

PROGRAM

May 12 (Mon)

Presidential address 8:30-8:50

ROOM 1 (ROOM A)

chairperson : Yoshinori Ohtsuka

39th ISMH President

Shigeko Inokuma Department of Allergy and Rheumatic Diseases, Japanese Red Cross Medical Center

ISMH Presidential address 8:50-9:10

ROOM 1 (ROOM A)

chairperson : Shigeko Inokuma

ISMH President

Prof. Dr. Müfit Zeki Karagülle MD, PhD, ISMH President

Present topics on balneotherapy 1 9:10-10:35

ROOM 3 (ROOM B-2)

chairperson : Tamas Bender
Sohtaro Mimasaka

PT1-1 Effect of balneotherapy on microcirculation in diabetic patients

○Irena Ponikowska, Michal Tolodziecki

Department of Balneology and Physical Medicine, N. Copernicus University, Toruń, Poland

PT1-2 Current status balneotherapy in Spain

○Francisco Maraver¹⁾²⁾, Carla Morer¹⁾³⁾

1) Professional School of Medical Hydrology, Faculty of Medicine, Universidad Complutense de Madrid, Madrid, Spain, 2) Dept. of Physical Medicine and Rehabilitation. Medical Hydrology, Faculty of Medicine, Universidad Complutense Madrid, Madrid, Spain, 3) Thalasso Center, San Pedro del Pinatar-Murcia, Spain

PT1-3 Balneology in Europe: principles, practice, education and research

○Pedro Cantista¹⁾²⁾³⁾, Carolina Martins Moreira¹⁾

1) Serviço de Fisioterapia, Hospital de Santo António, Porto, Portugal, 2) Presidente da Sociedade Portuguesa de Hidrologia Médica, 3) Professor at the ICBAS Medicine School - University of Porto

PT1-4 Balneotherapy research in France: the AFRETH (French Association for Balneotherapy Research)

○Christian François Roques¹⁾, Claude Eugene Bouvier²⁾

1) Professor of Physical & Rehabilitation Medicine – Toulouse Sabatier University, AFRETH Scientific Committee President, Paris, 2) French College of Health Economy, AFRETH Manager, Paris

PT1-5 The Balneology Association of North America: Who we are, what we do, and our role in the international balneology profession

○Marcus Coplin

Balneology Association of North America

Free PC
reading

PT1-6 Balneotherapy actual medical Benefit. Data of evidence of the last twenty years

○Christian François Roques

AFRETH Scientific Committee President, Paris, Physical & Rehabilitation Medicine Professor, Toulouse University, France

Free PC
reading

PT1-7 Balneotherapy for common metabolic conditions – the French experience

○Christian François Roques, Hanh T, Blin P, Gin H, Moore N

AFRETH, Paris

Present topics on balneotherapy 2 10:35-11:55

ROOM 3 (ROOM B-2)

chairperson : Pedro Cantista
Hiroharu Kamioka

PT2-1 EBM Balneotherapy in Hungary

○Tamas Bender, Géza Bálint, Pál Géher, Zoltán Prohászka, Ildiko Katalin Tefner

Departement of Physiotherapy Hosp brother of St of God

PT2-2 What's new in Balneology?

○Müfit Zeki Karagülle

Department of Medical Ecology and Hydroclimatology, Istanbul University, Istanbul Medical Faculty

PT2-3 Immunoinflammatory regulation effects of Korean hot spring water

○Jin-Wou Kim

Department of Dermatology, Uijeongbu St. Mary's Hospital, College of Medicine, The Catholic University of Korea

PT2-4 Assessing the quality of study reports on spa therapy based on randomized controlled trials by the spa therapy checklist (SPAC)

○Hiroharu Kamioka¹⁾, Kiichiro Tsutani²⁾, Masaharu Maeda³⁾, Shinya Hayasaka⁴⁾, Yasuaki Goto⁵⁾

1) Faculty of Regional Environment Science, Tokyo University of Agriculture, 2) Department of Drug Policy and Management, Graduate School of Pharmaceutical Sciences, The University of Tokyo, 3) Department of Rehabilitation, International University of Health and Welfare Graduate School, 4) Department of Health Science, Daito Bunka University, 5) Japan Health and Research Institute

PT2-5 Balneotherapy in Russia

○Nazim Badalov

Russian Scientific Center of Rehabilitation and Resort Medicine, Moscow, Russian Federation

LS1 Waon therapy and its current status in Japan

○Koichiro Kinugawa

Department of Therapeutic Strategy for Heart Failure, The University of Tokyo, Tokyo, Japan

Symposium 1 13:10-14:30

[Waon therapy]

S1-1 Waon therapy for cardiovascular disease

○Chuwa Tei¹⁾²⁾

1) Waon Therapy Research Institute, 2) Dokkyo Medical University, Tochigi, Japan

S1-2 Waon therapy for ischemic heart disease

○Takashi Nozawa, Mitsuo Sobajima, Hiroyuki Ihori, Yasutaka Fukui, Hiroshi Inoue

Second Department of Internal Medicine, University of Toyama, Toyama, Japan

S1-3 Effect of Waon therapy on vasospastic angina

○Katsuhisa Ishii¹⁾, Akihiro Komasa¹⁾, Kensuke Kuwabara¹⁾, Takahiro Nagai¹⁾,
Tasuhiko Matsuoka¹⁾, Eiji Tada¹⁾, Yutaka Seino¹⁾, Chuwa Tei²⁾

1) Department of Cardiology, Kansai Electric Power Hospital, Japan,

2) Kagoshima University, Kagoshima, Japan

S1-4 Waon therapy for myalgic encephalomyelitis/chronic fatigue syndrome

○Keiko Amano

Seifuso Hospital, Saitama, Japan

S1-5 The effects of Waon therapy for patients with chronic pain and fibromyalgia

○Akinori Masuda¹⁾, Masaaki Miyata²⁾, Chuwa Tei³⁾

1) Masuda Clinic, 2) Kagoshima University, Cardiovascular Medicine and Hypertension,

3) Waon Research Institute

Memorial service for Dr. S. Sukenik 16:00-16:20

We lost a giant in our field.

Overview of the late Professor S. Sukenik' works on Balneotherapy and
Climatotherapy

Marco Harari¹⁾²⁾

1) DMZ Medical Center, Dead Sea, Israel

2) Dead Sea and Arava Science Center, Israel

May 13 (Tue)

Luncheon seminar 3 12:00-13:00

ROOM 1 (ROOM A)

chairperson : Kiyoshi Takasugi

LS3 The effects of hot spring bathing for mental and physical health

○Takahiko Horiuchi, Toyoki Maeda

Department of Internal Medicine, Kyushu University Beppu Hospital, Beppu, Japan

Special lectures from Japan 13:10-14:10

ROOM 1 (ROOM A)

chairperson : Yuko Agishi

SL1 Cardiovascular and metabolic effects of ibusuki Hot spring sand bath (Sunamushi)

○Nobuyuki Tanaka¹⁾²⁾, Hideyuki Nomura²⁾

1) Emeritus professor of Kagoshima University, 2) Imabayashi Orthopedic Hospital

SL2 Introduction of the Japanese acupuncture and possible role of the polymodal receptor in its action mechanisms

○Kenji Kawakita

Department of Physiology, Meiji University of Integrative Medicine

SL3 A summary of the hemostatic reactions after the bathing in very hot hot-spring

○Hitoshi Kurabayashi

Department of Rehabilitation Medicine, Saitama Medical University, Saitama, Japan

Symposium 2 14:10-16:10

ROOM 1 (ROOM A)

[Foot baths]

chairperson : Atsushi Takeda

Naoki Makino

S2-1 Effects of CO₂-enriched water bath treatment on blood flow and angiogenesis in ischemic hind limb

○Naranjan S. Dhalla, Yan-Jun Xu, Vijayan Elimban

University of Manitoba, St. Boniface Hospital Research Centre

S2-2 Carbon dioxide (CO₂) balneotherapy in Germany

○Hideo A. Baba¹⁾, Hideo Kumamoto²⁾, Atsushi Takeda³⁾

1) Institute of Pathology, University of Duisburg-Essen, 2) Mitsubishi Rayon Cleansui Co, Ltd, Tokyo, Japan,

3) University of Tokyo Health Sciences, Department of Rehabilitation Sciences, Tokyo, Japan

S2-3 Improvements in spasticity and motor function using a foot bath for people with chronic hemiparesis following stroke

○Shuji Matsumoto

Department of Rehabilitation and Physical Medicine, Graduate School of Medical and Dental Sciences, Kagoshima University

S2-4 Topical application of artificial CO₂-enriched water – Clinical efficacies

○Hisae Hayashi

Seijoh University

May 14 (Wed)

The WHO draft group: Therapeutic aquatic exercise and immersion 10:35-11:35 ROOM 3 (ROOM B-2)

chairperson : Tamas Bender

The WHO draft group: Therapeutic aquatic exercise and immersion

○Johan Lambeck, Romain Forestier, Tamas Bender, Bruce Becker

Faculty of Kinesiology and Rehabilitation Sciences, KU Leuven

SECTION PROGRAM

May 12 (Mon)

Section 1 9:10-10:10

ROOM 1 (ROOM A)

[Hot and cold stimuli 1]

chairperson : Chiao-Yu Shih
Youko Hishikawa Itoh

01-1 Molecular mechanisms of thermosensation through TRP channels

○Makoto Tominaga¹⁾²⁾

- 1) Division of Cell Signaling, Okazaki Institute for Integrative Bioscience,
- 2) National Institute for Physiological Sciences

01-2 Special effects and mechanisms of Ibusuki Hotspring sand bath

○Hideyuki Nomura, Nobuyuki Tanaka
Imabayashi Orthopedic Hospital

01-3 Time-course changes in local and systemic vasomotor activities during a hand warming in young individuals

○Chiao-Yu Shih¹⁾, Wen-Li Lee²⁾, Yu-Zu Wu¹⁾, Chih-Wei Lee¹⁾, Chien-Hui Huang¹⁾

- 1) Department of Physical Therapy, Tzu-Chi University, Hualien, Taiwan, 2) Department of Radiological Technology & Institute of Radiological Science, Tzu-Chi College of Technology, Hualien, Taiwan

01-4 Uneven temperature among fingers after cold-water immersion of hands is a useful parameter to identify disturbed peripheral circulation

○Masanobu Horikoshi¹⁾, Shigeko Inokuma¹⁾, Mika Kobuna¹⁾, Erika Matsubara¹⁾, Rika Okada¹⁾, Ryo Takahashi¹⁾, Shoko Kobayashi¹⁾, Yasuo Kijima²⁾

- 1) Department of Allergy and Rheumatic Diseases, Japanese Red Cross Medical Center, Tokyo, Japan
- 2) Laboratory center, Japanese Red Cross Medical Center, Tokyo, Japan

Section 2 10:10-11:10

ROOM 1 (ROOM A)

[Hot and cold stimuli 2]

chairperson : Masaaki Miyata
Krzysztof T. Marczewski

02-1 Physical and psychological effects by ceramic bathing

○Tatsuya Noda¹⁾, Shinya Hayasaka²⁾, Chieko Ito¹⁾

- 1) Department of Community Health and Preventive Medicine, Hamamatsu University School of Medicine
- 2) Department of Health Science, Daito Bunka University

02-2 Preventive effect of thermal therapy on heart failure due to pressure overload

○Masaaki Miyata, Yuichi Akasaki, Takahiro Miyauchi, Yoshiyuki Ikeda, Mitsuru Ohishi

Department of Cardiovascular Medicine and Hypertension, Graduate School of Medical and Dental Sciences, Kagoshima University, Kagoshima, Japan

02-3 Local cryotherapy, physical exercises, occupational therapy, orthoses and therapeutic education in complex rehabilitation of patients with early rheumatoid arthritis

○Evgeniya Orlova¹⁾, Dmitry Karateev²⁾, Lev Denisov¹⁾, Andrey Kochetkov³⁾

1) Laboratory of Clinical Trials, Nasonova Research Institute of Rheumatology, Moscow, Russian Federation

2) Early Arthritis department, Nasonova Research Institute of Rheumatology, Moscow, Russian Federation

3) Rehabilitation and Sport Medicine, Central Rehabilitation Hospital, Federal Medical Biological Agency, Moscow, Russian Federation

02-4 Aberrant response to thermal stimuli, and its possible amelioration by warming therapies

○Shigeko Inokuma¹⁾, Yasuo Kijima²⁾, Masanobu Horikoshi¹⁾

1) Department of Allergy and Rheumatic Diseases, Rheumatology Center, Japanese Red Cross Medical Center, Tokyo, Japan, 2) Laboratory Center, Japanese Red Cross Medical Center

Section 3 11:10-11:50

ROOM 1 (ROOM A)

[Acupuncture]

chairperson : Jun Nakaya

03-1 Cupping therapy – Something between acupuncture and moxibustion

○Krzysztof Tadeusz Marczewski¹⁾²⁾

1) Chair of Physiotherapy, Zamość University of Management and Administration, 2) Pope John Paul II Regional Hospital Zamość Poland

03-2 The physical stimulations promote the resilience and the homeostasis of our body and two mechanisms of them

○Mayumi Watanabe¹⁾, Hidetoshi Mori¹⁾, Kazushi Nishijo¹⁾, Kazuhiko Yamashita²⁾, Hiroshi Nakajo²⁾, Yasugi Nakamura³⁾, Keiichirou Kita³⁾

1) Department of Health, Faculty of Health Sciences, National University Corporation Tsukuba University of Technology, 2) Department of Acupuncture, Takarazuka University of Medical and Health Care, 3) The Society for Sound Healing

03-3 Introduction to Japanese Anma massage therapy

○Nozomi Donoyama

Course of Acupuncture and Moxibustion, Department of Health, Faculty of Health Sciences, Tsukuba University of Technology

Section 4 14:30-16:00

ROOM 1 (ROOM A)

[Mud therapy 1]

chairperson : Kenji Sugimori
Davide Rossi

04-1 Fangotherapy, a body-friendly treatment to use hot spring water for health promotion

○Kenji Sugimori¹⁾³⁾, Mizuno Owada²⁾³⁾

1) Department of Biology, Toho University Faculty of Medicine, Tokyo, Japan, 2) ASCendant Co. Ink.,

3) Japan Biofango Promoting Association

04-2 The combined action TVS mud index/TVS skin test as an evaluation marker of skin functionality and thermal mud effectiveness

○Davide Rossi¹⁾, Camilla Dal Bosco²⁾, Antonio Bettero³⁾

1) Osservatorio Termale Permanente - OTP at Department of Pharmaceutical and Pharmacological Sciences, University of Padova, Padova, Italy, 2) Department of Pharmaceutical and Pharmacological Sciences, University of Padova, Padova, Italy, 3) Department of Pharmaceutical and Pharmacological Sciences, University of Padova, Padova, Italy

04-3 Development of a method for quality assessment of Japanese Biofango mudtherapy protocol by tensiometric approach

○Davide Rossi¹⁾, Mizuno Owada²⁾, Kazuhiro Matsuura³⁾, Kenji Sugimori⁴⁾, Antonio Bettero¹⁾, Tatsuo Kaneko⁵⁾

1) Osservatorio Termale Permanente - OTP at Department of Pharmaceutical and Pharmacological Sciences, University of Padova, Padova, Italy, 2) ASCendant Inc., Tokyo, Japan, 3) Marukoshi Industrial Co., Ltd., Ishizaki Nanao city, Ishikawa, Japan, 4) Faculty of Medicine, Toho University, Tokyo, Japan, 5) School of Materials Science, Japan Advanced Institute of Science and Technology, Japan

04-4 New perspectives for the employment of Brenta's silt-clay in anticellulite treatments

○Stefano Pasinato¹⁾, Cecchin Silvia¹⁾, Davide Rossi²⁾, Elena Toni³⁾, Adriana Bonfigli⁴⁾, Luigi Rigano⁴⁾

1) EGAP SRL, Rosà (VI), Italy, 2) Osservatorio Termale Permanente - OTP, Department of Pharmaceutical and Pharmacological Sciences, University of Padova, Italy, 3) Bregaglio Srl, Milano, Italy, 4) Institute of Skin and Product Evaluation – ISPE, Milano, Italy

04-4 and 04-5 are read in a single presentation

04-5 New perspectives for the employment of Brenta's silt-clay in antiacne treatments

○Stefano Pasinato¹⁾, Katharina Redeker²⁾, Annamaria Ratti³⁾, Antonella Antonini⁴⁾, Vittorio Mazzarello⁵⁾

1) EGAP SRL, Rosà (VI), Italy, 2) Zschimmer & Schwarz GmbH & Co KG, Lahnstein, Germany, 3) Bregaglio Srl, Milano, Italy, 4) RICERCA & COMUNICAZIONE s.r.l., Salsomaggiore Terme (PR), Italy, 5) Department of Biomedical Sciences, University of Sassari, Italy

04-6 Therapeutic Carhue peloid. Physical characteristics

○Francisco Armijo¹⁾, José Manuel Carbajo²⁾, Iciar Vazquez¹⁾³⁾, Iluminada Corvillo¹⁾, Javier Ubogui⁴⁾, Enzo Alejandro Gasparri⁵⁾, Francisco Maraver¹⁾

1) Professional School of Medical Hydrology, Faculty of Medicine, Universidad Complutense Madrid, Madrid, Spain, 2) Faculty of Medicine, Complutense University of Madrid, Madrid, Spain, 3) Geological Survey of Spain (IGME), Tres Cantos - Madrid, Spain, 4) Dermatology Unit, Psoriasis, Buenos Aires, Argentina, 5) Termas Carhue, Carhue-Buenos Aires, Argentina

04-6 and 04-7 are read in a single presentation

04-7 Thermal profile of three clays suitable to be used as solid components in the preparation of peloids

○Francisco Armijo¹⁾, José Manuel Carbajo²⁾, Miguel Angel Fernandez-Toran³⁾, Iluminada Corvillo¹⁾, Iciar Vazquez¹⁾⁴⁾, Maria Isabel Carretero⁵⁾, Francisco Maraver¹⁾

1) Professional School of Medical Hydrology, Faculty of Medicine, Universidad Complutense Madrid, Madrid, Spain, 2) Faculty of Medicine, Complutense University of Madrid, Madrid, Spain, 3) Hervideros de Cofrentes Spa, Cofrentes-Valencia, Spain, 4) Geological Survey of Spain (IGME), Tres Cantos - Madrid, Spain, 5) Depart. Cristalografía, Mineralogía y Química Agrícola, Facultad de Química, Universidad Sevilla, Sevilla, Spain

Free PC reading

04-8 Typical application of TVS modelling to two natural materials from Brenta's alluvial plan (Italy) for mudtherapy and cosmetic characterization

○Davide Rossi¹⁾, Mirella Zancato²⁾, Stefano Pasinato³⁾

1) Osservatorio Termale Permanente - OTP at Department of Pharmaceutical and Pharmacological Sciences, University of Padova, Padova, Italy, 2) Department of Pharmacological and Pharmaceutical Sciences, University of Padova, Padova, Italy, 3) EGAP srl, Rosà di Vicenza, Italy

Free PC
reading

04-9 Variation of physical characteristics of a peloid, subjected to maturation

○Francisco Armijo¹⁾, José Manuel Carbajo²⁾, Pilar Diestro¹⁾³⁾, Lourdes Aguilera¹⁾, Ana Isabel Martin-Megias¹⁾⁴⁾, Rafael Delgado⁵⁾, Francisco Maraver¹⁾

1) Professional School of Medical Hydrology, Faculty of Medicine, Universidad Complutense de Madrid, Madrid, Spain, 2) Faculty of Medicine, Complutense University of Madrid, Madrid, Spain, 3) Montemayor Spa, Baños de Montemayor-Cáceres, Spain, 4) Hydrology - IMSERSO. Madrid. Spain, 5) Dpto. Edafología y Química Agrícola. Faculty of Farmacia, Universidad de Granada, Granada, Spain

Free PC
reading

04-10 Quality assessment of maturation process of Japanese Biofango by TVS mud index

○Davide Rossi¹⁾, Mirella Zancato²⁾, Kenji Sugimori³⁾, Yuko Agishi⁴⁾, Hikonari Sakai⁵⁾

1) Osservatorio Termale Permanente - OTP at Department of Pharmaceutical and Pharmacological Sciences, University of Padova, Padova, Italy, 2) Pharmacological Sciences, University of Padova, Padova, Italy, 3) Faculty of Medicine, Toho University, Tokyo, Japan, 4) Minato-ku, Tokyo, Japan, 5) Sanraku-en, Syogama-machi Tonami city, Toyama, Japan

Free PC
reading

04-11 Quality assessment of Japanese Biofango through tensiometric approach by TVS mud index

○Davide Rossi¹⁾, Mirella Zancato²⁾, Mizuno Owada³⁾, Kenji Sugimori⁴⁾, Kazuhiro Matsuura⁵⁾

1) Osservatorio Termale Permanente - OTP at Department of Pharmaceutical and Pharmacological Sciences, University of Padova, Padova, Italy, 2) Department of Pharmacological and Pharmaceutical Sciences, University of Padova, Padova, Italy, 3) ASCendant Inc., Tokyo, Japan, 4) Faculty of Medicine, Toho University, Tokyo, Japan, 5) Marukoshi Industrial Co., Ltd., Ishizaki Nanao city, Ishikawa, Japan

Free PC
reading

04-12 Introduction to "TVS mud index" as an evaluation marker of silt-clayey matrices for bioadhesive thermal and cosmetic applications

○Davide Rossi¹⁾, Antonio Bettero²⁾

1) Osservatorio Termale Permanente - OTP at Department of Pharmaceutical and Pharmacological Sciences, University of Padova, Padova, Italy, 2) Department of Pharmacological and Pharmaceutical Sciences, University of Padova, Padova, Italy

Section 5 13:10-14:20

ROOM 3 (ROOM B-2)

[Efficacy of radon]

chairperson : Albrecht Falkenbach
Fumihiro Mitsunobu

05-1 Effectiveness of radon therapy in rheumatic diseases: Results of controlled clinical trials

○Albrecht Falkenbach
Pensionsversicherung

05-2 Effects of radon inhalation on oxidative damage and possibility of clinical application for lifestyle diseases

○Fumihiro Mitsunobu¹⁾²⁾, Takahiro Kataoka³⁾, Akihiro Sakoda⁴⁾, Yuu Ishimori⁴⁾, Kiyonori Yamaoka³⁾

1) Misasa Medical Center, Okayama University Hospital, Tottori, Japan, 2) Department of Geriatrics, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama, Japan, 3) Graduate School of Health Sciences, Okayama University, Okayama, Japan, 4) Ningyo-toge Environmental Engineering Center, Japan Atomic Energy Agency, Okayama, Japan

05-3 Efficacy of radon in the Japanese radioactive hot spring

○Kimiko Horiuchi
Isotope Center, The Jikei University School of Medicine

05-4 Examination of radon concentration for evaluation of exposure dose from radioactive spring usage –A case study in Mie prefecture–

○Yasunori Mori¹⁾²⁾, Akira Deguchi³⁾, Chihiro Miwa⁴⁾, Eri Suzumura³⁾, Kazunori Maeda³⁾, Keiko Mori³⁾, Yasushi Iwasaki³⁾⁵⁾, Hiroya Shimasaki³⁾, Masayasu Mizutani³⁾, Yoichi Kawamura³⁾

1) Mie Prefecture Health and Environment Research Institute, 2) Graduate School of Bioresources, Mie University, 3) Oyamada Memorial Spa Hospital, 4) Aichi Medical College for Physical and Occupational Therapy, 5) Institute for Medical Science of Aging, Aichi Medical University

Section 6 14:20-15:30

ROOM 3 (ROOM B-2)

[Locomotor system and rheumatology 1]

chairperson : Antonella Fioravanti
Masahiko Uzura

06-1 Single and double blind randomized controlled studies in the field of balneology (aspects of locomotor diseases)

○Tamas Bender

Hosp.Brother of St Joh of God

06-2 Effects of a whole body vibration as a means for controlling spasticity in post-stroke patients: A F-wave study

○Kodai Miyara¹⁾, Shuji Matsumoto²⁾, Tomohiro Uema¹⁾, Takuya Hirokawa¹⁾, Tomokazu Noma¹⁾, Keiko Ikeda¹⁾, Megumi Shimodozono²⁾, Kazumi Kawahira²⁾

1) Department of Rehabilitation, Kirishima Rehabilitation Center of Kagoshima University Hospital, Kagoshima

2) Department of Rehabilitation and Physical Medicine, Graduated School of Medical and Dental Sciences, Kagoshima University, Kagoshima

06-3 Rehabilitation to residual functional disorders in spinal decompression sickness resulting from recreational scuba diving

○Masaru Seki

Departmnt of Liberal Arts and Human Development, Kanagawa University of Human Services, Yokosuka, Japan

06-4 Comparative efficacy of gym high-intensity dynamic exercises and therapeutic exercises in patients with early rheumatoid arthritis: 6-month randomized controlled trial

○Evgeniya Orlova¹⁾, Dmitry Karateev²⁾, Andrey Kochetkov³⁾

1) Laboratory of Clinical Trials, Nasonova Research Institute of Rheumatology, Moscow, Russian Federation

2) Early Arthritis department, Nasonova Research Institute of Rheumatology, Moscow, Russian Federation

3) Rehabilitation and Sport Medicine, Central Rehabilitation Hospital, Federal Medical Biological Agency, Moscow, Russian Federation

06-5 Spa therapy and rheumatoid arthritis – Quality of life

○Isabel Santos¹⁾⁵⁾, Oscar Ribeiro²⁾, Claudia Ribeiro³⁾, Pedro Cantista⁴⁾⁵⁾, Carlos Vasconcelos⁴⁾

1) Hospital Escola - Gondomar, 2) Aveiro University - Aveiro, 3) Portuguese Catholic University - Porto

4) Sto António Hospital - Porto, 5) Caldas de São Jorge Thermal Spa - Sta Maria da Feira

07-1 Possible chondroprotective effects of mineral waters: Evidences from in vitro studies

○Antonella Fioravanti, Sara Cheleschi, Giacomo Maria Guidelli, Nicola Antonio Pascarelli, Mauro Galeazzi, Sara Tenti

Department of Clinical Medicine and Immunological Sciences, Rheumatology Unit, University of Siena, Italy

07-2 Evaluation of crenobalneotherapy for knee osteoarthritis, an update of a systematic review

○Romain Forestier¹, Fatma Begüm Erol², Alain Francon¹

1) Centre de recherche rhumatologique et thermal, 2) Istanbul physical therapy rehabilitation training and research hospital, Istanbul, Turkey

07-3 Effect of different 6-day spa therapy courses on the quality of life in the knee osteoarthritis treatment

○Monika Übner, Kandela Õun, Merle Mägi

Pärnu College, University of Tartu, Estonia

07-4 One-year effectiveness of mud-bath therapy in knee osteoarthritis

○Sara Tenti¹, Chiara Giannitti¹, Giovanni Bacaro², Nicola Antonio Pascarelli¹, Sara Cheleschi¹, Annamaria Paglionico¹, Giacomo Maria Guidelli¹, Mauro Galeazzi¹, Antonella Fioravanti¹

1) Rheumatology Unit- Department of Medicine, Surgery and Neuroscience, University of Siena, Siena, Italy
2) CNR-IRPI, Perugia, Italy

07-5 The effectiveness of Balneo-Logotherapy (BLT) toward fibromyalgia (FMS)

○Katsutaro Nagata¹, Junko Fujimori², Takashi Tatsuse²

1) International Foundation of Comprehensive Medicine, 2) Toyama University, School of Medicine

07-6 Study regarding the effects of Valcele mineral water

○Sarah Adriana Nica¹, Gilda Mologhianu¹⁾², Lili Silvia Miron², Brindusa Ilinca Mitoiu¹⁾², Mariana Moise¹

1) University of Medicine and Pharmacy Carol Davila Bucharest, Romania
2) National Institute of Rehabilitation, Bucharest, Romania

08-1 Scientific path of healthy aging

○Amarendra Narayan Singh¹⁾²⁾

1) Queen's University, Kingston, Canada, 2) W.H.O A.C.P.M.

08-2 Research in balneology in France : how it helped keeping balneotherapy financed by the National Health Insurance Fund

○Claude Eugene Bouvier¹⁾²⁾, Thierry Dubois¹⁾

1) Conseil National des Exploitants thermaux (CNETH), Paris, France, 2) Association Française pour la Recherche thermale (AFRETh), Paris, France

08-3 Healthy aging and heat shock protein 70 induced by Kaon Seikatsu (mild hyperthermic living)

○Youko Hishikawa Itoh

Department of Nutrition Shubun University Faculty of Health and Nutrition, Aichi, Japan

08-4 Balneotherapy and new natural remedies for healthy ageing

○Constantin Munteanu¹⁾²⁾, Diana Munteanu¹⁾²⁾, Mihail Hoteteu²⁾, Delia Cinteza¹⁾

1) Romanian Association of Balneology, 2) National Institute of Rehabilitation, Physical Medicine and Balneology

09-1 Effects of balneological factors and treatments on aging

○Müfit Zeki Karagülle

Department of Medical Ecology and Hydroclimatology, Istanbul University, Istanbul Medical Faculty

09-2 Balneotherapy and ageing – the French experience

○Christian François Roques, B. Vellas, T. Paillard, M. Tabone, C. Tabone, O. Dubois, T. Hanh

AFRETH (Paris), Gérontopôle, Toulouse

09-3 New approach to water treatments: hydrology, balneotherapy and thalassotherapy the new health tourism

○Alberto Cerrada¹⁾²⁾³⁾

1) Villapadierna Medical Wellness & Spa, 2) Balneario Carratraca, Málaga, 3) Thalasso Therapy Center Estepona Málaga

09-4 The current development of China's hot spring industry: transformation from hot spring tourism to health and wellness hot spring

○Jie Wang

Vice Director, Expert Advisory Panel, China Hot Spring Tourism Association Senior Advisor, China National Spa Association(CSPA)

[Forest medicine]

chairperson : Qing Li
Gorana Isailovic**10-1 Effect of forest environments on human health: An introduction to Forest Medicine**○Qing Li¹⁾²⁾

- 1) Department of Hygiene and Public Health, Nippon Medical School, Tokyo, Japan
- 2) President of the Japanese Society of Forest Medicine

10-2 Forest therapy and preventive medical effect

○Yoshifumi Miyazaki, Harumi Ikei, Chorong Song

- Center for Environment, Health and Field Sciences, Chiba University, Chiba, Japan

10-3 Effects of essential oil from the leaves of *Abies sachalinensis* on salivary stress markers and mood states○Yoshinori Ohtsuka¹⁾, Takaaki Kitagawa²⁾, Toshihiko Kaneko³⁾, Naoyuki Matsui⁴⁾, Tatsuro Ohira⁴⁾

- 1) Faculty of Education, Hokkaido University, 2) Graduate School of Education, Hokkaido University
- 3) Japan Aroma Laboratory, 4) Forestry and Forest Products Research Institute

10-4 Shumadian forest hammam as a medical SPA concept○Gorana Isailovic¹⁾, Ljubica Presetnik²⁾, Ivana Jovanovic²⁾

- 1) Health college Belgrade, Serbia, 2) Medical SPA Association of Serbia

10-5 Association of forest walking frequency with mental health and self-rated general health in a mega city: J-MICC Study

○Emi Morita

- Department of Preventive Medicine, Nagoya University Graduate School of Medicine, Nagoya, Japan

[Mud therapy 2]

chairperson : Mine Karagülle
Yoshinori Ohtsuka**11-1 Mud therapy in rheumatic diseases**

○Mine Karagülle

- Istanbul University, Istanbul Medical Faculty, Department of Medical Ecology and Hydroclimatology

11-2 Biophysical effects after cutaneous application of dermatological products made from sediment of mineral waters Lanjarón-Capuchina by skin bioengineering methods○José Manuel Carbajo¹⁾²⁾, Lourdes Aguilera¹⁾³⁾, Ana Isabel Martin-Megias¹⁾⁴⁾, Francisco Maraver¹⁾³⁾

- 1) Dept. of Physical Medicine and Rehabilitation. Medical Hydrology, Faculty of Medicine, Universidad Complutense Madrid, Madrid, Spain, 2) Laboratorios Skinwine S.L, Jerez de la Frontera, Spain, 3) Professional School of Medical Hydrology, Faculty of Medicine, Universidad Complutense de Madrid, Madrid, Spain, 4) Hydrology - IMSERSO. Madrid. Spain

11-2 and 11-3 are read in a single presentation

11-3 Biophysical skin effects of extemporaneous peloids from “Hervideros De Cofrentes Spa” natural mineral water according to their maturity time

○José Manuel Carbajo¹⁾²⁾, Miguel Angel Fernandez-Toran³⁾, Iluminada Corvillo¹⁾, Lourdes Aguilera¹⁾, Rosa Mejjide⁴⁾, Maria Isabel Carretero⁵⁾, Francisco Maraver¹⁾

1) Dept. of Physical Medicine and Rehabilitation. Medical Hydrology, Faculty of Medicine, Universidad Complutense Madrid, Madrid, Spain, 2) Laboratorios Skinwine S.L, Jerez de la Frontera, Spain, 3) Hervideros de Cofrentes Spa, Cofrentes-Valencia, Spain, 4) Dept.of Medicine, Universidad de A Coruña, A Coruña, Spain, 5) Depart. Cristalografía, Mineralogía y Química Agrícola, Facultad de Química, Universidad Sevilla, Sevilla, Spain

11-4 Osteoarthritis and peat mud pack therapy

○Lindsay Rodgers¹⁾²⁾³⁾, Kurt Beil²⁾, Heather Zwickey³⁾

1) Helfgott Research Institute, National College of Natural Medicine, 2) Helfgott Research Institute, National College of Natural Medicine, 3) Helfgott Research Institute, National College of Natural Medicine

11-5 Dead-Sea mud packs for chronic low back pain

○Mahmoud Abu-Shakra¹⁾, A Mayer¹⁾, Michael Friger⁴⁾, Marco Harari²⁾³⁾

1) Department of Internal Medicine D, Soroka University Medical Center, Faculty of Health Sciences, Ben Gurion University of the Negev, Beer Sheba., 2) DMZ Medical Center, Dead Sea, Israel, 3) Dead Sea and Arava Science Center, Israel, 4) Department of Public Health - Faculty of Health Sciences, Ben Gurion University of the Negev, Beer Sheba.

Section 12 9:50-10:45

ROOM 3 (ROOM B-2)

[Bathing and QOL 1]

chairperson : Shinya Hayasaka
Satoshi Watanabe

12-1 The chronic effects of bathtub bathing, whole body warming, and herbal extracts on the mental conditions of healthy young persons

○Takaaki Kubo¹⁾, Tomonori Yasuda¹⁾, Yoshihisa Masumitsu¹⁾, Yoshihiro Iwashita¹⁾, Satoshi Watanabe²⁾, Taichi Ishizawa²⁾, Mitsuo Tsunakawa²⁾, Shingo Yano²⁾, Jun-ichi Iiyama¹⁾

1) Department of Rehabilitation, Faculty of Health Sciences, Kumamoto Health Science University, Kumamoto, Japan, 2) Bathclin Corporation, Tokyo, Japan

12-2 Relationships between health-related QOL and habitual bathing —SF36v2, visual analog scale—

○Satoshi Watanabe¹⁾²⁾³⁾⁴⁾, Taichi Ishizawa¹⁾, Mitsuo Tsunakawa¹⁾, Shingo Yano¹⁾, Toshiyuki Ojima²⁾, Shinya Hayasaka³⁾⁴⁾

1) Bathclin Corporation, Ibaraki, Japan, 2) Department of Community Health and Preventive Medicine, Hamamatsu University School of Medicine, 3) Onsen Medical Science Research Center, Japan Health and Research Institute, 4) Daito Bunka University Faculty of Sports & Health Science Department of Health Science

12-3 Effect of bathtub bathing on students' working efficiency

○Tomonori Yasuda¹⁾²⁾, Yoshihisa Masumitsu¹⁾, Takaaki Kubo¹⁾, Yoshihiro Iwashita¹⁾, Satoshi Watanabe²⁾, Taichi Ishizawa²⁾, Mitsuo Tsunakawa²⁾, Shingo Yano²⁾, Jun-ichi Iiyama¹⁾

1) Department of Rehabilitation, Faculty of Health Sciences, Kumamoto Health Science University, Kumamoto, Japan, 2) Bathclin Corporation, Tokyo, Japan

12-4 Comparisons between students who regularly take hot bathtub baths and those who do not

○Shinya Hayasaka¹⁾²⁾, Eri Eguchi²⁾, Momoko Nakajima²⁾, Mariko Takada²⁾, Akane Saito²⁾, Hideya Matsubayashi²⁾, Riho Izumida²⁾, Hiroki Sugimori²⁾, Yasuaki Goto¹⁾, Shigeo Kurihara¹⁾

1) Onsen Medical Science Research Center, 2) Department of Health Science, Daito Bunka University

13-1 The effects of daily bathing on the symptoms of the patients with bronchial asthma

○Mitsuhiro Kamimura

Pulmonology Department, National Hospital Organization Disaster Medical Center, Tokyo, Japan

13-2 Bath-related deaths in Kagoshima, Japan from 2006 to 2013: Differences in epidemiological factors between locations where the death occurred

○Takahito Hayashi, Mamoru Ogata

Department of Legal Medicine, Graduate School of Medical and Dental Sciences, Kagoshima University, Kagoshima, Japan

13-3 The questionnaire about the hot spring use and the anamnesis for Beppu residents aged 65 and over

○Toyoki Maeda

Department of Internal Medicine, Kyushu University Beppu Hospital

13-4 Regular bathing and sleep quality among older Japanese: large scale JAGES project○Toshiyuki Ojima¹⁾, Shinya Hayasaka²⁾, Chiyoe Murata³⁾, Miyo Nakade⁴⁾, Mieko Nakamura¹⁾, Hideko Nakamura¹⁾, Eisaku Okada⁵⁾, Katsunori Kondo⁵⁾, for the JAGES group⁵⁾

1) Department of Community Health and Preventive Medicine, Hamamatsu University School of Medicine, Hamamatsu, Japan, 2) Daito Bunka University, Higashi-matsuyama, Japan, 3) National Center for Geriatrics and Gerontology, Obu, Japan, 4) Tokai Gakuen University, Nagoya, Japan, 5) Nihon Fukushi University, Nagoya, Japan

13-5 Balneotherapy and rehabilitation: differences, similarities and synergies

○Christoph Gutenbrunner

Department of Rehabilitation Medicine, Hannover Medical School

14-1 Gender differences in seasonal variation of risk factors for acute myocardial infarction in eastern taiwan

○Chih-Wei Lee, Chien-Hui Huang, Chiao-Yu Shih, Yu-Zu Wu, Tseng-Hao Tseng

Department of Physical Therapy, Tzu-Chi University, Hualien, Taiwan

14-2 Inverse association between air pressure and rheumatoid arthritis synovitis○Koichiro Ohmura¹⁾, Chikashi Terao²⁾, Motomu Hashimoto³⁾, Moritoshi Furu³⁾, Hiromu Ito³⁾, Takao Fujii³⁾, Tsuneyo Mimori¹⁾³⁾

1) Department of Rheumatology and Clinical Immunology, Kyoto University Graduate School of Medicine, Kyoto, Japan, 2) Center for Genomic Medicine, Kyoto University Graduate School of Medicine, Kyoto, Japan, 3) Department of the Control for Rheumatic Diseases, Kyoto University Graduate School of Medicine, Kyoto, Japan

14-3 **Climatotherapy in the world and the potential of Japanese climate and geographical features to health promotion and disease prevention**

○Hitomi Kanayama, Yukinori Kusaka, Kazuhiro Sato, Tarou Tamura

Department of Environmental Health, Faculty of Medical Sciences, University of Fukui

Section 15 14:05-15:00

ROOM 3 (ROOM B-2)

[Climatotherapy and thalassotherapy 2]

chairperson : Antoaneta S Grozeva
Koichiro Ohmura

15-1 **Seasonal effect on rheumatoid arthritis (RA) disease activity, as analyzed based on a Japanese nationwide RA database (NinJa)**

○Tetsuji Sawada¹⁾, Hiroaki Mori¹⁾, Kota Shimada²⁾, Haeru Hayashi¹⁾, Koichiro Tahara¹⁾, Jinju Nishino³⁾, Shigeto Tohma⁴⁾

1) Department of Rheumatology, Tokyo Medical University Hospital, Tokyo, Japan, 2) Tokyo Metropolitan Tama Medical Center, Tokyo, Japan, 3) Nishino Clinic of Orthopedics and Rheumatology, Tokyo, Japan, 4) Sagami Hospital, National Hospital Organization, Kanagawa, Japan

15-2 **Thalassotherapy in diabetic polyneuropathy: a study in Pomorie, Bulgaria**

○Antoaneta Stefanova Grozeva, Mimi Ivanova Stoycheva

Medical College, Prof. Assen Zlatarov University-Burgas

15-3 **High altitude headache in high-altitude inhabitants: Investigation from the Chinese-Japanese Women's Mt. Qomolangma Medical Expedition 2005**

○Shiori Hashimoto¹⁾²⁾, Tetsuji Sawada³⁾

1) Sawada-Hashimoto Clinic, 2) Department of Neurology, Tokyo Women's Medical University, 3) Department of Rheumatology, Tokyo Medical University Hospital

15-4 **The measurement and analysis of normal incidence UVB radiation: Its application to the Dead Sea, Israel psoriasis photoclimate therapy protocol**

○Avraham I Kudish¹⁾²⁾

1) Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, ED Bergmann Campus, Beer Sheva 84105, Israel, 2) Dead Sea & Arava Science Center

Section 16 15:00-16:05

ROOM 3 (ROOM B-2)

[Analysis of medical water]

chairperson : Irena Ponikowska
Hideo Takizawa

16-1 **Geochemical analysis of acidulous medicinal waters (Carpathian Mountains, Se Poland) for finding new water rich in dissolved silica**

16-1 and 16-2 are read in a single presentation

○Dariusz R. Dobrzynski¹⁾, Lucyna Rajchel²⁾

1) Faculty of Geology, University of Warsaw, Warsaw, Poland, 2) Faculty of Geology, Geophysics and Environmental Protection, AGH University of Science and Technology, Krakow, Poland

16-2 **Silicon-aluminium interactions in medicinal waters. The first geochemical attempt to confirm the presence of hydroxylaluminosilicate colloids**

○Dariusz R. Dobrzynski¹⁾, Luiza Galbarczyk-Gasiorowska¹⁾, Anna Kostka²⁾

1) Faculty of Geology, University of Warsaw, Warsaw, Poland, 2) Polish Geological Institute, Warsaw, Poland

16-3 Microalgae and thermalism: Perspectives

○ Lourdes Mourelle, Carmen Paula Gómez, Maria Carmen Martin, Cristina Fernández, Eva Míguez, José Luis Legido

Department of Applied Physics, University of Vigo

16-4 The Importance of vanadium concentration in water used in medical hydrology

○ Krzysztof Tadeusz Marczewski¹⁾²⁾, Barbara Marczevska³⁾, Rafał Kuzioła³⁾

1) Chair of Physioterapy, Zamość University of Management and Administration, 2) Pope John Paul II Regional Hospital, 3) Institute of Environmental Engineering, The John Paul II Catholic University of Lublin, Ofiar Katynia 6a, 37-450 Stalowa Wola, Poland

16-4 and 16-5 are read in a single presentation

16-5 Is the content of pesticides and pesticides metabolites in the ground water still important for medical hydrology

○ Krzysztof Tadeusz Marczewski¹⁾²⁾, Barbara Marczevska³⁾, Rafał Kuzioła³⁾

1) Chair of Physioterapy, Zamość University of Management and Administration, 2) Pope John Paul II Regional Hospital, 3) Institute of Environmental Engineering, The John Paul II Catholic University of Lublin, Ofiar Katynia 6a, 37-450 Stalowa Wola, Poland

16-6 Assesment of isotonic thermal chlorosodic waters of the middle benue trough, Nigeria for use in drinking cure

○ K'tso Nghargbu¹⁾, Przemyslaw Adamczyk²⁾, Irena Ponikowska²⁾, Krszysztof Schoeneich³⁾

1) DEPARTMENT OF GEOLOGY AND MINING, NASARAWA STATE UNIVERSITY, KEFFI, NIGERIA, 2) Uzdrowiskowy Szpital Kliniczny w Ciechocinku, Poland, 3) Department of Geology, Ahmadu Bello University, Zaria, Nigeria

Free PC reading

16-7 An assessment of Ruwan Zafi— Numan for exploitation as a source of dietary water in Nigeria.

○ K'tso Nghargbu¹⁾, Irena Ponikowska²⁾, Teresa Latour³⁾, Ewa Kurowska⁴⁾, Krszysztof Schoeneich⁵⁾, Solomon Alagbe⁵⁾

1) Dept. of Geology and Mining, Nasarawa State University, Keffi, Nigeria, 2) 2.College of Medicine, Nicolas Copernicus University, Torun, Poland, 3) 3.Department of Health Resort Materials, National Institute of Public Health and Hygiene, Warsaw, Poland, 4) 4.Department of Fundamental Geology, University of Silesia, Katowice, Poland, 5) 5.Department of Geology, Ahmadu Bello University, Zaria, Nigeria

17-1 CO₂- and H₂S-balneotherapy: facts and future directions

○Christoph Gutenbrunner

Department of Rehabilitation Medicine, Hannover Medical School

17-2 Drinking mineral waters, the actual medical benefit – data of evidence

○Christian François Roques, P Jeambrun

AFRETH, SFMT, Paris

17-3 The effects of the high concentration carbon-dioxide water foot bath for patients after stroke: A within-subject comparison study

○Hirofumi Kanoh¹⁾, Yuji Sakashita¹⁾, Chihiro Moriyama¹⁾, Shuji Matsumoto²⁾

1) Department of Rehabilitation, Tarumizu Municipal Medical Center, Tarumizu Central Hospital

2) Department of Rehabilitation and Physical Medicine, Graduate School of Medical and Dental Sciences, Kagoshima University

17-4 The benefits of bathing with hot spring containing rich sulfur and sodium chloride - investigation in Tsukioka hot spring

○Yasuaki Goto¹⁾, Shinya Hayasaka¹⁾²⁾

1) Onsen Medical Science Research Center, Japan Health & Research Institute, 2) Sports and Health Science, Department of Health Science, Daito Bunka University

17-5 Effects of high concentration carbon-dioxide foot bath on lower extremity function and walking ability in spastic paraplegia: A case report

○Keiko Ikeda¹⁾, Shuji Matsumoto²⁾, Kodai Miyara¹⁾, Tomohiro Uema¹⁾, Takuya Hirokawa¹⁾, Tomokazu Noma¹⁾, Megumi Shimodozono²⁾

1) Department of Rehabilitation, Kirishima Rehabilitation Center of Kagoshima University Hospital, Kagoshima

2) Department of Rehabilitation and Physical Medicine, Graduate School of Medical and Dental Sciences, Kagoshima University

17-6 Spread to medical and beauty industry of the artificial high-concentrate bicarbonate warm water in Japan, and the utility

○Masaharu Maeda, Jun Yamamoto, Osamu Kinoshita, Akari Shioda

Department of Rehabilitation, International University of Health & Welfare graduate school

18-1 Effects of bathing containing artificial carbon dioxide and sodium chloride on several different symptoms: different of acute and chronic effects

○Yasuhiro Hosaki¹), Nobuyoshi Shiozawa²), Kozo Ashida³), Satoshi Watanabe⁴), Taichi Ishizawa⁴), Mitsuo Tsunakawa⁴), Shingo Yano⁴), Fumihito Mitsunobu²)³)

1) Department of Internal Medicine, Hiroshima Teishin Hospital, 2) Department of Longevity and Social Medicine, Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama University, 3) Division of Medicine, Misasa Medical Center, Okayama University Hospital, 4) Bathclin corporation (previously Tsumura Life Science Corporation)

18-2 Good indications of CO₂ therapy

○Jacques Pierre Body

Institut de Recherches Cardio-Vasculaires de Royat

18-3 Early effect of carbonated water administration on liquid gastric emptying: crossover study using the ¹³C breath test

○Toshiki Yoshioka¹), Tomomi Imamura¹), Kento Usui¹), Genta Ikubo¹), Rie Fujii¹), Kotone Okuno¹), Mizue Matsuura²), Hiroshi Iida¹)²), Masahiko Inamori²)³), Eiji Gotoh¹)

1) Department of Medical Education, Yokohama City University School of Medicine, Yokohama, Japan, 2) Gastroenterology Division, Yokohama City University Hospital, Yokohama, Japan, 3) Office of Postgraduate Medical Education, Yokohama City University Hospital, Yokohama, Japan

18-4 Beneficial effects of artificial carbon-dioxide water bathing on the quality of sleep in healthy volunteers: A pilot study

○Shuji Matsumoto¹), Keiko Ikeda²), Kodai Miyara²), Hirofumi Kano³), Yuji Sakashita³), Megumi Shimodozono¹)

1) Department of Rehabilitation and Physical Medicine, Graduate School of Medical and Dental Sciences, Kagoshima University, 2) Department of Rehabilitation, Kirishima Rehabilitation Center of Kagoshima University Hospital, 3) Department of Rehabilitation, Tarumizu Municipal Medical Center, Tarumizu Central Hospital

19-1 A pioneer in development of aquatic therapy in Taiwan – Cheng Hsin General Hospital

19-1 and 19-2 are read in a single presentation

○Julie Ishan Tzeng¹), Pei-Hsin Ku²)

1) Department of Rehabilitation, Cheng Hsin General Hospital, Taipei, Taiwan, 2) Department of Physical Therapy and Assistive Technology, National Yang-Ming University, Taipei, Taiwan

19-2 Therapeutic swimming

○Julie Ishan Tzeng¹), Erl-Mo Wayne Wu¹), Pei-Hsin Ku²)

1) Department of Rehabilitation, Cheng Hsin General Hospital, Taipei, Taiwan, 2) Department of Physical Therapy and Assistive Technology, National Yang-Ming University, Taipei, Taiwan

19-3 Long-term effects of repeated hot spring aquatic exercise combined with physical therapy on muscle strength and endurance of patients

○Yusuke Sakaguchi¹⁾, Yu Imaizumi¹⁾, Chie Ebihara¹⁾, Satoko Ishihara¹⁾, Go Horikawa¹⁾, Toshiaki Kabasawa¹⁾, Mihoko Matumura²⁾, Kunihiro Sakurai³⁾, Masaaki Masubuchi⁴⁾, Toshio Moriyama³⁾

1) Rehabilitation Center, Tochigi Medical Association Shiobara Hot Spring Hospital, Tochigi, Japan

2) Department of Endocrinology and Metabolism, Tochigi Medical Association Shiobara Hot Spring Hospital, Tochigi, Japan, 3) Department of Neurology, Tochigi Medical Association Shiobara Hot Spring Hospital,

Tochigi, Japan, 4) Department of Orthopedics, Tochigi Medical Association Shiobara Hot Spring Hospital, Tochigi, Japan

19-4 Long-term effects of repeated hot spring aquatic exercise combined with physical therapy on balance ability of patients

○Akira Sano¹⁾, Aya Soma¹⁾, Masumi Numao¹⁾, Akitoshi Watanabe¹⁾, Tomomi Ogata¹⁾, Kentaro Watanabe¹⁾, Mihoko Matumura²⁾, Kunihiro Sakurai³⁾, Masaaki Masubuchi⁴⁾, Toshio Moriyama³⁾

1) Rehabilitation Center, Tochigi Medical Association Shiobara Hot Spring Hospital, Tochigi, Japan

2) Department of Endocrinology and Metabolism, Tochigi Medical Association Shiobara Hot Spring Hospital

3) Department of Neurology, Tochigi Medical Association Shiobara Hot Spring Hospital

4) Department of Orthopedics, Tochigi Medical Association Shiobara Hot Spring Hospital