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THE 73° GENERAL ASSEMBLY
AND
INTERNATIONAL SCIENTIFIC CONGRESS
OF THE WORLD FEDERATION
OF HYDROTHERAPY AND CLIMATOTHERAPY
(FEMTEC)

**“BALNEOLOGY IN
CHANGING SOCIETIES”**
*Multilateral approach to health
care and well-being*



CASTEL SAN PIETRO TERME (Bologna, ITALY)

November 3 – 6, 2022

Anusca Palace Hotel - www.anuscapalacehotel.com

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PREFACE

“Omnia mutantur, nihil interit” (Everything changes, nothing dies) - Ovid, Metamorphosis, XV,165

Change is the "natural" condition of human societies. It involves more or less consistent, more or less rapid modifications of customs, ideas, beliefs and values. Sometimes, they may concern only one sector at first, but then there is a carry-over effect towards other areas whereby technology influences the economy with all its attendants.

For example, technology and the economy can change faster than social and religious organization.

But, today, in a globalized and interconnected world, in every sector, everything is much more rapid and with unpredictable consequences.

Steve Jobs, the founder of Apple, used to say "*I will change your life*". A subtle Chinese curse says "*I wish you to live in interesting times*".

In today's web society even the relationship between health and disease and changed with the advent of new tools related to the exchange, transmission and sharing of health information in proposing a new doctor-patient relationship.

Also, the world of the Spa, with its ancient traditions and connections in the history and actuality of human civilization, can not be exempt from these socio-economic and environmental needs and propose to itself a critical analysis proposal to update the new reality. And, then, appear some questions.

What role do Spas play in today's web society? What answers can Thermalism give to the new health needs in the world of e-health? What kind of innovations are required to meet the challenges of the new tools related to the technological evolution of exchange, transmission and sharing of information and therapeutic

methodologies? Do health, illness, the doctor-patient relationship and the relationship with the territory find adequate support in the spa culture and organization? Have the pathologies linked to the COVID-19 pandemic seen an appropriate role for spa medicine in rehabilitative treatments? Are the requirements of evidence, rationality, tradition and efficiency required today in "good practice" really offered?

These issues, with their possible proposals for solutions, will try to answer with the wide debate and international comparison of the 73rd Conference of Femtec dedicated to **“BALNEOLOGY IN CHANGING SOCIETIES. Multilateral approach to health care and well-being”**.

Femtec believes, in fact, on the basis of its long experience, that the spa system, Italian and international, has in itself all the elements capable of proposing and implementing a renewal-renaissance of this ancient tradition of prevention, care and rehabilitation.

But, as highlighted in the topics addressed in the previous Femtec Congresses

(<https://www.femteconline.org/info.php?s=CONGRESSES>),

multidisciplinary (technical-scientific-cultural) and multilateral (political, economic, social and organizational) approaches are indispensable.

The main topics of the Congress:

- ***Research as a factor for knowledge and correct information***
- ***Training (university and post-university, face-to-face and on line)***
- ***The role of thermal patients and users***
- ***Thermal Center's technologies and structures***
- ***Organization and management of the Thermal District regions***
- ***Public-private partner ships***
- ***Traditional and IT Marketing***
- ***Sustainable and health tourism***
- ***The concept of ONE HEALTH***

- **Health Insurance**
- **Regional and national health policy**
- **Legal-administrative regulations.**

Specific round tables on: Exercise Sciences and Thermal Medicine as strategic alliance for health and lifestyles; The WESKILL Project “Wellness and Spa Tourism Sectoral Skills’ Development – WESKILL” (Co-founded by the Erasmus+ programme of the European Union) for health tourism operators; Thermae & Diplomacy.

This year the 73rd Congress of Femtec takes place in Italy, in Castel San Pietro Terme (Bologna), a healing place mentioned for the properties of its waters since the 14th century. Belonging to the category of sulphurous ones and bromine and iodine salt, it allows prevention treatments, care and rehabilitation for the respiratory and osteoarticular apparatus. Its modern and updated health structure of hospitality and management, inserted in a territorial context of valuable tourist offer, can represent the realization of a concrete "model" of transformation in ***balneology of our time.***

Pr. Umberto Solimene
FEMTEC President

SCIENTIFIC COMMITTEE

Co-Chairs: **C. F. Roques** (France), **U. Solimene** (Italy)

Coordinators: **S. Masiero** (Italy), **O. Surdu** (Romania)

Members: **Abbott J.** (USA), **Belaitar A.** (Algeria), **Bender T.** (Hungary), **Benmaklouf M.** (Morocco), **Boaron M.** (Italy), **Bonsignori F.** (Italy), **Bouvier E.** (France), **Bulekbaeva S.** (Kazakhstan), **Cantista P.** (Portugal), **Choinowsky J.** (Poland), **Cohen M.** (Australia), **Costigliola V.** (Belgium), **Davidson C.** (Australia), **Diouri M.** (Tunisia), **Dubois T.** (France), **Esposito F.** (Italy), **Fabbri P.** (Italy), **Fesyun A.** (Russia), **Fioravanti A.** (Italy), **Fluck I.** (Hungary), **Geher P.** (Hungary), **Inokuma S.** (Japan), **Khalfallah T.** (Tunisia), **Kovachev L.** (Bulgaria), **Ledesma R.** (Cuba), **Liu Qi** (China), **Loffredo M.** (Italy), **Maraver Eyzaguirri F.** (Spain), **Masiero S.** (Italy), **Menendez F.** (Cuba), **Minelli E.** (Switzerland), **Ponikowska I.** (Poland), **Rachin A.** (Russia), **Razumov A.** (Russia), **Santuari A.** (Italy), **Sicurello F.** (Italy), **Surdu O.** (Romania), **Trofimov E.** (Russia), **Unbenschiden H.** (Germany), **Vitale M.** (Italy), **Wang J.** (China), **Zeki Karagulle M.** (Turkey)

ORGANIZING COMMITTEE

President: **Fausto Tinti** (Mayor of Castel San Pietro Terme)

Members: **Massimo Boaron** (Board Member of FEMTEC-Technological Innovation Commission), **Lino Gilioli** (President of COTER - Consorzio delle Terme dell'Emilia Romagna), **Paride Gullini** (President of Associazione A.N.U.S.C.A.), **Stefano Iseppi** (CEO of Terme SpA - Castel San Pietro Terme), **Mario Loffredo** (Scientific Director of Terme SpA - Castel San Pietro Terme),

Rita Lugaresi (Responsible of the Tourism Office of Castel San Pietro Terme), **Stefano Trazzi** (Board Member of “IF Imola Faenza Tourism Company”)

SECRETARIAT OF ORGANIZING COMMITTEE

Chauskaya N. (Chief Intern. Dept. FEMTEC), **Busato S.** (Focal point of FEMTEC for the World Health Organization - WHO)

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Italy



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Castel San Pietro



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With media support by:



SCIENTIFIC PROGRAM

Thursday	3 November 2022
20:00 - 23:00	Accommodation and welcome dinner
Friday	4 November 2022
07:00 - 08:30	Breakfast at the hotel
08:00 - 09:00	Registration of the congress participants
09:00 - 10:00	Official opening of 73rd Congress of FEMTEC with invited dignitaries
10:00 - 11:15	<p>I Scientific session: <i>BALNEOLOGY IN PROGRESS</i></p> <p><u>CHAIRS</u>: G. Leonardi, C. Roques, U. Solimene, O. Surdu</p> <ol style="list-style-type: none"> 1. P. Cantista (Portugal), <i>Medical Hydrology: education, training and certification</i> 2. A. Fioravanti (Italy), <i>Balneotherapy and osteoarthritis: new evidence for an old therapy</i> 3. M. Vitale (Italy), <i>Science per Aquam: Balneotherapy Research in Italy</i> 4. S. Masiero (Italy), <i>The thermal rehabilitation: reality and perspectives</i> 5. C. Roques (France), <i>Bottled mineral waters: would legal notices be useful?</i>
11:15 - 11:30	Group photo
11:30 - 11:45	Coffee break

11:45 - 13:30

II Scientific session (Room A – B): BALNEOLOGY IN THE WORLD (I)

CHAIRS: Th. Dubois, S. Masiero, F. Menendez, A. Razumov

1. ***A. Razumov (Russia)**, *Balneology: methodological and scientific problems in the medical digital era*
2. **J. Abbott – M. Coplin (USA)**, *Research as a factor for knowledge and correct information for Balneology in Changing Societies*
3. **M. Benmakhlof (Morocco)**, *The thermalism and its socio-economic impact on the local population in Morocco*
4. **S. Bulekhbaeva (Kazakhstan)**, *Working in pandemic mode by covid-19 in national center for children's rehabilitation*
5. **Th. Dubois (France)**, *Evolution of spa treatment in psychiatric due to changing society*
6. **M. Diouri (Tunisia)**, *Hydrotherapy, Mineral Waters and Sustainable Development: Issues and Challenges*
7. ***A. Belaitar (Algeria)**, *Balneotherapy in Algeria*
8. **F. Maraver – C. Morer Linean (Spain)**, *The challenges for a new thermalism in Spain*
9. ***K. Kouskoukis (Greece)**, *New approaches in Thermal Medicine in Greece*
10. **K'tso Nghargbu (Nigeria)**, *A proposal for the development of Balnear Tourism in Nigeria*

13:30 - 14:30

Lunch

14:30 - 17:30

III Scientific session: *BALNEOLOGY IN CHANGING SOCIETIES*

CHAIRS: E. Gonzales, E. Faroldi, L-E. Stanciu

- **1st workshop: “Water and Civilization”:** *sacred and profane*

COORDINATORS: M-C Tallot (France), U. Solimene (Italy)

1. **S. Caprio (Italy)**, *Symbolic and sacramental meaning of water in the Eastern Orthodox and Western Catholic traditions*
2. **E. Faroldi (Italy)**, *Thermae and architecture. Trends, strategies, visions for a modern thermal culture*
3. **T.V. Surdu (Romania)**, *Water, Fundamental Element of Being*
4. **A. Bovero (Italy)**, *The super model: a new era for the spa & beauty industry*

- **2nd Workshop: Balneology from the “High Diplomacy” to the Civil Society**

COORDINATORS: F. Werner (France), P. Gullini (Italy), S. Caprio (Italy)

1. **M. Aliverti (Italy)**, *Thermal towns and diplomatic events. An old and strengthen correlation*
2. ***M. J-P Grouzart (France)**, *The civil society, patients and users of thermal centers*
3. **E. Marasco (Italy)**, *There is no sustainable future without Gender Equality: that's why Women20 promotes gender medicine*

	<p>4. A. Santuari (Italy), <i>Public-private partnerships: an opportunity for the future of medical spas?</i></p> <p>5. G. Fisanotti – V. Ceniti (Italy), <i>Tourism between politics and economy</i></p> <p>6. *G. Uspele (Latvia), <i>Development of Wellness and Spa Tourism Sectoral Skills</i></p> <p>7. C. Crotti (Italy), <i>Thermae &SPA. How to choice! A Femtec live TV initiative</i></p>
17:30 - 18:00	Professional and cultural meetings
18:00 - 20:00	Free time
20:00 - 22:00	Dinner
10:00 - 13:00	<p>For accompanying persons:</p> <ul style="list-style-type: none"> - Tour in Bologna with english tour guide by bus (25 persons) - Lunch in the typical restaurant - Afternoon shopping and return to hotel in the evening.
Saturday	5 November 2022
08:00 - 09:00	Breakfast at the hotel
09:00 - 11:45	<p>IV Scientific session (Room A – B): <i>BALNEOLOGY IN THE WORLD (II)</i></p> <p><u>CHAIRS</u>: P. Cantista, M. Cohen, L. Lungwitz, M. Vitale</p> <p>1. O. Surdu (Romania), <i>Changing the old paradigm of balneotherapy</i></p>

2. **J.L. Danan, M.C. Tallot, F. Werner, *X. Colin, *O. Kontz (France)**, *Nancy Thermale: a new urban spa in France in 2023*
3. ***J. Choinowsky (Poland)**, *The socioeconomic situation of Polish thermalstations and the availability of balneological treatment in 2022. The first year after the SARS-COV2 pandemic*
4. ***I. Grishechkina (Russia)**, *Comparison of long-term rehabilitation outcomes in patients with Post-COVID-19 syndrome using different rehabilitation methods*
5. ***L. Lungwitz (Germany)**, *Medical Wellness, development for clinics and spa*
6. **M. Cristofolini (Italy)**, *The microbiota in Hot Springs*
7. **O. Jousson (Italy)**, *A longitudinal characterization of microbiome of alpine water springs used for human compsumption*
8. **S. Manara (Italy)**, *Modulation of the psoriasis-associated microbiome with thermal water at Comano Terme*
9. ***Liu Qi (China)**, *Femtec and Chongqin Region: ten years of collaboration*
10. ***Ch. Davidson (Australia)**, *How the emerging global hot springs industry can help people, communities and the planet connect, stay well and be well*
11. **M. Cohen (Australia)**, *Hot Springs Sanitation: Towards Global Best Practice*
12. **D. Naidoo (Australia)**, *Spa cure or vacation? The therapeutic relief for retreat guests with medical conditions*

13. **M. Coplin (USA)**, *The therapeutic classifications of North American mineral waters*
14. ***R. Ledesma Rosa – M. Viera García (Cuba)**, *Comprehensive Rehabilitaci3n Protocol in Thermal Centers for patients after SARS*
15. ***M. Pena (Mexico)**, *The thermalism and the development of Health Tourism in Mexico*
16. ***N. Kulikova, (Russia)**, *Physiotherapeutic methods in rehabilitation of patients with cauda equina syndrome*
17. ***A. Huseynli (Czech Republic)**, *The role of complex spa treatment in the mental health prevention*
18. **F. Fornasini (Italy)**, *Thermal mud and cellulite: our experience*
19. ***J. Kinkorova (Czech Republic)**, *ILAB - concept for modern balneological and spa medicine research in the Czech Republic*
20. **L-E. Stanciu (Romania)**, *The importance of balneo-physical- kinetic treatment in the elderly patients*
21. ***J.A. De Gracia Hils (Spain)**, *Thermal water classification a quick guide for non hydrologist physicians*
22. ***O. Topolcan (Czech Republic)**, *Non-alcoholic fatty liver (NAFLD) has become the main cause of chronic liver disease*

11:45 - 12:00

Coffee break

12:00 - 12:15	<p>Online connection with Congress SISMES (Società Italiana di Scienze Motorie e sportive) <u>SPEAKERS</u>: F. Esposito – U. Solimene (Italy), Exercise sciences and Balneology: a strategic alliance</p>
12:15 - 13:30	<p>V Scientific session: FEMTEC with the WORLD <u>COORDINATORS</u>: M. Coplin, S. Bulekhbaeva, J.L. Danan, A. Santuari</p> <p>- Online connection with HQ World Health Organization (Geneva), Human Resources for Health, Policies & Standards World Health Organization, Health Workforce Department https://www.who.int/publications/i/item/health-workforce-policy-and-management-in-the-context-of-the-covid-19-pandemic-response with the introduction by U. Solimene (Italy) C. Kane: “Working for Health 2022-2030 action Plan” Presentation (U. Solimene) of the special program by FEMTEC “Care who cure”</p> <p>- GUEST COUNTRY: SPAIN, The Thermal Cluster of Ourense (Galizia)</p> <p>In collaboration with M.G. Souta Figueroa, F. Maraver, F. Menendez</p>
13:30 - 14:30	Lunch

14:30 - 17:00

**VI Scientific session (Room A – B): BALNEOLOGY:
INTEGRATE, COMPLEMENTARY AND SYSTEMS' MEDICINE
(tradition, innovation and sustainability)**

**CHAIRS: M.L. Agnese, M. Cristofolini, A. Fioravanti,
F. Maraver**

1. ***E. Minelli (Switzerland)**, *the integration of water*
2. **E. Sangiorgi (Italy)**, *A model of integration between thermalism and complementary medicines in Hotsprings*
3. **R. Blaser (Switzerland)**, *Rehabilitation and prevention exemplified by complementary, conventional medicine and the therapeutic effect of alkaline Glauber's salt*
4. ***T. Nicolai (Belgium)**, *Integrative healthcare and politics*
5. **L. Bramante (Italy)**, *INAIL: Balneology for a global protection of the health of the disabled in an industrial accident. Models of integration*
6. **G. Merati (Italy)**, *Exercise for wellbeing: the role of thermal and outdoor natural settings to translate evidence into practice*
7. **G. Di Ionna, G.P. Baruzzi, G. Zanette (Italy)**, *HRV: a reliable biomarker for wellness. SNA/Neurovegetative messages to optimize lifestyle and modulate stress responses, developing a new synergy with thermal therapeutic paths*
8. **M. Nieri (Italy)**, *The therapeutic power of nature: forest bathing and bioenergetic landscape*
9. **A. Perra (Italy)**, *Low dose cytokine therapy for healthy longevity. A novel pharmacology for a systemic, and multi-level approach to aging*

10. ***G. De Benedittis (Italy)**, *The challenge of pain: can hypnosis control your pain?*
11. ***M. Lobanov (Russia)**, *Methodology applied to determine the curative properties of certain areas*
12. **P. Hlouskova (Czech Republic)**, *Therapeutic environmental factors in the climatic spa in the Czech Republic*
13. ***L. Bressan (Italy)**, *Complementary treatments for neurological diseases*
14. **F. Bonsignori (Italy)**, *The new age of the historic italian medical scientific association of thermalism (AMIITTF)*
15. **F. Menendez (Italy)**, *Programs of FEMTEC commission on Health and Gender equality*
16. **F. Roggiolani (Italy)**, *Thermae and sustainability: hotsprings don't need gas*
17. **Souto Figueroa M.G. - Freire Puy, I. - Freire Magariños, A. (Spain)**, *Digitalization and Revenue Management, inexcusable future of spa center*
18. **M. Boaron (Portugal)**, *IT: Thermae 4.0*

SATELLITE WORKSHOPS ON (Room C):

- **“How a spa treatment is born”** (geology, basic and clinical researches, therapeutic treatments)

COORDINATORS: **U. Solimene, S. Iseppi**

SPEAKERS: **P. Fabbri, M. Vitale, M. Loffredo, A. Zanasi**

	<ul style="list-style-type: none"> - “The WeSkill Project for Sectoral Skills Development” https://www.femteconline.org/WESKILL/ <u>COORDINATOR</u>: L. Kovachev, M. Boaron, S. Busato, U. Solimene <u>SPEAKERS</u>: European Project Partners: WeSkill https://weskill.eu/ - Video Conf. on Integrative Medicine and Health in prevention and management of the COVID-19 - “Balneology & Rehabilitation: new challenges” <u>COORDINATORS</u>: R. Blaser, F. Bonsignori, L. Bramante <u>SPEAKERS</u>: S. Bulekhbaeva, P. Cantista, M. Loffredo, Ch. Roques, A. Zanasi
18:00 - 19:00	FEMTEC Executive Committee and General Assembly
20:00 - 23:00	Gala dinner and rewarding of participants
10:00 - 13:00	<p>For accompanying persons:</p> <ul style="list-style-type: none"> - Guided visit to Fortress of Dozza, Wall Painting, visit to Outlet Castel Guelfo (by bus for 50 persons) - Return to hotel and gala dinner
Sunday	6 November 2022
08:00 - 13:00	<ul style="list-style-type: none"> - Breakfast - Access to SPA Hotel - Femtec Garden (tree plant) - Lunch and departure

***On demand speakers**

SPEAKERS

ABBOTT J., President of Balneology Association of North America (BANA), USA

AGNESE M.L., Corriere della Sera, Milano, Italy

ALIVERTI M., University of Insubria, Varese, Italy

BARUZZI G.P., Self Coherence S.r.l Scientific Committee, Milan, Italy

BELAITAR A., Specialized in medical hydrotherapy and physiotherapy, A.B.C Medical center of Physiotherapy, Guelma, Algeria

BENMAKHOUL M., President of AMSTM Morocco

BLASER R., Director of Bad Stiftung Gesundheitsförderung Bad Zurzach, Baden, Switzerland

BOARON M., CEO Euroteam, Portugal

BONSIGNORI F., President of AMIITTF, V. President EAPTC, Italy

BOVERO A., Founder & President of LIFEXCELLENCE, Chairman World Spa Organization, Italy

BRAMANTE L., Central Healthcare Authority, INAIL Rome, Italy

BRESSAN L., M.D. Neurologist, Secretary General Association "Padrini", Milano, Italy

BULEKBAEVA S., Director Nat. Children's Rehabilitation Children's Center, Astana, Kazakhstan

BUSATO S., International Office Affairs of FEMTEC, Italy

CANTISTA P., Past-President of ISMH; President of Colégio Medicina Física e de Reabilitação da Ordem dos Médicos University of Porto, Portugal

CAPRIO S., Professor of Russian History and Culture at the Pontifical Oriental Institute in Rome, Italy

CENITI V., National Association of Unionturismo, Italy

CHOJNOWSKI J., President of Polish Association of Balneology and Physical Medicine, Poland

COHEN M., The Extreme Wellness Institute, The Peninsula Hot Springs Group, The Global Wellness Institute Hot Springs Initiative, Australia

COLIN X., President Departemental of Ordre des Masseurs Kinésithérapeutes, France

COPLIN M., Naturopathic Healthcare, Director of Hydrothermal Medicine, USA

CRISTOFOLINI M., President of Institute “GB Mattei” for research on hydrology and thermal medicine, trento, Italy

CROTTI C., Expert WHO Coll. Center Complementary Medicine, State University of Milan, Italy

DANAN J-L, Director of the Institute European of Thermalism, France

DAVIDSON Ch., Group Chair / Co-Founder of the Peninsula Hot Springs Group, Chair Global Wellness Institute Hot Springs Initiative, Vice-President FEMTEC, Adjunct Professor Victoria University, Australia

DE BENEDITTIS G., Pain Research & Treatment Unit, Operative Unit of Neurosurgery, Department of Neurological Sciences, University of Milan, Milan, Italy

DE GRACIA HILS J.A., Medical Director of balneario de Ariño, Spain

DI IONNA G., Self Coherence S.r.l Scientific Committee, Milan, Italy

DIOURI M., General Manager, Tunisian Office of thermalism and Hydrotherapy, Tunisia, The Vice-President of FEMTEC

DUBOIS T., President ESPA, Paris, France

ESPOSITO F., Italian Society of Exercise sciences and sports, State University of Milan, Italy

FABBRI P., Department of Geosciences, State University of Padua, Italy

FAROLDI E., V. Rector of Polythecnic of Milan, Department of Architecture, Italy

FIORAVANTI A., Rheumatology Unit, Department of Medicine, Surgery and Neuroscience, Siena, Italy, President of OMTh, Vice-President of ISMH

FISANOTTI G., President of National Association of Unionturismo, Italy

FORNASINI F., Medical Director GB Hotel Abano, Padua, Italy

FREIRE MAGARIÑOS A., Doctor specialist in Medical Hydrology, Medical director Iberik Hotels and spas, Spain

FREIRE PUY I., Graduated in hotel management, Specialist in Revenue Management, Thermal Gala Director (Spain)

GONZALES E., Manager of the Ourense Institute of Economic Development and manager of the Tourism Sustainability Plan in Ourense Termal, Galizia, Spain

GRISHECHKINA I., PhD, Senior Researcher of the laboratory for studying the mechanisms of action of physical factors, Nat. Medical Res. Center for Rehab and Balneology of Russian Health Ministry

GROUZART J-P M., President of Fédération Française des Curistes Médicalisés (FFCM), France

GULLINI P., President of ANUSCA, Italy

HLOUSKOVA P., Researcher, Deputy chairman of the Council of the Institute, Institute of Spa and balneology, Czech Republic

HUSEYNLI A., Institute of Spa and Balneology, Faculty of Medicine in Pilsen, Charles University, Czech Republic

ISEPPI S., CEO of Castel San Pietro Thermae, Bologna, Italy

JOUSSON O., Director of Interdepartmental Centre of medical sciences, Full professor of Department of Cellular, Computational and Integrative Biology CIBIO, University of Trento, Italy

KANE C., WHO Ginevra, Switzerland

KOVACHEV L., General Coordinator of EU project WeSkill, ITPIO, Bulgaria

KINKOROVA J., Researcher of University Hospital Plze, Czech Republic

KONTZ O., Member of Conseil National de l'Ordre des Masseurs Kinésithérapeutes, France

KOUSKOUKIS K., Professor of Dermatology, President of Hellenic Academy of Thermal Medicine

KULIKOVA N., Main senior researcher, National Medical Research Center for rehabilitation and balneology of the Health Ministry of Russia

LEDESMA ROSA R., National Reference Center for Physical Medicine and Rehabilitation "Julio Diaz", La Havana, Cuba

LEONARDI G., Secretary General, Ministry of Health, Italy

LIU QI, Chief of Department of Culture and Tourism, Government Chongqing, China

LOBANOV A., Head of the Department of the study of physical factors mechanisms, National Medical research Center for rehabilitation and balneology of the Health Ministry of Russia

LOFFREDO M., Medical Director of Castel San Pietro Thermae, Bologna, Italy

LUNGWITZ L., President of German Medical Wellness Association, Berlin, Germany

MANARA S., Researcher of Cellular, Computational and Integrative Biology CIBIO, University of Trento, Italy

MARASCO E., Senior Advisor Women20 (W20/G20) Italy, Co-Founder President AW20

MARAVER F., Director of Medical Hydrology School, University Complutense, Madrid, Spain

MASIERO S., Director Post Graduate School Rehab., State University Padua, Italy

MENENDEZ F., Director Wellness Destiny Magazine, V. President of FEMTEC, La Habana, Cuba

MERATI G., Department of Biotechnologies and life Sciences, Insubria University, Italy

MINELLI E., WHO Expert, Geneva, Switzerland

MORER LINEAN C., Escuela de Hidrologia Medica-UCM, Spain

NAIDOO D., PhD Candidate, Retreats & Wellbeing, Western Sydney University, Australia

NGHARGBU K., Director Linkages & International Cooperation, Nasarawa State University Keffi, Nigeria

NICOLAI T., EUROCAM Secretary-General, Brussels, Belgium

NIERI M., Independent bio-researcher and habitat health expert, Italy

PENA ROMERO M., Biologist of Mexican association of balneology, Mexico

PERRA A., Scientific Director of Guna Pharmaceuticals, Milan, Italy

RAZUMOV A., President NKA, Dir. MSPC, Academic, Moscow, Russia

ROGGIOLANI F., Co founder Ecofuturo, Pres Giga, Dir. Coord Free, Com Scient Key Energy Ecomondo, Founder Equologia, Italy

ROQUES LATRILLE C-F., President ISHM, V. President FEMTEC, French Academy of Medicine, Paris, Afreth, France

SANGIORGI E., FEMTEC Expert

SANTUARI A., Secr. General EAPTC, Pr. of International Health and Law, University of Bologna, Italy

SOLIMENE U., President FEMTEC, State University of Milan, Italy

SOUTA FIGUEROA M. G., Delegate of the Femtec in Galicia, Spain

STANCIU L-E., Head doctor of the department Rehabilitation II, Balneal and Reabilitation Sanatorium Techirghiol, Romania

SURDU O., Balneology Balneal and Rehabilitation Sanatorium of Techirghiol, Constanta County, Romania, First - Vice President of FEMTEC, Full Member in International Scientific Committee of ISMH

SURDU T.V., M.D. Ovidius University of Constanta, Romania, Balneal and Rehabilitation Sanatorium of Techirghiol

TALLOT M.C., President of "Amis du Thermalisme", President of french society of thermal kinesitherapy, Member of FEMTEC Commission "Strategic Concept and Planning", France

TOPOLCAN O., Head of immunmoanalytic laboratortory, Faculty Hospital and Medical Faculty Pilsen, Czech Republic

USPELE G., Manager of Latvian Health Tourism Cluster

VIERA GARCÍ M., National Reference Center for Physical Medicine and Rehabilitation “Julio Diaz”, La Havana, Cuba

VITALE M., Scientific Coordinator FoRST; State University of Parma, Italy

WERNER F., 1st Vice President of the Metropolis of Nancy, France

ZANASI A., Pneumologist, Medical Director of Cervia Thermae, Italy

ZANETTE G., Self Coherence S.r.l Scientific Committee, Milan, Italy

FITEC-FEMTEC: SOME HISTORICAL REMARKS

BACKGROUND

- 1882: Joint formation of the organisation for health resorts, health and medicinal centres located in Germany, the Austro-Hungarian Monarchy and Switzerland
- 1921: London, ISMH
- 1929: ISMH Congress held in Budapest, formation of ILAR (International League against Rheumatism)

Hungarian aspects:

- 1891: Hungarian Association for Balneology
- 1934: Budapest Central Health Resort Committee

“Fédération Internationale des Stations Balnéaires Thermales,
Climatiques et Maritimes”
7-14 October 1937
Budapest

- Archduke Dr. József Ferenc (Joseph Franz)
- Goal: the formation of a single international organisation holding together all professional fields of health-spa and medicinal issues
- 36 countries, 340 professional participants, 8 international organisations, 22 government delegates,
- 7 October - making acquaintances, sightseeing, hand-over of health resort casino on the Margaret Island
- 8 October - Official opening (Hungarian Academy of Sciences) hand-over of the drinking hall of Lukács Bath
- 9 October - Academic meetings (Hotel Gellért)

- 10 October - Visiting the Balatonfüred climatic health resort
- 11 October - Academic meetings (Hotel Gellért)

Foundation of the International Federation

- 12 October: lectures and closing ceremony (Hungarian Academy of Sciences)
- 13-14 October: Visiting health resorts in the country

CONGRESSES

- 22-28 September 1938 Berlin and Bad Nauheim
- 5-10 June 1939, Liège
- 1940, Paris (cancelled)
- 1942, Rome (cancelled)
- 8-12 January 1944, Bratislava-Piestany
- 26 July 1947, foundation of FITEC

FITEC congresses in Hungary

- 5-10 October 1975, Budapest
- 3-9 October 1982, Budapest-Health resorts: Balatonfüred, Hévíz, Sopron
- 27 October - 1 November 1996, Health resorts: Bük, Hévíz, Budapest
- 26-30 November 2003, Budapest

Ladies and Gentlemen, Dear Colleagues,

The foundation of the legal successor of FEMTEC in Budapest was achieved as a result of a lot of work and efforts in the year 1937. This can be fully illustrated only if we reach back to the roots.

The first international medical spa organisation was established in 1883; with the participation of Germany, the Austro-Hungarian Monarchy and Switzerland, which ceased operation at the beginning of the First World War. (Verein der Kurorte und

Mineralquelleninteressenten Deutschlands, Österreich-Ungarns und der Schweiz)

The new international organisation the ISMH (International Society of Medical Hydrology) addressing exclusively issues of medicine was set up after the world war in London on 9 December 1921. The Hungarian professor Sándor Korányi was appointed chairman of the organisation at the ISMH congress held in Budapest in the year 1929. The establishment of ILAR, (International League against Rheumatism) a scientific organisation that is still very active to this day, was announced at the same congress.

The Hungarian Association of Balneology was founded in Budapest in the year 1891 and already laid down in its statute whereby it intends to deal not only with medical but also with all other issues related to health resorts; from legal, technical, education and training etc. aspects

Further rapid development started in the field of baths in Hungary in the 1920-s and 30-s, principally in Budapest. The central Health Resort Directorate formed in Budapest had information and sales offices opened in 32 towns abroad. Archduke Dr. József Ferenc (Joseph Franz), who had a degree in both law and economics, was appointed chairman of this organisation.

Demand for the establishment of an international organisation alongside ISMH that in addition to medical activities would deal with all areas of health spa issues was becoming increasingly widespread in Europe in the following years.

Upon the initiative of József Ferenc in the spring of 1937, the Hungarian experts and authorities contacted the national spa associations and official organs of various countries with the recommendation to hold a health spa congress in Budapest in the autumn of the same year, where an international health spa association could be established. The proposal was very well received.

At the congress held 7-14 October 1937 in addition to 32 European countries Egypt, USA, Japan and Chile were also represented. The number of active participants was 340. Alongside the professional participants, government delegates represented another 22 countries, and those present included representatives of 8 international organisations, among them the League of Nations, International Labour Organisation (ILO) and the International Hospital Organisation as well.

The program of the congress on 7 October started with a reception where participants were offered the possibility to get to know each other, then they were invited to a joint lunch followed by a Budapest sightseeing.

The ceremonial opening of the official program took place at the Hungarian Academy of Sciences in the morning of 8 October. This was followed by the visit of the Lukács Spa and the hand-over of the new medicinal water drinking hall. Scientific lectures were held in the afternoon. The Gellért hosted a train of lectures on 9 October till late in the afternoon on Saturday, and the day was rounded off by a dinner given by the mayor. The participants travelled to Balatonfüred, the climatic health resort at lake Balaton, on 10th by a special train. Monday (11 October) was entirely dedicated to scientific meetings. The Fédération Internationale des Stations Balnéaires Thermales, Climatiques et Maritimes, (in German Internationale Vereinigung von Heilbädern, Klimakurorte und Seebädern) was established in the late afternoon.

The scientific works were pursued in three committees:

- Medical
- economy, tourism and law
- technical

The lectures addressed the professional conditions of health spa treatments, the design and organisation of health spa facilities, the

social role of spas, advertising, avoiding seasonality and several other issues.

The aforesaid inception of the International Federation took place at 6 p.m. on 11 October in the concert hall of Hotel Gellért. C. Verhaegen de Neyer submitted a proposal for resolution on behalf of the Belgian Royal Government at the meeting for the congress to declare the formation of the international spa federation, subject to the seat of the organisation being Budapest. The head of the German delegation, Prof. Dr. H. Vogt supported the proposal as follows:

“ ...Not a single town would have more right to claim to be the seat than Budapest, which enjoying nature’s lavish generosity offers medicinal waters of excellent effects and unparalleled natural beauties, in addition to which the high level of medical capability of Budapest and the excellent equipment and facilities of its health institutions as well as the top standards of scientific research make it worthy to be the centre of managing international health-spa issues ...”

Following several supporting comments, participants of the congress unanimously declared the formation of the international federation and elected Dr. József Ferencto be chairman, and Dr. Zoltán Szviezsényi, the chairman of the organisation committee to be secretary general.

The closing ceremony of the congress was held in the morning of 12 October in the congress hall of the Hungarian Academy of Sciences.

News about the congress was carried by more than 80 foreign magazines and dailies.

Congress II. of the federation was held in Berlin and Bad Nauheim between 22 – 28 September 1938. The major issues among others covered: analyses of the final text of the statutes, comparison of health-spa issue related legal provisions of member states, examining the possibilities of standardising pricing. The Technical

Committee was investigating the ways of protection against the material damaging effects of aggressive waters, respectively the possible utilisation of the energy of high temperature waters for heating.

The Federation held an extraordinary congress in Liégé Belgium on 5-10 June 1939, in connection to the International Water Exhibition. This time in addition to the host Belgium, only 7 European countries took part.

In 1940 the congress that was planned to be held in Paris failed due to acts of the war.

In 1942 the Italian congress and delegates general meeting was first postponed to October 1943 also due to the war. However, this congress also failed because of the war.

The last congress of the Fédération Internationale des Stations Balnéaires, Climatiques et Maritimes was held in Bratislava and Piestany (Slovakia) in January 1944 where only Bulgaria, Croatia, Hungary, Germany, Italy, Romania and Slovakia attended. Those present raised the necessity of publishing a medical book that would list the health-spa resorts of member states and set forth the indications and contraindications of the treatments offered there. The proposal remained abort of course.

The war reached Central-Europe by the Spring of 1944 as well. Albeit the Federation did not declare its termination it ceased operation.

Three years later the need for the revival of the federation was raised by participants at an international health spa conference held in Prague in 1947, which was realised in the same year in Switzerland on 26 July, and thus the FITEC was established.

Pr. Istvan Fluck (Hungary)
Honorary President of FEMTEC

ABSTRACTS

RESEARCH AS A FACTOR FOR KNOWLEDGE AND CORRECT INFORMATION FOR BALNEOLOGY IN CHANGING SOCIETIES

ABBOTT J.

President of Balneology Association of North America (BANA), USA

Traditional use of North American Natural Mineral Waters by Indigenous cultures and early settlers, and the current use of geothermal mineral water locations as places of relaxation and recreation is well documented. However, Balneology as a health and wellness discipline in the United States declined into near nonexistence over the last century. The Balneology Association of North America (BANA) promotes the integrity of over 250 US site-specific balneology sources for scientific and cultural examination through research efforts and education programs to promote the use of mineral waters at sites for their therapeutic benefit. Today people are seeking new ways to refresh their sense of wellbeing and through field research with owners and operators, medical and therapeutic practitioners, chambers of commerce, and trade associations, BANA's study of mineral waters will work to establish Best Practice Standards of Balneology for North American thermal mineral waters. BANA seeks substanti

SPA AND POLITICAL-DIPLOMATIC EVENTS. AN ANCIENT AND CONSOLIDATED CORRELATION

ALIVERTI M.

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The aim of the report is to highlight the close link that has been established since classical antiquity between termalism and political-diplomatic activity. It will be remembered how in the ancient Roman civilizations the baths were a meeting place between personalities of the political-military world and as in the Middle Ages, even in the general decline of termalism, Some spa towns preserved for politicians and rulers a great attraction to the point to induce Charlemagne to choose Aachen as capital of the Holy Roman Empire and induce the popes to choose Viterbo as papal residence. The report will focus in particular on the political-diplomatic role assumed by the baths since the Renaissance, when rulers and dignitaries of the main European courts began to attend assiduously places where they could follow with benefit hydrothermal treatments. In the following centuries many rulers held in some spa resort, at least for a few months a year, an official residence carrying out government activities. The importance of nineteenth-century termalism in politics and diplomacy will be stressed; the fundamental role played by European spa towns in the diplomatic activity of the most important governments will be analysed in particular, to determine or condition not only the political and military structure of Europe, but also the spheres of influence of the colonial states in the rest of the world. Finally, it will be illustrated the role that the spa towns, but also the climatic stations, have continued to have in the politics and diplomacy of the twentieth century.

BALNEOTHERAPY IN ALGERIA

BELAITAR A.

Specialized in medical hydrotherapy and physiotherapy, A.B.C Medical center of Physiotherapy, Guelma, Algeria

Balneotherapy in Algeria is not only therapy; it represents a popular tradition and a historical legacy.

Nowadays as in the past, spas are in great demand by Algerian patients for various treatments of rheumatological, neurological, orl and dermatological conditions.

In Algeria, there are 282 thermal springs in our country including more than 80 thermal spas, but we only have nine medical stations public and one private (HAMMAM ELBARAKA) recognized by the Ministry of Health and government agencies. The Ministry of Health has decided on a new policy to develop balneotherapy by setting up new "spa rehabilitation" centers where physical medicine can coexist with thermal medicine and by renovating old centers in the coming years to meet international standards. The objective of these centers is to form an effective partnership and to be able to provide comprehensive care to patients.

In the whole world; balneotherapy is medicalized and is considered to be multidisciplinary medicine. It is also the object of a training course for the doctors which gives at the end a university degree. Spa therapy represents an important investment for the activation of health tourism in our countries.

Despite the thermal potentials available, balneotherapy in Algeria is still far from the expected level and the concept of thermal medicine is still absent with us, it is time to think about it. The development of balneotherapy must go through the specialized training of spa staff.

HYDROTHERAPY IN MOROCCO AND ITS SOCIO ECONOMIC IMPACT ON THE LOCAL POPULATION

BENMAKHOUL M.

President of Institution "Moroccan Association of thermo mineral spring", Morocco

The thermo resurgences have been known since at least Roman times and are used as popular steam rooms and even spas especially for therapeutic purposes. Greenhouse production and domestic heating so as industrial applications are other forms of thermal waters of the western Mediterranean.

In Mediterranean countries have traditionally taken the heat energy from the warm waters and has not been studied in detail the transfer of this form of energy into other forms multiple vocations and for various uses and that can contribute to developing regional socio-economic. Note that the evaluation and enhancement of hydrothermal potential of a given area is based on two fundamental parameters: temperature (energy) and water as a vehicular factor (water reserve). The thermal waters are a renewable energy source for countries to reduce their dependence on foreign energy.

Moreover, these resources have great potential facing the implementation of development projects and programs of spa tourism and health made all over the world. The existence of geothermal anomalies in Morocco the many hot springs and large hot water tanks revealed by hydrogeological wells and, in places, tankers are all signs placing the region as promising targets for geothermal energy in thermo waters. These anomalies highlighted by tectonic and geophysical data, are located mainly in the western Mediterranean due to their relatively recent tectonic activity associated with the convergence of the Eurasian and African plates.

Studies of Hydrotherapy are intended primarily for socio-economic operators highlighting the characteristics of thermo waters of each region and possible scenarios of their uses (spa, sericulture, pisciculture) which will lead to the creation of uses and protection of the environment. This study aims to investigate the integration of sustainable development goals by projects spas in Morocco. To this end, we will investigate, one with local populations and other hot with investor's visitors-tourists, with semi-structured interviews with municipal officials and civil society.

THE SUPER MODEL: A NEW ERA FOR THE SPA & BEAUTY INDUSTRY

BOVERO A.

PhD Founder & President LIFEXCELLENCE, Chairman World Spa Organization, Italy

What are the needs and expectations of new consumers more and more oriented to well-being? Many studies demonstrate that the remedy for stress today is no longer simply traditional relaxation (chaise-longue, herbal teas, half-light, ambient music), but coincides with lightness, satisfaction of the senses, smiles, positive emotions, fun and numerous aspects that have to do with the new sciences of happiness and Psycho-Neuro-Endocrine-Immunology (PNEI).

Market analyses have shown that the age range of wellness tourists has widened over the last decade: an increasing number of singles, families with children and mature people have started to choose wellness as their ideal holiday destination and Spas have become an important driver in the international tourism offering.

What are the new paradigms and the key elements to create a successful project in the Wellness Industry? The answer to these questions can be found in a new approach based on emotions and the SuPER MODEL (Surprise, Play, Enjoy, Relax), which allows to offer new consumers an innovative service, transforming beauty and wellness treatments into unforgettable experiences. We will discover together the secrets of Emotional Spa Experience and the best tools to win in the global and competitive wellness market.

MEDICAL HYDROLOGY: EDUCATION, TRAINING AND CERTIFICATION

CANTISTA P.

MD, PhD of Centro Hospitalar Universitário do Porto, Portugal

Medical Hydrology has a long tradition whose origin is lost in the winds of history.

For many centuries, its exercise stemmed from a tacitly accepted empiricism, similar to what happened with much of the medical art. Today, however, its practice is increasingly based on scientific evidence that is being produced day after day, the result of much more developed scientific research in this area.

In order for this scientific progress to be reflected in daily clinical practice, benefiting our patients, a qualitative evolution in the preparation of Hydrology Doctors is necessary.

In this communication, we present our point of view on how to develop education and training in Thermal Medicine, seeking to reach levels of quality that lead to professional certification complying with European standards.

For this strategy that we have been defending for a long time, several steps have been taken, with objectives sometimes already achieved. Examples are the organizational bodies at the "Union Européenne des Médecins Spécialistes" (UEMS), the foundation of the European Board on Balneology and the recently created European School of Medical Balneology.

We conclude our presentation by presenting the lines of future development, necessary for a solid and true progress in Balneology.

SYMBOLIC AND SACRAMENTAL MEANING OF WATER IN THE EASTERN ORTHODOX AND WESTERN CATHOLIC TRADITIONS

CAPRIO S.

Father and Professor of Russian History and Culture at the Pontifical Oriental Institute in Rome, Italy

Water is the primordial element of divine creation, and the foundation of the Jewish rites of purification, from which Christian Baptism is also derived. Both Eastern and Western traditions preserve it in sacramental and devotional uses, particularly in Orthodoxy, which sees in baptismal immersion the experience of spiritual renewal to be lived in the integral experience of the person.

HOT SPRINGS SANITATION: TOWARDS GLOBAL BEST PRACTICE

COHEN M.

The Extreme Wellness Institute, the Peninsula Hot Springs Group, the Global Wellness Institute Hot Springs Initiative, Australia

Natural geothermal waters have been used for health and healing since the dawn of humanity and form the basis for a multi-billion-dollar global industry. While the health benefits of geothermal waters are universally recognised, there are risks due to naturally occurring and/or human-introduced pathogens. Measuring, monitoring and managing microbial activity in geothermal waters is therefore an issue of significant economic, technological, operational, clinical and regulatory interest. The establishment of a global standard for hot spring sanitation is currently hindered by the unique properties of geothermal waters which may differ based on their source, location, mineral composition and physico-chemical analysis, temperature, microbiota and flow rate. The risk of adverse events may also vary according to bather load, demographics, health status, hygiene practices and behaviour. This presentation will review current practices and regulations and outline some principles that may guide global best practice for hot spring sanitation that respects the integrity of natural waters while minimising risk to staff, bathers and the environment.

THERMAL THERAPY AND MICROBIOTA

CRISTOFOLINI M.

President of Institute “GB Mattei” for research on hydrology and thermal medicine, Trento, Italy

Thermal water is water taken from natural spring; it contains minerals and it is believed to be bacteriologically pure. Through recent metagenomics techniques, however, it has been discovered the presence of many unknown bacteria which were previously difficult to cultivate (1,2). Furthermore, those new bacteria have been found to hold beneficial effects on the immune system, as well as anti-inflammatory properties. Such “good bacteria” can be defined as the “Thermal Microbiota”, and it could be the reason behind the therapeutic activity in thermal treatment (3). In the case of drinking treatments, thermal water could rebalance the activity of the gut microbiota, favouring the improvement of numerous pathologies such as the “Metabolic Syndrome”.

Also, in the presence of skin diseases, the microbiota of the bicarbonate-calcium-magnesium waters is active on the skin microbiota, thus restoring its bio-diversity and helping the cure of certain skin diseases such as Psoriasis and Atopic Dermatitis (4,5). The researches were carried out by CIBIO University of Trento, GB Mattei Institute, Terme di Comano with the help of the Autonomous Province of Trento

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FROM HEALTH CARE TO SELF CARE

DAVIDSON Ch.

Group Chair / Co-Founder of the Peninsula Hot Springs Group, Chair Global Wellness Institute Hot Springs Initiative, Vice-President FEMTEC, Adjunct Professor Victoria University, Australia

How the emerging global hot springs industry can help people, communities and the planet connect, stay well and be well.

Hot mineral springs have a long history as a provider of primary health care and as a community connecting recreational offering. Both enhance the quality of life. Once patients are discharged from specialist practitioner managed thermal clinics they need to maintain the healthy habits and practices they have learnt. Hot springs provide the opportunity to offer an accessible and affordable option to continue on the health journey by maintaining the healthy holistic wellness practices through the enjoyment of bathing.

This paper explores the rapid growth of the global hot springs sector and its potential to extend the time people spend in a state of wellness.

THE CHALLENGE OF PAIN: CAN HYPNOSIS CONTROL YOUR PAIN?

DE BENEDITTIS G.

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An increasing body of evidence has shown that hypnosis can be effective in the down-modulation of the pain sensation in both acute and chronic pain states.

The neural mechanisms underlying hypnotic states and responses to hypnotic suggestions of analgesia remain largely unknown.

Recent evidence has shed, at least, some light on the mystery of pain relief in hypnosis. It is likely that hypnotic suggestions of analgesia may modulate pain processing at multiple levels and sites within the Peripheral and Central Nervous System. At peripheral level, hypnosis may modulate nociceptive input by down-regulating A-delta and C fibres stimulation and reducing sympathetic arousal. At spinal level, sensory analgesia during hypnosis has been shown to be linearly related to a reduction of the nociceptive flexion (R111) reflex, a polysynaptic spinal reflex.

At supraspinal level, neuroimaging and electrophysiological studies have shown that hypnotic suggestions of analgesia can modulate both sensory and affective dimensions of the pain perception (the affective being reduced more than the sensory). Moreover, highly hypnotizable subjects possess stronger attentional filtering abilities than do low hypnotizable subjects. This greater cognitive flexibility might result in better focusing and diverting attention from the nociceptive stimulus as well as better ignoring irrelevant stimuli in the environment. Cognitive control processes are associated with a “supervisory attentional system”, involving the far frontal limbic cortex. Multiple, hierarchical pain control systems during hypnotic

suggestions of analgesia provide a new description of the neurobiological basis of hypnotic analgesia, which has been established as a viable, valid and reliable intervention for controlling acute and chronic pain.

Direct techniques might be helpful in acute pain patients, whereas indirect techniques are often required in chronic pain patients in order to by-pass resistances often present in these patients. Ericksonian strategies for pain control focus upon “symptom manipulation”.

They include:

- a) symptom substitution-transformation;
- b) symptom-restructuring;
- c) symptom-modulation;
- d) symptom-utilization.

Finally hypnoanalytical approach may induce causative healing of pain syndromes related to unconscious conflicts in highly hypnotizable subjects by age regression.

THERMAL WATER CLASSIFICATION A QUICK GUIDE FOR NON HYDROLOGIST PHYSICIANS

DE GRACIA HILS Y.

Balneario De Ariño, Ariño, Spain; Sociedad Española de Hidrología Médica

DE GRACIA HILS J.A

Balneario De Ariño, Ariño, Spain; Sociedad Española de Hidrología Médica; Professional School of Medical Hydrology, Complutense University, Madrid, Spain

CARPINTERO CATERIANO A.

Servicio Aragones de Salud, Spain

ARMIJO, F., MARAVER EYZAGUIRRE F.

Sociedad Española de Hidrología Médica; Professional School of Medical Hydrology, Complutense University, Madrid, Spain

Natural mineral waters defined as subterranean origin with a constant composition their special characteristics, have been officially confirmed as therapeutic agents and public utility declared by the pertinent organisms.

Health resort center provides treatment with Natural Mineral water on Reumathologic and pain related, digestive care, Urinary tract, dermatology and respiratory care.

The aim is to introduce Physicians who are not Hydrologists the different types of Natural mineral water.

**HRV: A RELIABLE BIOMARKER FOR WELLNESS.
SNA/NEUROVEGETATIVE MESSAGES TO OPTIMIZE LIFESTYLE AND
MODULATE STRESS RESPONSES, DEVELOPING A NEW SYNERGY
WITH THERMAL THERAPEUTIC PATHS**

DI IONNA G., BARUZZI G.P., ZANETTE G.

Self Coherence S.r.l Scientific Committee, Milan, Italy

Bio-detection technologies and HRV (Heart Rate Variability) metrics have undergone enormous development in recent years, allowing deeper understanding of what happens inside the body, before changes due to a detrimental lifestyle lead to non-specific and vague symptoms (MUS) or overt pathologies. The parallel evolution of the SPA/Thermal Medicine world is increasingly leading to a model of integrated medicine, precisely calibrated on the person. The analysis of HRV (Heart rate Variability), with its potential to explore the autonomic nervous system, the self-regulation resources and the impact of stress, in addition with endogenous inflammatory dynamics, could be a powerful ally in this sense, to optimize the previously well known and appreciated benefits of thermal therapies. Findings derived from HRV analysis, already scientifically validated in stress medicine, psychotherapy and in the world of sport can also provide, in a fast and non-invasive way, greater awareness to the clinician and the patient on the key points to be modified, reinforcing the therapeutic alliance and potentially improving compliance with the prescribed therapies.

HYDROTHERAPY, MINERAL WATERS AND SUSTAINABLE DEVELOPMENT: ISSUES AND CHALLENGES

DIOURI M.

General Manager of the Tunisian Office of Thermalism and Hydrotherapy;
The Vice-President of FEMTEC, Tunisia

Tunisia has significant reserves of thermal waters and very advantageous geothermal arrangements. With its natural wealth and the leverage effects of the regional economy, Tunisia is a world-renowned destination and a privileged place to invest in hydrotherapy.

The hydrotherapy sector has experienced a multidimensional development which has widened the range of services offered by targeting several generations and several types of services.

Since the 1990s, Tunisia has striven to perpetuate the hydrotherapy sector by relying on the most advanced techniques and international standards in sustainable development approach.

A strategy has been implemented for the development of ecotourism in Tunisia as an approach promoting the conservation of natural resources for future generations, in this context an environmentally friendly quality policy in the hydrotherapy sector has been adopted by the Eco labeling hydrotherapy centers, the Raising awareness of the importance of “environmental capital” for hydrotherapy centers (control at the level of discharges) and the rationalization of the energy consumption.

SPA AND ARCHITECTURE. TRENDS, STRATEGIES, VISIONS FOR A MODERN SPA CULTURE

FAROLDI E.

V. Rector of Polytechnic of Milan, Department of Architecture, Italy

The cultural and disciplinary scenario that characterizes the current debate on the environment, the city and architecture, justifies specialized insights that, in paradigmatic terms, highlight the evolution of thought inherent in the modification of the territory. The transformation of tools for the control and management of environmental resources favours the perimetry of possible solutions to face the qualitative inflection found in urban and sub-urban contexts of the city. The exploration of thematic areas concerning the relationship between architecture and places of health allows us to outline spatial, functional and technological conceptualizations that arose together with the birth of man, Aimed at satisfying the innate desire to guarantee society and the individual high quality of life, durable and ethically sharable. The research and project actions follow each other, based on concepts of planning aimed at highlighting spatial and constructive aspects, to emphasize in a broad way the cultural, historical and innovation roots that every phenomenon of transformation implies. The government of the thermal theme, in its symbolic, architectural and managerial assumptions is the incipit through which to encourage and stimulate actions of cultural and urban regeneration that society, and the places where it resides, recall with declared force, complexity and articulation. The profound anthropological and scientific past that the theme expresses, accompanied by new economic and productive demands, confirms the significance of an investigation projected to recover the principles that thermal architecture has

always incorporated within the anthropized territory and the systems of relationships that are established in it.

The volume is articulated through theoretical and design discussions, to arrive at the definition of the main features for the strategic planning and management of the system, through integrated and transversal disciplinary contributions, in a logic of valorisation of cultural, environmental and material resources. The territory, architecture and technology are the keys to understanding a phenomenon in evident evolution, starting from the historical reasons of thermal architecture to arrive at the definition of management and governance policies of territorial systems, Through the help of up-to-date techniques of analysis, enhancement and promotion of cultural heritage. The thermal architecture, its spaces, the resulting representations, exhibit new projects, evidence of a renewed concept of modern well-being that contemporary society claims. The work investigates new architectural, functional, technological and management scenarios regarding the thermal system and its architectures, analytically exploring the design phases, construction and management of a process of redefinition of contexts and places with high complexity, in order to contribute to the action of spatial and social qualification in place. The territorial and district areas constitute the horizons with which the architecture of well-being is confronted, introducing opportunities and logics of physical, economic and social enhancement of a reality in dynamic evolution: Analyzing the relationship between spas and architecture means confronting one of the fundamental themes of the history of the city, through the re-reading of a cultural infrastructure as an expression of contemporaneity. The spa town is the palimpsest of the rites and history of civilization: its architecture, their character, tell the identity.

BALNEOTHERAPY AND OSTEOARTHRITIS: NEW EVIDENCE FOR AN OLD THERAPY

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CHELESCHI S.

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Osteoarthritis (OA) continues to be one of the leading causes of 'years lived with disability' worldwide. Symptomatic OA is highly prevalent among people aged 50 years and over and is destined to become an ever more important healthcare problem. Current management of OA includes non-pharmacological and pharmacological treatments. Balneotherapy (BT) is one of the most commonly used non-pharmacologic complementary therapies for OA in many European countries, in Japan, Turkey and Israel. Despite its long history and popularity, BT treatment is still the subject of debate and its role in modern medicine continues to be unclear. Various randomized controlled clinical trials a meta-analysis were conducted to assess the efficacy and tolerability of BT in patients with OA, supporting the beneficial effect of BT on pain, function and

quality of life. Cost-effectiveness evaluation confirmed its favorable economic profile.

New evidence derived from pre-clinical studies about the mechanism of action of BT. OA-induced murine models revealed the efficacy of different BT modalities in decreasing pain, inflammation, and improving mobility, as well as in reducing the expression of matrix-degrading enzymes and markers of oxidative stress damage. Different *in vitro* studies analyzed the potential effect of a mineral water, as a whole, or of a mineral element, demonstrating their anti-inflammatory, antioxidant, and chondroprotective properties in OA cartilage, synoviocytes and chondrocytes cultures. Furthermore, new evidence obtained from *in vivo* and *in vitro* findings, suggest the possible role of BT in regulating the expression profile of a pattern of miRNA involved in the pathogenesis of OA. The presented data are promising and confirm BT as an effective complementary approach in the management of OA.

THERMAL MUD AND CELLULITE: OUR EXPERIENCE

FORNASINI F.

Medical director of GB HOTELS, Abano Terme, Padua, Italy

Cellulite is a very common lipodystrophy syndrome. A lot of women want thermal mud for cellulite. We looked for whether there is a correlation between thermal mud treatments and the improvement of cellulite and the reduction of BIA. We have enrolled 19 women that have done 6 spa therapy, continuing their habitual life. We have studied the effect of spa therapy performing the cellulite program with Soft FX, the BIA measurement and the anthropometric measurements.

The cellulite stage improved in 68% of patients; in 63% there was a reduction of hot spots number, therefore a reduction in oedema. All the patients who had small palpable nodules no longer had this clinical sign, and in 47% the orange peel appearance was significantly improved. In 68% of patients BIA reduced. Mud therapy, thanks to the superficial anti-oedema action and metabolic action, in particular on the fat tissue, can be a valid approach in the medical treatment of cellulite.

COMPARISON OF LONG-TERM REHABILITATION OUTCOMES IN PATIENTS WITH POST-COVID-19 SYNDROME USING DIFFERENT REHABILITATION METHODS

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Aim of the study – to evaluate the long-term outcomes of rehabilitation programs for post-Covid-19 syndrome and their expected effectiveness.

Materials and methods: The study was conducted between August 2021 and March 2022. A prospective cohort study design was used. A total of 113 patients (U 09.9) undergoing rehabilitation for post-Covid-19 syndrome (30 men and 83 women, 26.55% and 73.45% respectively) from 4 medical institutions were included in the study: Krasnodar Territory (n=34), the Republic of Buryatia (n=29), Moscow (n=25), Omsk region (n=25). The average age of the participants was 58.4 years, ranging from 21 to 85 years, [(Q1-3) 48; 70 years]. The groups were comparable in terms of gender, age and rehabilitation routing scale. The patients in the first group received a rehabilitation programs using respiratory rehabilitation principles and techniques, while the other groups received interventions using different rehabilitation protocols (eastern medicine techniques; balneotherapy and physiotherapy; self-training and physical exercises). During the follow-up period, the following were registered in the groups: the frequency of hospitalizations due to exacerbation of post-Covid-19 syndrome, death or disability and the need for other types of care. At the end of the study, the patients were tested using the Borg questionnaire (dyspnea severity).

The expected effectiveness was calculated using a statistical method - a logistic regression. To create a logistic regression model, the maximum likelihood method was used. The binary variable used was the value obtained when testing the patient on the Borg scale (presence or absence of dyspnea 6 months after the treatment or refusal of admission for rehabilitation). The significance of differences was considered to be established at $p < 0.05$. The relative risks of the frequency of new hospital admissions were also calculated in the patient groups and an intergroup comparison of the need for different types of care was made.

Statistical processing was performed using Statistica for Windows, v.8.0 (StatSoft Inc., USA).

The study was supported by the Independent Ethics Committee of Federal State Budgetary Institution National Medical Research Center for Rehabilitation and Balneology of the Ministry of Health of Russia (Minutes No. 6 of 26.07.2021).

Results: A predictive model was constructed to estimate the expected effectiveness of a rehabilitation programme as evaluated by the disappearance of dyspnea (the Borg scale). The study variables used were rehabilitation strategies for the 2nd stage of rehabilitation (carried out after discharge from infectious disease units) in different healthcare facilities (polyclinic, therapeutic in-patient facility, rehabilitation centre). The sensitivity of the logistic regression method was 91.3% and the specificity was 55.0%. The overall accuracy of the model under study was 84.2%. The best expected effectiveness of the rehabilitation was found in the Federal Rehabilitation Centre (Moscow), ($\beta = -1.788685$, $p = 0.009964604$), with a slightly lower expected effectiveness of rehabilitation in a therapeutic in-patient facility ($\beta = -0.08613838$,

$p=0.9207579$) and the lowest expected effectiveness in a polyclinic setting ($\beta=0.7436227$, $p=0.5403432$). Hosmer-Lemeshow goodness-of-fit test ($p>0.05$) was used to check the consistency of the model with the raw data. The results of the validation of the model in the 'exam' sampling were as follows: specificity - 54.54%, sensitivity - 91.3%, overall accuracy - 84.21%, which indicates the stability of the model.

The patients treated as outpatients were more likely and more frequently to seek treatment for post-Covid-19 symptoms ($\chi^2=6.635$, $p=0.001$) and to be hospitalized ($\chi^2=5.357$, $p=0.021$) than the patients in the other groups. The relative risk (RR) of hospitalisations in the cohort of patients treated in the Federal rehabilitation centre, Moscow, was 0.143 ± 1.031 (S) (CI: 0.019; 1.078). The reduction in the relative risk of hospital admissions for patients with post-Covid-19 syndrome using this rehabilitation technique was 85.7%.

Conclusion: The best expected effectiveness of the rehabilitation was found in the Federal rehabilitation centre, Moscow ($\beta=-1.788685$, $p=0.009964604$), with a slightly lower expected effectiveness of the rehabilitation in a therapeutic hospital ($\beta=-0.08613838$, $p=0.9207579$) and the lowest expected effectiveness of the rehabilitation was registered in a polyclinic setting ($\beta=0.7436227$, $p=0.5403432$).

The best outcomes in patients with post-Covid-19 syndrome in the following 6 months were observed after application of the rehabilitation programme developed according to the principles of the respiratory rehabilitation in the Federal rehabilitation centre, Moscow.

THERAPEUTIC ENVIRONMENTAL FACTORS IN THE CLIMATIC SPA LÁZNĚ KYNŽVART IN THE CZECH REPUBLIC

HLOUSKOVA P.

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Pinenes are among the important representatives of the monoterpenes, occurring mainly in plants where they are part of the resins of conifers. Chemically, they are ten-carbon compounds formed by joining two isoprene units and are referred to as bioactive molecules due to their therapeutic effect. At the same time also the number of negative air ions is an important indicator of air quality. Our measurements aimed to determine the concentration of pinenes and air ions at ten selected sites in the surroundings of spa Lázně Kynžvart, which uses the climate as a natural healing resource. The results of this work showed enhanced levels of pinene and negative ions in the same sampling sites of this area as compared to others. The use of natural inhalation of these compounds in controlled and medically monitored field treatments of patients could potentiate the therapeutic effect of the spa.

THE ROLE OF COMPLEX SPA TREATMENT IN THE MENTAL HEALTH PREVENTION

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Mental health is currently a great challenge for a global society and an important part of the public health mission. According to the WHO, between 1990 and 2013, the number of people suffering from depression and/or anxiety increased by nearly 50%, and in 2020 there were about 1 billion people with mental disorders worldwide. The COVID-19 pandemic also had a significant negative impact on people's mental health.

Many complications and lengthy recovery can be avoided by preventing these problems early. One of the most important components of prevention is a complex spa treatment. The results of many scientific studies confirm that the spa complex treatment positively impacts sleep, stress, anxiety, and depression in middle-aged working people.

This presentation aims to demonstrate the results of the Institute of Spa and Balneology research and to confirm the impact of one-week spa treatment on the mood states of spa patients.

ILAB - CONCEPT FOR MODERN BALNEOLOGICAL AND SPA MEDICINE RESEARCH IN THE CZECH REPUBLIC:

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Changing world, especially after COVID-19 pandemic and even in current political and economic situation in Europe, requires new, modern concept of research in the field of balneology and spa medicine as important component of health care system. Balneology and spa medicine has a long tradition in the Czech Republic, presented by three great spas (Karlovy Vary, Mariánské Lázně, Frantiskovy Lázně) of UNESCO World Heritage health, nature and culture of 11 Great Spa Towns of Europe.

ILAB (Institute of spa and balneology, public research institution) is a research institution founded in 2019 to restore research in balneology and spa medicine in the Czech Republic.

Main goals for the future are to establish new modern spa medicine research in diseases causing severe harm in the Czech population, research on local natural remedies, and social and economic aspects of spa and balneology.

PHYSIOTHERAPEUTIC METHODS IN RAHABILITATION OF PATIENTS WITH CAUDA "EGUINA SYNDROM"

KULIKOVA N. G.

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Skeletal muscle atrophy is a loss of muscle size and strength that occurs with prolonged malnutrition, bed rest, injuries of nerve and skeletal muscles, neurological and endocrine diseases, as well as after prolonged immobilization, including those associated with coronavirus infections, forcing specialists to review treatment protocols and more actively include non-drug treatments with a high evidence base, both safe and low-load with drugs. There is no doubt that these approaches deserve close attention, as they can be significant in terms of medical and cost-effectiveness. The most important applies to patients with the so-called "ponytail". There are not many such patients, since the disease is characterized by the defeat of all fibers (thin, thick, myelin and others) involved in the formation of the spinal cord at the level of Th12-L1 of the spinal cord, causing complete damage to the lower.

We conducted a meta-analysis of the use of physiotherapy methods in patients with "horse tail" on the basis of the world scientific and practical literature. Our own results allow us to consider with a high degree of probability the magnetopulse and acupuncture method of non-drug exposure as highly effective. We demonstrate the electroneuromyography of our patients after 6-9 months of rehabilitation.

COMPREHENSIVE REHABILITACIÓN PROTOCOL IN THERMAL CENTERS FOR PATIENTS AFTER SARS-COV-2 COVID-19 VIRUS INFECTION IN CUBA.

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The Covid 19 Disease was declared a pandemic by the World Health Organization on March 11, 2020 and since then it has become a global public threat, taking health systems in all countries to extreme situations at times of its maximum presence and causing loss of human life, excessive spending on health budgets, global economic damage and among other consequences, a significant number of sequelae in survivors and in those who did not suffer from the disease due to confinement and its repercussions. The sequelae with the greatest impact found are respiratory, psychological, osteomyoarticular, neurological, cardiovascular, kidney, nutritional, and immunological. The general objective of this work is to highlight the potential of thermal centers through mineral-medicinal waters, mineral-medicinal mud and climatotherapy, among others, in the comprehensive recovery of patients affected by SARS-CoV-2 to COVID-19, through a protocol of comprehensive rehabilitation treatment, starting with San Diego de los Baños in Pinar del Rio and Ciego Montero in the province of Cienfuegos in Cuba. For this, international databases, expert opinions, good practice guides and the Cuban experience of more than 100 years in Medical Hydrology were reviewed. Given that patients after hospital discharge, maintain symptoms, such as respiratory distress, emotional disorders, involvement of the osteomyoarticular system, cough, fatigue, cognitive disorders among others, they will be treated comprehensively by a

multidisciplinary team to restore their physical, psychological and social of the same. It is concluded that through this protocol, comprehensive, specialized, multidisciplinary, personalized and safe medical care will be provided according to national and international standards and the results will be published in high-impact scientific journals.

METHODOLOGY APPLIED TO DETERMINE THE CURATIVE PROPERTIES OF CERTAIN AREAS

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To this day, the curative properties of an area are determined on the base of the empirical experience of using the area as a climatic resort. Evidence-based medicine requires studies proving the therapeutic or curative effect of a stay in a particular area. For businesses that invest in resorts, it is necessary to evaluate the curative potential of an area at the planning stage of a resort construction, when the data on the effectiveness of treatment is not available yet. To develop a business plan, it is important to determine the expected effectiveness of the therapeutic properties of the area, the boundaries of the area with a therapeutic climate, the routes of the terrainkurs. In addition, there should be criteria for comparing resorts in different regions in terms of therapeutic effect, which would identify the most promising areas of development. This task is incredibly complex. To address it, a study was conducted of moderate-climate resorts. The study involved 120 healthy volunteers. The study was conducted in all seasons of the year, to analyze the annual dynamics. A model predicting the effect of microclimatic and landscape factors on micro blood flow, micro lymph flow and cell metabolism: temperature and relative air humidity in the surface layer (1 m), relief slope, NDVI index was developed. This model allows you to predict the curative effects on the human body using remote satellite data, which allows, while planning the boundaries of resorts, conservation areas and

terrainkur routes, to process vast amounts of information at minimal time and financial costs.

MODULATION OF THE PSORIASIS-ASSOCIATED MICROBIOME WITH THERMAL WATER AT COMANO TERME

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Psoriasis (PSO) is an autoimmune condition affecting 2-3% of the worldwide population, lacking definitive treatments. Balneotherapy with thermal spring water proved effective in the treatment of PSO lesions but the underlying mechanisms are not fully elucidated. Previous works suggested that therapy leads to skin microbiome amelioration. Here, we report changes in skin microbiome composition and their association with PSO severity indexes in a cohort of 57 patients enrolled at Comano Terme. After balneotherapy, PSO severity indexes improved in 70% of patients and their skin microbiome composition was enriched in commensal species like *Corynebacterium* sp. and *Staphylococcus epidermidis*. We moreover identified bacterial species associated with a lack of improvement of PSO lesions (e.g. *Massilia* sp.). We additionally showed that balneotherapy modulates the faecal microbiome, with an increase in bacteria previously associated with metabolic health, including *Roseburia hominis*

THE THERMAL REHABILITATION: REALITY AND PERSPECTIVES

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Traditional Health resort interventions includes balneotherapy (immersion in thermal waters, balneological interventions with natural gases, mud applications and other traditional remedies), and climatotherapy aimed at health promotion, prevention, therapy and rehabilitation. In addition to the well-known effects of health resort medicine on musculoskeletal and rheumatic diseases, increasing evidence in the literature is nowadays suggesting that the spa therapy applications can be much more comprehensive, especially when combined with rehabilitation strategies. Indeed, through the exploitation of several spa interventions, health resort therapy can contribute towards achieving global health, defined as a state of bio-psycho-social well-being to which contribute medical, psychological, social, cultural and environmental processes. Recent evidence is showing how health resort rehabilitation can also be a resource for patients with neurological disorders, especially for patients suffering from Parkinson's disease or disability in chronic stroke survivors, due to its beneficial effects on motor symptoms and quality of life. Furthermore, spa rehabilitation appear to be also promising in the management of patients with residual symptomatology after SARS-CoV-2 infection. Including the chance to provide health education and promotion strategies, health resort therapy can also contribute to the prevention of several diseases

and to the education to well ageing and healthy lifestyle. The possibility of integrating Telemedicine tools, Telerehabilitation, new wearable devices and innovative technologies into traditional spa treatments constitutes a further opportunity to be exploited in this environment.

The number of subjects with rehabilitation needs is growing quickly as a result of population increase and aging and it is estimated that one in every three people in the world during the entire life will benefit from rehabilitation. Health resort therapy can be exploited to expand the accessibility of rehabilitation services close to communities, resulting in significant cost savings for patients and healthcare systems, and in an overall improvement in quality of life, especially when related to health. The spa environment might also promote intergenerational interactions, which would increase the participation to rehabilitative activities of older subjects, and social integration between healthy subjects and patients with disabilities, both of which would enhance quality of life.

In conclusion, the increased interest in global health and the need for a restored sociability left by the pandemic will change the role of health resort therapy interventions, strengthening their preventive, therapeutic, rehabilitative, educative and social role. Therefore, research services and National Health Systems should collaborate to generate specialized global health-oriented protocols in light of all these factors.

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EXERCISE FOR WELLBEING: THE ROLE OF THERMAL AND OUTDOOR NATURAL SETTINGS TO TRANSLATE EVIDENCE INTO PRACTICE

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In the last 40 years, scientific research has produced countless evidences regarding the benefits of continuous physical activity, in terms of both rehabilitation and promotion of "wellbeing" in the general population. Whereas physical exercise is prescribed as a real drug for secondary prevention of many pathologies, the scientific community is now facing the problem of the promotion and dosage of this drug for primary prevention at the general population level. Indeed, physical activity plans are currently poorly followed, with a compliance level usually around 50% at 6 months after the initial proposal.

To overcome the psychological and social barriers to the implementation of physical exercise on a large scale, outdoor environments and SPAs are taken into consideration as new "attractors" for the proposal of structured exercise plans to the general population. In SPAs, thermal treatments can be associated to personalized physical activities, which can then be routinely performed also in everyday life. Similarly, outdoor activities (e.g., nordic walking, biking, orienteering, forest bathing) may improve the attitude to exercise, taking advantage of a natural setting and of the time spent outside of the structured society.

SPAs and natural outdoor environments could thus become an important interface for the proposal and initial administration of physical exercise to the general population, thereby improving the overall adherence to exercise prescription and optimizing the long-term benefits of a regular physical activity.

THE INTEGRATION OF WATER

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Among the flowing waters, if water covers 71% of the waters of the globe this means that 71% of salts and waters that cover the earth are responsible for climates, catastrophes, seasons, evolutions and life. Life changes and everything changes because the water of which my grandfather saw the paintings of dawn and somehow adapted to it and its deepest being is no longer the same. It was understood by our ancestors that the adaptation to the climates and the change of these resulted in the ways of being of the earth and people we have not yet understood.

It is no coincidence that from Hippocrates to Paracelsus the philosophy and practice of medicine, of dietetics derive their way of being and positioning themselves in nature.

It was nature that structured man's way of being and the opposite of climate. Well understood by the man of antiquity, the way of being wise was focused on the man whose principles he inspired and from whom he derived the knowledge he used to harmonize with the cosmos. This explains why the integration of water is the cornerstone of the human environment connection and why the adaptation of man with the study of nature is the basis of what we know today as medicine. A specific application of this art and its laws will be the basis of what is known as Chinese medicine, traditional medicine, Ayurvedic medicine, Tibetan medicine, Mongolian medicine and thermal medicine.

LIFESTYLE CHANGE AND RENEWED WELLBEING IS A COMMON GOAL OF RETREAT GUESTS IN DIFFERENT LOCATIONS AROUND THE WORLD

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This study thematic analysed 132 English free text responses to a cross-sectional survey of retreat guests in different locations around the world. The five major themes were: perceived positive impact on wellbeing, connection to people and place, retreat affordability and accessibility, meaningful experiences, and lifestyle change. Respondents resided in 19 countries and attended retreats in 14 countries. The mechanisms for lifestyle change and the impact on wellbeing in a retreat setting are complex and diverse. Consideration of how retreat guests integrate techniques into daily life after the immersive retreat period is needed. This includes influencing habit formation, behaviour change, and wellness routines. Supporting guests to sustain practices in everyday life, through tools as well as financial incentives could see retreats provide more meaningful offerings.

SPA CURE OR VACATION? THE THERAPEUTIC RELIEF FOR RETREAT GUESTS WITH MEDICAL CONDITIONS

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Wellness tourism reached \$720 billion USD in 2019 and took a major hit in 2020 with the advent of the Covid-19 pandemic. The Global Wellness Institute calculates a 21% annual growth rate projected for wellness tourism through 2025 which reflects new traveller values (a quest for nature, sustainability practices, and mental wellness). Lodging including destination spas, health resorts, ashrams and retreats make up the biggest proportion (\$115USD billion) of this expenditure. Yet, very little research has investigated the health impact of these experiences. There has been much historical debate over whether health retreats serve the purposes of vacation/relaxation or therapy/cure. European 'spa cures/vacations' have long been considered a source of therapeutic relief for patients with chronic diseases and pain, particularly with the history of traditional thermal sites. Until recently some guests have received state and health insurance funding to support their stay, yet, in recent years many governments have reduced this support. The global retreat survey was conducted in nine languages to assess the perceived benefits and received over 3708 responses. Most respondents 60% (n=1299) were female and the mean age was 58y/o (SD=21, n=2182). Some respondents received therapies during the retreat including massage (29.4%, n=1417), balneotherapy/thermal spring water bathing (20.0%, n=965), mud

treatment (10.6%, n=513), hydrotherapy (10.6%, n=510), physiotherapy (9.4%, n=451) or beauty therapy (8.8%, n=425). The most popular recreational activities included swimming (17.7%, n=1284), sauna 14.6%, (n=1060), nature walks (14.1%, n=1025), hot springs/hot pool (14.0%, n=1013), gym (10.3%, n=749) or steam room (10.2%, n=737). Respondents with medical conditions reported considerable (44.9%, n=1420/3160) or slight relief (25.9%, n=818) for their medical conditions with considerable relief most reported for back pain (57.1%, n=238), arthritis (50.0%, n=184), stress (64.3%, n=137) and fatigue (61.2%, n=131). The study found guests attend retreats to relax and regain wellbeing and retreat experiences appear to improve overall health and provide relief from chronic diseases. Further research including longitudinal and randomised controlled studies, are required to determine the extent and longevity of wellbeing benefits and the populations most likely to benefit.

THE THERAPEUTIC POWER OF NATURE: FOREST BATHING AND BIOENERGETIC LANDSCAPE

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Human beings have lived more than 99.5% of their evolutionary time in a completely natural environment. According to many authors, this has left us with a deep neurological need to be in contact with Nature and other living beings, which the sociologist Edward O. Wilson has called “Biophilia”.

However, most of us forgotten about it, developing the habit of considering nature just for vacation time or a decorative theme This push us to lose the awareness of the profound healing benefits of being in close contact with Nature.

Contemporary society increasingly lives in urbanized areas and inside buildings, with a heavy reliance on technology and little or no access to natural spaces. This lifestyle contrasts with our innate Biophilia and, as a result, a large part of the population suffers from even severe disorders, including chronic stress and various psychological, emotional and behavioural disorders, including the deterioration of social relationships.

Over the past 40 years, studies from environmental psychology and various branches of medicine have shown how frequenting urban and natural green areas has favourable effects on our psychophysical and emotional health. Trees, for example, can act on the immune system in particular, thanks to aromatic substances (monoterpenes) emanating from certain forest species, which are referred to in the practice of *Forest Bathing*. In addition, recent studies developed in the *Bioenergetic Landscapes* technique verify how even the weak bioelectromagnetic fields emitted by trees can positively influence the energy state of our organs. New research is

in progress, in order to better understand how nature and vegetation should be given priority in the prevention and support of contemporary pathologies.

LOW DOSE CYTOKINE THERAPY FOR HEALTHY LONGEVITY. A NOVEL PHARMACOLOGY FOR A SYSTEMIC, AND MULTI-LEVEL APPROACH TO AGING

PERRA A.

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From the second half of the 1980s, the research in the field of Molecular Biology and Physiology highlighted the fundamental role of signaling molecules (hormones, neuropeptides, cytokines, and growth factors) in all physiological and pathological processes by drawing new pharmacological scenarios. However, the development of new drugs based on signaling molecules has been slowed down by the side effects that these molecules show when used at doses above the minimum pharmacologically active doses that are normally in use.

In the early 1990s, in Italy, a new pharmacological and medical trend was developed: *Low Dose Medicine*. Applying innovative pharmaceutical techniques, it has been able to considerably reduce the degree of concentration of signaling molecules-based medications. Over ten years of scientific research has shown, firstly by baseline research on cells or animal models, and then in clinical trials, that the very low doses (sub-nanomolar) produce the same biological effects (and therefore therapeutic) without the side effects attributable at high doses.

The therapeutic use of LDM for anti-aging purposes is particularly intriguing since it offers the chance to act on some of the key points of aging and elderly's frailty; particularly: i) mitochondria function impairment, ii) reduced sensitivity of hormones and growth factors cell receptors, iii) progressive inflammatory processes.

The biggest part of the research in LDM has been focused on inflammation and inflammatory diseases, and this is particularly

interesting for the theme “Longevity”. In fact, inflammation plays a crucial role in the physiological processes of aging and especially that “silent killer” which is the *low grade chronic systemic inflammation*. Both basic research studies and clinical trials have shown the effectiveness of low dose cytokines and growth factors in controlling systemic as well as organ-specific aging-related inflammatory markers.

The possibility to physiologically control inflammation markers represents the new line for a sustainable preventive medicine and for a healthy longevity.

THERMAE AND SUSTAINABILITY: HOTSPRINGS DON'T NEED GAS

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The baths are located in the closest parts of the earth's crust at the warm heart of the earth that has favored access to the heat of the water and the beneficial therapeutic effects where present. The use of steam, heat, hot water in general to heat the thermal facilities was logical and always applied until the advent of fossil fuels that made us forget the technological wisdom used until the early '900.

Geothermal knowledge was developed to produce electricity in extremely low temperature areas on the planet but has been forgotten for the thermoregulation of environments. Thanks to geothermal probes and hydrothermal exchange in water and the invention of heat pumps (the Carnot cycle) since the end of the last century the value of low or medium temperature (enthalpy) has been rediscovered to heat and cool buildings and pools where necessary. In Europe there are over three million plants with heat pumps that use electricity instead of fossil fuels and now thanks to the spread of photovoltaics also an electricity from renewable sources.

The other turning point (also this time Italian as it was for the invention of the electric geothermal of Count Ginori Conti) is that of the invention and diffusion of the heat pumps at HIGH TEMPERATURE with which you can feed buildings of any size in total replacement of gas or gas oil because the temperature of the water produced reaches up to 90 lbs centigrade and energy efficiency obtained is six times better than any type of fossil boiler even the most performing.

The combination of renewable energy and high temperature geothermal heat pumps makes it possible the energy autonomy and the radical reduction of costs.

The return to the origins becomes possible and convenient thanks to the eco-innovations that can be visited by downloading the app for IOS and ANDROID “Ecofuturo”.

INAIL: BALNEOLOGY FOR A GLOBAL PROTECTION OF THE HEALTH OF THE DISABLED IN AN INDUSTRIAL ACCIDENT. MODELS OF INTEGRATION

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INAIL as early as 1939, counted thermal cures as "special cures", recognizing them as a treatment tool suitable for the restoration of the psychophysical integrity and working capacity.

The provision of such cures is now done by a specific Protocol that identifies the addressees, pathologies, thermal treatments benefits, and ancillary economic benefits.

The Law no. 415/2018, provided for Inail the possibility of investment in the spa sector concerning the rehabilitation needs of its insured and also to allow the experimentation of new models of care. For this purpose, the formation of a National scientific group is planned, coordinated by the Central health supraindendency Inail, with the task of testing new models of integrated rehabilitative thermal treatments, aimed at demonstrating the curative effectiveness of spa treatments and the standardization of innovative rehabilitation protocols for work-related diseases.

A MODEL OF INTEGRATION BETWEEN THERMALISM AND COMPLEMENTARY MEDICINES IN HOTSPRINGS

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The different Medicines approach the disease in a completely different way. In fact, Conventional Medicine has a mechanistic and reductivist approach. On the other hand? Complementary? (TRADITIONAL). Medicines have an INTEGRATED approach. Body, Mind, Emotions are interconnected; the energetic relationships between organs and systems; the Doctor-Patient relationship is an important part of the therapeutic path. Therapy used are: food, supplements, medicinal plants, acupuncture, Qi-Gong. Thermal medicine is a Conventional Medicine; it uses natural elements as if they were drugs, and received EBM recognition for specific pathologies. A path of INTEGRATION between Complementary Medicine and Thermal Medicine was attempted at the Terme di Riolo (ITALY) from 1996 to 2019. The pathologies treated concerned disorders of the pulmonary system, the Osteo and venous system, child prevention.

PUBLIC-PRIVATE PARTNERSHIPS (PPPs): AN OPPORTUNITY FOR THE FUTURE OF MEDICAL SPAs?

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Over the last few decades, the ways and tools whereby public authorities, including local health authorities, organise and supply services of general interest have significantly changed. This has introduced new legal and organisational frameworks to better match citizens' needs. Accordingly, along with the traditional government-owned agencies, new organisational and legal models have developed, in which the public sector and the market couple together so as to pursue a common goal.

In this respect, public-private partnerships (PPPs) represent a widespread phenomenon through which private companies and entrepreneurs co-operate with public authorities to define the most adequate legal and organisational tool whereby to accomplish a collective purpose.

Some of the issues dealt with during the lectures will be as follows:

1. What are PPPs?
2. Are they always viable?
3. Pros and cons of the legal framework
4. Do PPPs have an impact on the way public authorities comply with their obligations?
5. What role do they play in supplying health care services?
6. What is the room for NGOs in PPPs?
7. What is the duration of a PPP?
8. How is it possible to define the cooperation between the public sector and the market?
9. Are PPPs dangerous for human rights?

THE MAIN CHARACTERS

PPPs consist of an agreement between governments/public authorities/local health agencies and the private sector for the provision of a public good or service.

Accordingly, they generally but not always involve:

- long term contracts
- user charges and/or payments flowing between the parties
- shared investments but mainly private
- risk sharing by the parties

Partnership between local authorities and private (for or not-for-profit) organizations implies:

- co-funding
- sharing of risks and responsibilities
- a certain degree of complexity
- the possibility of institutionalized PPPs

Given their characters, PPPs may represent a viable legal and organisational tool to promote thermal activities and provisions. In this respect, PPPs may also serve as an effective legal framework to group together health authorities and private investors.

DIGITALIZATION AND REVENUE MANAGEMENT, INEXCUSABLE FUTURE OF SPA CENTRE

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The Current Situation. Why Now?

In recent years, digitalization has spread exponentially. The transformation that the use of the internet has brought in the relationships that users establish with tourism companies is evident. According to a study by Cognodata, 80% of hospitality companies believe that the sector will grow thanks to digitalization.

Nowadays, users have devices to plan their trips independently and immediately, forgetting about the conventional sales channels. Through the web, they can buy tickets and book any tourist centre.

According to a study by Google Travel, 74% of travellers plan their trips online and only 13% book them through conventional agencies. According to Tripadvisor, 45% of users do so via mobile.

Digitalization has provided consumers with direct access to travel information and destinations more suited to their preferences, choice and booking, accessibility and speed, thus significantly improving their experience during the purchasing process.

In short, customers want companies to learn to value their opinions and preferences, demanding to get the most out of their investment by being able to comfortably plan and experience their holidays with the click of a button.

Why is digitization so important?

At this point, it is clear that business models or economic sectors that are not committed to digitalization are doomed to failure. It is not just a tool, it is a change of mentality that is completely revolutionizing the purchasing model and the user experience.

The digital revolution has positively influenced sales strategies in the tourism sectors. The implementation of digitalization strengthens the company's positioning in relation to the competition and promotes the development of new links between users and the organization, regardless of their place of origin. It makes it possible to attract new customers and facilitates the development of bonds of trust, as it contributes to improving the user's experience.

In addition to that, one of the biggest advantages of digital modernization is the cost reduction that comes with streamlined processes and shorter response times. This improves productivity, reduces errors and boosts the company's communication and brand value.

How can we succeed in this new era?

The hydrothermal tourism sector has been able to adapt to digitalization in terms of information.

A high percentage of hydrothermal centres offer information about their services and the benefits they provide to the user, all through their websites and social networks. This development has encouraged the interest in our sector, but Where are we lagging behind the other tourism sectors? How can we improve the user experience in their choice and purchase process? How can we also

increase our profits? The answer is clear, by applying REVENUE MANAGEMENT.

The concept of Revenue Management began to develop in 1985, when airlines developed an automated system that offered different prices depending on how far in advance the booking was made and discounts associated with different cancellation policies. They managed to increase their revenues and profits considerably.

The hotel sector, with a product with similar characteristics, began to apply it a few years later and managed to increase its income significantly.

Nowadays, Revenue Management is defined as “Selling the right product to the right customer, at the right moment, for the right price and through the right distribution channel, with the best cost efficiency”.

The thermal sector is starting to apply this strategy as it shares, with the airlines and the hotel sector, the basic characteristics for the application of RM:

1. Having a limited service or product.
2. High fixed costs and low variable costs.
3. Perishable service or product.
4. Possibility of advance sales.
5. Market segmentation.

Our aim

Hydrothermal centres have all the characteristics to develop this strategy, which allows them to offer each user the service that best suits their needs and provides them with an appropriate price. But to achieve this, it is essential to digitalize the agenda and the booking engine, so the user is able to make immediate online bookings at a specific time and at different rates. Today, we already have specialized software in the sector to digitize this process in hydrothermal centres.

Its implementation allows the development of the complete Revenue Management process. It is cyclical and consists of 5 parts that feed off each other:

1. Data collection.
2. Market segmentation.
3. Forecasting.
4. Optimization.
5. Dynamic re-evaluation.

Moreover, the data collected allows us to measure the development of the strategy through KPI's

(Key Performance Indicator):

- Occupancy Rate or Spa Utilization Rate (SUR)
- Average Daily Rate (ADR) or Average Treatment Rate (ATR)
- Revenue per available Treatment/Hour (RevPATH)
- Total Revenue per Customer (TRevPEC)

The application of RM in hydrothermal centres allows to:

- Improve the user's experience in the booking and purchasing process, as well as offering an adequate price.
- Improve positioning and interaction with users and potential customers.
- Spread the demand across all days of the week and months of the year.
- Increase KPI's

And with all this, increase profits.

Conclusion

The first pilot centre in which Gala Thermal has implemented Revenue Management strategies after prior digitization, has seen changes since the first year, starting with the centre's operations.

The percentage of sales through its own website has increased from 5% of total sales in January 2022 to 27% in August 2022. Online sales have increased by 3% on a monthly basis. All online sales are prepaid and come with a reservation and time, when they arrive at the spa, they only have to notify their arrival and access directly. Digitalization has freed up reception staff, they take fewer booking calls and focus their time on up-selling. They can now recommend to each user the treatment that best suits their needs and price sensitivity. It has increased the information available to the user, their trust in the centre and improved their experience. In addition, it has improved production by allowing them to increase the rate at peak times and by creating promotions at specific times with less demand.

THE IMPORTANCE OF BALNEO-PHYSICAL-KINETIC TREATMENT IN THE ELDERLY PATIENTS

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Aging is one of the most fascinating biological processes. The neuroendocrine theory of aging is based on the fact that no component of the human body can act in isolation from the nervous and endocrine systems.

The beneficial effects of the balneal treatment with Techirghiol sapropelic mud include the changes in the hormonal secretions, as insulin-like growth factor 1 with a potentially positive impact on the control of some biological aging processes.

Regular and active physical exercise slows down the aging process of the body and helps to extend the life span of a human being.

The beneficial effects of the balneal treatment include the changes in the hormonal secretions, with potentially positive effect on the control of aging.

References:

Pub Med, Cochrane Rehabilitation, Scopus.

CHANGING THE OLD PARADIGM OF BALNEOTHERAPY

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To discover new scientific horizons to explain how balneal factors act is needed a multi- and trans disciplinary approach.

1. Can the evaluation of energy, entropy and information exchanges increase the knowledge and understanding of balneotherapy effects on human body physiology?
2. Can balneal environment be considered an epigenetic factor? Can balneal cure balance epigenetic imbalance?
3. Cure duration is long enough that human body receives health information to reset the disturbed parameters, and is this aspect suitable for consideration in the information theory?
4. Is hormesis a pathway to investigate? Can hormetic effect be activated by balneal course?
5. Are neuroendocrine and immunological responses applied in prevention of non-communicable diseases?
6. Virtual reality, augmented reality, metaverse, are already present in medicine. Is here a place for classic balneotherapy?

Only trans- and multi -disciplinary approach can lead balneology in third millennium.

WATER, FUNDAMENTAL ELEMENT OF BEING

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Our approach is an attempt to highlight the subtle representation that marks the traditional vision of Water as a fundamental element of Being, as this image was formed in perennial philosophy. From a metaphysical perspective, being in opposition to Fire, Water represents the support of liquidity and derives directly from the Principle. In a proper and characteristic way, Water takes up alluvium, it is continuously widening, and that is why it is symbolized in Judeo-Christian spirituality by the horizontal arm of the cross. In medical sciences we can identify numerous professional judgements, applications and treatments that derive from the metaphysical representation of Water and from their concrete healing properties, as an element represented in an overwhelming proportion in the composition of the human body.

NANCY THERMALE: A NEW URBAN SPA IN FRANCE IN 2023

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The metropolis of Nancy is reviving its thermal heritage and making a strong comeback in the world of thermalism with the creation of a modern spa integrated into the urban landscape in the heart of a metropolis of over 270,000 inhabitants. The vice-president of the grand- Nancy metropolis will illustrate this point and present the territorial ambition around this project with local, national and international influence.

No quality care without quality training and research.

It is from the creation of the European institute of thermalism that will find a framework for training and research which exist in this territory for more than 15 years and which have allowed new

therapeutic possibilities thanks to the natural mineral water of Lorraine area.

It is a new therapeutic offer which is based on a physical-chemical work (on water) as well as a clinical work on the management of gonarthrosis, rehabilitation in aquatic environment after knee ligamentoplasty in sportsmen, or to come on the interest of post-operative rehabilitation in thermal environment versus conventional management after arthroscopic repair of the rotator cuff.

These first clinical researches will be completed by other studies allowing to answer indications on venous pathologies (Therma 'veine) and the one on the efficiency of thermal treatment (hydrokinesitherapy and crenobalneotherapy) compared to the usual treatment of persons suffering from a post-Covid-19 affection, a randomized and open clinical trial.

In addition, in the human and social sciences, research project is underway to investigate the image and the representations of the spa treatment in the general population.

As far as training is concerned, a diploma of health and thermalism, the training of the thermal doctors or the recent one of the hydrotherapists complete the educational landscape.

A presentation of the Thermasports and Thermasanté space will illustrate the innovation in architecture, care and prevention within the new Nancy thermal station. Thermasport Thermasanté is a link between health professionals, liberals, universities and hospitals and the thermal center. The specificity and originality of Thermasport is to combine care, research and teaching. So that everyone can benefit from the benefits of natural mineral water in a medicalized care while being outside the field of the thermal cure.

Finally, the first scientific society in thermal physiotherapy will be presented, whose objective is to contribute to the development, dissemination and promotion of all interdisciplinary activities in the

field of thermal medicine, research, teaching and dissemination of knowledge concerning medical hydrology, balneotherapy and hydrokinesitherapy.

A few months before the opening of the Nancy Thermal Center and the Paris Olympic Games, the University of Thermalism will be an opportunity to share thoughts and experiences with the greatest specialists on the interest of medical hydrology treatment of osteoarticular or musculo-tendinous pathologies and traumas of the athlete: Crenotherapy Balneotherapy Hydrokinesitherapy

NON-ALCOHOLIC FATTY LIVER (NAFLD)

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Non-alcoholic fatty liver (NAFLD) has become the main cause of chronic liver disease with estimated increasing prevalence around 25% related to the increasing prevalence rates of obesity and type II diabetes. It is believed that it will be the main indication for liver transplantation in future decades. This disease represents a serious socio-economic impact. Currently, diagnostic methods and effective drugs are not available. The pathophysiology of NAFLD, recently defined as metabolic fatty liver (MAFLD).

The aim of the review paper is to present and discuss the importance of a wide range of biomarkers - collagens, metalloproteinases, parameters of glycid and fat metabolism, osteopontin, osteoprotegrin, interleukines and tumor markers - for diagnosis, but especially for monitoring short-term treatment (balneology), and long-term monitoring treatment in faculty hospital. Optimal combinations of biomarkers are proposed for routine practice, but also for research.

THE THERMAL ENVIRONMENT AN IDEAL SPACE FOR THE TREATMENT OF GERIATRIC SYNDROMES

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The Balneario Cofrentes is an organization that hosts an interconnected and integrated project on active and healthy aging: Prevention and health promotion, Balneotherapy, and Promotion of active and autonomous life of the elderly. The Task Force's vision is that early detection of prevalent geriatric syndromes is fundamental for the promotion of Active and Healthy Living in the elderly.

Each year, more than 10,000 people attend the Balneario de Cofrentes between 8-10 days, to perform balneotherapy offered by the IMSERSO program combined with specially designed sub-activities (workshops for fall prevention, activities for prevention of fragility, chronic respiratory diseases, workshops that promote active and healthy living, hydrotherapy).

Related to the previous paragraph, the Thermalism Program was born in 1989, within the Ministry of Social Affairs, as a policy of social services close to the needs of citizens, responds to the demands of older people to be able to receive recuperative treatments in specialized thermal establishments. The subjects that can potentially benefit from the Program are found in the fact that the use of the thermal cure has a double interest for the elderly

since it avoids other more harmful treatments and contributes to rehabilitate and recover functions. The Thermalism Program provides access to thermal treatments provided in establishments with medicinal mineral water springs, declared of public utility, thus contributing to improve the quality of life of the elderly, as well as the promotion of active aging, the improvement of health and the prevention of dependency.

The aging process is associated with physiological changes that determine a decrease in functional reserve and limit the capacity to respond to external factors.

Likewise, aging is associated with a deterioration of the regulatory processes that maintain the functional integration of the different organs and systems. A direct consequence of this phenomenon is the atypical presentation of diseases that are highly prevalent in the elderly. This atypical presentation of diseases in the elderly is responsible for the so-called geriatric syndromes, considered as specific nosological entities with high frequency of presentation in the elderly, being included in the strategies of prevention, diagnosis and treatment of geriatric medicine. The disadvantage of these syndromes is that, in general, specialized medical consultations are attended by patients who generally present functional limitations with little margin for recovery.

These syndromes can generate greater morbidity and sometimes more serious consequences than the disease itself. Their systematic detection should be included in the anamnesis of the clinical history of the elderly. Geriatric syndromes are a group of conditions usually caused by the conjunction of diseases with a high prevalence in the elderly and which are the frequent origin of functional or social disability in the population. They are the manifestation of many diseases, but they are also the beginning of many other problems that we must take into account from their detection in order to establish a good prevention of them.

The objective of the research work that is being carried out in Balneario de Cofrentes is to demonstrate that spas are ideal environments to detect the state of fragility, pre-fragility and robustness in older adults in addition to detecting syndromes of prevalence in the elderly. In addition, the thermal environment is ideal to treat these syndromes both to rehabilitate and educate to prevent dependency. For this purpose, a cross-sectional descriptive observational study has been designed, which aims to measure the different spheres that are affected by aging: cognitive area, movement, autonomy for daily life, urinary incontinence, nutritional status, psycho-emotional sphere. And with this to be able to detect by means of internationally validated scales the state of robustness, pre-fragility, fragility of the patients who attend the Cofrentes Spa. Being able with this knowledge to design strategies to treat the different syndromes and to be able to revert the states of pre-fragility.

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