



## MEDICAL DOSSIER – THERMAL RESORT OF ARCHENA

### The thermal water

#### FEATURES

The medicinal mineral water from Archena, used by Iberians and Romans, was declared of public interest on 16 April 1869, pursuant to Decree 04/25/1928. It is classified as chlorinated water, containing sulphur, sulphate, sodium and calcium. Emanating from the source at a temperature of 52.5 ° C and has a residence time inside the earth 15,000 years.

It is full of negative ions that provide the body with the rest and relaxation you need to improve the defence system and promote the maintenance and improvement of the joints and repair the skin from aging.

#### COMPOSITION

CATIONS	Mg./l.	Millimoles	Millival m.eq/l.	Millival %
Calcium	298,32	7,458	14,916	22,9
Magnesium	76,23	3,137	6,274	9,7
Sodium	930,20	40,443	40,443	62,2
Potassium	132,41	3,386	3,386	5,2
ANIONS				
Bicarbonate	329,1	5,395	5,395	8,3
Sulphates	444,99	4,676	9,354	14,4
Clorides	1.778,43	50,167	50,167	77,3

Dissolved gases: hydrogen sulphide: 8.2 SH<sub>2</sub> / l.

Carbonic Anhydride: 73.3 MG.CO<sub>2</sub> / l.

The average annual temperature of 17.8 ° C and 2,769 hours of sunshine per year provides the ideal setting for people living in a cold climate to pursue a winter treatment in a thermal complex.

#### PROPERTIES

The properties of the medicinal mineral waters of Archena are an excellent natural remedy for physical ailments and for the general well being and recuperation of the body. The beneficial effects they provide the body are known to doctors and physiotherapists prescribe visits to the thermal complex of Archena.



## Indications of thermal treatments

The thermal treatments of the Archena target three different types of pathologies.

- ▲ Locomotive
- ▲ Respiratory
- ▲ Dermatological

### LOCOMOTIVE

- Osteoarthritis in any location (spine, hands, knees)
- Rheumatoid Arthritis
- Psoriatic arthritis
- Metabolic arthritis, uric acid (gout, calcium pyrophosphate (pseudogout))
- Ankylosing spondylitis
- Soft tissue rheumatism (tendonitis, myalgia, enthesopathy)
- Functional recovery before and after musculoskeletal surgery.
- Fibromyalgia rheumatics.
- Recovery of musculoskeletal injuries with involvement.

Inflammatory rheumatic diseases such as rheumatoid arthritis and ankylosing spondylitis - that are disabling conditions with back pain and spinal joints with limited functionality in general - benefit from thermal treatments performed in Archena that are aimed at improving the pain for the analgesic effect of the sulphur waters of Archena have been shown to have an effect of increased secretion of endorphins.<sup>1</sup>

Treatments based on sulphide mud also possess anti-inflammatory effect by inhibition of prostaglandin E2 and leukotriene and the decrease in the secretion of inflammatory substances such as myeloperoxidase and nitric oxide. These anti-inflammatory effects are outstanding in terms of reduction of inflammatory crisis typical of this type of diseases (Bechterew), achieving higher quality of life.<sup>2</sup>

The exercises in the water (hydrokinesitherapy) are especially recommended in inflammatory rheumatic diseases, as they limit the action of body weight on damaged joints, achieving greater mobility of the same, and without subjecting those joints to any over exertion. The temperature at which the exercises are performed in the water is 34 ° C, which facilitates muscle relaxation, which would be contracted in colder environments, allowing for more of exercises leading to joint benefits.

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<sup>1</sup>"Beta-endorphin and stress hormones in patients affected by osteoarthritis undergoing thermal mud therapy", Pizzoferrato A, Garzia I, Cenni E, Pratelli L, Tarabusi C., Laboratorio di Patologia Clinica Istituti Ortopedici Rizzoli, Bologna



Bechterew's disease, involving in its evolution a progressive loss of mobility and stiffness, particularly of the spine, benefits from exercise in and out of water, but mobility is greatly facilitated by delaying or preventing the vertebral joint stiffness that will be producing the fusion of these joints.

Currently, there are very effective new treatments for these diseases, treatments called biologics, which are revolutionizing the world of Rheumatology. But we must not forget that patients who have suffered for a long time with their disease have taken huge amounts of anti-inflammatory since the disease was diagnosed and other drugs that carry a range of side effects that are gradually undermining the defenses, the activity of the liver and generally weakening the body.

Performing treatments with mineral waters, apart from the analgesic and anti-inflammatory antioxidant effects and stimulation of the body's functions, are generally treatments that strengthen the body and are often necessary treatments in those patients who may acquire a rejection of drugs and would better tolerate these therapies where the natural, no chemicals only applications of water, mud, exercise, walks, sun and nature strengthen the body and spirit.

#### RESPIRATORY

- Rhinitis
- Pharyngitis
- Laryngitis
- Otitis
- Chronic Bronchitis
- Processes catarrhal repetition
- Asthma, bronchial hyper reactivity
- Chronic Obstructive Pulmonary Disease

Pharyngitis, one of the most common reasons people consult their doctor, usually responds to treatment with antibiotics, but exceptionally there are other non-bacterial pharyngitis caused by inflammatory processes that are to do with viral infections, fungal gastroesophageal reflux, tobacco and alcohol abuse. In these cases, treatment is indicated and prevention can be obtained through thermal therapy. For hundreds of years the hot springs have been used in the treatment of chronic airway inflammation, including pharyngitis, laryngitis, rhinitis, etc., with good results. The main pharmacological activity of these waters is due to the concentration of H<sub>2</sub>S, halogenated sulphates, arsenic and radioactivity levels, relative to antimicrobial power and mucolytic effects of sulphur.

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<sup>2</sup>“Mud bath therapy influences nitric oxide, myeloperoxidase and glutathione peroxidase serum levels in arthritic patients.” Bellometti S, Poletto M, Gregotti C



In the deeper respiratory diseases, chronic bronchitis, asthma, emphysema, where there is a significant inflammatory component, which usually responds well to therapy based on inhaled corticosteroids and that generally have a sensitivity reaction, especially in asthmatics, these waters, thanks to their anti-inflammatory, mucolytic and desensitising, achieve a reduced production of mucus, facilitating its output by acting on the movement of the cilia of the respiratory mucosal cells, and making the mucus more fluid. This will facilitate the feeling of congestion. On the respiratory mucosa generally an encouraging reaction occurs, moisturizing and toning of cells which allow improvement and eventually airway clearance and strength and resistance to external aggressions obtaining longer clinical improvement.

Respiratory therapies contact the respiratory mucosa with the hot springs. Temperatures similar to body temperature are used, which we call indifferent temperature. In our treatment schedule we will begin in the most superficial way, nasal and pharyngeal mucosa, using nasal washes and gargles. Then we will use the collective mist or fog room, individually or through airborne water droplets, which will be aspirated, and cover the mucosa nasopharynx, oropharynx and larynx, passing through the air drawn in and also covering part of the mucosa of the bronchi. Aerosols are going to achieve smaller droplets, one micron, which will go further down the respiratory tract, colonizing bronchioles and alveoli. In this way we get the water to all parts of the respiratory system.

### DERMATOLOGICAL

- Chronic Dermatitis
- Dermatitis
- Psoriasis
- Eczema

The traditional dermatological indications are psoriasis and eczema. The sulphur waters have the effect of regeneration of the skin, providing the sulphur which is diminished in cases of psoriasis or eczema. These waters are an anti-inflammatory to the skin, by acting on inflammatory mediators such as TNF- $\alpha$  or IL-8, which improves the evolution of lesions, albeit there is a small rebound effect in the first days of treatment in the form of redness in lesions or increased itching or tightness, that yields in advancing the treatment.

It is necessary, in order to obtain long-term results, that treatment for the skin disease is prolonged, all studies that have taken place tell us that to get results that are satisfactory requires at least twenty sessions.

A great improvement in the quality of life of the affected patients of extensive psoriasis and eczema has been found where treatments with sulphur hot spring treatments have taken place for 21 days.



## Applications of thermal treatments

### Archena Massage

A massage that is performed under medicinal mineral water showers using thermal mud. Its duration is around 25 minutes and it improves circulation while reducing muscle spasms. It will provide body relaxation effects, sedation and relaxation, alleviating emotional tensions.

Beneficial for rheumatic diseases, painful musculoskeletal, dermatological, respiratory and orthopaedic sequelae.

### General or local mud

Involves the application of poultice of clay mixed with medicinal mineral water from Archena's spring, at approximately about 44 ° to 45 ° C, to the joints of the body being "General", if applied in most of the joints and "Local", if only applied in some of them, it being the doctor who decides the application. This provides the body with analgesic and anti-inflammatory actions.

Beneficial for rheumatic diseases, musculoskeletal pain conditions and orthopaedic sequelae.

### Thermal bath or whirlpool

This consists of a medicinal mineral water bath, held in individual tubs with an average duration of 15 minutes. In the bath air bubbles are added to water. The water temperature is between 37°C and 39°C, according to medical prescription. Provides analgesic actions on the body, relaxing and vasodilator. Beneficial for rheumatic diseases, painful musculoskeletal, traumatic sequelae, and skin and respiratory conditions.

### Circular Shower

This consists in applying to the body surface multiple filiform jets and medicinal mineral water continuously for 5 minutes at a temperature approximately between 37 ° and 39 ° C.

Provides effects on the body of rest and relaxation, relieving emotional tensions.

### Thermal contrast shower

This involves an application similar to the circular shower, but thermal contrasts are made by cold-hot water, according to preset programs.

Provides alternating effects on the body and encourages relaxation.



### **Thermal steam room**

This is a technique based on the client's stay in a room with high relative humidity and temperature not normally exceeding 42 ° C, which favors heat transmission and gives a deep physical and mental relaxation.

### **Thermal jet**

This is a general jet pressure, following a well-defined a technique throughout the body. Thus producing a muscle relaxing effect and overall body stimulation.

### **Termarchena**

This is a small thermal circuit providing fun in addition to being therapeutic, comprising of a steam room, a pool of mineral water at 37° C, a corridor with contrast showers hot and cold and two cabins providing 5-7 minutes of manual friction. This technique gives the body a physical relaxation effect, together with a series of repeated stimuli giving rise to organic responses.

### **Aquatic assisted relaxation**

This consists of a passive motion technique in pool water with high salinity (100g / l.) which facilitates the total float. It requires a therapist skilled in this art. It is very beneficial for both mental and physical relaxation, acting on the muscle groups in the back and limbs.

It is beneficial in painful conditions of the spine and neurological pathologies of the body and extremities as well as providing a state of relaxation.

## **Applications respiratory treatments**

This consists of a circuit with various processing techniques which will put the respiratory mucosa in contact with sulphurised mineral water, from shallow to deeper.

### **Nasal wash:**

It begins by introducing hot water through a nose cannula which allows emptying a water reservoir at an ambient temperature. Water covers the entire surface of the nasal mucosa, which facilitates the recovery of damaged mucosa caused by chronic inflammation.



### **Gargling:**

Gargling with sulphurous thermal water puts in contact the mucosa of the pharynx and larynx with water, performing cleaning and taking away the remains of mucus, inhaled medications and dried mucus that is usually deposited in the damaged mucosa.

### **Misting collective (steam room):**

Inhalation in a room where there is a mist using a nebulizer, saturating the room with water mist droplets in suspension, allowing you to breathe and cover the nasal mucosa, oral, pharyngeal and laryngeal and bronchial with mineral water.

### **Single spray:**

Inhalation directly on a nebulizer. Aspirating directly mineromedicinal water droplets.

### **Aerosol:**

Inhalation of droplets, from about 1 micron size. This occurs when you go through a sonic spray. The droplet can reach the alveolar mucosa.

### **Vaporization:**

Inhalation of mineral water vapor. Effective decongestant.

## **Medical consultation**

In our establishment thermal treatments are prescribed exclusively by our medical team specializing in hydrology, who keep a comprehensive track during your stay.

The medical staff consists of a Medical Director and 4 Medical Specialists in Medical Hydrology (specialists in the knowledge and treatment with hot springs). Also attached to the consultations is a physiotherapy clinic whose techniques are complemented by thermal applications and are completely appropriate treatments for the processes that affect the people who come to us.

The results obtained in balneotherapy of Archena are highly positive and have achieved a significant improvement in quality of life for users, improving functionality and reducing musculoskeletal pain and medication use.

Balneotherapy treatment techniques with adequate functional recovery (physiotherapy), are a natural therapeutic action, complete and effective.



## Physical and functional recovery

The thermal complex of Archena already counts for 20 years with a physical therapy clinic and a team of professionals specializing in medical care. Treatments used in physiotherapy to assist our clients are:

### Cervical column

Its objectives are centered on the need to eliminate pain by acting on contracture, stiffness and muscle tension. It eliminates the overload and recovers functionality.

### Lumbar column

Aimed at eliminating the pain and improve static and dynamic behavior of the lumbosacral column, stiffness of movement and disc pathology.

It focuses on the concept of improved overall movement of the spine, with relief of muscle stress and improvement of pain levels established.

### Circulatory

Improvement of the circulation (venous) is obtained, providing sensation of relaxation by generating an anti-edema effect. Obtained by application of pressure cuffs draining in distal-proximal sequence. Furthermore, this treatment can also be performed manually by circulatory massage.

### Laser therapy

Application of laser technology in a timely manner prior to diagnosis of injury. Directed to obtain an anti-inflammatory and analgesic prior to precise diagnosis. The other alternative is the healing effect it has on certain ulcers.

### Articular pathology

Is about getting an adequate functioning of the musculoskeletal system and peripheral nervous system with the absence of pain.

Each physiotherapy prescribed under medical evaluation tries to solve a specific ailment or prevent future problems that may arise due to bad habits, lack of mobility, etc., Adapted in each case to the specific needs of the user.





## Sport activities

- **Aquagym:** Physical exercises in a pool, with the advantage of working with lower body weight and with the added strength of the thermal water.
- **Fitness:** Physical exercises of general scope to enhance every part of our body.
- **Yoga and Tai chi:** Eastern disciplines focusing on the development of our body and mind to obtain a state of well-being during your stay.
- **Walking and hiking:** Physical activity that involves taking a stroll around the most picturesque places surrounding our resort.
- **Bicycle routes**
- **Aquarobic:** Development of physical activity to the rhythm of music in the thermal waters.

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