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## EVERGREEN BALNEOLOGY – THE ROMANIAN PARADIGM : INCEPTION AND WAY AHEAD

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### Résumé

**Introduction.** La Roumanie est un des pays européens les plus riches en ressources thérapeutiques naturelles, connues et appliquées en médecine depuis l'Antiquité, avec des traditions balnéaires et des connaissances scientifiques auxquelles on a ajouté de façon permanente des innovations. En Roumanie il existe une seule spécialité médicale : la médecine physique-réadaptation & la balnéo-climatologie ayant des racines dans les temps anciens et étant dans une relation holistique et intégrative moderne avec les autres spécialités médicales.

#### Matériaux et Méthodes

- Databases du Musée national de l'histoire et archéologie de Constanta et des Archives nationales de Constanta,
- Databases pour les informations sur la situation actuelle et les perspectives du développement de la balnéologie et de la médecine physique et de réadaptation,
- Journaux, livres et monographies de la spécialité.

**Résultats.** En Roumanie, en accord avec une vision toujours unifiée sur la spécialité, on a gardé la balnéologie parmi les spécialités de la médecine allopathique. La recherche a toujours aspiré à de hauts standards.

**Conclusion.** En Roumanie, la balnéologie a survécu grâce à des liens étroits avec la médecine physique et de réadaptation, un système de formation professionnelle cohérent, basé sur une unité conceptuelle et méthodologique. La balnéo-climatologie roumaine est une médecine allopathique ayant une approche holistique et intégrative.

*Mots-clefs :* Roumanie, Balnéo-climatologie, réadaptation, médecine holistique, médecine intégrative

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## Abstract

**Introduction.** Romania is one of the richest European countries in natural therapeutic resources known and effectively used in medicine, ever since ancient times, having balneal tradition and scientific knowledge. The Romanian balneal medicine can be characterized by continuity and a scientific concept of practical applications. There is a single medical speciality : physical and rehabilitation medicine and balneoclimatology.

### Materials and Methods

- Databases of the Museum of National History and Archaeology of Constanta; and documents from the National Archives Directorate of Constanta County,
- Databases for information relating to the current situation/status and perspectives for balneology/PRM development,
- Journals, books and monographs.

**Results.** According to the persistent unified vision over speciality, this was between allopathic specialities, and tried to overpass difficulties. Scientific research has been aimed at the highest possible standards.

**Conclusions.** We consider with both historical and practical facts, as well as with a series of debates and contemporary conceptual guidelines, that the balneo-climatology activity in an unified, holistic and integrative manner, and in conjunction with physical and rehabilitation medicine represents an appropriate/beneficial Romanian initiative that we present to you as : “The Way Ahead of Balneology”.

*Key words* : Romania, balneo-climatology, rehabilitation, holistic medicine, integrative medicine

## Introduction

Civilizations have developed on the banks of lakes and rivers and the oldest archaeological findings in Europe related to bathing habits dates from the Bronze Age (2,400 – 800 BC). But as early as 3000 BC some of the first prominent, well-developed settlements had arisen in Mesopotamia within the area of the Tigris–Euphrates river system, on the banks of Egypt’s River Nile, Indus River valley, and major rivers in China.

It is difficult to assess since balneo/hydrotherapy dates, because archaeological evidence from the Bronze Age have been found near hot springs in Western and Central Europe and some Celtic legend attributes the discovery of springs from Bath to first Celtic kings [23].

The Egyptians used cold mud ointment associated to sun exposure and bathing into sea’s or Nile’s water and believed that adding aromatic oils and flower essences into bath water, would help in the healing process ; Egyptian women used to potentiate sun pigmentation (bronze) with a herbal extract from Ami Majus [9].

In Ancient Greece, Hippocrates promoted bathing in spring water, motion (kinesiotherapy) and massage as integrated methods for treatment of many diseases [24]. From Antique Greece comes the word balaneion (βαλανείον) meaning: bath, bathing room [1].

Ancient Rome created communal public baths for the purpose of promoting health and wellness, across all Empire, called “*therma,ae*” (publics baths own by state) and “*balnea,ae*” (private own).

So, etymologically, the two words used today to name balneal/thermal activity have double roots in the two main civilization of Ancient Europe, Greek and Roman.

## I. Inception

Romania is one of the richest European countries in natural therapeutic resources known and effectively used in medicine, ever since ancient times, having balneal tradition and scientific knowledge to which innovations have been added continuously.

Archaeological sites from Dobrogea, the first historically attested region of Romania, show archaeological remains dating from Greek and Roman colonisation. Among them, one can be found baths (both: balaneion and thermae) with “aquaeductae” for tap water or mineral/thermal waters and tools used in medicine and cosmetics.

In March 2016 the National History and Archaeological Museum of Constanta exhibited under the title : “Mundus Muliebris. Tools for Beauty Used by Women in Antiquity” artefacts used by women to keep creams, oils and ointments (made of marble and glass), pixies, vial to keep volatile substances like perfumes, hand mirror, combs. In June 2016 under the title “Roman Medical Devices and Tools Discovered in Tomis” were exhibited scalpels, surgical needles, speculums [27].

## II. Modern and Contemporary Romanian Balneology/Medical Hydrology

Scientific studies on mineral/thermal waters were started by Ladislau Pop in 1821 with the paper work “About mineral waters from Arpâtaç, Bodoc and Covasna”, continued by Ștefan Vasile Episcopescul with “Metallic waters of Whole Romania” in 1837, and Anastasie Fătu, with “About using tap water and mineral water in Moldavia : researched, described and associated with dietetics and macrobiotics” in 1851. In XIX<sup>e</sup> century carbonated mineral waters from Borsec, may be found in Vienna, Paris, Budapest.

Dr. M. Sadoveanu, in 1903, was invited at “International Congress of Medicine from Madrid” and after that at Biarritz Congress to conference about Techirghiol mud and water. In 1904, Dr. Baiulescu wrote the first Romanian ”Medical hydrotherapy”.

“The father” of scientific balneology is consider to be Al. Saabner Tuduri that in 1900 and in 1906 published his “Mineral waters and climatic resorts of Romania”.

During the XX<sup>e</sup> century Romania was connected to main scientific events and topic of research in the field of balneology and medical hydrology. On this showing, in 1922 at Bucharest take place “The First Romanian Congress of Balneology” and is set up ’The Society of Medical Hydrology and Climatology” and in 1925 balneology was recognised as medical speciality.

Thereby within the faculties of medicine, in 1931 at Cluj - Napoca is established first chair of balneology, and in 1935 in Bucharest is founded first department of “Balneology and dietetics”. In 1949 at Bucharest – is founded the National Institute of Balneology and Physiotherapy.

### **III. Romanian Paradigm**

Romania is one of the countries of the world (alongside such countries as : Germany, France, Italy, Czech Republic, Poland, Slovakia, Hungary, and so on) in which the importance of balneo-climatology in health has been well understood for a long time. As a consequence, in our country this field of activity have been developed and valued accordingly, along the years.

Anglophone countries have not considered/put the same value, until recently, on natural cure factors, or on the therapeutic potential of balneology. So, they have not developed a significant infrastructure for this field. In these countries medical rehabilitation in urban areas/circumstances have been encouraged instead.

At the same time, countries with balneal tradition like France or Germany, consider this field (“Thermalism balnéaire/spa”, respectively ”Physikalische Therapie und Balneologie”) – practiced in spas – as being separated from Rehabilitation.

#### **III.1. Romanian balneology - Unity of speciality and education system**

In our country, balneotherapy and rehabilitation have belonged, in a unitary way, to a single allopathic speciality - Rehabilitation, Physical Medicine and Balneo-(Climato)logy just because they gain potential for each other and make a unit.

Hydro-thermo-therapy represents substantiation for this unity, as it represents a turning plate between Physical Medicine and Balneology. And, what else could be balneotherapy if not a hydro-thermo-therapy applied with thermo/mineral waters ?

The same as inhale-therapy that is a methodological subgroup which can use specific vectors, both, natural (aerosols from the sea/ocean side or from the nearby waterfalls) and artificial (produced by apparatus), that also reflects the unity of this speciality.

Speleology represents another example in which Romania has also important resources, specialists and consequent achievements such as participation in scientific events and collaboration with important national and international entities in research projects: United Nations (2013), United Nations Educational, Scientific and Cultural Organization (1975, 1982), International Council for Sciences (2009), International Association of Astmology and many other, within the frame of International Union of Speleology.

Photo-biology/-therapy too, is a methodological linking/unity group that can use both artificial sources of electro-magnetic radiations and natural sources, such as : heliotherapy – subgroup which, in our country, belongs to the balneo-climatologic field, actually. Education system for the professionals of this domain is within the frame of medical education.

In the educational plan (curricula) for students in medicine is included the discipline of physical and rehabilitation medicine and balneo-climatology to study in the last year of faculty.

In the curricula of medical speciality there are included : therapeutic natural factors, tools of physical medicine, kinetology/therapy and massage and comprehensive rehabilitation of diseases.

For the therapists, that follow short duration medical study, the curricula contains also, disciplines (hydro-thermo-therapy and balneo-climatology, physiotherapy, electro-therapy, orthosis, occupational therapy along with methods rehabilitation in main groups of pathology, geriatrics, so on) that allow them to practise after graduation in medical fiels or spa/relaxing context. The domain of licence is medicine.

For the students of physiotherapy domain of licence there also are disciplines of study for basic medical knowledge (natural therapeutic factors, rheumatology, post-trauma pathology, so on).

In this way the unity of speciality is not only an idea but a methodological concept applied into the complex practice of rehabilitation of function and prevention of diseases/illnesses (including the using of natural therapeutic factors) and having a specific educational path.

Rehabilitation courses using natural therapeutic factors are the most complex way to use balneology ; rehabilitation in rheumatic diseases is something common in Romania ; rehabilitation using natural factors after stroke, myocardial infarction, spine cord injury, fractures is usual in Romania. An enormous number of other pathological conditions have benefits from natural therapeutic factors courses, within the system of medical insurance as allopathic procedures.

### **III.2. Romanian balneology - allopathic, integrative, holistic medicine**

Balneotherapy, climatotherapy, physical medicine/physiatry, assistive technologies and devices, rehabilitative cares/rehabilitation nursing are integrated with tools of Physical and Rehabilitation Medicine that is particularly concerned with the enhancement of the quality of life.

Integrative medicine means to choose the best solution for the patient not only from allopathic medicine but also from alternative/complementary medicine using evidence based medicine as a valuable tool and focusing on wellness and health rather than on treating disease [15]. Thus, the question is : “Do biomedical models of illness make for good healthcare systems” and which is the most appropriate path to walk for the best medical solution ? [6]

In this context must be noted, as an example that we are proud to share, the researches made in Balneal and Rehabilitation Sanatorium of Techirghiol, upon mechanism of action and physiological/pathophysiological effects of balneotherapy on the inflammation’s mediators, oxidative stress, apoptosis and hormonal secretion, skin, etc as PhD thesis [3,4,7,13,16,18], national research grants [17,19,20,22], books and chapters in books [8,10,11,12,21] and scientific presentation in international and national conferences and congresses, all of these studies using (more or less) the tools of evidence based medicine. The goal was to turn out a success of ancient balneotherapy into evidence based balneology.

Balneotherapy is a holistic medicine that stimulates the human’s body forces of adaptation and defence. Crystallizing of the medical concept of quality of life together with the rediscovering the virtues of holistic medicine and of values of some therapeutic remedies from traditional medicine of different cultures have been leading to recall the interest for

balneology/balneotherapy that have the physiological/physio pathological support of its effects in the adaptation mechanisms of human body and offers a high level of improving quality of life of patients with different ailments.

The quality of life itself is a holistic concept, too, that involves four essential dimensions 1. physical condition and the capacities/performances ; 2. psychological wellbeing (self-esteem, opinion about own appearance, cognitive performances, interpersonal relationship) ; 3. position and social relationship ; 4. economical status that can be improved by balneo-creno-therapy [21].

### **III.3. Romanian balneology - healthy ageing and other European challenges**

Balneo geriatrics and its connexions with healthy ageing and health tourism is other aspect of Romanian paradigm that kept balneology within the frame of allopathic medicine and connected it with other medical specialities and fields of sciences in the mainstream of European direction of development. This aspect has, unfortunately, a historical connotation (relating to the seventy's decade) which, despite the difficulties of the post-communist transition and the more recent economic crisis, we are trying to overcome/surpass. But, during these difficult times the scientific research has been aimed at the highest possible standards.

Healthy ageing is one of the European direction of research to which we payed attention from the balneological perspective because “demographic works show the average life expectancy of people in the European Union countries has enhanced over the last decades (specifically – at birth, since one thousand nine hundred eighty – by around 0.2 years annually and seems more than likely it will continue to increase)” [2] and the high natural Romanian potential might play an important role.

Yet, “chronic disease, frailty, and disability tend to become more prevalent at older ages, so that a population with a higher life expectancy may not be healthier” [26] and may need friendly methods of treatment that balneology is able to offer.

In this heterogeneous context balneology has an important place in keeping health, preventing illnesses and rehabilitating the function/health after different pathological conditions for aged peoples, but not only. Romanian expertise in this field might turn to account/advantage.

### **III.4. Romanian balneology - some related items**

Considering the emphasized context and trends, we dare to present a synthetic overview on some balneotherapy related items, that are considered (by some scientists) not so medical and scientific, but more commercial, such as :

- well-being ; fitness ; presence/absence and/or abatement/elimination of disease risk factors, (especially) the ones associated to the “civilization pathology” [14] ;
- wellness, quality of life and an actual, advanced paradigm matching the medical and social models for human functioning [6] ;
- stress/ (di-)stress – including its relationship to premature/pathologic ageing and active

prophylactic (anti-stress/ relaxing/ fitness, “mise en forme”, anti-ageing) SPA/ balneary courses ; (Di-)stress is a concept of paramount importance, negatively related to the quality of life, wellness, and not only : “About three hundred fifty million working days are lost in the European Union each year, with stress and depression recognized as a major cause of sickness. The European working-age population is expected to shrink between two thousands twenty and two thousands sixty by 13.6 %, and the number of workers older than sixty five years old, will increase” [25]

Moreover, an optimal state of complete physical well-being requires not only the mere absence of illness risk factors and/or physical di-stress, but also a state of moderate physical performance – fitness, defined as “good health or physical condition, especially as the result of exercise and proper nutrition or the extent to which an organism is adapted to or able to produce offspring, in a particular environment” [5,26].

Thus, the great importance of anti-stress/relaxation, active prophylactic, fitness, “mise en forme”/maintenance/re-performing of work capacity, rejuvenation/ anti-ageing, balneal/SPA procedures/professionally related to balneal/thermal courses, is thus obviated, in the modern society by afore discussion.

## Conclusion

The title of this paper work expresses on the one hand authors’ pride and joy of being holders of part of a valuable scientific, methodological and practical treasure and on the other hand expresses theirs’ academic, scientific and professional confidence in the future of balneo-climatology/therapy.

Romania has old balneal tradition. Despite the big difficulties during the communist regime, post-communist long transition and recent economic crisis, balneo-climatology/therapy survived due to its tight partnership with physical medicine and rehabilitation (that historically have been added in a natural way to balneotherapy) and to its’ sustained connection with European scientific social and economic trends and topics.

Romanian paradigm consists in :

- Conceptual and methodological unit of balneology, physical and rehabilitation medicine, having a coherent and appropriate educational medical system ;
- Membership at contemporary allopathic evidence based medicine with holistic and integrative approaches (evidence based balneology) and exploring sometimes less medical topics as demographic changes and challenges or less scientific as : wellness, fitness, etc.

So, in authors’ opinion the way ahead of balneology is within “the polyphonic option” of current medical science. Polyphonic music means that each tool/instrument has its own score/sheet music but together make up a song. In this context, I invite you in the same orchestra to perform our score and together to find natural therapeutic solutions for/into the benefit of our patients.

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