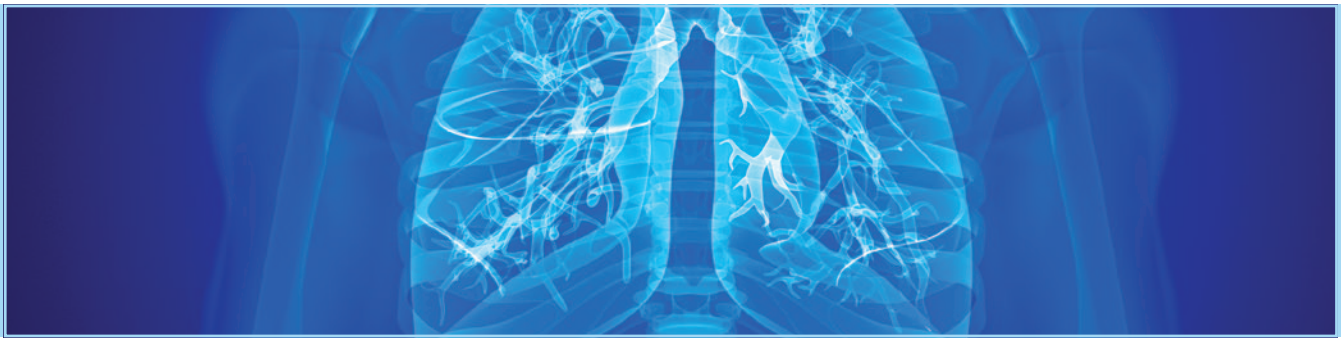
ST MEDICAL®
RESPIRATORY THERAPY

Factsheet



STMedical® – an effective respiratory therapy

A mobile system for respiratory muscle therapy, the STMedical® device helps patients with limited respiratory capacity or with specific respiratory diseases such as stable chronic obstructive pulmonary disease (COPD) or stable cystic fibrosis (CF).
The STMedical® is the world's first therapy device for the respiratory system that is based on the principle forced respiration with controlled CO_2 rebreathing (the so-called isocapnic hyperpnoea). The device has been specially developed for medical respiratory therapy applications and may only be used on the recommendation of a doctor.

Respiratory muscle therapy using the STMedical® device
As a result of the forced inhalation and exhalation against a minimal resistance of approx. 7mBar, the respiratory muscles are selectively strengthened and the whole thoracic region is mobilised. The overall flow of respiratory movements is coordinated in a functional manner and strengthened. Endurance, strength and coordination deficits are effectively countered.
In order to optimise the respiratory therapy to match individual objectives the therapy is adjusted in accordance with the vital capacity (VC) of the patient's lungs, his maximum voluntary ventilation (MVV) and his general medical condition.

Fields of application
The STMedical® device can be simply and effectively integrated into the conventional therapy program of patients suffering from limited respiratory capacity or with specific respiratory diseases. This form of therapy allows muscle weaknesses and insufficiencies in the locomotor system of the whole thoracic region to be treated. STMedical® therapy is performed when the body is at rest, which means that the cardiovascular system is not stressed, thereby making STMedical® suitable for respiratory therapy on patients with reduced mobility.
The forced inhalation and exhalation experienced during STMedical® therapy selectively improves endurance, strength and coordination deficits. Lung function, physical capacity and secretion mobilisation are significantly improved. This leads to a reduction in breathlessness and consequently, an increased quality of life.
The effectiveness of STMedical® therapy has been proven in various studies, in particular in patients suffering from cystic fibrosis (CF)[1, 2], chronic obstructive pulmonary disease (COPD)[3-6] and paraplegia[7-10]. Both practical experience and scientific studies indicate that patients suffering from neurological muscle weaknesses[11], snoring problems, chronic neck and back complaints and chronic heart failure[12, 13] experience positive effects on their health.

Facts

- Improved lung function
- Improved physical capacity
- Increased secretion mobilisation
- Improved core stability
- Reduced respiratory distress (breathlessness)
- Increased quality of life

Operating principle
The STMedical® system comprises a base station and a hand-held device with the breathing tubes, bag and mouthpiece. The bag volume equates to approx. 50% of the pa-

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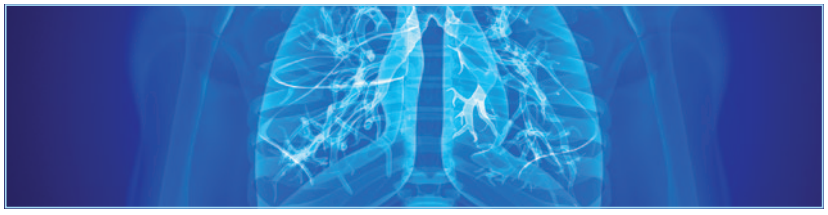

tient's vital capacity. For optimum hygiene, all components that convey air are removable and easy to clean. The base station controls and monitors the patient's respiratory pattern in respect of respiratory rate and depth. The selected respiratory rate is dictated visually using a step sequencer and audibly through a sequence of short tones. The optimum respiratory depth is visualised using a bar chart display. The patient is guided through the therapy session with instructions such as "breathe faster". The electronic monitoring system protects the patient from hyperventilation despite the forced respiration and the CO_2-concentration in the body is maintained at a constant level. There is no risk of dizziness, sickness or headaches. The STMedical® system warns if there are deviations from the optimum respiratory pattern by issuing visual and audible alarms and stops the therapy should the normal normocapnic range be exceeded.
In order to ensure that all patients remain within the normal normocapnic range, the CO_2/O_2 ratio of the inhaled air can be adjusted under medical supervision, depending upon the patient's clinical symptoms. The time ratio exhalation:inhalation can be extended to 2:1 if necessary. Patients suffering from chronic obstructive lung diseases are therefore allowed more time for exhalation. The integrated logbook saves all of the relevant information relating to the therapy such as duration of the therapy session, respiratory rate, respiration minute volume and total respired volume.

Notes on therapy

Respiratory muscle therapy is practised as a supplementary treatment to the existing therapy methods for the respective disease. In the majority of cases, respiratory muscle therapy is a permanent therapy that is used to halt or slow the progression of the disease, but cannot provide a cure. Following brief instruction by a healthcare professional the STMedical® device can, thanks to its simple operation, be used unsupervised by the patient either at the clinic, as an outpatient undergoing therapy or by himself at home.
Unless prescribed differently by a doctor, the ST Medical® therapy is performed approx. 4-5 times a week in sessions of 15 to 30 minutes. Depending upon the clinical symptoms the duration, frequency and manner in which the therapy sessions are carried out may vary.
When therapy is first commenced the respiratory rate should initially be set to a low value (approx. 20-24 breaths per minute) and the duration kept short (approx. 2-3 minutes). The focus is placed on respiratory technique and coordination. In order to achieve the desired results the intensity of the therapy should be gradually increased – beginning with a continuous lengthening of the duration of therapy and followed by an increase in respiratory rate. The primary requirement for successful therapy is regular treatment.

Payment of the cost by the statutory health insurance funds in Switzerland

In Switzerland, the treatment is prescribed by the doctor/respiratory physician and the cost is normally covered by the basic insurance policy provided by the statutory health insurance funds. Possibilities for the payment of the cost in other countries have to be checked individually.

References

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Contact us for further information on the device or on respiratory muscle therapy.

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