

Balneology research in Italy: facts and perspectives

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Abstract

Italy presently promotes relevant scientific research of modern thermalism and significant collaboration with health care Authorities. Even in a evidence-based discipline such as balneology, we can monitor the effects of the active ingredients contained in a particular type of water and, at the same time foster a modern clinical research approach that assesses the true action of balneology on patients.

The Italian Granting Agency for Research in Balneotherapy (FoRST) periodically invites grant proposals in the Biomedical SPA basic and clinical research area. The selection process is based on the most acclaimed international criteria to evaluate scientific quality, appropriate money allocation, and overall feasibility of the project.

Together with other European health institutions, FoRST is actively involved to improve the overall knowledge in crenotherapy also at the educational level and in collaboration with WHO is working to define skills and intervention fields of thermal medicine as well as an in depth quality review of worldwide scientific spa literature.

Key words: Balneology Research, Crenotherapy Research, Italy

Investigación Balneológica en Italia: hechos y perspectivas

Resumen

En la actualidad Italia fomenta la investigación científica relevante del termalismo moderno en significativa colaboración con las Autoridades sanitarias. En una disciplina basada en la evidencia como la balneología, podemos controlar los efectos de los principios activos contenidos en un tipo particular de agua y, al mismo tiempo, fomentar un planteamiento moderno de investigación clínica que evalúa la verdadera acción de ésta en los pacientes.

La Fundación para la Investigación Científica Termal (FoRST) convoca periódicamente subvenciones para la presentación de propuestas en el ámbito de la investigación biomédica termal básica y clínica. El proceso de selección se basa en los criterios internacionales más reconocidos para evaluar la calidad científica, la asignación de dinero apropiado, y la viabilidad global del proyecto.

Junto con otras instituciones sanitarias europeas, FoRST participa activamente para mejorar el conocimiento general de la crenoterapia también en el ámbito educativo y en colaboración con la OMS está trabajando para definir las competencias y ámbitos de intervención de la medicina termal, así como una revisión en profundidad de la calidad científica mundial de las publicaciones termales.

Palabras claves: Investigación Balneológica, Investigación en Crenoterapia, Italia

REFERENCE STANDARD

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Within the term of balneology, the concept of spa medical therapy or, as we proposed, crenotherapy (Vaccarezza and Vitale¹) is included. This is a series of practices that uses water with various mineral components and different physical properties to alleviate or to cure the symptoms of various pathologies, mainly of the respiratory, digestive and urinary tract, of the skin and middle ear, as well as rheumatologic diseases (Sukenic et al²; Bender et al³⁻⁴; Balint et al⁵; Falagas et al⁶; Fioravanti et al⁷).

The practice of crenotherapy originates from the Mediterranean sea region, where mineral water was used for hydrotherapy as witnessed by archaeological findings and numerous art pieces and literature (Routh et al⁸; Frosch⁹). Crenotherapy has reached our era as a medical discipline rarely regulated by scientific standards. Only in the last century the improved knowledge of chemistry and physics has added a rationale in classifying the different types of water based on their chemical and physical properties. The fact that in Europe, spas at the turn of the nineteenth century progressively became an élite fashion, together with the recent explosion of the modern concept of physical well-being, has hindered most of the scientific effort necessary to give to crenotherapy modern scientific foundations. One could say that crenotherapy would not have lasted 2.000 years or more if it was not effective. However, nobody would doubt that a long history cannot be taken per se as scientific proof of efficacy.

For this reason, Italy presently promotes relevant scientific research of modern thermalism and significant collaboration with health care Authorities. Even in a evidence-based discipline such as balneology, we can monitor the effects of the active ingredients contained in a particular type of water and, at the same time

foster a modern clinical research approach that assesses the true action of balneology on patients.

It is possible to study *in vitro* and to reproduce *in vivo* the activity of spa therapy studying the effects of the active principles present in the various mineral waters. In the clinical field, we can quantify the evidence of the clinical effect of spa therapy in different medical disciplines.

The Italian Granting Agency for Research in Balneotherapy (FoRST) periodically invites grant proposals in the Biomedical SPA basic and clinical research area. The only criterion for eligibility is to be a scientist specializing in the area of spa research (regardless of nationality). Applicants must be from universities, hospitals, national and international, public or private research Institutions, local administrations, departments of health, Ministry of Health, Italian National Institute of Health. The grants are focused on basic and applied biomedical spa research as well as clinical research (as outlined above). The selection process is based on the most acclaimed international criteria to evaluate scientific quality, appropriate money allocation, and overall feasibility of the project. The proposal is also carefully monitored “*in itinere*” to secure the proper development and the appropriate time schedule for the selected project. Of note, only if the results are published in an international peer reviewed scientific journal, the applicant will be awarded the final part of the financing of the project.

As a demonstration of the efficacy of this approach to foster scientific spa research, in the past few years FoRST-related projects were able, just to mention few examples, to demonstrate the action of hydrogen sulphide (one of the active chemical compounds found in spa waters) on human lymphocytes and keratinocytes, highlighting its positive effects on psoriatic lesions (Rinaldi et al¹⁰; Mirandola et al¹¹⁻¹²; Gobbi et al¹³), the possibility to use mud therapy as a delivery system (Tateo et al¹⁴), the antioxidant properties of several mineral waters (Benedetti et al¹⁵; Costantino et al¹⁶).

On a clinical stand point, FoRST has been involved in several projects such a prospective randomized studies on the effect of mineral waters on rhinosinusitis (Staffieri et al¹⁷; Ottaviano et al¹⁸), studies on the effect of mineral waters in pulmonary disease (Guarnieri et al¹⁹), on osteoarthritis (Fioravanti et al²⁰), even studies on the vascular effects of active principles found in mineral waters (Bucci et al²¹).

Together with other European health institutions, FoRST is actively involved to improve the overall knowledge in crenotherapy also at the educational level and in collaboration with WHO is working to define skills and intervention fields of thermal medicine as well as an in depth quality review of worldwide scientific spa literature.

This multifaceted approach is paving the way to the rescue of balneotherapy on a national and, more importantly, international scale: a robust, scientifically sound clinical practice based on natural principles, that will be able to reduce public health

costs if selectively used for the appropriate indications and with the use of suitable methodologies.

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