq bo'lsa-da, muntazam jismoniy faolliksiz optimal sog'liq darajasiga erishish mumkin emas.

Fitnes tushunchasi – bu kamida beshta sog'liq va mahorat bilan bog'liq, oltita (ishlash) tarkibiy qismlardan iborat farovonlik holatidir, ularning har biri hayotning umumiy sifatiga hissa qo'shadi. Sog'liqni saqlash bilan bog'liq fitnesning komponentlari - bular yurak-qon tomir tizimi, mushak, mushak kuchi, moslashuvchanlik, sabr va tana kompozitsiyasidan iboratdir.⁴ Fitnesning tarkibiy qismlari kasallikning oldini olish, sog'liqni saqlash uchun juda muhimdir.

Fitnesning foydaliligi qanday ishlashga bog'liq. Masalan, bel va holat muammolarini oldini olish uchun o'rtacha kuch talab etiladi, yuqori darajadagi chidamlilik esa jamoaviy sport turlari va vaznni ko'tarish kabi ishlarda yaxshi ishlashga yordam beradi.

Fitnes murabbiylik odamlar bilan kerakli maqsadlari to'g'risida hamkorlik qilish, turli xil usullarni izlash va atrof-muhit yaratishning tizimli jarayonini anglatadi. Turmush tarzi bilan bog'liq murabbiylik o'zini o'zgartirish va shaxsiy rivojlanish dasturlarini rejalashtirish va amalga oshirishga tayyor bo'lgan shaxslar uchun ko'rsatma va qo'llab-quvvatlash jarayonini anglatadi.⁵ Murabbiy odamlarga shaxsiy mas'uliyat va chuqur fikrlashni o'rgatadi, qayerda ekanliklarini, qayerga borishni xohlashlarini va maqsadlariga qanday erishishlarini anglashga yordam beradi.

Har qanday sohada bo'lgani kabi, fitnes sohasidagi shaxslar ham jismoniy mashqlar texnikasi bo'yicha keng qamrovli dastur yoki tavsiyalar uchun o'qituvchilarga muhtoj. Bu borada ularga yordam beradigan kishi – fitnes bo'yicha o'qituvchidir. Fitnes bo'yicha o'qituvchi – bu jismoniy mashqlar bo'yicha mutaxassis, o'z a'zolari uchun eng mos mashqlar dasturini yaratadigan,

¹ Parasannan, A. (2018). Global Fitness and Recreational Sports Centers Market Research, Allied Market Research. Erişim Tarihi: 20.03.2020. Erişim Adresi: <https://www.alliedmarketresearch.com/fitness-and-recreational-sports-center-market>

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⁵ Gavin, J. (2005). Lifestyle Fitness Coaching. Champaign (IL): Human Kinetics Publishing.

uni qo'llaydigan va jismoniy baholash bilan o'z maqsadlariga erishish uchun shaxsni boshqaradigan inson. Ularning asosiy maqsadi odamlarning sog'lom turmush tarzini qabul qilishi, yaxshi ovqatlanishi va g'ayratli bo'lishiga ko'maklashishdir. Bundan tashqari, fitnes bo'yicha o'qituvchilar o'zlari bilan ishlaydiganlarga o'z samaradorligini his qilishda va o'zlarining jismoniy natijalariga ta'sir qilishdagi rolini tushunishda yordam berishadi.

Mehnat sharoitlariga qarab, fitnes o'qituvchilarining vazifalari quyidagichadir:

- Jismoniy mashqlar va jismoniy faoliyatga tayyorgarlik bo'yicha so'rovnomanini a'zolarga qo'llash.
- A'zolarning jismoniy tayyorgarligining hozirgi darajasini aniqlash uchun testlar o'tkazish;
- A'zolarga haqiqiy maqsadlarni belgilashda, kerak bo'lganda maqsadlarni o'zgartirishda va dasturga rioya qilish uchun zarur motivatsiyani ta'minlashda yordam berish;
- A'zolarning maqsadlari va rivojlanishini hisobga olgan holda eng mos mashqlar dasturini yaratish va kerak bo'lganda dasturni o'zgartirish;
- A'zolari kerakli ko'rsatmalar haqida xabardor qilish va mashqlarni xavfsiz va samarali bajarish usullarini namoyish etish;
- Noto'g'ri yoki xavfli mashqlar texnikasini yoki butun dasturni tuzatish;
- Ko'pincha shikastlanish xavfini minimallashtirish uchun erkin vazn mashqlari bilan a'zolarga yordam berish;
- Mashq dasturining samaradorligi uchun a'zolarning kamchiliklarini va rivojlanishini qayd etish.
- Sog'liqni saqlash va fitnes sohasidagi a'zolarning savollariga to'g'ri javob berish uchun doimiy ravishda ma'lumotlarni yangilab turish.

Salomatlik - bu bugungi kunda ko'p joylarda paydo bo'lgan mashhur so'z. Sog'lom turmush tarzi, sog'lom turmush dasturlari, sog'lom turmush markazlari, sog'lom turmush musobaqalari, konferensiyalar, sog'lom turmush jurnali, sog'lom turmush tarzi menejerlari, sog'lom turmush mukofotlari, sog'lom turmush turizmi, sog'lom turmush qo'shimchalari va hatto sog'lom turmush markasi bor it va mushuk ovqatlari shaklida ko'rinadi.⁶

Sog'lomlashtirish gegemonligi, undan foydalanish so'nggi paytlarda keng tarqalgan bo'lib, jamiyatda umumiy fikrni shakllantirib ulgurdi. Bu umumiy nuqtayi nazar, sog'liqni saqlash so'zi kasal bo'lishdan ko'ra ko'proq narsani anglatadi, sog'liqni saqlash va kasallikning oldini olish yuqori boshqaruv va shaxsiy ustuvor vazifadir va buning uchun yetarli harakat qilish kerak. Bugungi kunda sog'lom turmush tushunchasining paydo bo'lishi "salomatlik odatlari" tushunchasining paydo bo'lishiga to'g'ri keladi. Darhaqiqat, bugungi kundagi sog'lik xatti-harakatlari yoki xavf omillari uzoq vaqt davomida qilingan sog'lik haqida individual tushuntirishlar va g'oyalarning hozirgi shartlaridir. Sog'lom turmush atamasi birinchi marta Ikkinchi Jahon urushida ishlatilgan. u Ikkinchi Jahon urushidan keyin Qo'shma Shtatlarda qo'llanila boshlandi. Ammo ushbu konsepsiyaning ildizlari sog'lik, axloq va mas'uliyat haqidagi Amerika g'oyalari tarixiga borib taqaladi. XIX asrda Amerika Qo'shma Shtatlarda diniy va ma'naviy harakatlar muhim ahamiyatga ega bo'ldi. Jismoniy shaxslarning jismoniy salomatligi odatda tashqi tibbiy aralashuv bilan emas, balki axloqiy fazilatli va munosib ruhiy holatga

⁶ Kirkland, A. (2014). What is wellness now? Journal of Health Politics, Policy and Law, 39(5), 957- 958.

erishishdan kelib chiqdi. Shuning uchun to'g'ri munosabat, to'g'ri amaliyot va sog'liq uchun individual javobgarlik umumiy salomatlikning markaziy qismi bo'ldi.⁷

Halbert L. Dannning 1959-yildagi "odamlar va jamiyat uchun yuqori darajadagi sog'lomlashtirish" asarida sog'lomlashtirish atamasi birinchi marta eslatib o'tilgan va sog'lom bo'lish kasal bo'lishdan ko'ra ko'proq degan fikr ilgari surilgan. L. Dann ma'lumotlariga ko'ra, zamonaviy hayotning to'rtta xususiyati ya'ni aloqa texnologiyalari orqali ulanish, aholining "portlashi", aholining qarishi va hayotning zamonaviy sur'atlaridan kelib chiqadigan stresslar sog'lom turmush tushunchasining zarurligini ko'rsatadi. Sog'lomlashtirish yondashuvi shaxsning maqsadlari, afzalliklari, qiziqishlari va kuchli tomonlarini belgilaydi. Ushbu yondashuv odamlarga hayot sifatiga erishish uchun zarur bo'lgan qimmatli ijtimoiy rollarni bajarish yoki saqlab qolish imkoniyatini beradi. Sog'lomlashtirish muammolarga e'tibor berishdan ko'ra, shaxsga ijobiy munosabat yaratishga harakat qiladi. Shu nuqtayi nazardan, shaxsning ichki motivatsiyasi va optimistik munosabati mustahkamlanadi.⁸

Sog'lomlashtirishga yondashishda inson shaxsiy javobgarlikni o'z zimmasiga olishi va o'z sog'lig'ini saqlashda faol bo'lishi kerak. Bu odamlarga o'z sog'lig'iga g'amxo'rlik qilishda faol rol va mas'uliyat beradi. Sog'lom turmush tarzida yetarli uyqu va dam olish, tajriba, ovqatlanish, ijtimoiy muloqot va qo'llab-quvvatlovchi munosabatlar kabi odatlar sog'liqning muvozanatini ta'minlaydi. Sog'lomlashtirish jismoniy, hissiy, intellektual, ijtimoiy, kasbiy, ekologik, ma'naviy va moliyaviy o'lchovlar bilan yaxlit va ko'p o'lchovidir.

Birinchi olti o'lchovli (kasbiy, ijtimoiy, intellektual, jismoniy, hissiy, ma'naviy) sog'lomlashtirish modeli 1976-yilda Dr. Bill Hettler tomonidan ishlab chiqilgan.

• **Jismoniy o'lchov** – Jismoniy faoliyatda muntazam ishtirok etish, sog'lom ovqatlanish va jismoniy tana faoliyati.

• **Hissiy O'lchov** – tuyg'ularni, qadriyatlarni va munosabatlarni tushunish va hurmat qilish, boshqalarning his-tuyg'ularini tushunishni ko'rsatish.

• **Intellektual O'lchov** Yangi ko'nikma va qobiliyatlarni doimiy ravishda egallash va ijodiy qo'llash, o'z-o'zini boshqaradigan xatti-harakatlar orqali o'rganishga umrbod sodiqlik.⁹

• **Ijtimoiy O'lchov** – sog'lom munosabatlarni saqlash, boshqalar bilan bo'lishdan zavqlanish, do'stlik va yaqin munosabatlarni rivojlantirish.

• **Professional O'lchov** – qadriyatlar, maqsadlar va turmush tarziga muvofiq shaxsiy qoniqlash. Hayotning boyligini ta'minlaydigan ishda ishtirok etish.

• **Atrof-muhit O'lchovi** – atrof-muhit va shaxs o'rtasidagi uyg'unlik, insonning atrof-muhitni boshqarishga bo'lgan qiziqishi shaxsning atrof-muhitdek xatti-harakatlariga ta'sir qiladi.

• **Ruhiiy o'lchov** – Diniy yoki hayot bilan bog'liq maqsad, qadriyat va tushunchaga ega bo'lish, e'tiqod va qadriyatlarga muvofiq tadbirlarda ishtirok etish.

• **Moliyaviy O'lchov** – moliyaviy sog'lomlik – bu insonning mavjud vaziyatdan qoniqlash va yaqin kelajakda moliyaviy vaziyatlarni safarbar qilish qobiliyati, shaxsiy moliya ustidan bilim va nazoratidir. Moliyaviy sog'lomlik – bu shaxsning shaxsiy moliyaviy holatining obyektiv idrokini ham, subyektiv ko'rsatkichlarini ham hisobga olish qobiliyatidir.

⁷ Morone, J. A. (2003). Hellfire Nation: the Politics of Sin in American History. New Haven, CT: Yale University Press.

⁸ Swarbrick, M. (2006). A wellness approach. Psychiatric Rehabilitation Journal, 29(4), 311-312.

⁹ Strout, K. A. ve Howard, E. P. (2012). The six dimensions of wellness and cognition in aging adults. Journal of Holistic Nursing, 30(5), 195-196.

Sog'lomlashtirish bo'yicha murabbiylik sohasi juda keng xizmat sifatida paydo bo'lganligi sababli, jismoniy mashqlar va sport fanlari kabi sohalarni tugatgan shaxslar va fitnes o'qituvchilari uchun yangi imkoniyat yaratdi. Shu sababli, sog'lomlashtirish murabbiyligini karyerasining bir qismi deb hisoblaydigan ko'plab odamlar bor. A'zolarining talablari, sog'liqni saqlash sohasidagi yangiliklar, shaxsiylashtirilgan xizmat va yaxshi individual fitnes bo'yicha o'qituvchi bo'lish istagi bu ta'limni olishlari uchun zarur bo'lgan asosiy sabablardir.

Sog'lomlashtirish tushunchasi sog'liqni saqlash va fitnes sohasida umumiy tushunchaga ega bo'lgandan so'ng, sog'lomlashtirish bo'yicha bir qator tadqiqotlar o'tkazildi va "sog'lomlashtirish bo'yicha murabbiylik" masalasi ko'tarildi. Odamlar asrlar davomida o'zlarini doimiy ravishda yangilash va takomillashtirish uchun harakat qilishlarini hisobga olsak, bu tushuncha yangi narsa emasligi aniq, garchi u sog'lom turmush deb nomlanmasa ham. Biroq sog'lomlashtirish bo'yicha murabbiylik nisbatan yangi tushuncha. Sog'liqni saqlash murabbiyligi fitnes murabbiyi, sport murabbiyi, hayot murabbiyi degani emas. Sog'lomlashtirish bo'yicha murabbiylik o'zini "odamlarga yaxshi hayot bilan bog'liq maqsadlariga erishishda yordam beradigan va rag'batlantiradigan odamlar, shaxslar yoki guruhlar bilan ishlash demakdir.

Sog'lomlashtirish bo'yicha murabbiy – bu odamlarning xatti-harakatlarini o'zgartirish jarayonida ularga qulaylik yaratadigan odam. Masalan, a'zoga stressni kamaytirish uchun yoki ularning umumiy sog'lig'i bilan bog'liq mavzuda sog'lomlashtirish bo'yicha o'qituvchi kerak. Birinchidan, umumiy sog'liq yoki sog'lomlashtirish bilan bog'liq maqsadlarni ishlab chiqish mumkin. Keyinchalik motivatsion intervyu texnikasi qo'llanilishi mumkin. Ushbu tadqiqotlar yuzma-yuz, telefon orqali yoki boshqa texnologiyalar yordamida, albatta, sharoitga qarab amalga oshirilishi mumkin.¹⁰

Sog'lomlashtirish bo'yicha murabbiylar – bu murabbiylik nazariyalari va usullaridan foydalangan holda sog'liqni saqlash, sog'lomlashtirish va fitnes sohasidagi mutaxassislar. Sog'liqni saqlash bo'yicha o'qituvchilar sog'lik va fitnes bo'yicha aniq maqsadlarga ega bo'lgan a'zolar bilan va shaxsiy yoki professional maqsadlarga ega odamlar bilan ham ishlaydi.

Bu mavzuda gapirilganda Fitnes murabbiylik hamda Sog'lomlashtirish murabbiyligi o'rtasidagi farqlarni anglash kerak. Aytish kerakki, har ikki treninglar profilaktika borasida, sog'liqni saqlash borasida odamlarga yordam beradigan ishtiyoqli, ishonchli va iqtidorli mutaxassislardir. Biroq mana shu o'xshashliklar sabab fitnes mashg'ulotlari va sog'lomlashtirish mashg'ulotlari tushunchalari ko'plab sohalarda bir-birining o'rnida ishlatilishiga olib keldi. Masalan, Chapman, Lesch va Baun sog'liqni saqlash va sog'lomlashtirish murabbiyligini "sog'liqni saqlash va sog'lomlashtirish ustida ishlaydigan individual fitnes murabbiyligi" deb atashgan. Sog'lomlashtirish bo'yicha murabbiylik fitnes o'qituvchilari tomonidan taqdim etiladigan xizmatni yanada kengaytiradi.

XULOSA

Hech shubha yo'qki, fitnes va sog'lomlashtirish tushunchalarining ko'plab tarkibiy qismlari o'rtasida kuchli munosabatlar mavjud. Fitnes umumiy sog'likni mustahkamlash, kasalliklardan himoya qilish, kognitiv funksiyalarni oshirish kabi afzalliklarni taklif qilsa-da, bu odamning bo'sh vaqtidagi ishtirokini oshiradi, bu odatda qoniqarli ijtimoiy tajriba hisoblanadi. Bundan tashqari, fitnes tushunchasi va mazmuni kasallik va erta o'lim xavfini kamaytirishi mumkinligi haqida juda ko'p dalillar mavjud.

¹⁰ Pettitt, C. (2013). Wellness coaching certifications: a new career frontier for personal trainers in health care. *Strength & Conditional Journal*, 35(5), 63.

Biroq, fitnes na sog'liq va na sog'lomlikni anglatadi. Bundan tashqari, sog'liq va sog'lik tushunchasi fitnes tushunchasiga qaraganda ancha keng ma'noga ega. Shunday qilib, fitnes tushunchasi sog'liq va sog'lomlik tushunchalari bilan bog'liq, ammo ular bir xil emas. Chunki, salomatlik nafaqat jismoniy, balki ancha ko'p o'lchovli bo'ladi.

Boshqa tomondan, sog'lomlashtirish jismoniy, hissiy, intellektual, ijtimoiy, kasbiy, ekologik, ma'naviy va moliyaviy o'lchovlar bilan yaxlit yondashuv xususiyatlariga ega. Shuning uchun bu ikki tushunchaning keltirib chiqargan farqi ta'limga bo'lgan yondashuvlarda ham o'z aksini topadi.

Fitnes murabbiyligida shaxsni o'qitish va u bilan ishlash haqida gap ketganda, sog'lomlashtirish murabbiyligida shaxsni ko'proq tushunish va unga rahbarlik qilish juda muhimdir. Fitnes murabbiyligida o'qituvchi yetakchi hisoblanadi va a'zo o'qituvchiga ergashadi. Sog'lomlashtirish bo'yicha murabbiylikda qarorlar keng tarqalgan va o'qituvchi a'zoning holatiga qarab yordam beradi. Fitnes bo'yicha o'qituvchi noaniqliklarni aniqlash orqali muammolarni hal qilishga harakat qiladi, sog'lomlashtirish bo'yicha o'qituvchi esa imkoniyatlarni aniqlaydi, shaxsni uning tashvishlariga muvofiq boshqaradi.

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"BLOOM'S TAXONOMY IN SECOND LANGUAGE ACQUISITION: PROMOTING CRITICAL THINKING AND LEARNER AUTONOMY"

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Abstract: The link between Bloom's Taxonomy, Second Language Acquisition (SLA), higher-order thinking abilities, learner autonomy, curriculum creation, assessment, language competency, and the role of the language instructor in education is examined in this article. The author contends that the application of Bloom's Taxonomy can help learners acquire higher-order thinking abilities and learner autonomy, which are necessary for reliable evaluations of language competency. The paper also emphasises the significance of incorporating critical thinking into curriculum development and language education. Overall, this article offers insightful information about the intricate relationships between language learning, cognitive development, and educational practise.

Keywords: Bloom's Taxonomy, Second Language Acquisition, critical thinking, learner autonomy, curriculum development, assessment, language proficiency, higher-order thinking skills, language teacher, education, accurate assessments, SLA.

«ТАКСОНОМИЯ БЛУМА В ОСВОЕНИИ ВТОРОГО ЯЗЫКА: РАЗВИТИЕ КРИТИЧЕСКОГО МЫШЛЕНИЯ И САМОСТОЯТЕЛЬНОСТИ УЧАЩИХСЯ»

Аннотация: В этой статье рассматривается связь между таксономией Блума, овладением вторым языком (SLA), способностями мышления более высокого порядка, автономией учащихся, созданием учебных программ, оценкой, языковой компетенцией и ролью преподавателя языка в образовании. Автор утверждает, что применение Таксономии Блума может помочь учащимся приобрести мыслительные способности более высокого порядка и автономию учащегося, которые необходимы для надежной оценки языковой компетентности. В документе также подчеркивается важность включения критического мышления в разработку учебных программ и языковое образование. В целом, эта статья предлагает полезную информацию о сложных взаимосвязях между изучением языка, когнитивным развитием и образовательной практикой.

Ключевые слова: таксономия Блума, овладение вторым языком, критическое мышление, автономия учащегося, разработка учебной программы, оценка, знание языка, навыки мышления более высокого порядка, учитель языка, образование, точные оценки, SLA.

INTRODUCTION

Are you a language instructor wanting to create classes that support independent learning and higher-order thinking skills? Bloom's Taxonomy is the only resource you need. Benjamin Bloom created this framework in 1956, and it has been extensively applied in education to direct curriculum creation and evaluation. In this article, we'll look at how Bloom's Taxonomy may be used in the study of second language acquisition (SLA) to foster the development of critical thinking abilities, learner autonomy, and more precise language competence evaluations.

A system called Bloom's Taxonomy divides learning objectives into six categories, from lower-order thinking skills to higher-order thinking skills. Benjamin Bloom created the taxonomy in 1956, and it has since been extensively utilised in education to direct curriculum creation and assessment.

In the area of second language acquisition (SLA), there has been a growing interest in using Bloom's Taxonomy. This is because the framework offers language teachers a helpful road map for creating classes that encourage the development of higher-order cognitive abilities, which are crucial for language learning.

The Bloom's Taxonomy is a useful tool for both educators and students. This framework offers a precise framework for developing and evaluating learning objectives while promoting critical thinking and higher-order thinking abilities. Using Bloom's Taxonomy has many advantages, including the ability to identify and prioritise learning goals, align instructional strategies and assessments, support differentiation and personalization of instruction, promote active and engaged learning, develop metacognitive skills and self-regulated learning strategies, encourage collaboration and communication among learners, provide a common language for discussing teaching and learning, and ensure that learners are engaged in their studies.

Using Bloom's Taxonomy allows teachers to develop a more student-centered approach to learning, which is one of its most important advantages. The emphasis on critical thinking and higher-order thinking abilities encourages students to participate actively in their own education. This strategy encourages learners to be innovative and creative by offering a framework for creating tests that measure various cognitive abilities.

Bloom's Taxonomy encourages active and engaged learning while also assisting students in gaining a better comprehension of concepts and ideas. Learners are better able to draw connections between various fields of knowledge and apply their learning to novel circumstances when a framework for curriculum creation and instructional materials that are in line with learning objectives and evaluation is provided. This method also promotes the growth of analytical and problem-solving abilities, empowering students to spot areas of comprehension that still require improvement.

The use of Bloom's Taxonomy also encourages the development of abilities for lifelong learning. This framework aids in building a community of learners who are dedicated to continual growth and development by fostering cooperation and communication among them. Additionally, it gives educators a common vocabulary to talk about teaching and learning, allowing them to exchange best practises and work together on teaching methods.

Bloom's Taxonomy should be used in current SLA mostly to foster critical thinking abilities. To generate opinions or make decisions, critical thinking entails assessing, analysing, and synthesising information. Language learners need to be able to grasp and analyse complicated texts, express their thoughts, and participate in meaningful conversations, therefore these abilities are crucial.

Language instructors can create classes that encourage critical thinking abilities by using Bloom's Taxonomy. For instance, instructors might concentrate on improving their students' capacity to retain and comprehend vocabulary words and grammar rules at the lowest levels of the taxonomy. At more advanced levels, teachers might push students to analyse challenging materials, assess arguments, and apply their knowledge to practical situations.

The promotion of student autonomy is another reason why Bloom's Taxonomy should be used in contemporary SLA. The ability of learners to direct their own learning is referred to as learner autonomy. Language teachers may assist students to become more independent and self-directed in their study by encouraging higher-order thinking abilities.

For instance, teachers might create exercises that require students to define their own objectives, devise their own learning techniques, and assess their own development at the higher

levels of the taxonomy. This method encourages learner autonomy while also assisting students in acquiring metacognitive abilities, which are crucial for lifetime learning.

Lastly, using Bloom's Taxonomy in contemporary SLA can assist instructors in creating tests that gauge higher-order thinking abilities. Traditional language tests frequently emphasise memory and recall, which are examples of lower-order cognitive abilities. These abilities, however, may not always represent a learner's capacity to utilise language in authentic contexts.

Language teachers may create tests that gauge higher-order thinking abilities like analysis, evaluation, and synthesis by utilising Bloom's Taxonomy. This method helps teachers pinpoint areas where learners need further attention and gives a more accurate depiction of learners' language skills.

In conclusion, incorporating Bloom's Taxonomy into contemporary SLA is crucial for fostering critical thinking abilities, learner autonomy, and creating tests that assess higher-order thinking abilities. Using this framework, language instructors may create classes that encourage meaningful learning experiences and aid students in acquiring the abilities necessary to thrive in the globalised world of today. This framework offers a precise framework for developing and evaluating learning objectives, fostering critical thinking and higher-order thinking abilities, and fostering active and engaged learning. Additionally, it stimulates cooperation and communication among students, supports the growth of metacognitive abilities and self-regulated learning techniques, and makes sure that learning is significant, applicable, and transferrable to real-world situations. Bloom's Taxonomy may be used by educators to construct a more student-centered learning strategy that encourages the acquisition of lifetime learning abilities and equips students for success in the twenty-first century.

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CONTROL OVER THE EFFECTIVENESS OF THE THROWING TECHNIQUE IN THE JUMP OF QUALIFIED HANDBALL PLAYERS

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Abstract: this article describes the methodology for controlling the effectiveness of the throwing technique of qualified handball players in jumping, in addition to the data on the speed of the ball, the height of the jump when performing a number of handball techniques.

Keyword: handball, highly qualified, athletes, physical qualities, jumping, technique, throwing, efficiency.

КОНТРОЛЬ ЗА ЭФФЕКТИВНОСТЬЮ ТЕХНИКИ БРОСКА В ПРЫЖКЕ КВАЛИФИЦИРОВАННЫХ ГАНДБОЛИСТОВ

Аннотация: в данной статье описывается методика контроля эффективности техники броска квалифицированных гандболистов в прыжках, в дополнение к данным о скорости полета мяча, высоте прыжка при выполнении ряда гандбольных приемов.

Ключевое слово: гандбол, высококвалифицированные спортсмены, физические качества, прыжки, техника, метание, эффективность.

INTRODUCTION

Relevance of the topic. Currently, the leading importance is given to the scientific justification of the process of improving highly qualified athletes and the development of effective methods of managing the educational process. In order to effectively manage the learning process, information is needed about quantitative indicators and a qualitative analysis of the relationship of various characteristics of the motor actions. Among the most pressing issues of preparing athletes for sports games is the control of technical and tactical skills, the level of which largely determines the result of competitive activities. For the successful improvement of technology, it is important to determine the criteria by which their level of technical skill can be assessed.

In modern handball, the strength and accuracy of shots towards the goal has increased significantly with an increase in the speed of the game. Therefore, there was a need to deeply study the structure of throwing and develop new technologies to improve the technical training of handball players. This, in turn, makes requirements for the development of training programs, taking into account the individual level of mastering the shooting technique and the qualities of the tool implemented in it. The construction of movements when throwing a jump is characterized by significant complexity, therefore, the pedagogical process of improvement takes a long time. In this regard, one of the pressing problems of modern handball is the optimization of the process of improving handball shooting based on the study of its biomechanical structure. Studies in this direction are of great practical importance, since they meet the requirements of sports practice.

MATERIALS AND METHODS

Literature analysis the work of specialists in the general theory of sports V. K. Balsevich, Yu.V. Verkhoshansky, Yu.K. Gaverdovsky, L. P. Matveev, V. P. Platonov, etc. Sports biomechanics specialists D. D. Donskoy, M. A. Godik, W. M. Zasiorsky, G. I. Popov, N. G. Suchilin, A. A. Shalmanov et al. handball specialists A. A. Akramova, A. G. Danilova, S. I. Dorokhova, V. Ya. Ignatieva, I. V. Petracheva, V. I. Tkhoreva, etc.

The object of study is the process of technical training of handball players of various qualifications.

The purpose of the study is to assess the effectiveness of the handball shooting technique in jumping and to experimentally test the methodology for its improvement.

Main part. Jumping is a complex technical technique consisting of several elements in a row: running, pushing, swinging and kicking, flying, swinging, acceleration of the hand with the ball, emptying the ball and landing are lowered.

Biomechanical analysis of the technique of handball shooting in the jump made it possible to determine that the speed of leaving the ball is provided by a strict sequence of work of individual links of the hand, with an increase in speed with a wave-like character. The output speed of the ball reached 23.54 M / s. the horizontal speed of the hand ties had the highest values, at the wrist joint - 12.09 M/s, at the elbow – 10.42 M/s, at the shoulder – 3.98 m/s. The vertical velocities had fewer values and were 5.05, 4.15, 2.46 m/s, respectively, and the velocities along the frontal Axis had values of 3.79, 5.33, 2.08 m/s.

One of the indicators of the effectiveness of the shooting technique is the successive expansion of the lower limbs with a multidirectional change in the corners of the hip and knee joints during the transition from swallowing to pushing. When the foot was placed on the support, the angle of inclination of the knee joint of the push foot was 145°, with depreciation it decreased by 116° and the angle at the hip joint increased by 134°. high-efficiency use of the lower leg joints is observed in coincidence during upward movement. the flywheel Movement connects with the flexion of the knee joint of the push foot at the end of depreciation. The maximum value of Flexion in the knee joint of the push foot was up to 53° for maximum flexion in the knee joint of the fly foot .

Indicators of the comparative effectiveness of the shooting technique are the maximum values of the initial speed of leaving the ball and the speed of the links of the shooting hand. For the handball players of the Russian team, the average horizontal speed of the ball was 17.13 M/S, and for the players of the super League-only 13.84 M/s ($p<0.05$). Russian team players have the maximum values of the horizontal speed of all the joints of the hand involved in shooting, high (shoulder joint speed - 3.98 m / s, elbow – 8.20 m / s, wrist – 11.36 M / s) team than super League players (respectively – 2.84, 6.61, 8.76 m / s). The team's second offensive line players have the highest rushing performance.

Discriminative indicators of the shooting technique are the maximum values of the horizontal and vertical speed of the knee joint of the flywheel leg when performing a push. The average values of the vertical speed of the flywheel leg of national team handball players were 3.81 m/s, super League – 2.77 m/s, national team handball players horizontal speed – 4.10 m/s and super League - 3.07 m / s.s ($p<0.05$).

Analysis of the relationship between the speed of flight of the ball and the kinematic characteristics of the shooting technique confirmed the importance of the active installation of the push foot, the optimal depth of leg flexion during depreciation, the wide amplitude of movement and increasing vertical speed. flywheel leg while performing the shot. The closest relationship between the departure speed of the ball is observed by the maximum values of the horizontal speed of the hand ties in the final movements. The correlation coefficient with the maximum speed of the wrist joint was 0.82, elbow–0.67, shoulder– 0.59 ($p<0.05$). The maximum value of the vertical speed of the knee joint of the flywheel leg is related to the length of the last running step ($R=0.62$) and the maximum value of the horizontal speed of the knee joint of the flywheel leg ($R=0.68$).

The speed of leaving the ball is mainly determined by the speed of the handball players and the level of strength training. The speed of the ball has a high affinity with the results of throwing a 1 kg ball from the Spot ($r = 0.89$), triple jump ($R = 0.88$) and standing Strength Index ($R = 0.82$). To control the technique, the coaches developed tables for assessing the effectiveness of the shooting technique in the jump based on the results of throwing a 1 kg ball during the training process and the speed of the ball's departure when throwing in the supporting position.

The players of the national team had the highest motor potential and demonstrated the highest indicators of implementation efficiency, and the participants of the pedagogical experiment, handball players of the Luch Super League team, had low efficiency for athletes of such a level. The use of specially developed pedagogical programs in the pedagogical experiment eliminated the identified individual shortcomings of the technique, as a result of which the level of abandonment of the ball and the level of implementation efficiency increased.

CONCLUSIONS

Conclusion research on the kinematic mechanisms of jumping throwing has made it possible to formulate the pedagogical requirements necessary to teach and improve throwing: to perform shooting at an optimal flight speed; place the pulling leg on the support with an optimal angle of inclination at the knee joint; carry out an active expansion of throwing. pressing straighten the leg and trunk; perform a quick swing with the leg up. When performing push-ups and rocking movements, special attention should be paid to special exercises aimed at improving the movement of the legs.

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GENERAL CHARACTERISTIC OF THE SPORT OF ATHLETICS

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Abstract: this article provides a general description of athletics and provides information about the history of athletics, stages of development, types of athletics.

Keywords: Athletics, general description, start, finish, distance, run, throw, multi-fight, Triple, pentathlon, description.

ОБЩАЯ ХАРАКТЕРИСТИКА ВИДА СПОРТА ЛЕГКОЙ АТЛЕТИКИ

Аннотация: в данной статье дается общее описание легкой атлетики и приводится информация об истории легкой атлетики, этапах развития, видах легкой атлетики.

Ключевые слова: Легкая атлетика, общее описание, старт, финиш, дистанция, бег, бросок, многоборье, тройка, пятиборье, описание.

INTRODUCTION

The relevance of the topic is one of the most popular types of athletics — sports; includes various distance running, sports walking, high jump, long, triple, with an anchor, javelin throw, lappak, nuclear irradiation, exercises. There are more than 50 exercises in athletics, 48 of which were included in the Olympic Games program (the 2000 Sydney Olympics saw the men compete in 23 athletics events and the women in 20). In addition, athletics constitutes one exercise of modern pentathlon and triathlon sports, the training of all sports, training of educational institutions, military-preparatory, health exercises, a program of various sports tests of students and youth. References to athletics exercises are found in a number of philosophers' "Iliad" of Homer, Ibn Sina's "laws of Tib", and other books. At the ancient Olympics (From 776. in the 1st century. 394 BC) mainly in athletics. The development of modern athletics was significant in England in the 19th century (from 1837) when competitions were held, Athens (from 1859) when the all-Greek games were held, and the Olympic revival (from 1896). In 1912, the International Federation of amateur leaders (IAAF) was formed, to which 200 countries were admitted to the member League (2001; Uzbekistan athletics federation member since 1993). The IAAF has hosted the World Cup (currently the Grand Prix events) since 1977, and the world premiership since 1983. In Uzbekistan, interest in athletics intensified after the establishment of an engraving in 1885 in Margilan, adapted to the same species. Athletics competitions began to be held in Tashkent from 1902, country premierships from 1919, and spartakia from 1927. In Uzbekistan, more than 135,000 people are engaged in athletics under more than 140 coaches, 3 of the coaches have received the title of honored athlete of Uzbekistan, 10 have received the title of honored sports teacher of Uzbekistan (2001). In addition athletics is well developed in countries such as the United States, Great Britain, Germany, Cuba, China.

MATERIALS AND METHODS

The ancient Greek may stand for “athletics” means wrestling in the uzbek language. In ancient Greece, athletes were called those who competed in strength and agility.

The name athletics is conditional and is based on the fact that, when viewed from the surface, athletics exercises seem light compared to weightlifting exercises.

Athletics consists of five divisions: walking, running, jumping, throwing and multi-wrestling.

The main part of athletics is the general characteristic of exercise

Walking is an excellent exercise for people of different ages, which is a simple way to strengthen the human body from place to place.

When walking long and evenly, almost all the muscles in the limb body work, the activity of blood supply, breathing and other systems in the body increases, as a result of which the metabolism increases.

Physical exercise, as the usual gait, has a primarily health-improving ethos. The person is taught to walk in their early childhood. But it is not enough, it is necessary for all people to be able to walk straight, beautiful and economical. In addition to normal walking, other variations of walking will be ham: walking on a leash, walking in a row and athletic walking.

In competitions, the most difficult, but most useful, sports walking is used from the technical nature of walking. Its speed is twice as much as for normal walking, but to achieve such a speed, it is not enough just to learn the basics of sports walking techniques, but to do a lot of intensive work than for normal walking, which means that energy consumption increases. For this reason, the practice of sports walking has a much greater effect on the athlete's body, strengthens its internal organs and systems, increases their working capacity, has a positive effect on the development of strength and, more specifically, endurance, teaches to be strong-willed. Therefore, Ham mature fast walkers are highly resistant.

The Walking race is run on stadium tracks (in the reverse direction of the clock circuit) and on regular tracks (on the chassis, in the city forces) over a distance of 3 km to 50 km. Participants in The Walking competition must adhere to the characteristics of the walking technique established by the rule.

The main thing about this is not to let the ham two legs break off the ground at the same time if they are one. If an opportunity occurs when one of the legs is not touching the ground, the athlete will be able to move from walking to running. An athlete who breaks this rule is excluded from the competition by special hackams.

Running is a natural way of strengthening from place to place, it is a more common type of exercise, and a lot of Sports (Football, Basketball, etc.) are included.

A lot of the way of running in athletics it I the learning part of different type. When running, the demand for the working capacity of the whole organism is much greater than that of a walker, since when running, almost the raw material of muscle groups in the limb body is triggered, the activity of the cardiovascular, respiratory and other systems is increased, the metabolism is greatly increased. Depending on the capabilities of those involved, the amount of work with a change in distance length and running speed can affect the development of endurance, agility and other qualities of a person. For example, not so fast, but the hygienic acuity of running for a long time (in the forest or in the park) is great, which is one of the best means of recovery. High-speed running increases the demand for those involved, in particular their cardiovascular and respiratory systems, and serves as an excellent tool that develops endurance.

Running at very high speeds, however, is part of speed development training.

In the process of running, a person will be motivated by Will, the ability to distribute his strength, to learn from the Tusi, to be able to take muljal in an open, open place.

Running is one of the main tools of physical development from the outside. It is from this that in all specialties, athletes with ham, those who practice other sports have a lot of attention to running in Ham training, as well as a large share of running as a means of maintaining active rest, wellness and working capacity.

RESULTS

Running is the most hammered bop physical activity in the hammer disciplines of athletics. In athletics competitions, a wide variety of running and relay teams occupy a leading position, to which the audience is very interested in ham. Therefore, running competitions are one of the most powerful propaganda tools.

There are several ways to run in athletics: flat running, cross-country running, relay running, and running in natural conditions.

Flat running is carried out at a certain distance or in a timeless way on a treadmill (in the opposite direction to the clock arrow stroke). In running a distance of 400 m and shorter, each runner is allocated a lane in Aloxi. The rest of the distance is run on a common track. The time taken to pass a given distance is measured by a stopwatch.

There are two types of running over fences: 1. Cross-country running is when a runner exceeds a type of barrier placed at specific locations within a distance at the same distance from each other on a treadmill and runs from 60 m to 400 m; whichever athlete runs on a treadmill in alokhi-alokhi.

3,000 m cross country running (stiplchez)-in this running track it is running past the barriers where the mustacham is installed, past the water that has been dumped into a hollowed pit in one of the stadium sectors.

Relay running-in which a team-is run as a team; the more runners in a team the distance Ham will be divided into so many skirts. The goal of relay running is to extend the relay rod to each other and deliver it from start to finish as quickly as possible. The range of the skirts is the same (short and at a distance to the middle), the neck is different (at a mixed distance). Relay running is performed on stadium tracks, and sometimes on city tracks.

Jumping is a natural way to get rid of tusks and is characterized by maximum tension on the neuromuscular force in a short time. In jumping training, athletes ' abilities to be able to Will their bodies, to gather their forces are improved, strength, speed, agility are behind.

DISCUSSION

Jumping is one of the best exercises for strengthening the muscles of the legs and body and dressing for jumping, which is necessary not only for athletes, but also for representatives of other sports, Ham, especially for basketball players, volleyball players and players.

The light athletic jump is divided into two types:

a) high jump and anchor pocket jump;

B)long jump and triple jump.

The results achieved in the jump are measured in meters and centimeters.

Throwing is the practice of ironing and throwing special projectiles at a distance. Throwing is characterized by the fact that the neuromuscular tension is short-maximum. Not only the muscles of the arms, shoulder girdle and body, but also the muscles of the legs are actively involved in this.

To throw athletics projectiles far away, it is necessary that strength, speed, agility have developed at a high level and be able to accumulate their strength.

In athletics, throws are divided into three types, depending on the method of execution:

a) throw starting from behind the head (spear and grenade);

b) spin throw (disc, bosgon);

v) push (core).

Includes various types of running, jumping and throwing. The multicooker is named depending on the amount of species it contains.

CONCLUSIONS

In addition to the fact that they are highly skilled in technical humor, they need to be fast as sprinters, strong as throwers, bouncy and agile as jumpers, bold as pores, resistant as middle-distance runners. And full execution of a multi-fight program requires excellent endurance in general, highly developed volitional qualities.

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РОЛЬ МЕДИАОБРАЗОВАНИЯ В ПОВЫШЕНИИ МЕДИАГРАМОТНОСТИ УЧАЩИХСЯ НАЧАЛЬНЫХ КЛАССОВ

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Аннотация: Сегодня растет необходимость реализации масштабных реформ в сфере совершенствования преподавания естественных наук на основе мультимедийных средств, международных оценочных программ и повышения естественной и научной грамотности учащихся на занятиях. В соглашении ООН по образованию, науке и культуре «Импорт материалов образовательного, духовного и культурного содержания», создающем широкие условия для качества образования учащихся во всем мире, образование приобретает особое значение. внедрение современных инновационных технологий в клеевой процесс. В связи с этим достижение эффективности и повышение роли и влияния средств мультимедиа, концептуальное исследование и анализ существующих проблем определяют актуальность темы.

Ключевые слова: «природа», «природа и мы», «медиаобразование», «методы», «образовательные технологии», «средства мультимедиа», «медиа», «медиаграмотность».

THE ROLE OF MEDIA EDUCATION IN IMPROVING MEDIA LITERACY OF PRIMARY SCHOOL STUDENTS

Abstract: Today there is a growing need to implement large-scale reforms in the field of improving the teaching of natural sciences based on multimedia tools, international assessment programs and improving the natural and scientific literacy of students in the classroom. In the UN Educational, Scientific and Cultural Agreement on the Import of Educational, Spiritual and Cultural Materials, which creates broad conditions for the quality of education for students around the world, education takes on special importance. introduction of modern innovative technologies in the adhesive process. In this regard, achieving efficiency and increasing the role and influence of multimedia, conceptual research and analysis of existing problems determine the relevance of the topic.

Keywords: “nature”, “nature and us”, “media education”, “methods”, “educational technologies”, “multimedia”, “media”, “media literacy”.

ВВЕДЕНИЕ

Медиаграмотность означает совокупность навыков и компетенций для восприятия средств массовой информации и оценки их деятельности.

Медиаграмотность – это способность разобраться в ежедневной информации, передаваемой и получаемой через средства массовой информации, принимать правильное решение в любой ситуации даже после получения различной информации, формировать представления о том, где, кем и с какой целью передается информация. , и чьи интересы она отражает.

МАТЕРИАЛЫ И МЕТОДЫ

Цель медицинской грамотности – понять приоритеты и недостатки каждого средства массовой информации и сформировать умения сортировать распространяемую ими информацию и принимать то, что необходимо, при этом основная задача – ограничить ее, понимая манипулятивную силу любого средства массовой информации. информация, потребляемая людьми [1].

Медиаграмотность предполагает понимание функций СМИ, оценку качества реализации этих функций и рациональное сотрудничество со СМИ для самовыражения и участия в социальных процессах.

Использование медиаобразования в начальных классах, обогащая процесс наглядными материалами, служит повышению качества урока и повышению эффективности изучения учащимися нового предмета. В то же время модем, фото, видео, компьютерные технологии, Интернет позволяют расширять знания. «Но средства массовой информации могут служить как добру, так и злу. По этой причине сегодня необходимо повышать медиаграмотность школьников. Сегодня нет детей, которые завидуют «Человеку-пауку» и бросаются вниз, людей, которые, конечно, верят всей информации, данной в рекламе. важно для понимания сегодняшней информационной среды. У молодых людей прежде всего развиваются навыки сортировки ежедневной информации, передаваемой и получаемой через средства массовой информации, принятия правильного решения в любой ситуации даже после получения различной информации, где, кем и с какой целью передается информация, чья в нем отражаются интересы, необходимо сформировать понятия, которые неизбежно, что новости и информация, суть которых не изучена и которые распространяются ложно, в корне изменят нашу жизнь. Необходимо даже обратить внимание на мультфильмы, которые любят смотреть наши дети. Как мы уже упоминали, в условиях глобализации, формирования глобального информационного общества информационно-коммуникационные технологии, прежде всего, Интернет, становятся важным фактором, влияющим на развитие детей и подростков. В то же время масштабное внедрение информационно-коммуникационных и интернет-технологий во все сферы жизни общества повысило актуальность вопросов защиты молодежи от опасностей в информационном поле, от идеологических атак, исходящих из-за границы, от разрушительное воздействие их разума. Пользователи социальных сетей, компьютерных игр, потребители видео- и кинопродукции сталкиваются с информацией, оказывающей негативное влияние на их физическое и моральное развитие.

ВЫВОДЫ

Медийно-информационная грамотность – это совокупность знаний, умений, установок, умений и практик, позволяющих эффективно приобретать, анализировать, критически оценивать, интерпретировать, использовать, создавать и распространять информацию и медиапродукты с использованием всех необходимых инструментов в творческой деятельности.

Итак, в заключение следует сказать, что мы – учителя, тренеры, родители – должны в первую очередь заняться формированием медиаграмотности в семьях, детских садах и школах.

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MORPHOFUNCTIONAL CHARACTERISATION OF EXTRAHEPATIC BILIARY TRACTS OF MAMMALS

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Abstract: A review of modern ideas about the normal and pathological anatomy and physiology of the extrahepatic biliary tract and the great papilla of the duodenum of mammals is given. Emphasis is placed on the clinical significance of changes in the physiology of the biliary system before and after surgical operations. This paper reviews and analyses the works of a number of scientists and researchers of modern times, founders and their followers on the study of morphological structure of extrahepatic biliary tracts.

Keywords: anatomy of biliary tract, physiology of biliary tract, sphincter of Oddi, surgery of biliary tract.

МОРФОФУНКЦИОНАЛЬНАЯ ХАРАКТЕРИСТИКА ВНЕПЕЧЕНОЧНЫХ ЖЕЛЧЕВЫВОДЯЩИХ ПУТЕЙ МЛЕКОПИТАЮЩИХ

Аннотация: Дан обзор современных представлений о нормальной и патологической анатомии и физиологии внепеченочных желчных путей и большого сосочка двенадцатиперстной кишки млекопитающих. Акцент сделан на клинической значимости изменений физиологии билиарной системы до и после хирургических операций. В статье рассмотрены и проанализированы работы ряда ученых и исследователей современности, основоположников и их последователей по изучению морфологического строения внепеченочных желчных путей.

Ключевые слова: анатомия желчевыводящих путей, физиология желчевыводящих путей, сфинктер Одди, хирургия желчевыводящих путей.

INTRODUCTION

The extrahepatic bile ducts (EBD) are a system connecting the liver parenchyma and duodenum, the function of which is to form the final composition of bile. The epithelium of the human common bile duct (CBD) is poorly studied, because its destruction by bile occurs within several hours after death [44; 45]. Mucous, fibrous and adventitial membranes are distinguished in the wall of the common bile duct [37]. The most detailed description of the histological structure of the ODS was given by V.Burden, 1925 [17]. The duct is covered with cylindrical epithelium. Immediately under the epithelium is the ductal stroma consisting of bundles of elastic fibres. The outer layer of the LSF is represented by loose connective tissue containing blood and lymphatic vessels. There are crypts on the surface of the mucosa of the LSL. Normal crypts of the LSL are devoid of folds, and gland ducts open at their bottom [17]. The surface of the GI tract is covered with insoluble mucus. Mucus is produced by cholangiocytes and peribiliary glands. Thus, the epithelial cover does not directly contact with bile. The appearance of glands in the form of invaginations is found in the prenatal period; acinar structure appears after the 2nd month of life.

MATERIALS AND METHODS

The product of the glands are sialo- and sulphomucins. Some glands are transformed into ectopic pancreatic acinuses, which explains the presence of insignificant concentration of

pancreatic enzymes in normal bile [55]. Heterotopia of the gastric fundal glands into the mucous membrane of the GI with the formation of a chronic ulcer has been described [2]. The number of mucous glands of the GI tract is small, with the exception of the gallbladder neck and the large duodenal papilla (LDP). Age-related proliferation of BSDC mucous glands is characteristic of the elderly [30]. In addition to biliary cells, the mucosa of the BSDC contains bocaloid cells and cells of the enterochromaffin system. Cholangiocytes constitute 3-5% of the entire cellular population of the liver, and the proportion of fluid produced by them is 40% of the total volume of bile. Choleresis is stimulated by secretin by activation of Na⁺-dependent transport protein, which captures conjugated bile acids from ductal bile, transports them to the cytoplasm of cholangiocytes and then returns to the portal system ("small circle of recirculation") [10]. Biliary epithelium forms the final composition of bile by secretion and absorption of various substances, first of all water, glucose and bicarbonates.

The volume of ductal resorption in humans is unknown. In a rabbit, physiological water transport through the wall of the GI wall is about 0.03 ml/hour [18]. The epithelium of bile ducts produces IgA, one of the factors preventing bacteriocholysis, its amount decreases in GI tracts [36, 38, 53]. Bile acid receptors - "farnesoid-X-receptors", regulating the synthesis of most transport proteins and enzymes involved in cholesterol and bile acids metabolism, have been found in enterocytes [32]. Consequently, it is the ductal component of bile, after cholecystectomy, that should be responsible for the magnitude of hydrostatic pressure in the GI tract and the volume of bile entering the duodenum [34]. Cholangiocytes secrete regulatory peptides, participating in tissue integration of the hepatobiliary system [49].

The intrinsic mucosal lamina of the LSL is represented by collagen fibres and scarce smooth muscle fibres, which give the inner surface of the duct a characteristic cellular appearance [57]. According to R.Henning et al., 1988 [24], the collagen fibres of the fibromuscular layer of the FPS form a reticular structure. In case of overstretching of the LSL, at mechanical jaundice, the duct structure is irreversibly destroyed. It is not known reliably the threshold value of LVD diameter, after achievement of which restoration of tone is impossible. According to empirical data, this value is 15 mm [24]. At the same time, there are reports in the literature about the normalisation of the diameter of the LSD in case of significant dilatation of the duct [43]. In elderly people, the number of OVF capillaries decreases [4, 40]. It was found in vitro that the contraction force of a fragment of the ODD wall is no more than 3% of the contraction force of the GI wall, which corresponds to a 30-fold lower concentration of smooth muscle fibres in the wall of the ODD compared to the gallbladder [60]. Active peristalsis of the LSD has been found in rodents [24]. In ultrasound studies of healthy humans, it was found that in the interdigestive period, the diameter of the LSD decreases and increases after a meal, which confirms the presence of an active change in tone [33]. Radiological data on the existence of the Mirizzi sphincter at the confluence of the common hepatic and vesicular ducts [46] are not confirmed histologically and have long been outdated [24]. The hepatic veins are surrounded by a peribiliary vascular plexus originating from branches of the hepatic artery. Venous outflow is carried out directly into the sinusoids, which plays the role of a "fast circle of biliary-hepatic recirculation" of lipophilic substances (bile acids, cholesterol, phospholipids, hydrophobic drugs) resorbed by cholangiocytes and transported again to hepatocytes at their excessive concentration in ductal bile [10]. Two sympathetic nerve plexuses and two parasympathetic cholinergic nerve plexuses were found in extrahepatic bile ducts [59].

RESULTS AND DISCUSSION

The portion of the duodenal wall at the confluence of the GI and the main pancreatic duct (MPD), together with the muscular and glandular apparatus, is called the large duodenal papilla (LDP). Its size and shape are subject to considerable functional variation even in the same individual [50]. Soon after the introduction of fibrogastroduodenoscopy (FGDS), an endoscopic classification of the shape of the BSDC was proposed because it was found that the success of cannulation depended on the shape of this entity. Hemispherical, conical and flat forms of BSDC have been identified [29]. In the literature, anatomical variants of the so-called "overhigh" depression of the BSDC have been described, when the BSDC is located in the bulb of the duodenum or the antral part of the stomach, and bile flows directly into the stomach or massive duodenogastric reflux occurs. More than 70% of such individuals have a combination of peptic ulcer disease, duodenogastric ulcer disease and cholecystocholedocholithiasis, or a combination of gastric cancer and cholecystocholedocholithiasis [9, 25, 26]. Argyrophilic fibres are a peculiarity of the BSDC structure; as a result, the BSDC has a significant tendency to posttraumatic swelling. Blood vessels of the submucosal layer have cavernous structure and also increase the swelling of the BSDC at trauma or inflammatory process [30]. The BSDC lumen is filled with mucosa folds, the apexes of which are directed along the bile flow. These formations were first described by A. Vesalius, 1543 (cited by [15]). The height of the valves is 2-6 mm and their width is 2-3 mm [1, 31]. The valves prevent duodenobiliary reflux. Obviously, after papillosphincterotomy (PST) they cannot function, and after choledochoduodenostomy (CCD) their function is irrelevant.

If the epithelium of BSDC has no differences from other regions of the biliary system, its underlying layers are organised in a unique way. Numerous tubular acinar glands are located in submucous layer. The BSDC is the site of maximum concentration of mucosal glands in the GI tract. There is no unified point of view on the normal histological structure of the BSDC in the literature. This circumstance serves as a fundamental obstacle for histological diagnostics of the majority of non-tumoural lesions of this organ. The prevailing opinion is that BSDC is characterised by a mixed glandular-muscular-vascular structure resembling the structure of the prostate gland [14, 51, 61, 62]. The opponents of the above authors [30], after thorough research, came to the directly opposite concept of "strict tissue architectonics of the BSDC", when glands and muscular apparatus do not mix in the norm. Consequently, the appearance of mucous glands in the muscular sheath of the BSDC is a pathological condition and is characteristic of age-related involution.

The discussion of morphologists of the 50-70s of the last century remained incomplete and needs to be continued [58]. Apparently, with the advent of "safe" endoscopic papillosphincterotomy in the 80s, the issue of morphological substrate of non-tumoural papillostenosis seems to be unimportant for clinicians. At the same time, complex ideas about pathological changes of BSDC, the system of indications and contraindications to PST were replaced by destruction of the closure apparatus of biliary and pancreatic tracts as a surgical access to biliary tracts for lithoextraction, regardless of the presence of pathology and preservation of the function of this important organ. Currently, the designation "sphincter of Oddi dysfunction" is accepted to denote the impaired capacity of the BSDC, especially associated with pain syndrome after cholecystectomy [21, 28, 35].

"Duodenal window" (DO), first described by H. von Luschka, 1869, and studied in detail by M. Papamiliades & R. Rettori, 1957 [48], is a muscular diaphragm formed from the outer

longitudinal and inner circular layers of the duodenum, passing the DIO. The distance between the outer and inner slits depends on the magnitude of the angle of ductal implantation. The size of the DO in an adult is 5-7 mm [30, 54]. The oblique and spiral direction of muscle fibres originating from the muscular sheath of the duct allows the duct to move relative to the duct during intestinal peristalsis in all three coordinates. This mobility should be taken into account and used when performing duct catheterisation and endoscopic papillosphincterotomy. When performing transduodenal papillosphincteroplasty (TDPSP), as well as when performing EPST, the BSDC should be maximally protruded into the lumen of the intestine to spread these communicating fibres. This technique, developed by D. Del Valle [23], allows to avoid perforation of the posterior wall of the duodenum. The so-called antegrade papillosphincterotomy, in which the traction of the BSDC is performed in the opposite direction, has not survived the clinical trials [20]. With EPST (because it is sutureless), injury to any edge of the duodenal window results in retroperitoneal perforation of the duodenum. The duodenal window is a weak point of the duodenal wall, defects in which are the necks of parapharyngeal diverticula [12]. The prevalence of parapharyngeal diverticula (PFD) increases with age and represents a serious problem for the endoscopic treatment of choledocholithiasis [3, 42, 56].

Currently, the concept of an autonomous sphincter of Oddi (SO), i.e., not derived from the duodenal musculature, prevails. One of the main proofs of its autonomy is its development from undifferentiated mesenchyme, independent of duodenal musculature [11, 41, 52]. According to classical ideas, the CO is a closing muscle of more or less complex structure, i.e. a sphincter [16, 47, 60]. There are publications advocating a compromise view of the functional anatomy of the sphincter [27]. The competing theory of CO anatomy and physiology states that this muscular formation is an active muscle pump, and the muscular sheath of the duodenum passes onto the intramural portion of the OJP, giving the false impression of its own sphincter. At the same time, the outer intestinal muscular layer formed by longitudinal fibres is directed upwards, surrounding the wall of the intrapancreatic section of the DIC, and the fibres of the inner, circular layer are directed to the intraduodenal section of the duct [51].

"It is a single muscular apparatus," writes H. Schreiber, "having nothing in common with the sphincter described by Oddi and other older authors..., actively pumping bile into the duodenum, just as the heart pumps blood". [51]. B.S. Brikin et al. 2003 [6] came to a similar opinion in their work.

Throughout the recent history of CO function studies, including the study of the effects of various drugs on CO function, the main source of information was experimental studies on rodents. However, according to P. Calabuig [19], there is a fundamental difference of CO functions in rodents and higher mammals. In the former, the LGE is peristaltic and the CO actively transports bile to the duodenum. In higher mammals, the LGE is only able to change the wall tone; the CO functions only as a hydrodynamic resistance. It has been established that the length of the BSDC sphincter zones in humans varies from 2 to 30 mm [13,39]; therefore, PST classifications based on the length of the BSDC cut [5, 22] are of historical significance only.

CONCLUSIONS

The long pause in the study of the morphology of the terminal apparatus of the LVD, which arose after the introduction of EPST, ended at the turn of the century. Interesting works by Yu.M. Shutov, 1998, [8], C. Avisse, 2000 [12]; B.S. Briskin et al., 2003 [6], A.A. Sotnikov, 2003 [7], devoted to the mentioned problem and developing some of its aspects were published.

We could not find newer publications devoted to micromorphology of extrahepatic bile ducts in the available literature. Nowadays due to rapid development of endoscopic and laser methods of research the biliary system has become the place of the greatest use of therapeutic and diagnostic instrumental manipulations. However, the complication rate of some of these manipulations remains rather high. This in turn makes the problem of studying morphofunctional characteristics of extrahepatic biliary tracts in mammals very actual.

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TERMODINAMIKA VA ENTROPIYANING ORGANIZMGA VA KOINOTGA BOG'LIQLIGI

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Annotatsiya: Termodinamika va entropiya haqida fikr yuritar ekanmiz, avvalambor, bizda shunday savol tug'iladi: "Biz qanday tizimmiz? Ochiq yoki yopiq?" umuman olganda bu fizikaga oid savoldir. Barcha tirik mavjudotlar kabi biz ham ochiq sistema hisoblanamiz. Chunki modda va energiyani atrof muhit bilan almashinamiz. Misol uchun, kimyoviy energiyani oziq-ovqat shaklida qabul qilamiz va harakatlanish, gapirish, nafas olish, yurish kabi ishlarni bajaramiz. Yoki tanamizda sodir bo'ladigan metabolik reaksiyalar va h.k.lar. Yuqorida keltirilgan misollarni tariflash uchun biz ikkita fizikaviy qonun- termodinamikaning birinchi va ikkinchi qonunlarini ko'rib chiqamiz va ular biologik tizimlarga qanday ahamiyatga ega bo'lishini bilib olamiz.

Kalit so'zlar: termodinamika, ochiq tizim, izolatsiyalangan tizim, yopiq tizim, biologik tizim, issiqlik energiyasi, kimyoviy energiya, ochiq sistema, koinot, metabolik reaksiyalar

ЗАВИСИМОСТЬ ТЕРМОДИНАМИКИ И ЭНТРОПИИ ОТ ОРГАНИЗМА И ВСЕЛЕННОЙ

Аннотация: Когда мы думаем о термодинамике и энтропии, прежде всего, у нас возникает вопрос: «Что мы за система?» Открыто или закрыто?» — это вообще вопрос физики. Как и все живые существа, мы считаемся открытой системой. Потому что мы обмениваемся веществом и энергией с окружающей средой. Например, мы получаем химическую энергию в виде еды и совершаем такие действия, как движение, разговор, дыхание, ходьба. Или метаболические реакции, происходящие в нашем организме и т.д. Чтобы описать приведенные выше примеры, мы рассмотрим два физических закона — первый и второй законы термодинамики — и посмотрим, как они применимы к биологическим системам.

Ключевые слова: термодинамика, открытая система, изолированная система, закрытая система, биологическая система, тепловая энергия, химическая энергия, открытая система, Вселенная, метаболические реакции.

DEPENDENCE OF THERMODYNAMICS AND ENTROPY ON THE ORGANISM AND THE UNIVERSE

Abstract: When we think about thermodynamics and entropy, first of all, we have a question: "What kind of system are we?" Open or closed?" is generally a physics question. Like all living things, we are considered an open system. Because we exchange matter and energy with the environment. For example, we receive chemical energy in the form of food and perform actions such as movement, talking, breathing, walking. Or metabolic reactions occurring in our body, etc. To describe the above examples, we will look at two physical laws - the first and second laws of thermodynamics - and see how they apply to biological systems.

Keywords: thermodynamics, open system, isolated system, closed system, biological system, heat energy, chemical energy, open system, universe, metabolic reactions

KIRISH

Biologiyada termodinamika molekulalar yoki molekulalar jamlanmasida sodir bo'ladigan energiya almashinuvini o'rganadi. Biologik tizimni o'rganar ekanmiz unga atrof-muhitni ham dahldorligini bilib olamiz. Tizim va atrof-muhit birgalikda **koinot**ni tashkil qiladi.

Termodinamikada uchta tizim mavjud bo'lib bular: ochiq, yopiq va izolatsiyalangan.

Ochiq tizim o'zining atrof muhiti bilan energiya va modda almashina oladi. Bunga moddalar almashinuvi jarayoni kechadigan organizmlarni olishimiz mumkin.

Yopiq tizim o'zining atrof muhiti bilan faqatgina energiya almashina oladi modda emas. Bunga esa endi yuqorida aytib o'tganimizdek tizimga atrof-muhitni tasir etamiz. Misol uchun qozon qopqog'ini yopib qo'ysak bu yopiq tizim bo'ladi.

Izolatsiyalangan tizim o'zining atrof-muhiti bilan modda ham, energiya ham almashmaydi. Bu tizimga aynan misol keltirish sal qiyinroq lekin qopqog'i zich yopilgan maxsus idishlar, muzlatgichlar izolyatsiya qilingan tizimga o'xshaydi. Idish ichida narsalar bir-biri bilan energiya almashinishi mumkin, shuning uchun muzlatgich ichida muz biroz eriydi yoki ichimliklar soviydi, ammo tashqi muhit bilan juda kam energiya almashinadi.

ASOSIY QISM

Yuqoridagilardan kelib chiqqan holda "Biz ochiq tizimmizmi yoki yopiq?" degan savolga javob bersak ham bo'ladi. Boshqa organizmlar kabi biz odamlar ham ochiq tizim hisoblanamiz. Nega deganda, biz doimiy ravishda atrof-muhit bilan modda va energiya almashamiz. Misol uchun, tasavvur qiling, olma yeyapsiz yoki og'ir yuk ko'tarib ketyapsiz yoki bo'lmasa oddiygina nafas olib, nafas chiqarib, atmosferaga karbonat angidridni chiqarishni tasavvur qiling. Keltirib o'tgan barcha misollarimizda siz o'z atrof-muhitingiz bilan energiya va modda almashinuvini amalga oshiryapsiz.

Shunday ekan, tirik organizmlarda sodir bo'ladigan energiya almashinuvi fizika qonunlariga bo'ysunadi. Keling endi **termodinamikaning qonunlari** tirik organizmlarga qanday va qaysi jihatdan tegishli ekanini ko'rib chiqamiz.

Termodinamikaning 1-qonuni ushbu qonun juda keng doirada fikrlaydi. U koinotdagi umumiy energiya miqdorini hisobga oladi. Umuman olganda termodinamikaning birinchi qonuniga ko'ra, energiyani yaratib ham, yo'q qilib ham bo'lmaydi. U faqat bir jismdan boshqasiga o'tishi mumkin. Bir qaraganda bu ishonarsizdek tuyuladi lekin atrofimizda doimiy ravishda bubday holatlar kuzatiladi. Masalan, elektr lampochkasi elektr energiyasini yorug'lik energiyasiga aylantiradi, bir bilyard sharchasini boshqasiga urilganda, kinetik uzatadi va ikkinchisi harakatga keladi yoki o'simlikdagi fotosintez jarayoni bunda quyosh nuridan kelayotgan organik molekularda saqlanadigan kimyoviy energiyaga aylantiradi yoki bo'lmasam biz o'zimiz ham nafas olib, chiqarganimizda oxirgi marta istemol qilgan oziq-ovqatdan olgan energiyani kinetik energiyaga aylantiramiz. Bunday jarayonlarning hammasida bir – biriga energiya uzatayotganida issiqlik chiqadi. Bu esa o'z navbatida **issiqlik energiyasi** deyiladi. Endi esa bizda yana savol tug'iladi. Bunday energiya bizga nima uchun kerak?,- degan. Bu savolga javobni esa termodinamikaning 2-qonuni asosida ko'rib chiqamiz.

Termodinamikaning 2-qonuni bir qarashda termodinamiking birinchi qonuni yangilikday tuyuladi. Agar energiya hech qachon yaratilmasa yoki yo'q bo'lmasa, energiya qayta va qayta ishlanadi shunday emasmi? Xo'sh..? Energiya ko'proq shakldan kamroq va foydali shaklga o'tadi. Ko'rinib turibdiki, hayotimizda har bir energiyani uzatishda yoki energiya o'zgarishida energiyaning bir qismi yaroqsiz shaklga o'tayapti. Termodinamikaning 1-qonunida aytib o'tganimizdek bu yaroqsiz shakl issiqlik energiyasiga aylanadi. Agar ajralgan issiqlikdan

muayyan sharoitda foydalanish mumkin bo'lsa-da, ammo hech qachon 100% samaradorlik bilan boshqa turdagi energiyaga aylana olmaydi. Bundan shunday xulosa kelib chiqadi, har doim energiya uzatilganda, foydali energiya qanchadir miqdori foydasiz energiyaga aylanadi.

Demak, termodinamikaning 2-qonunidan korinib turibdiki, issiqlik ish bajarmayapti. Bu holda yana bizda savol tug'iladi. Unda issiqlik nima vazifani bajaradi o'zi? Ish bajarmaydigan o'sha issiqligimiz koinot tartibsizligini oshiradi. Tabiiyki, entropiyaga ham qo'shtirnoq ichida "tartibsizlik" deb qarash mumkin. Issiqlik esa entropiyani oshiradi. Biz bilamizki issiqlik issiq jismdan sovuq jism tomonga qarab harakatlanadi va bunda issiq jismdagi molekulalar harakati sekinlashadi va sovuq jismdagi molekulalar harakati tezlashadi, bu barcha molekulalar bir xil o'rtacha tezlikda harakatlanguncha davom etadi. Qisqacha aytganda kimyoviy reaksiya yoki o'zaro bir-biri bilan bog'liq reaksiyalar ketma-ketligi kabi har qanday jarayon koinotning umumiy energiyasini oshiradi.

XULOSA

Termodinamikaning 1-qonuni energiya saqlanish to'g'risida bo'lsa, ikkinchisi energiya past entropiyadan yuqori entropiyaga ya'ni butun koinot bo'ylab harakatlanishi haqida gapiradi.

Endi esa entropiyaning biologik tizimdagi ahamiyatini ko'rib chiqsak. Butun tanamizni transport deb oladigan bo'lsak, unda almashinuv va ayirboshlash kabi tizimlar mavjud. Buni tushunish uchun qisqacha to'xtalib o'tamiz. Misol uchun tanamizni oldinga harakatlantirish uchun biz kinetik energiyani potensial energiyaga aylantiramiz. Ammo biz bunga yuqori samaradorlikka erisha olmaymiz, chunki energiya kata qismi faqat issiqlikka aylanadi. Issiqlikning ba'zi qismi tanamizda gameostazni normal ushlab turishda ishtirok etsa ba'zi qismi esa atrof muhitga tarqalib ketadi. Bundan ko'rinib turibdiki, faqatgina kimyoviy reaksiyalargina emas balki mikroblardan tortib to odamgacha hamma hammasi koinot entropiyasini oshirishda ishtirok etadi.

Normal odamda barcha ichki organlari o'z tanasiga mutanosib tarzda joylashadi. Nafaqat joylashadi balki hajmi va bosimi ham bir meyorda bo'ladi. Termodinamika va entropiya ham xuddi mana shu jarayonda kata ahamiyatga ega. Ya'ni kasal odamning organizmlari hajmi kattalashadi, bosim oshib ketadi, qon bosimi ko'tariladi va bularning hammasi termodinamika bilan bog'liq tomonlari bor. Demak, bundan ko'rinib turibdiki termodinamik darajalarning o'zgarishi, kasallikda sistemaning entropiyasi ham ortadi. Bundan tashqari yana ko'plab jarayonlar, masalan, embriogenez davrida, regeneratsiya jarayonlarida va xavfli to'qimalarning o'sishida ham sistemaning entropiyasi ortib borishi aniqlandi.

Prigojin tarifi ko'ra, tirik organizmlar-yuqori darajadagi tartibga ega bo'lgan past entropiyali, ya'ni termodinamik nuqtai nazardan beqaror sistemalar. Entropiyaning eng yuqori qiymatga – maksimumga intilishi organizmni parchalanishga olib keladi

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ПУТИ УЛУЧШЕНИЯ РЕЗУЛЬТАТОВ ХИРУРГИЧЕСКОГО ЛЕЧЕНИЯ ИШИОРЕКТАЛЬНЫХ И РЕТРОРЕКТАЛЬНЫХ ФОРМ ОСТРОГО ПАРАПРОКТИТА

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Аннотация: В основу настоящего исследования положен опыт комплексной диагностики и хирургического лечения 119 больных со сложными формами острого парапроктита – ишиоректальными и ретро ректальными локализациями. Оптимизация тактико-технических аспектов хирургического лечения больных со сложными формами парапроктита, предусматривающей проведение операций в 2 этапа при высокой (глубокой) локализации абсцесса (22,3% больных) и выполнения первично-радикальных вмешательств при низкой локализации гнойника позволило снизить осложнения в ближайшем послеоперационном периоде с 38,4% до 11,9%, а также формирования параректальных свищей с 11,5% до 4,6% и рецидива заболевания с 9,6% до 2,9% в отдаленном периоде.

Ключевые слова: Ишиоректальный парапроктит, ретро ректальный парапроктит, сложные формы, хирургическое лечение.

WAYS TO IMPROVE THE RESULTS OF SURGICAL TREATMENT OF ISCHIORECTAL AND RETRORECTAL FORMS OF ACUTE PARAPROCTITIS

Abstract: The present study is based on the experience of complex diagnostics and surgical treatment of 119 patients with complex forms of acute paraproctitis - ischiorectal and retrorectal localizations. Optimization of the tactical and technical aspects of surgical treatment of patients with complex forms of paraproctitis, involving operations in 2 stages with high (deep) localization of the abscess (22.3% of patients) and performing primary radical interventions with low localization of the abscess, made it possible to reduce complications in the immediate postoperative period from 38.4% to 11.9%, as well as the formation of pararectal fistulas from 11.5% to 4.6% and recurrence of the disease from 9.6% to 2.9% in the long term.

Keywords: Ischiorectal paraproctitis, retrorectal paraproctitis, complex forms, surgical treatment.

INTRODUCTION

Paraproctitis is one of the most common proctological diseases, in the structure of which it gives way only to hemorrhoids, anal fissures and colitis in the structure of which, and in the general structure of urgent proctological diseases, paraproctitis occupies a leading position. The incidence of paraproctitis is about 0.5% of the total population, among all patients with general surgical diseases - 4-5%, and among patients with diseases of the rectum - 20-40%.

The most difficult to diagnose, and dangerous in terms of their complications and outcomes, are complex forms of purulent paraproctitis, which include: ischiorectal, pelviorectal, retrorectal paraproctitis, the frequency of which, according to A.M. Madaminova (2020) is 12.3-19.5%. Complex forms of acute paraproctitis have their own characteristics of clinical manifestation, diagnosis and treatment tactics. According to Bisset C.N. (2017), Jamshidi R. (2018), patients turn to the later stages of the disease or are hospitalized in surgical hospitals with different diagnoses due to the difficulty and complexity of diagnosing the disease, as a result of which anaerobic infection often accompanies and septic complications develop, the frequency of

which is up to 22% of fatal cases. For the diagnosis of complex forms of paraproctitis, ultrasound, CT and various laboratory research methods have been introduced and used. However, due to the topographic and anatomical features of the ischiorectal and rectal space and the possibility of anaerobic infections, the search for ways of early diagnosis of the disease is of particular importance.

The main modern concepts of the principles and trends in the surgical treatment of complex forms of acute paraproctitis do not change - the preservation of the muscle structures of the anal sphincter and the reduction of the recurrence of the disease, only the approaches change. In 13–20% of the operated patient's complications of a purulent-inflammatory nature occur, in 4–10% of patients there is a relapse or the transition of the disease to a chronic form of the course, in 17–36% of patients there are symptoms of discomfort in the anus, in 6–8% of patient's insufficiency develops. anal sphincter (E.E. Bolkvadze (2017).

Also, due to the peculiarities of access and surgical intervention, in the form of restrictions for revision and manipulation, there are often difficulties in processing the internal hole during radical operations. In addition, existing surgical interventions using wide incisions provide sufficient freedom of manipulation, but are extremely traumatic for the patient. According to the literature, the dissection of the anal sphincter fibers, the frequency of vascular damage, dissection of the anococcygeal ligament and resection of the coccyx in complicated forms of acute paraproctitis do not satisfy practical surgeons.

In this regard, the choice of surgical access, depending on the topographic and anatomical features of the location of the purulent focus in the pararectal space and the possibilities of diagnostic technologies, is a promising direction in the treatment of acute paraproctitis.

Purpose of the study: improving the results of surgical treatment of patients with complex forms of acute paraproctitis.

MATERIALS AND METHODS

The present study is based on the experience of complex diagnostics and surgical treatment of 119 patients with complex forms of acute paraproctitis - ischiorectal and retrorectal localizations, operated in the department of coloproctology of the clinic of Samarkand State Medical University for the period 2017-2022, which accounted for 32.3% of the total number operated patients with acute paraproctitis. The study did not include 2 patients with pelviorectal paraproctitis due to the small number of observations.

Patients were divided into two groups depending on the period and volume of treatment and diagnostic care. The comparison group (retrospective analysis) included 52 patients who underwent surgical treatment, which consisted in opening the pararectal abscess in the traditional way. The main group consisted of 67 patients, for the diagnosis and surgical treatment of which modern methods of instrumental research were used (endorectal sonography, MRI), as well as improved surgical methods of treatment, providing for delayed liquidation of the internal opening of the pararectal abscess in a 2-stage and hydropressive ozone therapy in the treatment of pararectal wounds.

The age of the patients ranged from 18 to 83 years. There were 104 men (87.3%), women 15 (12.7%), which corresponds to a ratio of 7:1. The disease more often occurred in people of the most able-bodied age from 18 to 59 years, which accounted for 87.4% of cases. Patients in the elderly and advanced age accounted for 12.6%.

Among the studied patients, in 88 (74%) cases, a primary complex form of acute paraproctitis was noted, in 31 (26%) - a recurrence of a complex form of acute paraproctitis.

In 60.4% of cases in patients with complex forms of acute paraproctitis, concomitant diseases of the anal canal were identified, the most common chronic hemorrhoids - 25.1% and acute hemorrhoids - 13.4%. Anal fissure was revealed in 14.3% of patients. Proctitis and hypertrophy of anal papillae were diagnosed less frequently - 7.6%.

With complex forms of acute paraproctitis, 41.3% of patients were admitted to the hospital up to 3 days from the onset of the disease, 26.9% - from 3 to 6 days, 23.7% - from 7 to 9 days and 7.9% over 10 days.

It should be noted that in patients with retrorectal and ischiorectal forms of acute paraproctitis, there was a significant increase in endotoxemia, indicating the progression of the disease.

Indicators of endotoxemia in patients with complex forms of acute paraproctitis are significantly increased. Thus, the indicators of LII in the ischiorectal form reached up to 9.1 ± 0.8 , and in the retrorectal form up to 10.4 ± 2.4 . GPI in ischiorectal form was up to 12.9 ± 2.3 , and in retrorectal form up to 16.9 ± 1.7 . This was due to the prescription of the disease, due to the late treatment of patients to a specialist.

Of 119 patients with complex forms of acute paraproctitis, 83 (69.7%) patients underwent sigmoidoscopy (RRS), 36 (30.3%) patients did not undergo RRS due to the presence of pain syndrome. Sigmoidoscopy was performed using an apparatus with a fiber optic system, which made it possible to determine the presence or absence of an infiltrate bulging into the intestinal lumen (Fig. 1.1). During the examination, it was revealed that the mucous membrane in the area of infiltration is hyperemic, the vascular pattern is enhanced, mesh. In some cases, it was possible to establish the localization of the internal opening in the region of anal crypts.



Figure 1.1. Patient P., 47 years old. RRS revealed infiltrative edema on the posterior wall of the rectum in retrorectal acute paraproctitis.



Figure 1.2. Patient K., 52 years old. Endorectal sonography: there is a fluid mass in the ischiorectal region.



Figure 1.3. - MRI patient A. born in 1979 MRI: axial section, flow in the right ischiorectal space. hyperintense signal from the purulent cavity

For the purpose of topical diagnosis of pararectal abscess in patients with complex forms of acute paraproctitis and to assess the exact localization, size, depth of the purulent cavity from the skin, the degree of involvement of the pathological process in the walls of the rectum and external sphincter, the presence of an additional passage and purulent leakage in all 119 subjects perineal and transabdominal ultrasound were performed.

In the main group of patients, in order to clarify the location of the purulent cavity, 55 (82.0%) patients underwent endorectal sonography (Fig. 1.2). The informativeness of endorectal sonography in identifying purulent cavities and streaks in pararectal tissue in complex forms of acute paraproctitis was 97.1%, in determining the location of the alleged crypt - 60.3%.

In 16 (23.2%) patients in complex clinical cases in the main group, according to indications, MRI of the pelvic organs was additionally performed (Fig. 1.3). Using this research method, reliable information (93.7%) was obtained on the location and nature of purulent contents, recurrent and residual forms of the disease.

All 119 patients with complex forms of acute paraproctitis underwent surgical interventions.

All patients of the comparison group with acute paraproctitis underwent surgical interventions with the expansion of indications for the use of primary radical operations, involving the simultaneous opening of the abscess, the elimination of the purulent tract and its internal opening. At the same time, in ischiorectal lesions, an abscess was opened with excision of the affected crypt. In case of retrorectal localization, an abscess was opened and drained with a ligature. When the abscess was located in the posterior-rectal space, the coccygeal-anal ligament was additionally dissected.

Patients in the comparison group underwent an opening of paraproctitis into the lumen of the rectum with the elimination of the internal opening - 59.6%. Opening of paraproctitis with draining ligature and drainage of the purulent cavity - 13.4%. 17.3% of patients underwent opening of paraproctitis with drainage of the purulent cavity. Opening of paraproctitis with dissection of the anal-coccygeal ligament and drainage of the purulent cavity - 5.7%, opening of paraproctitis with resection of the coccygeal bone and drainage of the purulent cavity - 3.8%.

However, during primary radical operations, it was not always possible to clearly localize the purulent course, which is associated with a pronounced inflammatory edema of the soft tissues and a high localization of the abscess. Also, excessive radicalism led to the destruction of the muscle structures of the sphincter and the pelvic floor with the worst results in the rehabilitation of patients (Fig. 2.1, 2.2, 2.3).



Figure 2.1. - Patient D., 33 years old. Condition after opening paraproctitis with dissection of the anal sphincter in ischiorectal paraproctitis



Figure 2.2. Patient A. 47 years old. Condition after opening paraproctitis with dissection of the anal-coccygeal ligament with retrorectal paraproctitis



Figure 2.3. Patient S., 41 years old. Types of wound after opening retrorectal paraproctitis with resection of the coccygeal bone

In the main group, the choice of the volume of surgical intervention depended on the following factors: the location and volume of the purulent cavity, depending on the location in complex forms of acute paraproctitis, the degree of obesity, the shape of the coccygeal bone. Also, for the purpose of intraoperative prevention of damage to the neurovascular bundle, anal sphincter muscles, anal coccygeal ligament and damage to the coccygeal bone, a differentiated approach to the choice of access and incision was used to open complex forms of acute paraproctitis under the

control of perineal or endorectal ultrasound.

In 47 (70.1%) cases, in patients of the main group, an internal opening of the primary purulent tract was detected in relation to the external anal sphincter, in 20 (29.8%) patients we were unable to find an internal opening due to severe soft tissue edema against the background of a purulent inflammatory process. In patients with ischiorectal form of acute paraproctitis, in 26.6% of cases, the nature of the primary purulent course in relation to the external anal sphincter was intrasphincteric. In 20.0% of cases, patients had a transsphincteric type and in 28.9% - an extrasphincteric type of primary purulent course. Also, in patients with the retrorectal form of acute paraproctitis, 27.3% of patients had an intrasphincteric, 13.6% transsphincteric, and 18.2% extrasphincteric location of the purulent passage.

In 38.8% of cases, paraproctitis was opened into the lumen of the rectum with the elimination of the internal opening, 31.3% - opening of paraproctitis with draining ligature and drainage of the purulent cavity, 7.4% - opening of paraproctitis with drainage of the purulent cavity.

In 15 (22.4%) cases, the purulent cavity was punctured primarily under ultrasound control and active drainage was established (Fig. 3.1, 3.2, 3.3). These patients after the normalization of laboratory and instrumental studies, 3-5 days after the removal of the inflammatory process around the anal canal and the area of the purulent cavity, the 2nd stage of the operation was performed. Under spinal anesthesia, from 5 to 10 ml of a solution of brilliant green and a solution of hydrogen peroxide 3% in a ratio of 2:1 were injected into the tube located in the purulent cavity. After that, a revision of the anal canal was made in order to identify the primary purulent passage in the affected crypt with the presence of a dye coming from it. The study revealed a purulent course of the primary fistula in 15 cases. Further, after processing the internal hole, the mucous membrane was brought down according to the Jad Roble method.

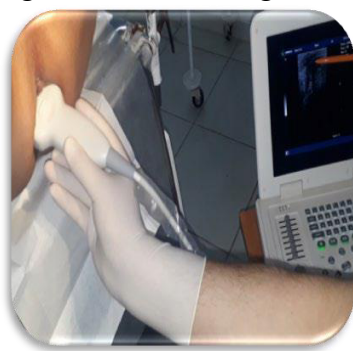


Figure 3.1. Determination of the localization of the purulent cavity under ultrasound control



Rice. 3.2. Ultrasound-guided active drainage technique



Rice. 3.3. Hydropressive washing of the purulent cavity with an ozonized solution

Of the 67 patients of the main group, 56 (81.2%) patients underwent a bacteriological study after puncture of purulent contents during surgery in order to determine the microbial landscape, depending on the clinical forms of complex forms of acute paraproctitis and sensitivity to antibiotics.

The results of the study of bacterial cultures of patients with complex forms of acute paraproctitis showed that in most cases there is not a monoculture, but a mixed microbial flora. In all forms of complex forms of acute paraproctitis, aerobic infection was more common, mainly E.

Coli (71.4%), and St. Aureus (69.6%). Anaerobic non-clostridial infection was detected in 19.6% of patients, anaerobic clostridial infection - in 3.6%. After receiving the results of the bacteriogram from the purulent cavity, the sensitivity of microorganisms to antibiotics was determined.

In complex forms of acute paraproctitis, aerobic and anaerobic infections were identified. St. was the most sensitive. Aureus to cefazolin, ciprofloxacin and gentamicin. E. coli is more susceptible to kanamycin, ceftriaxone, and ciprofloxacin. In the anaerobic non-clostridial form of acute paraproctitis, sensitivity to cefazolin, ciprofloxacin, gentamicin, doxycycline, kanamycin and metronidazole is more pronounced.

RESULTS AND DISCUSSION

In operated patients for ischiorectal and retrorectal acute paraproctitis, the main cause of postoperative complications in the comparison group was damage to the musculoskeletal apparatus of the pelvic organs and muscle structures of the sphincter during primary-radical methods of operations in the acute phase of the disease, without intraoperative localization of the pararectal abscess according to ultrasound data.

Traumatic access with damage to the neurovascular bundle was accompanied by severe pain. In patients in the control group on the 1st day after surgery, unbearable pain was noted in 20.8%, while in the main group - 7.2%. On the 3rd day in the control group, 41.7% had severe pain, in the main group - 21.7%. In the control group, pain was noted on the 6th day of the postoperative period up to 18.4%, in the main group this amount reached only 6.2%. The intensity of pain was associated with dissection of the muscles of the anal sphincter, anal-coccygeal ligament with a deep semi-oval incision with the intersection of the pudendal nerve. In the main group, the lower intensity of pain is associated with an adequately selected access according to ultrasound navigation data.

As the results showed on the 3rd day after the operation, the level of blood leukocytes decreased relative to the initial values to $8.4 \pm 0.4 \times 10^9/l$ (in the comparison group to 9.3 ± 0.9), and by 5- on the first day of the postoperative period, they were 4.2 ± 0.4 and $6.1 \pm 0.5 \times 10^9/l$, respectively. There was also a decrease in ESR, which at the same time remained the highest in the comparison group and amounted to 21.5 ± 2.0 and 24.3 ± 4.7 mm/h on the 3rd day of the postoperative period, respectively, and on the 5th day of the postoperative period, they decreased to 11.7 ± 1.7 and 15.2 ± 3.9 mm/hour, respectively.

In the postoperative period, a statistically significant decrease in endotoxemia was noted by the 5th day of the postoperative period. Thus, the indicators of LII in the main group by this period of time decreased to 6.1 ± 0.8 ($p < 0.05$), and in the comparison group to 8.3 ± 0.9 . In complex forms of acute paraproctitis, the GPI indicators on the 3rd day after the operation decreased relative to the initial values to an average of 9.8 ± 1.5 ($p < 0.001$), and in the comparison group to 17.3 ± 3.1 . On the 5th day after the operation, these indicators decreased to an average of 7.1 ± 1.4 ($p < 0.001$) and 10.4 ± 2.6 ($p < 0.05$), respectively.

In the early postoperative period, under the control of ultrasound, all patients of the main group underwent monitoring of changes in the residual cavity in order to exclude residual and the occurrence of recurrent purulent cavities (Fig. 4.1, 4.2). In 2 cases, on the 3rd and 4th day of the postoperative period, a residual purulent cavity was detected, which, after additional drainage and treatment with an ozonized solution, were cleared of a purulent-necrotic process. In 3 (4.5%) patients, an additional purulent bleed was found in the form of a residual purulent cavity. These patients, also repeatedly, under general anesthesia, underwent additional opening of the purulent cavity.



Figure 4.1. Patient S., 29 years old. 4 days after the opening of ischiorectal paraproctitis with the elimination of the internal opening. There is a positive trend in the reduction of the purulent cavity



Figure 4.2. Patient Zh., 51 years old. 4-day postoperative opening of retrorectal paraproctitis. Residual purulent cavity

When opening a pararectal abscess in the comparison group, a resection of the coccygeal bone was forced in 3.8%, dissection of the anal-coccygeal ligament in 7.6%. Damage to the anal sphincter was noted in 17.3% in the comparison group and 5.9% in the main group of patients.

On the 3rd-5th day after the operation, 13.4% of patients had symptoms of general intoxication and local spread of the purulent process into the surrounding adrectal tissue. The reasons were associated with undiagnosed intraoperatively purulent cavities and streaks during the first operation and the occurrence of a residual purulent cavity. These patients underwent re-opening of purulent cavities and streaks. In patients of the main group, the amount of residual purulent cavity was 2.9%, in the comparison group - 9.6%. Recurrent purulent cavity in the main group was found in 4.5%, in the control group - 11.5%.

The terms of complete healing of the pararectal wound in the main group was 26.1 ± 1.3 days (in the comparison group 31.5 ± 2.2). The terms of treatment in the hospital were reduced to 5.97 ± 0.24 beds/days (in the comparison group 9.23 ± 0.74)

Tracked long-term results in terms of 1 to 5 years. 5 patients from the comparison group were admitted again with a relapse of the disease, only 2 patients from the main group had a relapse of paraproctitis. Pararectal fistulas formed in 6 (11.5%) patients in the comparison group, in the main group in 3 (4.4%). Partial functional insufficiency of the anal sphincter was detected in 7 (13.5%) patients in the comparison group, in the main group in 3 (4.4%).

Thus, optimization of the methods of complex treatment of patients with complex forms of acute paraproctitis with intraoperative use of endorectal sonography, differentiated surgical tactics, involving operations in 2 stages with high (deep) localization of the abscess and primary radical interventions with low localization of the abscess, made it possible to reduce the frequency immediate postoperative complications from 38.4% to 11.9%, formation of pararectal fistulas from 11.5% to 4.6% and recurrence of the disease from 9.6% to 2.9%, reduce the healing time of pararectal wounds by 5.4 day and terms of inpatient treatment up to 3.2 days.

CONCLUSIONS

The main reason for the unsatisfactory results of surgical treatment of patients with complex forms of acute paraproctitis are tactical and technical errors in opening and draining the

pararectal purulent cavity due to pronounced tissue edema and high localization of the process and excessive radicalism in the desire to eliminate the internal opening of the purulent tract with damage to the neuro-vascular bundle, anal coccygeal ligament and anal sphincter muscles.

1. The information content of radiation diagnostic methods - endorectal and perineal ultrasound was 97.1%, MRI - 93.7%, which justifies the need for their use in topical diagnosis of complex forms of paraproctitis and monitoring of purulent cavities of the pararectal region in the postoperative period.

2. Optimization of the tactical and technical aspects of surgical treatment of patients with complex forms of paraproctitis, involving operations in 2 stages with high (deep) localization of the abscess (22.3% of patients) and performing primary radical interventions with low localization of the abscess, made it possible to reduce complications in the near future. in the postoperative period from 38.4% to 11.9%, as well as the formation of pararectal fistulas from 11.5% to 4.6% and recurrence of the disease from 9.6% to 2.9% in the long-term period.

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