The ▶ 6th FHS International Conference

In memory of
the late Professor Hiroyuki Date,
Founder and President of
the FHS International Conference

Re-bonding and Restarting:
Unfolding a New Chapter of Health Sciences in Asia

October 20, 2023
Multipurpose Room in the Building E

**Faculty/Graduate School of
Health Sciences,
Hokkaido University**

PROGRAM

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Multipurpose Room in the Building E
Faculty of Health Sciences
Hokkaido University

October 20
2023

Welcome to the 6th FHS International Conference

Dear FHS community members,

We have the honor to hold the 6th International FHS Conference (FHS2023) organized by the Graduate School of Health Sciences, Hokkaido University. Biennially held since 2013, the FHS Conference celebrates its decennial this year in 2023.

Our past meetings have served as a forum for information exchanges and discussions in a broad variety of health-related disciplines including nursing, radiological technology, medical laboratory science, rehabilitation medicine and health sciences studies. On behalf of our faculty members, I would like to express my sincere gratitude to the guests from abroad for visiting Sapporo.

The COVID-19 pandemic since the end of 2019 has turned the world upside down. It has accelerated the digital transformation of societies and spurred social, economic and healthcare reforms. We should now commit ourselves to enhancing the quality of healthcare services for people across the world. Given the milieu of the times, we set the 6th FHS main theme as "Re-bonding and Restarting: Unfolding a New Chapter of Health Sciences in Asia". This is our aspiration to strive together towards the future to open up a new era of health sciences by integrating our knowledge and expertise.

On behalf of the Executive Committee members, I would like to give the warmest welcome to all participants. I hope for the success of the event where the outcomes of fruitful discussions at the meeting lead to the further development of our friendship and facilitation of collaborative research opportunities.

20th October 2023

Rika Yano, Ph.D.

President of the 6th FHS International Conference
Dean of the Faculty of Health Sciences
Faculty of Health Sciences, Hokkaido University, Japan

Welcome to the 6th FHS International Conference (FHS 2023)

Dear colleagues and participants:

It is our privilege and pleasure to invite you to the 6th FHS International Conference. We cordially welcome distinguished guest speakers and participants from Hong Kong, Taiwan, Thailand, Indonesia, Australia, and Japan belonging to broad fields of Health Science such as Bioengineering, Global Health, Medical Laboratory Science, Nursing, Nutrition, Orthoptics, Rehabilitation, Radiology, etc. Taipei Medical University and Kaohsiung Medical University in Taiwan, Chulalongkorn University in Thailand, The University of Hong Kong in Hong Kong, and The University of Melbourne in Australia are the partner institutions of the Faculty of Health Sciences, Hokkaido University.

I would like to thank all the participants, particularly the invited speakers, and the staff of the International Affairs Office of FHS, for their hard work. This year, we celebrate our 10-year anniversary since the first conference in 2013, and this conference is held in memory of the late Professor Hiroyuki Date, the founder and former president of the conference. Unlike the previous conference (FHS2021) which took place during a global pandemic, this year we are once again able to get together in person in Sapporo and make meaningful connections with our old and new colleagues.

During this outstanding scientific event, we will share the most recent innovations in the field of Health Science with the aim of enhancing mutual understanding across all the disciplines. In addition to invited oral presentations, we will have poster presentations from graduate students. We hope this conference will be a valuable experience for them. Thank you for joining us!

20th October 2023

Taro Yamauchi, Ph.D.

Chair of the Organizing Committee of the 6th FHS Conference
Director of the International Affairs Office
Faculty of Health Sciences, Hokkaido University, Japan

Overall Program Schedule

8:00	Registration (Grad. Students), Displaying Posters for Poster Session 1	
8:20–8:50	Registration (General)	
8:50–9:00	Opening Remarks	**Prof. Rika Yano** Dean, Faculty of Health Sciences, Hokkaido University, Japan
9:00–10:00	Symposium 1	**Chair: Dr. Miho Sato** **9:00–9:20** **1. Prof. Hsiao-Yean Chiu** *Transforming Nursing Care: Innovations Through Technology-Assisted Interventions in Intensive Care Units* School of Nursing, Taipei Medical University, Taiwan **9:20–9:40** **2. Dr. Yunjie Luo** *Promoting mental health in immigrant women: Studies among Chinese women in Japan* Faculty of Health Sciences, Hokkaido University, Japan **9:40–10:00** **3. Prof. Chia-Chin Lin** *Effects Of Tai Chi Versus Aerobic Exercise On Sleep For Patients With Late-Stage Lung Cancer: A Multicentered Three-Arm Randomized Controlled Trial* School of Nursing, The University of Hong Kong, Hong Kong
10:00–10:20	Tea Break	
10:20–11:50	Poster Session 1	
11:50–13:00	Lunch, Displaying Posters for Poster Session 2	
13:00–14:20	Symposium 2	**Chair: Prof. Atsuko Ikeda** **13:00–13:30** **4. Dr. Wanida Laiwattanapaisal** *Paper-based (bio)sensors for wound status and infection management* Faculty of Allied Health Sciences, Chulalongkorn University, Thailand **13:30–13:40** **5. Dr. Hisanori Fukunaga** *Lessons Learned from the 2011 Fukushima Nuclear Accident* Faculty of Health Sciences, Hokkaido University, Japan

		13:40–14:00 **6. Prof. Trias Mahmudiono** *Nutrition education 4.0 to prevent triple burden of malnutrition* Department of Nutrition, Universitas Airlangga, Indonesia **14:00–14:20** **7. Prof. Taro Yamauchi** *Co-creation of Community-based Water, Sanitation and Hygiene (WASH) with Local Stakeholders* Faculty of Health Sciences, Hokkaido University, Japan
14:20–14:40	**Break**	
14:40–16:10	**Poster Session 2**	
16:10–16:30	**Tea Break**	
16:30–17:30	**Symposium 3**	**Chair: Dr. Mina Samukawa** **16:30–16:50** **8. Prof. Daisuke Sawamura** *Cognitive neuroscience and rehabilitation - Striving towards the development of effective intervention strategies* Faculty of Health Sciences, Hokkaido University, Japan **16:50–17:10** **9. Dr. Marianne Coleman** *Integrated Allied Healthcare For Healthy Ageing: Interprofessional Collaborative Practice, Education And Research* Department of Optometry and Vision Sciences, University of Melbourne / National Vision Research Institute, Australian College of Optometry, Australia **17:10–17:30** **10. Prof. Ming-De Chen** *A new dual task training program for improving balance function of middle-aged adults with schizophrenia* Department of Occupational Therapy, Kaohsiung Medical University, Taiwan
17:30–17:40	**Closing Remarks**	**Prof. Taro Yamauchi** Director of the International Affairs Office, Faculty of Health Sciences, Hokkaido University, Japan
18:30–20:00	**Social Gathering and Award Ceremony**	

Poster Session 1

No.	First Author	Title
1-01	Fiorella Apolo Soria	A survey for low back pain treatment on Ecuadorian physical therapists using the Pain Attitudes and Belief Scale for Physical Therapists (PABS-PT)
1-02	Kensuke Tsutsumi	Effects of Intermittent and Continuous dynamic stretching on Ankle Flexibility and Jump Performance
1-03	Hinata Okuno	The influence of maturity status on injury incidence in adolescent male soccer players
1-04	Minori Tanaka	Effect of the number of repetitions of dynamic stretching on musculotendinous extensibility and muscle strength
1-05	Maki Nomura	The effects of repetitive pitching in a real game on the medial elbow joint stability
1-06	Mikoto Okazaki	Effects of breathing exercise on mental stress in the luteal phase of young adult women
1-07	Yushan Liu	Effects of combined therapy of pharmacological inhibition of histone deacetylases and skilled training on motor recovery after intracerebral hemorrhage
1-08	Masahiro Sato	Effects of dynamic stretching velocity on instantaneous muscle exertion
1-09	Jin Nishiyama	The ability to coordinate muscle power output of hip abductors in individuals with chronic ankle instability
1-10	Ziheng Zhang	An Automated Hybrid Approach for Feature Classification and Non-Numeric Feature Transformation in Medical AI domain
1-11	Atsushi Hasegawa	Remaining tumor delineation with deformable image registration for post transurethral resection of bladder cancer
1-12	Yukina Tokikuni	Different effectiveness of transcranial random noise stimulation and transcranial direct current stimulation for enhancing working memory in healthy individuals: A randomized controlled trial
1-13	Maya Nakamura	Pilot Study on AI Image Analysis of Nipple Trauma
1-14	Miku Izutsu	Oral frailty and related factors among community-dwelling elderly
1-15	Kae Yasuda	Venous Dilation Effect of Heat Application for Peripheral Intravenous Catheterization in Older Patients Hospitalized for Orthopedic Care: A Quasi-Experimental Study
1-16	Mami Kikuchi	Actual situation and related factors of Ikigai among older adults during the coronavirus disease pandemic: Focusing on psychosocial health
1-17	Kosuke Sato	Brain activity during verbal communication and modulation by mood
1-18	Yuuka Konishi	Theta-band interbrain synchronization during musical communication
1-19	Minato Takeuchi	Improvement effect of phytosterols from seaweed on lipid overload in PC12 cells
1-20	Manami Uchita	Effect of flazin from soy sauce on lipid metabolism improvement in HK-2 cells
1-21	Hina Ueno	Structure of Happiness Among Older Adults

1-22	Lipsa Rani Nath	A Comprehensive Lipid Profiling of Sorghum Cultivars by LC/MS
1-23	Jayashankar Jayaprakash	Exploring the effect of ethanol on colon content lipidome: Insights from sex-specific mice model by nontargeted LC/MS approach
1-24	Kazuki Wataka	Impact of a Low-Light Environment on Nurses' Fatigue and Practice in a Neonatal Intensive Care Unit in Japan
1-25	Miki Eguchi	Protective effects of vitamin K in renal tubular cells under oxidative stress
1-26	Suishin Arai	Cathepsin C inhibition suppresses neutrophil activation and potentially improves activated neutrophil-mediated diseases
1-27	Keita Sakaguchi	Tricuspid anatomical regurgitant orifice area by transthoracic three-dimensional echocardiography: a novel parameter of tricuspid regurgitation severity
1-28	Yui Nagai	Echocardiographic estimation of right ventricular stiffness based on pulmonary regurgitant velocity waveform analysis in precapillary pulmonary hypertension: validation study using single-beat right ventricular pressure-volume analysis
1-29	Soichiro Inomata	Estimation of Left and Right Ventricular Ejection Fraction from Cine-MRI Using 3D-CNN
1-30	Yuusuke Yamada	Development of a software for automatic myocardial extraction using deep learning in ^{13}N-ammonia PET images
1-31	Miu Sakaida	Advancing Mammographic Calcification Detection: A Deep Learning-Based Methodological Approach
1-32	Masaya Kubota	Comparison of model accuracy of Convolution Neural Network and Vision Transformer classification for Rib Computed Radiography
1-33	Yueqi Tian	Automated Detection of Myocardial Abnormalities Using Myocardial T1 Mapping and Deep Learning
1-34	Yonghan Li	LC-MS/MS based quantification of plasma short-chain fatty acids among healthy children
1-35	Nao Inoue	Determination of plasma lysophosphatidylethanolamine levels in preadolescent children
1-36	Xun-Zhi Wu	Mitochondria-improving effect of flazin in human HK-2 cells under oxidative stress
1-37	Airi Onoda	Novel ultrasonographic scoring system of congestive hepatopathy in heart failure patients
1-38	Yanjun Li	A preprocessing method for coronary artery stenosis detection
1-39	Yusuke Minami	Functional lipids analysis of sea cucumber using non-targeted LC/MS method
1-40	Takaya Maeyama	The effects of rehabilitative interventions on reading disorders caused by homonymous visual field defects: a meta-analysis focusing on improvement in reading speed
1-41	Miho Komatsuzaki	The relationship between physical activity and sedentary time with autonomic function in middle-aged women
1-42	Ryuji Saito	Anxiety-reducing effect of heart rate variability biofeedback training and its brain activity: A randomized active controlled study using EEG
1-43	Md. Nahid Uz Zaman	Understanding Menstrual Hygiene Management: A Narrative Review and Pilot Study in Bangladesh

Poster Session 2

No.	First Author	Title
2-01	Karen Yamamoto	Identification of TGFB1-upregulated senescent fibroblasts in keloids
2-02	Hikaru Ishimura	Effects of cognitive loads on voluntary weight shifts within a fixed base of support
2-03	Aina Inoue	The effect of Icing on the Gastrocnemius Muscle on Static Postural Stability
2-04	Takeshi Hirono	Predictive Validity of Driving-Simulator Assessments in Patients with Cognitive Impairment After Brain Injury
2-05	Hiyori Horii	Extracting characteristics of patients with brain injury underestimated by driving simulators
2-06	Rika Hirayama	The Significance of "Loose and Safe Connections" Affecting Isolation and Loneliness in the Retirement Process
2-07	Feng Han	Effects of balneotherapeutic factors on metabolism: a pilot predicts using the ANFIS approach
2-08	Kotoka Kuriki	Snow-living bacteria are associated with human density, and the low density increases the diversity of the bacterial flora
2-09	Keisuke Sato	Synthetic CT Images Generation for MR-only Treatment Planning for Prostate Cancer: A pilot study
2-10	Akihiro Watanabe	Transcranial direct current stimulation to the left dorsolateral prefrontal cortex enhances early dexterity skills with the left non-dominant hand: a randomized controlled trial
2-11	Marie Hino	Reality and Associated Factors of Sense of Coherence Scale 13 among Pregnant Nurses
2-12	Issei Konya	Factors Associated with Skin Barrier Dysfunction during Bed Baths in Hospitalized Older Adults
2-13	Kotone Nishiya	Characteristics of Acquiring Nursing Skill Expertise: A Literature Review
2-14	Fuka Sunazawa	Menstrual knowledge and attitude of school girls in urban-slum Indonesia
2-15	Shiori Iwai	A cost-minimization analysis of robot-assisted radical cystectomy using a database of claims and electronic medical records
2-16	Machiko Ukai	Structuring of Nutritional Guidance Techniques using the Interpretive Structural Modeling Method
2-17	Ryota Konno	Extraction of Risk Factors for Type 2 Diabetes Mellitus by Logistic Regression Analysis Using Specific Health Checkups Data
2-18	Asuka Yoshida	Present well-being felt by older adults active in neighborhood associations
2-19	Sunka Kim	Literature Review on Characteristics of Supportive Care Needs of Patients with Hepatobiliary Pancreatic Cancer Overseas
2-20	Malek MD Abdul	Lipid Analysis of Sahime and Apple rose samples by nontargeted LC/MS
2-21	Rachana M. Gangadhara	Lipid nutrient analysis in Adzuki and Soybean cultivars by LC-MS
2-22	Ruiyu Li	Exploration of the novel signal transduction pathway utilized by Chlamydia trachomatis L2

2-23	Sora Kuroiwa	Screening of MAPK and PI3K-AKT inhibitor libraries reveals novel target molecules utilized by Chlamydia trachomatis to proliferate in infected cells
2-24	Hana Takeshita	The effect of 12-EPAHSA on mitochondrial morphology in fatty liver model cells
2-25	Maho Sasa	Search for Oxidized High-Density Lipoprotein Receptor in Human Liver-Derived Cell Line
2-26	Naoaki Masuko	Lipidomic Analysis of Very-Low Density Lipoprotein Released from Human Liver-Derived Cell Line
2-27	Chenchen Leng	Exploring the Potential of Lung Field Masks in Detecting COVID-19 Pneumonia
2-28	Ryuma Moriya	Comparison of performance of deep learning based models trained with different supervised images for cerebral infarction region extraction
2-29	Daisuke Sato	Assessment of collagen fiber orientation in mouse femur using MRI-UTE signal
2-30	Haolin Wang	A Deep Registration Method for Accurate Quantification of Joint Space Narrowing Progression in Rheumatoid Arthritis
2-31	Yuta Shiraishi	A predictive model of surviving fraction under ultra-high dose-rate irradiation based on DNA damage responses
2-32	Wanxuan Fang	Deep learning-based segmentation and quantification of hand synovitis in rheumatoid arthritis using DCE-MRI
2-33	Ryosuke Seino	Cell cycle dependence of changes in cell motility after exposure to ionizing radiation
2-34	Akiko Sakurai	Kaempferol Improves Mitochondrial Respiratory Function in Human Liver-Derived Cell Line
2-35	Mahmud Aditya Rifqi	Water, sanitation and hygiene facilities and child diarrhea in urban-slum Indonesia during the COVID-19 Pandemic
2-36	Joy Sambo	Menstrual Hygiene Management Mapping: A Baseline Study of the Impact of an Interventional Study on Menstruating Schoolgirls in Kafue Peri-urban Schools of Lusaka, Zambia
2-37	Arimi Mitsunaga	Menstrual Hygiene Management among Adolescent Girls in Lilongwe District, Malawi
2-38	Jessy Zgambo	Water-Environment-Health Nexus: Assessing the Interplay of Water, Sanitation, and Hygiene with Environmental Factors and Health Risks in Peri-urban Zambia
2-39	Hongjian Zhang	Grad-CAM based Explainable Artificial Intelligence on Medi-cal Text Processing
2-40	Yi Zeng	The Association between Urinary Phthalates and Use of Plastic Utensils in School Children: Hokkaido Study on Environment and Children's Health
2-41	Hiroshi Miura	Neural activity and neural networks in dual task interference of motor and cognitive tasks
2-42	Yuri Matsuzaki	Social Activities Impacting Loneliness among Older Adults in Japan
2-43	Saicheng Zhang	Pathogenic *Chlamydia* L2 requires aryl hydrocarbon receptors and detyrosinated tubulin for its growth

Symposium 1

Transforming Nursing Care: Innovations Through Technology-Assisted Interventions in Intensive Care Units

Hsiao-Yean Chiu, RN, Ph.D.

School of Nursing, Taipei Medical University

Dr. Chiu's current focus lies in symptom management, specifically addressing challenges such as insomnia, delirium, fatigue, physical dysfunction, particularly among patients with brain injuries and patients requiring intensive care. Additionally, she is dedicated to designing and developing technology-based nonpharmacological interventions aimed at mitigating symptom disturbance.

Abstract

Admission of patients to intensive care units (ICUs) is an unforeseen occurrence that can result in a range of physical and psychological issues, such as ICU-acquired weakness, delirium, sleep disturbances, anxiety, depression, and post-traumatic stress disorder. These consequences can prolong the duration of ICU stays, increase healthcare costs, and place an additional burden on medical resources. Consequently, addressing these physical and psychological distresses through timely and effective interventions has become a paramount concern in optimizing the recovery of critically ill patients.

This presentation aims to shed light on the challenges of physical and psychological distress faced by ICU patients and present our preliminary findings on technology-assisted interventions. These interventions encompass nurse-led virtual reality programs, combined with sleep bundles and interactive handgrip games, designed to alleviate the physical and psychological distress experienced by individuals requiring intensive care. We believe that our research can inform medical professionals and inspire the development of innovative smart care technologies aimed at enhancing the quality of critical care and alleviating the workload of medical staff.

Symposium 1

Promoting mental health in immigrant women: Studies among Chinese women in Japan
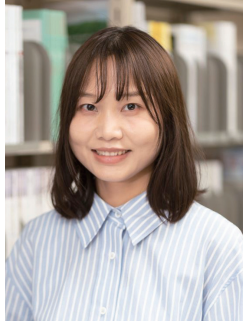
Yunjie Luo, Ph.D., R.N.

Faculty of Health Sciences, Hokkaido University

Yunjie Luo earned her PhD from the Graduate School of Health Sciences at Hokkaido University, specializing in Nursing Sciences. Her research covers maternal and child health nursing, transcultural nursing, and mental health, with a focus on the mental health of immigrant women in Japan and psychological assessment scales.

Abstract

The process of migration and resettlement is widely recognized as a stress-inducing phenomenon that carries significant mental health risks. Immigrant women, especially those raising children in a foreign country, face a range of mental health challenges that span from the prenatal period through child-rearing, as well as during the process of acculturation.

As of December 2022, the number of foreign residents in Japan reached a record high of 3,075,213, with women accounting for 50.3% of this population. Within this diverse group, immigrant women in Japan have been consistently reported to grapple with a spectrum of mental health issues, including depression, anxiety, parenting stress, and acculturative stress. However, it is crucial to emphasize that these mental health problems are not insurmountable; effective interventions and practices can significantly help control and alleviate them. Recognizing the diversity within immigrant populations, the focus should be on addressing unique mental health issues in distinct subgroups.

This presentation will concentrate on one of Japan's largest groups of foreign women—Chinese women. It will provide a brief introduction to mental health status of Chinese women in Japan and detail the process of developing and evaluating an Internet-based mental health promotion intervention tailored to their specific needs. This endeavor aims to contributes to a deeper understanding of the multifaceted challenges faced by immigrant women and explore potential avenues for improving their mental well-being.

Symposium 1

Effects Of Tai Chi Versus Aerobic Exercise On Sleep For Patients With Late-Stage Lung Cancer: A Multicentered Three-Arm Randomized Controlled Trial

Chia-Chin Lin, RN, Ph.D., FAAN

School of Nursing, The University of Hong Kong

Professor Chia-Chin Lin is currently Alice Ho Miu Ling Nethersole Charity Foundation Professor in Nursing, and Director at HKU School of Nursing. Professor Lin's career encompasses the mission of research, education, and practice. Her areas of research expertise include cancer pain management, symptom management, end of life care, and physical activity in cancer and palliative care.

Abstract

Background: Sleep disturbances are common in advanced lung cancer patients, worsening physical and psychological symptoms, and reducing quality of life and survival.

Objective: To evaluate the efficacy of aerobic exercise (AE) and Tai Chi (TC) on sleep quality, physical and psychological outcomes, and survival in advanced lung cancer patients.

Design, Setting, and Participants: This assessor-blind, randomized trial involved 226 patients across three public hospitals in Hong Kong from 2018 to 2022. Patients were randomized 1:1:1 into AE, TC, or control groups. Interventions: For 16 weeks, the AE group had two monthly 60-minute supervised group sessions and home exercises; the TC group attended 60-minute group sessions twice weekly, while the control group received physical activity guidelines.

Outcomes and Measures: Primary outcome was subjective sleep quality. Secondary outcomes included objective sleep measures, anxiety, depression, fatigue, quality of life, physical function, circadian rhythm, and one-year survival. Assessments occurred at baseline (T0), 16 weeks (T1), and one year (T2).

Results: Of the 226 participants (46.0% male), the mean age was 61.41 (8.73) years. Compared to control group, AE and TC groups showed significant improvements in subjective sleep quality, psychological distress, physical function, step count, and circadian rhythm from T0 to T1 and T2. TC demonstrated greater sleep improvement than AE at T1 and T2, and significantly improved survival compared to control.

Conclusions: AE and TC enhanced sleep, psychological distress, physical function, and circadian rhythm, with TC showing greater sleep and survival benefits. Both exercises, especially TC, can be integrated into lung cancer survivorship care.

Symposium 2

Paper-based (bio)sensors for wound status and infection management

Wanida Laiwattanapaisal, Ph.D.

Faculty of Allied Health Sciences, Chulalongkorn University

Wanida Laiwattanapaisal got her PhD from Mahidol University. Currently, she is head of Center of Excellence for Biosensors and Bioengineering (CEBB) at Chulalongkorn University. Her main research interests are developing paper-based analytical devices, sensors and biosensors, and translational bio-electrochemical cell models.

Abstract

The importance of early diagnosis of wound status and infection in wound management is increasing interest in the development of new technologies for monitoring wound biomarkers. Simple electrochemical (bio)sensors are proposed here for the noninvasive detection of biomarkers such as myeloperoxidase (MPO), uric acid (UA), and pyocyanin (PYO) to monitor wound healing status and aid in wound infection diagnosis. MPO activity in the 0.5-5 U/ml range was detected ($R2 = 0.9697$) by analyzing MPO activity extracted from the used wound-dressing gauzes and distinguished between non-infected and infected wounds ($n = 10$) using the proposed paper-based electrochemical biosensor. In addition, for chemical biomarkers, the UA sensor was designed with a conductive hydrogel decorated on the sensor. The detection limit of the UA sensor was 0.05 mg/dL in phosphate buffer and 0.36 mg/dL in simulated wound exudate. The sensor showed high selectivity, stability, and biocompatibility. The UA levels detected in the gauze wound dressing by the proposed sensor were consistent with the uricase enzymatic determination ($P > 0.05$). The PYO sensor was decorated by physically cross-linking the surface of a working electrode with a conductive MWCNTs/PVA hydrogel nanocomposite that absorbs and retains wound exudates. The sensor's potential wearability and point-of-care capability were demonstrated by detecting pyocyanin in wounds on ex vivo porcine skin and an in vivo animal model with excellent biocompatibility, with cell viability of L-929 greater than 80%. Taken together, the proposed (bio)sensors are promising candidates for monitoring wound status and infection management.

Symposium 2

Lessons Learned from the 2011 Fukushima Nuclear Accident

Hisanori Fukunaga, M.D., Ph.D.

Faculty of Health Sciences, Hokkaido University

After receiving his medical degree from the Yokohama City University School of Medicine, Hisanori Fukunaga's clinical residency was at the Soma General Hospital in Fukushima, following the 2011 nuclear crisis. The clinical experience in Fukushima has been his driving force to pursue advanced studies in radiation health sciences.

Abstract

The Great East Japan Earthquake of 11 March 2011 and the resulting tsunami caused serious damage to various areas of the Pacific coast in northeast Fukushima, and all the residents were exposed to a fear of meltdowns of the reactors at the Fukushima Daiichi Nuclear Power Plant (FDNPP). In addition, due to the radioactive substances released from the FDNPP, they have been worried about the long-term health risks from radiation exposure.

What should we learn from the experiences we had and how should we apply them to future health science education?

In this symposium, as a physician who worked in the disaster-affected areas following the 2011 Fukushima nuclear accident, I would like to present the health and social impacts of the accident and identify lessons to be learnt. The health and social problems after the nuclear disaster can be divided into the radiation-related and the non-radiation-related aspects. For the former, the methodologies to individually assess radiation-induced health risks have not been established and remain as a challenge in the research field of radiation protection. With regard to the latter, preconceptions, biases and rumors related to the disaster, such as the widespread discrimination against the disaster victims continue in the global society. Both require experts and professionals in social sciences, physics, chemistry, biology, engineering and health sciences to join forces to solve problems rather than work individually. And, we should pass the lessons learned on to the next generation of healthcare professionals. I hope that my personal clinical and research experiences help academics further these initiatives in the future education of health sciences.

Symposium 2

Nutrition education 4.0 to prevent triple burden of malnutrition

Trias Mahmudiono, Ph.D.

Department of Nutrition, Universitas Airlangga

Prof. Trias Mahmudiono, PhD was graduated doctoral degree in human nutrition from Kansas State University through Fulbright Scholarship. His research focus is on nutrition education intervention and also nutritional epidemiology. He also interests in double or triple burden of malnutrition especially in urban settings.

Abstract

In many developing countries, malnutrition problems such as macronutrient deficiencies (stunting, wasting and underweight), micronutrient deficiencies (anemia, disorders due to iodine deficiency, zinc deficiency), which occur simultaneously with problems of overnutrition (overweight) and obesity are referred to as triple burden of malnutrition. WHO data for 2020 shows that there are 149 million toddlers who are short according to their age or stunting and 45 million toddlers who are short according to their height or wasting and 38.9 million are overweight or obese in the world in 2020.

Adequate nutritional intake according to the needs of a person's age group and physical activity needs to be promoted on an ongoing basis using various platforms, whether through policies, community movements, or the use of social media. Specific nutrition intervention programs and nutrition-sensitive interventions that have been developed must be accompanied by strengthening behavior change through ongoing nutrition education interventions or programs designed to facilitate the voluntary adoption of dietary patterns and other nutrition-related behaviors to support health through internet-based social media interactions and mobile applications, which is called Nutrition Education 4.0. With the large population of Indonesian society dominated by the millennial generation to generation Z who have strong digital literacy, the potential for Nutrition Education 4.0 to accelerate the achievement of behavior change towards a healthy lifestyle is very potential.

Keywords: nutrition education; social media; behavioral intervention; triple burden of malnutrition

Symposium 2

Co-creation of Community-based Water, Sanitation and Hygiene (WASH) with Local Stakeholders

Taro Yamauchi, Ph.D.

Faculty of Health Sciences, Hokkaido University

Taro Yamauchi is Professor in Human Ecology and Global Health in the Faculty of Health Sciences at Hokkaido University. He holds a Ph.D. in Health Sciences from The University of Tokyo. He does intensive fieldwork in hunter-gatherer societies, rural villages, and urban slums to understand the lifestyle and health of local populations and co-create sanitation systems with local stakeholders.

Abstract

Sanitation is a complex issue that is deeply embedded in culture and society. The traditional top-down approach to solving sanitation issues is less effective, and a bottom-up approach from the local perspective is crucial. I will talk about our previous project and current ongoing research, which aims to co-create sanitation systems with local stakeholders in small communities in Japan, Indonesia, and three African countries.

I will focus on field research conducted in Indonesia, Zambia, and Japan. In an urban slum of Indonesia, we built a sanitation value chain system, which involved the installation of composting toilets in a primary school. In this chain, human waste was collected locally using existing networks and transported to nearby farmers that grew flowers which were sold at local markets. In an urban slum of Zambia, we established a child club including local children and youth and did a bottom-up approach from children, adults and to the community to change attitudes and behaviors. In Hokkaido, Japan, participatory action research was conducted in a depopulated rural area by linking local high school students with a local water use management association. The students drew a map of the water pipelines of the water supply system which was maintained and managed in the area.

From the case studies of co-creation of sanitation in Indonesia, Zambia, and Japan, we emphasize that sanitation is a global issue that can be solved through a shift from conventional centralized systems to autonomous decentralized ones. It is important to recognize that both the hardware (infrastructure) and software (changing people's awareness, behavior, and social transformation) are crucial. Co-creation with the youth of future generations is equally essential.

Symposium 3

Cognitive neuroscience and rehabilitation - Striving towards the development of effective intervention strategies

Daisuke Sawamura, Ph.D.

Faculty of Health Sciences, Hokkaido University

Daisuke Sawamura is an occupational therapist with two doctoral degrees: PhDs in Health Science, and in Biomedical Science and Engineering. His current researches focus on cognitive neuroscience and rehabilitation which include evidence-based basic and clinical practice and research.

Abstract

In recent years, cognitive neuroscience-based rehabilitation (cognitive neurorehabilitation) research has been conducted to determine its effectiveness for healthy and clinical populations such as cognitive decline in stroke and neurodegenerative and neuropsychiatric conditions, and evidence has been gradually accumulating. However, at present, cognitive neuroscience-based approaches have not yet fully penetrated clinical practice, and this is due to the lack of seamless information sharing between researchers who develop new methods and clinicians. Promoting translational research from basic to clinical is essential for accumulating further evidence and its dissemination to clinical practice.

In this symposium, entitled 'Cognitive neuroscience and rehabilitation', I would like to introduce the basic and clinical research we have conducted based on two topics: structural and functional brain imaging and non-invasive brain stimulation. In the structural and functional brain imaging research, we will present our study that examined the effects of computerized cognitive training towards its clinical application for patients with mild cognitive impairment and Moyamoya disease and a study that examined the effects of repetitive left-handed chopstick operation training towards its application to individuals obliged to change their handedness due to hemiplegia after stroke, or upper-limb trauma, or amputation. In addition, we will introduce our studies on non-invasive brain stimulation, building upon the insights gleaned from our previous findings of these neuroimaging studies and aiming to further expand its effectiveness, and discuss future perspectives for further development of cognitive neurorehabilitation.

Symposium 3

Integrated Allied Healthcare For Healthy Ageing: Interprofessional Collaborative Practice, Education And Research

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Marianne Coleman obtained her PhD in Vision Sciences from Glasgow Caledonian University (UK). She is an orthoptist. Her current research focuses on breaking down barriers to accessing dementia-friendly eyecare, and health services research, including fostering collaborations between allied health professions for team medicine approaches to managing long-term conditions.

Abstract

Background: Multimorbidity and frailty among older adults are associated with complex healthcare needs, requiring input from multiple allied health disciplines to manage. The need for integrated, multidisciplinary approaches to support 'ageing in place' has been acknowledged in research and policy. However, barriers exist to successful implementation, leading to calls for innovative knowledge translation strategies to facilitate widespread improvements to care for older adults. We present findings from an interprofessional workshop programme conducted in Victoria, Australia, and Hokkaido, Japan.

Methods: We held a Zoom-based online case study afternoon and a hybrid online/in-person interprofessional education workshop in Sapporo, Japan. Attendees were primarily allied health professionals, students, clinical educators and researchers. Attendees completed a feedback survey to share their learning experiences. The interprofessional education workshop comprised research presentations and discussion groups to further explore barriers and facilitators to integrated interdisciplinary allied healthcare and research in community, acute and aged care settings.

Results: Over 100 people attended the events. Attending disciplines included optometry, nutrition, social work, physiotherapy, occupational therapy, nursing and medicine. Perceived facilitators for interdisciplinary integrated allied health care/research/education included funding, time, ease of sharing information, effectiveness and representation of specialties, a positive environment for interdisciplinary practice and a sense of purpose. Respondents felt there could be more involvement of certain allied health professions, and agreed interdisciplinary case studies would be beneficial to incorporate within future teaching programs.

Conclusions: Australia and Japan experience shared opportunities and challenges regarding integrated allied healthcare for older adults, with a united focus on preventive care. The workshop program was well received and resulted in opportunities to include information about vision impairment in dementia and after stroke within the Japanese allied health curriculum in Hokkaido.

Symposium 3

A new dual task training program for improving balance function of middle-aged adults with schizophrenia

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Dr. Chen earned his Ph.D. in Disability Studies from the University of Illinois at Chicago (UIC), USA. His current research interests are development and investigation of the effectiveness of health promotion interventions for people with mental illness, especially related to physical activity and exercise participation.

Abstract

Improvement on balance and implementation of prevention from and deceleration of the disability process is of the critical issues in psychiatric rehabilitation for people with schizophrenia. We developed the Cognitive and Balance Training Simultaneously software (CogBals software) to address these challenges. This study aimed to examine the effects of our balance training program on balance, cognitive functions, and the endurance of lower extremities. In a 3-arm, single-blinded, randomized controlled trial, participants were randomly assigned to the cognitive and balance dual task training group (COG&BAL), the balance training group (BAL), or the treatment as usual group (TAU). Both training groups (COG&BAL, BAL) underwent 60-minutes group sessions twice a week for 12 weeks. A total of 84 participants completed the study (49.6 + 9.6 y; 31 females). Compared to the TAU group, both training groups had significant improvements in balance battery (Mini-Balance Evaluation Systems Test, MiniBEST), static balance (one leg standing), dynamic balance (Timed Up and Go Test), and walking speed. The COB&BAL group, in particular, had notable progress in dual task performance during balance challenge and gait parameters. Only the BAL group showed calf muscle endurance improvements (Heel Rise Test). The non-significant changes in cognitive functions in the COG&BAL group may be due to less challenging cognitive tasks. Future research is suggested to investigate the long-term effect of this new program. Our findings suggest that CogBals software holds promise for enhancing balance in middle-aged adults with schizophrenia, potentially improving their overall independent function.

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