

## FACTS about risk group and solution, positive effects by Balneology:

### Respiratory Problems:

Patients with existing illnesses that cause breathlessness, wheezing or lung problems run a higher risk of developing severe cases of COVID-19 infection due to the new coronavirus, according to a pooled analysis study published this week, conducted by researchers at Britain's University College London. Patients with shortness of breath were 3.7 times more likely to have severe COVID-19 disease and 6.6 times more likely to need intensive care than those without, it found. Patients with COPD were 6.4 times more likely to develop severe disease, and 17.8 times more likely to be admitted to intensive care.

In Europe are many **climatic health resort by the seaside and in the high mountains** (Germany, France, Baltic countries, Netherlands; Bulgaria, Romania, Slovenia, Slovakia ect) and has to meet many conditions and must be proven that the climatic conditions have an extremely positive effect on human health and well-being according the expert opinions of health ministries. Thanks to the knowledge of air hygiene and bioclimatology, the spa guests and therapists in **climatic health destinations** are able to tailor the available climate stimuli, which have positive effects on health, entirely to individual needs.

In the case of respiratory diseases some of the **mineral waters** are used not only for **drinking therapy**, but **for aerosolotherapy (inhalations)**, gargling and nose flush or baths. In traditional European spas are used in this way natrium hydrogen-carbonate mineral waters, waters with high content of calcium and salty waters (brine). The curative effects of the mineral waters are given by their special chemical and physical characteristics and its biological effects. Like in the Spa Town of Luhačovice in the Czech Republic is connected with spa therapy, enjoying a long tradition of respiratory disease treatment. The therapy is based on utilisation of the local natural mineral water, clean air and specific favourable climatic conditions. Healing mineral water there is the hydrogen-carbonate-chloride-sodium type, 99 % of whole anions content are represented by hydrogen-carbonate and chloride, and the most frequent cations include sodium, potassium and calcium. Some of the springs contain also increased levels of some others important elements.

Respiratory disease treatment is addressed in complexity, including, in addition by individual and group breathing training sessions, massages and selected types of electrotherapy. Initial screening includes medical history taking and objective examinations of the patient, including pulse oxymeter measurement, spirometric examination, ORL examination, and, optionally, the needed laboratory analyses of blood and urine. The objective of the therapy is restitution of the upper and lower respiratory tract mucosa, its humidification, purification, improvement of the epithelium cilia movement on the mucous surface, mitigation of inflammatory manifestations on the mucous membranes, improvement of breathing stereotype, removal of muscular dysbalance and joint blockades in the chest area, improvement of breathing parameters, tolerance of physical load and overall physical fitness and psychic condition.

This spa therapy is recommended not only to clients with chronic respiratory diseases/bronchial asthma, COPD, allergies, chronic sinusitis, pulmonary fibrosis, but also **to client in condition after complicated pneumonia, or COVID-19 disease**. Our treatment will currently be of great help to

healthcare workers, members of the integrated rescue system and to all who devote great efforts to the battle with the pandemic, as well as to seniors suffering from increased isolation and fear.

Other natural remedies, like the beneficial effects of **subterranean cures** had been known since the time of the Roman Empire. The salt mines bring about a considerable health improvement. This is the reason why the population chooses speleotherapy as a method of curing respiratory problems. The factor of microclimate used in the treatment of patients suffering from respiratory diseases is the so-called **salt mine's** microclimate or the "cave's" microclimate. The most important benefit of salt mine cures is the treatment of the lightest forms of bronchial asthma (in the first phase) in the case of adults and children, of forms of simple bronchitis and of respiratory allergies. For a correct and efficient treatment of such diseases in the salt mines for example in Turda (Romania). There is a 4 hours program in the morning under strict medical supervision. The program contains relaxation on beds or chairs, general and respiratory medical gymnastics, games (chess, table tennis, snooker), and walking.

**Healing caves** (Tapolca, Hungary) length ca. 20 km used also for medicinal purposes. People with allergy and asthma have been visiting the grotto for over 30 years and they find here healing and harmony. Microclimatic parameters of the air are constant, it contains no aggressive factors such as pollen or dust. The temperature is constant (14-16 °C), the humidity is high (appr. 100 %). All these factors help at the healing of asthmatic, allergic and other respiratory diseases. Visit of the healing cave is recommended also for stressed people who want to find harmony and to escape every day's life. The tranquility, the low light and the subsurface environment are best conditions for recreation, relax and healing. **Speleotherapy** in caves is accepted as part of healthcare in Slovakia and in Germany.

Sunlight therapy, also called **heliotherapy**, can usually be carried out in climatic health resorts located in the high mountains. Because here, at relatively low temperatures, the solar radiation is much stronger and therefore more effective. A stay in the high mountains is recommended in the case of allergic asthma, since there is hardly any pollen at high altitude and the lower oxygen content makes breathing easier. This air quality can have a positive effect on the respiratory organs such as the nose, lungs and bronchial tubes and provide relief for chronically suffering people. A high mountain cure is very suitable for people with persistent skin diseases or those who suffer from cardiovascular diseases.

In Bulgaria are special conditions like in Sandanski with a **combination of climate and balneology** with the best healing effects for patients with bronchial asthma and chronic non-specific lung diseases due to the high content of negative ions in the air at an altitude of 1 200 m. The study found a significant reduction in asthma attacks and dilution of exacerbations in chronically ill patients. St. Konstantin and Elena Resort is unique with the large variety of natural healing factors climate, thalasso and heliotherapy, balneotherapy and peloid on the Black Sea. The positive effects of the clinical results were confirmed for the rehabilitation treatment of the lung and cardiovascular system with the stabilization of blood pressure and heart rate, improvement of the functional parameters of the lung.