

**WORLD FEDERATION OF HYDROTHERAPY AND CLIMATOTHERAPY**  
**Non-Governmental Organization**  
**In official Relations with WHO**  
**Traditional, complementary and Integrative Medicine Unit**

**THE 75TH FEMTEC**  
**GENERAL ASSEMBLY AND SCIENTIFIC CONGRESS**  
**2024 November 7TH – 10TH**

**Eden by the Mountain,**  
**BRAN,**  
**ROMANIA**

**ABSTRACT BOOK**



**Nongovernmental Organization**  
**In official relation with World Health Organisation**  
**Non State Actor**  
**Traditional, Complementary and Integrative Medicine**

**THE 75th ° GENERAL ASSEMBLY AND INTERNATIONAL SCIENTIFIC CONGRESS OF THE  
WORLD FEDERATION OF HYDROTHERAPY AND CLIMATOTHERAPY (FEMTEC)**

**Benchmarks for Training in Balneotherapy. Bridging Tradition and Innovation**

"Education is not the learning of facts, but the training of the mind to think." Einstein

Benchmarks for training is a systematic process used to measure the quality, performance and to assess the effectiveness and efficiency of training programs compared to standards.

Millions of people around the world use balneotherapy that is profoundly rooted in traditional medical knowledge, culture, and history. Such widespread use has led to the necessity of an increased number of well-trained professional. Modern training in balneotherapy stands at the intersection of tradition and innovation, creating a robust framework for practitioners to deliver effective, safe, and personalized healthcare. As public interest in natural and holistic therapies continues to rise, the evolution of balneotherapy training is paramount in ensuring that its principles are upheld and enhanced. By embracing contemporary techniques and scientific research, balneotherapy can continue to thrive as a respected therapeutic modality within the broader landscape of healthcare, honouring its historic roots while adapting to the requirements of the needs of modern society. This balanced approach promises not only to improve therapeutic outcomes but also to foster a deeper understanding of health that transcends the physical body, addressing the emotional and psychological dimensions of individual.

Modern training programs in balneotherapy emphasize a multidisciplinary approach, blending historical knowledge with updated scientific knowledge. Professors need to lead the students to new scientific horizons (entropy, epigenetics, mathematics, virtual reality, etc) using new technologies to teach (AI, modern communication and information modalities) in order to customise treatment based on individual patient needs and evidence-based practices, developing skills in patient's evaluation to tailor treatments effectively, emphasising safety and hygiene protocols to ensure patient safety, infection control, and the maintenance of therapeutic environments.

Students need to be trained to navigate the complexities of practice, including informed consent, cultural sensitivity, and the provision of evidence-based therapies. Continuous professional development is emphasized, encouraging practitioners to stay updated on the latest research findings and techniques.

These are only some of motifs we dedicate the "FEMTEC's 75th Scientific Congress and General Assembly" to "Benchmarks for Training in Balneotherapy. Bridging Tradition and Innovation". Thus, by sharing experiences and proposals for solutions of prominent professors worldwide known FEMTEC can offer a comprehensive approach and comparison on training of young generation for a modern balneotherapy.

FEMTEC advocates, based on its long experience, that sharing experience has in itself the source of highlighting that multidisciplinary (technical-scientific) and multilateral (cultural, political, economic, social and organizational) approaches are indispensable.

This year the 75th General Assembly and Scientific Congress/Convention of FEMTEC takes place in Romania, near Bran Castle (Dracula Castle), in Eden by the Mountain Hotel, in Brasov County. Bran is a commune in Braşov County, Transylvania, Romania. It is about 25 kilometres southwest of the city of Braşov. The medieval Bran Castle is a popular tourist destination, partly because it is associated with the home of Dracula in Bram Stoker's novel of the same name.

Dear colleagues, we are waiting for your participation at the "FEMTEC's 75th Scientific Congress and General Assembly" to share the experience in teaching the young generation for a modern balneotherapy adapted to the changing and challenging globalised world.



**THE 75TH FEMTEC GENERAL ASSEMBLY AND SCIENTIFIC CONGRESS  
2024 November 7TH – 10TH**

## **PROGRAM**

### *November 7th 2024*

**Whole day – Arrival at the venue, registration and accommodation  
18.30 - 21.30 - Welcome Cocktail**

### *November 8th 2024*

**7.00 - 9.00 - Breakfast  
9.00 - 10.30 - Opening Ceremony  
10.30 - 11.00 - Coffee break  
11.00 - 13.00 Scientific session  
13.00 - 14.00 – Lunch  
14.00 - 16.00 - World Garden of FEMTEC and Photo group  
16.00 - 18.00 - General Assembly  
18.00 - 21.00 Traditional Dinner around campfire**

### *November 9th 2024*

**7.30 - 8.30 - Breakfast  
8.30 - 10.30 – Scientific Session  
10.30 - 11.00 - Coffee break  
11.00 - 13.00 Scientific Session  
13.00 - 14.00 Lunch  
14.00 - 16.00 Scientific Session and closing ceremony  
16.00 - 18.00 guided tour of Bran Castle (Dracula Castle)  
18.00 - 22.00 Rustic Gala Dinner**

### *November 10th*

**Departure of participants**





## THE 75<sup>TH</sup> FEMTEC GENERAL ASSEMBLY AND SCIENTIFIC CONGRESS

2024 November 7<sup>TH</sup> – 10<sup>TH</sup>

	November 8th, 11.00 – 13.00 Chairman Prof. Gelu ONOSE	November 9th 8.30 – 10.30 Chairman: Jose Manuel Carbajo	November 9th 11.00 – 13.00 Chairman Prof. K'tso Nghargbu	November 9th 14.00 – 16.00 Chairman C. Munteanu
1	11.00 – 11.15. FEMTEC – from past to future Authors: Alin Iulian Tucmeanu, Roxana Elena Tucmeanu, Traian Virgiliu Surdu , Monica Surdu,, Liliana Elena Stanciu.	8.30 – 8.40 FOUNDATION OF HYDROGEN SULFIDE (H2S) IN BALNEOLOGY GLOBAL INITIATIVE Authors: Müfit Zeki Karagülle, Mine Karagülle.	11.00 – 11.10. Balneal Medicine and Non-Communicable Diseases Authors: Olga SURDU, Roxana – Elena TUCMEANU , Traian - Virgiliu SURDU, Monica SURDU, Alin – Iulian TUCMEANU, Marius Sorin Chiriac.	14.00 -14.10. Nutrition in Health Resort Medicine: addressing microcirculation and cardiovascular dynamics to enhance the Balneologic prescription Author: Marcus Coplin
2	11.15 – 11.30. World Health Organisation and FEMTEC collaboration plan; Authors: Olga SURDU, Roxana – Elena TUCMEANU, Traian - Virgiliu SURDU, Monica SURDU, Alin – Iulian TUCMEANU, Marius Sorin Chiriac, Liliana Elena Stanciu.	8.40 – 8.50. THERMALISM AND FIBROMYALGIA, CURRENT EVENTS AND MULTICENTER STUDY Authors: Silvia Barrucco, Fausto Bonsignori	11.10 – 11.20. Balneology and new epidemiologically relevant diseases Author: Antonella Fioravanti	14.10 – 14.20 THE IMPACT OF BALNEOTHERAPY ON CARBOHYDRATE METABOLISM AND CORTISOL LEVELS: ANALYSIS OF EFFECTS AND THERAPEUTIC IMPLICATIONS Liliana Stanciu, Traian Surdu, Alin Tucmeanu, Sibel Mujdaba, Olga Surdu, Madalina Iliescu, Roxana - Elena Tucmeanu
3	11.30 – 11.45. Corollary Monographic Guideline of BalneoClimatology – Balneation, Crenotherapy and Climatotherapy - THE MAKING OF Gelu Onose, Roxana Bistriceanu, Ruxandra-Luciana Postoiu, Diana-Elena Carabageac, Mihai Băilă.	8.50 – 9.00 The effect of balneo-mud therapy on cognitive functions and neurotrophic factors Authors: Karakulova Yu.V., Kuznetsova M.A., Tsepilov S.V., Ivanov A.M	11.20 – 11.30. Reflex Sympathetic Dystrophy – a challenge in knee arthroplasty rehabilitation Authors: S. Mujdaba, A. C. Peiu, A. M. Gamulea, V. Marin, T.V. Surdu.	14.20 – 14.30. WELLNESS AND THERMAL MEDICINE Freire Magariños, A, Souto Figueroa María G. Freire Puy, I.
4	11.45 – 12.00 Education and training of doctors and health professionals in hydro/balneotherapy at Spanish University Authors: Francisco Maraver, José Manuel Carbajo, Miguel A. Fernández-Torán, Lourdes	9.00 – 9.10. Exploring the Integration of Digital Twins in Balneology: A Novel Approach to Personalized Therapeutic Interventions Author: Constantin Munteanu.	11.30 – 11.40. Using of Balneological Resources and Climatological Factors in the Field of PRM in Eastern Mediterranean (Jordan); Autor: Alabbad Khalil	14.30 – 14.40. National Medical Research Center for Rehabilitation and Balneology, Ministry of Health of the Russian Federation Author: Natalia V. Chaurskaya



	Aguilera, Anabel Martín-Megías, Mabel Ramos, Lorena Vela.			
5	12.00 – 12.15.00 Benchmarks for Training in Balneotherapy. Bridging Tradition and Innovation Authors: Olga SURDU, Roxana – Elena TUCMEANU, Traian - Virgiliu SURDU, Monica SURDU, Alin – Iulian TUCMEANU.	9.10 – 9.20. Assessment of therapeutic effect of halotherapy with salt of Varangéville Authors: Tallot B, Varin C, Branchu A, Surdu O.	11.40 – 11.50. Economic Diversification in Nigeria: A survey of potential addition from Balneocosmetics Authors: Rifkatu Nghargbu, Fatima Umaru Shinkafi, K'tso Nghargbu.	14.40 – 14.50. Learning and practising acupuncture in a rehabilitation hospital and balneal resort Authors: Marius Sorin Chiriac, Olga Surdu, Monica Surdu, Traian Surdu, Sibel Mujdaba, Viorica Marin, Alin Tucmeanu, Roxana – Elena Tucmeanu
6	12.15. – 12.30. Summarizing the proposals for statute updating Authors: Olga SURDU, Roxana – Elena TUCMEANU, Traian - Virgiliu SURDU, Monica SURDU, Alin – Iulian TUCMEANU.,	9.20 – 9.30. Halotherapy in neonatal intensive care Authors: Surdu Monica, Surdu Traian, Surdu Olga.	11.50 – 12.00. Effect of Traditional Chinese Medicine Aquatic Therapy on cardio-pulmonary Function Authors: Wang Xiaojun, Huang Xuetong, Chen Xinglong.	14.50 – 15.00 Training Doctors in Medical Hydrotherapy New strategic directions for skills development: The Tunisian experience. Athors: Taoufik Khalfallah, Chahnaz Guizani, Fausto Bonsignori, Olga Surdu
7	12.30 – 12.45. -Tunisian Expertise in Hydrotherapy Author: Chahnaz Guizani	9.30 – 9.40. BALNEOLOGICAL TECHNOLOGIES IN ANTIAGING PROGRAMS Autor: Natalia G. Kulikova	12.00 – 12.10. Effect of Traditional Chinese Medicine Aquatic Therapy on Insomnia and Negative Emotions Authors: Wang Xiaojun, Huang Xuetong, Chen Xinglong	15.00 – 15.10. ThermaJet Clinical Study on Jet Massage for Pain Relief and Proprioceptive Rehabilitation in Chronic Low Back Pain Author: Marie Catherine Tallot Ruscade
8	12.45 – 13.00 AN OVERVIEW OF THE MEDICAL GEOLOGY CURRICULUM OF THE JACMEDGEO CENTER, NSUK Author: K'tso Nghargbu	9.40 – 9.50. Control and prevention system for contaminants in mineral-medicinal waters through Artificial Intelligence. AQUAPRED-SUDOE Project Authors: Francisco Maraver, Elena Hernández-Pereira, Daniela Correia, M. Lourdes Mourelle, Maria J. Alves, Odile Eloy-Tran Van Chuoi, Lidia Casas Martínez, Laurence Delpy, Miguel A. Fernández-Torán, Ignacio Cortés-Moro, José L. Legido	12.10 – 12.20. Effect of Traditional Chinese Medicine Aquatic Therapy on Balance Authors: Wang Xiaojun, Huang Xuetong, Chen Xinglong	15.10 – 15.20. Chorioamnionitis as a Predictor of Preterm Birth: Implications for Balneotherapy and Neonatal Care. Oglinda Ioana Georgia, Surdu Monica, Surdu Olga, Surdu Traian, Mihai Cristina Maria.
9	12.45 – 13.00 Q&A	9.50 – 10.00. New Instruments of Quality for the Management of TCI Medicine Centers Author: Giovanni GURNARI	Q&A	Congenital Malformations and Environmental Factors: Challenges and Perspectives in the Context of Balneotherapy; Surdu Monica, Surdu Traian, Surdu Olga, Oglinda Georgia Ioana, Mihai Cristina Maria
10		Q&A		



## ABSTRACTS

*November 8th*

*11.00 – 13.00*

### *1. FEMTEC – from past to future*

Authors: Alin Iulian Tucmeanu 1 , Roxana Elena Tucmeanu 2,3 , Traian Virgiliu Surdu 2,3 , Monica Surdu 2,4,

Affiliations: 1. Titu Maiorescu University, Faculty of Medicine, Bucharest; 2. Ovidius University, Faculty of Medicine, Constanta 3. Techirghiol Balneal and Rehabilitation Sanatorium 4. Constanta, Emergency Clinical Hospital.

#### *Introduction*

The history of FEMTEC reflects a complex and rich evolution, from the first initiatives of a small organization dedicated to promoting the therapeutic benefits of mineral waters, to its status as a global reference organization in the field of balneotherapy and climatotherapy.

#### *Historical landmarks*

- 1937 - foundation of “International Balneal Association”, by Frantz, Archduke of Habsburg, President Jozsef Ferenc (Hungary); 1938 and 1939 Scientific congresses;
- 1940 – 1946 - interruption of the activity caused by the WW II
- November 1946. – committee for the establishment of a thermal and climatic association;
- August 26 th - September 2 nd 1947 – Mariánské-Lazné – Piestany international congress constats the dissolution of “International Balneal Association”, grants approval of the statutes and regulations of a new Thermal and Climate Federation;
- 1949 – 1969 - first elected President of International Federation of Thermalism and Climatotherapy - realized an active international presence, have increased visibility (through numerous conferences, international meetings), the number of members extended the network of balneal countries;
- 1969 – 1998 President Dr. Guy Ebrard - President of the French Federation of Balneotherapy and Climatotherapy – initiated FITEC’s relations with the World Health Organisation, as Observer between 1978 and 1986 and from 1987 up today as Non-governmental Organization (NGO), have supported the application of common international standards in hydro/balneotherapy;
- 1998 - 2014 – President - Dr. Nicolai STOROZHENKO, President of the National Spa Association of Russia – have stimulated extension to East Asia countries- Japan, China, Korea;
- 1999 – transformation of FITEC into FEMTEC (World Federation of Hydrotherapy and Climatotherapy);
- 2014 – 2023 President Prof. Umberto Solimene – President of State University of Milan, General Secretary of FEMTEC (2000-2014) - have supported introducing of cutting-edge technologies in balneotherapy, digitization of patients` monitoring processes, launching innovative international projects, including the Chair of Health, Thermal Tourism and Wellness in Havana, Cuba, for balneology education and training in Latin America and have encouraged collaboration between Asian and European balneological traditions, opening a Regional Office in Chongqing, China;
- 2023 – President Assoc. Prof. Olga Surdu – Vice President of FEMTEC (2007 – 2018), First Vice President of FEMTEC (2018 - 2023); have advocated for integration of balneotherapy within national health systems, stimulated international partnership between universities;

#### *Conclusion*

FEMTEC has developed from a European organization founded in 1937 to a global reference federation in balneotherapy and climatotherapy acknowledged by WHO as NGO in “Traditional, Complementary and Integrative Medicine”.

## *2. World Health Organisation and FEMTEC collaboration plan*

Authors: Olga SURDU<sup>1</sup>, Roxana – Elena TUCMEANU<sup>1,2</sup>, Traian - Virgiliu SURDU<sup>1,2</sup> Monica SURDU<sup>3</sup>, Alin – Iulian TUCMEANU<sup>4,5</sup>, Marius Sorin Chiriac<sup>1</sup>, Liliana Elena Stanciu<sup>1,2</sup>

Afiliation: 1. Techirghiol Balneal and Rehabilitation Sanatorium; 2. Constanta Ovidius University, Faculty of Medicine 3. Clinical Emergency Hospital Constanta; 4. Titu Maiorescu University, Bucuresti, Faculty of Medicine; 5. Clinical Emergency Hospital Ilfov.

### *Introduction*

President Dr. Guy Ebrard (1969 – 1998) initiated FEMTEC's relations with the World Health Organisation, and obtained the statute of Observer between 1978 and 1986. Nowadays, FEMTEC has the statute of Non-governmental Organization (NGO), in official relations with WHO, acknowledged as Non State Actor within the “Traditional, Complementary and Integrative Medicine Unit”.

### *Content*

Non-State actors bring the voices and experiences of different parts of society, millions of patients and health professionals into WHO's work.

“Official relations” is a privilege that the Executive Board of WHO may grant to nongovernmental organizations, and other entities that have had and continue to have a sustained and systematic engagement in the interest of the WHO.

The activity of FEMTEC, as Non State Actor is based on “The Framework of Engagement with Non-State Actors (FENSA)” adopted by the Sixty-ninth World Health Assembly on 28 May 2016. An engagement under FENSA is a formalized institutional interaction between WHO and a non-State actor. WHO's engagement with non-State actors supports implementation of the Organization's policies and recommendations as decided by the governing bodies, as well as the application of WHO's technical norms and standards.

Traditional, complementary and integrative medicine (TCI) is a unit coordinating globally to harness the potential contribution of traditional, complementary and integrative medicine to integrated health services, Universal Health Coverage and health-related Sustainable Development Goals. TCI unit works in collaboration with Member States and other stake holders and partners to promote the integration of safe and evidence-based traditional and complementary medicine into national health systems.

The strategy for 2014-2023 extended to 2025 proposed 3 strategic objectives:

- 1: To build the knowledge base for active management of T&CM through appropriate national policies;
- 2: To strengthen the quality assurance, safety, proper use and effectiveness of T&CM by regulating products, practices and practitioners;
- 3: To promote universal health coverage by integrating T&CM services into health care service delivery and self-health care.

FEMTEC reports delivered to TCM unit are completed or ongoing but need to be improved.

### *Conclusion*

Our work should be optimized to keep the privilege of “Official relations”

Understanding the requirements of the strategic plans means not only to make studies and research but communicate the results in terms of required reports, to harness the results in concordance with the objectives of the plan. Collaboration among members country must accomplish the proposed objective assumed in 2019 in the collaboration plan with TCM unit.

Assuming the position, challenges and opportunities and contributing properly to the strategic objectives, directions and actions from “Draft traditional medicine strategy: 2025–2034” would bring old hydro/balneotherapy within the third millennium.

### ***3. Corollary Monographic Guideline of BalneoClimatology – Balneation, Crenotherapy and Climatotherapy - THE MAKING OF.***

Authors: Gelu Onose<sup>1,2</sup>, Roxana Bistriceanu<sup>1,2</sup>, Ruxandra-Luciana Postoiu<sup>1,2</sup>, Diana-Elena Carabageac<sup>1,2</sup>, Mihai Băilă<sup>1,2</sup>.

Affiliation:

1. "Carol Davila" University of Medicine and Pharmacy, in Bucharest, Romania;
2. Neurorehabilitation Clinic Division – The Teaching Emergency Hospital "Bagdasar Arseni" (TEHBA), in Bucharest, Romania

*Abstract:* This is the "making of" presentation of the Corollary Monographic Guideline of BalneoClimatology – Balneation, Crenotherapy, and Climatotherapy and encompasses the basic concept of achieving it, emphasizing the comprehensive character of the guideline term. It contains each related balneal, physical, and rehabilitative intervention class/category of recommendations. The presentation also shows the co-authors, the sectoral editors, and, last but not least, the four coordinating editors. The introductory word was made by the Rector of the University of Medicine and Pharmacy "Carol Davila," and very recently, during the days of the University of Medicine and Pharmacy "Carol Davila," this book was awarded by the leadership of our university with the Diploma of the University Book Salon for a remarkable editorial issue.

### ***4. Education and training of doctors and health professionals in hydro/balneotherapy at Spanish University***

Authors: Francisco Maraver<sup>1-2</sup>, José Manuel Carbajo<sup>2</sup>, Miguel A. Fernández-Torán<sup>3</sup>, Lourdes Aguilera<sup>1-2</sup>, Anabel Martín-Megías<sup>1-2</sup>, Mabel Ramos<sup>2</sup>, Lorena Vela<sup>1-2</sup>.

Affiliations:

1. Professional School of Medical Hydrology, Faculty of Medicine, Complutense University of Madrid, Plaza Ramón y Cajal s/n, 28040 Madrid, Spain.
2. Medical Hydrology Group, Department of Radiology, Rehabilitation & Physiotherapy, Complutense University of Madrid, 28040 Madrid, Spain.
3. Hervideros de Cofrentes, S.L. Calle Balneario, s/n, 46625 Cofrentes, Valencia, Spain.

*Abstract*

The regulated teaching of Medical Hydrology in Spain began at the Complutense University of Madrid in 1866. It developed as a doctoral discipline with the creation of the Chair of Medical Hydrology in 1912; and reached full maturity in 1978 with the creation of the medical specialty via MIR (Medical Internal Resident in Spanish hospitals) of "Medical Hydrology" and the School of Medical Hydrology and Hydrotherapy of the Faculty of Medicine of the UCM. Today, with the development of the European Higher Education Area, its taught not only to MD, but also to other health professionals, specifically the following subjects are taught: "Medical Hydrology and Climatology" in Medicine Degree; "Hydrotherapy and Balneotherapy" in Physiotherapy Degree; "Aquatic Therapy and Balneotherapy" in Occupational Therapy Degree; "Bottled Waters" in Nutrition and Human Dietetics Degree; and "Mineral Waters" in Food Science and Technology Degree.

As a scoop, we would like to inform you of two initiatives that we are currently developing with future needs in mind: first, to develop a teaching innovation project entitled "The UCM in MOOCs: online course on Introduction to Medical Hydrology (Balneotherapy)". The UCM systematically receives requests to teach both in our country and outside our borders, the Online, Open and Massive Courses, MOOCs, could facilitate online access to training for all types of interested people free of charge; and second, preparation of a verification report of the curriculum leading to the award of the official Master's degree in Medical Hydrology from the UCM which, if approved, would begin to be taught in the 2025-26 academic year.



## ***5. Benchmarks for Training in Balneotherapy. Bridging Tradition and Innovation***

Authors: Olga SURDU1, Roxana – Elena TUCMEANU1,2, Traian - Virgiliu SURDU1,2 Monica SURDU3, Alin – Iulian TUCMEANU 4,5,

Afiliation:

1. Techirghiol Balneal and Rehabilitation Sanatorium;
2. Constanta Ovidius University, Faculty of Medicine
3. Clinical Emergency Hospital Constanta;
4. Titu Maiorescu University, Bucuresti, Faculty of Medicine;
5. Clinical Emergency Hospital Ilfov.

### *Abstract*

"Education is not the learning of facts, but the training of the mind to think." Einstein Benchmarks for training is a systematic process used to measure the quality, performance and to assess the effectiveness and efficiency of training programs compared to standards.

Millions of people around the world use balneotherapy that is profoundly rooted in traditional medical knowledge, culture, and history. Such widespread use has led to the necessity of an increased number of well-trained professional. Modern training in balneotherapy stands is at the intersection of tradition and innovation, creating a robust framework for practitioners to deliver effective, safe, and personalized healthcare. As public interest in natural and holistic therapies continues to rise, the evolution of balneotherapy training is paramount in ensuring that its principles are upheld and enhanced. By embracing contemporary techniques and scientific research, balneotherapy can continue to thrive as a respected therapeutic modality within the broader landscape of healthcare, honouring its historic roots while adapting to the requirements of the needs of modern society. This balanced approach promises not only to improve therapeutic outcomes but also to foster a deeper understanding of health that transcends the physical body, addressing the emotional and psychological dimensions of individual.

Modern training programs in balneotherapy emphasize a multidisciplinary approach, blending historical knowledge with updated scientific knowledge. Professors need to lead the students to new scientific horizons (entropy, epigenetics, mathematics, virtual reality, etc) using new technologies to teach (AI, modern communication and information modalities) in order to customise treatment based on individual patient needs and evidence-based practices, developing skills in patient's evaluation to tailor treatments effectively, emphasising safety and hygiene protocols to ensure patient safety, infection control, and the maintenance of therapeutic environments.

Students need to be trained to navigate the complexities of practice, including informed consent, cultural sensitivity, and the provision of evidence-based therapies. Continuous professional development is emphasized, encouraging practitioners to stay updated on the latest research findings and techniques. By sharing experiences and proposals for solutions of prominent professors worldwide known FEMTEC can offer a comprehensive approach and comparison on training of young generation for a modern balneotherapy.

## ***6. Summarizing the proposals for statute updating***

Authors: Olga SURDU1, Roxana – Elena TUCMEANU1,2, Traian - Virgiliu SURDU1,2 Monica SURDU3, Alin – Iulian TUCMEANU 4,5,

Afiliation:

1. Techirghiol Balneal and Rehabilitation Sanatorium;
2. Constanta Ovidius University, Faculty of Medicine
3. Clinical Emergency Hospital Constanta;
4. Titu Maiorescu University, Bucuresti, Faculty of Medicine;
5. Clinical Emergency Hospital Ilfov.

## *Introduction*

A statute for a non-governmental organization (NGO) is a formal, legal document that outlines the organization's foundational structure, purpose, and operating procedures. This document serves as the NGO's constitution and is essential for establishing its legal existence and guiding its activities. A statute provides clarity on the organization's mission, governance, membership, financial management, and general operating rules, ensuring transparency and accountability.

## *Content*

The FEMTEC Statute of 2012 outlines the organizational structure, governance, and mission of the World Federation of Hydrotherapy and Climatotherapy (FEMTEC), focusing on the promotion and development of hydrotherapy and climatotherapy worldwide. This statute serves as a constitution for FEMTEC, detailing its purpose, membership requirements, operational guidelines, and management structure to ensure transparency and accountability but it exhibited some potential weaknesses or limitations that should be amended such as: two steps for convening General Assembly, the quorum needed for decisions, completions of the methods for convening and holding meetings of the general assembly and governing bodies, modalities of election, etc. To analyse the content of modified provision of the statute the members have received the draft in Italian and in English in July 2024.

## *Conclusions*

Amendments and interpretations of the statute is the prerogative of General assembly.

## ***7. Tunisian Expertise in Hydrotherapy***

Author: Chahnaz Guizani

Affiliation: Tunisian Office of Hydrotherapy and Thermalisme

*November 9th*  
*8.30 – 10.30*

## ***8. FOUNDATION OF HYDROGEN SULFIDE (H<sub>2</sub>S) IN BALNEOLOGY GLOBAL INITIATIVE***

Authors: Prof. Dr. Müfit Zeki Karagülle, Prof. Dr. Mine Karagülle

Affiliations: Istanbul University, Medical Faculty of Istanbul, Department of Medical Ecology and Hydroclimatology, Istanbul, Turkey

### *Abstracts*

Natural sulfurous or sulfur mineral waters, peloids / muds and gas sources (sulfur vents) are naturally found all around the world. H<sub>2</sub>S (Hydrogen Sulfide) constitutes the main ingredient of balneological agents of sulfur spas or health resorts. After its recognition in 1996 as a gaseous transmitter that plays various roles in human physiology, it is subjected intensive research in biology and medicine.

Sulfurous balneological agents (waters and muds rich in H<sub>2</sub>S and H<sub>2</sub>S gas itself) are one of the most studied balneological agents used in balneological treatments as bathing, drinking and inhaling.

Very recently a group of balneologists gathered to establish an “H<sub>2</sub>S in Balneology Global Initiative”.

Foundation meeting of the “Initiative” took place in Banja Koviljaca Serbia 11-14 September 2024. Founders were coming from Turkey, Serbia, Spain, Romania, Italy and Bulgaria.

With the motto “Global collaboration and cooperation in research and education by shared expertise and knowledge”, professionals, researchers, and institutions worldwide are invited to join this mission and support the initiative through active participation and collaboration.

## ***9. THERMALISM AND FIBROMYALGIA, CURRENT EVENTS AND MULTICENTER STUDY***

Authors: Silvia Barrucco<sup>1</sup>, Fausto Bonsignori<sup>2</sup>

Affiliation: 1. Terme di Chianciano 2. Università di Pisa

### *Abstract*

Fibromyalgia is a very complex syndrome. Recent and qualified studies have shown that thermal balneotherapy is effective for the treatment of this pathology. After a classification of the syndrome, epidemiological evaluations and current situation, the Authors illustrate a polycentric observational study coordinated by seven Italian Universities.

The study in which the Chianciano Terme spa is actively participating is ongoing, it began in April 2023 and will end in June 2025.

Patients affected by Fibromyalgia are admitted according to the diagnostic criteria of the American College of Rheumatology of 2016. Patients are administered questionnaires accepted by the international scientific community (VAS, FIQ, SF-12, STAI, CES-D) before treatment, at the end of treatment (12 days) and after 30 days. The aim of the study is to recruit at least 600 patients and to demonstrate the benefits of balneology on fibromyalgia symptoms and quality of life.

## ***10. The effect of balneo-mud therapy on cognitive functions and neurotrophic factors***

Authors: Karakulova Yu. V., Kuznetsova M. A., Tsepilov S. V., Ivanov A. M.

### *Abstract*

To study the cognitive status and the level of BDNF, CNTF in the blood of patients with vascular cognitive impairment before and after treatment at the Klyuchi resort. Methods: 171 people with vascular

cognitive impairment (47 men, 124 women, average age – 63 (56-69)) underwent a 14-day course of balneo-mud therapy at the Klyuchi resort in Perm Krai. The patients were assessed for the degree of cognitive impairment and the level of BDNF, CNTF in the blood.

According to the treatment, the 1st group consisted of 80 patients who received a basic course in the form of alternating sulphide mud and hydrogen sulphide baths.

The 2nd group - 72 patients who received a basic course using sodium chloride bromine baths.

The 3rd group - 29 patients who were at the Klyuchi resort without balneo-mud therapy.

### *Results*

Before the treatment, the patients were found to have cognitive and emotional impairments and a decrease in the level of BDNF in the blood. After the course balneotherapy in the 1st group increased the level of BDNF in the peripheral blood ( $p = 0.000$ ). In patients of the 2nd group, the level of anxiety according to the Spielberger-Khanin test decreased, the indicators of the cognitive sphere improved. BDNF in the blood increased ( $p = 0.02$ ). In patients of the 3rd group, significant changes in the studied indicators were not revealed.

### *Conclusion*

Sanatorium and spa treatment at the Klyuchi resort increases the level of BDNF in the blood of patients with vascular cognitive impairment. When using sodium chloride bromine baths, attention and memory significantly increase, anxiety and asthenia decrease.

## ***11. Exploring the Integration of Digital Twins in Balneology: A Novel Approach to Personalized Therapeutic Interventions***

Authors: Constantin Munteanu 1,2

Affiliations:

1. University of Medicine and Pharmacy “Grigore T. Popa”, Iași, Romania
2. Teaching Emergency Hospital “Bagdasar-Arseni”, Bucharest, Romania

### *Abstract*

The convergence of digital twins (DTs) with balneology, the study and application of natural mineral water-based therapies, offers a promising frontier in personalized medicine. Digital twins, virtual replicas of physical systems or individuals, have revolutionized sectors such as aerospace and healthcare by enabling predictive modeling, real-time monitoring, and simulation of outcomes. In balneology, the integration of DTs could personalize treatment regimens based on an individual's unique physiological and pathological characteristics. By simulating a patient's response to various mineral compositions, temperatures, and durations of therapeutic baths, DTs provide a precision-driven approach that could optimize treatment efficacy and safety. Furthermore, continuous monitoring through biosensors and advanced imaging could update the DT model in real-time, offering dynamic adaptations to the treatment course. This integration of DTs with traditional therapeutic practices could pave the way for novel research in hydromineral therapy and personalized health strategies. Future directions include clinical validation of DT efficacy in predicting and enhancing balneological outcomes.

## ***12. Assessment of therapeutic effect of halotherapy with salt of Varangéville (France).***

Authors: Tallot B\*, Varin C\*\*, Branchu A\*\*. Surdu O\*\*\* (CCTLB - \*\*Town council - \*\*\*)

### *Abstract*

Halotherapy and speleotherapy have been used in few European countries with some success in treating asthmatics (Simionca, 2013). The first attempts date back to the 1960s, based on the decline in the

incidence of respiratory pathologies among salt miners (Spannagel, 1961). Nowadays halotherapy is mainly used for well-being purposes.

Our hypothesis is that the aerosol of sodium chloride at the bottom of the mine is the main curative element which has a bactericidal effect, thins bronchial secretions and acts on inflammation (Kanny, 2019). Because in France, speleotherapy in a mine in operation is not allowed, we plan to reproduce in a dedicated building the temperature, humidity, and salt concentration conditions at the bottom of the mine.

Our aim is to evaluate the benefits of a stay in a salt-saturated environment in asthmatics poorly balanced by conventional treatment. Patients will be randomly assigned to the salt room and to the placebo room for one-hour stay, three times a week for 3 weeks. All patients will continue their treatment and benefit physiotherapy to limit variability.

Patients will be assessed by spirometric tests before treatment and after 3 weeks and 26 weeks. The main criterion will be the FVC expressed as a percentage of the theoretical value. The number of planned participants is 60.

### ***13. Halotherapy in neonatal intensive care***

Authors: Surdu Monica<sup>1,2</sup>, Surdu Traian<sup>1,3</sup>, Surdu Olga<sup>3</sup>

1. Ovidius University Constanta
2. Constanța Emergency Hospital
3. Techirghiol Balneal and Rehabilitation Sanatorium

#### *Introduction*

Bronchopulmonary dysplasia (BPD) remains one of the leading causes of chronic pulmonary disease, particularly in preterm infants, characterized by prolonged oxygen supplementation and mechanical ventilation, leading to significant long-term respiratory complications.

Materials and Methods: The dry salt micro particles were delivered through a mechanical ventilation circuit, with a special device connected to the endotracheal tube, tracheostomy cannula, or along the inspiratory limb of the ventilation system. Respiratory parameters such as tidal volumes (VT), mean airway pressure (MAP), peak inspiratory pressure (PIP), and fraction of inspired oxygen (FiO<sub>2</sub>) were recorded.

#### *Results*

In all cases, the administration of inhaled dry salt micro particles resulted in immediate improvements in respiratory function. Importantly, none of the patients experienced adverse reactions related to salt inhalation.

#### *Conclusion*

Inhaled dry salt micro particles represent a novel and potentially effective complementary therapy for the management of severe bronchopulmonary dysplasia.

The therapy appears to improve respiratory function, reduce the need for invasive ventilator support, and enhance mucus clearance without affecting serum electrolyte balance.

### ***14. BALNEOLOGICAL TECHNOLOGIES IN ANTIAGING PROGRAMS***

Authors and Affiliations: Natalia G. Kulikova – Doctor of Medical Sciences, Professor of the Department of Sports Medicine and Medical Rehabilitation of the I.M. Sechenov First Moscow Medical University (Sechenov University) of the Ministry of Health of the Russian Federation and Head of the Department of Physiotherapy of the P. Lumumba University of Russia (RUDN) of the Ministry of Education and Science of the Russian Federation, Anna Nikolaevna Nekrasova – Head of the Laboratory of the Department of Physiotherapy of the Federal State Autonomous Educational Institution of Higher Education "P. Lumumba Russian University" (RUDN University) of the Ministry of Education and

Science of the Russian Federation, Head of the Medical Medical and Cosmetology Center \"Remake\" in Moscow, dermatologist of the highest qualification;

Abstract Modern technologies have made it possible to significantly increase the life expectancy of patients. At the same time, an important condition for this is cosmetological ANTIAGING PROGRAMS, in which balneological technologies take a priority place.

Among such technologies, there are those that lie within the pathogenesis of aging: deterioration of microcirculation, hemorheological disorders, psycho-emotional exhaustion, decrease.

### ***15. Control and prevention system for contaminants in mineral- medicinal waters through Artificial Intelligence. AQUAPRED-SUDOE Project***

Authors: Francisco Maraver<sup>1</sup>, Elena Hernández-Pereira<sup>2</sup>, Daniela Correia<sup>3</sup>, M. Lourdes Mourelle<sup>4</sup>, Maria J. Alves<sup>5</sup>, Odile Eloy-Tran Van Chuo<sup>6</sup>, Lidia Casas Martínez<sup>7</sup>, Laurence Delpy<sup>8</sup>, Miguel A. Fernández-Torán<sup>9</sup>, Ignacio Cortés-Moro<sup>10</sup>, José L. Legido<sup>4</sup>

Affiliations:

1. Professional School of Medical Hydrology, Complutense University of Madrid, Plaza Ramón y Cajal s/n, 28040 Madrid, Spain.
2. CITIC, Research and Development Laboratory in Artificial Intelligence (LIDIA). Universidade da Coruña Campus de Elviña s/n, 15071, A Coruña, Spain.
3. AquaValor - Centro de Valorização e Transferência de Tecnologia da Água – Associação. Rua Dr. Júlio Martins N°1, 5400-342 Chaves, Portugal.
4. FA2 Research Group, Department of Applied Physics, University of Vigo, Campus Lagoas-Marcosende s/n, 36310 Vigo, Spain.
5. Escola Superior de Hotelaria e Bem-Estar. Instituto Politécnico de Bragança, Av. D. Afonso V, 5300-121 Bragança, Portugal.
6. Institut du Thermalisme Campus de Dax. Université de Bordeaux. 8 Rue Sainte-Ursule, 40100 Dax, Francia.
7. Laboratoire de Thermodynamique et Energétique des Fluides Complexes - UMR 5150, Université de Pau et des Pays de l'Adour, BP 1155, 64013 Pau, France
8. AQUIO Thermes, BP 392, 40100 Dax, France.
9. Hervideros de Cofrentes, S.L. Calle Balneario, s/n, 46625 Cofrentes, Valencia, Spain.
10. Balneario El Raposo. Raposo, s/n, 06392 El Raposo, Badajoz, Spain.

#### *Abstract*

Research in advanced technologies and their application in the SUDOE space to a sector of economic and social relevance such as thermalism, helping the most depopulated territories from the innovation centers and strengthening networks already established in previous projects such as TERMARED, is the basis of AQUAPRED.

AQUAPRED is a multi-territorial, multidisciplinary, and interdisciplinary project of physics, medicine, pharmacy, chemistry, biology, and computer science focused on the monitoring and control of thermal/mineral-medicinal water in thermal spas and the prediction of contaminants based on the digitalization of data, in real time, of the fundamental parameters of mineral-medicinal water.

The project will determine the fundamental parameters of thermal spring spas, as well as their fluctuation ranges in thermal water within a thermal facility; Its influence on therapeutic safety and water quality and possible relationship models will also be studied.

A hydrobiome model of the thermal spring spas will be established in the project and associated with its therapeutic properties. Pilot real-time data collection systems will be developed and installed in spas in the SUDOE area, in which the parameters will be monitored, using devices specially designed for the function, for subsequent digitization and analysis. An intelligent system will be developed that, based on this data, will allow the control over the water treatment elements (disinfectants...) and a Deep Learning model that will allow predicting the possibility of the appearance of contaminants in said waters (e.g., E. coli). Based on the data captured, energy efficiency models that optimize consumption and reduce demand

will also be applied.

Acknowledgments: this project is financed by Europe as part of the Interreg - SUDOE program, AQUAPRED\_SUDOE project (S1/1.1/E0056)

## ***16. New Instruments of Quality for the Management of TCI Medicine Centers***

Author: Giovanni GURNARI

### *Abstract*

The worldwide demand for traditional medicine and “aquatic therapies” is steadily growing. At the same time, the demand for health prevention is associated with the use of thermalism facilities and aquatic wellness centers.

Today, the new WHO medicine application development plan provides that in the same area, therapies according to traditional medicine, conventional medicine (Western medicine...) and the integration between the two methods must be practiced.

This is the opportunity for the same hygienic health prevention criteria to be introduced and applied in health areas. In fact, the application of TCI concerns human health where it is physically controlled and treated. Great attention must therefore be paid to the adoption of specific protocols aimed at the health of environments in which medical specialists of the various methodologies can guarantee their healthiness, especially where there is the presence of water (hydrotherapy, balneotherapy, thermalism, etc.).

For example today water physiotherapy is becoming more and more popular, as well as the growing demand for water gym. For the moment the basic document remains the historic and new WHO

Guidelines, but some regional realities have already adopted regulations based on the rules applied to recreational swimming pools. By adopting the principle that the thermalism center is actually a healthcare facility and that the basic criterion must be to ensure the quality of hygiene & health prevention and the benefits of therapy - also from the psycho-physical point of view - the ideal instrument is the “Self-monitoring Guidelines”. Once all of the aforementioned knowledge are acquired, a “cautious principle” is adopted through the following points: Description of the facility. Analysis of risk of infections. General maintenance plan.

In this way the Manual becomes not only the reference for the internal management of the facility, but also the reference for the controls. This means offering the customer - but also the staff - an additional form of quality to guarantee the prevention of health and goodness of the service.

## *17. Balneal Medicine and Non-Communicable Diseases*

Authors: Olga SURDU 1 , Roxana – Elena TUCMEANU 1,2 , Traian - Virgiliu SURDU 1,2, Monica SURDU 3 , Alin – Iulian TUCMEANU 4,5 , Marius Sorin Chiriac 1

Affiliation:

1. Techirghiol Balneal and Rehabilitation Sanatorium;
2. Constanta Ovidius University, Faculty of Medicine
3. Clinical Emergency Hospital Constanta;
4. Titu Maiorescu University, Bucuresti, Faculty of Medicine;
5. Clinical Emergency Hospital Ilfov.

### *Introduction*

A non-communicable disease (NCD) is a disease that is not transmissible directly from one person to another. NCDs tend to be of long duration and are the result of a combination of genetic, physiological, environmental and behavioural factors generating long-term health consequences and often creating a need for long-term treatment and care.

### *Objectives*

Reducing the burden of NCDs requires a holistic and integrative approach and balneal medicine can have a role, at least, in: primary, secondary and tertiary prevention.

### *Materials and methods*

The WHO's "Global Action Plan for the Prevention and Control of Non-communicable Diseases 2013-2020" was extended to 2030 and the WHO's "Department of Noncommunicable Diseases, Rehabilitation and Disability" works to reduce the avoidable burden of morbidity, mortality and disability due to NCDs.

The European Commission has launched in December 2021 the "Healthier Together – EU Non-Communicable diseases (NCD) initiative" to support EU countries in identifying and implementing effective policies and actions to reduce the burden of major NCDs and improve citizens' health and well-being. The initiative covers the 2022-2027 period.

### *Conclusion*

The title is an invitation to reflection on balneal medicine within the frame of society and its common problems. Combining the known and evidence-based physiological and therapeutical effects of bathing or drinking of mineral - waters with the mental and emotional benefits of relaxation and stress reduction, balneal medicine can provide a holistic and integrative approach in:

- pain management: arthritis, fibromyalgia, and back pain;
- Improvement of blood circulation: hypertension and heart diseases;
- Stress reduction: mental health, anxiety and depression and overall well-being;
- Skin conditions: eczema, psoriasis, and acne;
- Respiratory conditions: asthma, bronchitis, and allergies.

Natural therapeutic factors can play a role in increasing quality of life of persons and in easing the social burden of NCDs.



## ***18. Balneology and new epidemiologically relevant diseases***

Author: Fioravanti Antonella

Affiliation President of OMTh (Organizzazione Mondiale del Termalismo), Levico Terme, Italy;  
Vice-President of ISMH (International Society of Medical Hydrology and Climatology)

### *Abstract*

Balneotherapy (BT) possesses a rich historical heritage and has garnered recognition from esteemed institutions such as the World Health Organization (WHO), being categorized as traditional (non-conventional) or complementary medicine. Significant efforts have been made in the past decade to elucidate the therapeutic benefits of BT in addressing various diseases.

Recent scientific research enables the identification of relevant disorders with high epidemiological and social impact, such as obesity, metabolic diseases, sleep disorders, mental health conditions, long-COVID-19, and cancer rehabilitation that could potentially benefit from balneotherapeutic treatments, thereby presenting new avenues of opportunity for SPA (“Salus per Aquam”) medicine. These conditions exemplify the potential benefits of BT for ailments beyond the traditional scope of treatment associated with BT (most commonly osteoarthritis, fibromyalgia, rheumatic back pain, and chronic inflammatory respiratory or skin disorders).

Overall, the current scientific evidence suggests that BT holds significant potential for enhancing both individual wellbeing and public health. However, further high-quality clinical trials are essential to corroborate these preliminary findings and to provide critical insights into the therapeutic benefits of BT, paving the way for its broader integration into healthcare practices and public health initiatives.

## ***19. Reflex Sympathetic Dystrophy – a challenge in knee arthroplasty rehabilitation***

Authors: S. Mujdaba, A. C. Peiu, A. M. Gamulea, V. Marin, T. V. Surdu

Affiliation: Balneal and Rehabilitation Sanatorium Techirghiol

### *Introduction*

Reflex sympathetic dystrophy (RSD) or Chronic regional pain syndrome (CRPS) is a rare, chronic pain disorder. It is challenging for patients and physicians because it leads to significant morbidity due to chronic pain that may last for years. CRPS typically develops four to six weeks after direct trauma, such as an injury or surgery, and causes pain that is out of proportion to the inciting injury<sup>1</sup>. With increasing age and joint-destructive diseases, the need for novel surgeries techniques such as total knee arthroplasty (TKA) has increased.

Complications such as pain exacerbation and persistent pain after surgery may occur which increases rehabilitation<sup>2</sup>.

### *Material and Method*

This is a retrospective study that was conducted on patients who underwent complex balneal physical kinetic treatment in Balneal and Rehabilitation Sanatorium Techirghiol in 2023. Demographic data of patients including age and BMI, and other underlying diseases were obtained. All patients were evaluated at admission and at the end of treatment. After collecting the study data, they were entered into SPSS software.

### *Results*

We enrolled 33 patients with total knee arthroplasty between January 2023 and December 2023. Pain was assessed using a Visual Analog Scale score.

Our results show that most of them are women's, BMI and presence of co morbidities had a meaningful relationship with pain after surgery ( $P \leq 0.01$ ).

## *Conclusion*

CRPS type I is a pathological condition described for over 125 years, which still remains a poorly understood and frequently unknown syndrome. On the other hand, the total knee arthroplasty is a relatively new surgical technique, but which, can trigger this syndrome just like in other surgical interventions

Keywords: Arthroplasty; body mass index; knee; chronic regional pain.

## *Bibliography:*

1. Complex Regional Pain Syndrome - Emilia C O Lloyd 1 , Bradley Dempsey 1 , Lindsey Romero 1 - Am Fam Physician, 2021 Jul 1;104(1):49-55.
2. Persistent pain following total knee arthroplasty: The role of underlying diseases - Mehdi Teimouri 1 , Mehdi Motifard 1 , Sahar Sadat Lalehzar 1 , Mohammad Shamsavan 1 , Tala Khayam 2 , Amir Mohammad Taravati 2 , Amirhossein Sadeghian 3- J Res Med Sci. 2023 Jun

## ***20. Using of Balneological Resources and Climatological Factors in the Field of PRM in Eastern Mediterranean (Jordan)***

Author: Alabbad Khalil, Affiliation: Arab center of PRM, DIRECTOR of the center Abdoun Ibrahim altaher, AMMAN, JORDAN

1. Background in the PRM, The Balneotherapy is well-known for its prevention therapeutic and recreational purposes in treating various diseases and Physical Disorders.  
Concerning Thermal Mineral Water in Eastern Mediterranean region Classified from the Physical Point of view as Hypothermic, Thermic and Hyperthermic, and from the Chemical Point of view as Sulfatic, Bicarbonate and Radon Water.
2. Special Characteristic of the Dead Sea Region, special climate 480 meters below Sea Level to be considered the lowest point on Earth, it has been proved their effective benefit results for Psoriasis, certain Rheumatic Disease / certain Locomotors & Respiratory System.

## *Objective*

To explore the effect of using different Dead Sea minerals (i.e: Water, mud, tar, Radon-222), Thalassotherapy, heliotherapy and halotherapy in the treatment of people with Psoriasis and Psoriatic Arthritis, respiratory and others.

3. Methods: 219 patients were divided into two groups: first group consisted of 146 Psoriasis patients in the age of 20-60 years, which received different Dead Sea minerals therapy . Second group consisted of 73 Psoriatic arthritis patients in the age 40-60 years, which received different Dead Sea mineral therapy and physical therapy. The duration of treatment for the two groups was 4 weeks.

## *Results*

Both groups showed improvements of the dermatological symptoms

## ***21. Economic Diversification in Nigeria: A survey of potential addition from Balneocosmetics***

Authors: Rifkatu Nghargbu, Fatima Umaru Shinkafi, K'tso Nghargbu,

Affiliations:

1. Department of Economics, Faculty of Social Sciences, Nasarawa State University, Keffi
2. Solid Minerals Development Fund, Abuja, Nigeria
3. Department of Geology and mining Faculty of Natural & Applied Sciences, Nasarawa State University, Keffi

### *Abstract*

Over the years, crude oil has been a major source of revenue for financing annual budgets. Over dependence on crude oil as a major source of revenue has rendered Nigeria vulnerable to shocks due to fluctuating crude oil prices necessitating proactive economic diversification agenda. Economic diversification is the process of moving away an economy from a single public revenue source towards multiple sources from a growing range of sectors and markets. One of the most important sectors to be considered is the solid mineral sector.

Nigeria is heavily endowed with numerous minerals and natural resources that can be harnessed for diverse uses including cosmetics. Over 40 million tonnes deposits of talc have been identified in Niger, Osun, Kogi, Ogun and Kaduna states in Nigeria, respectively. Nigeria also have medicinal muds/clays and hotsprings which can be harnessed in the balneocosmetics industry.

The green clay for instance used in cosmetics is rich in silicon, manganese, potassium, magnesium, lime, phosphates, alumi

## ***22. Effect of Traditional Chinese Medicine Aquatic Therapy on cardio-pulmonary Function***

Authors: Wang Xiaojun 1 Huang Xuotong 1 Chen Xinglong 1

Affiliation: 1. Beijing Sport University

### *Object*

The aim of this study is to evaluate the effect of Traditional Chinese Medicine Aquatic Therapy (TCMAT) on pulmonary function.

### *Methods*

30 undergraduate students from Beijing Sport University divided into TCMAT group and aquatic walking group randomly. Lung ventilation function (lung capacity SVC, forced vital capacity FVC, forced expiratory volume in one second FEV1, FEV1/FVC ratio, maximum ventilation volume MVV), inspiratory muscle performance (inspiratory muscle strength index, inspiratory flow rate, inspiratory muscle work consumption value, average power), and lung gas exchange function (blood oxygen saturation) were measured before, at the sixth week, and at the twelfth week of intervention.

### *Results*

Both the TCMAT group and the aquatic walking group showed significant improvement in lung ventilation ( $P < 0.05$ ), inspiratory muscle performance ( $P < 0.05$ ), and gas exchange function (blood oxygen saturation). Ventilation and inspiratory muscle performance improve more in TCMAT group than in aquatic walking group. For gas exchange function, there is no significant improvement from the baseline to the 6th week, and from the 6th week to the 12th week. However, the blood oxygen saturation in TCMAT group shows significant improvement compared with the baseline, while there is no significant change in aquatic walking group.

## *Conclusion*

Both TCMAT and aquatic walking could improve the ventilation and inspiratory muscle performance, and TCMAT has better effect. Only 12-week exercise of TCMAT enhanced the gas exchange function.

## ***23. Effect of Traditional Chinese Medicine Aquatic Therapy on Insomnia and Negative Emotions***

Authors: Wang Xiaojun 1 Huang Xuotong 1 Tian Ronghua 1 Zhou Xuan 1

Affiliation: 1. Beijing Sport University

### *Object*

This study evaluates effect of aquatic Ba Duan Jin exercise on sleep quality and negative emotions improvement of college students.

### *Methods*

62 college students divided into aquatic Ba Duan Jin aquatic walking group, and land Ba Duan Jin group. They exercise 3 times pre week, and 60 minutes for each time. Before and after the intervention, SAS scale and SDS scale are used to evaluate the negative emotions; while Sleeptek mat and PSQI would be used to assess sleep quality.

### *Results*

For SDS: the main effect of the time factor was significant ( $P=0.00$ ), the main effect of the group factor was significant ( $P=0.049$ ), and there was a significant interaction between the time and group factors ( $P=0.001$ )

For SAS: main effect of the time factor was significant ( $P=0.00$ ), the main effect of the group factor was not significant ( $P=0.79$ ), and there was no interaction between the time and group factors ( $P=0.427$ )

For sleep quality: after intervention, the subjective sleep quality of aquatic Ba Duan Jin group and the land Ba Duan Jin group was obviously improved. The total PSQI score decreased from  $10.55\pm 1.77$  before the intervention to  $6.64\pm 1.84$  after the intervention in aquatic Ba Duan Jin group ( $P=0.00$ ), and from  $10.67 \pm 1.46$  before the intervention to  $8.05 \pm 1.60$  after the intervention in the land Ba Duan Jin group ( $P=0.00$ ). Improvement of aquatic Ba Duan Jin group is obviously better than that of land Ba Duan Jin group in five aspects: total sleep duration, sleep efficiency, awakening duration, proportion of deep sleep and proportion of light sleep.

## *Conclusion*

Aquatic Ba Duan Jin exercise could improve negative emotions and sleep quality effectively.

## ***24. Effect of Traditional Chinese Medicine Aquatic Therapy on Balance***

Authors: Wang Xiaojun 1 Huang Xuotong 1 Sun Yufan 1

Affiliation: 1. Beijing Sport University

### *Object*

The main purpose of this study is to evaluate and compare effect of aquatic Tai Chi and land Tai Chi on balance of the elderly.

## *Methods*

Twenty-four participants were randomly divided into aquatic Tai Chi group and land Tai Chi, both groups practiced Tai Chi for eight weeks under the guidance of professionals, 4 times/week, 60min/time. Both 2 groups used Pro-Kin Balance Test System to perform bipedal and unipedal static balance test and dynamic balance test before and after the experiment, and Y Balance Functional Test Disc to perform lower limb balance test

## *Results*

After 8-week intervention, 4 factors (average motion speed in the forward -backward direction, average motion speed in left-right direction, movement ellipse area, and movement length) of static balance in aquatic Tai Chi group are improved, while there is no significant change in land Tai Chi group; the dynamic balance index are improved in both two groups after exercise ( $p < 0.05$ ). Y balance is improved in both two groups ( $p < 0.05$ )

## *Conclusions*

After 8 weeks of Tai Chi exercise, both aquatic Tai Chi and land Tai Chi could improve elderly's balance. Aquatic Tai Chi has better effect in static balance improvement.

*November 9th 2024  
14.00 – 16.00*

## ***25. Nutrition in Health Resort Medicine: addressing microcirculation and cardiovascular dynamics to enhance the Balneologic prescription***

Author: Dr. Marcus Coplin, ND

Affiliation Medical Director The Springs Resort - Pagosa Springs, Co, The Murrieta Hot Springs Resort - Murrieta, Ca, President and Director of Hydrothermal Medicine Balneology.org

### *Abstract*

The mechanisms of balneotherapy treatments are understood and being further documented with every published research article. Of primary importance to the therapeutic outcome of the balneotherapeutic prescription is the effects the treatment imparts on the cardiovascular system. During a course of Health Resort Medicine treatment, in which balneotherapy is a primary yet component aspect of the overall prescription, considerations should be made regarding synergistic effects of other aspects of the overall course of treatment.

This presentation will focus on interventional Nutrition with respect to enhancing the integrity of the endothelial and microcirculation systems, which rationally will enhance the effect and improve the outcome of the balneotherapy prescription. We will review top line nutrient considerations, and review emerging concepts in microcirculation and cardiovascular function as it pertains to Health Resort Medicine.

## ***26. THE IMPACT OF BALNEOTHERAPY ON CARBOHYDRATE METABOLISM AND CORTISOL LEVELS: ANALYSIS OF EFFECTS AND THERAPEUTIC IMPLICATIONS***

Authors: Liliana Stanciu (1,2), Traian Surdu (1,2), Alin Tucmeanu (2), Sibel Mujdaba (1), Olga Surdu (1), Madalina Iliescu (1,2), Elena Tucmeanu (1,2)

Affiliation:

(1) Balneal and Rehabilitation Sanatorium of Techirghiol, Romania

(2) "Ovidius" University of Constanta, Romania

### *Objectives*

This study is designed to investigate how balneotherapy influences carbohydrate metabolism and cortisol levels in the body. By analyzing these factors, we aim to gain deeper insights into the physiological changes that occur as a result of balneotherapy.

### *Material and Method*

The study participants, who were hospitalized at the Balneal and Rehabilitation Sanatorium of Techirghiol, were divided into two groups: one group received rehabilitation treatment including cold mud baths, while the other group received warm mud baths. Blood samples were taken from participants upon admission and at discharge to assess carbohydrate levels and cortisol concentrations. Statistical analysis was conducted to compare bio-hormonal variations between the two groups, utilizing t-tests and confidence intervals to evaluate the significance of the findings.

### *Results*

The findings of the study indicate substantial bio-hormonal fluctuations in the analyzed variables when comparing the effects of cold baths (contrasting factors) to those of warm baths (thermoneutral applications) using Techirghiol sapropelic mud

## *Conclusions*

These changes occurred within the normal physiological range of secretion, highlighting the safety of the therapeutic interventions. Consequently, balneotherapy is effective in regulating glucose levels and cortisol levels by stimulating adaptive and antioxidant processes

## ***27. WELLNESS AND THERMAL MEDICINE***

Authors: Freire Magariños, A1.Souto Figueroa María G. Freire Puy, I.

Affiliation:

1. Doctor specialist in Medical Hydrology, Medical director IBERIK Hotel and y Spas (Spain).
2. Dr. Chemical Sciences, Chair of Physics and Chemical, Graduate in Pharmacy, Conseiller Technique de la Société Française de Thermalisme et de Thalassothérapie pour la Santé Bucco-dentaire, FEMTEC delegate in Spain,
3. Gala Termal General Manager (Spain).

### *Abstract*

Globally, 63% of annual human deaths are attributable to lifestyle-related chronic non communicable diseases (NCDs). According to the World Health Organization (WHO), 80% of NCDs could be avoided by adopting a healthy lifestyle. Moreover, 80% of the population wants to have a better state of health but does not know how to obtain it. The traditional medicine model has a more biomedical focus, since it focuses mainly on the conduct of a clinical diagnosis and the prescription of an appropriate treatment that is usually based on the administration of drugs or a surgical intervention. At present the model of care of lifestyle medicine complements and improves the model of conventional medicine.

Lifestyle Medicine (LM) is defined as «the evidence-based practice of assisting individuals and families in adopting and maintaining behaviors that improve health and quality of life». A Medical Hydrology Treatment Center is the ideal place for practicing Lifestyle Medicine work as a multidisciplinary team, and strive to regain lost health and wellness. Similar to the 6 pillars of the Lifestyle Medicine of the current IBERIK WELLNESS HEALTH PROGRAM of the IBERIK chain spas based on - Eat healthy – Physical activity - Control stress - Stop substance abuse - Adequate rest and sleep –Interpersonal relations.

## ***28. National Medical Research Center for Rehabilitation and Balneology, Ministry of Health of the Russian Federation***

Author: Natalia V. Chaurskaya,

Affiliation: Director of the International Office Affairs, FEMTEC

### *Abstract*

The aim of the presentation to represent National Medical Research Centre for Rehabilitation and Balneology of the Ministry of Health of the Russian Federation as the leading institution in Russia in the areas of "medical rehabilitation" and "health resort treatment". The Center provides medical rehabilitation for patients with diseases and injuries of the musculoskeletal system, central and peripheral nervous system, after surgical interventions on large joints and spine, heart surgery, with pathology of the endocrine, digestive and genitourinary systems of the body. The health resort branches of the Center support and strengthen the best traditions of recreation and treatment with the use of natural and preformed healing resources and for many years remain recognized leaders of the Russian balneology. Based in 1921 the Center provides unique methods and science-based approaches for treatment of the patients. National Medical Research Centre for Rehabilitation and Balneology has long-standing scientific, business and friendly ties with FEMTEC sealed with the Agreement on cooperation in 2019.

## ***29. TEACHING AND PRACTICING ACUPUNCTURE IN A REHABILITATION HOSPITAL AND A BALNEAL RESORT***

Authors: Marius Sorin Chiriac<sup>1</sup>, Olga Surdu<sup>1</sup>, Monica Surdu<sup>2</sup>, Traian - Virgiliu Surdu<sup>1,3</sup>, Sibel Mujdaba<sup>1</sup>, Viorica Marin<sup>1</sup>, Alin-Iulian – Tucmeanu<sup>4,5</sup>, Roxana - Elena Tucmeanu<sup>1,2</sup>

Affiliation:

1. Techirghiol Balneal and Rehabilitation Sanatorium;
2. Clinical Emergency Hospital Constanta
3. Ovidius University of Constanta, Faculty of Medicine;
4. Titu Maiorescu University, Bucuresti, Faculty of Medicine;
5. Clinical Emergency Hospital Ilfov

Acupuncture is one of the main tools for treatment the patients in a rehabilitation hospital. The treatment is mainly for the cervical and lombar pain afections.

In Sanatorium and rehabilitation Techirghiol we introduce the acupuncture treatment with other procedures like hydrotherapy, kinetho therapy, phisiotherapy, massage and also with the famous mud treatments.

The acupuncture has a history of 45 years when in the 1980 the doctors from sanatorium were making acupuncture treatment. They learnt acupuncture from their professors in the Carol Davila University of Bucharest.

In the 1990 a delegation of doctors went to study in the China for a couple of months to improve the acupuncture tehniques.

Nowadays we also incorporate acupuncture tehniques in rehabilitation treatment for lombar and cervical area. The balneal and rehabilitation treatment is for ten days including mud baths, hidrotherapy with salt water, kinetotherapy, massage and physiotherapy.

In my treatment I include 4-6 treatments of acupuncture, taking into consideration the patients diseases. In Romania learning acupuncture takes place at the National Institut of Health Management. Is a three years course only for medical specialist.

Also in Romania is a National Order of Practicioner in Complementary and Alternative Medicine ,but this is and association that is recognised in some european contries but not in Romania.

In this case if you want to practice and learn acupuncture you have two option, either of them have great professors, teachers, mentors or doctors.

Acupuncture and rehabilitation is hand in hand in our country for more than fyfty years and in Balneal resort Techirghiol we try to carry on the legacy.

## ***30. Training Doctors in Medical Hydrotherapy. New strategic directions for skills development: The Tunisian experience.***

Authors: Taoufik Khalfallah\*, Chahnaz Guizani\*\*, Fausto Bonsignori \*\*\*, Olga Surdu\*\*\*\*

Affiliation

- \* Faculty of Medicine of Monastir – Tunisia – Capsa Thermal,
- \*\* Tunisian National Office of Thermalism and Hydrotherapy,
- \*\*\* University of Pisa- Italy,
- \*\*\*\* Worldwide Federation of Hydrotherapy and Climatotherapy (FEMTEC)

*Abstract*

Through this intervention, we will describe the Tunisian experience in collaboration with FEMTEC and the Tunisian National Office of Thermals and Hydrotherapy in terms of training and skills development in Thermal Medicine with an objective critique of other experiences on a global scale to develop

1. A universal educational consensus project for training in Medical Hydrology and Clematis that meets the new strategic directions for the development of the thermal sector in the world.



2. To get out of the classic and traditional framework of thermals and to meet the needs of new emerging diseases with innovative tools of contemporary medicine.
3. Presentation of a thermal resort recently established in the south of Tunisia "Capsa Thermal" with new therapeutic orientations based on a new global concept that combines thermal practices with climatotherapy called "Saharan and oasis thermals".

### ***31. ThermaJet Clinical Study on Jet Massage for Pain Relief and Proprioceptive Rehabilitation in Chronic Low Back Pain***

Author: Marie-Catherine Tallot-Ruscade

Affiliation: Association "Amis du thermalisme"

The ThermaJet clinical study investigates the therapeutic effects of water jet massage on chronic low back pain, focusing on pain relief and proprioceptive rehabilitation. The study aims to identify optimal pressure levels, tailored to patients' BMI, to reduce pain and promote muscle relaxation without soft tissue damage. A central focus is the use of jet-induced imbalances to stimulate proprioceptive responses, improving postural stability and coordination. By analyzing muscle contractions and proprioceptive reactions triggered by varying pressures, the study seeks to demonstrate that jet massage can serve as a rehabilitation tool for both pain management and proprioception. The expected outcome is to establish clinical guidelines for safe and effective use of water jets, offering a dual benefit of reducing pain and enhancing balance in patients.

### ***32. Chorioamnionitis as a Predictor of Preterm Birth: Implications for Balneotherapy and Neonatal Care***

Authors: Oglinda Ioana Georgiana<sup>1,2</sup>, Surdu Monica<sup>1,3</sup>, Surdu Olga<sup>3</sup>, Surdu Traian<sup>1,2</sup>, Mihai Cristina Maria<sup>1,2</sup>

1. Ovidius University Constanta
2. Constanța Emergency Hospital
3. Techirghiol Balneal and Rehabilitation Sanatorium

Chorioamnionitis, an intra-amniotic infection associated with inflammation of fetal membranes, is a major contributor to preterm birth and a significant risk factor for neonatal morbidity and mortality. The condition arises from bacterial infections ascending from the maternal genitourinary tract, which trigger an inflammatory cascade, often resulting in early labor. Despite advancements in prenatal care, the prevention and management of chorioamnionitis remain complex, particularly given the associated risks of respiratory distress syndrome, cerebral palsy, and sepsis in preterm infants.

This study examines the role of chorioamnionitis in the onset of preterm birth and explores innovative therapeutic interventions, including the potential applications of balneotherapy. Balneotherapy, traditionally employed for its anti-inflammatory and stress-reducing properties, may offer supportive benefits for pregnant women at risk of chorioamnionitis by modulating inflammatory responses and improving maternal immune health. This presentation will discuss the latest research on the pathophysiology of chorioamnionitis, its impact on preterm birth, and the evolving therapeutic perspectives in neonatal and maternal care. Integrating evidence-based balneotherapy could contribute to reducing inflammation and improving outcomes for mothers and neonates, bridging traditional practices with modern clinical needs.

### ***33. Congenital Malformations and Environmental Factors: Challenges and Perspectives in the Context of Balneotherapy***

Authors: Surdu Monica<sup>1,2</sup>, Surdu Traian<sup>1,3</sup>, Surdu Olga<sup>3</sup>, Oglinda Georgia Ioana<sup>1,2</sup>, Mihai Cristina Maria<sup>1,2</sup>

4. Ovidius University Constanta

5. Constanța Emergency Hospital

6. Techirghiol Balneal and Rehabilitation Sanatorium

#### *Introduction*

This study examines the incidence and types of congenital malformations in a regional hospital in Romania, also exploring the influence of environmental factors. The study discusses the challenges and perspectives for prevention and treatment in the context of balneotherapy.

#### *Methodology*

The research was conducted at the Constanta County Emergency Hospital, including 975 cases of congenital malformations out of a total of 22,571 births between 5 years. Data were extracted from birth and autopsy registers. Malformations were classified by affected system (nervous, cardiac, digestive, etc.), and the sensitivity of prenatal ultrasound was assessed in identifying anomalies.

#### *Results*

Cardiac malformations were the most common (28.9% of cases). Neonatal mortality was significantly influenced by major malformations, especially cardiac anomalies, which accounted for 53.5% of neonatal deaths. An increase in cases from rural areas was observed, associated with inadequate prenatal monitoring and exposure to environmental pollutants.

#### *Conclusion*

The study highlights the need for clear prenatal screening protocols and prevention programs focused on reducing environmental risk exposure. Additionally, balneotherapy could offer supportive benefits for perinatal and postnatal health and the reduction of risks associated with congenital malformations, given adequate monitoring and intervention.

### ***34. An -verview of the medical geology curriculum of the Jacmeddgeo – Center of NSUK***

Author: Prof. K'tso Nghargbu, PhD

Affiliation: Department of Geology and Mining, Nasarawa State University, Keffi, Nigeria

#### *Abstract*

The Jose A Centeno International Center for Medical Geology Research of the Nasarawa State University in Keffi, Nigeria was established in the year 2020 as a world class Medical Geology Research Center. It is the first of its kind globally, and is set to deliver certification at the post graduate diploma, masters, and doctoral levels as approved by the Senate of the University. A wide range of issues of geomedical concern attributable to geologic processes and materials are catered for by the syllabus on the one hand, while beneficial effects/use of geologic materials through balneotherapy are featured in the curriculum on the other hand.

#### *Keywords*

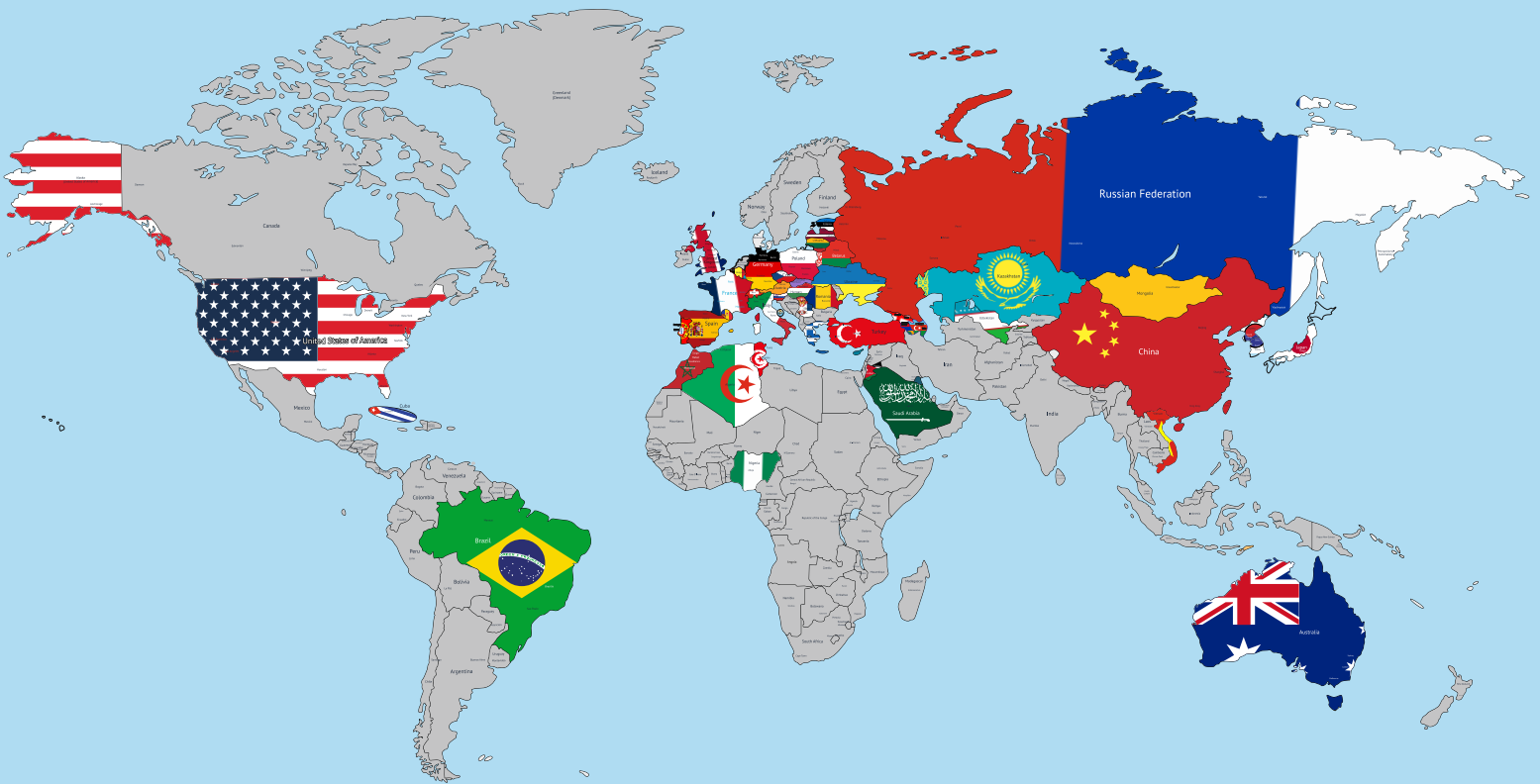
Medical Geology Research, Nasarawa State University, Geomedical Concern, Balneotherapy, Curriculum

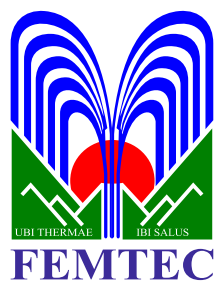


# THE 75TH FEMTEC GENERAL ASSEMBLY AND SCIENTIFIC CONGRESS



## FEMTEC MAP - 2024





**WORLD FEDERATION OF HYDROTHERAPY AND CLIMATOTHERAPY**  
**Non-Governmental Organization**  
**In official Relations with WHO**  
**Traditional, complementary and Integrative Medicine Unit**

**2024 November 7TH – 10TH**

**Eden by the Mountain,  
BRAN,  
ROMANIA**

