

STROKE TREATMENT IN A HEALTH RESORT



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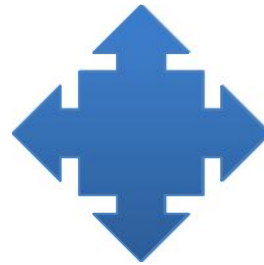


HEALTH RESORT: MULTIDISCIPLINAR CONCEPT

THERAPEUTIC ATTITUDE:

Healthy Habits (Education and Primary or Secondary Prevention)

Pharmacology



Rehabilitation

**Medical Hydrology: Balneotherapy /
Hydrotherapy/Thalassotherapy/Climatology**

LO PAGAN-SAN PEDRO DEL PINATAR-MURCIA-SPAIN

- Particular climatic conditions
- Traditional application of muds (Mar Menor) and 5 Thalasso Health Resorts.
- Sanitary Regulation of spas and medical service.
- UCM,UM studies. UCAM.



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Mobility of elements in interaction between artificial sweat and peloids used in Spanish spas

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Research paper

Composition and physico-chemical properties of peloids used in Spanish spas: A comparative study

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NEUROLOGY & THALASSOTHERAPY

- 1 Neurological diseases are NOT a traditional indication of balneology (neither thalassotherapy)
- 2. Has been considered in certain cases a classic contra-indication (acute vascular process, MS ...)
- 3. There are no publications on this field

BACKGROUND I

1- Water-based exercises are used in rehabilitation and might help to increase functionality after stroke in terms of ICF (International Classification of Functioning, Disability and Health)

- 1-Morris, DM., et al. Aquatic community-based exercise programs for stroke survivors. J. of Aquatic Physical Therapy, 1996, 4, 15-20
- 2- Jéssica Cristine Montagna et al. Effects of aquatic physiotherapy on the improvement of balance and corporal symmetry in stroke survivors .Int J Clin Exp Med 2014;7(4):1182-1187.
- 3-Paizan NL et al.. Hidrotherapy: coadjuvant treatment to kinesiotherapy in patients with sequels after stroke. Rev Neurocienc 2009; 17: 314-318
- 4- Tripp F et al Effects of an aquatic therapy approach (Halliwick therapy) on functional mobility in subacute stroke patients:a randomized controled trial. Clin Rehabil. 2014 May;28(5):432-9.
- 5- Noh DK et al The effect of aquatic therapy on postural balance and muscle strenght in stroke survivors : a randomized controlled pilot trial.. Clin Rehabil. 2008 Oct-Nov;22(10-11):966-76.

BACKGROUND II

- 2- Balneotherapy publications with significant improvements in pain, quality of life, joints flexibility (mainly in Rheumatologic diseases) and others
- 1-Deguchi A et al. Spa bathing activates fibrinolysis in patients with cerebral infarction. Intern Med. 1993 Aug;32(8):619-22.
- 2-Berger L et al. Evaluation of the immediate and mid term effects of mobilization in hot spa water on static and dynamic balance in elderly subjects Ann Readapt Med Phys. 2008 Mar;51(2):84-95.
- 3-Nechvatal P et Al. Effect of spa therapy after intervertebral disc surgery in the cervical spine Bratisl Lek Listy. 2014;115(4):238-42.

STROKE TREATMENT I

Huge heterogeneity: there are many different rehabilitation approaches to improve disability after stroke and protocols differ from country to country or even region to region (practice guidelines...)

{No one approach to physical rehabilitation is any more (or less) effective in promoting recovery of function and mobility after stroke}

Pollock K et al. Physical rehabilitation approaches for the recovery of function and mobility following stroke. A Cochrane Database Syst Rev. 2014 Apr 22;4:CD001920.

STROKE TREATMENT II

There is a lack of previous studies of Thalassotherapy in stroke treatment, but you find literature about cardiology and immersion or neurology in water training.

Becker BE et al. The biological aspects of hydrotherapy. J Back Musculoskelet Rehabil. 1994 Jan 1;4(4):255-64.

Lambeck J. Hydrotherapy in adult neurology. Journal of Electromyography and Kinesiology 1999 9(2)141-8.

Marinho-Buzelli AR et al. The effects of aquatic therapy on mobility of individuals with neurological diseases: A systematic review. Clin Rehabil 2014 Nov 13

STROKE TREATMENT III

Enriched life, scandinavian concept for stroke rehabilitation, based in:

1. High Intensity (physical activities)
2. The earlier, just the better... (neuroplasticity)
3. Nice environment (motivation)
4. Individualized training skills and goals.

1. Veerbeek JM et al. What is the evidence for Physical therapy poststroke? A systematic review and meta-analysis. PLoS One. 2014 Feb 4; 9(2)

2. Michael M Brain plasticity-based therapeutics. Front Hum Neurosci. 2014 June 27; 8: 385

3. White JH et al, Exploring stroke survivor experience of participation in an enriched environment: a qualitative study. Disabil Rehabil. 2015;37(7):593-600.

**STROKE
TREATMENT
IN THALASIA
(Thalasso
Center)**

To assess the effects
of Thalassotherapy
on the balance,
functional capacity,
pain and wellbeing of
people with post
stroke

OBJECTIVE

STROKE TREATMENT IN THALASIA

MATERIAL & METHOD I

Open-label trial: one centre, before-
and-after test.

Inclusion criteria:

stroke

Clinically stable

Exclusion criteria

- Rankin 4 or more (disability)
- Co-morbidity associated that might influence on training or thalasso tolerance

Sample: 90 participants recruited in Sweden from all around the country (2011-2014)

STROKE TREATMENT IN THALASIA

MATERIAL & METHOD II

The program consist in 2 or 3 weeks:

1. Aquatic therapy in a warm sea water pool based on Halliwick method for 45 minutes a day, 5 days a week.

2. Thalasso treatment during 30-45 minutes a day, 2 days a week.

3. Mediterranean climatotherapy and exposure to sun (Heliotherapy) and open air (- ionization)

4. Intensive physical therapy on land; 1h/ 5 days/week (individual)

5. Speech therapy, neuropsychology and specific cognitive training.

6. Relaxation (group) 2h/week.

7. Health education (lectures 2h/week).

8. Aerobic exercise on land or water (30 min, group).

9. Social activities (games, wii..)

10. Occupational therapy (hotel, market...) and family training.

SPA THERAPY APPLICATION

BATHS

SHOWERS AND JETS

MUDS

MASSAGE UNDER WATER (VICHY)

STROKE TREATMENT IN THALASIA

MATERIAL & METHOD III

The outcomes measured were:

- 1-Balance & fall risk: Berg Balance scale
- 2-Physical Functional Capacity :6 min walking test (6MWT)
(ICF Activity Domain)
- 3- Pain: VAS
- 4- Wellbeing index :WHO 5

These assessment were performed before and after intervention at Thalasias (Spain)

Statistical analysis: student t test (SPSS18). Statistical significance was set at $p < 0.05$

STROKE TREATMENT IN THALASIA

RESULTS I

- Mean age: 63; 51 % Male; 86% Chronic; 76% Ischemic

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 evainicial - evafinal	.9143	1.9572	.3308	.2420	1.5866	2.764	34	.009
Pair 2 Berginicial - Bergfinal	-7.92105	5.28323	.85705	-9.65761	-6.18450	-9.242	37	.000
Pair 3 sixmettestinic - sixmettestfin	-59.54054	78.69053	12.93664	-85.77727	-33.30381	-4.602	36	.000

STROKE TREATMENT IN THALASIA

RESULTS II

WHO5	BEF	AFTER
Total score	5880	7116
Media	65,3	79,06
Variation		17,41%

	<i>Over the last two weeks</i>	All of the time	Most of the time	More than half of the time	Less than half of the time	Some of the time	At no time
1	I have felt cheerful and in good spirits	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0
2	I have felt calm and relaxed	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0
3	I have felt active and vigorous	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0
4	I woke up feeling fresh and rested	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0
5	My daily life has been filled with things that interest me	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0

In order to monitor possible changes in wellbeing, the percentage score is used. A 10% difference indicates significant change .

Topp CW et al. The WHO-5 well-Being Index: a Systematic review of the literature. *Psychother Psychosom.* 2015;84(3):167-76.

STROKE TREATMENT IN THALASIA

RESULTS III

- Significant improvement in static balance and functional mobility ($t= 9,242$, $P=0,000$) ; Risk of fall from moderate (21-40) to mild (41-56)
- Significant improvement in functional capacity ($t=4,602$, $p=0,000$)
- Significant subjective improvement in pain ($t=2,764$, $p=0,009$) and wellbeing , overall perceived quality of life.

STROKE TREATMENT IN THALASIA

CONCLUSIONS

- Thalassotherapy in a health resort may improve balance, functionality and wellbeing or pain after a stroke (quality limitations)
- There is a lack of evidence for spa therapy after stroke (neurological diseases). Better studies are therefore required, control group and larger follow up is the challenge of the experimental group.

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GRACIAS