
SPA THERAPY IN HUNGARY

KOVÁCS Cs

Centre for Locomotor Rehabilitation, Mezőkövesd, Hungary

Push a birch rod firmly into the soil anywhere in Hungary and sooner or later some sort of thermal water, mineral water or spring will eventually gush forth.

Written by chemist Vilmos Hankó during the 1880's, the quotation above is only a slight exaggeration in terms of giving one a sense of the geothermal richness to be found in Hungary, which contains thermal water under 80 % of its territory. By international comparison, only Japan, Iceland, Italy and France possess similar features, yet Hungary is all the more exceptional in this regard. The average value of the geothermal gradient here is 5°C/100 m, meaning that water temperature rises by 1°C every 20 metres in an upward direction [1]. This figure is one and a half times higher than the world average, which explains why most artificial drilling in Hungary yields high-temperature thermal water and also why only mineral water with a temperature higher than 30°C is referred to as thermal. Moreover, there are two main thermal water basins under the surface of the earth, a decisive factor in light of both quantity and quality.

<i>Carbonic waters</i>	Balatonfüred, Kékkút
<i>Alkaline waters</i>	Bükkszék, Gyula, Gyopárosfürdő
<i>Calcium-magnesium-hydrogen-carbonic waters</i>	Budapest, Bük, Balatonfüred
<i>Chloric waters</i>	Sárvár, Kalocsa
<i>Bitter Sulphate waters</i>	Nagyigmánd, Tiszajenő
<i>Ferruginous waters</i>	Parád
<i>Sulphurous waters</i>	Harkány, Mezőkövesd, Hévíz, Balf
<i>Iodine-bromine waters</i>	Hajdúszoboszló, Debrecen, Berekfürdő, Sóshartyán
<i>Radioactive medicinal waters</i>	Eger, Hévíz, Budapest

Fig. 1 - The division and location of mineral waters in Hungary based on the Szilárd Papp system.

The chemical composition of mineral waters in Hungary is extremely varied. Simple thermal waters contain no more than 1 g/litre of mineral substances or otherwise biologically active components. Depending on their temperature, waters of this kind are appropriate for utilisation in spas and outdoor swimming pools.

- *Simple carbonic waters* have a carbonic-acid content of 1000 mg/litre and contain other chemical elements only in minimal amounts. Such waters are very rare - due to their content - because they are capable of dissolving large amounts of salt from the rock in the soil and are thus transformed into calcium-magnesium-hydrogen-carbonic waters or alkaline-hydrogen-carbonic waters. When absorbed by the body through the skin and respiratory tract, carbon-dioxide can be successfully applied in the treatment of patients suffering from peripheral angiopathy and cardiac illness. Consequently, one of the most important healing factors on the shore of Lake Balaton is the carbonic acid bath in Balatonfüred, where the first centre for cardiological rehabilitation in Hungary was organised [2].

- *Alkali-hydrogen-carbonic (alkaline) waters* contain more than 1 g/litre of dissolved substances in which the majority of cations are sodium and potassium and the majority of anions are hydrogen-carbonate. These can be applied in both bathing and drinking regimens.

- *Calcium-magnesium-hydrogen-carbonic waters* often contain carbonic acid, sulphur and radon as well. Calcium and magnesium play a biologically significant role in terms of their antiphlogistic effects [3]. Such springs are abundant in Budapest e.g. the Császár, Lukács, Rác, Rudas and Gellért baths.

- *Chloric or saline waters* contain at least 1 g/litre of sodium-chloride. Salt waters in Hungary are warm, most of them in the category of mildly saline mineral water, but they also contain other components, primarily iodine, bromine, fluorine, sulphur and carbonic acid. Naturally, the biological effects of these chemical elements are beneficial in bath therapy as well.

- *Iodic waters* contain at least 1 mg iodine ion/litre. So-called "Jodaqua" water from Sósartyán, for example, is used for drinking regimens and has an iodine ion content of 93 mg/litre, which is exceptionally high even by international comparison.

- *Bitter Sulphate waters* are mainly valuable for drinking cures, whereas *ferruginous waters* used in bathing therapy are primarily beneficial in the treatment of gynaecological illnesses, but these are also recommended for drinking in cases of iron-deficiency abscess.

- Most important from the aspect of medicinal bath therapy are *sulphurous waters*, which contain from 1-15mg oxidisable, iodine-titratable sulphur sulphide/litre. In most cases, additional components are also present. The water found in Mezökövesd is composed of calcium-magnesium-hydrogen-carbonic-chloride-sulphur and has the highest sulphur content in Hungary (average 15.5 mg/litre).

Due to their keratolytic and antiseptic properties, sulphurous medicinal waters in Hungary are also effective in the treatment of dermatological illnesses such as psoriasis and eczema in addition to providing benefits in therapy for locomotor disorders [4].

- The level of activity in the *radioactive medicinal waters* of Hungary is not hazardous. Such waters contain at least 1 millimicrocurie of radon/litre, and because of their sustained paregoric effects, they have also proven to be beneficial in the treatment of rheumatoid arthritis [5]. One of the greatest natural treasures in the historical city of Eger

is the radioactive mineral water originating from several springs deep under the earth nearby.

Mineral water can be considered medicinal when its benefits are proven by clinical studies. These can take place in the form of double-blind clinical trials or via follow-up trials conducted on a homogenous patient population with the help of mathematical statistics. Several trials in Hungary have proven the efficacy of thermal water in the treatment of arthrosis as well as low back pain [6-8]. Clinical researcher I. Szűcs and his colleagues conducted the first double-blind trial in the world to examine the effectiveness of Püspökladány thermal water on arthrosis of the knee. Their findings indicated that the physical complaints of patients bathed in the thermal water decreased significantly compared to those in the control group treated with tap-water [9].

The complex physical effects of medicinal waters – hydrostatic pressure, lift, temperature – are important, but their less proven chemical effects are equally essential. Obviously, determining whether spa therapy can be recommended for a patient is the task of medical professionals. Doctors prescribe the conditions for treatment with medicinal water : temperature, bath-time and frequency. In order to achieve therapeutic benefits, it is recommended that patients spend 20-40 minutes in the water daily. One course of therapy consists of 10-15 treatments and positive results can only be achieved by following the prescribed conditions.

After 4-8 days of bath therapy, patients may experience a worsening of their condition, increased pain and a sense of depression accompanied by an increased erythrocyte sedimentation and white blood-cell count. This is referred to as spa or mineral water reaction and is generally a temporary phenomenon which does not necessitate termination of the treatment [10].

Balneotherapy today is combined with other forms of treatment, most often including physical therapy, medical massage, electrotherapy and mud-pack. There are five sources of natural medicinal mud in Hungary : “Maros mud” in Makó, “Kolop mud” from the vicinity of the Tisza River, mixed peloid from Hévíz Lake in Hévíz, the mud at the City Baths in Hajdúszoboszló, and “Georgikon”, the natural peat found in Alsópáhok [11].

Thanks to the health tourism development program announced as part of the Széchenyi-plan in 2001, medicinal spas are once again the focus of attention, fostering further development in the field of balneology. Hungary’s membership in the European Union has also increased opportunities for tendering. In 2003, there were 168 mineral waters and 38 spas registered in Hungary. At present, there are 221 mineral waters, 203 medicinal waters, 66 spas, 13 spa resorts and 30 spa hotels (data from November 2007) [11].

In light of the above, Hungary does indeed feature an abundant variety of medicinal waters that must be considered a national treasure and handled accordingly.

As a natural healing factor, medicinal water plays a role in both spa and wellness tourism. The historical baths and bathing culture of Hungary, along with recent spa development and the professional knowledge of doctors, are a further guarantee of quality service. This has already been recognised by foreign patients, more and more of

whom are visiting Hungary as tourists seeking health services. Even so, the development of health tourism is impossible without medical research, the results of which will enable future generations to regard our time as the new golden age of balneology.

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