

Pulmonary rehabilitation in Switzerland

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Summary

Pulmonary rehabilitation is a form of therapy for patients with chronic lung disease that is evidence based, which ameliorates performance and endurance of the patient and improves quality of life significantly. Pulmonary rehabilitation also diminishes the amount of hospitalisations and the duration of stay in hospitals. It can improve capac-

ity of work and diminishes the absenteeism. Motivated patients who have stopped or intend to stop smoking are the best candidates for a pulmonary rehabilitation programme.

Key words: pulmonary rehabilitation; Switzerland; inpatient programme; outpatient programme

Introduction

Pulmonary rehabilitation is a form of therapy for chronic lung diseases that becomes more and more important. International studies have shown that pulmonary rehabilitation programmes can improve endurance and quality of life. Most data

involve patients with chronic obstructive pulmonary disease (COPD) or chronic asthma [1–3]. Further indications are cystic fibrosis, interstitial lung disease and conditions after thoracic surgery (table 1).

Chronic obstructive pulmonary disease

Chronic obstructive pulmonary disease (COPD) is a disease that is increasing world-wide. Hospital costs in Switzerland amount to 100 million SFr and consecutive costs are at least three

times as much per year. As the Swiss Study on Air Pollution and Lung Diseases in Adults (SAPAL-DIA) showed, 3% of the adult population suffers from COPD [4, 5].

What is pulmonary rehabilitation?

Pulmonary rehabilitation is a multidisciplinary programme with the following goals:

- increasing patient's endurance and performance (evidence A)
- increasing quality of life (evidence A)

- increasing survival (evidence C)
- decreasing the amount of hospitalisations and the duration of hospital stay (evidence B)
- decreasing exacerbations (evidence B) [6–9]

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Table 1

Indications for pulmonary rehabilitation (ALVR).

Diagnosis	(ICD 10-Code)
Chronic obstructive pulmonary disease (COPD)	J40–J44 / J47
Cystic fibrosis	E84
Bronchial asthma	J45
Interstitial lung diseases	J60–J70 / J80–J84
Diseases of the thoracic wall and respiratory muscles	G47 / G71–G72 / M40–M41
Other chronic lung diseases (also mechanical ventilation)	J96 / J98 / J99
Before and after thoracic surgery	J95
Functional respiratory diseases	F45 / R05–R09

One of the goals of pulmonary rehabilitation is increasing the exercise tolerance and endurance capacity. In the United States 10% of the male population is suffering from COPD and half of these patients are limited in their daily activities [10]. 25% of these patients suffer from a decreased working capacity.

Pulmonary rehabilitation is a multidisciplinary programme, which engages a team of therapists that addresses the whole personality of the ill patient. The team consists of

- medical doctors;
- physiotherapists/ergo therapists;
- dieticians;

- social workers;
- psychologists.

The programme includes medical training therapy (MTT), information on the disease and its prevention, information about behavioural changes in smoking habits and other risk factors, physiotherapy for respiration and relaxation, and information on how to cope with wellness [11].

There are 4 to 6 hours of daily activities in the inpatient programme. In the outpatient programmes 2 to 3 hours per day twice a week are usual. The patients are classified into different endurance-groups, in order to maximize individual performance.

When is a pulmonary rehabilitation indicated?

Pulmonary rehabilitation should be offered to all patients with COPD with an impairment of daily life or capacity of work. Pulmonary rehabilitation is the only therapy to break the vicious circle from dyspnoea to anxiety, inactivity, reconditioning to isolation. Most studies examined patients in a stable condition of lung function [reference²]. Pulmonary rehabilitation in these circumstances can lift the patient from a low activity level to a higher activity level. There are almost no studies that have examined the early rehabilitation just after an exacerbation. Based on our experience we state that pulmonary rehabilitation under this condition is also very efficient. There is a multi-centre study planned in Switzerland to learn more about this problem, which is very important because a lot of rehabilitation programmes get their patients from hospitals or pulmonologists soon after an exacerbation.

Motivation is a very important factor to achieve good results. A patient who is motivated to improve his/her quality of life is also a better candidate to give up smoking, which is the most com-

mune cause of chronic bronchitis. A patient's motivation can be improved by information about his/her disease and its sequels as well as the prognosis and the possibilities of treatment. Communicating information to the patient by physicians, nurses and physiotherapists engaged in a pulmonary rehabilitation programme is essential. Motivation can also be improved by a written schedule of daily activities in the programme. It informs the patient on what to expect the next day or week, which enables him/her to cope better with the programme. The patient should also be able to discuss the programme with the different therapists to bring in his/her own wishes and capabilities. Group activities are important for the "group feeling", which itself stimulates the patient to bring the best performance. Positive feedbacks like diplomas for a completed rehabilitation programme may also reinforce the patient. We suggest that a low level activity like a "lung group" should follow a pulmonary rehabilitation programme. "Lung groups" are patient organised and exist in different areas of the country.

How should pulmonary rehabilitation be performed?

Pulmonary rehabilitation is based on the ICF code of functioning, activity and participation [12].

Functioning requires an exact diagnosis and treatment of the disease. It includes psychological therapy to treat the patient in all his/her dimensions as well as to recognise the different sensitivities in regard to his/her culture, language and mobility. Language problems with foreign patients may be a handicap for successful rehabilitation. In addition, patients who are not sufficiently mobile cannot be treated in an outpatient programme and should therefore be addressed to an inpatient programme.

Activity involves activity of daily life and communication with the team as well as with other patients. The patients must be able to learn and have

to be encouraged for their daily activities. The family and the social environment are partners in this regard.

Participation has to be promoted before the programme ends, in order to build up a social network and organise help at home. Communication with the family doctor is very important and the patient should preferably be addressed to a patient organised "lung group" to continue the programme on a patient organised basis. An economic participation for this follow-up programme is important. Social activities after the in- or outpatient rehabilitation programme should be paid by the patient, which can improve the patient's motivation to cope with the directions he learned during the rehabilitation programme.

Which pulmonary rehabilitation programme is appropriate?

In Switzerland there are 10 inpatient and 40 outpatient programmes accredited by the Swiss Respiratory Society and their commission for pulmonary rehabilitation and patient education. The accreditation guarantees quality. The quality criteria have been elaborated in a working group (Arbeitsgemeinschaft Leistungserbringer – Versicherer für wirtschaftliche und qualitätsgerechte Rehabilitation ALVR) together with the insurance companies [13–15]. Based on various criteria a patient is assigned to an in- or an outpatient programme. Patients with severe co-morbidity, impaired mobility, or elderly patients who are

not able to take part in an outpatient programme 2–3 times a week have to be addressed to inpatient programmes. Younger patients on the other hand who are mobile and go to work can be rehabilitated in an outpatient programme.

Out-patient programmes are directed by a respiratory physician. The rehabilitation consists of all the specialists mentioned before, who work together and are coordinated by the programme director. Often the programme is based on the local lungteam, which can offer the infrastructure for training and instruction.

The duration of the inpatient programme is

Table 2

Criteria for in- and outpatient pulmonary rehabilitation.

Severity of disease
Age of patient
Co-Morbidity (cardiovascular disease, diabetes)
Unhealthy environment (working place, air pollution, passive smoking)
Distance to next rehabilitation centre
Additional therapy (Long time oxygen therapy, mechanical ventilation, transtracheal catheter)

Table 3

Inpatient pulmonary rehabilitation programmes in Switzerland (2004).

Place	institution
Unterägeri	Zuger Höhenklinik Adelheid
Barmelweid	Klinik Barmelweid
Davos	Alpine Kinderklinik
Davos	Thurgauer-Schaffhauser Höhenklinik
Heiligenschwendi	Berner Reha-Zentrum
Montana	Centre Valaisan de Pneumologie
Montana	Luzerner Höhenklinik Montana
Rolle	Hôpital de Rolle
Wald	Zürcher Höhenklinik Wald
Walenstadtberg	Rehabilitations-Klinik

usually 3 weeks, whereas the outpatient programme takes 3 to 6 months, with activities twice a week (table 2). Scientific data on the outcome of in- and outpatient programmes for pulmonary rehabilitation are not available. However for rheumatologic rehabilitation it has been shown that intensive inpatient programmes show a quicker success than outpatient programmes [16]. In addition, other studies have shown that both forms of rehabilitation, the in- and the outpatient rehabilitation are successful [17, 18].

Costs

For inpatient programmes the costs are 8000 SFr. Outpatient programmes are 50% of this amount. In Switzerland, the costs of inpatient programmes are covered by the insurance companies and the state (50% each). As of 2005 outpatient

programmes are only paid by insurance companies. Pulmonary rehabilitation was accepted as an efficient therapy by the Federal Office of Public Health and by the insurance companies. Cost effectiveness has been proved [19].

Expectations

In Switzerland only a very small percentage of pulmonary patients are addressed to a rehabilitation programme. We think that not more than 10% of the possible candidates get to a pulmonary rehabilitation programme. In order to diminish costs of hospitalisation and absenteeism the im-

portance of rehabilitation programmes should be emphasized more. The pulmonary rehabilitation programmes are of good quality and evidence based. Almost all regions of Switzerland offer such a programme and quality control is guaranteed.

Table 4

Outpatient pulmonary rehabilitation programmes in Switzerland (2004).

Place	Institution
Aarau	Dr. R. Bettschart
Basel	Medical Fitness Team, Dr. P. Ruff
Basel	Kinderspital beider Basel, Dr. J. Hammer
Bellinzona	Ospedale Regionale, Dr. F. Quadri
Bern	Lindenhofspital, Dr. W. Bauer
Berne	Inselspital Kinderklinik, Dr. M. H. Schöni
Biel	Dr. U. Aeby, Dr. R. Bösiger
Chur	Kantonsspital, Dr. M. Kuhn
Davos	Alpine Kinderklinik, Dr. B. Knöpfl
Frauenfeld	Lungenliga Thurgau, Dr. Mayer
Genève	Hôpital Cantonal Universitaire Genevois (HCUG), Prof. Th. Rochat
Glarus	Lungenliga Glarus, Drs. B. Villiger, C. Leser, B. Frühauf, K. Bloch
Thun	amb. pulmonale Rehab. Berner Oberland, Dr. C. Meisels
Laufenburg	Regionalspital, Dr. E. Koltai
Lausanne	Centre hospitalier Universitaire Vaudois (CHUV), Prof. J. M. Fitting
Lausanne	Clinique Cécil, Dr. F. Heinzer
Lenzburg	Dr. G. Rüttimann
Luzern	Klinik St. Anna, Dr. Christoph Wyser, Dr. Ingo Fengels
Martigny	Hôpital Régional, Dr. P. Y. Uldry
Montana	Centre Valaisan de Pneumologie, Prof. J. M. Tschopp
Mottex	Hôpital Riviera, Dr. F. Héritier, Dr. J. F. Vodoz
Rolle	Hôpital Régional, Dr. B. de Muralt
Samedan	Spital Oberengadin, Dr. D. Marugg
Schaffhausen	Lungenliga Schaffhausen, Dr. J. Häggi
Schinznach	Dr. G. Rüttimann
Solothurn	Lungenliga Solothurn, Dr. Th. Schmid
St. Gallen	Lungenliga St. Gallen, Kantonsspital, Dr. A. Knoblauch
Uznach	Lungenliga St. Gallen, Spital Linth, Dr. Ch. Leser
Wald	Zürcher Höhenklinik Wald, Dr. O. Brändli
Walenstadt	Lungenliga SG, Dr. B. Frühauf
Winterthur	Kantonsspital, Dr. Th. Hess, Dr. M. Hofer
Wohlen / AG	Dr. G. Rüttimann
Yverdon	Dr. L. Vollenweider
Zug	Kantonsspital Dr. P. Dür, Dr. R. Godly
Zürich	LungenZentrum Hirslanden, Dr. J. Barandun
Zürich	Spital Bethanien, Dr. U. Lagler
Zürich	Kinderspital, Prof. F. Sennhauser, Dr. J. Wildhaber
Zürich	Stadtspital Triemli, David Gym, Dr. E. Imhof
Zürich	Spital Zollikerberg, Drs. P. Siegrist, U. Lagler, P. Langloh
Zürich	McFit, Dr. D. Ritscher

Non smoking

Non-smoking is compulsory and essential for a successful rehabilitation. Stop smoking programmes should be integrated in every pulmonary rehabilitation programme despite its low degree of success. The medical doctor and the therapist have a lot of possibilities to help the willing patient to quit smoking by nicotine replacement medication, psychological help and medication [20, 21].

The non-smoking policy is coordinated with

other institutions that work for smoking prevention as well as with the anti-smoking campaign of the Swiss Federal Office of Public Health.

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References

- 1 Lacasse Y, Wong E, Guyatt GH, King D, Cook DJ, Goldstein RS. Meta-analysis of respiratory rehabilitation in chronic obstructive pulmonary disease. *Lancet* 1996;348:1115-9.
- 2 Hui KP, Hewitt AB. A Simple Pulmonary Rehabilitation Program Improves Health Outcomes and Reduces Hospital Utilization in Patients with COPD. *CHEST* 2003;124:94-7.
- 3 Cox NJ, Hendricks JC, Binkhorst RA, van Herwaarden CLA. A Pulmonary Rehabilitation Program for Patients with Asthma and Mild Chronic Obstructive Pulmonary Disease (COPD). *Lung* 1993;171:235-44.
- 4 Ackermann-Lieblich U, Leuenberger Ph, Schwartz J, Schindler C, Monn Ch, Bolognini G, et al. Lung function and long term exposure to air pollutants in Switzerland. *Am J Respir Crit Care Med* 1997;155:122-9.
- 5 Schindler Ch, Künzli N, Bongard JP, Leuenberger P, Karrer W, Rapp R, et al. Short-term variation in air pollution and in average lung function among never-smokers. The Swiss Study on Air Pollution and Lung Diseases in Adults (SAPALDIA). *Am J Respir Crit Care Med* 2001;163:356-61.
- 6 Büchi S, Brändli O, Klingler K, Klaghofer R, Buddeberg C. Stationäre Rehabilitation bei Patienten mit chronischer obstruktiver Lungenkrankheit (COLK): Effekte auf körperliche Leistungsfähigkeit, psychisches Wohlbefinden und Lebensqualität. *Schweiz Med Wochenschr* 2000;130:135-42.
- 7 Fan VS, Curtis JR, Tu SP, McDonell MB, Fihn SD. Using Quality of Life to Predict Hospitalization and Mortality in Patients With Obstructive Lung Diseases. *CHEST* 2002;122:429-36.
- 8 Stewart DG, Drake DF, Robertson CH, Marwitz JH, Kreutzer JF, Cifu DX. Benefits of an Inpatient Pulmonary Rehabilitation Program: A Prospective Analysis. *Arch Phys Med Rehabil* 2001;82:347-52.
- 9 Domingo-Salvany A, Lamarca R, Ferrer M, Garcia-Aymerich J, Alonso J, Félez M, et al. Health-related Quality of Life and Mortality in Male Patients with Chronic Obstructive Pulmonary Disease. *Am J Respir Crit Care Med* 2002;166:680-5.
- 10 Strassels SA, Smith DH, Sullivan SD, Mahajan PS. The Costs of Treating COPD in the United States. *Chest* 2001;119:344-52.
- 11 Lacasse Y, Guaytt GH, Goldstein RS. The Components of a Respiratory Rehabilitation Program. A Systematic Overview. *Chest* 1997;111:1077-88.
- 12 World Health Organization. International Classification of Functioning and Disability. 2004.
- 13 Karrer W. Anforderungskriterien der ALVR für die stationäre Pulmonale Rehabilitation. *Schweiz Ärztezeitung* 2002;83:1925-27.
- 14 Puhan M, Koller M, Brändli O, Steurer J. Pulmonale Rehabilitation bei COPD in der Schweiz – eine Standortbestimmung. *Praxis* 2003;9:111-6.
- 15 Russi EW, Leuenberger P, Brändli O, Frey JG, Grebski E, Gugger M, et al. Management of chronic obstructive pulmonary disease: the Swiss guidelines. Official Guidelines of the Swiss Respiratory Society. *Swiss Med Wkly* 2002;132:67-78.
- 16 Stoll Th, Huber E, Bachmann St, Baumeler HR, Mariacher S, Meyer Th, et al. Sind stationäre Rehabilitation oder ambulante Physiotherapie bei Patienten mit muskuloskelettalen Problemen wirkungsvoll und landen Patienten auf dem richtigen Behandlungspfad? *Praxis* 2002;91:1900-8.
- 17 Brändli O. Stationäre und ambulante pulmonale Rehabilitation in der Schweiz. *Schweiz Med Forum* 2001;46:1154-7.
- 18 Bingisser RM, Joos L, Frühauf B, Caravatti M, Knoblauch A, Villiger PM. Pulmonary rehabilitation in outpatients with asthma or chronic obstructive lung disease. *Swiss Med Wkly* 2001;131:407-11.
- 19 Griffiths, Philips CJ, Davies S, Burr ML, Campbell IA. Cost effectiveness of an outpatient multidisciplinary pulmonary rehabilitation programme. *Thorax* 2001;56:779-84.
- 20 Pauwels RA, Buist AS, Calverly PM, Jenkins CR, Hurd SS. Global strategy for diagnosis, management, and prevention of chronic obstructive pulmonary disease. NHLBI/WHO Global Initiative for Chronic Obstructive Lung Disease (GOLD) Workshop summary. *Am J Respir Crit Care Med* 2001;163:1256-76.
- 21 Puhan M, Steurer J. Wirksamkeit der Pulmonalen Rehabilitation bei Patienten mit COPD oder Asthma bronchiale. Eine systematische Beurteilung der Literatur. Bundesamt für Sozialversicherung und Helmut Horten Stiftung Universitätsspital Zürich 2003.

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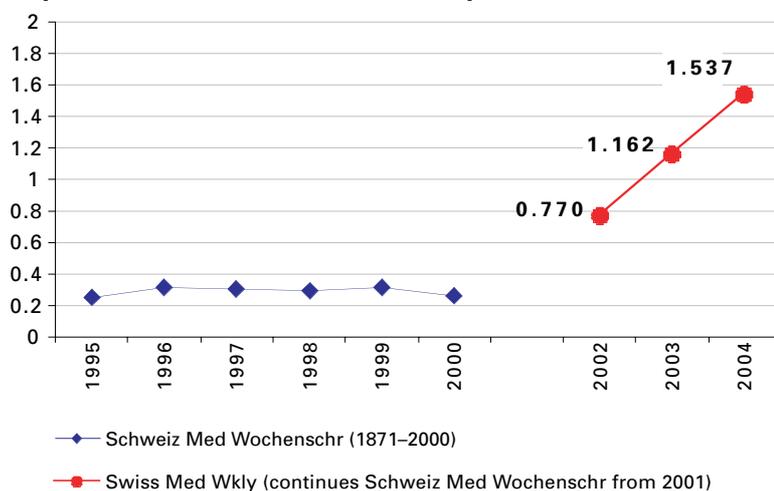
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