



THERMAE PIEŠŤANY

*Health Spa Piešťany
Complex Spa Treatment*



DANUBIUS HOTELS
GROUP

Health Spa Piešťany

Health Spa Piešťany, a.s. is a private and independent medical facility which offers spa treatment to a variety of guests – including clients of health insurance companies from Slovakia and the European Union as well as clients on individual programs coming from all around the world. Our complex spa treatment of disorders of the musculoskeletal system is based on a long tradition of using unique curative natural resources (curative sulfuric thermal water and curative sulfuric mud), methods

of physical treatment and therapeutic rehabilitation, and the highest erudition and professionalism of our physicians and other medical personnel.

These very constituents of the therapeutic complex of Health Spa Piešťany guarantee significant improvement of the overall physical conditions of our guests.



Complex Spa Treatment



Based on its composition, technology of preparation and a clinical study concerning its utilization for therapeutic purposes, the Piešťany mud is certified in the entire European Union.

Disorders of the musculoskeletal system plague mankind significantly. Their severity puts them at the forefront of serious disorders.

The complex effects of balneotherapy in treating guests with disorders of the musculoskeletal system are based on the removal of unfavourable influences present in home and work environment, on the therapeutic regime with fixed, regular rhythm, physical treatment utilizing therapeutic media (thermal mineral water and curative mud), specifically aimed kinetic treatment, electro treatment, reflex treatment, physiotherapy, climatic treatment, specifically aimed medicament treatment, dietetic treatment, and psychotherapy.

Even though clinical medicine progresses at a remarkable pace, complex spa treatment remains an irreplaceable therapeutic method in the case of some disorders of the musculoskeletal system.



History of Spa Piešťany



Archeological discoveries prove that there were human settlements in the Piešťany area (namely in Moravany) as early as the Late Stone Age. But these discoveries do not provide evidence that prehistoric man used the natural treasures of the area for curative purposes.

The first written reference to Piešťany spa was made in a deed of gift of the Zobor monastery which refers to the settlement of Piešťany under the name of Pescan. The first spa buildings and facilities were primitive and uncomfortable wooden huts. Smaller and larger pools or simple holes were dug out for bathing.

The first in-depth source of information about the spa is mentioned in the work of the Royal Counselor Juraj Wernher Report Concerning Miraculous Waters of Hungary (De admirandis Hungariae aquis hypomnemata) from the year 1549, published in Basel. It takes notice not only of the curious origin and properties of the waters but also of their curative uses. The description of the primitive therapeutic methods in dug out holes filled with warm sulfuric water along with the successes achieved at treating certain disorders it provides is invaluable. The “thermae” of Piešťany are described as one of those with the best curative effects in the entire Hungarian Empire.

In the 16th century people started building more permanent structures for the more privileged groups, and they also continued treatment in the primitive pits. In 1571, Johan Crato de Crafftheim – the personal physician of three emperors (Ferdinand I, Maximilian II, and Rudolph II) – in his publication Praxis nobilis recommends treatment with the Piešťany mud to a certain Hungarian aristocrat. It was already back in those days that he determined ischial pains to be one of indications of the treatment in Piešťany – which has remained up to this day – and he recommended treatment of about one month.



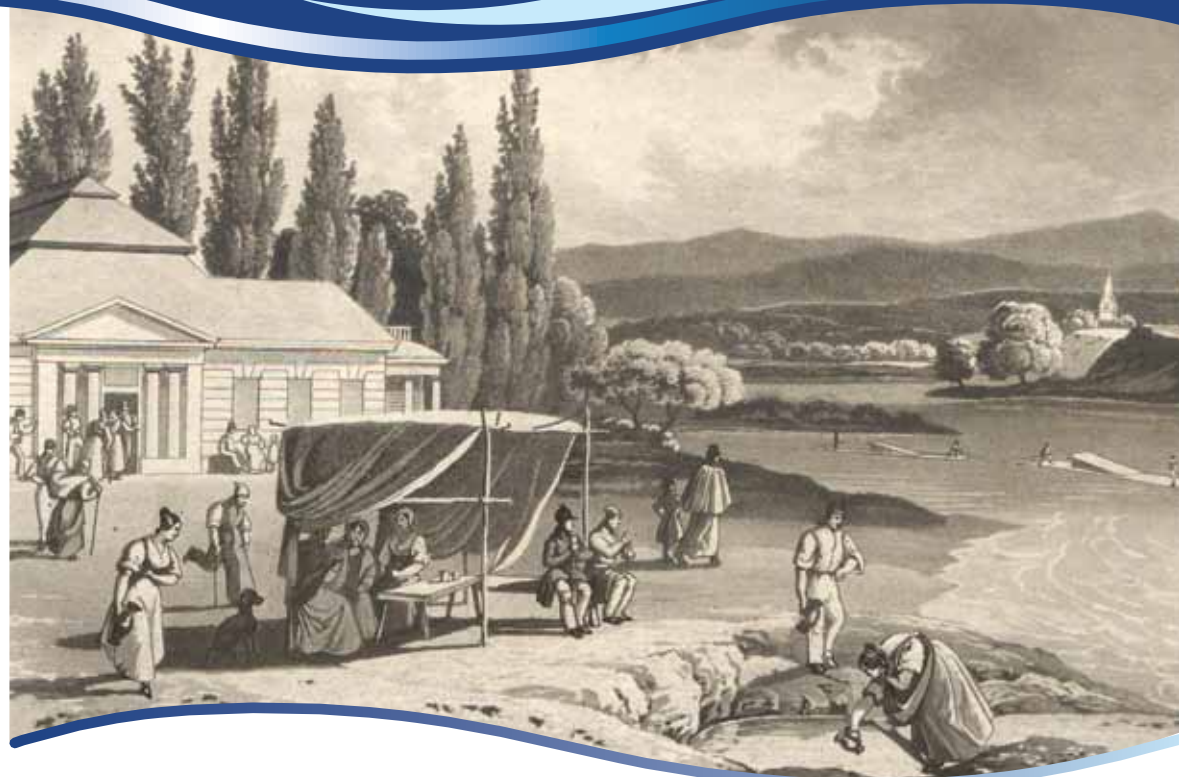
Dr. F. E. Scherer

Johan Crato is considered to be the founder of the peloidotherapy – treatment with sulfuric mud in Piešťany.

In 1745, the town physicist of Bratislava Johann Justus Torkos describes the environment of the spa and its indications, and was the first person to provide a general analysis of its thermal water in his work *Schediazma de Thermis Pösthensibus*. He recommends treatment in Piešťany for joint pains, muscle disorders, nervous and skin ailments, and for paralysis.

In the 19th century, the interest in treatment provided in Piešťany grew. New methods elaborated by physicians specializing in balneology were being implemented and the spa employed permanent spa physicians. In 1836, medical physician F. E. Scherer, in his work *The Hot Springs and Spa in Piešťany*, describes the general and a specific effect of the thermal water and curative mud of Piešťany and also presents its contra-indications. In 1859 in a work entitled *The Curative Springs of Piešťany in Hungary*, physician A. Wagner describes the mud-maturation pools which served as the basis of the technology of preparation of mud for mud packs and compresses. The very same primary technology has been the basis for mud preparation up to our days.

At the end of the 19th century, a major change occurred in Piešťany. The Winter family rented the spa and in twenty years turned it into a world known spa facility. Prior to World War I, the spa could accommodate approximately 3.000 guests. New spa



houses and luxurious hotels were built. Already at that time, the majority of spa guests came from abroad. In 1893, the first workers' spa facility in Central Europe – Pro Labore - opened in Piešťany, marking the onset of the golden era of the health spa.

One of the first doctors to settle in Piešťany after World War II was MUDr. Ladislav Schmidt. He was one of the pioneers and founders of the International League Against Rheumatism. In March of 1923 he presented a lecture on topical usage of thermal mud, its indications and technology for treatment at a meeting

of the Royal Medical Society. He published a treatise on the Piešťany spa, its springs and their importance.

Modern hotels and spa houses offered the highest standard of medical and hotel services available at that time. The town of Piešťany became a busy centre of spa activity, hosting an array of prominent people of cultural and political life. Important information concerning treatment at the spa at that time was

History of Spa Piešťany



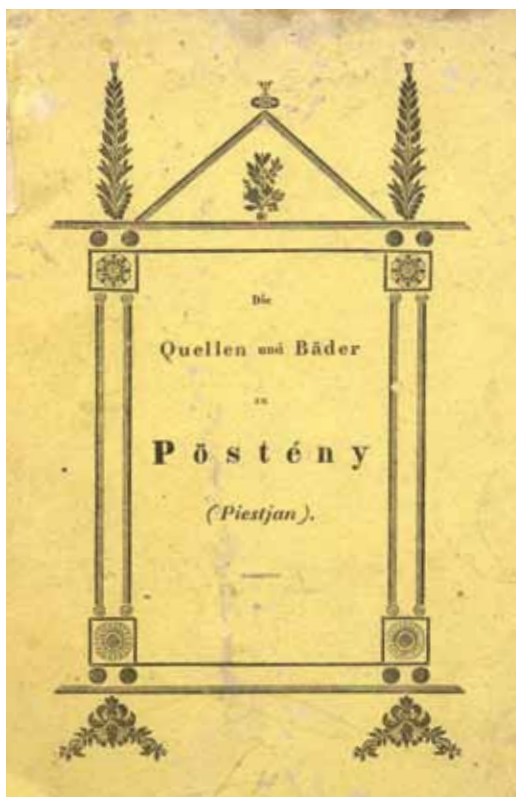
provided by physicians, such as Dr. E. Cmunt, who came to Piešťany from Prague in 1922 and worked here until the breakup of the Czechoslovak Republic in 1939.

Professor Cmunt used to work in Piešťany during summer seasons. Over time, he centred his interest on rheumatic disorders. He based his research on practical needs and founded the first rheumatology consultation centre at the clinic. His work at the

2nd Clinic of Internal Medicine led by Prof. Pelnař during winters offered Prof. Cmunt perfect conditions for elaborating on his scientific research in the field of physical medicine with special stress on rheumatologic disorders. His versatile scientific, professional and organizing work was reflected in his publishing activities. He published more than 40 scientific papers on rheumatic disorders in

local and international journals. Several of these publications involved the indications and therapeutic methods employed at the Piešťany spa and thus aided in spreading the good reputation of the facility. He visited Piešťany for the last time in 1948. His relationship to Piešťany is best described by words he published in the Spa magazine published at that time, *Saluberrimae Pistinienses Thermae*: "And so I hope that the spa in Piešťany get to see a long and fruitful existence as one of our first thermal locations with world-class renown; that is something I wish this spa and the entire Slovakia with all my heart."

The spa was nationalized in 1948. As new facilities were built, the focus shifted toward complex treatment, which has since become a priority of the treatment provided in Piešťany. In the spa, the Balnea Centre facilities were built, and the entire town experienced wild growth. In this period, significant works like those of Ing. J. Šípoš, Prof. Dr. Siťaj, Dr. Niepel, Dr. Hensel, Ing. Krahulec, Prof. Dr. Rovenský and others were published, elaborating on the scientific dissection of methodologies of treatment used in Health Spa Piešťany. Štefan Siťaj became a lecturer of balneology and, just like professor Lenocho, he centered his attention on balneology. Professor Siťaj and his colleagues doctors Weiser, Kresánek, Niepel, and Švec regularly attended work meetings in the lecture hall of the Institute of Balneology in Prague every first Thursday of the month. Prof. Siťaj and his team also took part in founding the *Acta Rheumatologica et*



*Front page of Doctor F. E. Scherer's book
from 1837*

Balneologica Pistiniana journal. This journal has kept up its tradition and is still being published.

The founding of the Research Institute of Rheumatic Disorders in Piešťany (later renamed to National Institute of Rheumatic Disorders) presented a momentous step in the field, as it significantly contributes to the scientific elaboration of treatment methodologies and approaches used in spa treatment.



Indications and Contra-indications



Indications of complex spa treatment in Piešťany may be divided into seven basic groups of disorders:

- » Non acute rheumatic inflammatory disorders (rheumatoid arthritis, chronic juvenile arthritis, and ankylosing spondylitis)
- » Degenerative disorders of the musculoskeletal system (various types of arthritis and spondylarthritis, enthesopathies, and arthropathies accompanying neuropathies)
- » Metabolic arthropathies (gout, ochronosis, chondrocalcinosis, osteoporosis)
- » Extra-articular affections (enthesopathies, various types of enthesopathy, tendonitis, tendosynovitis and bursitis, and pseudoradicular syndrome)
- » Nervous disorders (lumboischadic, cervicobrachial and cervicocranial syndrome, post-inflammation conditions of the central and peripheral nervous systems, central and peripheral paralyses, neuropathies resulting from metabolic disorders)
- » Post-traumatic and post-surgery conditions of limbs and spine, pre-surgery preparation for preplanned joint replacement
- » Statodynamic insufficiency

Apart from these groups of disorders, other cures have their rightful place in our offer too, such as treatments for obesity related to disorders of the musculoskeletal system, prevention of disorders of the musculoskeletal system, and overall or specifically aimed regeneration.

Treatments offered in Piešťany can have **contra-indications**:

- » Infectious disorders and diseases
- » All disorders in acute stage
- » Circulation deficiency of any origin
- » Acute thrombophlebitis disorders and post-thrombosis conditions
- » Unstable diabetes mellitus with repeated acidosis
- » Frequently repeated bleeding
- » Cachexy
- » Malignant tumours
- » Epilepsy
- » Psychosis attacks
- » Drug and alcohol abuse
- » Guests who have to rely on outside assistance in all respects
- » Urine and stool incontinence
- » Pregnancy



Medical Care

Therapeutic methods used only to a limited extent or methods not used at all in other treatment facilities are characteristic for the health spa in Piešťany. All therapeutic methods applied in our facilities are backed by state-of-art knowledge provided by medical science.



Our physicians play a prime role in the therapeutic process; apart from general medical knowledge, they have to be true specialists in the fields of balneology, physiatry, and therapeutic rehabilitation. Our team of spa physicians includes also specialists in neurology, rheumatology, traumatology, internal medicine, orthopaedics, paediatrics, and other fields of medical science. At the beginning of each stay, our guests are examined by one of our physicians, who specifies details of each diagnosis, and prepares a plan to rectify disorders and effects of diseases. Our facilities offer a wide range of diagnostic means to do so effectively. Throughout the duration of the stay, each guest undergoes one weekly medical check-up to reassess their current condition.

Attending physicians devote as much time to each guest as the guest's condition requires. If a disorder that exceeds the range of disorders of the musculoskeletal system is uncovered, we offer the services of consulting physicians from various fields of the medical science that are part of the team of spa physicians, or work at the National Institute for Rheumatic Disorders and other medical facilities. Our physicians have at their disposal a wide range of examinations and tests (biochemical

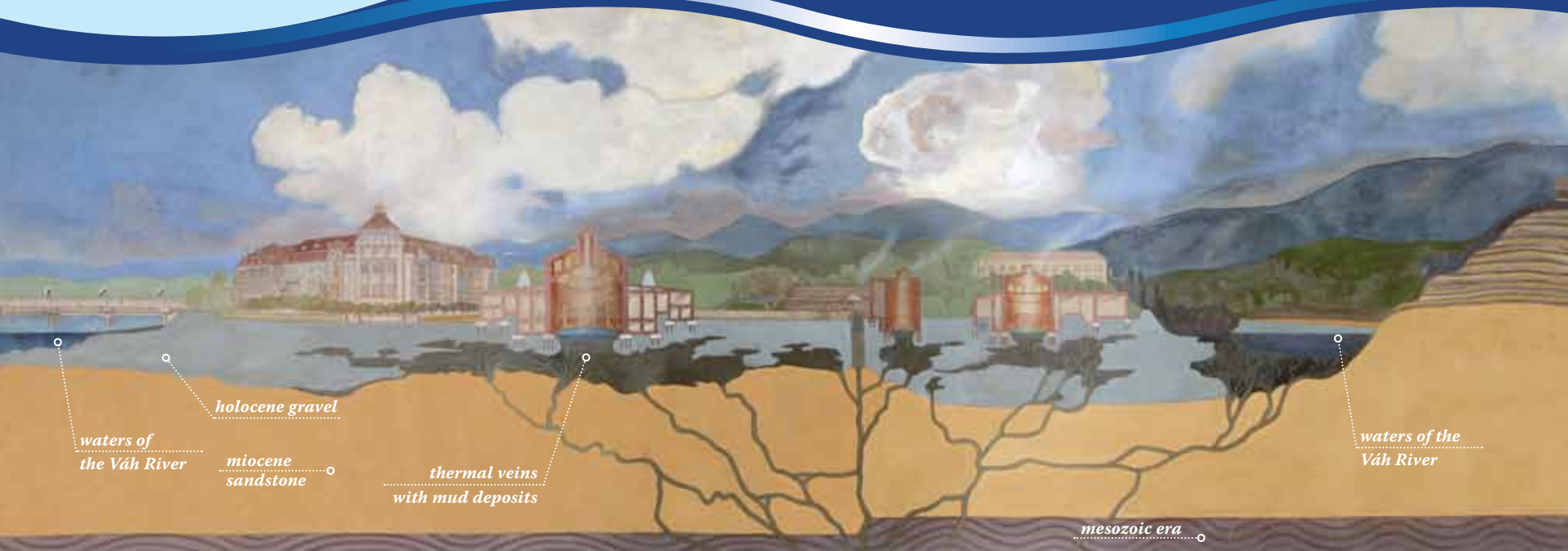
and haematological), RTG, sonograph, and a fully functional in-house laboratory. These and other examinations serve as the basis for the determination of an individual therapeutic plan for each guest. These plans are checked regularly during the course of the therapeutic stay and revised as necessary.

Medical care is provided around the clock, 24 hours a day, all through the year.

After the completion of a stay, the physician conducts a check-out examination and prepares a detailed medical report about the course of the therapy and recommendations for further approach to treatment in home conditions.



Natural Therapeutic Factors



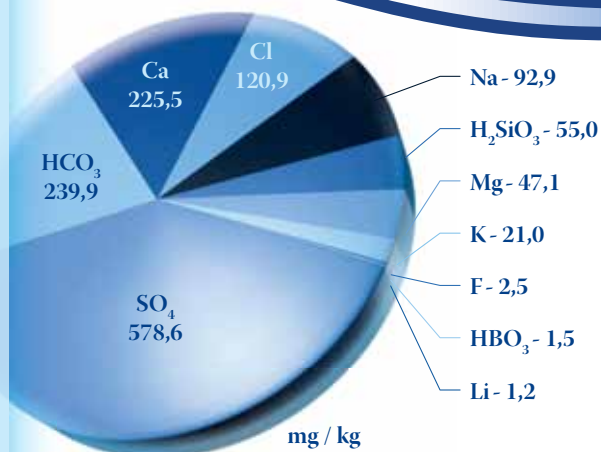
The main natural curative means used in Health Spa Piešťany are thermal sulphur water and thermal sulphuric mud.

The thermal water of Piešťany is natural curative water with the temperature of 67 – 69°C. It is defined as a sulphate bicarbonate, calcareous sodium, hydrogen sulphide, hypotonic water containing approximately 1.500 mg of mineral substances per one litre of water, with contents of free gases, especially hydrogen sulphide. This water is created from surface water that seeps through calcareous rock to depths of about 2.000 meters under the surface. As it passes through the rock, it is mineralized and as it reaches its final depth, it absorbs heat. In the depths of the earth, it hits upon impermeable layers of tectonic breaks which cross over at the exact spots where the hot springs reach the surface. Most of the springs at the Spa Island are

tapped professionally 50-60 m below the surface. The daily capacity of these tapped springs is about three million litres of water. A part of the springs is left untapped and they spring naturally into the buttress channel of the River Váh where they become part of the creation of our healing mud. In wells, water is protected from mixing with surface waters and this preserves a constantly high temperature and specific chemical composition. The thermal water of Piešťany is the warmest and the most plentiful of the thermal springs in the Carpathian region. Based on its chemical constitution, the water was declared a natural healing resource used for treatment of disorders of the musculoskeletal system by the laws of the Slovak Republic.

Composition of the mineral water used by Health Spa Piešťany

Ions	ISM mg / kg	n / 1000
NH ₄	0,800	0,044
Li	0,380	0,054
Na	92,950	4,041
K	15,100	0,386
Mg	45,830	3,769
Ca	225,500	11,253
Sr	4,000	0,091
Mn	traces	
Fe	0,557	0,019
Al	0,978	0,108
Total of cations	386,095	19,765
Fe	2,500	0,131
Cl	120,930	3,410
Br, J	traces	
Hs	3,720	0,011
No ₃	3,450	0,055
SO ₄	578,610	12,046
H ₂ PO ₄	2,620	0,026
HPO ₄	2,590	0,054
HCO ₃	239,900	3,932
Total of anions	954,320	19,766
HCO ₂	2,940	
H ₂ SiO ₃	68,800	
Total amount of minerals	1412,150	39,53
Total evaporation in 180 °C	1295,800	
Free gases		
CO ₂	63,480	
H ₂ S	4,7mg / l	



Thermal mineral water has mechanical effects and causes hydrostatic pressure and lifting force, thus making movement easier thanks to diminished effects of gravity; at the same time it improves circulation of blood and lymph. Water pressure functions as a bandage and makes exercising and movement in water easier. One of the important physical effects of thermal mineral water is the hyperthermic reaction of the body. The nervous, cardiovascular, respiratory, endocrine and immunity systems are involved in this reaction. Apart from physical effects, chemical effects of the sulphuric water are important as well – during and after a bath (since sulphur creates deposits in human skin), sulphuric substances penetrate through skin into tissues deeper in the body, especially in the form of chondroitin sulphate into connective tissues (ligaments, cartilages, tendons, etc). Sulphur also provides pronounced keratolytic, keratoplastic, vasodilating and antiseptic effects which are used to significant effect in the treatment of a select group of skin disorders.



Natural Therapeutic Factors



The healing mud of Piešťany is peloid sediment, one of the best known and highest quality peloids in the world. One of the most important qualities of the mud is its heterogeneity of its biological system which regulates its own dynamic balance. The homogenous sediment of the River Váh that settles in the spots where thermal springs touch the surface is a substrate of this mud, and it turns into a colloid mass due to the influence of thermal water. This mass is the nutrient medium for a complex of non-pathological microbial flora which comes to life in the presence of thermal mineral water. These microorganisms

are highly thermo tolerant and they reach optimum growth at temperatures exceeding 60°C. Maturation and regeneration of mud is a biological process during which sulphates are transformed into a therapeutically more significant elementary sulphur, sulphides, and hydrosulphides.

The microorganisms of the hot spring mud create a film of thermal essential oils on top of the thermal mud; with their jelly-like sheathing, these oils further improve physical qualities of the peloid. Thus the mud of Piešťany boasts unique physical, chemical



and biological qualities. Its consistency is tenacious, buttery; its colour is bluish even black; and it has excellent heat-containing qualities – it cools five times slower than water. Based on its composition, technology of preparation and a clinical study concerning its utilization for therapeutic purposes, the Piešťany mud is certified in the entire European Union.



The curative sulphuric mud of Piešťany is used for its exceptional physical qualities which include viscosity, plasticity, adhesion, heat conductivity, and thermal constancy, but also for its chemical properties – such as mineralization.

A mud pack causes reduction of swelling in joint areas, and improvement of nutrition of cartilages, connecting tissues, and intervertebral discs. It increases anti-inflammatory activity and immunity processes in the body, and slows down degeneration of elastine, collagen, and hyaluronan, thereby improving functioning of cartilages, connecting tissues, and mobility of joints.



Therapeutic Methods and Therapeutic

During the entry examination, the physician conducts a complete anamnesis examination – this examination is necessary for identifying the disorder and its causes. A personal interview with the client enables the physician to gain the client's trust.

The complex clinical examination complements the information the physician obtained through anamnesis. He performs measurements of motive functions, observes stereotypes of movement and walking, takes notice of the way everyday activities are performed, measures the strength of muscles, and he checks discovered deviations from norm or changes in observed physiological parameters through further examinations. During each spa stay or after



its completion, there almost always comes a period during which the client's condition temporarily deteriorates – both subjectively and objectively. This period, in the language of spa guests, is called “spa reaction”. In medical language, it is referred to as reactive transformation of functional systems of the body due to the influence of individual or all the factors of spa treatment. The duration of this reaction varies from case to case and depends on the overall physical condition of the client as well as the client's adaptability. Generally, it disappears during the first few days of the spa stay.

Balneotherapy

In Health Spa Piešťany, the primary natural healing resources used are thermal mineral waters and sulphuric mud.



Treatments

Mineral water is applied in the following manner:

- » **Tub baths** at a temperature of 36-38°C. It is possible to optimize the temperature according to the guest's medical condition. Tub baths are applied for periods of 15 to 20 minutes.
- » **Pool baths – Mirror Pool** at a temperature of 38-39°C. It is possible to regulate the load on the client's body by regulating the depth of submersion or the duration of the bath, usually between 10 to 20 minutes.
- » Bath in a pool with natural bottom – **Mud Pool** – this is a traditional pool with a natural, unaltered bottom. Water seeps right into the pool in the form of several smaller springs through a layer of mud. In essence, it is a diluted mud bath, a unique phenomenon of the Piešťany spa.
- » **Bubble baths** (with input of compressed air) and **carbon dioxide baths** (saturated with CO₂).
- » **Underwater jet massages** in special tubs with water under the pressure of 3,5 to 4 atmospheres and water temperature of approximately 37°C.
- » **Whirlpool baths** at a temperature of approximately 36-37°C.
- » **Alternating temperature foot bath** during which water at two different temperatures 10-16°C and 40-46°C – is used alternatively.
- » **Mineral water drinking cure.**

Duration of application as well as form and frequency of application are determined by a physician on the basis of the client's medical condition.



Mud treatments are administered in the form of:

- » partial packs,
- » full body packs,
- » mud pools,
- » parafango – utilizing Piešťany mud in combination with paraffin.



The technology of preparation and administering of treatments guarantees application under strict hygienic conditions. The amount of administered mud depends on the scope of the application and ranges between several kilograms and 70 kilograms of mud, while the thickness of the layer of mud on the client's body ranges between 4 and 8 centimetres. The temperature of the applied mud is between 40 and 46°C, and the duration of each application ranges between 15 and 20 minutes.

Therapeutic Methods and Therapeutic



Therapeutic rehabilitation in Health Spa Piešťany includes:

- » individual therapeutic exercise,
- » special therapeutic exercise,
- » group therapeutic exercise,
- » therapeutic exercise in water - hydrokinesiotherapy,
- » traction exercise in suspensions and pulleys,
- » dry tractions and underwater tractions,
- » fitness centre exercise,
- » sports games and terrain treatments at rehabilitation paths and in the open nature.

Rehabilitation swimming is a recommended form of rehabilitation as well.

Therapeutic Rehabilitation

Along with the natural curative resources, the therapeutic plan consists of a wide spectrum of **rehabilitation methods and techniques**. The attending physician decides which rehabilitation methods are to be applied for each guest individually. These are then administered and performed by specialized personnel - physiotherapists.

Rehabilitation treatments have several non-specific effects, such as stimulation and toning, influence

over circulatory and respiratory functions, as well as stability of vegetative balance and improvement of immunological defence reactions. Positive effects on the musculoskeletal system, increase of muscular strength and endurance, prevention of deformations, functional training, overall improvement to movement coordination, full capacity or at least full self-sufficiency in basic daily routines are some of the specific effects of these treatments.



Treatments



The goal of **positioning in suspensions** is to prevent the occurrence of muscle contractures and deformations and enables the client to perform movement with less resistance. **Dry tractions and underwater tractions** are applied in indicated cases on doctor's prescription. The goal is to create negative pressure in the intervertebral space and to relieve the surrounding (paravertebral) structures.

Common therapeutic methods include facilitating methods, mobilization techniques, electrical stimulation, caressing techniques, and others. The main principle applied to all treatments is individual approach. One of the special methods used is ergotherapy during which rehabilitation working techniques are used to help the client regain some of



their body functions. During hydrokinesiotherapy in rehabilitation pools chemical and physical properties of water are used to achieve desired effects. In such conditions, muscular relaxation is achieved more easily. Conditioning swimming is an activity suitable for improvement of muscle strength and movement coordination, as well as respiration and the cardiovascular apparatus.

Therapeutic Methods and Therapeutic

Physiotherapy

One of the oldest physical therapeutic methods is **therapeutic massage**, one of the forms of **physiotherapy**. These are a few examples of therapeutic massages provided at our spa facilities:

- » classical massages,
- » reflex massages,
- » partial massages, and
- » underwater massages.

Apart from these massages, we also offer various other massages directed at a specific organ or part of the body, and sports and relaxation massages.

Physiotherapy is especially effective as part of therapy aimed at treating disorders of the musculoskeletal system. Friction, stroking, rubbing, kneading, tapping, and vibrations impact muscles, tendons, articular



capsules and other tissues. A massage stimulates local circulatory, trophic, and biochemical changes, and overall reflex and humeral changes.

Electrotherapy

This type of physical therapy is being constantly perfected and enriched with new apparatuses. Electrotherapy has very positive effects in improving circulation and nutrition values in damaged tissues, it helps fight inflammatory processes, and it improves motive functions.

We utilize the following electrotherapeutic treatments:

- » galvanic currents,
- » mixed diadynamic stimulus currents, and
- » interference currents.

We also successfully apply **ultrasound therapies** and various types of **phototherapy** utilizing artificial sources of light. In the past few years, we have built up significant experience in the usage of **magnetic therapy** and **laser therapy**.



Treatments

Other Treatments

Manipulation therapy - which has a long-lasting history in Piešťany - is being used with success to treat blockages of the musculoskeletal system. It is conducted solely by doctors trained especially in this field.

In some cases, we have recorded good results when working with **acupuncture**. Just like manipulation therapy, acupuncture can only be performed by doctors trained in this field of medical science.

In individual cases, complex spa treatment also involves **therapy by medication**. Often it would be impossible to treat clients' conditions without this type of treatment. Our goal is to limit doses of prescribed medications needed to treat a disorder to a minimum or to stop medicating the client at all – if their condition allows.

Therapeutic nutrition plays an important role in complex spa treatment. The dietetic system in Health Spa Piešťany is based on a physiological principle and



therefore the diets based on the system are not one-sided and unbalanced. The caloric content of our dietetic system respects the specific requirements a body has while undergoing balneotherapeutic applications and it is also able to concentrate on reducing a client's weight. Dietetic therapy is directed by specialist nutritionist assistants and doctors trained in the field.

Psychotherapy is an integral part of the balneotherapeutic complex.

The goal of complex spa treatment is to improve or stabilize functions of the musculoskeletal system upset by pathological processes. But stress is also laid on improving the client's subjective feeling of physical and psychological fitness, which in end-effect contributes to the overall improvement of the quality of life of any patient with chronic complaints.



Therapeutic Methods and Therapeutic



Results of Complex Spa Treatment in Piešťany for Indicated Disorders

Complex spa treatments of disorders of the musculoskeletal system have a special therapeutic purpose. The client is freed of the problems of his or her everyday life, and they are subject to beneficial effects of the new environment, natural curative resources, state-of-the-art methods of physical therapy, and therapeutic care of highly skilled medical personnel. The client is also offered various opportunities to enjoy sports, culture or a rich social life. The spa complex is subject to a special protective therapeutic regime because according to laws of the Slovak Republic the Health Spa is a medical facility and as such guarantees complex medical care. When the client leaves our facilities to return back home, not only does he take the results of the overall effect of the complex of therapeutic treatments home with him, but also a rudimentary knowledge of therapeutic exercise suitable for his condition, basic medical knowledge, recommended diets, and optimism necessary for further improvement.

Good therapeutic results are a stimulus for repeating treatment, and the frequent returns of our clients for further treatment are the best proof of that.

Studies with specifically defined nosological units performed at Health Spa Piešťany prove our empirical experience with the positive effects of complex spa treatment. They provide evidence which proves that our complex balneotherapy achieves excellent results in treating correctly selected and indicated cases.



In the past, spa stays were considered to be solely therapeutic stays. At present, spa stays are viewed more and more often as prevention of possible disorders.

Preventive spa treatment is recommended for healthy middle-aged clients and for people weakened by disorders or exceptional psychological and physical strain. The goal of such therapy is to provide psychological relief, physical reconditioning, and improvement of immunological resistance. The process concentrates on elimination of risk situations from the client's current regime.

Treatments

The recommended length of stay to achieve positive results and significant improvement of the client's condition is three weeks. Healthy clients interested in regenerating their bodies are also offered shorter individual stays. Preventive stays at Health Spa Piešťany are based on an assessment of the client's current medical condition, performed by a doctor. The doctor then recommends suitable therapeutic treatments the goal of which is to regenerate the entire body.

A selection of suitable treatments picked by the doctor from more than 60 possibilities and "custom fitted" for each client according to their medical condition has such beneficial affects that already after two weeks of spa therapy you will start feeling significant improvement.

Preventive spa stays have proven to be very effective in preventing diabetes, disorders of the respiratory system, psychosomatic disorders, and various other ailments. Many studies point out the beneficial influence over risk factors of arteriosclerosis after 3 to 4 weeks of a professionally conducted spa stay. Blood pressure stabilizes, fat metabolism disorders are adjusted, and weight is reduced in cases of obesity. A spa stay can significantly influence movement deficiency as one of the risk factors and motivate continuous movement activity.

Balneotherapy plays an important role in preventing changes related to aging, and it stimulates the client to attain new eating habits and adjust their lifestyle.



Further Development of Spa Care



And that also explains why none of these skin disorders spread from patient to patient even though the baths are frequented by thousands of clients. On the contrary, after treatment, many skin disorders show signs of improvement.

It is necessary to say though that not all effects of the “Piešťany phenomenon” have been explained entirely, and that is why further characterization of extracts of the mud used in Piešťany and its biological effects may yet contribute significantly to a wider range of therapeutic applications.

Continuing in the research of biological effects of natural healing resources is one of the most crucial roles undertaken by Health Spa Piešťany.



Current Research Findings

There is no doubt that Piešťany is one of the most famous spa facilities. Their fame has spread all over the world due to its successful therapy. The “Piešťany phenomenon” – as we could call the thermal mineral water and curative sulphuric mud of Piešťany – has become the interest of intense and detailed studies thanks to the uniqueness of its chemical and biochemical processes and, most of all, its biological effects. The thermal mud is the most specific feature of the Piešťany phenomenon. Here, in the hot water

with high contents of hydrogen sulphide, incessant chemical and biochemical processes take place, and thanks to these processes the mud is created and regenerated after use. Beside the chemical processes, various enzyme induced processes occur in the mud, as well as processes stimulated by microorganism activity. Many of these microorganisms produce substances which actively fight other forms of microorganism life. Thus these natural substances inhibit the spreading of moulds, which frequently cause skin disorders.

and Complex Spa Treatment

Study of Biological Effects of Piešťany Mud and Thermal Water

Scientific research reports from 1996 and from recent years stated several new discoveries. They confirmed previously known information that the thermal mud contains various chemical substances of inorganic origin (mainly substances containing sulphur), but also substances of organic origin, such as metabolites of microorganisms and higher plants. Scientists were able to isolate some of the metabolites in their original form. Various microorganisms can be found in thermal water and mud, where they take part in creating biological activity – especially in mud. Mud is a living system with certain dynamic balance, and this balance is repeatedly recreated as the mud regenerates. Extremophilic microorganisms (bacteria) specific probably solely for the area of the spa in Piešťany were isolated from the mud here. Extracts from the thermal mud of Piešťany show anti-inflammatory and anti-arthritis effects as early as after three weeks of application.

The research described in these reports went in two directions. The first direction was aimed towards therapy – to prove the biological effects of the mud and the thermal water, but also to prove the presence of other potential constituents present in both resources. The biological activity in both is determined not only by sulphuric substances, but also by organic matters which get into the mud in the form of metabolites of microorganisms present in the mud. The second direction of the research, the one

described in the experimental part, was technological in nature. Several types of microorganisms were isolated from the mud. Some of these microorganisms have not been clearly identified and classified yet. The simple fact that there are microorganisms present that have not been classified yet is significant. With some, the effects of temperature upon their growth were studied. The prevailing belief is that the stems that show growth at temperatures exceeding 40°C will prove to be of further interest. From the moment the mud enters the mud kitchen, thermophilic bacteria are added into the process – their multiplication grows with rising temperature and it reaches its maximum potential at approximately 65°C. These findings are crucial for further research aimed at improving preparation and regeneration of mud.

It is very complicated to observe the transformation of sulphur and sulphuric substances in thermal water. Sulphuric substances in the water and mud are in dynamic balance – it recreates constantly. Any disturbance to this balance causes changes in quality. Once we realize that both chemical and biological processes are involved in preserving of the dynamic balance, we see that the technological processes involved in preparation and regeneration of mud need to be regulated with great care.

From the very start of research dedicated to the thermal mineral water and curative sulphuric mud of Piešťany, it has been assumed that they are natural phenomena the therapeutic effect of which is being repeated and preserved spontaneously – for the time being – thanks to given conditions which can be

stabilized artificially. Thermal mud is a heterogeneous but live system which has kept itself in dynamic balance until now. It is our duty to accept the natural laws that determine the auto-regulation of these processes and thus the auto-regulation of creation of the mud to preserve the once-proven and constantly verified therapeutic effects of our mud.





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