

World balneotherapy research update 2019

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Global hot springs industry trends



Trends were reported to the
Global Wellness Initiative from:

- Australia
- Austria
- China
- Czech Republic
- Hungary
- Japan
- New Zealand
- Romania
- Slovakia
- South Africa
- USA

Nexus of industry trends and academic inquiry



Nexus of industry trends and academic inquiry



Trend 1: Hot Springs design for all of life enjoyment

Hot springs environments, activities and accessibility for everybody, from infants to seniors








- Retirement villages around hot springs
- Hot springs village development for the elderly market likely to keep growing



Trend 1: Hot Springs design for all of life enjoyment

Özkuk, K., B. Uysal, Z. Ateş, B. M. Ökmen, R. Sezer and G. Dilek (2018).

"The effects of inpatient versus outpatient spa therapy on pain, anxiety, and quality of life in elderly patients with generalised osteoarthritis: a pilot study." International Journal of Biometeorology.

- 50 given medication (etodolac)  
- 50 given balneotherapy as visiting outpatients  
- 50 given balneotherapy as hospital inpatients   



Trend 1: Hot Springs design for all of life enjoyment

An older study but very relevant to this trend comes from Japanese researchers:

Sakurai, R., Y. Fujiwara, H. Kim, K. Saito, M. Yasunaga, K. Nonaka, K. Kobayashi, K. Ogawa, H. Yoshida, C. Tanaka, H. Uchida, K. Suzuki, S. Watanabe and S. Shinkai (2011).

"A randomized controlled trial of the effects of a comprehensive intervention program for community-dwelling older adults." Japanese Journal of Geriatrics **48**(4): 352-360.

- 31 community-dwelling seniors
- SPRING, a comprehensive intervention program including exercise classes, nutrition classes and bathing, twice a week for 3 months.
- SPRING may improve physical function among community-dwelling older adults. In addition, SPRING may have long-term beneficial effects for older adults.

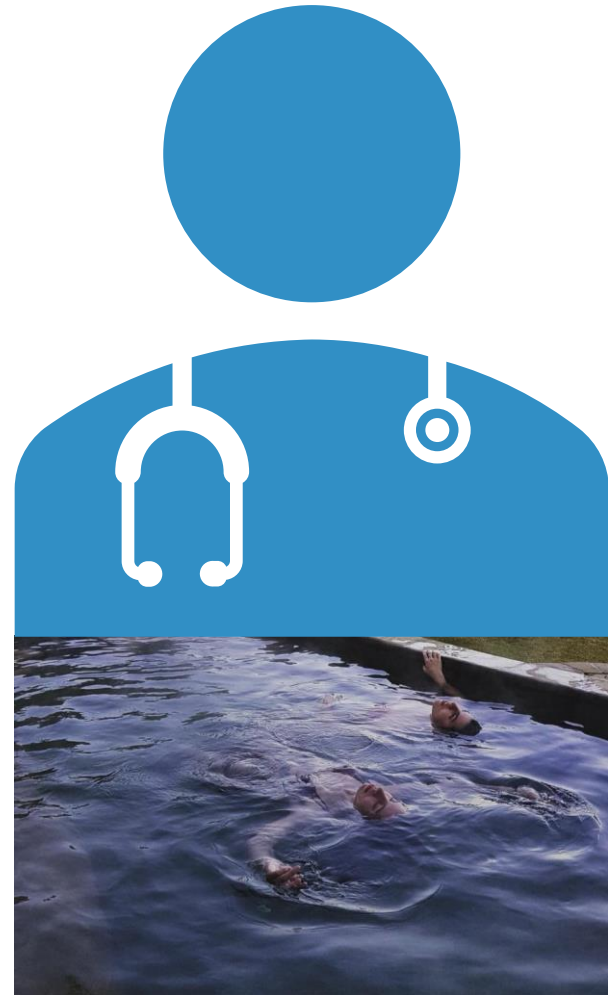


Trends 2 & 3: Wellness program integration and packaging of balneotherapy with integrative medicine

China
Czech Republic
Hungary
Romania
Slovakia
USA

- Comprehensive package of health and wellness
- Blending of centuries of tradition with modern medical knowledge
- Balneotherapy combined with medical treatment

= hot springs visitation paid for by medical insurance



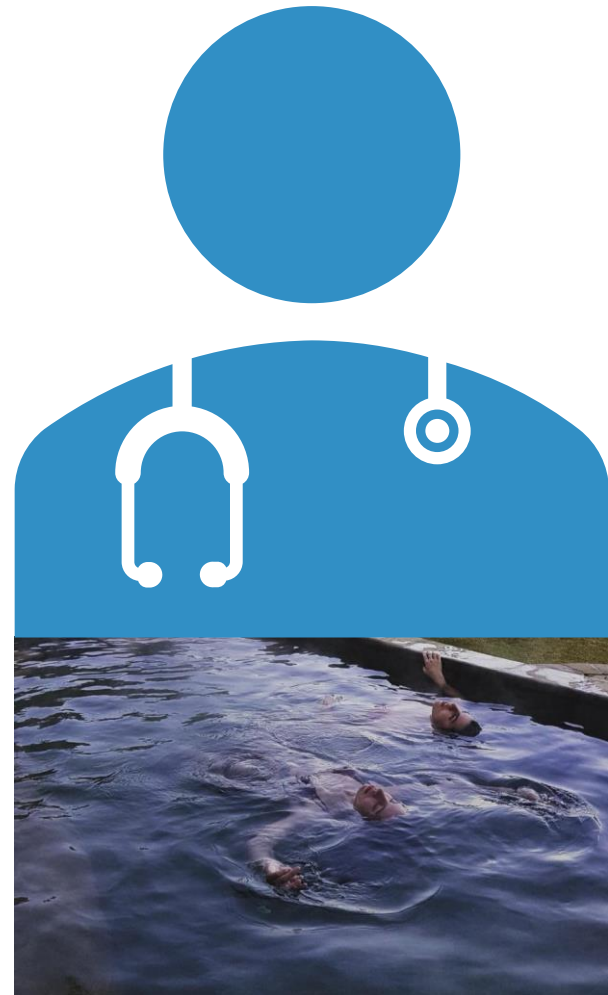
Trends 2 & 3: Wellness program integration and packaging of balneotherapy with integrative medicine

Research of the past 2 years includes packaged interventions

Balneotherapy

- + diet
- + education
- + exercise

Balneotherapy + exercise together has been shown to be more effective than either activity on its own.



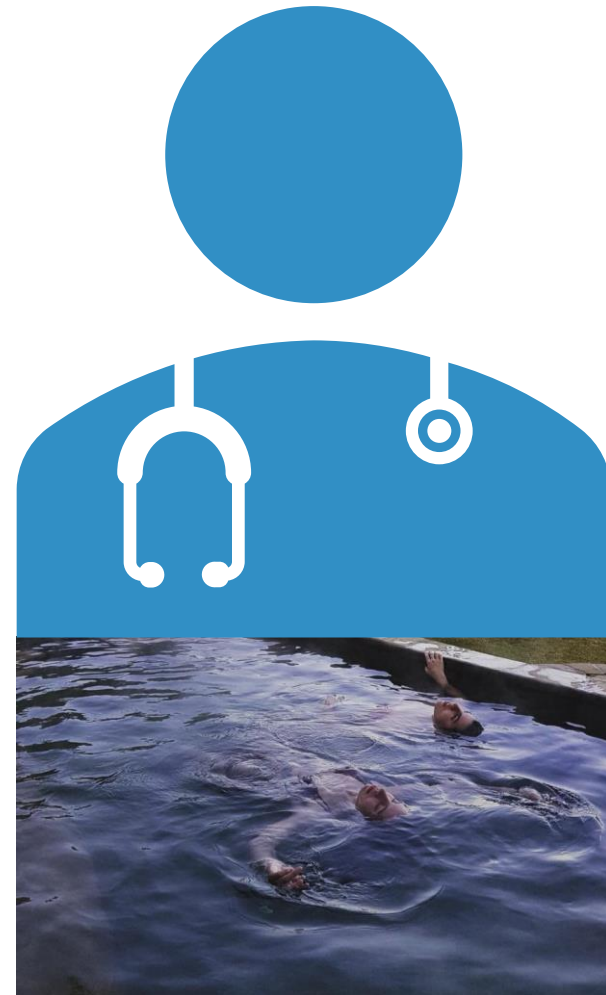
Trends 2 & 3: Wellness program integration and packaging of balneotherapy with integrative medicine

RESEARCH THIS YEAR FROM AUSTRIA

Balneotherapy + mountain hiking!

Huber, D et al. (2019). "Green exercise and mg-ca-SO₄ thermal balneotherapy for the treatment of non-specific chronic low back pain: a randomized controlled clinical trial." BMC musculoskeletal disorders **20**(1).

Better results for pain, QoL and mental health for the hiking/bathing group than hiking only or control groups



Trend 4: Water properties, educating bathers

Source name	Bolu Karacasu thermal spring			
Physical properties				
Temperature	38.5 °C			
Physicochemical properties				
pH value		6.49		
Carbonate	CO ₃ ²⁻	0.000		
Carbon dioxide	CO ₂	563.2		
Hardness		100.9		
Cations			mEq/L	% mval
Sodium	Na ⁺	14.67	2.000	8.860
Potassium	K ⁺	0.000	0.370	1.639
Ammonium	NH ₄ ⁺	0.000	0.000	0.000
Magnesium	Mg ²⁺	27.349	2.251	9.972
Calcium	Ca ²⁺	158.766	17.938	79.469
Manganese	Mn ²⁺	0.242	0.009	0.039
Iron	Fe ²⁺	0.130	0.005	0.021
Total		145.834	22.573	100.000
Anions				% mval
Fluoride				0.471
Chloride				0.935
Bromide				0.007
Iodide				0.001
Nitrite				0.034
Nitrate				0.415
Sulfate				36.525
Bicarbonate				61.587
Sulfur (sulfide)				0.000
Phosphate (hydrophosphate)	HPO ₄ ²⁻	0.280	0.006	0.026
Total		1241.551	22.245	100.000
Insoluble substances				
Metasilicic acid	H ₂ SiO ₃	55.883	0.716	
Metaboric acid	HBO ₂	0.000	0.000	
Total mineralization		1744.367	mg/L	



mg/L milligram/liter, μ S/cm microsiemens/cm, g/cm³ gram/cubic centimeter, °F water hardness French degrees, mEq/L milliequivalents/liter

A Japanese industry trend is educating onsen bathers in official water analysis to help them understand, select and enjoy onsen properly.

- Water properties are generally well reported in academic studies, health effects of some mineral properties like magnesium, sulphur and radon are well documented.
- This is an opportunity for industry and academia to work together on the creation of
 - an **evidence-based explanation of effects** and
 - a **worldwide standard therapeutic classification of hot springs**.

Morer, C., C. F. Roques, A. Françon, R. Forestier and F. Maraver (2017).

"The role of mineral elements and other chemical compounds used in balneology: data from double-blind randomised clinical trials."

International Journal of Biometeorology 61(12): 2159-2173.

Trend 5: Prevention-oriented regular bathing

China

Hot springs experiences tending towards a better fit with the Healthy China 2030 Guideline:
from **treatment-oriented to prevention-oriented**



Long term balneotherapy studies are lacking. An important exception is a recent study from China:

- Impressive number of participants (362)
- **5 MONTHS** bathing program
- Strong results in favour of long term bathing included sleep and mental stress results

Similar longer term studies could demonstrate **outcomes of preventative bathing programs, with healthy participants**, reflecting the Chinese trend and providing more data to support it.

Yang, B. Ö., 2018 #878), Q.-z. Qin, L.-l. Han, J. Lin and Y. Chen (2017). "**Spa therapy (balneotherapy) relieves mental stress, sleep disorder, and general health problems in sub-healthy people.**" International Journal of Biometeorology.

Trend 6: Connectivity with nature



South Africa

“Luxury hot springs experience creation in a wild environment, such as a wildlife reserve/spa offering in one.”

USA

“There exists a deep sense of the sacred within and among these global Hot Springs sites and sources.”



China

FEMTEC formal establishment of the Asia-Pacific Institute for Hydrotherapy and Climatotherapy Tourism, “climate wellness” at hot springs in China.

Trend 6: Connectivity with nature



The importance of hot springs ambience, landscape and connectivity with surrounds – therefore perhaps the expectation effect of the bathing experience – is not well reported.

A review of 52 studies in Japan found the physiological effects of nature therapy will play an increasingly important role in preventive medicine.

Song, C., H. Ikei and Y. Miyazaki (2016).
"Physiological effects of nature therapy: A review of the research in Japan." International Journal of Environmental Research and Public Health **13**(8).

Such studies into nature therapy/forest therapy and 'climate wellness' could be replicated to better understand hot springs-specific nature connectivity.

Trend 7: The one day escape



AUSTRIA:

Over the last 3 years, the one day escape has grown.

However, research tends to involve balneotherapy programs 2 to 3 week programs of up to 5 bathing sessions per week, especially in Europe.

An exception is an Austrian study: which found a single session bath had greater relaxation effect than exercise or Progressive Muscle Relaxation.

World balneotherapy research

Perhaps Hungarian scientists have already set the next industry trend?

A fascinating study this year from Hungarian researchers

Hanzel, A., K. Berényi, K. Horváth, K. Szendi, B. Németh and C. Varga (2019).

"Evidence for the **therapeutic effect of the organic content** in Szigetvár thermal water on osteoarthritis: a double-blind, randomized, controlled clinical trial." International Journal of Biometeorology **63**(4): 449-458.

Perhaps the many hot springs owners here might consider extracting the minerals from your water then providing a special pool of just the organic component for therapeutic bathing?

... a **BIG** challenge for your marketing departments!



'A city without a hammam is not a city...'

- Sheherezade, *Tales from the Arabian Nights*

