



Print ISSN : 2186-8433

ONLINE ISSN : 2186-8913

Linking ISSN : 2186-8433

BIOPHILIA

BIOPHILIA

The **BIOPHILIA** Journal
– IBRC 2025 Proceedings -

Vol. 2025 - April 26, 2025

Revolution of Hope began.

Begin with No. 1.

**Learning from history,
an important movement is born
from the effort of a small group.**

Biophilia

International Biophilia Rehabilitation Academy

Proceedings of IBRC 2025

- The 19th International Biophilia Rehabilitation Conference

**To Overcome the Disabilities of the Human being By the Biophilia –
Restructuring of Rehabilitation Medicine for Longevity Society
(We restart the international conference. - By Zoom Conference)**

April 26, 2025

at Keio University

Hosted by:

**International Biophilia Rehabilitation Academy
Biophilia Rehabilitation Academy (Japan)**

Supported by;

**Japanese Society for Rehabilitation of Persons with Disabilities
Association for Technical Aids, Inc.**

**IBRC 2025 - The 19th International Biophilia Rehabilitation Conference
To Overcome the Disabilities of the Human being By the Biophilia –
Restructuring of Rehabilitation Medicine for Longevity Society
(We restart the International conference. By Zoom Conference)
April 26, 2025, at Keio University**

Table of Contents

Greetings from Chairperson of the 19th IBRC	1
Toshiyuki Tanaka, Prof. Faculty of Science and Technology, Keio University	
Address by President	2
Shigeo Takizawa, Professor, Designated Research Institution for Grant, Aid for Scientific Research by Japanese Ministry of Education, Culture, Sports, Science and Technology	
Towards a new journal	3
Toshiyuki Tanaka, Director of the Biophilia Rehabilitation Academy and Prof. Keio University Department of Applied Physics and Physico-Informatics, Faculty of Science and Technology, Keio University	
Greetings	4
Mieczyslaw Pokorski, IBRA Foreign Director, Prof. Institute of Health Sciences, University of Opole, Poland	
Greetings	5
Danuta Witkowska, PhD, DSc, Professor of UO Director of the Institute of Health Sciences, University of Opole	
Along My Own Aging	6
Yoshiko Morita MD, Dept. of Rehabilitation, Sato Hospital, Okayama	
STROKE, AGEING, AND THE BURDEN OF COMORBIDITIES: IMPLICATIONS FOR REHABILITATION IN AN AGEING SOCIETY	7
Prof. Adrian Melnic, State University of Medicine and Pharmacy Nicolae Testemitanu Chisinau, Moldova	
Introduction of actual Method in Daycare Rehabilitation with Motivative Exercise	8
Rika Wada, Physiotherapist, Executive Director of the Biophilia Rehabilitation Academy	
The First Report of the Effect Comparative Study of the Intervention Technique for the Improvement in Rehabilitation Medicine	9
Shigeo Takizawa, Professor, Biophilia Institute, The Designated and Registered Institute for Kaken by the Japanese Ministry of Education, Culture, Sports, Science and Technology	

The 19th International Biophilia Rehabilitation Conference



Greetings to 19th IBRC in Yokohama, Japan

Prof. Toshiyuki Tanaka
Department of Applied Physics and Physico-Informatics
Faculty of Science and Technology, Keio University, Japan

It is a great pleasure to hold the 19th International Biophilia Rehabilitation Conference (IBRC2024) at Keio University in Yokohama, Japan. I am Toshiyuki Tanaka, chairperson of the Biophilia Rehabilitation Academy in Japan. On the occasion of the IBRC2024, it is my honor to greet congratulations.

Our basic research and activities, both domestic and international, have been conducted for a long period of time. The results have been recognized to the extent the ISPRM2019 and the bilateral Polish Academy of Sciences (PAM) and Japan Society for the Promotion of Science (JSPS) seminar.

Starting with this year's conference, the Biophilia International Conference will move to the next stage. Until now, the purpose was to disseminate research activities and their results both domestically and internationally. These results have been recognized and the society's profile has increased. From now on, we would like to work hard to spread the Takizawa Method (including the spread of Pata-Koro) worldwide, which has been the aim of the Biophilia International Conference. At this symposium, we would like to consider what kind of activities will be effective for the organization in the future.

Finally, I sincerely wish that this international conference will be a fruitful one.

The 19th International Biophilia Rehabilitation Conference

Greetings to 19th IBRC at Keio University, Japan



(Taki) TAKIZAWA, Shigeo, (Founder / Inventor)

President, International Biophilia Rehabilitation Academy

Professor, Biophilia Institute, the Designated and Registered Institute for Kaken by the Japanese Ministry of Education, Culture, Sports, Science and Technology

Dear colleagues,

It is my honor to inform you to hold the 19th Annual Conference in 2025 (2024fy.)

This year, Professor Tanaka of the Faculty of Science and Engineering at Keio University, who has given us a lot of cooperation, has accepted the chairmanship of the conference as a commemorative event on the occasion of his retirement.

Also, it will be a significant event in which I can report on the results of our joint research with the Rehabilitation Division of the Social Integration Agency of the Latvian Government.

As a progress report, the development of mass-produced equipment, to alternate the chairperson of the editorial board of the Biophilia Journal, and our approach to agriculture in farming as a suitable occupation for the elderly is informed about the future of the Society's contribution to building a sustainable aging society.

In addition, we hope to discuss new research activities in the future and new perspectives on how such studies can be used to maintain the health of older people and others.

Finally, the conference is expected to be meaningful for the participants as the president of the IBRA.

Thank you very much.

The journal "BIOPHILIA"



Towards a new journal

Prof. Toshiyuki Tanaka

Department of Applied Physics and Physico-Informatics
Faculty of Science and Technology, Keio University, Japan

The journal "BIOPHILIA" is an academic journal of the International Biophilia Rehabilitation Academy, which aims to reconstruct rehabilitation medicine based on engineering.

We are not only focusing on reconstructing rehabilitation medicine, but also on building a sustainable super-aging society by maintaining the social system.

Until now, the chairman of the English journal has been Shigeo Takizawa of the Biophilia Rehabilitation Academy. Starting this year, Toshiyuki Tanaka will take over from Takizawa as chairman. Journal BIOPHILIA has only published papers related to Biophilia Rehabilitation Academy projects, but from now on, we will publish papers related to rehabilitation in general.

As for research on rehabilitation, we will not only cover the rehabilitation effects and comparisons of tools and devices, but also proposals for new rehabilitation methods and technical content related to tools and devices. This change in policy will enable readers around the world to obtain various research studies and ideas. We would like to work to make the journal BIOPHILIA more familiar to more people than ever before and to become a useful magazine worldwide.

We hope that researchers who have not submitted their research to BIOPHILIA in the past because their research field was different from ours will consider it as a place to submit their research in the future. We are planning to open the door to research in this field.



IBRA 2025 Annual Conference - Greetings Note

It is my great pleasure to attend the 2025 IBRA meeting. This organization is undauntingly devoted to reshaping the practice paradigm of neurological rehabilitation in line with the ever-increasing longevity and neuromuscular disorders developing in old age. IBRA strives to decrease the healthcare and socioeconomic burdens of old-age handicaps. It focuses on strategies that increase self-motivation for physical and cognitive exercises in outpatient or home environments. The aiding devices developed by the Takizawa group also create a user-friendly antiaging strategy, an essential aspect of current rehabilitative and health-protecting strategies. Therefore, the planned discussions about the mass production of technically upgraded devices are important. The Takizawa rehabilitative paradigm has become known worldwide owing to international contacts and collaboration. This year's meeting, albeit organized remotely on the ZOOM platform, fits well in this trend. Aging is a worldwide phenomenon, not limited to a country or region. The IBRA's track record of work achievements is admirable, and its mission for further improvements in the realm of medical rehabilitation is truly commendable.

Professor Mieczyslaw Pokorski
IBRA Foreign Director
Institute of Health Sciences
University of Opole, Poland



Takizawa Shigeo, (Founder / Inventor)
President, International Biophilia Rehabilitation
Academy Professor, Biophilia Institute, The Designated
and Registered Institute for Kaken by the Japanese
Ministry of Education, Culture, Sports,
Science and Technology

The 19th International Biophilia Rehabilitation Conference (IBRC 2025) – congratulations note

It is great pleasure to congratulate on organizing the 19th International Biophilia Rehabilitation Conference (IBRC 2025) at Keio University, Japan. This is a wonderful undertaking, which is an excellent opportunity to exchange knowledge, experiences and inspire the next generations of scientists. Your work and commitment in preparing this event deserve the highest recognition.

I wish you fruitful discussions, interesting presentations and creative meetings. May this conference be a platform for strengthening scientific cooperation and broadening the horizons of knowledge.

With best wishes for success and further inspiring achievements!

*Danuta Witkowska, PhD, DSc, Professor of UO
Director of the Institute of Health Sciences
University of Opole, Poland*

DYREKTOR
Instytutu Nauk o Zdrowiu

dr hab. Danuta Witkowska, prof. UO

Along My Own Aging

Attending to IBRC2025 in Tokyo

Yoshiko Morita MD

Dept. of Rehabilitation, Sato Hospital, Okayama

When I graduated from Medical School about half a century ago, I could neither imagine my own aging nor all over Japanese larger aging and smaller youngsters. At that time, I just decided that it is quite important that the care of disabled patients after medical treatments must followed by medical specialists. On the way to my career, the majority of our patients changed from disabled young to flail senile. So, I've been working in the local neighborhood hospital for 50 years after graduation. How times fly! The social circumstances have changed, but they are suddenly hopeless. The Government gradually started to seriously change the economic, medical, care, welfare, etcetera system. This Biophilia academy has coped with the role and aims to find a real solution to the aging crisis from the beginning over 40 years ago. I happened to join this party and say thanks to Prof. Takizawa, Japanese DARUTANIAN!

STROKE, AGEING, AND THE BURDEN OF COMORBIDITIES: IMPLICATIONS FOR REHABILITATION IN AN AGEING SOCIETY

Melnic Adrian,

Nicolae Testemitanu State University of Medicine and Pharmacy, Department of medical rehabilitation, physical medicine and manual therapy, Chisinau, Republic of Moldova

As populations worldwide age, the complexity of healthcare management increases, particularly in the context of stroke rehabilitation. The present analysis aimed to evaluate the relationship between age and the burden of comorbidities in post-stroke patients in light of the principles advocated by the International Biophilia Rehabilitation Academy (IBRA) and the upcoming IBRC 2025 conference, which focuses on longevity and healthy aging.

Data derived from a sample of 382 individuals hospitalized for post-stroke rehabilitation showed a clear age-dependent increase in comorbidity burden. While adults aged 30–59 years presented with a relatively stable number of comorbidities (ranging from $M = 3.6$ to 4.1), a marked rise was observed from the sixth decade of life onwards. Individuals aged 60–69 reported a mean of 4.91 comorbidities ($SD = 1.87$), increasing to 6.02 ($SD = 1.93$) in the 70–79 group, and peaking at 7.92 ($SD = 2.0$) in those over 80. Independent sample t-tests revealed statistically significant differences ($p < 0.001$) between adults and elderly patients across all evaluated domains: the number of comorbidities, the Barthel Index (a measure of functional independence), and CIRS and CCI scores (indicating cumulative illness burden).

These findings suggest the necessity for early, multidimensional and active rehabilitation strategies that are age-adapted and integrate principles of biological and psychosocial sustainability. The restructuring of rehabilitation medicine, as proposed by IBRC 2025, is crucial in addressing the increasing complexity and vulnerability of elderly stroke survivors. A holistic, comorbidity-sensitive approach may significantly improve quality of life and support functional recovery in the ageing population.

The First report of the Effect Comparative Study of the Intervention Technique for the Improvement in Rehabilitation Medicine

Shigeo Takizawa¹, Jana Migliniece², Ratniece Miltina², Eduards Matvejevs²

¹Biophilia Institute, The Designated and Registered Institute for Kaken by the Japanese Ministry of Education

²Rehabilitation Department of the Government of Latvia's Social Integration Agency

Keyword: randomized controlled trial, cerebrovascular disease sequelae, motivative exercise, passive exercise,

Introduction: Disability is a major challenge for humanity to solve, as the fact that WHO and ISPRM have formed a liaison team for it and are conducting research in the hope of improving treatment and conditions. This research is a collaboration between the Rehabilitation Department of the Government of Latvia's Social Integration Agency (SIVA) and the Biophilia Institute, the Designated and Registered Institute for Kaken by the Japanese Ministry of Education (BI), with the aim of improving physical activity, i.e. overcoming disability, through rehabilitation medicine. This study was a comparative effectiveness study. And we examined the effects of the treatment effects of autonomous kinetic exercise, named motivative exercise, which is the simultaneous and same direction movement of the lower limb using lower limb movement devices, and which have been used safely in Japan for many years, and physiotherapist passive exercise on two groups of patients at the SIVA. In order to that, the changes in physical activity through inpatient rehabilitation care were assessed on an ongoing basis. It should be noted that one physiotherapist had been this exercise aids in Japan for more than 40 years and no risks have been identified. In addition, no hazards of any kind have occurred during the period of scientific research that has been conducted since 1995. Furthermore, MRI and NIRS studies have been conducted on the assessment of oxygenated hemoglobin of brain function and no hazards have occurred. Training was to be carried out in small doses and not until pain is felt.

Objectives and methods: At the SIVA, patients with subacute or chronic stroke post-stroke who gave written consent were recruited from participants in the social reintegration course, who were willing to participate in a randomized controlled trial (RCT) with a 1:1 allocation. The oldest patient was 70 years old and the youngest was 22 years old; in the motivative exercise group (ME), there were 5 men and 7 women, 9 with comorbidities, and in the passive exercise group (PE), there were 3 men and 9 women, 10 with comorbidities; all with cerebrovascular disease sequelae. Physiotherapy sessions did under the supervision of a physiotherapist from 2022/4/13, as both lower ME group as Intervention group and PE group as control group at the ankle and knee joints were carried out in addition to the usual physiotherapy methods. Patients of ME underwent 1 for 6 times, 6 for 7 times 5 for 8 times x5 sessions, and patients of PE did 8 sessions of passive exercises at the ankle and knee joints were carried out.

Results: The figures for both beginning of rehabilitation and end of all the result of rehabilitation on the Functional Independence Measure (FIM), Knee flexion (degree), Knee extension, Ankle Plantar flexion (degree), Ankle dorsal flexion (degree), Knee flexion (degree), Knee extension, Ankle plantar flexion (degree) and Ankle dorsal flexion (degree) were scored by the difference between the start and end notification of the data and the scores were analyzed in SSPS 1919819 respectively. The results showed that there were no differences in any of the items.

Discussion: The results that no differences were found between both groups. It means that ME might be the effective deployment to save power of specialists will have to be promoted as the population shifts further from an increasing number of elderly people. Further research should be conducted in the future.

Introduction of the Actual Method in Daycare Rehabilitation Using the Takizawa Method, Including Motivative Exercise

Biophilia Rehabilitation Academy
Executive Director Rika Wada, physiotherapist

Abstract

The authors have participated in the Biophilia Rehabilitation Academy for many years. She has presented cases in which physical performance has improved even in the chronic phase by using the Takizawa method and motivative exercise and others as a home method other than individual training or a staff-assisted method. The effects of the actual motivative exercise device (Patakolo) on vital sign changes and the brain and its correlation with motor function and maintenance effects at this daycare rehabilitation facility have also been presented. This time, the actual method at the daycare rehabilitation facility is introduced.

Studies and presentations in which we have participated

Implementation of the Takizawa Method for Home Rehabilitation (2002)
 Test production and report on an ADL evaluation chart incorporating a consumer behavior perspective (2004)
 Report on two cases where functional improvement was achieved through long-term follow-up at daycare rehabilitation (2007: research attached to the project 'Construction of a community rehabilitation network by elderly disabled people themselves' funded by the Japan Agency for Social Welfare and Medical Services).
 On the implementation of a large-scale study of biophilia rehabilitation (2009)
 Measurement of brain activity using functional near-infrared spectroscopy during lower limb Motivative exercise versus passive exercise (at a daycare center for rehabilitation) (2011).
 Evaluation of the impact of motivative exercise on the body function (2012) (2015) (2016) (2017)
 Implementation and maintenance effects of day-service rehabilitation at our facility (2014)

Summary of my previous studies and presentations

Easy to introduce in visiting home rehabilitation (low cost, relatively and space-saving). There were some recovery cases of BRS and other neurological in chronic daycare. Brain activation effect by bilateral exercise. Few changes in vital signs before and after exercise allow frail older adults to exercise safely. Motivative exercise (Patakolo) correlates with motor function and can be expected to improve function as people become proficient.

Method structure of the day rehabilitation facilities

(3-hour course, 6-hour course)

- motivative exercise (performed in a chair-sitting position)
 Patapata, korokoro, pulley, towel sanding, Mini cycle (ergo)

- Standing exercises

Stall bars standing, walking at parallel bars, balance cushion

Stretch Board

- Power machines

Leg press, hip abduction, rowing

- Individual training (using platform)

Joint range of motion training (including stretching), muscle strengthening training (weight training), Basic movement training, posture training, balance training, etc.

- Physical therapy (hot packs and others, doctor's prescriptions)

Conclusion.

- To make the most of the individual training time in daycare, therapists can effectively use their time for targeted training, assessment, and communication by using a method that can prevent disuse and maintain function, such as the Takizawa method. This method can be adapted to people who need support and require heavy nursing care. It is easy to introduce it to older people in the later stages of life, who are expected to increase dramatically without worrying about their vital signs. As many existing devices are available and the introduction costs are low, existing facilities are encouraged to introduce the sub-method.



Date of issue: April 26, 2025
International Biophilia Rehabilitation Academy
4-24-5 Shonandai Fujisawa-Shi Japan
252-0804

© International Biophilia Rehabilitation Academy