

Barmelweid-Akademie

Definition, Methode und Effekte der pulmonalen Rehabilitation (PR)

Kardiovaskuläre und pulmonale Rehabilitation: «State of the Art», 20. Juni 2019



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Literatur «State of the Art»

AMERICAN THORACIC SOCIETY DOCUMENTS

An Official American Thoracic Society/European Respiratory Society Policy Statement: Enhancing Implementation, Use, and Delivery of Pulmonary Rehabilitation

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THIS OFFICIAL POLICY STATEMENT OF THE AMERICAN THORACIC SOCIETY (ATS) AND THE EUROPEAN RESPIRATORY SOCIETY (ERS) WAS APPROVED BY THE ATS BOARD OF DIRECTORS, OCTOBER 2015, AND BY THE ERS SCIENCE COUNCIL, SEPTEMBER 2015

Rationale: Pulmonary rehabilitation (PR) has demonstrated physiological, symptom-reducing, psychosocial, and health economic benefits for patients with chronic respiratory diseases, yet it is underutilized worldwide. Insufficient funding, resources, and reimbursement; lack of healthcare professional, payer, and patient awareness and knowledge; and additional patient-related barriers all contribute to the gap between the knowledge of the science and benefits of PR and the actual delivery of PR services to suitable patients.

Objectives: The objectives of this document are to enhance implementation, use, and delivery of pulmonary rehabilitation to suitable individuals worldwide.

Methods: Members of the American Thoracic Society (ATS) Pulmonary Rehabilitation Assembly and the European Respiratory Society (ERS) Rehabilitation and Chronic Care Group established a Task Force and writing committee to develop a policy statement on PR. The document was modified based on feedback from expert peer reviewers. After cycles of review and revisions, the statement was reviewed and formally approved by the Board of Directors of the ATS and the Science Council and Executive Committee of the ERS.

Main Results: This document articulates policy recommendations for advancing healthcare professional, payer, and patient awareness and knowledge of PR, increasing patient access to PR, and ensuring quality of PR programs. It also recommends areas of future research to establish evidence to support the development of an updated funding and reimbursement policy regarding PR.

Conclusions: The ATS and ERS commit to undertake actions that will improve access to and delivery of PR services for suitable patients. They call on their members and other health professional societies, payers, patients, and patient advocacy groups to join in this commitment.

Keywords: pulmonary rehabilitation; policy; healthcare; chronic respiratory diseases; access

Contents	Patient Awareness and Knowledge	Limitations on PR Eligibility Based on COPD Disease Severity
Overview	Increasing Patient Access to PR	Limitations on PR Eligibility over Time
Introduction	Lack of Adequate PR Infrastructure and Inadequate Program Commissioning	Patient-Level Barriers to PR
Methods	Geographic Inaccessibility	Limited Number of PR Healthcare Professionals
Background: PR	Improving Access to PR for Persons with Non-COPD Respiratory Disorders	Ensuring Quality of PR Programs
Increasing Awareness and Knowledge of PR		Future Research To Advance Evidence-based Policy in PR
Healthcare Professional Awareness and Knowledge		
Payer Awareness and Knowledge		

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Internet address: www.atsjournals.org

September 2013 Volume 68 Supplement 2


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AN INTERNATIONAL JOURNAL OF RESPIRATORY MEDICINE




BTS Guideline on Pulmonary Rehabilitation in Adults

British Thoracic Society
Pulmonary Rehabilitation Guideline Group

thorax.bmj.com




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Pneumologische Rehabilitation

Das Lehr- und Lernbuch für das Reha-Team der D-A-CH-Arbeitsgemeinschaft Pneumologische Rehabilitation

Dustri-Verlag Dr. Karl Feistle



Pulmonary Rehabilitation (PR): Definition

Pulmonary rehabilitation has been defined as a “**comprehensive intervention** based on a **thorough patient assessment** followed by **patient-tailored therapies** which include, but are not limited to, exercise training, education, behaviour change, designed to improve the physical and psychological condition of people with chronic respiratory disease and to promote the long-term adherence to health-enhancing behaviours”. The overall goal of pulmonary rehabilitation is “to **return the patient to the highest possible capacity** and to contribute to achieve the **individual’s maximum level of independence** and functioning in the community”.

Houben, COPD stands for **complex** obstructive pulmonary disease, Eur Respir Rev 2018; 27: 180027

Gemeinsames Statement

European Respiratory Society (ERS)  ERS EUROPEAN RESPIRATORY SOCIETY

American Thoracic Society (ATS)  AMERICAN THORACIC SOCIETY 1905 ATS

every breath counts

- ▶ komplexes **Massnahmenpaket** für
- ▶ Menschen mit **chronischen Erkrankungen** der **Atmungsorgane**, die **Unterschiedliches Verständnis in der CH**
- ▶ **Symptome** aufweisen und in ihren
- ▶ **Alltagstätigkeiten** eingeschränkt sind.

Table 1. Benefits of Pulmonary Rehabilitation (1–3, 5, 7, 10–12, 16–47, 49, 63, 140, 141)

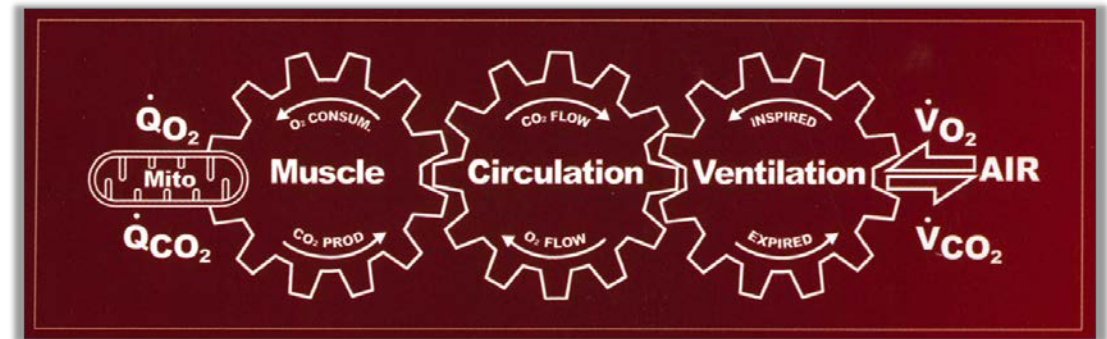
- Reduced hospitalization
- Reduced unscheduled healthcare visits
- Improved exercise capacity
- Reduced symptoms of dyspnea and leg discomfort
- Improved limb muscle strength and endurance
- Improved health-related quality of life
- Improved functional capacity (e.g., activities of daily living)
- Improved emotional function
- Enhanced self-efficacy and knowledge
- Enhanced collaborative self-management
- Potential for increased daily physical activity levels

Note: the order and degree of evidence for each of the above-noted benefits varies among chronic obstructive pulmonary disease and other respiratory diseases (9, 11).

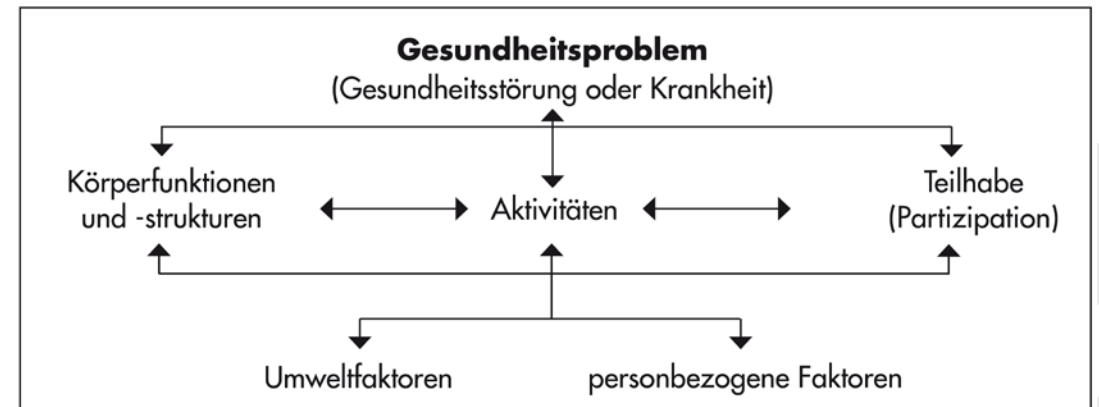
Rochester, An Official American Thoracic Society/European Respiratory Society Policy Statement: Enhancing Implementation, Use, and Delivery of Pulmonary Rehabilitation, Am J Respir Crit Care Med Vol 192, Iss 11, pp 1373–1386, Dec 1, 2015

Massnahmenpaket

- ▶ Umfassendes **Assessment**
(körperlich, psychisch und sozial)
- ▶ Individuell angepasstes **Therapieprogramm**
- ▶ **Rehabilitationsziele:**
 - ✓ Verbesserung der Leitsymptome
(Atemnot, Husten, Auswurf)
 - ✓ Verbesserung der körperlichen
Leistungsfähigkeit und Lebensqualität
 - ✓ Teilhabe am sozialen und beruflichen
Leben
 - ✓ Sekundär- / Tertiärprävention



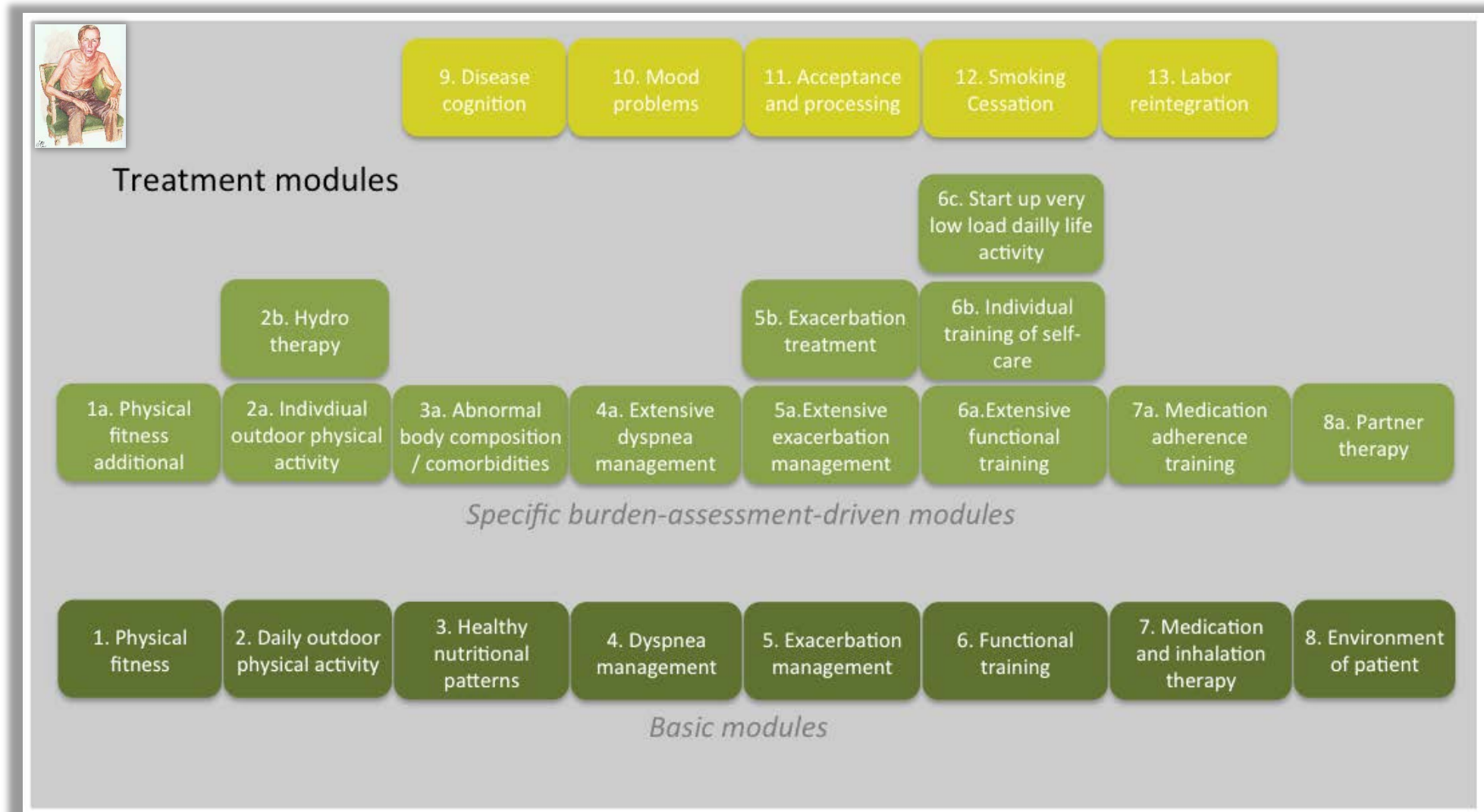
K. Wasserman: Principles of Exercise Testing and Interpretation. Including Pathophysiology and Clinical Applications. Fifth edition. Lippincott Williams and Wilkins Verlag, Philadelphia, 2011.



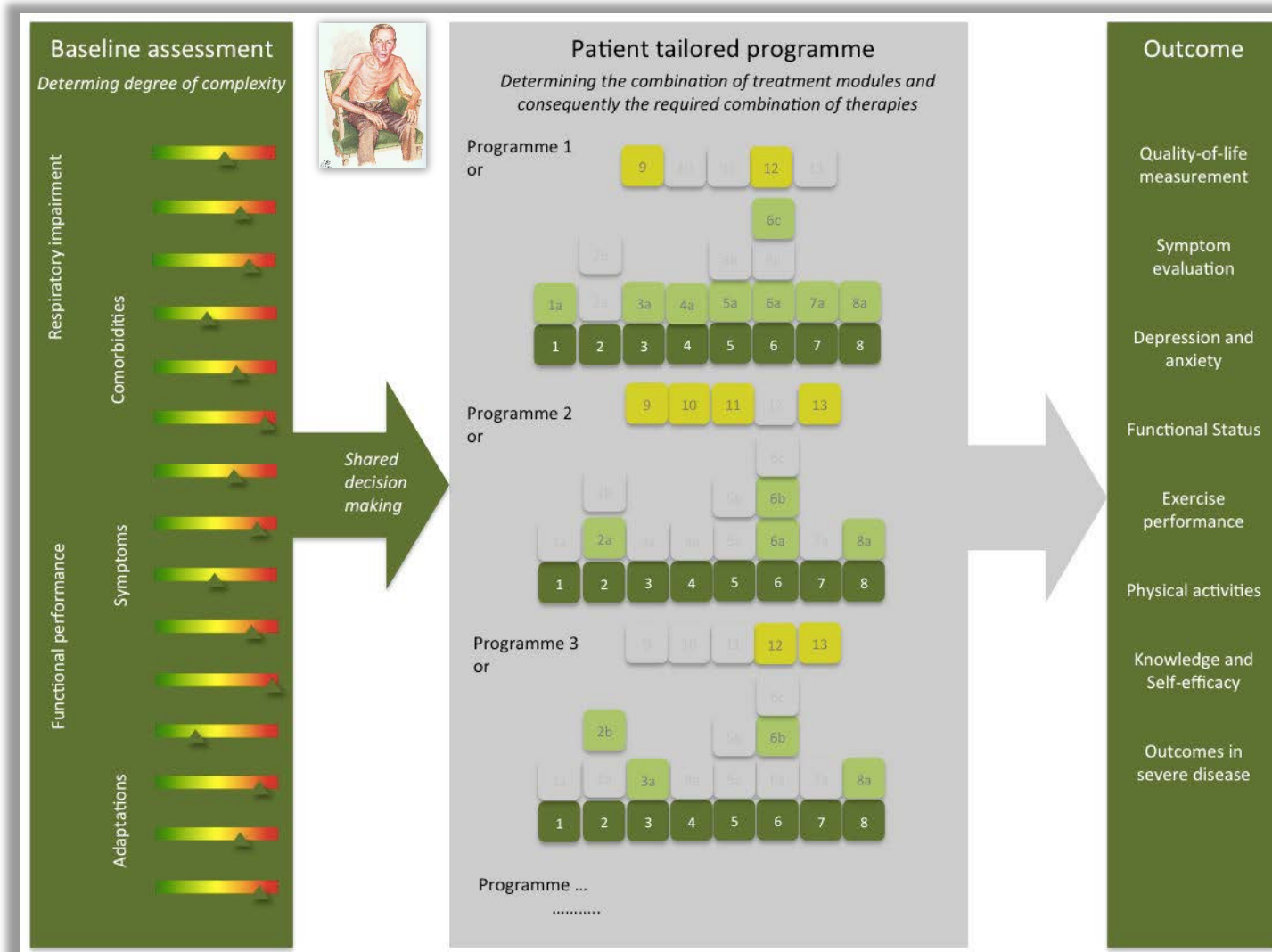
Bio-psycho-soziales Modell der Internationalen Klassifikation der Funktionsfähigkeit, Behinderung und Gesundheit der WHO (ICF)

Abbildung aus: Bundesarbeitsgemeinschaft für Rehabilitation (BAR): Rahmenempfehlungen zur ambulanten pneumologischen Rehabilitation, 2008, S. 11

Therapieelemente einer patientenorientierten PR

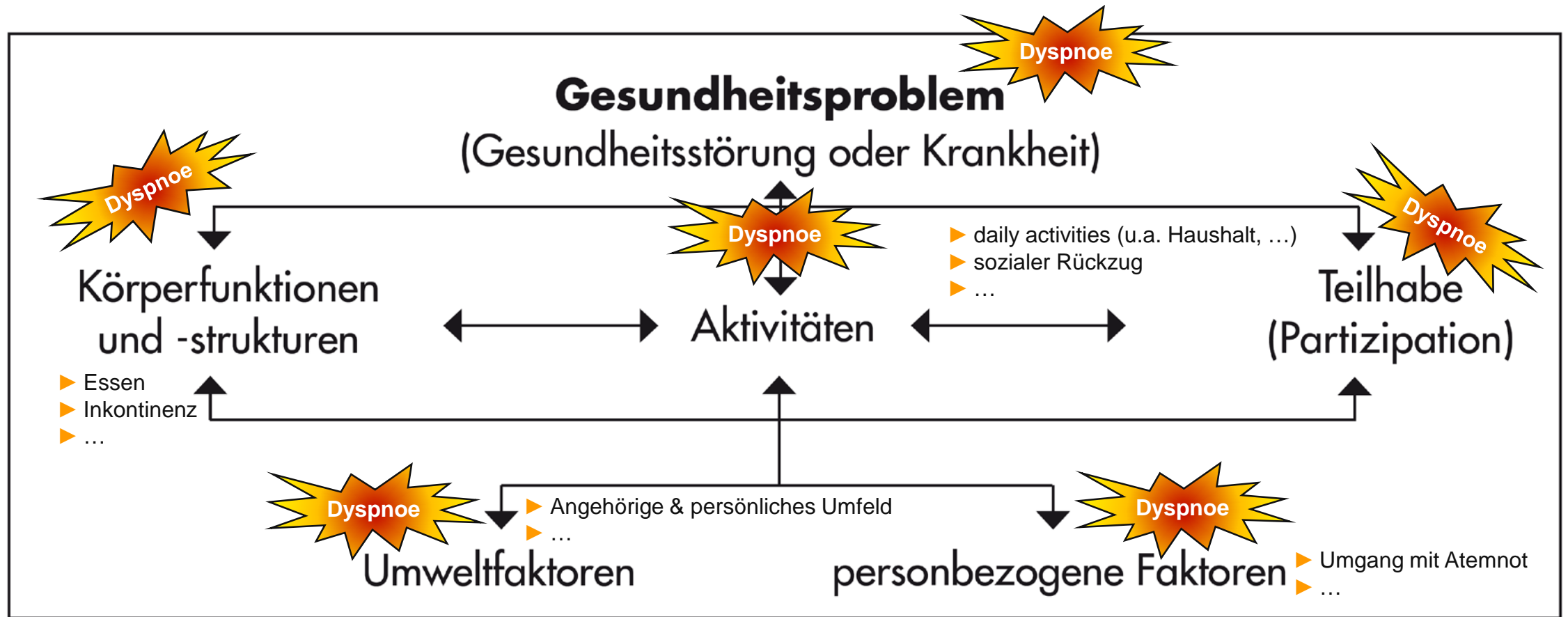


Prozess der pulmonalen Rehabilitation



Augustin, Process of Pulmonary Rehabilitation and Program Organization, J Card Pulm Rehabil 2017, Vol 1(1): 109

Dyspnoe (Husten, Auswurf) und ICF



Dyspnoe? **ein Gefühl!**

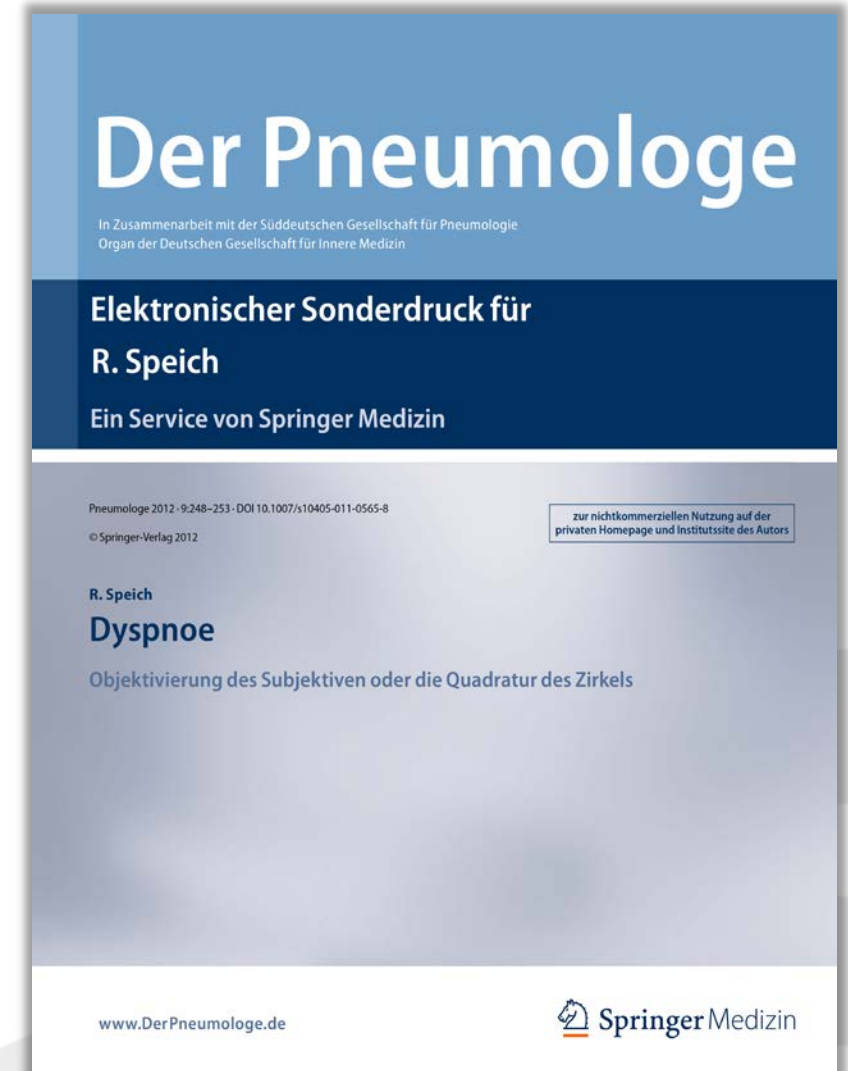
"Dyspnoe ist wohl eines der häufigsten und gleichzeitig eines der schwierigsten, am wenigsten verstandenen klinischen Symptome."

häufig als

- ▶ Atemlosigkeit und / oder
- ▶ Kurzatmigkeit

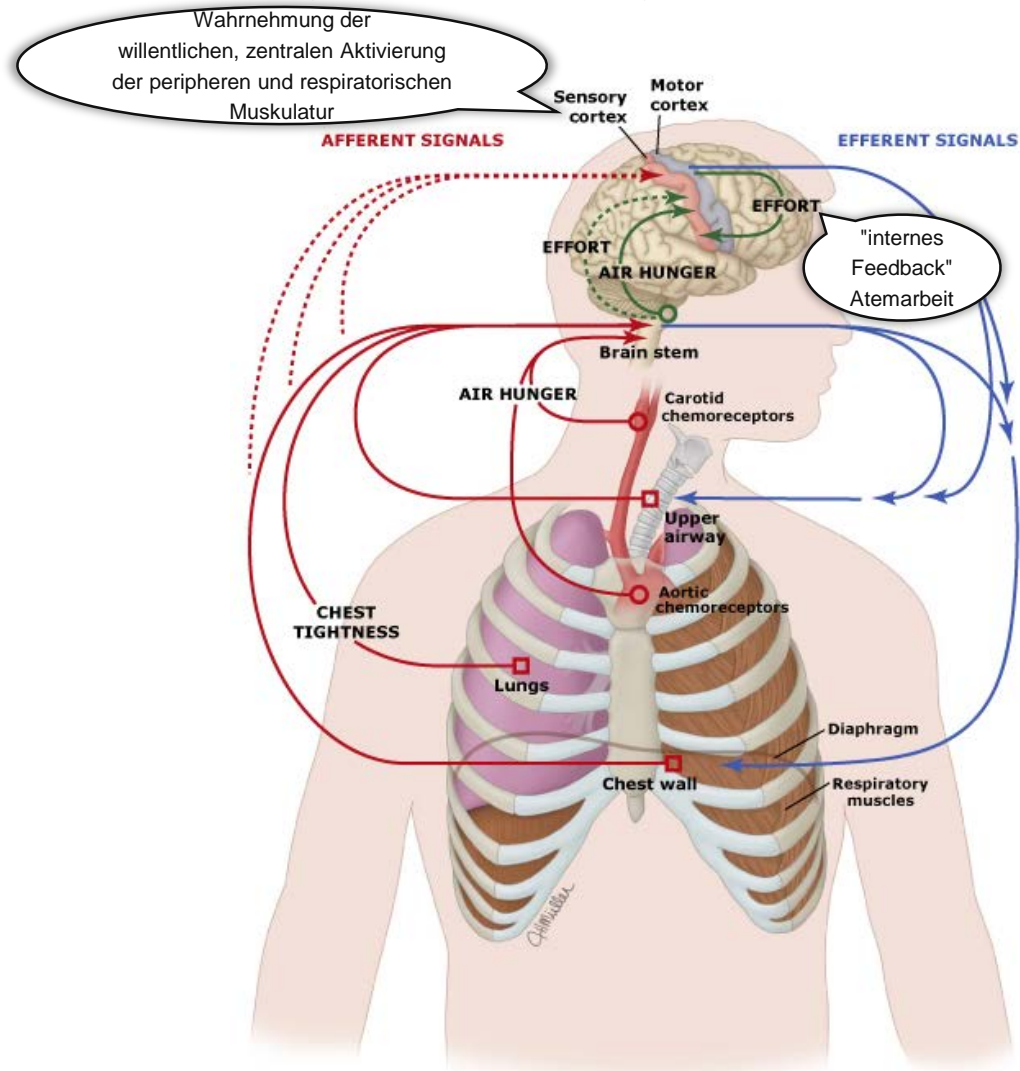
bezeichnet

Speich, R. (2012). Dyspnoe, Objektivierung des Subjektiven oder die Quadratur des Zirkels. Der Pneumologe, S. 253



Dyspnoe: verschiedene Qualitäten

"Subjektiv unangenehme Wahrnehmung des Atmens, die sich qualitativ umschriebenen Empfindungen von unterschiedlicher Intensität zusammensetzt."



Lufthunger ("Atemdrang")

- whs. durch pH-Senkung hervorgerufen
- Atemantrieb via Hirnstamm (ähnliche Regionen mit aktiven Zentren wie Durst, Hunger und Schmerz)

exzessive Atemarbeit ("effort")

- bei erhöhtem Atemminutenvolumen, Widerstand bei der Inspiration, Muskelschwäche oder Überdehnung der Atemmuskeln hervorgerufen
- am ehesten durch Afferenzen durch die Atemmuskulatur und "internem Feedback"

Engegefühl

- durch Bronchokonstriktion hervorgerufen
- am ehesten durch Afferenzen aus den Atemwegen

https://www.uptodate.com/contents/image?imageKey=PULM%2F69322&topicKey=PULM%2F1427&search=dyspnoe&source=outline_link&selectedTitle=3~150

Dyspnoe: verschiedene Quantität

(modified) Medical Research Council

Borg-CR-10 Category ratio scale

mMRC
MRC

Nicht linear 0 – 10 (11-12 Stufen)

- | | | |
|---|---|---|
| 0 | 1 | Keine Atemnot ausser bei starker Anstrengung |
| 1 | 2 | Atemnot beim schnellen Gehen oder beim Bergaufgehen mit leichter Steigung |
| 2 | 3 | Geht beim Gehen in der Ebene wegen Atemnot langsamer als Gleichaltrige oder benötigt bei selbstgewählter Geschwindigkeit Pausen |
| 3 | 4 | Benötigt eine Pause wegen Atemnot beim Gehen in der Ebene nach ca. 100m oder nach einigen Minuten |
| 4 | 5 | Zu kurzatmig, um das Haus zu verlassen oder um sich an- und ausziehen |

- | | |
|----|---------------------|
| 0 | = überhaupt nichts |
| 1 | = sehr milde |
| 2 | = milde |
| 3 | = mässig |
| 4 | = recht schwer |
| 5 | = schwer |
| 7 | = sehr schwer |
| 9 | = sehr, sehr schwer |
| 10 | = maximal |

Sensorische / affektive Dimension: Fühlen und Empfinden

Sensorische Dimension



Sensorische Intensität

- nach (m)MRC oder Borg 0-10
- (nach NYHA)

Sensorische Qualität

- Lufthunger
- Exzessive Atemarbeit
- Engegefühl (meist im Gesundheitswesen ungenügend aufgearbeitet und behandelt)

Affektive Dimension



Affektive Intensität =

Grad der Missempfindung

PR: Diagnostik + Therapie

Affektive Qualität = Emotionale Dimensionen

- Angst
- Depression
- Frustration
- Wut



Cochrane Effekt auf die Dyspnoe durch die PR

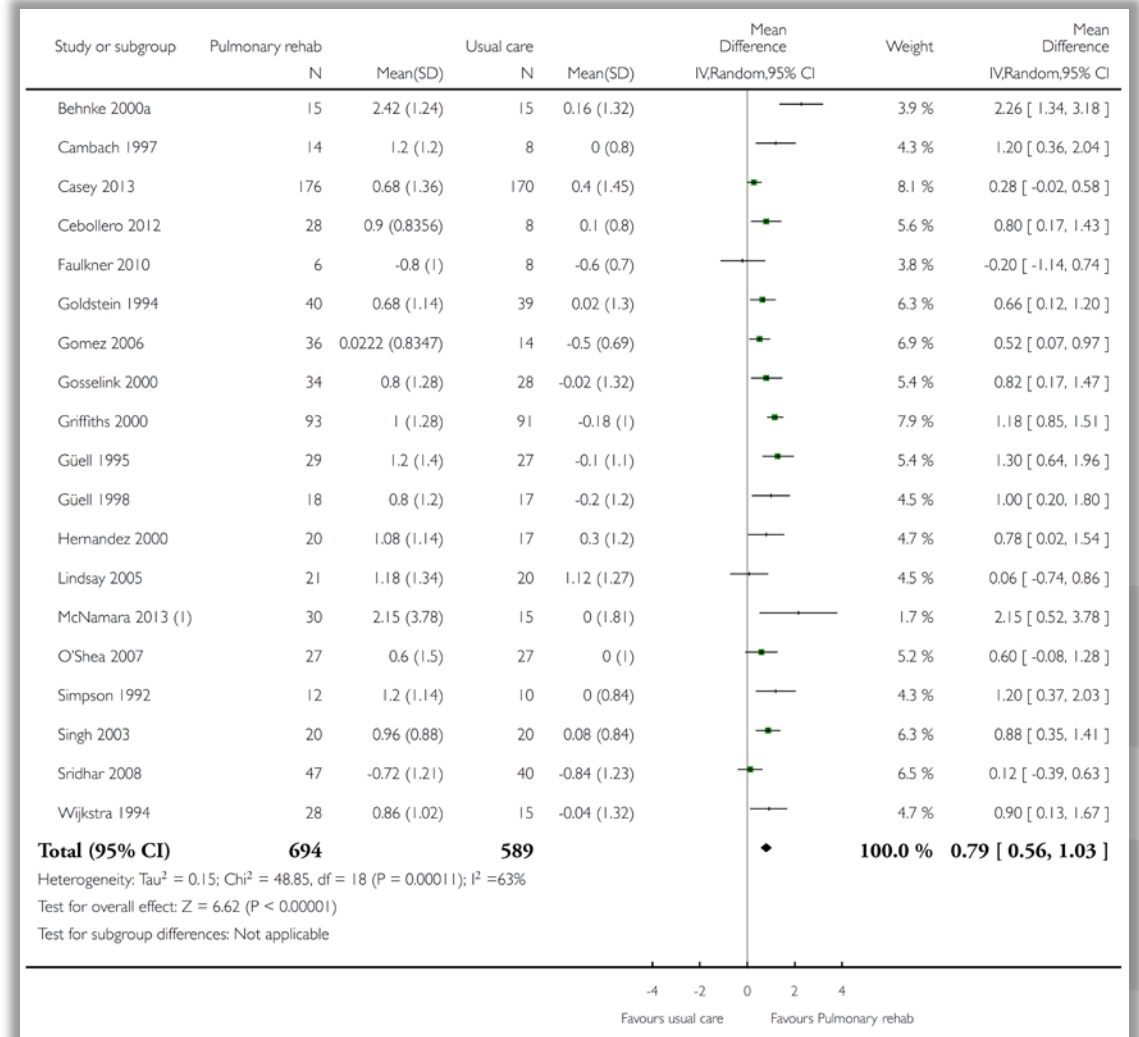
Cochrane Database of Systematic Reviews



Comparison 1. Rehabilitation versus usual care

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 QoL - Change in CRQ (Fatigue)	19	1291	Mean Difference (IV, Random, 95% CI)	0.68 [0.45, 0.92]
2 QoL - Change in CRQ (Emotional Function)	19	1291	Mean Difference (IV, Random, 95% CI)	0.56 [0.34, 0.78]
3 QoL - Change in CRQ (Mastery)	19	1212	Mean Difference (IV, Random, 95% CI)	0.71 [0.47, 0.95]
4 QoL - Change in CRQ (Dyspnoea)	19	1283	Mean Difference (IV, Random, 95% CI)	0.79 [0.56, 1.03]
5 QoL - Change in SGRQ (Total)	19	1146	Mean Difference (IV, Random, 95% CI)	-6.89 [-9.26, -4.52]
6 QoL - Change in SGRQ (Symptoms)	19	1153	Mean Difference (IV, Random, 95% CI)	-5.09 [-7.69, -2.49]
7 QoL - Change in SGRQ (Impacts)	19	1149	Mean Difference (IV, Random, 95% CI)	-7.23 [-9.91, -4.55]
8 QoL - Change in SGRQ (Activity)	19	1148	Mean Difference (IV, Random, 95% CI)	-6.08 [-9.28, -2.88]
9 Maximal Exercise (Incremental shuttle walk test)	8	694	Mean Difference (IV, Random, 95% CI)	39.77 [22.38, 57.15]
10 Maximal Exercise Capacity (cycle ergometer)	16	779	Mean Difference (IV, Random, 95% CI)	6.77 [1.89, 11.65]
11 Functional Exercise Capacity (6MWT)	38	1879	Mean Difference (IV, Random, 95% CI)	43.93 [32.64, 55.21]

McCarthy, Pulmonary rehabilitation for chronic obstructive pulmonary disease (Review), Cochrane Database of Systematic Reviews 2015, Issue 2. Art. No.: CD003793



Ergebnisse der PR bei COPD (Outcome)

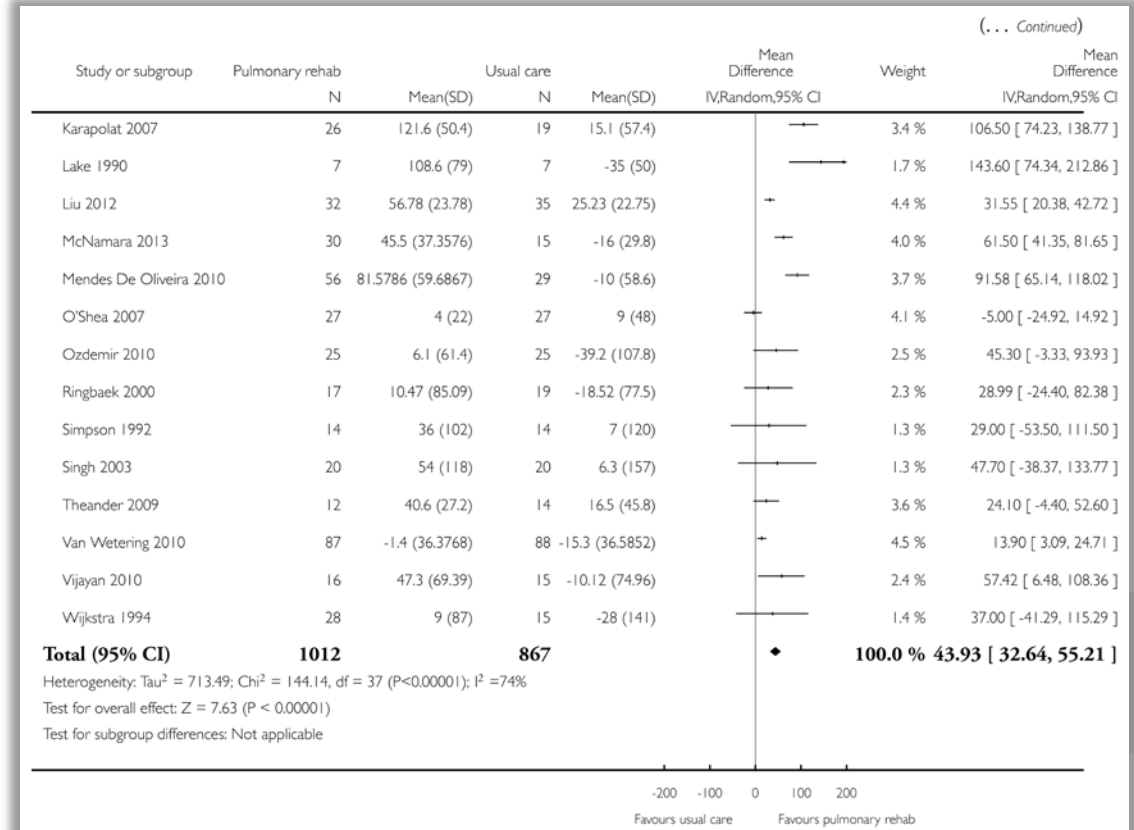
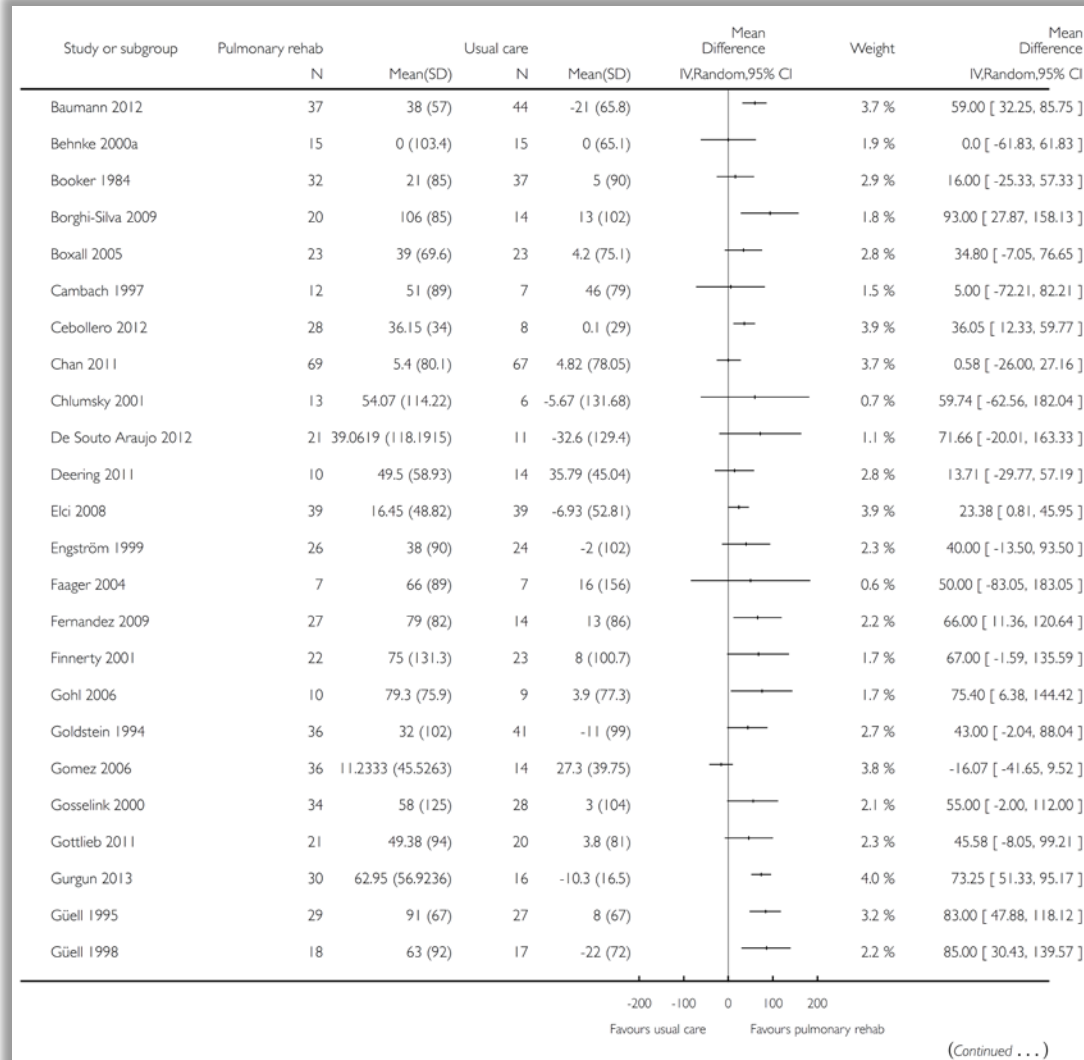
Tab. 1 Zusammenfassung der Resultate der randomisierten, kontrollierten Studien über die pulmonale Rehabilitation bei stabilen COPD-Patienten. (Adaptiert von [8])

Outcome	Systematischer Review	Minimaler patientenrelevanter Effekt	Differenz zwischen den Gruppen mit und ohne Rehabilitation (95%-KI); p-Wert	Anzahl der Studienteilnehmer (Anzahl der Studien)	Qualität der Evidenz (GRADE)
Lebensqualität (SGRQ)	Lacasse [7]	-4	-6,11 (-8,98--3,24); p=0,00003	388 (6)	Hoch
Symptome (SGRQ)	Lacasse [7]	-4	-4,68 (-9,61-0,25); p=0,06	388 (6)	Moderat
Atemnot (CRQ)	Lacasse [7]	0,5	1,06 (0,85-1,26); p<0,00001	610 (11)	Hoch
Erschöpfung (CRQ)	Lacasse [7]	0,5	0,92 (0,71-1,13); p<0,00001	618 (11)	Hoch
Depression	Coventry [9]	-0,2	-0,47 (-0,79--0,16); p=0,003	338 (5)	Tief
Angst	Coventry [9]	-0,2	-0,38 (-0,60--0,16); p=0,006	338 (5)	Tief
Emotionale Funktion (CRQ)	Lacasse [7]	0,5	0,76 (0,52-1,00); p<0,00001	618 (11)	Hoch
Aktivität (SGRQ)	Lacasse [7]	-4	-4,78 (-7,83--1,72); p=0,002	388 (6)	Hoch
Körperliche Aktivität	Ng [10]	n. a.	Keine Metaanalyse	472 (7)	Keine Evidenz
Krankheitsbewältigung (CRQ)	Lacasse [7]	0,5	0,97 (0,74-1,20); p<0,00001	618 (11)	Hoch
Einfluss auf den Alltag (SGRQ)	Lacasse [7]	-4	-6,27 (-10,08--2,47); p=0,001	388 (6)	Hoch
6-Minuten-Gehtdistanz (Meter)	Lacasse [7]	30 m	48 m (32-65); p<0,00001	669 (16)	Moderat
Maximale Leistungsfähigkeit (Watt)	Lacasse [7]	4 W	8,4 W (3,5-13,4); p=0,0009	511 (13)	Moderat

GRADE (Grading of Recommendations Assessment, Development and Evaluation) Qualitätsgrade. **Hohe Qualität:** Unwahrscheinlich, dass weitere Studien das Resultat verändern. **Moderate Qualität:** Möglich, dass weitere Studien das Resultat verändern. **Tiefe Qualität:** Wahrscheinlich, dass weitere Studien das Resultat verändern. **Sehr tiefe Qualität:** Sehr wahrscheinlich, dass weitere Studien das Resultat verändern. **SGRQ** St. Georges Respiratory Questionnaire, **CRQ** Chronic Respiratory Questionnaire, **KI** Konfidenzintervall

Puhan, M. (2015). Pulmonale Rehabilitation, vom "gefährlichen" Training zum Wegbereiter des modernen COPD-Managements. Der Pneumologe, S. 200

Körperliche Leistungsfähigkeit (exercise capacity): 6-MWT



McCarthy, Pulmonary rehabilitation for chronic obstructive pulmonary disease (Review), Cochrane Database of Systematic Reviews 2015, Issue 2. Art. No.: CD003793

Barmelweid 2017 ▲ 6-MWT PR alle Patienten: 102m



GOLD Report 2019

<https://goldcopd.org/gold-reports/>

PULMONARY REHABILITATION, SELF-MANAGEMENT AND INTEGRATIVE CARE IN COPD

PULMONARY REHABILITATION

- Pulmonary rehabilitation improves dyspnea, health status and exercise tolerance in stable patients (**Evidence A**).
- Pulmonary rehabilitation reduces hospitalization among patients who have had a recent exacerbation (≤ 4 weeks from prior hospitalization) (**Evidence B**).

EDUCATION AND SELF-MANAGEMENT


- Education alone has not been shown to be effective (**Evidence C**).
- Self-management intervention with communication with a health care professional improves health status and decreases hospitalizations and emergency department visits (**Evidence B**).

INTEGRATED CARE PROGRAMS

- Integrated care and telehealth have no demonstrated benefit at this time (**Evidence B**).

TABLE 3.8

Zusammenfassung: Hohe Evidenz der pulmonalen Rehabilitation



Cochrane
Library
Cochrane Database of Systematic Reviews


Pulmonary rehabilitation following exacerbations of chronic obstructive pulmonary disease (Review)

Puhan M

SERIES
PULMONARY REHABILITATION

Pulmonary rehabilitation for chronic obstructive pulmonary disease (Review)

McCarthy B, Casey D, Devane D, Murphy K, Murphy E, Lacasse Y



CHROME
ORATION®

How to adapt the pulmonary rehabilitation programme to patients with chronic respiratory disease other than COPD

Anne E. Holland^{1,2,3}, Karin Wadell⁴ and Martijn A. Spruit⁵

Number 3 in the Series "Thematic Review Series on Pulmonary Rehabilitation"
Edited by M.A. Spruit and E.M. Clini

Respiration

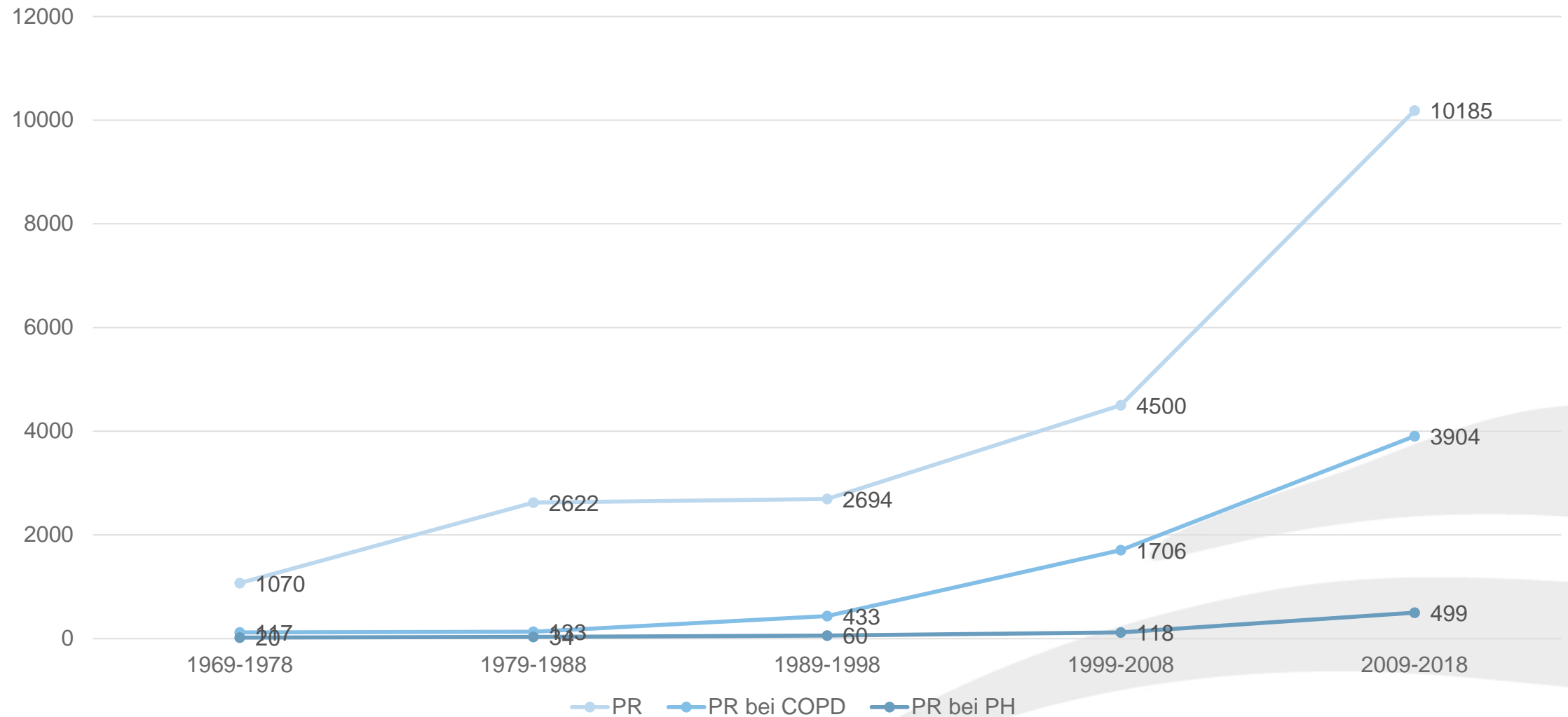
Thematic Review Series Vol. 89, 2015

Respiration 2015;89:2-11
DOI: 10.1159/000370246

Published online: January 13, 2015

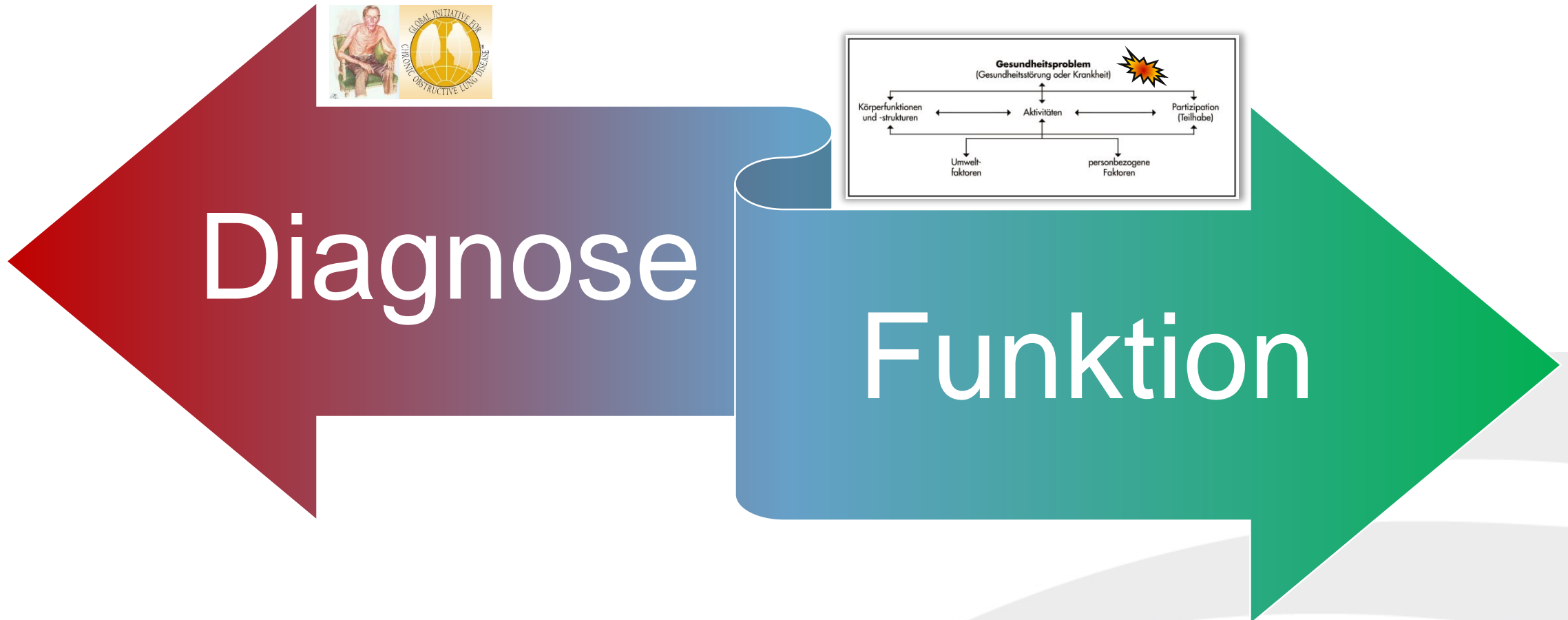
Principles of Rehabilitation and Reactivation

Christian R. Osadnik^{a, c, d} Fernanda M.M. Rodrigues^{a, b}
Carlos A. Camillo^{a, b} Matthias Loeckx^{a, b} Wim Janssens^b Christophe Doooms^b
Thierry Troosters^{a, b}



PR: Paradigma-Wechsel in den Köpfen ist notwendig

Diagnose – Gesundheitsproblem – Partizipation – Fachgebiet



PR: Paradigma-Wechsel in den Köpfen ist notwendig

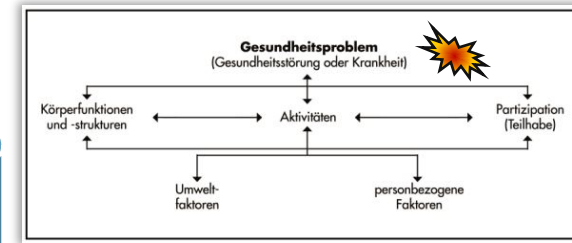
Diagnose – Gesundheitsproblem – Partizipation – Fachgebiet

Zuweiser und Evidenz



COPD
 Asthma
 Pulmonale Hypertonie
 Interstitielle Pneumopathie
 Zystische Fibrose

.....



Dyspnoe
 Bronchitische Symptome
 Gasaustauschstörung
 Spezielle Situationen

.....

Pulmonale Rehabilitation

9. D-A-CH-Kongress Pulmonale Rehabilitation

13./14. März 2020, Aarau

- ▶ Personalisierte Medizin
- ▶ Psycho-Pneumologie inklusive Umgang mit Angst und Depression
- ▶ Coaching zum Selbstmanagement
- ▶ Ambulant und stationär
- ▶ Zielkonflikt Medizin und Ökonomie mit Podiumsdiskussion



Definition, Methode und Effekte der pulmonalen Rehabilitation

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Chefarzt Pneumologie

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