



Section I. Information on project development

I.I. EVENTS

SUMMER SCHOOL WITHIN THE FRAMEWORK OF THE PROJECT (11 July 2023)



From June 26 to July 6, 2023, within the framework of Erasmus+ Program Project 101082831 - BERNICA - ERASMUS-EDU-2022-CBHE "Building Educational and Research Capacities in Nutrition and Dietetics in Central Asia," a Summer School was held in Issyk-Kul, Kyrgyzstan. The event included representatives from Kazakhstan (Medical University of Karaganda, Kazakh National Medical University named after Asfendiyarov), Kyrgyzstan (International Higher School of Medicine, Osh State University), Tajikistan (Tajik State Medical University named after Avicenna, Khatlon State Medical University), and Uzbekistan (Tashkent Medical Academy, Bukhara State Medical University).



The Summer School was organized by the project coordinator, Professor Jusupov Kenesh Uskenbaevich Jusupov, and the team from the International Higher School of Medicine (Kyrgyzstan).



The Summer School program focused on integrating nutritional science teaching material into Moodle and pedagogical design of teaching. Lecturers included Dr. Manuela Konrad, Erika Pernold, and Anastasia Sfiri from Austria; and Dr. Indrani Kalkan and Dr. Fatmanur Özer Arpa from Turkey. Participants worked in international and interdisciplinary teams to develop modules for both pre-diploma and post-diploma students.



I.2. EQUIPMENT

Bioimpedansometry is an effective tool for studying the nutritional status of patients

Trusted by top professionals in their field, the accurate and precise InBody 770 body composition analyzer provides standard data like Percent Body Fat, Skeletal Muscle Mass, and BMR, plus a specialized Body Water Result Sheet for double the outputs.

- Get advanced insights from exclusive outputs like Visceral Fat Area, Whole Body Phase Angle, and Reactance.
- <https://inbodyusa.com/products/inbody770/>

Bioimpedanceometry

- is an important, relevant, accessible, reproducible method for monitoring human body composition
- a tool for managing detected abnormalities and correcting nutritional status
- its use allows trainees to expand their competencies in patient health management



ID John Doe Height 5 ft 08.4 in Age 22 Gender Male Test Date / Time 04.23.2021 10:22

Body Composition Analysis	
Intracellular Water (lb)	70.5
Extracellular Water (lb)	39.0
Dry Lean Mass (lb)	149.9
Body Fat Mass (lb)	13.4
Total Body Water (lb)	109.6
Lean Body Mass (lb)	163.3
Body Fat Mass (lb)	13.4

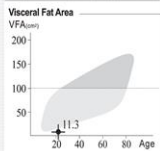
Muscle-Fat Analysis	
Weight (lb)	163.3
SMM (Standardized Muscle Mass) (lb)	87.5
Body Fat Mass (lb)	13.4

Obesity Analysis	
BMI (kg/m ²)	24.1
PBF (Percent Body Fat)	8.2

Segmental Lean Analysis	
Right Arm (lb)	9.04
Left Arm (lb)	8.93
Trunk (lb)	116.0
Right Leg (lb)	37.3
Left Leg (lb)	111.3

ECW/TBW Analysis	
ECW/TBW	0.357

Body Composition History	
Weight (lb)	164.2, 163.0, 163.2, 163.3, 163.5, 162.1, 162.8, 163.3
SMM (lb)	88.5, 89.2, 87.1, 87.2, 88.0, 87.1, 86.5, 87.5
PBF (%)	9.0, 8.5, 8.7, 8.0, 9.2, 8.5, 8.3, 8.2
ECW/TBW	0.357, 0.362, 0.359, 0.358, 0.362, 0.360, 0.356, 0.357



Body Fat - Lean Body Mass Control
 Body Fat Mass + 0.0 lb
 Lean Body Mass + 0.0 lb
 (+) means to gain fat/lean (-) means to lose fat/lean

Segmental Fat Analysis
 Right Arm (0.2 lb) = 16.5%
 Left Arm (0.2 lb) = 16.7%
 Trunk (6.0 lb) = 62.1%
 Right Leg (2.2 lb) = 59.6%
 Left Leg (2.2 lb) = 59.5%

Basal Metabolic Rate
 1838 kcal

Leg Lean Mass
 45.1 lb

TBW/LBM
 73.1%

Reactance
 RA LA TR RL LL
 Xc100 18.7 19.0 2.2 19.5 18.6
 Xc200 27.6 27.7 3.2 30.6 29.8
 Xc300 19.8 18.4 1.6 19.5 19.6

Whole Body Phase Angle
 7.3°
 RA LA TR RL LL
 φ 1) 50Hz 6.7 6.6 9.4 7.8 7.8

Results Interpretation QR Code
 Scan the QR Code to see results interpretation in more detail.

Impedance
 RA LA TR RL LL
 Z100 180.2 201.2 205.4 274.4 282.4 274.6
 Z50 282.1 286.2 266.2 273.1 266.3
 Z30 256.3 249.0 215.2 254.2 219.9
 Z20 206.5 210.0 171.1 193.9 193.8
 Z10 198.4 202.4 155.5 186.9 182.8
 Z0 193.5 197.3 148.8 181.6 177.6



I.3. DISSEMINATION
Results of using the inbody 770

InBody 770 device, purchased as part of the BERNICA project, is used in scientific research under the grant project AP19676870 with funding from the Ministry of Education and Science of the Republic of Kazakhstan “Pathogenetic significance of the structural and functional imbalance of the vascular system in the pulmonary-cardio-renal continuum” under the leadership of Ibrayeva L.K., MD .Sc., Professor of the Department of Internal Medicine, Karaganda Medical University. For the International Youth Forum, young scientists prepared a poster report describing the results of bioimpedance analysis conducted in patients with COPD and ILD.



STUDYING THE RELATIONSHIP OF BIOIMPEDANOMETRY INDICATORS WITH MARKERS OF CARDIAC DYSFUNCTION IN PATIENTS WITH CHRONIC PULMONARY DISEASES

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NJSC "Medical University of Karaganda"



AMMO'24

INTRODUCTION:

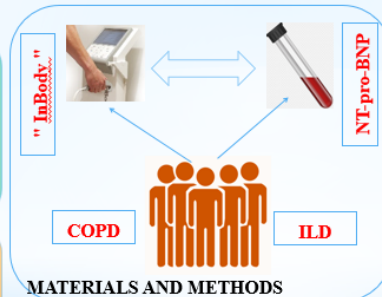
Bioelectrical impedance analysis has been increasingly used in recent years to assess the biochemical composition of the body and assess the general status of the body. Bioimpedance has shown broad prognostic value in clinical studies.

PURPOSE OF THE STUDY:

To analyze bioimpedance measurements in patients with chronic lung diseases (ILD, COPD) in relation to parameters of respiratory and cardiac dysfunction.

CONCLUSIONS:

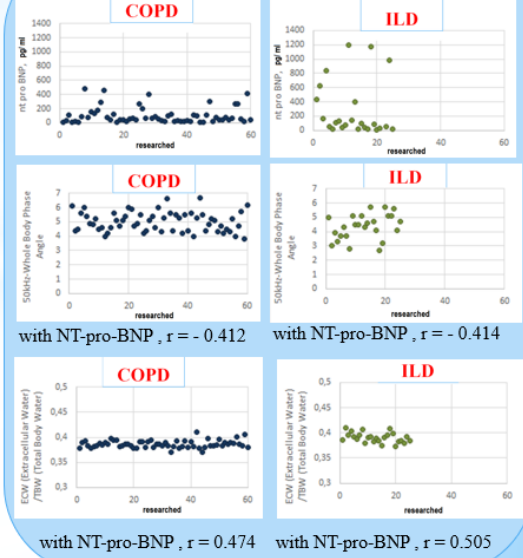
1. The phase angle, reflecting the general condition of the body, is a predictor of the severity of the disease;
2. A higher phase angle corresponded to a lower level of NT-pro-BNP - which allows the indicator to be used to predict cardiac dysfunction;
3. In patients with ILD, the level of NT-pro-BNP was higher than in patients with COPD.



Bioimpedance indicators	Patients with COPD (M ± m) (CI 95%)	Patients with ILD (M ± m) (CI 95%)
S0Hz-Whole Body Phase Angle	5.01±0.1 (4.8-5.2)	4.33±0.2 (4.2-4.4)
VFA (Visceral Fat Area), cm ²	97.21±6.5 (82.7-111.7)	134.05±16.1 (126-142.1)
FMI (Fat Mass Index)	6.61 ± 0.6 (5.6 - 7.6)	9.04 ± 1.2 (8.3 - 10.6)
FFMI (Fat Free Mass Index)	17.61 ± 0.4 (17.0 - 18.2)	15.6 ± 0.4 (15.4 - 15.8)
(Extracellular Water) / total amount of water in the body TBW (Total Body Water)	0.386±0.001 (0.385-0.388)	0.391±0.002 (0.389-0.392)
TBW/FFM skeletal muscle mass index	73.71 ± 0.03 (73.65 - 73.76)	73.38 ± 0.06 (73.35 - 73.41)
(Skeletal Muscle Mass) / WT (dry body weight)	41.02±0.8 (39.6-42.5)	33.74±1.5 (33.0-34.5)
BMR (Basal Metabolic Rate)	1494.73±83.5 (1440.9-1548.5)	1211.08±39.9 (1206.1-1236.1)

* - p < 0.05

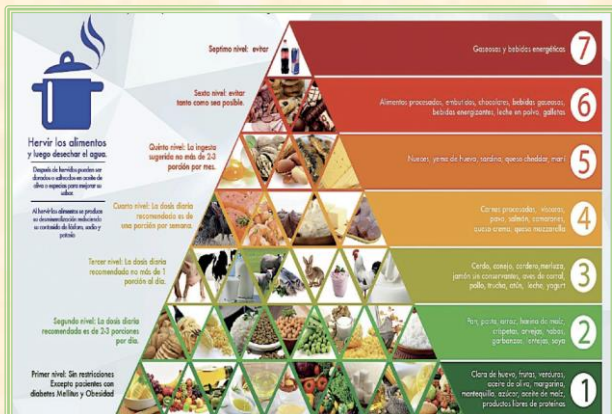
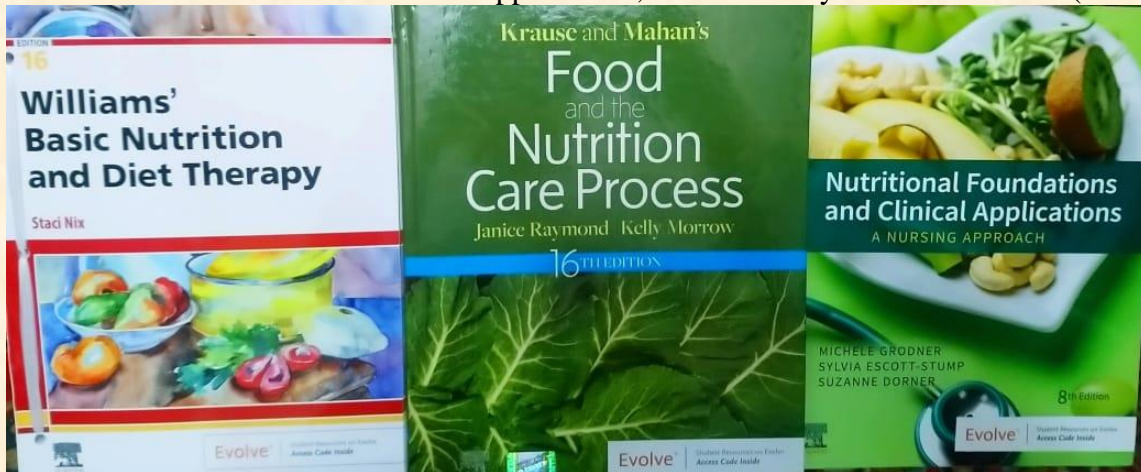
RESULTS:



I.4. DISSEMINATION literary sources

At the Karaganda Medical University clinic, information leaflets on nutritional support are provided to patients. These leaflets are based on monographs acquired as part of the BERNICA project, including:

- Williams' Basic Nutrition & Diet Therapy, 16th Edition by Staci Nix McIntosh (2021)
- Krause and Mahan's Food and the Nutrition Care Process, 16th Edition by Janice L. Raymond (2022)
- Nutritional Foundations and Clinical Applications, 8th Edition by Michele Grodner (2023).



Dietary Treatment

The following are recommendations in the dietary treatment of hypercalcemia:

- Limit daily calcium intake to 600-800 mg/day unless otherwise instructed
- Limit dietary oxalate, especially when calcium intake is reduced; high oxalate levels are found in strong teas; nuts; chocolate; coffee; colas; green, leafy vegetables (eg, spinach); and other plant and vegetable products
- Avoid excessive purines and animal protein (< 1.7 g/kg of body weight)
- Reduce sodium (salt) and refined sugar to the minimum possible
- Increase dietary fiber (12-24 g/day)
- Limit alcohol and caffeine intake
- Increase fluid intake, especially water (sufficient to produce at least 2 L of urine per day)

Section 2. The meaning of feedback

ENHANCING SYLLABUS DEVELOPMENT THROUGH FEEDBACK. A STEP IN THE ERASMUSPLUS BERNICA PROJECT

Dear Consortium Members,

We are excited to share the latest developments within the Erasmusplus BERNICA project, specifically focusing on the work of the Karaganda Medical University (KMU) quality group. Dr. Olzhas Zhamantayev and Tleuzhan Abugaliyeva, members of our consortium, have taken a small step toward improving the quality of our shared syllabi.

Dr.Zhamantayev and Dr.Abugaliyeva have designed a feedback form to collect insights, opinions, and concerns related to the syllabi currently under development. This form serves as a valuable resource for all stakeholders involved in the project.

Why feedback collection is a necessary tool?

Early identification of gaps and improvements

Alignment with real-world needs

Enhanced learning experiences

At the early stages of syllabus development, gathering feedback allows us to identify gaps, inconsistencies, and areas for improvement. By involving stakeholders, whether educators, students, or practitioners, we can fine-tune our syllabi to meet their needs effectively. The Erasmusplus BERNICA project aims to create syllabi that are not only academically rigorous but also relevant to real-world contexts. Feedback from students, academics, practitioners and industry experts ensures that our syllabi align with current trends, practices, and challenges. Moreover, constructive feedback enables us to enhance the overall learning experience for students. By addressing concerns and incorporating valuable suggestions, we can create syllabi that engage learners, foster critical thinking, and promote practical skills.

Numerous studies emphasize the impact of feedback on educational outcomes. For instance:

- In a meta-analysis by Hattie and Timperley (2007), feedback was found to have a substantial effect size on student achievement. It enhances learning when it is specific, timely, and actionable.
- Research by Aldridge and Bianchet (2022) highlights the student feedback, obtained through a learning environment survey, serves as a valuable starting point for involving students in co-construction and classroom improvement. Findings suggest that teachers can enhance the learning environment by engaging students in meaningful co-construction activities.

Access the Feedback Form

We invite all consortium members to explore the feedback form created by KMU quality group members.

You can find it on the Google Forms platform: Feedback form <https://forms.gle/DnDwBKXxiK5EerVd9>.

The image displays four overlapping screenshots from a syllabus and a feedback form. The first screenshot shows the 'Course Communications' and 'Course overview' for 'NUTRITION IN DISEASE. CLINICAL NUTRITION IN PULMONARY DISEASES (Module 3. Nutrition in Disease)'. It includes the lecturer's name, position, and contact information. The second screenshot shows 'Learning methods' and 'Method: Please tick as appropriate' with a checklist of activities like Lecture, Exercises, Survey in institutions, etc. The third screenshot shows 'Lesson 1. Dietary Strategies for COPD. Weight Management in COPD' with 'Chronic obstructive pulmonary disease' and 'After this lesson you will be able to:'. The fourth screenshot shows a 'Course feedback' form with questions about satisfaction and relevance, and a 'FEEDBACK' section.

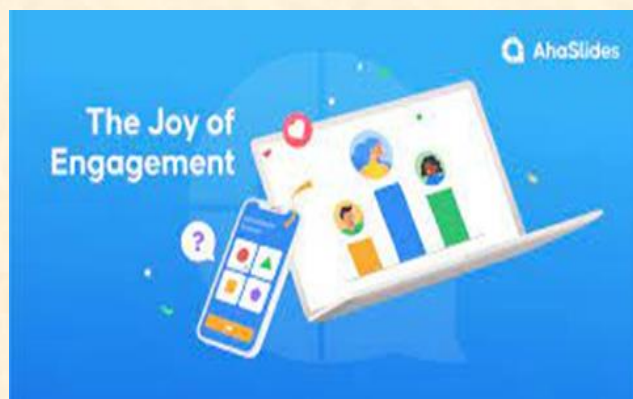
Feel free to disseminate this link widely within the consortium. If you are interested in implementing this feedback survey within your institution or have any questions, please reach out to Dr. Olzhas Zhamantayev directly.

Let's collaborate to enhance the quality of our syllabi and create a lasting impact on education and practice.

1. Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77(1), 81–112.
2. Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education*, 31(2), 199–218.
2. Aldridge, J. M., & Bianchet, S. (2022). Using student feedback about the learning environment as a starting point for co-construction. *Learning environments research*, 25(3), 939–955. <https://doi.org/10.1007/s10984-021-09403-9>

Section 3. Pedagogical innovations in education

USING AHASLIDES INFORMATION TECHNOLOGY IN TRAINING BACHELORS, INTERNS AND RESIDENTS



AhaSlides offers a program Live Quiz Maker, which allows you to create and conduct your quizzes online or offline. The operating principle is simple: you create your own questions for a quiz, configure parameters, and then post it for your members. Your students will join to the quiz from your mobile devices and will be able to answer each question as it is presented.

Students can answer quiz questions individually or in groups. Points are calculated for each player or teams and are announced at the end of the quiz. A free AhaSlides account allows you to create and host quizzes for up to 7 players. Quiz creation tools include a wide range of features, including:

- Team play: players work in teams, to answer the quiz questions.
- Rotating wheel: use the spinning wheel to select random results, names or tasks.
- Adding audio (paid version): You can add audio files to tests and create musical tasks.
- Independent work: Assign tests as homework so students can work at their own pace.
- Change points: you can add or remove points manually.
- reactions: Use emoji icons to express and convey emotions.
- Profanity filter: automatically blocks obscene words in player responses.
- Background: upload your own images and GIFs for use as slide backgrounds or import them from the AhaSlides library.
- Reports: allow you “see the level of involvement, the correct answers and difficult questions of your test in one place.”
- Custom link: allows you to create unique custom links for your tests, to share them with your players.
- Templates: Get free access to pre-designed Live quiz templates.

To assign independent work you need in the settings in the section “Who takes the initiative to choose the option – Independently.” Then in the main menu find “Share, copy the link and send to students.”

Your students can join to your quiz on their mobile devices. Participants open the quiz, write your name or choose a team. You accompany participants on each task, while AhaSlides automatically tallies their scores and announces the winner at the end. You can also use AhaSlides in synchronous remote learning mode.

You can use AhaSlides and for student collaboration, when you invite them to edit your presentation. They can fully enjoy customize them. After sending the invitation, the student accesses the link provided, creates his account in AhaSlides and starts editing.

All changes are visible to all participants, and the teacher or group leader can always accept decision on the most optimal project option.

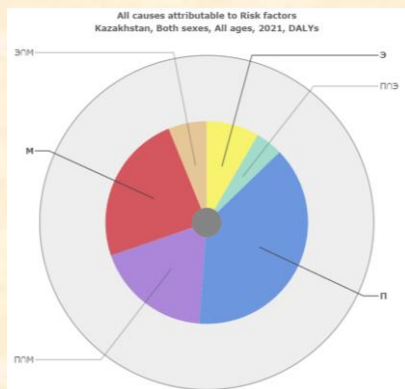
You can create an online presentation from scratch or download your PowerPoint or PDF presentation. You get the opportunity create any number of questions students. You can also organize teams.

Section 4. Epidemiology of socially significant diseases

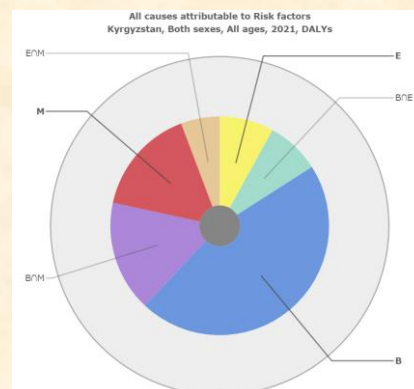


Epidemiological digest of data on the significance of metabolic and behavioral risk factors, correctable by nutritional support, in the countries of Central Asia

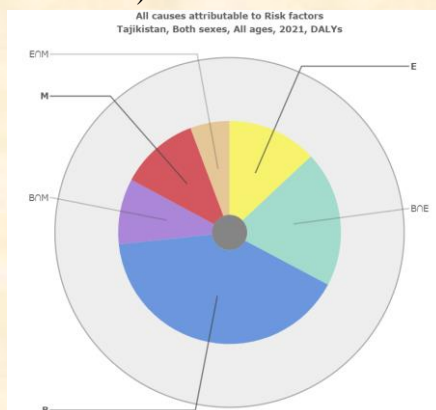
According to epidemiological data for 2021, metabolic and behavioral risk factors accounted for a significant proportion of years lost due to disease and mortality in Central Asian countries



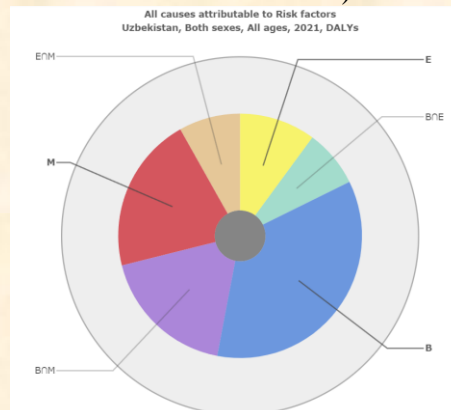
a)



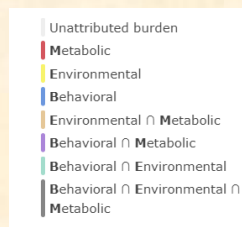
b)



c)

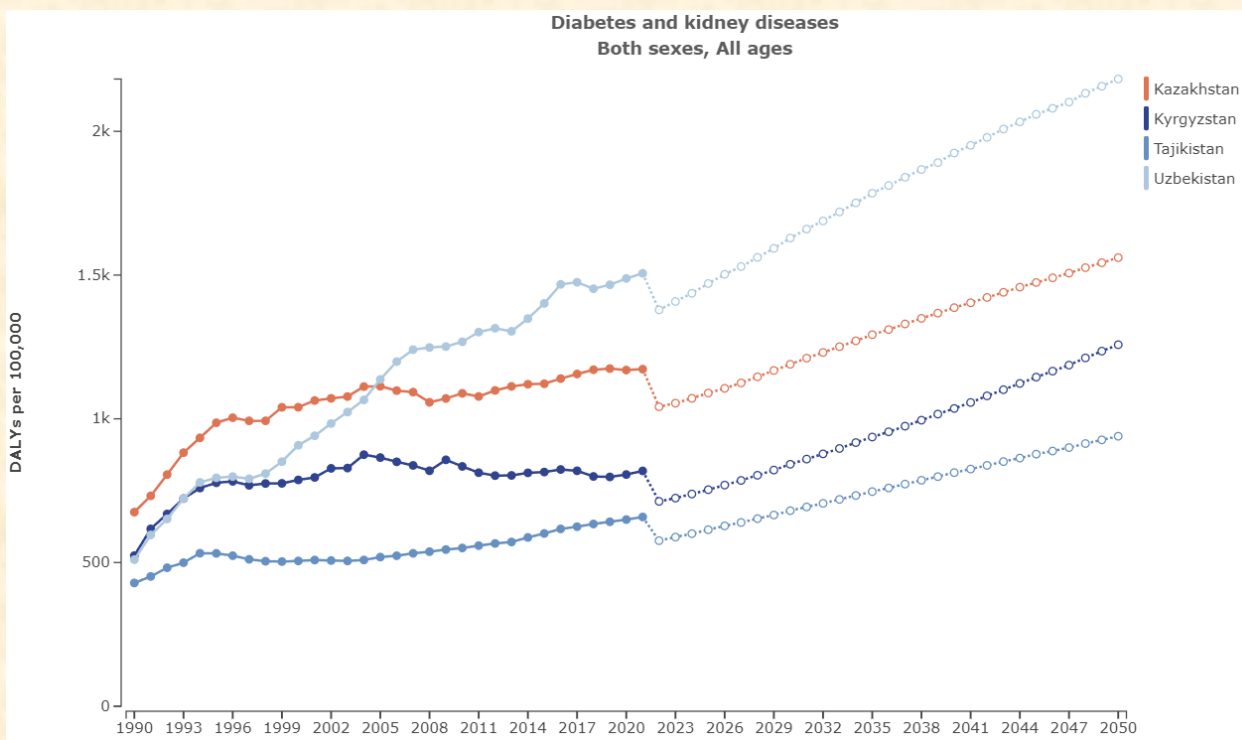


d)



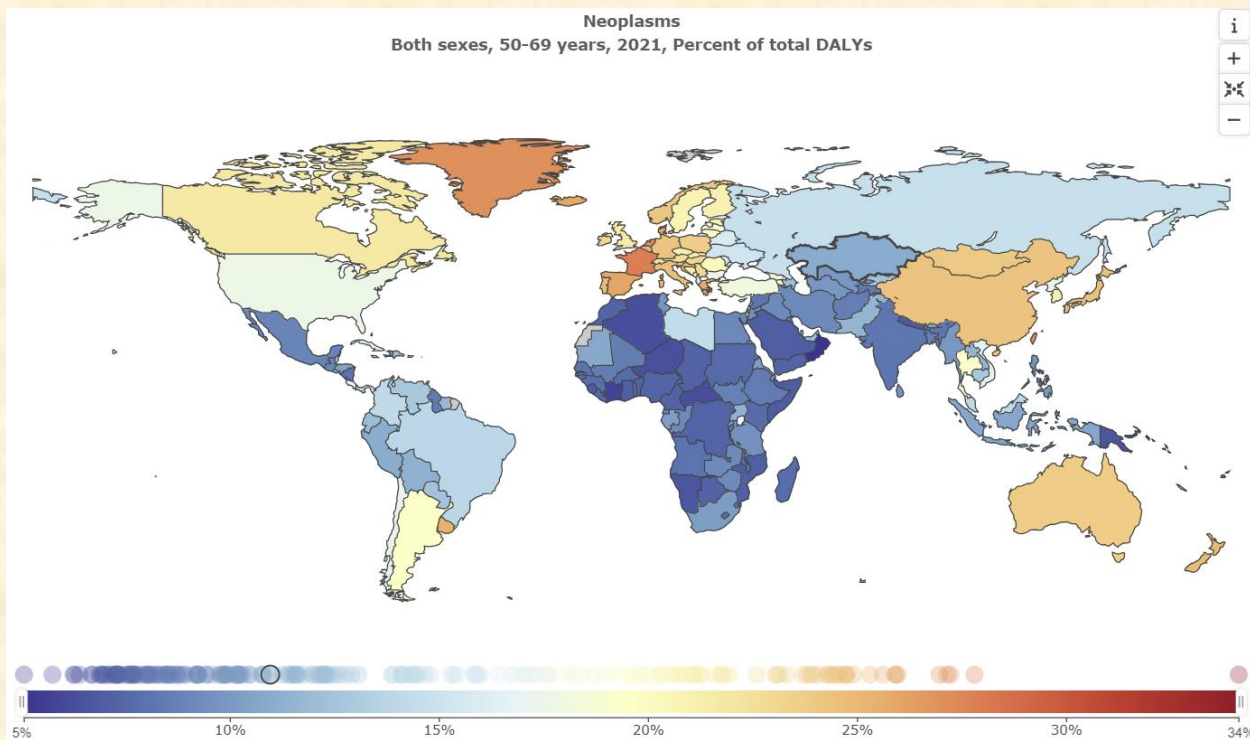
Structure of risk factors for loss of years due to morbidity for the population of Central Asian countries (a – Kazakhstan, b – Kyrgyzstan, c – Tajikistan, d – Uzbekistan) for 2021.

The dynamics from 1990 to 2021, with a forecast up to 2050, show an increasing trend in the loss of years due to diabetes mellitus (DM), a primary condition associated with metabolic risk factors, and chronic kidney disease (CKD), related to behavioral risk factors, in Central Asia.



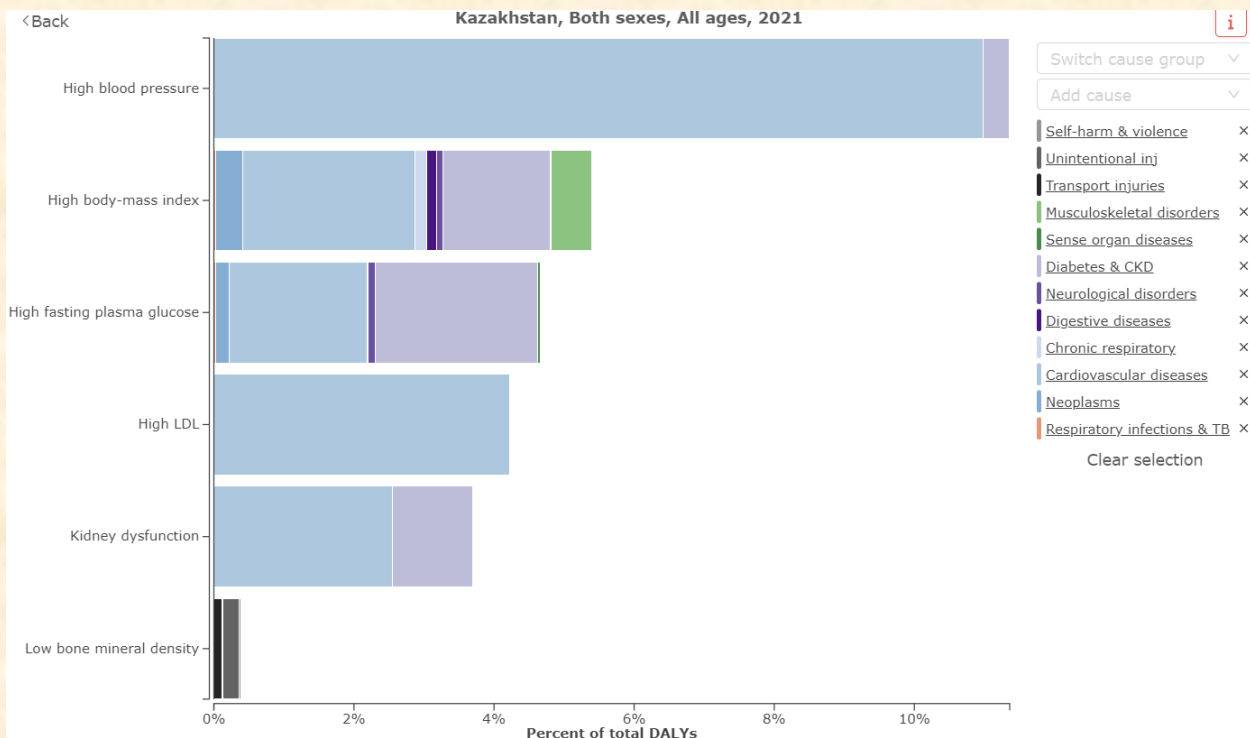
Dynamics of years lost due to diabetes and chronic kidney disease from 1990 to 2021 in Central Asian countries.

Years lost due to neoplasms, which are the main cause of mortality in Central Asia and often stem from developing nutritional imbalances, accounted for more than 10% in 2021.



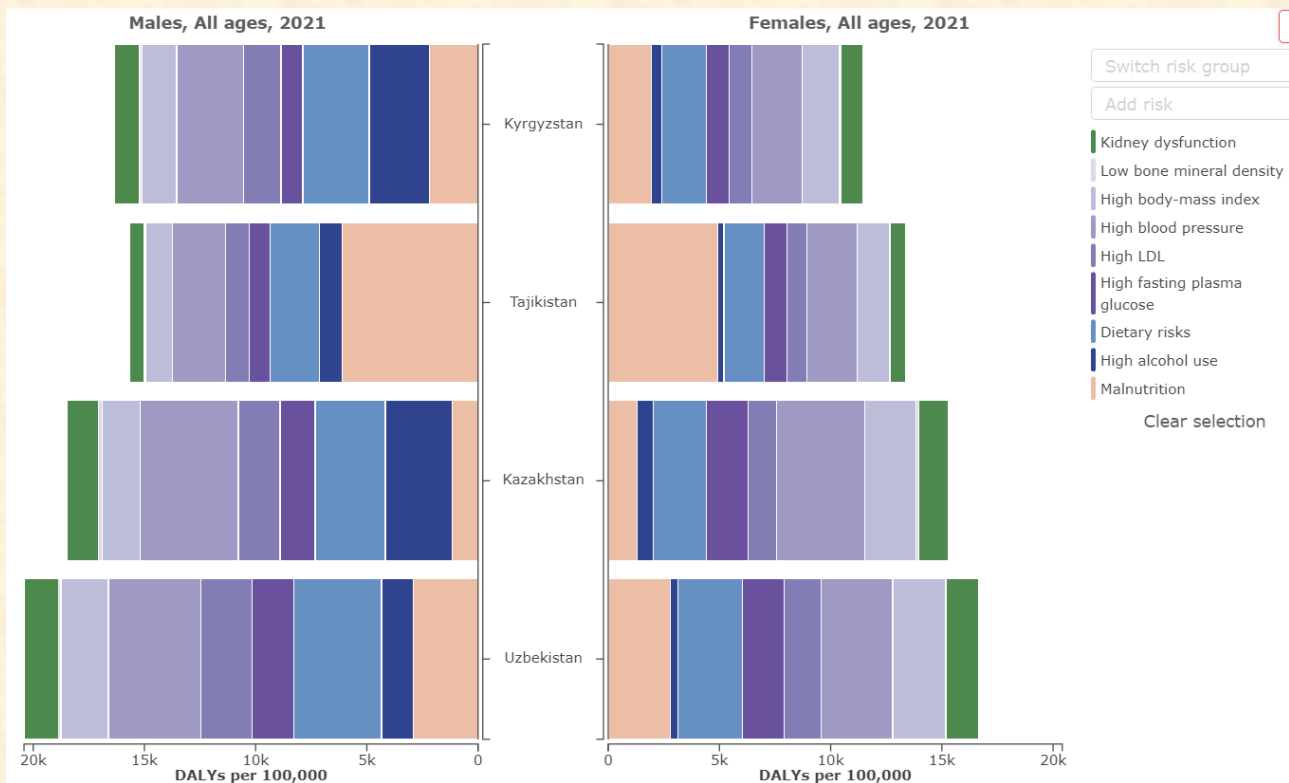
Rank cartogram of the share of neoplasms in the structure of years lost due to morbidity for 2021.

Excess body weight in Kazakhstan was identified as a significant factor contributing to cardiovascular diseases, endocrinological disorders, musculoskeletal issues, and digestive system dysfunctions in 6% of cases in 2021.



Structure of metabolic risks important for disease development in Kazakhstan for 2021.

No significant gender differences in metabolic risks were observed across Central Asian countries except for the behavioral risk associated with alcohol consumption.



Gender characteristics of years lost due to metabolic risks for the population of Central Asian countries in 2021.

**Best regards,
Erasmus+ BERNICA Consortium
Creation team of KARAGANDA MEDICAL UNIVERSITY**



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