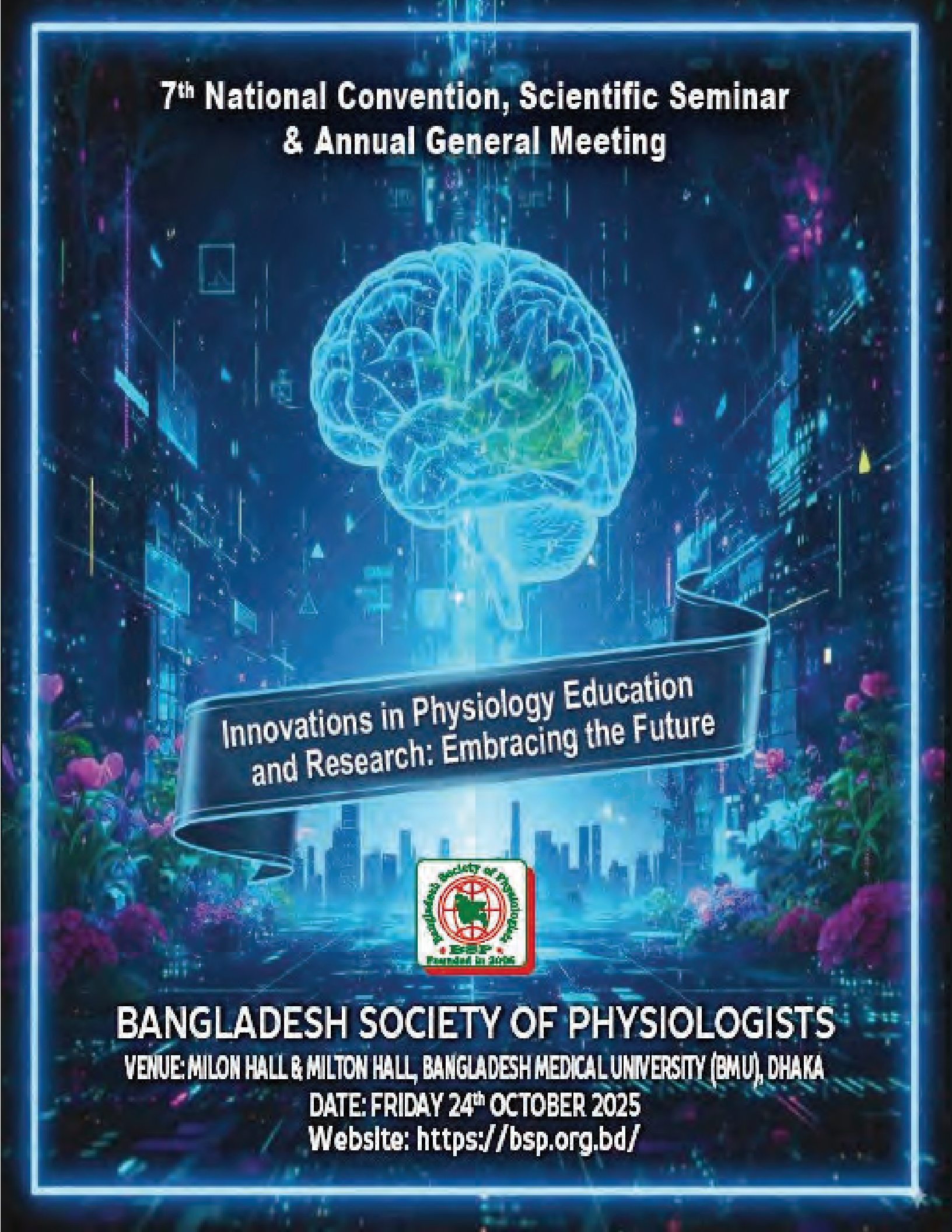
7th National Convention, Scientific Seminar & Annual General Meeting



BANGLADESH SOCIETY OF PHYSIOLOGISTS

VENUE: MILON HALL & MILTON HALL, BANGLADESH MEDICAL UNIVERSITY (BMU), DHAKA

DATE: FRIDAY 24th OCTOBER 2025

Website: https://bsp.org.bd/

7th National Convention, Scientific Seminar & Annual General Meeting

Venue : Milon Hall & Milton Hall
Bangladesh Medical University (BMU), Dhaka

Date : Friday 24th October 2025

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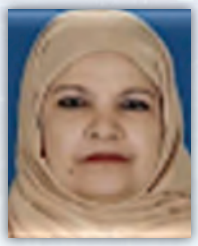

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Journal of Bangladesh Society of Physiologists (JBSP)

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7th National Convention Scientific Seminar and Annual General Meeting

BANGLADESH SOCIETY OF PHYSIOLOGISTS (BSP)

Date : 24th October, Friday, 2025
Venue : Milon Hall & Milton Hall, Bangladesh Medical University, Dhaka
Time: 07:45 AM – 08:30 PM

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7th National Convention Scientific Seminar and Annual General Meeting

BANGLADESH SOCIETY OF PHYSIOLOGISTS (BSP)

Date : 24th October, Friday, 2025
Venue : Milon Hall, Bangladesh Medical University, Dhaka

REGISTRATION & REFRESHMENT
Time : 07.45 AM – 08.30 AM

Inaugural Session

Time: 08.30 AM – 10:00 AM

Time	Events
08:30 AM - 08.35 AM	Quran Telwat
08.35 AM - 08.40 AM	National Anthem
08.40 AM - 08.45 AM	***Welcome Address by*** **Prof. Nayma Sultana** Secretary General of BSP
08.45 AM - 08.55 AM	**Invitation to the Guests to the Dias & receive them with a Flower Bouquet**
08.55 AM - 09.00 AM	***Address by Guest of Honor*** **Prof. Dr. Saleha Hussain** Professor of Physiology
09.00 AM - 09.05 AM	***Address by Guest of Honor*** **Prof. Dr. Dilruba Rahman** Professor of Physiology
09.05 AM - 09.15 AM	***Address by Special Guest*** **Prof. Dr. Emran Bin Yunus** Internist & Nephrologist CSCR; Professor Premier University Chattogram
09.15 AM - 09.25 AM	***Address by Special Guest*** **Prof. Dr. Md. Kamrul Islam** Consultant Urologist and Managing Director, CKD & Urology Hospital, Dhaka
09.25 AM - 09.35 AM	***Address by Special Guest*** **Prof. Dr. Md. Ali Hossain** Ex-Director of National Institute of the Diseases of Chest & Hospital (NIDCH) and President, Bangladesh Lung Foundation (BLF)
09.35 AM - 09.45 AM	***Address by the Chief Guest*** **Prof. Dr. Md. Shahinul Alam** Vice Chancellor (Acting) , Bangladesh Medical University (BMU), Dhaka
09.45 AM - 09.50 AM	***Address by*** **Prof. Dr. Nasim Jahan** President of BSP
09.50 AM - 10.00 AM	**Crest Giving to the Guests**

Prof. Nayma Sultana
Secretary General
Bangladesh Society of Physiologists (BSP)
(2024–2025)

Address of Welcome by the Secretary General, BSP

Honorable chief guest, dignitaries and distinguished participants from different parts of our country, ladies and gentlemen, Assalamualaikum and good morning.

All praise to Almighty Allah for granting us the opportunity to come together for this grand event — the 7th National Convention, Scientific Seminar, and Annual General Meeting of the Bangladesh Society of Physiologists (BSP).

At the outset, I express my deepest respect and gratitude to our legendary teacher, Professor M. A. Hai, the founding father of BSP, and to our beloved late teacher Professor Mosharraf Hossain Molla, along with all our revered professors and senior physiologists. Their tireless dedication and lifelong contributions have elevated the subject of Physiology to its present height in Bangladesh.

The Bangladesh Society of Physiologists, established in 2006, has always been an academic and scientific platform to advance physiology education and research in our country. BSP enables physiologists to share knowledge, present research, publish in our Journal of BSP, engage in peer interactions, participate in national and international forums (like SAAP, FAOPS, and IUPS), and develop as confident teachers and researchers.

At this convention, we are striving to reflect our collective vision — to transform physiology from classroom theory into a living, applied science that contributes directly to patient care and society. This year's scientific program is rich and diverse, featuring sessions on biotechnology, artificial intelligence, clinical correlations, and medical education reforms—including updates on the MBBS 2021 curriculum, SEQ, SOE, and OSPE, as well as accreditation processes.

These initiatives will help us better assess competence, modernize our teaching, and prepare graduates who are skilled, compassionate, and capable of meeting the demands of modern medicine.

	During this tenure (2024–2025), BSP did so many academic and research activities like:
1.	Conducted the 1st General Meeting on PBQ, SBA, and related topics at Shaheed Suhrawardy Medical College (February 2024)
2.	Formed the Teachers' Benefit Sub-Committee and the Education Sub-Committee to support professional and academic growth.
3.	Represented Bangladesh actively at the SAAP IX Conference in Lahore (2024),
4.	Securing prestigious positions in the SAAP Executive Committee (2025–2026).
5.	Achieved FAOPS membership
6.	Earned the honor of hosting the SAAP X Conference in Dhaka in 2026.
7.	Organized multiple BSP and SAAP collaborative webinars, and workshops,

8.	Conducted Hands-on Training on Spirometry and Nerve Conduction Study
9.	Conducted Oral/ Poster Presentations
10.	Organized BSP Scientific Seminar & AGM (April 2025)
11.	Simulation Lab Training
12.	Webinars of BSP Scientific Committee
13.	Webinars on lesson Plan
14.	Regional Webinar of SAAP Research Subcommittee
15.	Regular contribution to the SAAP Bulletin
16.	Become the member of the Editorial Board of SAAP Bulletin
17.	Partner of the South Asian Journal of Integrative Physiology (SJIP)
18.	Honored by the Certificate of Appreciation for active participation in South Asians Center of Excellence in Physiology Education and Research (SACE-ER)
19.	Conducted Education Sub-committee workshop at Bangladesh Medical College (30th July 2025)
20.	Hosting 7th National Convention, Scientific Seminar and AGM at BMU: Which highlights
	• Application of Biotechnology in Medical Education & Research
	• AI uses in Medical Physiology & Allied
	• Highlighting Teaching Methodology & Operational Manual activities
	• Connecting Physiology with Real-Life Problems, such as COPD, Stroke, and EEG
21.	Successfully managing and publishing the Journal of Bangladesh Society of Physiologists (JBSP).

All these achievements reflect our united efforts and the growing strength of our society.

Let us move forward with renewed energy, determination, and unity, so that BSP continues to shine as a model of academic excellence, professional integrity, and scientific advancement.

Thank you all.

Prof. Nayma Sultana

Prof. Emran Bin Yunus
Internist & Nephrologist CSCR;
Professor, Premier University Chattogram

Address by Special Guest

"Medical Physiology @ Changeover From 4 to 5 Industrial Revolution & The Standing"

'Our bodies are our gardens, to the which our wills are gardeners' – William Shakespeare!

We are passing through industrial Revolution 4 to 5, that is from Connectivity to Integration. Medical physiology at this changeover has been evolving into a dynamic, integrated interdisciplinary science far reaching even beyond the box thinking and dreaming. No doubt with race of imagination and innovation and shifting.

The Key Shifts are: 1. Molecular & Cellular Integration through Genomics and Proteomics plus stem cell Physiology; 2. Systems Biology & Predictive Modeling through P4 Medicine (Predictive, Preventive, Personalized & Participatory) and Digital Twins of computational simulation for aiding drug development and personalized care; 3. Microbiomes & Host Interactions through Gut Brain Axis understanding and Resistome Mapping; 4. Neurophysiology & cognitive Interfaces through Brain Machine Interface and Neuroplasticity; 5. Digital Therapeutics & AI Integration by Wearables and Biosensors plus AI in Physiology; 6. Global Health & Environment Physiology through One Health Integration and Inflammaging & Longevity. And all these are expanding and extending frontiers of Physiology.

Medical Physiology is not a fore runner discipline rather an aft one. Usually initially the discase is detected and then is look out for the disorder leading to establish the normal functions and structural integrity that leads to customized therapy and management. Classical examples may be Hemodialysis and discovery of receptor-based medicine propranolol. To keep pace with race of the expanding disease detection and handling Medical Physiology has been adapted and tuned accordingly parallel to the disease managing disciplines plus operations, back track from pathology to physiology. Hence there are the development of specialized physiological offsprings and labs and operations plus narrations adjunct to the respective specialties. Clinical disciplines are inseparable now from physiology. The aphorism long ago that is firmly establishing for the science and service, 'What the Physiology gone wrong to fix and reset!'.

Over the years possibly we could not keep pace or progress much forward along the race of contemporary paradigm shifts and changes. Therefore, no appropriate integration evolved between the Medical Physiology and other disciplines of care and cure. Its due to our tunnel vision, subtopia, maleducation and failure to look beyond the box; specially those of us who are clinicians. Two mindsets are interplaying, superiority complex of clinicians and inferiority of physiologists.

This pitiable situation has been progressively making Medical Physiology a redundant discipline that is asphyxiating to be vanished in our country. If so, that would be the greatest 'Scientific Medical Idiotica' and disaster for the science and service. In this behalf Physiologists would be held blamed by the upcoming Generations. Those may be Z, α and β! No doubt the nation shall pay the penalty. Only the Physiologists can turn around this downhill dive.

Least we forget, 'The human body is the most fascinating machine ever created. Let's continue to explore its mysteries, not just to heal what's broken, but to truly understand what makes us whole.'

Professor Emran Bin Yunus

Prof. Dr. Md. Kamrul Islam
Kidney Transplant Surgeon & Urologist
Centre for Kidney Diseases and Urology Hospital

Address by Special Guest

Assalamu Alaikum and warm greetings to all respected participants.

It is my great pleasure to join this 7th National Convention, Scientific Seminar, and Annual General Meeting of the Bangladesh Society of Physiologists (BSP). I sincerely congratulate BSP for choosing the theme "Innovations in Physiology Education and Research: Embracing the Future." This theme reflects the changing landscape of medicine, where physiology forms the bridge between basic science and clinical practice.

As a kidney transplant surgeon and urologist, I am deeply aware of how advances in physiology guide us in understanding renal function, electrolyte balance, and the mechanisms of organ survival after transplantation. Modern tools such as biotechnology and Artificial Intelligence are now making it possible to explore these functions at a deeper level—helping us design better treatment strategies, predict outcomes, and improve patient care.

I am also pleased to note that this conference highlights important health issues such as chronic obstructive pulmonary disease, stroke, and the use of electroencephalography (EEG). These areas remind us that physiology is at the heart of clinical decision-making, whether in neurology, pulmonology, or surgery.

Equally important is the focus on the MBBS Curriculum 2021, with its structured oral and practical examinations, structured essay questions, and accreditation process. Competency-based education is essential for producing skilled doctors who can translate physiological knowledge into effective clinical care.

I commend the Bangladesh Society of Physiologists for organizing this timely event and for bringing together educators, researchers, and clinicians. I believe the discussions here will inspire new ideas and collaborations that will ultimately benefit patients and society.

Md. Kamrul Islam

Prof. Dr. Md. Kamrul Islam

Prof. Dr. Md. Ali Hossain
Ex-Director
National Institute of the Diseases of Chest & Hospital (NIDCH) and
President
Bangladesh Lung Foundation (BLF)

Address by Special Guest

Respected dignitaries, esteemed colleagues, dear students, and honored guests, it is a great privilege to address this distinguished gathering on the inspiring topic of 'Innovation in Physiology'. Physiology, the science of life functions, is continually evolving through groundbreaking discoveries that deepen our understanding of the human body and revolutionize medical practice and education.

Innovation in physiology extends beyond research to practical impact on clinical care, education, and public health. Embracing these advances prepares us to meet future challenges with creativity and precision, ensuring that physiological science remains central to improving human well-being. Recent advances reflect a remarkable synergy of traditional physiological methods and high-tech technologies such as artificial intelligence and biotechnology.

This convention is an excellent platform for sharing research, fostering collaboration, and inspiring young scientists and healthcare professionals. Their collective efforts will contribute to breakthroughs that enhance our understanding of health and disease.

As a pulmonologist, I am particularly encouraged to see chronic respiratory diseases including COPD highlighted in the program. At the same time, sessions on topics such as stroke and EEG remind us that physiology extends far beyond one specialty, touching every domain of medicine. I commend the BSP leadership for bringing together many distinguished voices under one platform. I also warmly acknowledge the presence of our colleagues from outside the physiology community, whose contributions strengthen our understanding of health and disease. This type of multidisciplinary gathering is exactly what will drive medical science forward in Bangladesh.

I congratulate the organizers for their dedicated efforts in bringing us together to celebrate this crucial ssfield. I encourage all participants to engage actively, exchange ideas openly, and continue the pursuit of knowledge with passion and commitment.

May this convention spark new insights and lead to meaningful progress in vital field of physiology.

Thank you

Prof. Dr. Md. Ali Hossain

Professor Dr. Md Shahinul Alam
Vice-Chancellor (Acting)
Bangladesh Medical University
Shahbag, Dhaka

Message from the Chief Guest

Assalamu Alaikum and warm greetings to all distinguished physiologists, researchers, educators, and students. It is a great honor for me to join you at the 7th National Convention, Scientific Seminar, and Annual General Meeting organized by the Bangladesh Society of Physiologists (BSP). I also extend my sincere appreciation to BSP for selecting Bangladesh Medical University as the venue for this important event.

The theme of this year's convention- "Innovations in Physiology Education and Research: Embracing the Futuren-is both timely and inspiring. Physiology, as the foundation of medicine, is now enriched by modern biotechnology, Artificial Intelligence, and advanced tools such as electroencephalography (EEG). These innovations are transforming not only research but also medical education, with far-reaching implications for the understanding and treatment of diseases such as chronic obstructive pulmonary disease and stroke.

In the academic arena, the MBBS Curriculum 2021 has introduced competency-based learning and modern methods of assessment, including structured oral and practical examinations, structured essay questions, and continuous formative evaluations. These approaches ensure that our students develop not only knowledge but also clinical reasoning, problem-solving skills, and confidence to serve society effectively. Accreditation of medical curricula is another vital step towards maintaining global standards in medical education.

I firmly believe that the synergy between biotechnology, Artificial Intelligence, and physiology education will shape the future of healthcare in Bangladesh. I encourage all educators, researchers, and students present here to embrace these advancements with dedication and collaboration.

I congratulate the Bangladesh Society of Physiologists for organizing this convention and wish the program every success. May today's discussions and deliberations lead to meaningful progress in physiology education, research, and patient care.

Professor Dr. Md Shahinul Alam

Professor Saleha Hussain
Eminent Professor of Physiology

Message from the Guest of Honour

Assalamualaikum.

It gives me great pleasure to congratulate the members of the Bangladesh Society of Physiologists (BSP) for organizing the 7th National Convention, Scientific Seminar and Annual General Meeting, Insha'Allah, in October 2025. I express my sincere gratitude to all concerned for their continuous efforts in organizing such events.

I find strength, friendship, and extraordinary love in my colleagues and juniors. During my period of grief, I received comfort in a circle of support that refused to let me feel alone. In the world of AI and robots, it is the irreplaceable compassion of real, passionate humans that is saving our morale. These traits of humanity, found in individuals in a society, make the nation proud. A glaring example is our society. We are individuals with different perspectives and sets of circumstances, but we can all boast of professionalism with a humane touch.

The BSP has, and still has, formidable members. Let us pray for those who have left us for their heavenly abode, to find eternal serenity.

My maternal instinct urges me to send a valuable message to my juniors—Physiology is the mother subject of all disciplines of medicine, and by nurturing the mother, we play a vital role in keeping the offspring alive and helping them grow. A sound knowledge of the subject, mutual discussion at home and abroad, and exchange of modern developments and research findings in the field of Physiological science shall enrich the discipline and make it perpetually viable.

I earnestly request my juniors to make a career in Physiology and, like me, when the sun is setting, thank Almighty Allah (SWT) that your choice was right. Remember, working for success will make you a master, but working for satisfaction will make you a legend.

I wish all success to the National Convention and AGM of BSP.

Allah Hafiz.

Professor Saleha Hussain

Professor Dilruba Rahman
Eminent Professor of Physiology

Message from the Guest of Honour

It is indeed my great pleasure to attend the 7th National Convention and Scientific Session of the Bangladesh Society of Physiologists as a Guest of Honour. This recognition is not only a great honour for me but also an appreciation of my humble service to the profession as a teacher of a basic medical subject.

Physiology is the mother of medical science and one of its most important subjects. In every aspect of medicine, sound knowledge of Physiology is essential. Physiologists, therefore, play a vital role in the development of medical education, both at undergraduate and postgraduate levels.

I warmly congratulate the organizers of this scientific session on their tireless efforts in familiarizing Physiologists with modern and advanced knowledge in the field. This is indeed a valuable opportunity to exchange experiences, share knowledge, and learn about the latest information and modern technology among participants.

I strongly encourage my young colleagues to invest their sincere and best efforts in quality teaching and research in Physiology.

I feel truly proud of my Society. I express my heartfelt thanks and gratitude to the Executive Committee of the Bangladesh Society of Physiologists and to all others who have contributed.

I wish the 7th National Convention and Scientific Session every success.

Professor Dilruba Rahman

Prof. Farida Adib Khanum
Senior Member
Executive Committee
Bangladesh Society of Physiologists

Address by Senior Member, Executive Committee

It is with great pleasure that I extend my greetings to all members, participants, and well-wishers of the Bangladesh Society of Physiologists (BSP) on the occasion of its 7th National Convention, Scientific Seminar, and Annual General Meeting.

I remember with gratitude our senior member of BSP, Professor Mosharraf Hossain Molla, who passed away recently. I pray for the eternal peace of his departed soul.

The postgraduate course (MPhil) in the field of Physiology began its journey in 1967 at IPGM&R, Dhaka. When I started my career in Physiology in 1979, there were only a few postgraduate-qualified physiologists in the country. Initially, the number of teachers in Physiology was limited; hence, a combined society (Bangladesh Physiological and Pharmacological Society – BPPS) was established in 1984.

At present, postgraduate courses in Physiology are being conducted by the Bangladesh Medical University and a number of institutes across Bangladesh. As a result, the number of higher degree holders in Physiology has increased greatly. BSP was thus founded on 30th November 2005. Today, the society has more than 600 members at home and abroad. Currently, over 550 physiologists are actively involved in teaching both undergraduate and postgraduate medical education in Bangladesh, while also conducting research in the field of Physiology.

Physiology is the base of the medical science. In every branch of medical science, knowledge of Physiology is necessary. With the rapid advances in molecular biology, genetics, cell signaling, neurophysiology, and systems biology, it is evident that older syllabi quickly become outdated. Updating the curriculum is therefore essential to ensure that students learn concepts relevant to modern diagnostics and therapeutics, such as ion channelopathies, stem cell physiology, and genomics.

Traditionally, physiology education in Bangladesh has been highly theoretical and often dependent on memorization. In contrast, the modern curriculum emphasizes clinical relevance from the early years of medical education, enabling students to connect physiology with pathology, pharmacology, and clinical cases such as ECG interpretation, blood pressure regulation, and acid–base balance. This early integration significantly enhances understanding and helps bridge the gap between basic and clinical sciences.

MBBS graduates of Bangladesh increasingly compete in the global arena, appearing for examinations such as USMLE, PLAB, and AMC. If the syllabus does not reflect internationally accepted competencies, our students may face disadvantages. Curriculum updates are therefore necessary to ensure harmonization with World Federation for Medical Education (WFME) standards.

Equally important are changes in teaching and learning methods. The traditional reliance on lectures and rote memorization has gradually given way to more student-centered approaches, including Problem-Based Learning (PBL), Case-Based Learning (CBL), small group discussions, and early clinical exposure. These methods foster critical thinking, problem-solving, and self-directed learning among students.

Physiology teaching must also adapt to the changing health needs of Bangladesh. With the increasing burden of hypertension, diabetes, stroke, renal failure, and maternal and child health issues, the updated syllabus places greater emphasis on public health physiology, including topics such as environmental physiology, nutrition, exercise physiology, and even high-altitude physiology, which has relevance for travel and aviation medicine.

Reform in assessment is another crucial area. Traditional examinations often focused on recall of facts, whereas modern curricula align assessments with competency-based education. Tools such as Objective Structured Practical Examination (OSPE), Multiple Choice Questions (MCQs), Short Answer Questions (SAQs), and Structured Oral Examination (SOE) are increasingly being used to ensure that students are evaluated on their understanding and application of knowledge, rather than mere memory.

Finally, the modern physiology syllabus encourages research aptitude and introduces concepts of evidence-based medicine early in training. This helps graduates to develop research skills and promotes the habit of lifelong learning, which is indispensable in a rapidly evolving medical field.

Nevertheless, there remains scope to further improve the MBBS curriculum in Bangladesh. Ensuring an optimal student–teacher ratio, closer to the WHO-recommended 1:10, is vital and requires the recruitment of adequate faculty. The shortage of qualified teachers in both government and private medical colleges must be addressed through better recruitment and retention policies. At the same time, regulatory oversight needs to be strengthened through an independent and effective body to monitor and maintain the quality of MBBS education. Most importantly, the curriculum should undergo regular review and updating to remain aligned with international standards set by WFME and WHO.

I extend my heartfelt wishes for the utmost success of the 7th National Convention, Scientific Seminar, and Annual General Meeting of BSP. I earnestly call upon all members to uphold the dignity and honor of the society and to contribute collectively towards strengthening its position as a prestigious and distinguished institution.

Professor Farida Adib Khanum

Prof. Noorzahan Begum
Senior Member
Executive Committee
Bangladesh Society of Physiologists

Address by Senior Member, Executive Committee

It is both an honor and a privilege to stand before you today at this groundbreaking Physiology Convention, where innovation meets inquiry, and tradition embraces transformation.

We are living in a time when the boundaries of human understanding are being redrawn—not by chance, but by choice. Physiology, the cornerstone of biomedical science, is undergoing a renaissance. And at the heart of this revolution is Artificial Intelligence. The scientific sessions of this convention will open doors for exchanging ideas and expanding knowledge through the insights of our distinguished professors and researchers from different disciplines.

The Bangladesh Society of Physiologists was founded in 2006 with 111 members. Today, we proudly have around 400 members. The goal of BSP was clear yet profound: to create a community where physiologists from every corner of Bangladesh could share knowledge, exchange ideas, and advance research for the progress of science and society. From these humble beginnings, BSP has grown into a vibrant and dynamic scientific organization, connecting teachers, researchers, and clinicians from across the nation. We remember with deep respect our founding President, Professor M. R. Chowdhury, and Secretary General, Professor M. A. Hai, whose vision and dedication laid the foundation for this society.

BSP is an active member of the South Asian Association of Physiologists (SAAP) and the International Union of Physiological Sciences (IUPS). We successfully hosted the 4th SAAP International Conference and a pre-conference workshop here in Bangladesh, earning praise from delegates of SAAP, IUPS, IBRO for our hospitality and organization. I was privileged to serve as President of SAAP (2014–2016), representing Bangladesh in conferences held in Pakistan, India, Sri Lanka, and Nepal, where both senior and young physiologists received high appreciation. I had the honor of representing Bangladesh at IUPS conferences held in the United Kingdom, Bahrain, and Japan. The upcoming SAAP X conference of 2026 will be held in Bangladesh.

BSP regularly organizes scientific seminars and publishes its peer-reviewed open-access journal, the Journal of Bangladesh Society of Physiologists (JBSP). To encourage excellence, we present the Abdur Rahman Memorial Award to top MBBS students in Physiology. We proudly giving the Professor Nayeema Akhter Memorial Award for the best MD (Physiology) student of BMU - a tribute to her lifelong dedication to our society.

To our young physiologists, I urge you to carry forward these traditions with commitment and unity. Let us work together to elevate BSP to even greater heights. Finally, my heartfelt thanks to all members, guests, sponsors, and the BMU authority for their kind support and presence.

Thank you.

Prof. Noorzahan Begum

Prof. Nasim Jahan
President
Bangladesh Society of Physiologists

Presidential Speech

Bismillahir Rahmanir Rahim

Honourable Chief guest, Respected special guests, distinguished guests of honor, my beloved members of the society of learned participants.

Assalamualaikum

I am truly overwhelmed by the large gathering today. My heartfelt gratitude to Rabbul Al-Amin for making the 7th BSP Convention and Scientific Seminar a success.

I am thankful to all members of the Executive Committee for their support and guidance in discharging my duties.

In this fine morning on behalf of BSP I offer warmest regards to Honourable Chief guest Prof Dr. Shahinul Alam, Special Guests Prof Dr Md Kamrul Islam, Prof Dr Md Ali Hussain, Guests of Honour Prof. Dr. Saleha Hussain and Prof. Dr Dilruba Rahman. We are very inspired by your gracious presence and co-operation.

We remember and pray for the members of BSP who passed away. We are grateful for their contribution to society. We pray for the complete recovery of those members who are facing health challenges.

Big congratulations to the winners of the Abdur Rahman Memorial Award for highest marks in Physiology 1st Prof Examination at Dhaka University, and the Prof. Nayeema Akhtar Memorial Award for the best MD Physiology student at Bangladesh Medical University.

I express sincere thanks to the Physiology department of ShSMC, Manikgang MC and Bangladesh MC, especially Shams Ruhani, Asfaq Rafed Rahman and Kazi Salma Binte Faruki for organizing fantastic seminars and AGM in their premises.

I must congratulate the members of the Editorial Board, especially Prof. Sultana Ferdousi for their tremendous hard work to publish an international standard journal (JBSP) regularly.

I extend my thanks to the authority of BMU and all sponsors for their sincere support to make this worthful convention.

I offer my appreciation to the speakers and presenters of today's scientific seminar for their brainstorming deliberation to enrich the knowledge and thinking of the participants.

I am thankful to all the members of electronic and print media for their unique support.

Finally, I express my heartfelt thanks to the Organizing Committee for their courage, sincerity and best efforts to arrange this successful noble Convention overcoming all obstacles.

কবি ফররুখ আহ্‌মেদের ভাষায় -

পাল তুলে দাও, ঝাণ্ডা ওড়াও; সিন্দবাদ!
এল দুস্তর তরঙ্গ বাধা তিমিরময়ী।
কি হবে ব্যর্থ ক্লান্ত রাতের প্রহর গুণে?
নতুন সফরে হবে এ কিস্তী দিগ্বিজয়ী।

It is universally acknowledged that a thorough and expansive knowledge of Physiology is essential to being a good doctor. To achieve this, our medical institutions must be well-equipped with up-to-date books, journals, advanced equipment, and reliable internet services, ensuring easy access for both teachers and learners. Furthermore, physiologists involved in teaching and research should be regularly deputed to universities and research institutes abroad for knowledge exchange and to broaden their perspectives in both education and research.

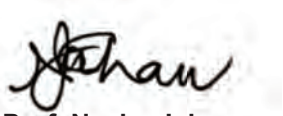
In addition, the medical curriculum must strike a balance between content and course duration. Obsolete or redundant material should be eliminated to lessen the burden on students. Achieving this is only possible through the integration of advanced technologies and effective pedagogical methods that facilitate the transmission of knowledge and ideas. Problem-based learning, emphasizing vertical and horizontal integration, is fundamental to our curriculum today. So, this is focused on our program today.

Our goal is to produce medical students of high caliber. In my personal view, students seeking admission should have at least 80% marks in mathematics and English in their HSC exams. Passing marks in biology may be sufficient.

For a long time, BSP has been advocating for a 100% salary incentive for basic subject teachers. Recently, the Ministry of Finance approved a 50% incentive, but the Ministry of Health is still deliberating on this. I strongly urge our government to address this matter promptly. It is also vital to ensure timely promotions for teachers, recognizing their rightful efforts and contributions.

The time has come to produce skilled, compassionate and safe doctors—those who prioritize patient care, serve humanity globally, and do not only pursue personal interests. For morality we must turn to the Quran and study Sirah, which will help us develop better thinking processes. As teachers, we need to try to be role models for our students. We pray to Allah (SWT) to grant us honesty and sincerity in our words and deeds, in all aspects of our lives. Assalamualaikum

Thank you



Prof. Nasim Jahan

7th National Convention Scientific Seminar and Annual General Meeting

BANGLADESH SOCIETY OF PHYSIOLOGISTS (BSP)

Date : 24th October, Friday, 2025
Venue : Milon Hall & Milton Hall, Bangladesh Medical University, Dhaka
Time: 10:00 AM – 08:30 PM

Sessions

Time	Keynote Session 1	Venue: Milon Hall
10.00 AM-10.25 AM	Application of Biotechnology in Medical Physiology and Allied : Education and Research Dr. Fahim Kabir Monjurul Haque (Ph.D)	
10.25 AM-10.30 AM	Q/A Session	

Time	Memorial Award Session	Venue: Milon Hall
10.30 AM-10.40 AM	Life and Contributions of Prof. Nayeema Akhter Awarding of Prof. Nayeema Akhter Memorial Medal	
10.45 AM-10.55 AM	Life and Contributions of Prof. Abdur Rahman Awarding of Prof. Abdur Rahman Memorial Medal	
10.55 AM-11.15 AM	Nutrition Break	

Time	Annual General Meeting (AGM)	Venue: Milon Hall
11.15 AM -1.00 PM	Annual General Meeting (AGM)	

Jummah Prayer & Lunch Break (01:00 PM-02:30 PM)

Time	Keynote Session 2	Venue: Milon Hall
2.30 PM-2.55 PM	AI Uses in Medical Physiology and Research - Applying Artificial Intelligence for Objective Emotion Detection Using EEG Mohammad Adnan Hossain	
2.55 PM-3.00 PM	Q/A Session	

Keynote Session 3

Time	Neuro/Endocrine Sesson (Milon Hall)	Time	Cardio/Respiratory Session (Milton Hall)
03.10 PM-03.35 PM	Cerebrovascular Disease: Clinical Correlation of Brain Blood Supply and Neurophysiology Dr. Jalal Uddin Mohammad Rumi	03.10 PM-03.35 PM	COPD and its Pathophysiology: Through the Lens of Spirometry Dr. Md Ferdous Wahid
03.35 PM-03.40 PM	Q/A Session	03.35 PM-03.40 PM	Q/A Session

SCIENTIFIC SESSION 1

Time	Free Paper Session - 1		Venue: Milton Hall
03.45 PM-04.20 PM	OP-01	Comparison of blood pressure among physicians in relation to shift work and duration of employment. Dr. Ayesha Nasrin	
	OP-02	Effect of air conditioner on pulmonary functions of nonsmoker healthy adult male. Dr. Sharmin Ara Begum	
	OP-03	Correlation of spirometric lung function status with BMI in young adult medical Students Dr. Mohammad Abu Numan Emon	

Time	Free Paper Session - 2		Venue: Milon Hall
03.45 PM-04.20 PM	OP-04	Status of body mass index, blood pressure in low dose oral contraceptive pill users. Dr. Arifa Begum	
	OP-05	Side stream cigarette smoke induced spatial memory impairment - prevented by climbing in male Long Evans rats. Dr. Adity Ara Trisha	

Asr Prayer & Light Refreshment (4.20 PM-4.40 PM)

Time	Workshop on Medical Education: Assessment Tools & Accreditation	Venue: Milon Hall
	Model of SEQ, SOE & OSPE	
04.40 PM-04.50 PM	Speaker: 1. Dr. Shams Ruhani Islam (Curriculum: SEQ)	
04.50 PM-05.00 PM	Speaker 2: Dr. Iffat Jahan (SOE)	
05.00 PM-05.10 PM	Speaker 3: Dr. Mijanur Rahman (OSPE)	
	Accreditation Process & Procedure (Update)	
05.10 PM-05.20 PM	Speaker 1: Prof. Dr. Latifa Afrin Dill Naher	
05.20 PM-05.30 PM	Speaker 2: Dr. Sumaiya Mohammad	
05.30 PM-05.40 PM	Q/A Session	

Maghrib Prayer (5.40 PM-06.00 PM)

SCIENTIFIC SESSION 2
Prof. Mosharraf Hossain Molla Memorial Poster Presentation

Time	Poster Presentation 1 (Milton Hall)	Time	Poster Presentation 2 (Milton Hall)
06.00 PM-06.50 PM	AI in Medical Education & Research	6.00 PM-6.50 PM	Biomedical Research

Time	Prof. MA Hai Memorial Oration	Venue: Milon Hall
06.50 PM-07.20 PM	Concept of Quantitative EEG Prof. Dr. Sultana Ferdousi & Dr. Nadia Sikder	

Time	Closing Session Followed by Dinner	Venue: Milon Hall
07.30 PM-08.30 PM	Closing Session followed by Dinner Milon Hall Extension	

We warmly welcome you to join us in this academic and professional exchange of ideas.

Organized by:

BANGLADESH SOCIETY OF PHYSIOLOGISTS (BSP)

Motto of the 7th National Convention:

1: Innovations in Physiology Education & research

2: Assessing competence in MBBS curriculum 2021: Tools & techniques

KEYNOTE SESSION 1

Date: 24th October, Friday, 2025

Time: 10.00 AM-10.30 AM

Venue: Milon Hall, Bangladesh Medical University, Dhaka, Bangladesh

Time	*Topic & Speaker*
10.00-10.25 am	Application of Biotechnology in Medical Physiology and Allied : Education and Research" **Dr. Fahim Kabir Monjurul Haque (Ph.D)** *Associate Professor, Microbiology* *Dept. of Mathematics & Natural Sciences* *School of Data and Sciences. BRAC University*
10.25-10.30 am	Q/A Session

DR. FAHIM KABIR MONJURUL HAQUE (Ph.D)
Associate Professor, Microbiology
Dept. of Mathematics & Natural Sciences
School of Data and Sciences, BRAC University

Dr. Fahim Kabir Monjurul Haque is an Associate Professor of Microbiology at BRAC University, where he also leads the Microbiome and Antibiotic Resistance (AMR) Lab and chairs the Biomedical Research Review Board. He joined BRAC University as an Assistant Professor in January 2019 after working as an assistant professor at Wakayama Medical University in Japan. Dr. Haque earned his PhD in Medical Sciences from Kumamoto University in 2017, funded by the HIGO Program scholarship from MEXT, and holds both M.Sc. and B.Sc. degrees in Microbiology from the University of Dhaka. Before going for his PhD, he served as a researcher at icddr,b's Virology Laboratory.

Throughout his research career, he has studied developmental biology, regenerative medicine, infectious diseases, and antimicrobial resistance (AMR). His work includes investigating the molecular mechanisms of kidney development using animal models, understanding the pathogenesis of congenital kidney disease with patient-specific iPS cell-derived kidney organoids, and researching child pneumonia etiology, HIV sero-surveillance, COVID-19, and antibiotic resistance. He has published numerous articles in these fields in top-tier international peer-reviewed journals as both the first and corresponding author. Currently, at BRAC University, his research focuses on antimicrobial resistance through the One Health approach.

APPLICATION OF BIOTECHNOLOGY IN MEDICAL PHYSIOLOGY AND ALLIED FIELDS: EDUCATION AND RESEARCH

Dr. Fahim Kabir Monjurul Haque (Ph.D)
Associate Professor, Microbiology, Dept. of Mathematics & Natural Sciences, School of Data and Sciences, BRAC University

Biotechnology is causing a paradigm shift in medical physiology and related health fields, redefining research, clinical practices, and professional education. Key technologies such as CRISPR-Cas gene editing, next-generation sequencing, hiPSC-based disease modeling, and regenerative medicine are reshaping our understanding of human biology at both the system and molecular levels. A prime example is the development of human kidney organoids from patient-derived iPSCs, which enables disease modeling, mechanistic investigation, and therapeutic screening for complex renal disorders. Recent studies have shown that kidney organoids not only mimic developmental stages but also facilitate the investigation of impaired NEPHRIN localization and slit diaphragm formation in nephrotic disease, highlighting the translational potential of developmental biology approaches in regenerative medicine.

This paradigm shift from simply treating symptoms to the rational design of cellular therapies signifies medicine's move into bioengineering. Consequently, related health professions must adapt by acquiring new skills in cellular and molecular biology, bioinformatics, computational biology, data analytics, and genomic literacy. Updating the core healthcare curriculum is crucial to foster an interdisciplinary approach that integrates biology, data science, and engineering.

With rapidly advancing fields like AI-driven drug design, microbiome therapeutics, personalized medicine, gene therapy, and organoid-based regenerative medicine, these advances also bring important ethical and social challenges related to governance, equity, and human enhancement. Navigating this new medical landscape will require a new generation of professionals who have technical skills, ethical reasoning, and teamwork abilities—people capable of responsibly shaping the future of medicine while using progress in developmental biology and organoid technology.

MEMORIAL AWARD SESSION

Date: 24th October, Friday, 2025

Time: 10.25 AM-10.55 AM

Venue: Milon Hall, Bangladesh Medical University, Dhaka, Bangladesh

Time	*Topic & Speaker*
10.30-10.40 am	Life and Contributions of Prof. Nayeema Akhter Awarding of Prof. Nayeema Akhter Memorial Medal
10.45-10.55 am	Life and Contributions of Prof. Abdur Rahman Awarding of Prof. Abdur Rahman Memorial Medal
10.55-11.15 am	Nutrition Break

7th National Convention, Scientific Seminar and Annual General Meeting

Professor Nayeema Akhter Memorial Award

Bangladesh Society of Physiologists (BSP) introduced the "**Professor Nayeema Akhter Memorial Award**" in 2018. The award is offered annually to an **MD (Physiology) student of BMU who secures the highest marks in the MD course and successfully passes all examinations on schedule.**

Year	Student Awarded
2018	Dr. Syeda Fadia Tasnim
2019	Dr. Shomia Farid Tanni
2020	Dr. Md. Monimul Islam
2021	Dr. Nadia Mahasinil Islam
2022	Dr. Bipasha Sarkar
2023	Dr. Israt Jahan
2024	Dr. Rokhsana Binte Amin

A Tribute to

PROF. NAYEEMA AKHTER
(1954-2016)

Professor Nayeema Akhter was Head of Physiology of Chittagong Medical College and later that of Chattogram Ma Sishu Hospital Medical College till her demise. K33 alumnus of Dhaka Medical College as she was, worked as medical officers in many rural and urban public run health care outfits until she was lecturer of Physiology at Chittagong Medical College. She passed MPhil in Physiology from the then IPGMR in 1991. From lecturer she became Assistant Professor followed by Associate finally confirmed as Professor of Physiology in 2005. Besides being a dedicated teacher, even then she maintained all other family and social ties in a balanced manner. A spouse, a mother, a housekeeper, a sister, a daughter, a daughter in law and a greater family binder. Beneath her tough exterior was a genuinely kind and caring nature. She was such dedicated that few days before her death she took scheduled classes and examinations. Children of the family and beyond used to love such that they always cling to her literally. She was one of the pioneer activists of Sondhani when it began at Dhaka Medical College. She was always diligent in research plus publication works and participation in seminars and similar activities. She has many publications on her credit. Close to her heart was Curriculum Messup and plundering. She always repented and voiced for the period slicing and snatching from the First Professional Group by 6 months. She labelled her works on the Curriculum as ‘Mathematics of First Professional Curriculum’. A week before her last breath she presented her last lecture ‘Mathematics of First Professional Curriculum’, a plenary lecture at the First International Semar of Chittagong Ma O Sishu Medical College. She died from breast cancer that was initially dismissed by her and her doctors as 'nothing serious' until it was detected at Stage IV. She was active as well in social works being a member of Bangladesh Kidney Foundation where she donated half of her retirement benefits and also as a member of Bangladesh Society of Physiologists (BSP). She left behind her spouse, a son and a daughter and many more to mourn her demise. Her kids are now an Account and a Doctor respectively, with addons, a daughter in law and a son in law plus 3 grands two daughters and one son. She will be remembered by her family near and dear ones plus professional colleagues and other acquaintances.

— Prof. Emran Bin Yunus
(Husband of Late Prof. Nayeema Akhter)

Professor Nayeema Akhter
Memorial Award Winner 2021

Name	:	**Dr. Nadia Mahasinil Islam**
Father's name	:	A.N.M Serajul Islam
Mother's name	:	Rabeya Akter Begum
Date of birth	:	14/10/1981
Name of Medical	:	Sir Salimullah Medical College
Date of admission in MD (Physiology) course in BMU	:	March, 2018
Date of passing MD (Physiology) course	:	July, 2021
Marks obtained in MD (Physiology) course	:	1528 out of 2100
Present address	:	971/1, East Monipur,Mirpur-2, Dhaka
Permanent address	:	971/1, East Monipur,Mirpur-2, Dhaka
Religion	:	Islam
Nationality	:	Bangladeshi
Siblings	:	Three sisters
SSC result	:	896 (Star Marks with 6 letters)
HSC result	:	754 (Star Marks with 2 letters)
Contact no.	:	01625061846

Professor Nayeema Akhter

Memorial Award winner 2022

Name	:	**Dr. Bipasha Sarkar**
Father's name	:	Bikash Chandra Sarkar
Mother's name	:	Bijali Rani Sarkar
Date of birth	:	07/09/1988
Name of Medical	:	Shaheed Ziaur Rahman Medical College
Date of admission in MD (Physiology) course in BMU	:	March, 2019
Date of passing MD (Physiology) course	:	July, 2022
Marks obtained in MD (Physiology) course	:	1518 out of 2100
Present address	:	Nilphamari Medical College, Nilphamari
Permanent address	:	Sreemontokati, Atuliabazar, Tala, Satkhira
Religion	:	Hindu
Nationality	:	Bangladeshi
Siblings	:	Three sisters
SSC result	:	GPA 4.74
HSC result	:	GPA 5.00
Contact no.	:	01718280950

Professor Nayeema Akhter

Memorial Award winner 2023

Name	:	**Dr. Israt Jahan**
Father's name	:	Md Ibrahim
Mother's name	:	Salma Jahan
Date of birth	:	10/11/1990
Name of Medical	:	Shaheed Suhrawardy Medical College
Date of admission in MD (Physiology) course in BMU	:	March, 2020
Date of passing MD (Physiology) course	:	July, 2023
Marks obtained in MD (Physiology) course	:	1563 out of 2100
Present address	:	3/7/ka, Mohona Tower, 60 feet Road, Borobag, Mirpur-2, Dhaka-1216
Permanent address	:	Vill: Sonapur, PO: Raipur, PS: South Raipur, District: Lakshmipur
Religion	:	Islam
Nationality	:	Bangladeshi
Siblings	:	One brother, one sister
SSC result	:	GPA 5.00
HSC result	:	GPA 5.00
Contact no.	:	01732200918

Professor Nayeema Akhter

Memorial Award winner 2024

Name	:	**Dr. Rokhsana Binte Amin**
Father's name	:	Md. Ruhul Amin
Mother's name	:	Taslima Begum
Date of birth	:	19/11/1984
Name of Medical	:	Comilla Medical College
Date of admission in MD (Physiology) course in BMU	:	March, 2021
Date of passing MD (Physiology) course	:	July, 2024
Marks obtained in MD (Physiology) course	:	1575 out of 2100
Present address	:	Rupkotha Housing Society, Sutrapur, Bogura
Permanent address	:	Vill: Barun, PO: Barun Hat PS:Kapasia, Dist: Gazipur
Religion	:	Islam
Nationality	:	Bangladeshi
Siblings	:	One brother
SSC result	:	810 (Star marks with 5 letters)
HSC result	:	744 (First Division)
Contact no.	:	01742223511

7th National Convention, Scientific Seminar and Annual General Meeting

Prof. Abdur Rahman Memorial Award

'Prof. Abdur Rahman Memorial Award' is offered annually to an undergraduate medical student who secures highest marks in Physiology at the First Professional MBBS Examinatin of the University of Dhaka, provided the candidate has passed in the first chance and secured not less than 70% marks.

Year	Student Awarded	Name of Medical College
1992	Mr. M Abul Kalam Azad	Sher-e-Bangla Medical College
1993	Mr. AKM Monwarul Islam	Dhaka Medical College
1994	Mr. Mohammad Noor-A-Alam	Jahurul Islam Medical College
1995	Mr. Abu Sayeed Md Feroz Mustafa	Dhaka Medical College
1996	Mr Asgar Kamal Siddiqui	Sir Salimullah Medical College
1997	Mr. Mohammad Fahid Hashem	Bangladesh Medical College
1998	Mr. Md. Monower Hossain	Bangladesh Medical College
1999	Mr. Md. Abu Bakar Siddique	Sir Salimullah Medical College
2000	Ms. Nujhat Nadia Huq	Jahurul Islam Medial College
2001	Mr. Sayeed Farrukh Siddicky	Bangladesh Medical College
2002	Mr. S.M. Sabbir Enayet	Dhaka Medical College
2003	Mr. Md. Sazzad Samad	Dhaka Medical College
2004	Mr. Md. Redwanul Hoq	Dhaka Medical College
2008	Mr. Maimunal Mohammad Hemayet Uddin	Dhaka Medical College
2009	Mr. Rafid Ahmed	Dhaka Medical College
2010	Mr. Md. Imran Hossain	Sir Salimullah Medical College
2011	Ms. Urmita Datta	Dhaka Medical College
2012	Mr. Md. Muhaiminul Alam	Community Based Medical College
2013	Mr. Md. Mahun Rahman	Sir Salimullah Medical College
2016	Mashoon Billah	Shaheed Suhrawarduy Medial College
2016	Maisha Maliha	Dhaka Medial College
2019	Zinia Jannat Ananna	Dhaka Medical College
2019	Sheikh Hamid Bashir	Community Based Medical College
2020	Md. Muheebul Haq Khan	Ibrahim Medical College
2021	Omar Afif	Dhaka Medical College, Dhaka
2022	Rabeya Sultana Prapti	Dhaka Medical College, Dhaka
2023	Late Arvin Aditya	Dhaka Medical College, Dhaka
2024	Mouly Maliha Eidita	Dhaka Medical College, Dhaka

Professor Abdur Rahman

Memorial Award Winner 2021

Name	:	**Omair Afif**
Father's name	:	Md. Giasuddin Talukder
Mother's name	:	Imamzadi Shifae Millat
Date of birth	:	06/02/2000
Name of Medical	:	Dhaka Medical College
Date of passing 1st Prof Exam	:	April, 2022
Position in 1st Prof Exam	:	1st
Marks obtained in Physiology	:	360 out of 400
Present address	:	Room no- 228, Shaheed Dr. Fazle Rabbi Hall, Dhaka Medical College, Dhaka
Permanent address	:	Bangajir bari, Lalanagar, Dhamairhat, Rangunia, Chittagong, Bangladesh.
Religion	:	Islam
Nationality	:	Bangladeshi
Siblings	:	One elder sister, one younger brother
SSC result	:	GPA 5.00
HSC result	:	GPA 5.00
Contact no.	:	01554325677

Professor Abdur Rahman
Memorial Award winner 2022

Name	:	**Rabeya Sultana Prapti**
Father's name	:	Md. Abu Raihan
Mother's name	:	Mst. Thamina Akter
Date of birth	:	13/08/2002
Name of Medical	:	Dhaka Medical College
Date of passing 1st Prof Exam	:	May, 2023
Position in 1st Prof Exam	:	6th
Marks obtained in Physiology	:	372 out of 400
Present address	:	Room no 60, Dr. Alim Chwdhury Hall, Dhaka Medical College, Dhaka.
Permanent address	:	PO-Kamarpara, PS-Shajahanpur District-Bogura, Bangladesh.
Religion	:	Islam
Nationality	:	Bangladeshi
Siblings	:	One younger brother
SSC result	:	GPA 5.00
HSC result	:	GPA 5.00
Contact no.	:	01734437691

Professor Abdur Rahman

Memorial Award winner 2023

(We mourn)

Name	:	**Late Arvin Aditya**
Father's name	:	Ganapati Aditya
Mother's name	:	Shipra Sarker
Date of birth	:	27/12/2001
Name of Medical	:	Dhaka Medical College
Date of passing 1st Prof Exam	:	November, 2023
Position in 1st Prof Exam	:	1st
Marks obtained in Physiology	:	373 out of 400
Present address	:	Room No - 130, Shaheed Dr. Fazle Rabbi Hall, Dhaka Medical College, Dhaka (Deceased)
Permanent address	:	Flat- 10/A, Rongdhonu Tower, 18 Amrito Babu Road, Mymensingh (Deceased)
Religion	:	Hindu
Nationality	:	Bangladeshi
Siblings	:	One elder brother
SSC result	:	GPA 5.00
HSC result	:	GPA 5.00
Contact no.	:	01316046105 (Deceased)

Professor Abdur Rahman
Memorial Award winner 2024

Name	:	**Mouly Maliha Eidita**
Father's name	:	Md. Mashiur Rahman
Mother's name	:	Most. Masuma Yasmin
Date of birth	:	02/02/2004
Name of Medical	:	Dhaka Medical College
Date of passing 1st Prof Exam	:	November, 2024
Position in 1st Prof Exam	:	1st
Marks obtained in Physiology	:	368 out of 400
Present address	:	19/1/E, Sheikh Shaheb Bazar, Lalbagh, Dhaka
Permanent address	:	Namatari, Lalmonirhat Sadar, Lalmonirhat
Religion	:	Islam
Nationality	:	Bangladeshi
Siblings	:	One elder sister
SSC result	:	GPA 5.00
HSC result	:	GPA 5.00
Contact no.	:	01767233011

KEYNOTE SESSION 2

Date: 24th October, Friday, 2025

Time: 2.30 PM-3.05 PM

Venue: Milon Hall, Bangladesh Medical University, Dhaka, Bangladesh

Time	*Topic & Speaker*
2.30-2.55 pm	AI Uses in Medical Physiology and Research"- Applying Artificial Intelligence for Objective Emotion Detection Using EEG **Mohammad Adnan Hossain** *Software Engineer II, Therap (BD) Lt. Banani* *Dhaka, Bangladesh*
2.55-3.00 pm	Q/A Session

MOHAMMAD ADNAN HOSSAIN
Software Engineer II
Therap (BD) Ltd.
Banani, Dhaka, Bangladesh

Mohammad Adnan Hossain is a passionate Software Engineer II at Therap BD Ltd., holding a Bachelor of Science in CSE from BRAC University. As an avid learner, he is deeply skilled in web development and machine learning, with a strong portfolio of projects built using Java and Python.

What sets Adnan apart is his unique research experience in the cutting-edge field of Brain-Computer Interface (BCI), python and MATLAB to tackle complex scientific challenges. This diverse background showcases his versatility and ability to bridge practical software engineering with advanced research. He is a dynamic professional dedicated to building innovative solutions and pushing the boundaries of technology.

APPLYING ARTIFICIAL INTELLIGENCE FOR OBJECTIVE EMOTION DETECTION USING EEG

Mohammad Adnan Hossain

Software Engineer II, Therap (BD) Lt. Banani, Dhaka, Bangladesh

Artificial Intelligence (AI) is creating new opportunities in medicine by enabling the analysis of complex biological signals to gain more objective insights into a patient's physiological state. This research demonstrates a direct application of this technology by using AI to interpret brainwave activity (EEG) for the objective detection of human emotions. Using a public collection of EEG recordings, this study focused on signals from the prefrontal cortex, a region critical for emotion regulation. We developed a computational process where AI models were trained to identify key patterns within these brainwave signals. The models learned to link these patterns to specific emotional states, categorizing them based on their intensity (arousal: calm vs. excited) and nature (valence: pleasant vs. unpleasant). The trained models successfully interpreted the brainwave data, achieving an accuracy of up to 70% in identifying these core emotional components. This study demonstrates that AI can serve as a valuable tool for objectively assessing a person's emotional state, holding potential to support clinical evaluations in fields like psychiatry and neurology where objective measures of a patient's internal state are highly beneficial.

Keywords: Artificial Intelligence, EEG, Emotion Detection, Neurophysiology, Clinical Applications

KEYNOTE SESSION 3

(Neuro/Endocrine Session)

Date: 24th October, Friday, 2025

Time: 3.10 PM-3.40 PM

Venue: Milon Hall, Bangladesh Medical University, Dhaka, Bangladesh

Time	*Topic & Speaker*
3.10-3.35 pm	Cerebrovascular Disease: Clinical Correlation of Brain Blood Supply and Neurophysiology **Dr. Jalal Uddin Mohammad Rumi** *Associate Professor, Neurosurgery,* *National Institute of Neurosciences (NINS)*
3.35-3.40 pm	Q/A Session

Dr. Jalal Uddin Mohammad Rumi
Associate Professor, Neurosurgery
National Institute of Neurosciences and Hospital (NINS).

Dr. Jalal Uddin Mohammad Rumi is an Associate Professor of Neurosurgery at the National Institute of Neurosciences and Hospital, Dhaka. He obtained his MBBS from Sir Salimullah Medical College under Dhaka University in 1998, MS in General Surgery from Rajshahi Medical College in 2010, and MS in Neurosurgery from Dhaka Medical College under BSMMU in 2015.

He has received specialized training in Epilepsy and Deep Brain Stimulation (DBS) at Sree Chitra Tirunal Institute, India; Stereotactic and Functional Neurosurgery at ASSFN, USA; Academic Visitor at Oxford Functional Neurosurgery, UK; and Noble Art of Lesioning in Marseille, France.

Dr. Rumi has presented many scientific papers in national and international conferences, particularly on epilepsy surgery, movement disorders, stereotactic neurosurgery, and peripheral nerve tumors. He has delivered invited talks on epilepsy, Parkinson's disease, and movement disorders on several important occasions.

He has authored and co-authored multiple publications in reputed journals, including works on cerebral revascularization, neurovascular decompression, optic nerve sheath fenestration, and epilepsy surgery. He is also a co-editor of the book Principles of Neurosurgery published in 2024.

Dr. Rumi is an active member of several professional bodies, including the Bangladesh Medical and Dental Council, Bangladesh Medical Association, Society of Surgeons of Bangladesh, Bangladesh Society of Neurosurgeons, and European Society of Stereotactic and Functional Neurosurgeons.

CEREBROVASCULAR DISEASE: CLINICAL CORRELATION OF BRAIN BLOOD SUPPLY AND NEUROPHYSIOLOGY

Dr. Jalal Uddin Mohammad Rumi
Associate Professor, Neurosurgery, National Institute of Neurosciences and Hospital (NINS).

Cerebrovascular disease encompasses a broad range of disorders affecting the blood vessels of the brain, leading to ischemic or hemorrhagic injury. The pathophysiology primarily involves atherosclerosis, small vessel lipohyalinosis, cardioembolism, arterial dissection, and vascular malformations, each contributing to altered cerebral perfusion, vessel rupture, or thrombosis. These events trigger complex cascades including excitotoxicity, oxidative stress, neuroinflammation, and blood–brain barrier disruption, ultimately resulting in neuronal death and neurological deficits. Treatment strategies have evolved into a multi-tiered spectrum. Acute ischemic stroke is addressed through intravenous thrombolysis and mechanical thrombectomy, while hemorrhagic stroke may require rapid blood pressure management, reversal of coagulopathy, and surgical evacuation of hematoma or aneurysm securing. Secondary prevention encompasses antiplatelet or anticoagulant therapy, lipid-lowering agents, blood pressure control, and lifestyle modification. Surgical and endovascular interventions, including carotid endarterectomy, carotid artery stenting, Extracranial - intracranial bypass surgery, aneurysm coiling, clipping, and arteriovenous malformation resection or embolization, play pivotal roles in preventing recurrent events and treating high-risk vascular lesions. A crystal clear understanding of patho-physiology is critical in decision making and management planning. Acomprehensive, multidisciplinary approach integrating rapid diagnosis, individualized medical therapy, and timely surgical or endovascular management is critical to improving outcomes in patients with cerebrovascular disease.

KEYNOTE SESSION 3

(Cardio/Respiratory Session)

Date: 24th October, Friday, 2025

Time: 03.10 PM-03.40 PM

Venue: Milton Hall, Bangladesh Medical University, Dhaka, Bangladesh

Time	*Topic & Speaker*
3.10-3.35 pm	COPD and its Pathophysiology: Through the Lens of Spirometry **Dr. Md. Ferdous Wahid** *Associate Professor, Respiratory Medicine* *National Institute of Diseases of the Chest & Hospital*
3.35-3.40 pm	Q/A Session

DR. MD FERDOUS WAHID
Associate Professor (Respiratory Medicine)
National Institute of Diseases of the Chest and Hospital (NIDCH)
Dhaka, Bangladesh

Dr. Md Ferdous Wahid is currently working as an Associate Professor in the department of Respiratory Medicine at National Institute of Diseases of the Chest and Hospital (NIDCH), Mohakhali, Dhaka. He obtained MBBS from Sir Salimullah Medical College (SSMC), Dhaka. Then he passed MCPS in Medicine from Bangladesh College of Physician and Surgeon (BCPS), Dhaka. Thereafter he achieved “Doctor of Medicine (MD)”in Chest Diseases from National Institute of Diseases of the Chest and Hospital (NIDCH), Dhaka under Dhaka University. The Respiratory Global Research and Training (GREAT) Network Fellowship 2011, Department of Public Health Science, University of Toronto, Canada awarded him. He is the scientific secretary of Bangladesh Lung Foundation and Office secretary of Evidence Based Clinical Practice (EBCP), Bangladesh. He is the life member of Asthma Association Bangladesh and Chest & Heart association, Bangladesh. His areas of interest expertise include intervention pulmonology- EBUS TBNA, conventional TBNA, Pleuroscopy, Cryobiopsy and Cryosurgery, APC, Bronchial stenting, Bronchial thermoplasty, Asthma, COPD, Interstitial Lung Disease and lung function testing, multidrug resistant tuberculosis.

COPD AND ITS PATHOPHYSIOLOGY: THROUGH THE LENS OF SPIROMETRY

Dr. Md Ferdous Wahid

Associate Professor (Respiratory Medicine), National Institute of Diseases of the Chest and Hospital (NIDCH), Dhaka, Bangladesh

Chronic Obstructive Pulmonary Disease (COPD) remains a leading cause of morbidity and mortality worldwide, characterized by persistent airflow limitation and a progressive decline in lung function. The pathophysiological underpinnings of COPD through the diagnostic and monitoring framework of spirometry—a cornerstone in lung function measurement. The disease's hallmark features, including chronic inflammation, structural remodeling of the airways, and parenchymal destruction, manifest as measurable changes in spirometric indices such as Forced Expiratory Volume in one second (FEV_1), Forced Vital Capacity (FVC), and the FEV_1/FVC ratio. These parameters not only facilitate early detection and staging but also provide critical insights into disease progression and therapeutic response. By correlating spirometric patterns with underlying pathophysiological mechanisms—such as small airway narrowing, loss of elastic recoil, and mucus hypersecretion—this review underscores the indispensable role of spirometry in translating complex pulmonary pathology into actionable clinical data.

SCIENTIFIC SESSION 1

FREE PAPER SESSION 1

Cardio/Respiratory Session (Oral Presentation)

Date: 24th October, Friday, 2025

Time: 3.45 PM-4.20 PM

Venue: Milton Hall, Bangladesh Medical University, Dhaka, Bangladesh

	Topic & Speaker
OP-01	Comparison of blood pressure among physicians in relation to shift work and duration of employment. **Dr. Ayesha Nasrin** *North Bengal Medical College, Sirajganj*
OP-02	Effect of air conditioner on pulmonary functions of nonsmoker healthy adult male. **Dr. Sharmin Ara Begum** *Army Medical College, Chattogram*
OP-03	Correlation of spirometric lung function status with BMI in young adult medical Students **Dr. Mohammad Abu Numan Emon** *Chittagong Medical College, Chattogram*

ASR PRAYER & LIGHT REFRESHMENT

Time : 4.20 PM-4.40 PM

OP-1

COMPARISON OF BLOOD PRESSURE AMONG PHYSICIANS IN RELATION TO SHIFT WORK AND DURATION OF EMPLOYMENT

Ayesha Nasrin[1], Nazia Nusrat Ria[2], Momena Khatun Munna[3], Shahnaz Akhter[4], Fatema Khatun[5]

[1]North Bengal Medical College, Sirajganj, Bangladesh; [2,3,4,5]Rajshahi Medical College, Rajshahi, Bangladesh

Background: Shift work has been associated with various health problems. Disruption of workers' normal social or biological circadian rhythms, or both, contributes to health risks among shift workers. **Objective:** To compare blood pressure between shift and non-shift physicians. **Methods:** This cross-sectional comparative study was conducted in the Department of Physiology, Rajshahi Medical College, from January to December 2022. Ethical approval was obtained from Institutional Review Board of Rajshahi Medical College. A total of 230 physicians aged 25–35 years from Rajshahi Medical College and Hospital were selected using purposive sampling. Data were collected using a pre-designed, validated questionnaire. **Results:** The mean age of shift physicians was 30.36 ± 3.13 years, compared to 29.10 ± 3.17 years for non-shift physicians. Overweight prevalence was higher among shift physicians (75.7%) than non-shift physicians (50.4%). Mean BMI was 26.75 ± 1.10 kg/m² for shift physicians and 25.34 ± 2.31 kg/m² for non-shift physicians. The mean duration of shift work was 4.91 ± 2.38 years. Hypertension prevalence was 26.1% among shift physicians and 10.4% among non-shift physicians, while pre-hypertension was 14.8% and 9.6%, respectively. Both mean systolic and diastolic blood pressures were significantly higher in shift physicians ($p < 0.05$). A strong association was observed between duration of shift work and blood pressure status. **Conclusion:** Shift work is associated with a higher risk of hypertension among physicians compared to their non-shift counterparts. As shift work is common in both industrialized and developing countries, interventions to mitigate such risks among physicians should be implemented.

Key words: Shift Work, Non-Shift Work, Blood Pressure

OP-2

EFFECT OF AIR CONDITIONER (AC) USE ON PULMONARY FUNCTIONS OF NON-SMOKER HEALTHY ADULT MALES

Sharmin Ara Begum[1], Mohammad Syedul Alam Kuryshi[2], Momtaz Begum[3], Shahin Akhter[4], Iffat Jahan[5], Mir Mahbubur Rahman[6]

[1]Army Medical College, Chittagong, Bangladesh; [2]Sadar Hospital, Khagrachari, Bangladesh;[3,4]Chittagong Medical College, Chittagong, Bangladesh; [5]Brahmanbaria Medical College, Brahmanbaria, Bangladesh; [6]BIHS General Hospital, Dhaka, Bangladesh

Background: Rising environmental temperature is one of the effects of Climate change. Intensive use of AC has become a component of the modern lifestyle. However, prolonged inhalation of cold, dry air makes airway smooth muscle and mucosal structures more sensitive, which may reduce pulmonary functional capacity. **Objective:** To assess the effect of air conditioner, use on pulmonary functions in relation to job duration in the experimental group. **Methods:** This quasi-experimental study was conducted in the Department of Physiology, Chittagong Medical College, Chattogram, from January to December, 2019, in collaboration with Continental Group Private Limited, Chattogram, and EPV (Energypac Power Venture) Limited, Patiya, Chattogram. Ethical approval was obtained from the Institutional Ethics Committee of Chittagong Medical College, Chattogram. Informed written consent was obtained from all participants. A total of 35 apparently healthy non-smoker adult males, aged 20–45 years, working in an air-conditioned environment, were included as cases. Pulmonary function test parameters were measured using a digital spirometer (Chestgraph HI-101, Japan) and pulse oximeter. Data were analyzed using SPSS version 25, applying unpaired Student's t-test, paired Student's t-test, and ANOVA. **Results:** Dynamic pulmonary function parameters decreased significantly with longer duration of AC exposure ($p<0.05$). No significant differences were observed in FVC, FEV_1, FEV_1/FVC ratio, respiratory rate, or SpO_2 at two months compared with baseline ($p>0.05$). However, after two months, the mean values of FVC, FEV_1, and SpO_2 were reduced, while respiratory rate increased compared with initial measurements. **Conclusion:** Prolonged exposure to air-conditioned environments may negatively affect pulmonary function in healthy adult males.

Key words: Pulmonary Function Test, Air Conditioning, FVC, FEV_1, Respiratory Rate, SpO_2

OP-3

CORRELATION OF SPIROMETRIC LUNG FUNCTION STATUS WITH BMI IN YOUNG ADULT MEDICAL STUDENTS

Mohammad Abu Numan Emon[1], Shahin Akhter[2], Sheley Akter[3], Fahima Arefin[4], Khadizatul Kobra[5]

[1,2,3,4]Chittagong Medical College, Chittagong, Bangladesh; [5]Institute of Applied Health Sciences, University of Science and Technology Chattogram, Chittagong, Bangladesh

Background: The correlation between body weight and health is a significant public health concern. An increased body mass index (BMI) is associated with systemic complications that impair organ and tissue function. Lung function in children, adolescents, and adults is also negatively affected by higher BMI. **Objective:** This study aimed to assess the correlation between spirometric lung function and BMI in young adult medical students in Chattogram, Bangladesh. **Methods:** This analytical cross-sectional study included 120 medical students aged 18–25 years of both sexes from Chittagong Medical College, Chattogram. Spirometric parameters, including forced vital capacity (FVC), forced expiratory volume in one second (FEV1), and FEV1/FVC ratio, were measured using digital spirometry (Vyntus™ SPIRO, USA and Japan) in the Department of Physiology. Data were analyzed using SPSS version 26. Correlation between predicted lung function parameters and BMI was assessed using Pearson's correlation test. Ethical approval was obtained from the Institutional Review Board of Chittagong Medical College, and informed consent was taken from all participants. **Results:** FVC and FEV1 showed a significant negative correlation with BMI ($p < 0.05$). **Conclusion:** FVC and FEV1 are inversely correlated with BMI, suggesting that higher BMI adversely affects lung function in young adults.

Key words: BMI, Spirometry, Lung Function, Medical Students

FREE PAPER SESSION 2

Neuro/Endocrine Session (Oral Presentation)

Date: 24th October, Friday, 2025

Time: 3.45 PM-4.20 PM

Venue: Milon Hall, Bangladesh Medical University, Dhaka, Bangladesh

	Topic & Speaker
OP-04	Status of body mass index, blood pressure in low dose oral contraceptive pill users. **Dr. Arifa Begum** *Shaheed Monsur Ali Medical College, Uttara*
OP-05	Side stream cigarette smoke induced spatial memory impairment -prevented by climbing in male Long Evans rats. **Dr. Adity Ara Trisha** *Dhaka Medical College, Dhaka*

ASR PRAYER & LIGHT REFRESHMENT

Time : 4.20 PM-4.40 PM

OP-4

STATUS OF BODY MASS INDEX AND BLOOD PRESSURE IN LOW DOSE ORAL CONTRACEPTIVE PILL USERS

Arifa Begum[1], Akhtarun Nessa[2], Umme Honey Khanom[3], Ira Mansoora[4], Farhana Shamiha Joarder[5]

[1,5]Shaheed Monsur Ali Medical College, Uttara, Bangladesh; [2,3,4]Mymensingh Medical College, Mymensingh, Bangladesh

Background: Low-dose oral contraceptives are widely prescribed among reproductive-aged women. The most commonly used preparations combine estrogen and progesterone. However, long-term use of hormonal contraceptives may increase body mass index (BMI) and blood pressure. **Objective:** This cross-sectional analytical study aimed to evaluate BMI and blood pressure in low-dose oral contraceptive pill (OCP) users in the Mymensingh locality. **Methods:** The study was conducted in the Department of Physiology, Mymensingh Medical College, Bangladesh, from July 2023 to June 2024. A total of 140 reproductive-aged women (18–52 years) were enrolled. Seventy non-users served as the control group (Group I), and 70 OCP users were included as the study group (Group II). The study received approval from the Institutional Ethics Committee of Mymensingh Medical College. Data were analyzed using SPSS version 26.0, expressed as mean ± SD. Group differences were assessed by unpaired Student's *t*-test, and correlations among BMI, systolic blood pressure, and diastolic blood pressure were examined using Pearson's correlation coefficient. **Results:** The mean BMI was significantly higher in OCP users compared with controls (26.60 ± 1.94 vs. 23.24 ± 2.19 kg/m², $p<0.001$). Mean systolic blood pressure was also higher in OCP users (141.66 ± 5.47 vs. 122.93 ± 10.88 mmHg, $p<0.001$), as was mean diastolic blood pressure (91.87 ± 6.13 vs. 81.21 ± 5.92 mmHg, $p<0.001$). **Conclusion:** long-term OCP use is associated with significantly increased BMI and blood pressure. Regular follow-up of OCP users is recommended for early detection and prevention of complications.

Key words: Oral Contraceptive Pill, Body Mass Index, Blood Pressure, Reproductive Women

OP-5

SIDESTREAM CIGARETTE SMOKE INDUCED SPATIAL MEMORY IMPAIRMENT – PREVENTED BY CLIMBING IN MALE LONG EVANS RATS

Adity Ara Trisha[1], Saiful Islam Patwary[2], Mahbuba Sharmin Khan Pritom[3], Taskina Ali[4]

[1]Dhaka Medical College, Dhaka, Bangladesh; [2]Central Medical College, Comilla, Bangladesh; [3]Mugdha Medical College, Dhaka, Bangladesh; [4]Bangladesh Medical University, Dhaka, Bangladesh

Background: Sidestream cigarette smoke (SCS) causes both pulmonary and neural complications, including spatial memory impairment. Spatial memory is essential for locating places, objects, and events. Aerobic exercise, particularly climbing, may alleviate such impairment. **Objective:** To evaluate the effect of climbing on SCS-induced spatial memory impairment in male Long-Evans rats. **Methods:** This experimental study was conducted in the Department of Physiology, BMU, on 18 male Long Evans rats (8–10 weeks; 175 ± 25 g). Rats were divided into three groups: normal memory (fresh air), impaired memory (SCS: 2 cigarettes for 30 min twice daily), and experimental (climbing for 60 min daily plus SCS). Interventions continued for 30 consecutive days. Spatial memory was assessed by the Morris water maze (MWM) test, including escape latency (EL) for working memory (WM) and EL, target crossings (TC), and time in target (TT) for reference memory (RM). Data were expressed as mean ± SEM and analyzed with ANOVA followed by Bonferroni post hoc test ($p\leq0.05$ considered significant). Ethical approval was obtained from the Institutional Review Board of BMU. **Results:** Impaired memory rats showed significantly higher EL and lower TC and TT compared to normal rats ($p\leq0.001$). Experimental rats demonstrated significantly lower EL and higher TC and TT than impaired rats ($p\leq0.001$), with values nearly similar to those of normal controls. **Conclusion:** Climbing effectively prevents SCS-induced spatial memory impairment in male Long Evans rats.

Key words: Spatial Memory, Sidestream Cigarette Smoke, Climbing, Morris Water Maze, Working Memory, Reference Memory

WORKSHOP ON MEDICAL EDUCATION: ASSESSMENT TOOLS & ACCREDITATION

Date: 24th October, Friday, 2025

Time: 4.40 PM—5.40 PM

Venue: Milon Hall, Bangladesh Medical University, Dhaka, Bangladesh

Time	*Speaker*
MODEL OF SEQ, SOE & OSPE	
04.40-04.50 pm	Dr. Shams Ruhani Islam (Curriculum: SEQ)
04.50-05.00 pm	Dr. Iffat Jahan (SOE)
05.00-05.10 pm	Dr. Mijanur Rahman (OSPE)
ACCREDITATION PROCESS & PROCEDURE (UPDATE)	
05.10-05.20 pm	Prof. Dr. Latifa Afrin Dill Naher
05.20-05.30 pm	Dr. Sumaiya Mohammad
05.30-05.40 pm	Q/A Session

MAGHRIB PRAYER

Time : 05.40 PM - 06.00 PM

SCIENTIFIC SESSION

PROF. MOSHARRAF HOSSAIN MOLLA MEMORIAL
E-POSTER PRESENTATION

TOPIC: AI in Medical Education & Research; Biomedical Research

Date: 24th October, Friday, 2025

Time: 6.00 PM-6.50 PM

Venue: Milton Hall, Bangladesh Medical University, Dhaka, Bangladesh

	Topic & Speaker
PP 01	Association of serum zinc level with obesity. **Dr. Nishat Anjum** Bikrampur Bhuiyan Medical College, Munshiganj
PP 02	Effect of green tea consumption on blood pressure and serum lipid profile of hypertensive dyslipidemic adult individuals. **Dr. Nilufar Yasmin** Ad-Din Women's Medical College, Dhaka
PP 03	Cardiovascular responses to tilting in female migraine patients with impaired autonomic reaction. **Dr. Ananna Rani Sen** BMU, Dhaka
PP 04	Effect of chemical exposure on hemoglobin concentration of automobile mechanics in Dhaka city **Dr. Noor Sourav** Marine City Medical College, Chattogram
PP 05	Effectiveness of slow breathing exercise on pulmonary functions in patients with bronchial asthma **Dr. Sharmin Akhter** South Apollo Medical College, Barishal
PP 06	Comparative analysis of liver enzyme in population with or without occupational cement dust exposure **Dr. Aindrila Das Gupta** Chittagong Medical College, Chattogram
PP 07	Brain electrical activity in patients with epilepsy: A quantative EEG analysis. (Parameter: Absolute Power) **Dr. Nur Naher** Khwaja Yunus Ali Medical College, Sirajganj
PP 08	Influence of lemongrass essential oil on brain waves in postmenopausal women: A power spectral analysis of electroencephalogram **Dr. Nadia Sikder** BMU, Dhaka
PP 09	Effects of swimming exercise on spatial memory performance and hippocampal Arc protein in colchicine induced memory impaired male Swiss albino mice. **Md. Amir Uddin** Enam Medical College, Savar
PP 10	Spatial memory impairment by intrahippocampal administration of colchicine: can it be prevented and/or alleviated by swimming exercise? an experimental study in male long-evans rats **Rokhsana Binte Amin** Shaheed Ziaur Rahman Medical College, Bogura

	Topic & Speaker
PP 11	Can Phyllanthus emblica (amloki) alleviate colchicine-induced memory impairment? an experimental study in male long-evans rats **Fhamida Akter** Eastern Medical College, Cumilla, Bangladesh
PP 12	Effect of serum calcium, phosphate, and cholesterol levels in children with autism spectrum disorders **Md. Alim ur Rahman** Monowara Sikder Medical College, Shariyatpur
PP 13	Autism spectrum disorder and family dynamics **Md. Adnan Khan** Manikganj Medical College, Manikganj
PP 14	Assessment of serum triiodothyronine, free thyroxine, and thyroid stimulating hormone in children with attention deficit hyperactivity disorder **Rubya Sharmin** Magura Medical College, Magura
PP 15	Transforming Antibiotic Stewardship Through Digital Intervention: A Comprehensive Pilot Study in Bangladesh **Md. Jobayer Rahman** United International University
PP 16	Revolutionizing Clinical Documentation in Bangladesh Through AI-Powered Prescription Automation **Sakib Zaman** United International University
PP 17	Development and Validation of an Artificial Intelligence Integrated Screening Tool for Early Identification of Women at High Risk of Endometriosis in Bangladesh **Israt Jahan** United International University
PP 18	Digital Health Corner (DHC): Improving Employee Wellness and Addressing Non-Communicable Diseases through Workplace Digital Health Innovation **Nabila Binte Ayub** United International University
PP 19	Deep-depression: Feasibility to Design and Development of Brain Computer Interface (BCI) Based System for Identifying Depression using Neural Connectivity Analysis of Human Brain **Redwan-Ul-Bari** United International University
PP 20	NutritionGPT: An AI-Powered Lifestyle Coach for Bangladesh **Md. Hasan Ziaul** United International University
PP 21	AI-powered framework for future cvd risk prediction and continuous lifetime monitoring **Hasibul Hasan Asif** United International University (UIU), Dhaka,
PP 22	Bolte chai+: An intelligent cloud-based communication tool to enhance communication, speech and language for verbally challenged children with autism and NDD **Tahsina Moiukh** United International University, Dhaka
PP 23	Genomics-Guided Reconstruction of Species-Specific Metabolic Pathways in Klebsiella Pneumoniae, K. Quasipneumoniae, And K. Variicola **Mustafa Galb** BRAC University

Memorial Poster Session

A Tribute to

PROF. DR. MOSHARRAF HOSSAIN MOLLA
(1943-2025)

A legendary and eminent physiologist, Professor Dr. Mosharraf Hossain Mollah was born on 25 January 1943 in the district of Chuadanga. He was a devoted teacher, an accomplished researcher, and an active member of the Bangladesh Society of Physiologists (BSP).

Professor Mollah dedicated more than 45 years of his life to teaching Physiology in various government and non-government medical colleges. He obtained his MBBS degree from Chittagong Medical College, followed by an MPhil in Physiology from IPGMR (now BMU), and later earned his PhD in Physiology. In recognition of his outstanding contributions, he was conferred the prestigious title of Honorary Fellow by the Bangladesh College of Physicians and Surgeons (BCPS) — a rare and distinguished honor.

He served as Head of the Department of Physiology at several renowned institutions, including Chittagong Medical College, Sylhet Medical College, Sir Salimullah Medical College, and Dhaka Medical College. He also served as the Director of the Centre for Medical Education (CME), where he played a pivotal role in training medical teachers through specialized courses on Teaching Methodology.

Professor Mollah was deeply involved in the activities of the Bangladesh Society of Physiologists and participated actively in numerous national and international conferences. His contribution to medical education and research was profound. He authored many research articles published in reputed journals both at home and abroad and played a vital role in advancing physiology education in Bangladesh.

His name was proudly included in the 11th Edition of "Guyton and Hall, Textbook of Medical Physiology" as an Eminent Academician in South Asia for its Advisory Board - a testament to his excellence and international recognition.

A true pioneer, Professor Mollah was a mentor to countless students and young physiologists, always guiding them with sincerity, wisdom, and compassion. His teaching was clear, structured, and inspiring - earning him immense love and respect from students and colleagues alike.

Beyond academics, he was a man of integrity and principle, upholding honesty, discipline, and dedication throughout his life. His lifelong efforts in strengthening physiology education in Bangladesh remain invaluable and will continue to inspire future generations.

He was truly a teacher of teachers in the medical community - revered and respected by generations of students and professionals.

Professor Dr. Mosharraf Hossain Mollah passed away on Friday, 13 June 2025, at 9:10 a.m. at the Combined Military Hospital (CMH), Dhaka. He was laid to rest at the Banani Military Graveyard, Dhaka.

May Almighty Allah grant him Jannatul Ferdous and eternal peace.

Ameen.

(With deep respect and admiration, we, the members of the **Bangladesh Society of Physiologists**, reaffirm our commitment to follow in the footsteps of our revered senior teachers. Their dedication, sincerity, and lifelong passion for the subject of Physiology will continue to guide and inspire us. We shall strive, **InshaAllah**, to uphold their legacy and serve the discipline with the same devotion and dignity they exemplified.)

PP-1

ASSOCIATION OF SERUM ZINC LEVEL WITH OBESITY

Nishat Anjum[1], Roushon Ara Begum[2]

[1]Bikrampur Bhuiyan Medical College, Munshiganj, Bangladesh; [2]Sylhet MAG Osmani Medical College, Sylhet, Bangladesh

Background: Obesity is associated with alterations in micronutrient levels. Serum zinc is particularly significant in obesity due to its potential involvement in adipose tissue function and lipid metabolism. **Objective:** To explore the association of serum zinc levels with obesity. **Methods:** This cross-sectional comparative study was conducted at the Department of Physiology, Sylhet MAG Osmani Medical College, Sylhet, Bangladesh, from July 2022 to June 2023, the study included sixty adults aged 18–60 years of both sexes. Thirty obese individuals (BMI ≥ 25 kg/m²) were taken as Group A, and thirty age- and sex-matched healthy individuals (BMI 18.5–24.9 kg/m²) as Group B. Demographic data, anthropometric measurements, and biochemical markers were analyzed. The research protocol was approved by the Institutional Ethical Committee, and informed written consent was obtained from all participants. **Results:** Significant differences were observed between the obese and healthy groups in mean BMI (30.13 ± 2.39 vs. 21.88 ± 1.87 kg/m²), waist circumference (98.63 ± 6.14 vs. 79.23 ± 6.76 cm), and waist-hip ratio (0.94 ± 0.08 vs. 0.86 ± 0.06) ($p < 0.001$). Serum zinc levels were lower in the obese group (10.15 ± 1.03 µmol/L) compared to the healthy group (13.13 ± 1.33 µmol/L) ($p < 0.001$). A statistically significant difference was also noted in group distribution based on serum zinc level. Serum zinc levels showed significant negative correlations with BMI, waist circumference, and waist-hip ratio ($p < 0.001$). **Conclusion:** Serum zinc levels decrease in obese individuals, suggesting a possible association between zinc status and obesity.

Key words: Serum Zinc, Obesity

PP-2

FFECT OF GREEN TEA CONSUMPTION ON BLOOD PRESSURE AND SERUM LIPID PROFILE OF HYPERTENSIVE DYSLIPIDEMIC ADULT INDIVIDUALS

Nilufer Yasmin[1], Rama Choudhury[2]

[1]Ad-Din Womens Medical College, Dhaka, Bangladesh; [2]Sir Salimullah Medical College, Dhaka, Bangladesh

Background: Hypertension and dyslipidemia are the most common risk factors for CVD (cardiovascular diseases)-related deaths. Green tea (*Camellia sinensis*), rich in polyphenols, has been suggested to reduce the risk of CVDs by lowering blood pressure and serum cholesterol. **Objective:** To evaluate the effect of green tea on blood pressure and serum lipid profile in hypertensive dyslipidemic adult individuals. **Methods:** This quasi-experimental study was conducted in the Department of Physiology, Sir Salimullah Medical College & Mitford Hospital, Dhaka, from July 2023 to June 2024. A total of 92 hypertensive dyslipidemic adults aged 40–60 years were selected by purposive sampling from the outpatient department, hospital staff, and community contacts in Dhaka. Informed written consent was obtained from all participants. Ethical approval was granted by the Institutional Ethics Committee of Sir Salimullah Medical College & Mitford Hospital, Dhaka. Subjects were divided into two groups: Group A (experimental) consumed 250 ml of green tea twice daily after meals for 90 days in addition to regular antihypertensive medication (angiotensin receptor blocker or calcium channel blocker), while Group B (control) received only medication. Measurements of systolic and diastolic blood pressure, lipid profile were taken at baseline (day –1) and after intervention (day 91). Data were analyzed using paired and unpaired t-tests in SPSS version 22. A p value ≤0.05 was considered statistically significant. **Results:** After 90 days, SBP and DBP, TC, LDL-C, and triglycerides were significantly decreased ($p < 0.001$), while HDL-C was significantly increased ($p < 0.01$) in the experimental group compared to baseline. **Conclusion:** Green tea consumption, in conjunction with antihypertensive therapy, effectively reduces blood pressure and improves serum lipid profile in hypertensive dyslipidemic adults.

Key words: Dyslipidemia, Hypertension, Green Tea.

PP-3

CARDIOVASCULAR RESPONSES TO TILTING IN FEMALE MIGRAINE PATIENTS WITH IMPAIRED AUTONOMIC REACTION

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Background: Syncope is a common medical condition with numerous potential causes. Orthostatic hypotension (OH), the second most common cause, results from autonomic dysfunction. The incidence of OH is higher in migraine patients. **Objective:** To assess cardiovascular responses to tilt test in female migraine patients. **Methods:** This experimental study was conducted on 70 newly diagnosed female migraine patients aged 15–30 years with BMI 18.2–26.59 kg/m². Among them, 20 patients had normal autonomic function (Group MN) and 20 had impaired autonomic function (Group MI), assessed by the Conventional Autonomic Function Test (CAFT). Twenty healthy age- and BMI-matched women served as controls. Head-Up Tilt Test (HUTT) was performed by tilting subjects to 60° for 10 minutes using a motorized tilt table. Cardiovascular responses were measured by changes in heart rate (acceleration index, brake index), systolic BP ($SBP_{30s–0}$, $SBP_{1min–0}$), and diastolic BP ($DBP_{30s–0}$, $DBP_{1min–0}$). Data were analyzed using one-way ANOVA followed by Bonferroni's post hoc test. Ethical approval was obtained from the Institutional Review Board of Bangladesh Medical University. **Results:** The acceleration index was significantly lower in Group MI compared with Group MN ($p \leq 0.001$) and control ($p \leq 0.05$). The brake index was significantly lower in both patient groups than in controls ($p \leq 0.01$, $p \leq 0.05$), whereas no significant difference between Groups MN and MI. $SBP_{30s–0}$ was significantly higher in both patient groups than in the control group ($p \leq 0.01$, $p \leq 0.001$). $SBP_{1min–0}$ was higher in Group MI compared to Group MN ($p \leq 0.001$). $DBP_{30s–0}$ and $DBP_{1min–0}$ were significantly lower in Group MI than in Group MN and control ($p < 0.001$). **Conclusion:** Cardiovascular responses to tilting were impaired in migraine patients, more prominently in those with autonomic dysfunction.

Key words: Migraine, Syncope, Orthostatic Hypotension, Tilt Test

PP-4

REDUCED HEMOGLOBIN CONCENTRATION (Hb) OF AUTOMOBILE MECHANICS IN DHAKA CITY

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Background: Automobile mechanics are exposed to a range of occupational hazards due to their workplace environment. Many studies worldwide have reported low hemoglobin concentration due to exposure to heavy metals and chemicals such as lead, cadmium, chromium, benzene, and toluene. **Objective:** To determine the hemoglobin concentration of automobile mechanics in Dhaka city. **Methods:** A cross-sectional study was conducted in the Department of Physiology, Dhaka Medical College, Dhaka, from January 2024 to December 2024. A total of 80 participants were recruited by purposive sampling, comprising 40 in the study group (automobile mechanics) and 40 in the control group, after obtaining ethical approval. Statistical analysis was performed using SPSS for Windows version 26.0. Results were expressed as mean ± standard deviation (SD). A p-value < 0.05 was considered statistically significant. **Results:** The study was conducted among subjects aged 20–50 years according to inclusion and exclusion criteria. Hemoglobin concentration was significantly lower ($p < 0.001$) in the study group (automobile mechanics) compared with the control group. **Conclusion:** Hemoglobin concentration was significantly decreased in automobile mechanics compared with controls. Automobile mechanics are regularly exposed to harmful chemicals and heavy metals but generally do not use personal protective equipment. This occupational exposure may cause bone marrow depression, leading to anemia.

Key words: Automobile Mechanics, Hemoglobin, Heavy Metals

PP-5

EFFECTIVENESS OF SLOW BREATHING EXERCISE ON PULMONARY FUNCTIONS IN PATIENTS WITH BRONCHIAL ASTHMA

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Background: Asthma is a chronic inflammatory disease of the lungs and remains a major health problem worldwide. Recently, slow breathing techniques, particularly diaphragmatic breathing, have been used as adjunct therapy for asthma to help control symptoms. **Objective:** To assess the effectiveness of slow breathing exercise on pulmonary functions in patients with bronchial asthma. **Methods:** This interventional study was conducted in the Department of Physiology, Sir Salimullah Medical College, Dhaka, from January 1 to December 31, 2023. A total of 54 asthma patients (aged 21–45 years; both sexes) were recruited using purposive sampling from the OPD of Respiratory Medicine, Sir Salimullah Medical College and Mitford Hospital, Dhaka. Ethical approval was obtained from the Institutional Ethics Committee of Sir Salimullah Medical College Mitford Hospital. Informed written consent was obtained from all participants. Subjects performed slow breathing exercises (6 breaths/min for 10 minutes, twice daily) for 28 days. Pulmonary function parameters were measured on day 1 (phase A) and day 29 (phase B) using a digital auto spirometer. Data were expressed as mean ± SD and analyzed using paired-sample t-test in SPSS version 22. A p-value ≤ 0.05 was considered statistically significant. **Results:** After 28 days of slow breathing exercise, significant improvements were observed in FEV_1 ($p < 0.001$), FEV_1/FVC ratio ($p < 0.001$), PEFR ($p < 0.001$), and MVV ($p < 0.001$), while FVC increased non-significantly compared to baseline. **Conclusion:** Slow breathing exercise significantly improves pulmonary functions in patients with bronchial asthma and may serve as a useful adjunct to conventional treatment.

Key words: Forced Vital Capacity (FVC), Forced Expiratory Volume in the First Second (FEV_1), Maximum Voluntary Ventilation (MVV), Peak Expiratory Flow Rate (PEFR), Asthma, Diaphragmatic Breathing.

PP-6

COMPARATIVE ANALYSIS OF LIVER ENZYME IN THE POPULATION WITH AND WITHOUT OCCUPATIONAL CEMENT DUST EXPOSURE

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Background: Prolonged and repeated exposure to cement dust may cause serious occupational health hazards, affecting multiple organs, including the liver. Workers in cement factories are at high risk of such exposure. Chronic exposure to cement dust may impair liver function. **Objective:** This study aimed to assess the effects of cement dust exposure on liver enzymes in cement factory workers. **Methods:** This cross-sectional study was conducted from July 2022 to June 2023 at Confidence Cement Factory Ltd. and the Department of Physiology, Chittagong Medical College, after obtaining ethical clearance from the Institutional Review Board of Chittagong Medical College. A total of 96 apparently healthy male subjects, aged 20–50 years and with a BMI of 18.5–27.5 kg/m², were included through simple random sampling, according to the established inclusion and exclusion criteria. A questionnaire including general information, previous illnesses, and medical and family history was completed by the researchers. Physiological parameters (pulse, systolic, and diastolic blood pressure) were recorded. Serum alanine aminotransferase (ALT), aspartate aminotransferase (AST), and alkaline phosphatase (ALP) were measured. **Results:** Data were compiled and analyzed using SPSS-27. Chi-square and unpaired t-tests were used, with $p<0.05$ considered statistically significant. Mean values of serum ALT and AST were significantly higher in the cement dust-exposed group ($p<0.05$). Serum ALP showed non-significant changes between groups ($p>0.05$). **Conclusion:** Occupational exposure to cement dust is associated with alterations in liver function biomarkers, suggesting potential hepatocellular damage. Regular medical surveillance and preventive occupational health measures are recommended for populations at risk.

Key words: Cement Dust, Hepatocellular Damage, Occupational Health Hazard

PP-7

BRAIN ELECTRICAL ACTIVITY IN PATIENTS WITH EPILEPSY: A QUANTITATIVE EEG ANALYSIS (PARAMETER: ABSOLUTE POWER)

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Background: Epilepsy is a neurological disorder reflecting underlying brain dysfunction and is associated with anxiety, depression, lethargy, and adverse effects of antiepileptic medications. Both the disorder itself and medications can alter brain electrical activity, which can be examined through quantitative EEG (QEEG) analysis. **Objective:** To assess cortical electrical activity in female epilepsy patients using absolute power analysis of QEEG. **Methods:** This observational study included 40 female epileptic patients (aged 20–40 years) from the Department of Neurology, Bangabandhu Sheikh Mujib Medical University, Dhaka, and 40 age-matched healthy controls. EEG was recorded using 22 scalp electrodes covering all cortical regions with the EEG Traveler Brain Tech 32+ CMEEG-01 (India) during five minutes of eyes-closed rest. Power spectrum analysis was performed using BT40 software. Independent-samples t-tests were applied, with $p \leq 0.05$ considered statistically significant. Ethical approval was obtained from the Institutional Review Board of Bangladesh Medical University. **Results:** Compared with controls, female epileptic patients showed significantly lower absolute power of alpha and beta brain waves and significantly higher delta and theta waves across nearly all electrodes and cortical regions. **Conclusion:** Epilepsy patients demonstrated increased slow-frequency (delta, theta) and decreased high-frequency (alpha, beta) brain waves, indicating heightened cortical excitability and reduced relaxation. QEEG provides a valuable tool for assessing cortical dysfunction in epilepsy.

Key words: Epilepsy, Quantitative EEG, Brain Electrical Activity, Absolute Power, Cortical Excitability, Brain Waves

PP-8

INFLUENCE OF LEMONGRASS (*CYMBOPOGON CITRATUS*) ESSENTIAL OIL ON BRAIN WAVES IN POSTMENOPAUSAL WOMEN

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Background: Postmenopausal women frequently exhibit altered brain wave patterns, including reduced absolute power in alpha, delta, and theta waves and elevated beta power, which are associated with anxiety, cognitive impairment, and sleep disturbances. **Objective:** To evaluate the effect of lemongrass (Cymbopogon citratus) essential oil (LEO) inhalation on brain wave power in postmenopausal women using EEG power spectral analysis. **Methods:** The study was conducted at the Department of Physiology, Bangladesh Medical University, Dhaka, involving 20 postmenopausal women aged 55–60 years. A control group of 20 healthy premenopausal women, matched for BMI and general health, was also included. Ethical approval was obtained from the Institutional Review Board of Bangladesh Medical University. EEG recordings were obtained using the Traveler BrainTech 32+ CMEEG-01 system (India) for five minutes at rest with eyes closed and analyzed using BT40 software. The study group inhaled Lemongrass Essential Oil (LEO) via a diffuser once daily for 21 consecutive days. Statistical comparisons were performed using independent samples t-tests and paired samples t-tests. **Results:** At baseline, postmenopausal women showed significantly lower alpha, delta, and theta power and higher beta power across all cortical regions compared to controls. After 21 days of LEO inhalation, alpha, delta, and theta power significantly increased, while beta power significantly decreased in most cortical areas. **Conclusion:** Inhaling lemongrass essential oil restored normal brain wave power in postmenopausal women, suggesting its potential as a safe, non-pharmacological intervention to enhance cortical relaxation and neurophysiological balance.

Key words: Lemongrass, Essential Oil, EEG, Brain Waves, Postmenopausal Women

PP-9

EFFECTS OF SWIMMING EXERCISE ON SPATIAL MEMORY PERFORMANCE AND HIPPOCAMPAL ARC PROTEIN IN COLCHICINE-INDUCED MEMORY-IMPAIRED MALE SWISS ALBINO MICE

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Background: Spatial memory is essential for daily functioning, and hippocampal activity-regulated cytoskeleton-associated (Arc) protein plays a critical role in its maintenance. **Objective:** This study aimed to evaluate the effects of swimming exercise on spatial memory and hippocampal Arc protein in colchicine-induced memory-impaired male Swiss Albino mice. **Methods:** Fifty-six male mice (9 ± 1 weeks, 27.5 ± 2.5 g) were randomly divided into four groups: normal control (NC), sham control (SC), colchicine control (ColC), and experimental (Exp; swimming exercise 5 days/week for 30 days before colchicine injection). Visual, locomotor, and motivational functions were assessed by cue navigation test. Reference memory (escape latency, path length, search strategy, angle preference, target crossings, and time in target quadrant) and working memory (escape latency, path length, savings, and related measures) were evaluated using the Morris water maze. The study was conducted with approval from the Institutional Animal Care and Use Committee of Bangabandhu Sheikh Mujib Medical University, Dhaka. After behavioral testing, hippocampal Arc protein was quantified by ELISA. Data were analyzed by one-way ANOVA with Bonferroni's post hoc test, with $p \leq 0.05$ considered significant. Sixteen mice were excluded after cue navigation and stereotaxic complications; ultimately, 10 per group were assessed. **Results:** ColC mice showed significant impairments in reference and working memory variables and higher hippocampal Arc protein levels compared to SC ($p \leq 0.001$). Conversely, Exp mice displayed improved memory performance and lower Arc protein levels compared to ColC ($p \leq 0.001$). **Conclusion:** These findings suggest that swimming exercise prevents colchicine-induced memory dysfunction by maintaining hippocampal Arc protein homeostasis.

Key words: Memory Impairment, Colchicine, Swimming Exercise, Arc Protein, Hippocampus, Morris Water Maze, Reference Memory, Working Memory

PP-10

SPATIAL MEMORY IMPAIRMENT BY INTRAHIPPOCAMPAL ADMINISTRATION OF COLCHICINE: CAN IT BE PREVENTED AND/OR ALLEVIATED BY SWIMMING EXERCISE? AN EXPERIMENTAL STUDY IN MALE LONG-EVANS RATS

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Background: Spatial memory is essential for daily activities, and its impairment should be prevented or alleviated. Drug therapy is often less favorable due to prolonged treatment time and adverse effects. Swimming exercise, being cost-effective, safe, and easily performed in natural settings, may serve as an alternative. This study aimed to evaluate the effects of swimming exercise on spatial memory performance in colchicine-induced memory-impaired male Long-Evans rats. **Methods:** Thirty male Long-Evans rats (8 ± 2 weeks; 225 ± 75 g) were divided into five groups: normal control, sham control, colchicine control, pre-colchicine swimming exercise, and post-colchicine swimming exercise. Memory impairment was induced by intrahippocampal administration of colchicine. Swimming exercise was performed either before or after induction of memory impairment. Spatial reference memory was assessed using the Morris water maze test. Ethical approval was obtained from the Institutional Review Board of Bangladesh Medical University. **Results:** Intrahippocampal colchicine administration significantly impaired spatial memory in colchicine control rats. Both pre- and post-colchicine swimming exercise significantly improved learning and memory retention. **Conclusion:** Swimming exercise is equally effective in preventing and alleviating colchicine-induced spatial memory impairment in male Long-Evans rats. This exercise regimen appears sufficient to reverse memory deficits to nearly normal levels.

Key words: Memory Impairment, Swimming Exercise, Reference Memory, Morris Water Maze

PP-11

CAN *PHYLLANTHUS EMBLICA* (AMLOKI) ALLEVIATE COLCHICINE-INDUCED MEMORY IMPAIRMENT? AN EXPERIMENTAL STUDY IN MALE LONG-EVANS RATS

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Background: Memory is a vital component of daily life. Pharmacological treatments for memory impairment are often less favorable due to prolonged treatment duration and adverse effects. Phyllanthus emblica (PE) offers a potential alternative due to its biological activities, cost efficiency, lower toxicity, and accessibility. **Objective:** To evaluate the effects of ethanolic extract of Phyllanthus emblica (EEPE) on colchicine-induced memory impairment. **Methods:** This experimental study was conducted at the KM Farid Uddin Animal Research Laboratory, Department of Physiology, Bangladesh Medical University (BMU), using 24 male Long-Evans rats (8±2 weeks; 225±75 gm). Rats were divided into normal control (NC), sham control (SC), colchicine control (ColC), and post-colchicine PE treatment (Post PE Exp) groups, with 6 rats per group. Memory impairment was induced by a single intrahippocampal colchicine dose (15 µg). Morris water maze (MWM) assessed learning and memory. Ethical approval was obtained from the Institutional Animal Ethics Committee of BMU, and all procedures followed standard animal care guidelines. **Results:** Colchicine significantly increased escape latency (EL) and reduced target crossings (TC) and time spent in target (TT) compared to SC rats ($p \leq 0.001$). Post-PE treatment significantly improved EL, TC, and TT compared to ColC rats ($p \leq 0.05$–0.001), and memory performance was comparable to NC rats. **Conclusion:** Phyllanthus emblica (Amloki) shows potential in alleviating colchicine-induced memory impairment. Further studies are needed to elucidate its underlying mechanisms.

Key words: Colchicine, Hippocampus, Memory Impairment, *Phyllanthus Emblica*, Morris Water Maze

PP-12

EFFECT OF SERUM CALCIUM, PHOSPHATE, AND CHOLESTEROL LEVELS IN CHILDREN WITH AUTISM SPECTRUM DISORDERS

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Background: Imbalances in essential minerals and serum cholesterol significantly contribute to the pathogenesis of autism spectrum disorders (ASDs). Deficiencies or excesses of these minerals can cause behavioral manifestations in ASDs. **Objective:** To assess and compare serum calcium, phosphate, and cholesterol levels between children with ASD and healthy children. **Methods:** A cross-sectional comparative study was conducted in the Department of Physiology at Rajshahi Medical College, with the Departments of Psychiatry and Biochemistry, from January to December, 2024. Ethical approval was obtained from Institutional Review Board of Rajshahi Medical College. Informed consent was obtained from participants' guardians. 120 children were enrolled using purposive sampling: 60 with ASD (Group A) and 60 healthy controls (Group B). Data were analyzed using SPSS version 24. **Results:** The mean ages were 7.45 ± 1.72 years for Group A and 6.95 ± 1.92 years for Group B. Most children with ASD were male (68%). Parents of children with ASD were significantly older than those of healthy children. Maternal diabetes, threatened abortion, neonatal jaundice, and low birth weight were significantly more common in ASD cases ($p < 0.05$). Children with ASD had significantly lower serum cholesterol (130 ± 48 vs 172 ± 27 mg/dL), calcium (8.1 ± 1.90 vs 9.23 ± 0.75 mg/dL), and phosphate (2.63 ± 1.29 vs 3.70 ± 0.8 mg/dL) than healthy children ($p < 0.001$). **Conclusion:** Children with ASD exhibit significantly lower serum levels of cholesterol, calcium, and phosphate. Routine early screening may enable timely nutritional and medical interventions, potentially improve behavioral outcomes and reduce ASD-associated complications.

Key words: Autism Spectrum Disorders, Serum Calcium, Phosphate, Cholesterol, Children

PP-13

AUTISM SPECTRUM DISORDER AND FAMILY DYNAMICS

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Background: Autism Spectrum Disorder (ASD) is a neurodevelopmental condition that impacts individuals and their families. In Bangladesh, limited awareness, inadequate support, and financial constraints exacerbate the challenges of raising children with ASD. **Objective:** This study aims to investigate the emotional, financial, and social impact of ASD on families. It also seeks to identify key stressors and coping mechanisms to inform policy and intervention strategies. **Methods:** A cross-sectional survey was conducted among 120 families with children diagnosed with ASD in Bangladesh. Data on socio-demographic characteristics, stress levels, emotional well-being, family relationships, and coping strategies were collected using a structured questionnaire. Descriptive statistics identified key trends. Ethical approval was obtained from the Institutional Review Board of Manikganj Medical College, and informed consent was secured from all participants. **Results:** ASD significantly affected family stress, emotional health, and financial stability. Among families, 42% reported no mental health impact, 36% reported negative effects, and 22% reported improved family bonding. Financial strain and social isolation were common, with many families relying on personal savings (27%) and family contributions (30%) to support care. **Conclusion:** The findings underscore the urgent need for government support, affordable therapy services, public awareness programs, and community-based interventions to enhance the well-being of families raising children with ASD in Bangladesh.

Key words: Autism Spectrum Disorder (ASD), Family Impact, Stress, Financial Burden, Social Isolation

PP-14

ASSESSMENT OF SERUM TRIIODOTHYRONINE, FREE THYROXINE, AND THYROID STIMULATING HORMONE IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER

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Background: Attention deficit hyperactivity disorder (ADHD) is one of the most common neurodevelopmental disorders, affecting children's learning abilities and daily functioning. Thyroid hormones play a critical role in brain development during infancy and childhood. These hormones are essential for memory and behavioral regulation; therefore, serum T3, FT4, and TSH may influence symptom severity and comorbidities in ADHD. **Objective:** To assess serum T3, FT4, and TSH levels in children with ADHD. **Methods:** This cross-sectional study was conducted in the Department of Physiology, Dhaka Medical College, after obtaining ethical clearance from the Research Review Committee and Ethical Review Committee of Dhaka Medical College. Thirty-two children with ADHD (aged 5–12 years) were enrolled as the study group, and 32 age-matched healthy children served as controls. Subjects were selected from the Child Development Center of Dhaka Medical College Hospital, the outpatient psychiatry department of Bangladesh Shishu Hospital, and through personal contact. Informed written consent was obtained, and confidentiality was strictly maintained. Serum T3, FT4, and TSH were measured in the Department of Biochemistry and Molecular Biology, BMU. Data were analyzed using SPSS version 26.0 with t-tests, chi-square tests, ANOVA, and Pearson's correlation coefficient. $P < 0.05$ was considered significant**. Results:** In this study, 75% were male and 25% female among the 32 ADHD children. Diagnosis was made according to DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, 5th edition) criteria. Thirteen (40%) children had predominantly inattentive type, 9 (28.1%) had predominantly hyperactive type, and 10 (31.3%) had combined type ADHD. Children with ADHD had significantly higher ($P < 0.001$) serum TSH levels and lower ($P = 0.013$) FT4 levels compared to the control group. There was no significant difference in serum T3 levels between the two groups. **Conclusion:** ADHD children exhibited elevated TSH and reduced FT4, indicating a possible hypofunctional thyroid state, though serum T3 remained unchanged.

Key words: Attention Deficit Hyperactivity Disorder (ADHD), Triiodothyronine (T3), Free Thyroxine (FT4), Thyroid-Stimulating Hormone (TSH), DSM-5 Criteria

PP-15

TRANSFORMING ANTIBIOTIC STEWARDSHIP THROUGH DIGITAL INTERVENTION: A COMPREHENSIVE PILOT STUDY IN BANGLADESH

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Background: Antimicrobial resistance (AMR) is a rising public health threat driven by irrational antibiotic use, self-medication, and limited access to quality healthcare. In Bangladesh, AMR has risen by 11% in the last five years, with some antibiotics losing up to 82% of their effectiveness. **Objective:** This pilot study describes an AI-based intervention implemented across 28 pharmacies in Dhaka, involving 2,654 participants, targeting both customers and staff to reduce irrational antibiotic use. The system supports patient journeys by improving antibiotic management, education, and adherence. **Methods:** The intervention utilized primary care provider data to identify deviations from treatment protocols. Pharmacy staff recorded medicine purchases and referred patients without prescriptions to telemedicine consultations. An AI-based symptom assessment tool enabled early diagnosis, ensured prescription safety, and tracked adherence. An intelligent audit system detected prescription errors in real time. A generative AI assistant delivered personalized medication guidance via text and voice. SMS reminders ensured full antibiotic dosage completion, and centralized dashboards tracked real-time AMR data. **Results:** Post-intervention analysis showed a significant reduction in irrational antibiotic purchases, dropping from 4.05% to 0.86%. Prescription-guided purchases increased from 27.59% to 43.49%, while non-prescription purchases declined from 18.84% to 6.42%. These notable changes in antibiotic use were observed between October 2023 and January 2024. **Conclusion:** A key insight is that AI-driven tools coupled with pharmacy engagement effectively improve antibiotic practices and awareness and reduce irrational use. This highlights the strong potential of scalable, evidence-based digital solutions to combat antimicrobial resistance in low- and middle-income countries (LMICs).

Keywords: Digital Health, Antimicrobial Resistance, Rational Antibiotic Use, Telemedicine, AI in Healthcare

PP-16

REVOLUTIONIZING CLINICAL DOCUMENTATION IN BANGLADESH THROUGH AI-POWERED PRESCRIPTION AUTOMATION

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Background: Bangladesh faces a critical shortage of physicians, with just five available per 10,000 people. This challenge, combined with the absence of a unified Electronic Health Record (EHR) system and limited digital infrastructure, places a significant burden on clinicians. As a result, over 82% of prescriptions remain handwritten, contributing to medication errors in more than half of clinical encounters. Consequently, without access to prior patient records, physicians struggle to maintain continuity of care, which increases burnout and puts patient safety at risk. **Objective:** To address these critical gaps, we propose AIMScribe to automate prescription generation and facilitate seamless EHR integration across diverse healthcare environments. **Methods:** The cornerstone of AIMScribe is the development of Bangladesh's first extensive, medically validated clinical audio and text dataset. Following BMRC ethical approval and protocol refinement through clinician workshops, we are collecting 680 hours of doctor-patient interactions from 7,200 patients. This foundational dataset serves a dual purpose: first, the audio trains our custom ASR and speaker diarization models to produce highly accurate transcriptions. Second, the resulting text is used to train an LLM-based Named Entity Recognition and Text Summarization model. The fully trained NLP pipeline will extract clinical entities and summarize the transcripts into structured clinical notes to generate a prescription. A built-in audit system ensures prescriptions align with clinical guidelines, minimizing errors. Once validated, prescriptions are automatically forwarded to patients (via APP), while the corresponding medical notes are uploaded to a unified, cloud-based EHR system. **Results:** Initial testing in a controlled clinical setting has yielded auspicious results. Our custom Bengali medical ASR achieved 92% accuracy, and our speaker diarization model reached 99%, demonstrating strong technical feasibility. That’s why when we develop and deploy the pilot in the 6 Aalo clinic, we will expect a significant reduction in documentation time of 70%, equivalent to a 1.56-minute increase in consultation per appointment. Overall satisfaction will be increased to 64%, while physicians' burnout declined to 33%. Subsequently, Medication errors will be reduced to 5.01%. **Conclusion:** This system is designed for massive scalability and directly aligns with the national goals of establishing an inclusive EHR platform with automated prescription generation across the country. By empowering physicians with AI, we can reduce burnout and create a safer, more efficient healthcare ecosystem. While our current focus is on Standard Bengali and English, the framework is extensible and can be adapted for regional dialects and other languages.

Keywords: Electronic Health Record (EHR), Prescription Automation, Artificial Intelligence (AI), Clinical Documentation

PP-17

DEVELOPMENT AND VALIDATION OF SMART ENDO: AN ARTIFICIAL INTELLIGENCE ENABLED SCREENING TOOL FOR EARLY RISK ASSESSMENT OF ENDOMETRIOSIS IN BANGLADESH

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Background: Endometriosis affects 10% women of reproductive age worldwide. The diagnosis is often delayed by 6–10 years due to lack of awareness, social stigma, and limited healthcare access. That may lead to serious consequences. **Objective:** To develop and validate a questionnaire-based, artificial intelligence (AI) supported screening tool, integrated into a mobile application, for early identification and timely referral of women at risk of endometriosis.

Methods: A questionnaire was developed through literature review, in-depth interviews, and a survey of 100 diagnosed cases. A rule-based AI algorithm was then designed to classify risk. A validation workshop with gynecologists, epidemiologists, and AI experts refined the tool, which was then integrated into a culturally adapted mobile application, "SmartEndo". Finally, clinical validation was conducted among 484 women (aged 13–55), including those attending gynecology outpatient departments with complaints and community participants. The app's risk assessments were compared with gynecologists' clinical evaluations. **Results:** SmartEndo achieved a 85.8% sensitivity, 91.7% specificity, 87·6% accuracy, 90·1% positive predictive value, 87·8% negative predictive value, and 83.40% F1 score. Among participants, 73.97% experienced dysmenorrhea (74.01% severe, 27.09% mild). Among married patients, 21.60% reported dyspareunia and 20.06% infertility. 47.11%, 15.09% and 10.95% experienced irritable bowel-syndrome-like-symptoms, dysuria and dyschezia, respectively. 57.44% had depression. **Conclusion:** SmartEndo has the potential to democratize access to endometriosis care and lower the economic burden by reducing diagnostic delays through early risk assessment and timely intervention in low resource settings. Further research is needed to assess its implementation in primary health care and broader applicability across similar healthcare settings globally.

Keywords: Endometriosis, Artificial Intelligence, Risk Assessment, Screening Tool, Low-Resource Settings

PP-18

DIGITAL HEALTH CORNER (DHC): IMPROVING EMPLOYEE WELLNESS AND ADDRESSING NON-COMMUNICABLE DISEASES THROUGH WORKPLACE DIGITAL HEALTH INNOVATION

Nabila Binte Ayub[1], Marzia Zaman[1,2], Moinul H. Choudhury[1], Farhana Sarker[1,3], Khondaker A. Mamun KA[1,2,4]

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Background: Non-communicable diseases (NCDs) impact employee health and productivity in Bangladesh, where workplaces lack preventive care. The DHC model was developed to address these gaps using digital health interventions. **Objective:** To assess the feasibility of a digital workplace health model in promoting employee wellness and managing NCDs by risk identification and monitoring. **Methods:** A two-year pilot study with 8,374 participants (7,553 employees, 821 family members) across 20 corporate and factory workplaces in Bangladesh. Participants received health screenings via a Smart Health Kit, digital risk assessments and telemedicine consultations. Sociodemographic, clinical metrics and disease prevalence were collected digitally. Follow-up user feedback was collected on health changes, medication adherence and satisfaction. **Results:** NCD rates were higher in corporate staff (2.52%) than factory workers (0.15%), with diabetes (1.63%) and hypertension (1.37%) being most prevalent. 16.11% had high normal blood pressure, 13.88% were overweight and 2.27% were obese. Diabetes was more common in male employees (7.62%) than females (4.49%). Age was strongly linked to NCDs (Diabetes OR:6.72, Hypertension OR:5.55). Follow-up showed 73.62% health improvement, 64.95% medication adherence and 82.03% satisfaction. **Conclusion:** The DHC pilot demonstrated that workplace-based digital healthcare can manage NCD risks, improve health outcomes and present substantial potential for global adoption.

Keywords: Non-Communicable Diseases, Digital Health, Workplace Wellness, Preventive Care, Employee Health

PP-19

DEEP-DEPRESSION: FEASIBILITY TO DESIGN AND DEVELOPMENT OF BRAIN COMPUTER INTERFACE (BCI) BASED SYSTEM FOR IDENTIFYING DEPRESSION USING NEURAL CONNECTIVITY ANALYSIS OF HUMAN BRAIN

Redwan-Ul-Bari[1], Jannatul Ferdous Srabonee[1] , Umaima Afifa[1] , Antora Dev[1] , Md. Kafiul Islam[2] , Chiranjeeb Biswas[3] , Helal Uddin Ahmed[4] , Farhana Sarker[5] , Khondaker A. Mamun[1]

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Mental health disorders pose a major public health challenge, especially in low-and middle-income countries where over 70% of cases occur and up to 85% go untreated. In Bangladesh, nearly one in five adults experience mental illness, yet most receive no formal care. During the COVID-19 pandemic, depression and anxiety rates surged dramatically. The crisis intensified during the recent July uprising, where most documented victims of violence showed signs of psychological distress. Current depression diagnosis depends on subjective interviews and self-report scales. In contrast, conditions like cancer are supported by imaging tools that offer clear biological markers to guide diagnosis and treatment. Depression lacks such routine brain-based diagnostics. EEG offers a noninvasive and affordable way to measure brain activity, making it a promising tool for more objective and personalized psychiatric care.

This project proposes a brain-computer interface (BCI) system that detects depression by analyzing EEG derived neural connectivity using artificial intelligence. EEG signals are recorded during resting states and emotional tasks. A 64 channel EEG system, using the standard 10-20 layout, captures bilateral neural activity.

The method that was developed uses both publicly available EEG data from 64 participants (34 with depression, 30 controls) with recordings from 11 additional individuals collected in the lab. After preprocessing, more than 10,000 statistical, spectral, and linear features were extracted from the time and time frequency domains. A wrapper based recursive feature elimination algorithm reduced this to 32 key features. These were classified using a Support Vector Machine with 10 fold cross validation, achieving 96% accuracy. Clustering analysis further validated the feature set as potential biomarkers for depression. The method is currently undergoing clinical validation to assess its diagnostic reliability and applicability in real world mental health settings.

This diagnostic pipeline operates on affordable EEG hardware and is suitable for settings where mental health services are limited. By linking brain mapping outputs to symptom profiles, the system enables quantitative diagnostics and will guide future development of personalized treatment strategies tailored to individual neural signatures. As an assistive technology, it is designed to support clinicians by providing objective neurophysiological data to inform diagnosis and treatment planning.

PP-20

NUTRITIONGPT: AN AI-POWERED LIFESTYLE COACH FOR BANGLADESH

Hasan M. Ziaul[1] Dr. Farhana Sarker[2] and Khondaker A. Mamun[1,3]

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Background: Bangladesh is facing rising diet-related chronic diseases while access to affordable, culturally relevant nutrition and lifestyle advice is limited. International digital tools are rarely reflecting local foods, recipes, language, and meal patterns, and trained, nutritionists, and dietitians are concentrated in a few urban centers. **Objective:** To develop a bilingual AI-driven digital coach that is delivering personalized, evidence-based lifestyle guidance to diverse users across Bangladesh. **Methods:** The development is proceeding in carefully structured phases. At present, we are building a reliable knowledge base by compiling and digitizing food composition tables, dietary surveys, local recipes, and clinical guidelines. These resources are being standardized, translated, and organized so that Bangladeshi foods, meal patterns, and lifestyle practices are fully represented. We are going to engineer this knowledge into usable formats by linking foods to nutrient values, meal plans, disease conditions, and evidence-based recommendations. Clinical rules, such as portion guidance, allergy alerts, and referral triggers, are going to be embedded at that stage. A large language model is going to be fine-tuned in both Bangla and English using curated nutrition dialogues, counseling transcripts, and feedback from practicing dietitians. Safety layers are going to be integrated to check for errors, flag risky suggestions, and explain recommendations in simple terms. The software is going to be designed as a conversational mobile platform, connected to wearable devices with offline features for low-connectivity areas. Finally, the system is going to undergo pilot testing with nutrition experts and end users, where its recommendations are going to be compared to clinical best practice before wide-scale deployment. **Results:** NutritionGPT is going to deliver a culturally adapted lifestyle medicine coach that is accessible across Bangladesh. The system is going to allow users to receive personalized nutrition and lifestyle guidance that reflects local foods, languages, and daily habits, bridging the gap left by existing international tools. By embedding clinical safeguards, the platform is going to ensure that recommendations remain safe, accurate, and aligned with medical standards. **Conclusion:** We are laying the groundwork for a scalable and culturally adapted digital nutrition coach tailored to Bangladesh. By combining local dietary knowledge, clinical safeguards, and AI-driven personalization, the system is positioned to strengthen health literacy, promote healthier choices, and support long-term behavior change. In the broader context, NutritionGPT is aiming to reduce the burden of diet-related chronic diseases and make preventive healthcare more accessible across the country.

Keywords: NutritionGPT; Lifestyle Medicine; Digital Health; Bangladesh; AI; LLM; Nutrition; Personalized Nutrition; Public Health.

PP-21

AI-POWERED FRAMEWORK FOR FUTURE CVD RISK PREDICTION AND CONTINUOUS LIFETIME MONITORING

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[1]Institute of Research, Innovation, Incubation and Commercialization (IRIIC), United International University (UIU), Dhaka, [2]Center for Computational and Data Sciences, Independent University, Bangladesh, Dhaka, Bangladesh, [3]Department of Computer Science and Engineering, United International University (UIU), Dhaka.

Background: Cardiovascular disease (CVD) accounts for one-third of global deaths, with 80% occurring in low- and middle-income countries, including Bangladesh. Rapid urbanization, dietary changes, tobacco use, and physical inactivity are intensifying this burden. However, Bangladesh lacks a national framework for future CVD risk prediction and lifetime monitoring, leaving patients at risk of late diagnoses, costly treatments, and preventable complications. **Objective:** This project is developing an AI-powered system that is predicting the likelihood of cardiovascular disease (CVD) within the next 5–10 years and is providing continuous lifetime monitoring to track risk factors and guide long-term prevention. **Methodology:** This research adopts an AI-powered framework that collects health data from hospitals urban, slum, rural communities using EMRs, mobile applications, and IoT-based devices to capture key cardiovascular risk factors such as age, sex, blood pressure, blood glucose, BMI, diabetes, and hypertension, family history etc. After data preprocessing, machine learning and survival models will be applied to predict 5–10 years CVD risk, identify the most influential factors through explainable AI, and continuously update predictions with longitudinal inputs. The system further supports lifetime monitoring, generates early alerts, and provides personalized medical advice to guide prevention and reduce the long-term CVD burden. **Results:** The study is developing a validated AI-powered framework that is accurately predicting 5–10 years cardiovascular disease (CVD) risk for diverse populations. The system is identifying and ranking the most significant risk factors influencing CVD, providing both population-level insights and individualized explanations for patients and clinicians. Through continuous lifetime monitoring, the framework is detecting early changes in health status, generating timely alerts, and guiding preventive interventions that are reducing modifiable risks such as uncontrolled blood pressure, high glucose levels, and obesity. **Conclusions:** The AI-powered framework can predict future CVD risk, identify key factors, and provide continuous monitoring, helping prevent complications and reduce the overall disease burden.

Keywords: Cardiovascular disease, AI-powered prediction, Risk factors, Continuous monitoring, Preventive healthcare

PP-22

BOLTE CHAI+: AN INTELLIGENT CLOUD-BASED COMMUNICATION TOOL TO ENHANCE COMMUNICATION, SPEECH AND LANGUAGE FOR VERBALLY CHALLENGED CHILDREN WITH AUTISM AND NDD

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[1]Advanced Intelligent Multidisciplinary Systems Lab, Department of Computer Science and Engineering, United International University, Dhaka, Bangladesh , [2]Department of Computer Science and Engineering, University of Liberal Arts Bangladesh, Dhaka, Bangladesh, [3]Department of Mechanical Engineering, Imperial College London, London, UK, [4]Institute of Biomaterials and Biomedical Engineering, University of Toronto, Toronto, Canada

Background: A core aspect of human interaction is communication, yet children with speech and language impairments struggle everyday to express their basic needs. Globally, an estimated 1 in 100 children is diagnosed with autism. Approximately 30% of them are minimally verbal. Over 700,000 children in Bangladesh face such challenges. Existing AAC tools that support children with verbal challenges are usually expensive, complex, and not adapted to Bangla language. To address this gap, Bolte Chai was developed as a mobile-based, Bangla-enabled AAC platform for children with autism spectrum disorder (ASD) and neurodevelopmental disorders (NDD). It offered only basic communication features by employing picture exchange communication system (PECS)-style interface with auditory output. Despite its potential, the initial version had some limitations: lacking user profile management, detailed usage data recording, cloud integration, multi-stakeholder functionalities. **Objective:** To overcome these limitations, Bolte Chai+ is introduced as a cost-effective, enhanced AAC platform. It presents a personalized, data-driven approach to improve communication and monitor the development of the children**. Methods**: The platform provides customizable picture-based communication with audio output and cloud-based dashboards with data analytics. It has multiple user modes- child, parent, teacher, SLT, caregiver, and institution for role-specific features. Its architecture enables collaborative work among parents, teachers, SLTs, and caregivers, who can log in to personalize activities and track daily activities. Cloud services support remote progress monitoring, reporting and intervention adjustments among stakeholders, while a management dashboard facilitates coordinated decisions. It also has an emergency contact feature for child safety. The future direction includes integrating NLP and machine learning to analyze speech attempts and progression over time.

Results: Initial tests with 8 verbally challenged children showed positive feedback and highlighted its potential to enhance communication, improve engagement, and provide cost-effective speech support. The platform is scalable across socioeconomic settings and contributes to national goals of inclusion and equality. **Conclusion**: Bolte Chai+ is committed to empowering the non-verbal children through accessible and inclusive tools, ensuring that every child, regardless of their background or disabilities, has a voice.

Keywords: Autism, Neurodevelopmental Disorder, Communication Tools, Assistive Technology, Speech and Language

PP-23

GENOMICS-GUIDED RECONSTRUCTION OF SPECIES-SPECIFIC METABOLIC PATHWAYS IN *KLEBSIELLA PNEUMONIAE, K. QUASIPNEUMONIAE,* AND *K. VARIICOLA*

Mustafa Galib[1], Viet Hung Nguyen[2], Fatima Fidatur Rafey[1]

[1]Department of Mathematics and Natural Sciences, Biotechnology program, BRAC University; [2]Project Genomes to Functional, Ecological, and Evolutionary Characterizations (Project G2FEEC)

Background: *Klebsiella pneumoniae*, *K. quasipneumoniae*, and *K. variicola* are closely related species that are difficult to distinguish using conventional diagnostics, as biochemical tests often fail to capture subtle genomic differences. Despite this similarity, these species differ in ecological niches, virulence potential, and antimicrobial resistance—factors that directly impact clinical outcomes. For example, a multidrug-resistant *K. quasipneumoniae* isolate from a Neonatal Intensive Care Unit (NICU) in Bangladesh was initially misidentified as *K. pneumoniae*, highlighting how misclassification can influence treatment decisions. Although whole-genome sequencing (WGS) has improved species identification, linking genomic variation to functional physiology remains a significant challenge. **Objective:** To investigate how species-specific genes shape distinct metabolic and physiological pathways, elucidating differences in ecological adaptation and clinical behavior among these Klebsiella species. **Methods:** Eighty-one high-quality genomes were annotated and mapped to KEGG metabolic networks to construct species-specific consensus models. Comparative network analysis identified conserved and unique reactions and pathways, revealing species-specific functional modules and physiological signatures. **Results:** Analysis revealed functional modules corresponding to species-specific marker genes, highlighting unique physiological roles. Key differences included specialized pathways for phosphonate, tricarballylate, octopine/nopaline, and L-cystine utilization. Comparative analysis pinpointed metabolic traits likely driving species differentiation and influencing host interactions, linking genomic content to physiological function. **Conclusion:** Integrating comparative genomics with metabolic modeling bridges the gap between genetic data and function. Identifying unique metabolic pathways enhances understanding of physiological differences among pathogenic Klebsiella species. These insights support species-specific therapeutic strategies, improve diagnostic accuracy, and can influence patient outcomes in critical clinical settings.

Ethical Clearance: Not applicable (no human or animal subjects involved)

Key words: Klebsiella Species, Comparative Genomics, Microbial Physiology, Metabolic Networks, Host–Pathogen Interactions

PROF. MA HAI MEMORIAL ORATION

Date: 24th October, Friday, 2025

Time: 6.50 PM-7.20 PM

Venue: Milon Hall, Bangladesh Medical University, Dhaka, Bangladesh

Time	*Topic & Speaker*
06.50-07.20 pm	Concept of Quantitative EEG Prof. Dr. Sultana Ferdousi & Dr. Nadia Sikder

Special Recognition

Memorial Oration

LIFE SKETCH OF PROFESSOR M. A. HAI
(1937–2014)

With profound respect and deep sorrow, we remember Professor Dr. M. A. Hai, a legendary figure in the field of Physiology in Bangladesh, who left us on 5th February 2014.

Professor Hai was born on April 10, 1937, in a respected family in Faridpur. He graduated from Dhaka Medical College in 1961 and began his illustrious academic career as a Lecturer in the Department of Physiology at Chittagong Medical College the same year. Later, he pursued higher studies at the University of Manchester, UK, where he earned his MSc and PhD in Physiology. His research on "The Role of Urea in Creating Medullary Hyperosmolarity" (1967–1968) was published in the Journal of Physiology, London (1968) and cited in the renowned Samson Wright's Applied Physiology — a testament to his scientific excellence.

Beyond his remarkable research achievements, Professor Hai was an outstanding academic leader and administrator. He served as Dean, Faculty of Undergraduate Medicine, Rajshahi University, and later as Dean, Faculty of Postgraduate Medicine, University of Dhaka. He also held the prestigious position of Chairman, Department of Physiology, IPGM&R (now BMU). Even after his retirement from government service, his passion for teaching and mentorship continued as he contributed to several medical institutions including National Medical College (Dhaka), Bajitpur Medical College (Kishoreganj), and Armed Forces Medical College (Dhaka) — remaining devoted to Physiology until his final days.

Professor Dr. M. A. Hai was the visionary founding father of the Bangladesh Society of Physiologists (BSP) and the founding member of the South Asian Association of Physiologists (SAAP) and the Bangladesh Physiological and Pharmacological Society (BPPS). His farsighted leadership and unwavering dedication were instrumental in establishing BSP as a respected academic, non-political, and non-profit organization. Through his vision, commitment, and wisdom, he laid the foundation upon which the Physiology community of Bangladesh continues to grow and flourish.

Professor Hai was not only a brilliant scholar but also a noble mentor, a fatherly figure, and a guiding light to generations of physiologists. His humility, integrity, and devotion to knowledge continue to inspire all who had the privilege to learn from him.

He will always be remembered as an icon of vision, wisdom, and professionalism, whose lifelong contributions shaped the discipline of Physiology in Bangladesh and beyond.

May Almighty Allah grant this great soul the highest place in Jannatul Ferdous.

Ameen.

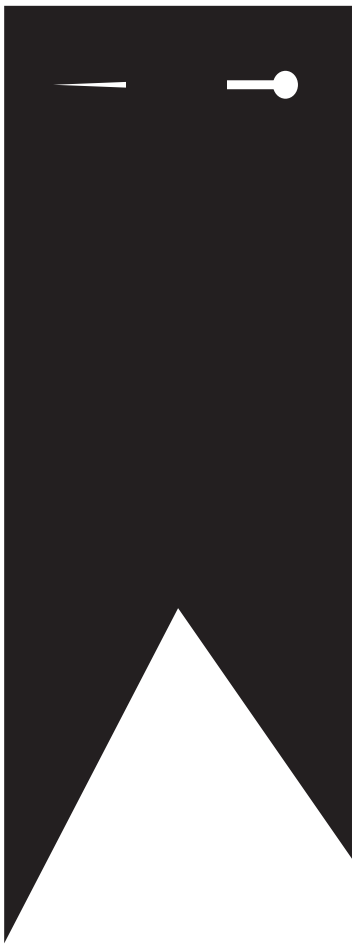
(With deep respect and admiration, we, the members of the **Bangladesh Society of Physiologists**, reaffirm our commitment to follow in the footsteps of our revered senior teachers. Their dedication, sincerity, and lifelong passion for the subject of Physiology will continue to guide and inspire us. We shall strive, **InshaAllah**, to uphold their legacy and serve the discipline with the same devotion and dignity they exemplified.)

CONCEPT OF QUANTITATIVE EEG

PROF. DR. SULTANA FERDOUSI
Ex-Professor of Physiology
Bangladesh Medical University

DR. NADIA SIKDER
MD Physiology
Bangladesh Medical University

Quantitative electroencephalography (QEEG) is an advanced extension of conventional EEG that applies mathematical algorithms to digitally recorded brain signals, enabling extraction of features not visible through routine inspection. By converting analog waveforms into numerical values, QEEG separates brain activity into discrete frequency bands; delta, theta, alpha, and beta and allows precise assessment of amplitude, phase and power. These rhythms have distinct associations with mood and cognition; reduced delta is linked to poor relaxation and sleep disturbance, while increased delta reflects restorative rest. Low theta corresponds to diminished calmness, whereas elevated theta supports relaxation and stress relief. Alpha rhythms signify relaxation, attentional readiness and emotional stability; diminished alpha is associated with anxiety, while increased alpha denotes calmness and balance. Beta activity reflects cortical arousal, where excessive beta indicates stress and hyperexcitability, while reduced beta corresponds to improved mood regulation. Analytical methods such as power spectral analysis, based on Fourier transform, provide indices including absolute and relative power, peak and median power frequency and spectral edge frequency, which quantify the distribution of electrical energy across frequency ranges. These measures have wide applications, from evaluating cognition and attention to monitoring anesthesia depth. QEEG enhances sensitivity in detecting subtle abnormalities, supports diagnosis and aids in treatment monitoring across neurological and psychiatric disorders. Although not a stand-alone diagnostic tool, it remains a valuable adjunct to conventional EEG, offering objective, reproducible and clinically relevant insights into brain function and mood regulation.



We Mourn for Lost Souls

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Prof. Abul Hossain

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Prof. Atia Banu

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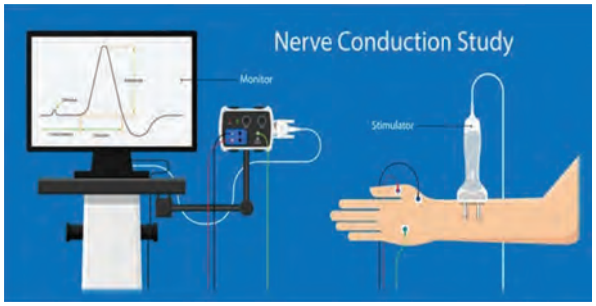

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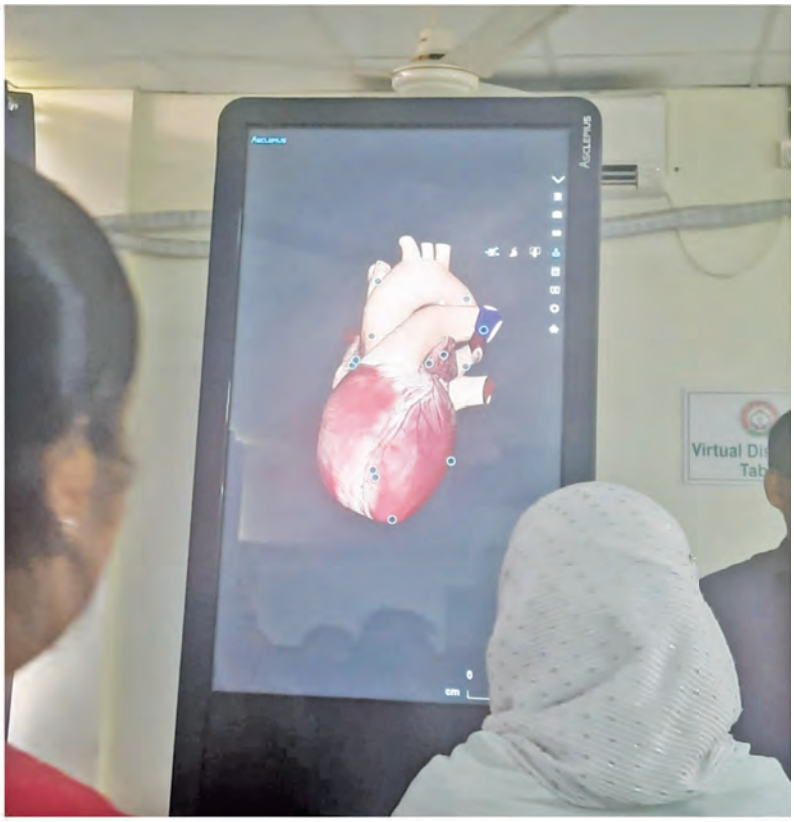
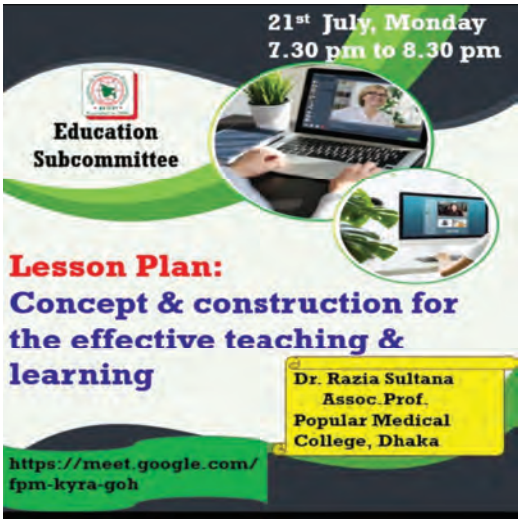
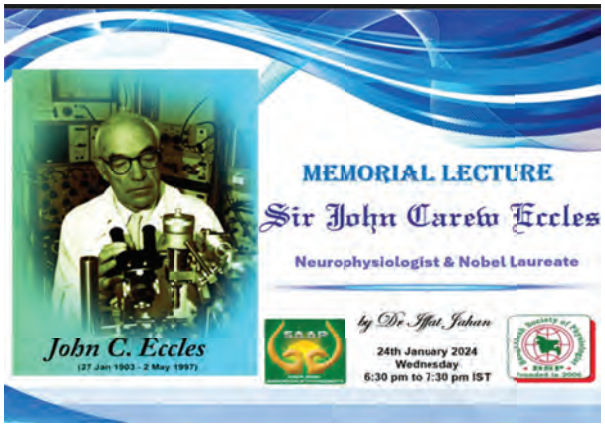


Webinars of BSP





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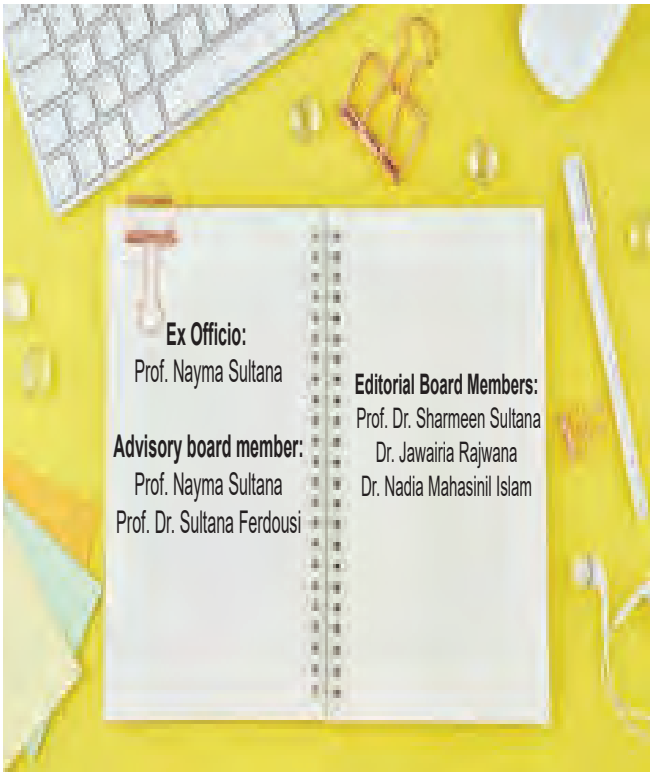

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Dr. Most. Fahmida Tania

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Dr. Puspita Basak

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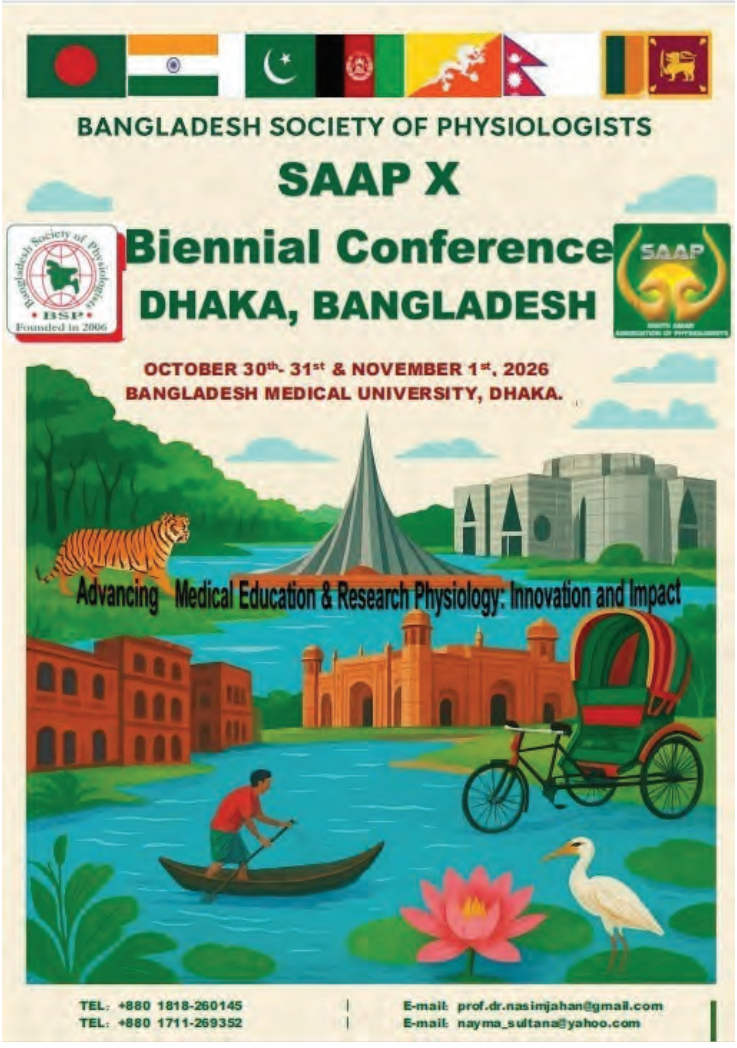

Letter to President, BSP

প্রফেসর ডাঃ নাসিম জাহান

প্রেসিডেন্ট

বাংলাদেশ সোসাইটি অফ ফিজিওলজিস্ট, ঢাকা।

প্রিয় ডাঃ নাসিম জাহান,

আস্সালামু আলাইকুম।

প্রায় মাসাধিকাল পূর্বে টেলিফোনে আপনি আমাকে ৭তম (সপ্তম) জাতীয় কনভেনশনে যোগ দেবার আমন্ত্রণ ও একটি লেখা দেবার আহ্বান জানান। আমি আমার ভগ্ন স্বাস্থ্যের কথা বলে দুটো বিষয়েই অস্বীকৃতি জানাই। যেতেও পারবো না। লেখাও দুরূহ। কিন্তু আপনি ঠিক এমনি করে বলেন- "স্যার আপনারা আমাদের অভিভাবক। আমাদেরকে আপনারা মেহেরুম করবেন না। আব্দুল হাই স্যার নেই, ক'দিন আগে মোশার্‌রফ হোসেন মোল্লো স্যারও চলে গেলেন। আল্লাহ এখনো আপনাকে হায়াতে তৈয়বা দান করেছেন। ভাল থাকলে অবশ্যই আসবেন।"

কি জানি কি জাদু ছিল আপনার কথায়। আমি আর কিছু বলতে পারিনি। আল্লাহর কাছে চাইতে লাগলাম যেন আপনার আবেদনের মর্যাদা রাখতে পারি। আমি চিরকাল ভালোবাসার কাঙাল। ভালোবাসার এই আহ্বানে সাড়া দেবার জন্যে আমি মনে প্রাণে চাইছিলাম।

কিন্তু এটা সেটা নিয়ে আমি প্রায়ই অসুস্থ হয়ে পড়ি। আর হাসপাতালে ভর্তি হই। আপনার সঙ্গে কথা হওয়ার পরেও অন্তত বার তিনেক আমি হাসপাতালে ভর্তি হয়েছি। এবারে বেরিয়ে এসেই মনে হলো অন্তত সোসাইটির প্রধান হিসেবে আপনাকে আমার জানানো কর্তব্য যে, আমি আসতে পারছি না।ট্রাভেল করার মত শারীরিক শক্তিও আমার অবশিষ্ট নেই। অনন্তের পথে যাত্রা শুরু করেছি আমি। দুনিয়ার পথ থেকে তাই ছিটকে পড়েছি। ছিটকে পড়ছি। দুর্বল মানুষের জীবন চক্র এই।

"আমি যাকে দীর্ঘ হায়াত দেই, তাকে আবার শুরু মতো অসহায় করি।" (৩৬:৬৮)

এই পরিণতি তাই অবশ্যম্ভাবী। অমোঘ।

আল্লাহর ওয়াস্তেই তাই আমাকে মাফ করে দিবেন। আমি আপনার কাছে ও আপনার মাধ্যমে সকল সদস্য ভাই/বোনদের কাছে মাফ চেয়ে নিচ্ছি।

নাসিম/নাইমার পারফরমেন্স স্বচক্ষে দেখার মত সৌভাগ্য হলো না। এই দুঃখটা আমার আমৃত্যু থেকে যাবে। তাঁদের শক্তিমত্তায় আমার আস্থা আছে। তাঁরা পারবেন। কনভেনশন সুচারু রূপেই শেষ হবে ইনশাল্লাহ। আমার শুভেচ্ছা রইল।

তবে আপনাদের কাজ তো শেষ হয়নি। অসমাপ্ত কাজগুলোর সফল সমাপ্তির জন্য আপনাদের প্রয়োজন। বিশেষ করে নাইমার। আর রোকেয়াকে আবার সামনে আনা দরকার। তার মত লড়াকুর প্রয়োজন আছে সোসাইটির।

প্রথম কাজটাই বাকি রয়ে গেল। যে কাজের জন্য আল্লাহর রাসুল (সাঃ) বলেছেন রোজা থেকে বড়, সদকার চাইতে বড় এবাদত যেটি তা হলো বিবদমান দুই ভাইয়ের মধ্যে পুনর্মিলন করানো।

ফিজিওলজি টিচার্স অ্যাসোসিয়েশন গ্রুপের সঙ্গে নেগোসিয়েশন। যারা প্রথমে এগোয় তারাইতো সওয়াব বেশি পায়। আপনারাই অগ্রণী ভূমিকা নিন।

ইনস্টিটিউট অব ফিজিওলজি বানানোর স্বপ্ন জলাঞ্জলি দিলে চলবে না। আপনাদের পরবর্তী টিম যদি দেশের এই

সুযোগটাকে নিয়ে এগিয়ে যায় তাহলে একটা কাজের মত কাজ হবে।

একটা ফিজিওলজি ইনস্টিটিউট তৈরি করতে পারলে ফিজিওলজি অনেক অনেকদূর এগিয়ে যাবে। আল্লাহ হতাশ হতে নিষেধ করেছেন। চেষ্টা চালিয়ে যেতে হবে।

প্রথমত আমার নজরে ছিলেন অধ্যাপক নূরজাহান বেগম। তাঁকে প্রধান এডিটর করে একটা Text Book of Physiology লেখা- সববারই কন্ট্রিবিউশনে। এখন এ দায়িত্বটা তাসকিনা আলীকে দেওয়া যেতে পারে। অথবা ফেরদৌসীও নিতে পারেন।

চিকিৎসা-শিক্ষা-ব্যবস্থাক্রমেও আমাদের ইনপুট থাকা প্রয়োজন। সংক্ষেপে আমরা Experimental Physiology এর ওপর জোর দিয়ে নতুন নতুন জ্ঞান আবিষ্কারের দিকে মন দেবো, না ক্লিনিক্যাল ফিজিওলজির প্রাধান্যতা এনে ক্লিনিক্যাল ফিজিওলজিস্ট বানাবো-তাই নিয়ে চিন্তা করা দরকার। আজকের পৃথিবীতে এটার উপরেই জোর দেওয়া হচ্ছে।

গুণীজন মর্যাদায় আমার পরামর্শ Prof. Dr. Dewan Majid, টুলেন ইউনিভার্সিটির প্রফেসরকে রাখা যায়। দাওয়াত দিয়ে আনার চেষ্টা করা যেতে পারে।

মাফ করবেন প্রেসিডেন্ট। দিবাস্বপ্ন দেখার মত নানান কথা বলে ফেল্লাম।

কনভেনশন সফল হোক।

BSP দীর্ঘজীবী হোক।

বাংলাদেশ জিন্দাবাদ।

প্রীতি ও শুভেচ্ছান্তে-

চির শুভকামী

অধ্যাপক ডাঃ হোসেন রেজা
অধ্যাপক ফিজিওলজি
লাইফ মেম্বার
বাংলাদেশ সোসাইটি অব ফিজিওলজিস্টস

Memories of my Career
A Brief Review : Autobiography

PROFESSOR MOSHARRAF HOSSAIN MOLLA

In the year 1960 I was admitted into the M.B.B.S course at Chittagong Medical College under the University of Dhaka as a Student of 4th batch. In my batch 76 Students were admitted, of them 46 were Bangalee and 30 were Pakistani which was the admission system in those days. Surprisingly only 2 to 3 seats were reserved for Bangalee students in each Medical college of Pakistan.

During my M.B.B.S course I had special interest for the subject of Physiology. Prof M. R Chowdhury was my respected teacher in the subject of Physiology. In 1965 only nine student passed successfully and regularly out of 76 Students admitted in the 1st year class and I was one of those 9 students who qualified M.B.B.S and became doctor. With inspiration from respected Professor Md. Nayeb Ali, I joined to the post of Demonstrator of Physiology in January 1967 at C.M.C.

While working as Demonstrator of Physiology my interest for the subject increased more as I observed that Professors of the subject were occupying senior position in the Medical College with rapid promotion for eligible and specialty qualified candidates. Professors of Physiology also used to live a standard comfortable and smooth life due to their seniority in the College.

They also contributed greatly in Medical education for producing qualified M.B.B.S doctors needed for the country. In the later part of 1967 I applied and appeared in the interview for admission into M.Phil (Medical) Physiology course at Institute of Postgraduate Medicine and Research (IPGMR), Dhaka. Prof Sir James Cameron, Director and Prof Nurul Islam joint Director of IPGMR and Prof M.R Chowdhury took my interview.

I was selected as the only student in the First batch of M.Phil (Physiology) course at IPGMR Dhaka, session of which started from January 1968. IPGMR at that time was located at the old Arts building of Dhaka University at the site of historic "AAMTALA" from where the Ekushey February, movement March Started. On Eastern side there was a pond (now filled up) on the south side, there was old railway track. During 1st year lecture class for F.C.P.S part-1 and M.Phil part-1was held together.

Biochemistry practical classes were held at Mohakhali, IPH and transport was provided for travel.

Respected Professors like Prof M. R. Chowdhury and Prof K.M Fariduddin were teachers. However Principal supervisor was Prof K.M Fariduddin renowned teacher was easy, free, frank, co-operative and sympathetic guide for me. Main laboratory was in a room of Physiology deptt of Dhaka Medical college. But my life as a student of Physiology at IPGMR was a struggled and laborious life.

For experiment I had to travel to IPH Biochemistry Lab at Mohakhali. My thesis was titled as "Plasma Protein recovery following stepwise haemorrahage in anaesthetized rabbits." Animals were to be brought from C.R Laboratories Mohakhali. Myself presented a paper in the Annual Seminar of IPGMR. Biochemistry was my minor subject and I got "HONOURS" in Biochemistry. My externals were from Senior and eminent Professors of Physiology and Biochemistry.

Although during that time IPGMR was in early and formative stage. I got reasonable co-operation from authorities in respect of Research and Funding. I also received help and co-operation from Institute of public Health and SEATO Cholera research laboratory Mohakhali. The final M.Phil examination was held in the last week of December 1969 and myself successfully qualified the examination and got M.Phil (Medical) degree in Physiology after which I was posted as Senior Lecturer of Physiology Chittagong Medical College in February 1970.

In the next 45 years of my Career I worked with my full satisfaction as Assistant, Associate and Professor of Physiology in different govt and non-govt Medical Colleges. However from 1992 to 1997 in the 6 years I worked as Director Centre for Medical Education Dhaka and had given training in "Teaching Methodology'' to medical teachers and also kept a role in the formation of revised M.B.B.S curriculum which was need based and community oriented.

In the earlier part of 1980s we felt the need to form a society. Accordingly, I participated and the Society of Physiologist and Pharmacologist was formed in 1982. In the initial stage it was difficult to publish a journal because of lack of research papers. Myself submitted 5 papers for publication in this journal.

Few words before concluding : With my humble effort, I have always tried to impart education of my subject as per curriculum to Medical students both undergraduates and postgraduates and also participated in research activities as per as possible. Considering all my activities in Medical education for undergraduate and postgraduate education, Bangladesh College of Physicians and Surgeons (BCPS) awarded me "FCPS'' without Examination in the year 2004.

Also in view of my role as Physiology teacher my name was included in the 11th edition of Guyton's Text Book of Physiology as Eminent Academician in South Asia, for its advisory board. By the grace of Almighty Allah, I may humbly say that "I am satisfied with my career.'' On completion of 33 years of Govt Service, I retired in January 2000 from the post of Professor of Physiology Dhaka Medical College as a Grade 2 (Additional Secretary) officer.

During my whole career, I always tried with my best effort for establishing "Continuing Medical Education and Research" and for improvement of curriculum as per community need & disease profile of the country. Throughout my whole career, I have not done job/service in foreign countries. However I have visited different foreign countries of Europe and Asia for Fellowship training, Delegation, Paper presentation in international seminars & conferences.

However, "Life is not a bed of roses." As such, myself also had ups and downs, problems, difficulties, and obstacles in the ways of my life. I had to face and overcome and manage the situation with patience. In my thinking these are minor and usual affairs of life's reality. One has to face and overcome and adjust with it accordingly with patience.

I, wish and pray to the ALMIGHTY for Continuous prosperity and success of Bangladesh Society of Physiologists. At the end, I would request BSP for publication of "Directory of Physiologists".

With bright and pleasant memories of my student days as the First student of First batch of M.Phil course in Physiology at the then IPGMR Dhaka, now BSMMU, I wish and pray for further improvement of my profession and subject. Again before I close, I wish and cherish welfare and prosperity for all members of BSP.

Allah Hafez

Professor Mosharraf Hossain Molla
Eminent Professor of Physiology
LIFE MEMBER
Bangladesh Society of Physiologists (BSP)

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