What works and what doesn't for non-pharmacological treatments for breathlessness

NIHR ARC Palliative and End of Life Care
National Leadership Webinar Series

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NIHR | Applied Research Collaboration South London

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Better care at the end of life

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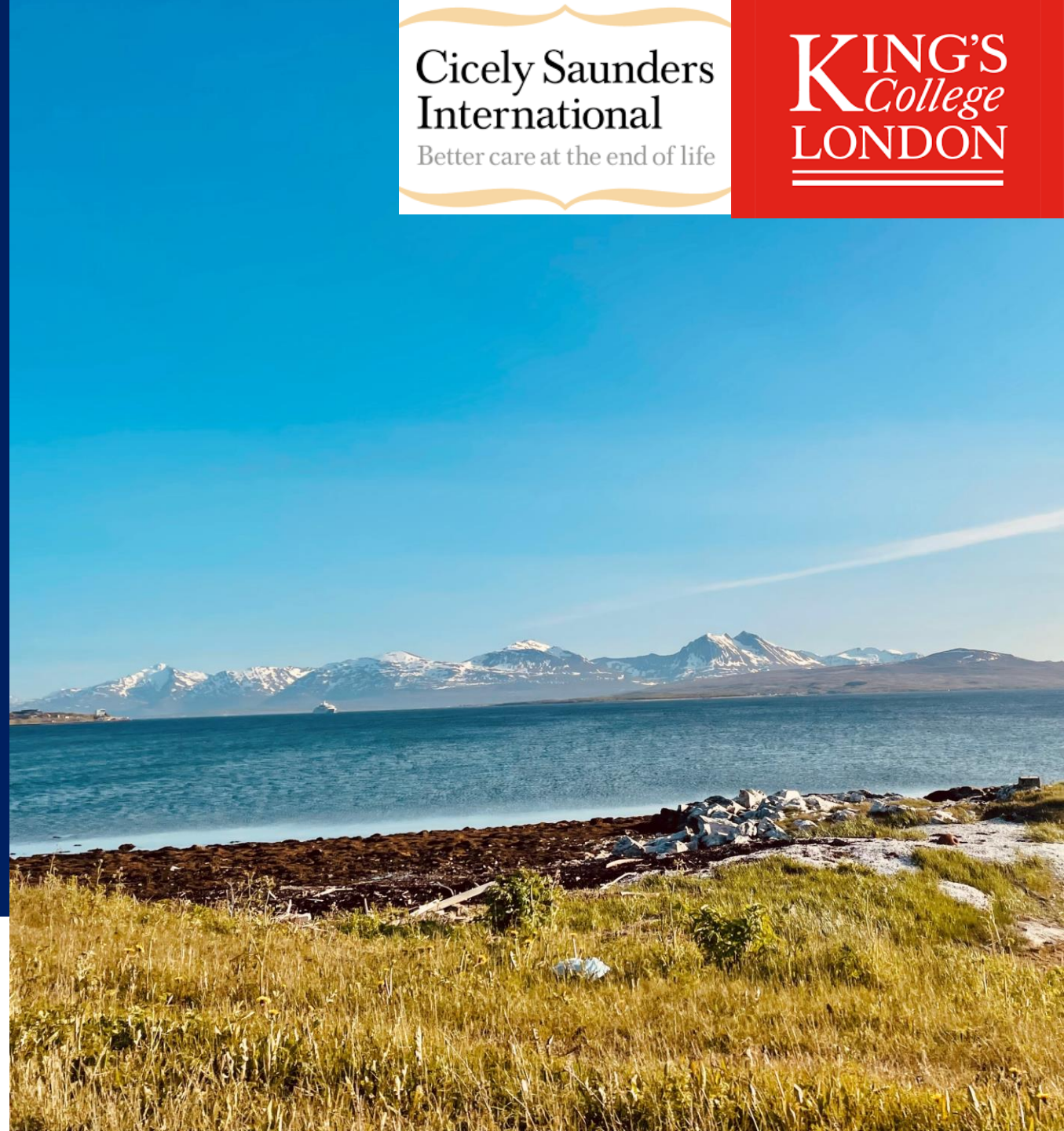
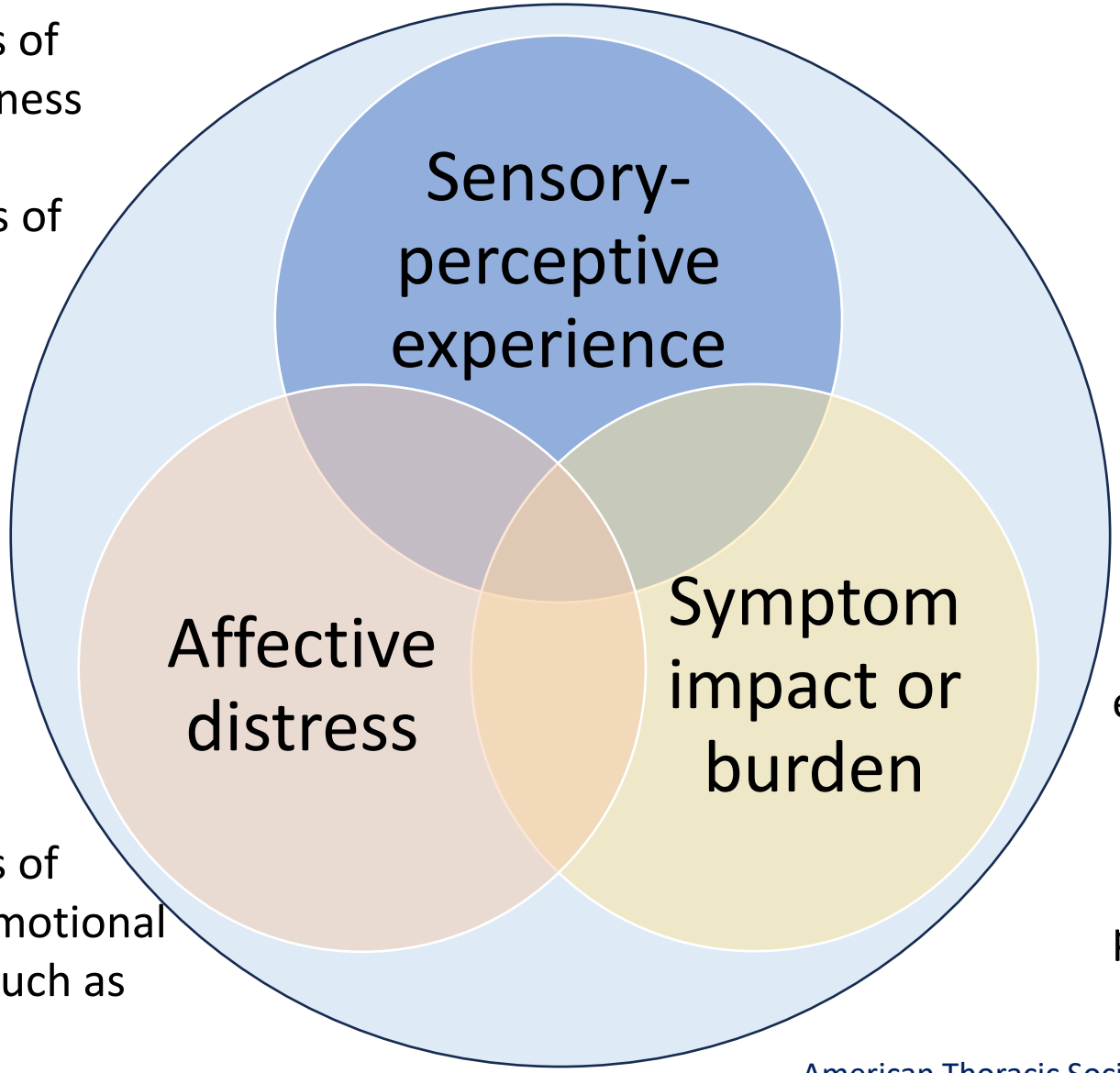


What ‘works’ can be measured in many ways

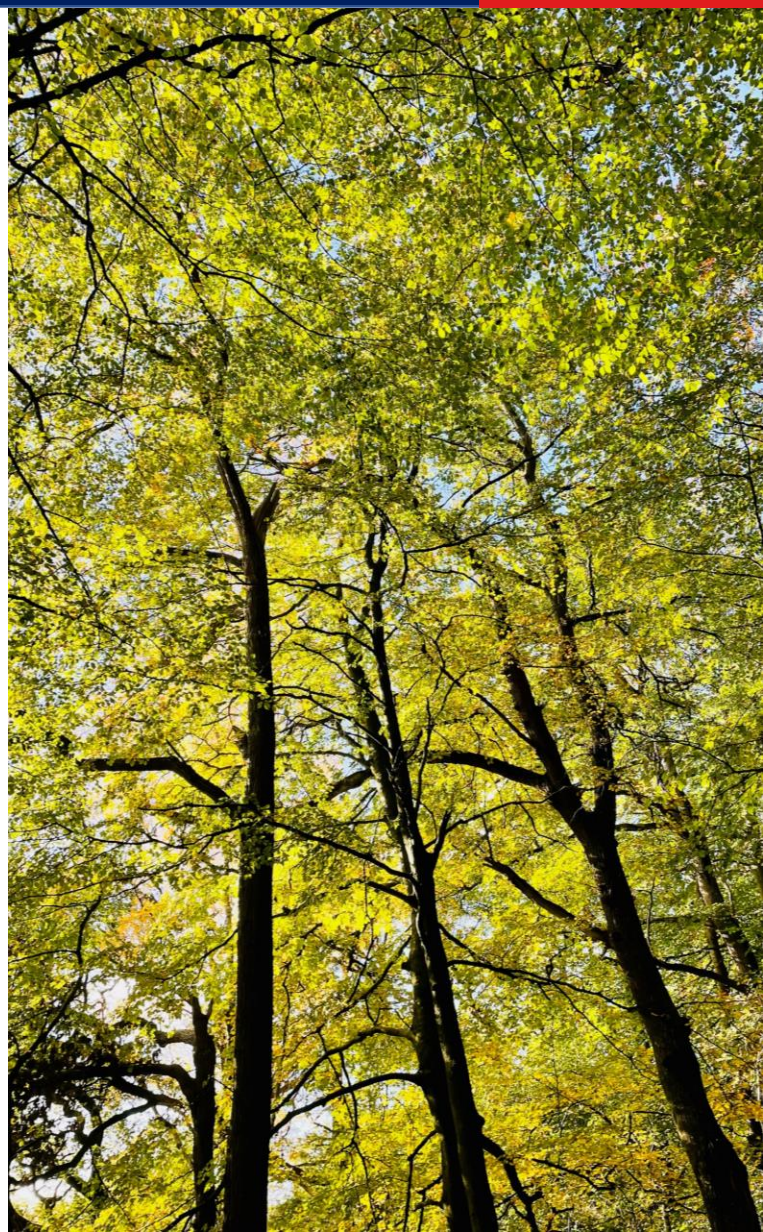
e.g. ratings of breathlessness intensity, descriptors of sensations



e.g. ratings of distress, emotional response such as anxiety

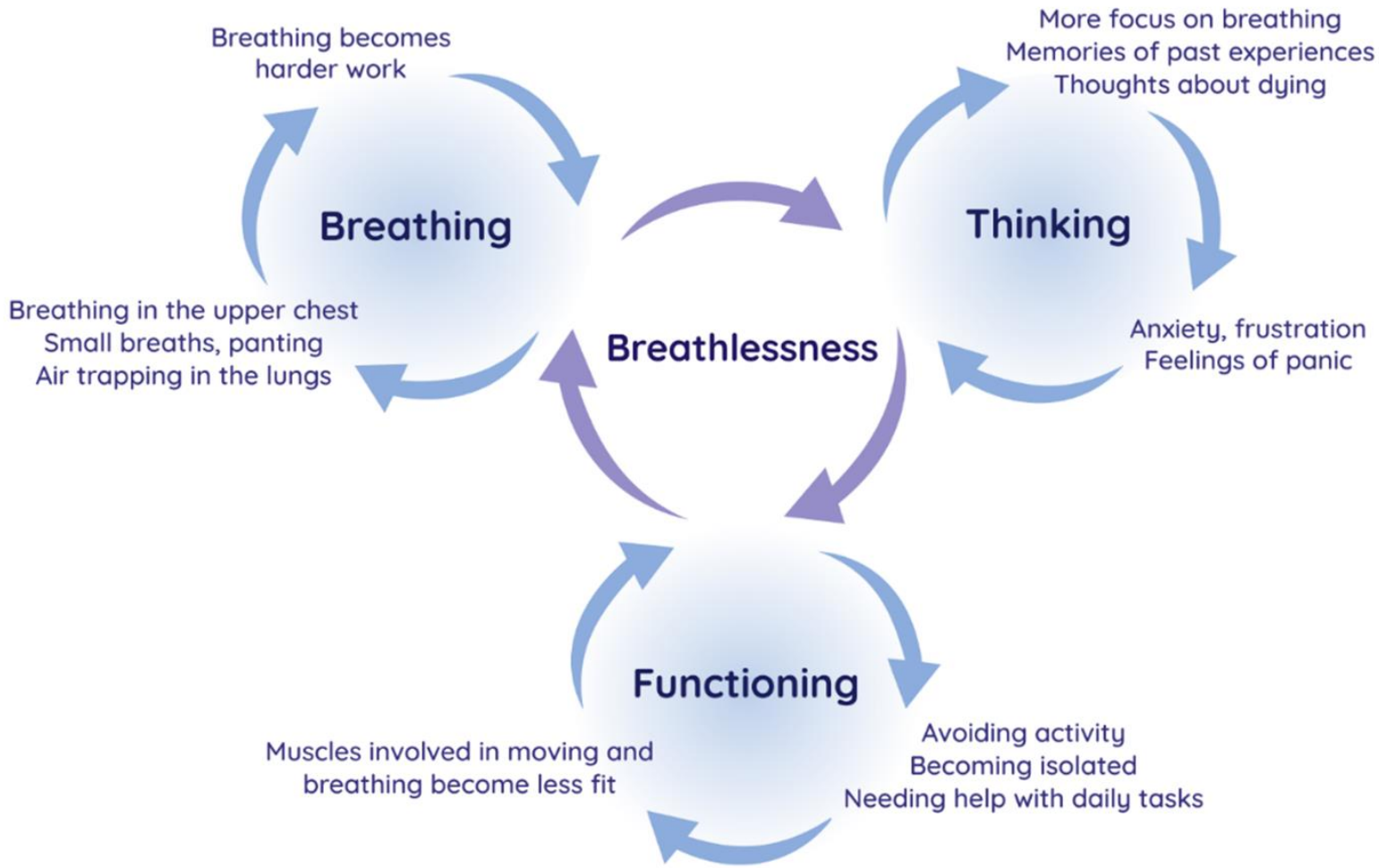
e.g. ratings of activity limitation, functional performance, health status

American Thoracic Society, AJRCCM, 1999



Breathing Thinking Functioning model

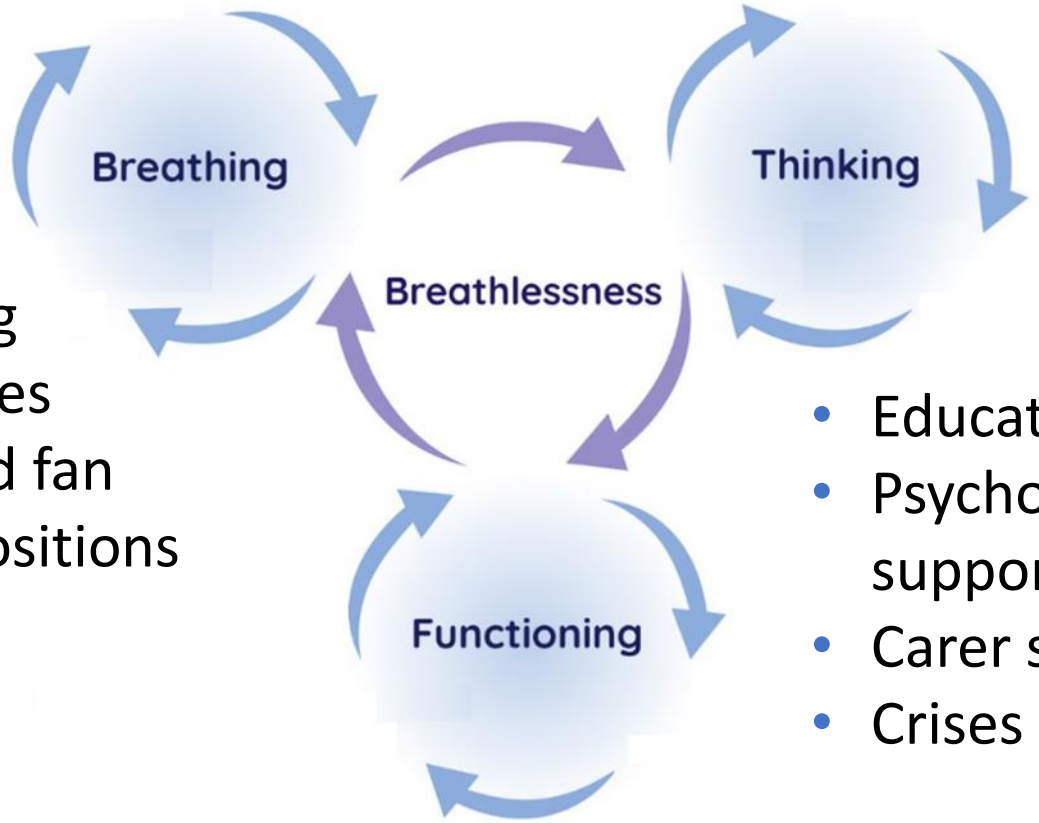
- Depicts key reactions to breathlessness that, by causing **cycles**, maintain and worsen the symptom
- Clinical model designed to support **education** and focus **management**



Spathis et al. 2017, NPJ Prim

www.btf.phpc.cam.ac.uk

Non-pharmacological treatment options



- Breathing techniques
- Handheld fan
- Easing positions

- Education
- Psychological support
- Carer support
- Crises plans

- Pacing techniques
- Exercise and physical activity
- Mobility aids

Breathing techniques

- Patients often show altered breathing patterns that reduce breathing efficiency
- Breathing techniques may alter muscle recruitment and optimise chest dynamics

	Breathlessness intensity during exercise	Breathlessness intensity during daily life	Walking performance	Quality of life
Diaphragmatic		**↓ 0.33** (0-5 scale)	**↑ 34.7 metres** *	**↑ 10.5** (0-100 scale) *
Pursed lip	**↓ 1.0** (0-10 scale) *	**↓ 10.0** (0-120 scale) *	**↑ 50.1 metres** *	**↑ 12.9** (0-100 scale) *
Timed, active expiration	**↑ 0.5** (0-2 scale)		**↑ 44.5 metres** *	**↑ 5.3** (0-100 scale) *

Baz et al. Thorax 2015;70:251-7
Holland et al. Cochrane Database Syst Rev. 2012;10:CD008250

Handheld fan

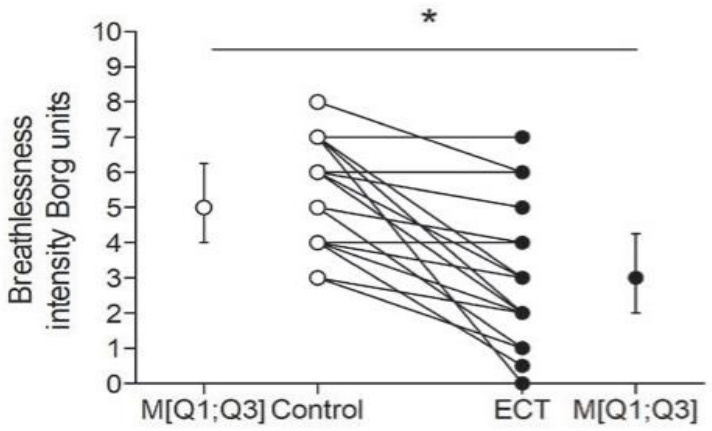
- Simple, practical treatment, suited to most settings
- Mechanisms include cooling air flow to face, distraction from or stimulus to control breathing, self-management and empowerment
- Many patients discover for themselves, ~4 in 5 report benefit, including aiding physical activity

- Fan at rest (0-10) MD -1.31, 95%CI -1.79 to -0.83, P<0.001
- Immediate (0-10) MD -1.01; 95%CI -1.57 to -0.45, P<0.001
- Short-term (0-10) MD, -0.90; 95%CI,-1.53 to -0.27, P=0.005
- Medical airflow exercise (0-10) MD -2.9, 95%CI -3.2 to -2.7, P<0.0001

Kako et al. Am J Hosp Palliat Care.2020;37(4):294-299
Yu et al. J Palliat Med . 2019;22(12):1603-1609
Swan et al. Pall Med 2019;33(6):618-633
Luckett et al. ERJ. Eur Respir J 2017; 50: 1700262

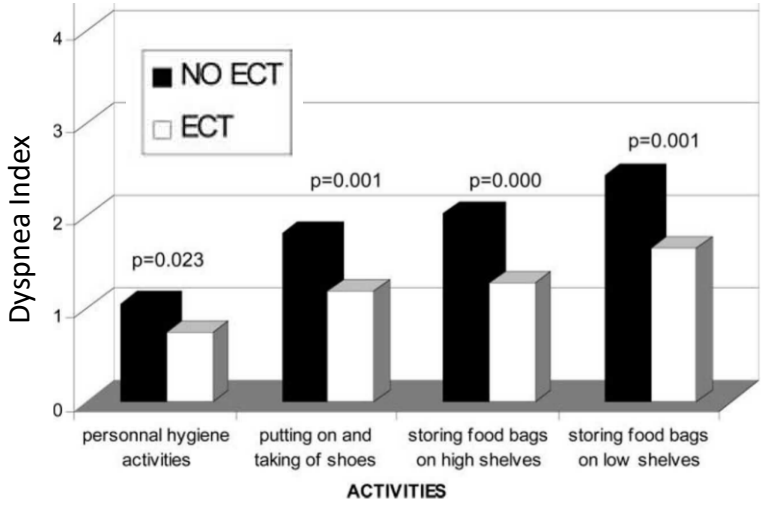
Energy conservation techniques

- Posture, pacing, simple aids, adapting environment
- Improves efficiency of task performance
  - ↓ ventilation
  - ↓ energy cost
  - ↓ breathlessness
  - task time remains similar



Stair climbing ECT

Prieur G, et al. Thorax 2020;75:510–512.



ECTs during daily activity

Wingårdh et al. Respiration 2020;99:409–416

Mobility aids

Provision of appropriate mobility aids may:

- ↓ ventilation during walking
- ↑ energy efficiency during walking
- ↑ physical activity
- ↑ social participation
- ↑ independence

During a **walk test** rollator use improved performance (7 studies, +13 metres) compared to a stick or no mobility aid

During **daily life** about half of patients use a prescribed aid regularly (>3x /week) and reported better mastery

Steuljens et al Age Ageing 2004;33,453-60

Gupta et al. Chest 2006;130:1089-95

Lee et al. J Cardiopulm Rehabil Prev. 2018;38:366-73

Exercise and physical activity

Pulmonary rehabilitation

- CRQ dyspnoea ↑0.79 (CI 0.56–1.03), n=1283
- SGRQ total score ↓6.9 (CI 9.3–4.5), n=1146
- walking performance ↑44m (CI 33–55), n=1879

McCarthy et al. Cochrane Database Syst Rev. 2015;2:CD003793

Upper limb training

- ↓ breathlessness during exercise and daily activity
- ↑ performance of exercise and daily tasks

Kathiresan et al. J Thorac Dis 2010;2:223-36

Meditative movement
Muscle stimulation

- low-intensity modalities
- limited / no effect on breathlessness
- ↑ functional performance

Maddocks et al. Lancet Resp Med 2016; 4(1):27-36
Nolan et al. Eur Respir Rev 2023; 32: 220243

Breathlessness services

- Triggered by breathlessness > disease
- Typically, 4–6 contacts over 4–6 weeks
- Combine, select and tailor interventions
- Emphasis on non-drug approach

Palliative Medicine 1996; **10:** 299–305

Non-pharmacological intervention for breathlessness in lung cancer

J Corner Director, Centre for Cancer and Palliative Care Studies, Institute of Cancer Research, London, **H Plant** Lecturer, Centre for Cancer and Palliative Care Studies, Institute of Cancer Research, London, **R A'Hern** Statistician, Royal Marsden NHS Trust, London and **C Bailey** Research Practitioner, Centre for Cancer and Palliative Care Studies, Institute of Cancer Research, London

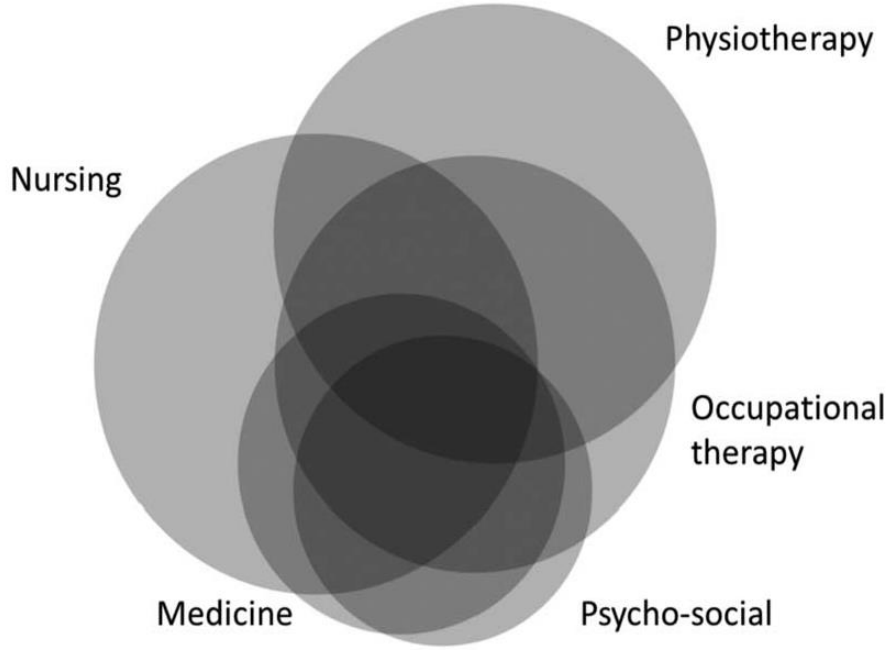
Key words: bre
intervention (no

An integrated palliative and respiratory care service for patients with advanced disease and refractory breathlessness: a randomised controlled trial

Irene J Higginson, Claudia Bausewein, Charles C Reilly, Wei Gao, Marjolein Gysels, Mendwas Dzingina, Paul McCrone, Sara Booth, Caroline J Jolley, John Maxham

Summary

Background Breathlessness is a common and distressing symptom, which increases i
difficult to manage. We assessed the effectiveness of



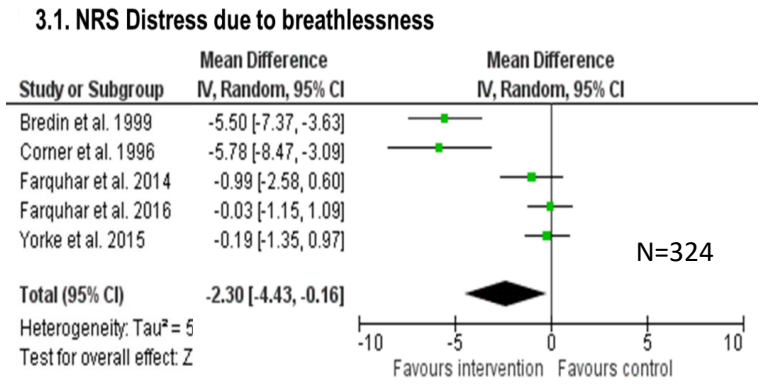
Optimise the person's **ability to live with** and self-manage **breathlessness**

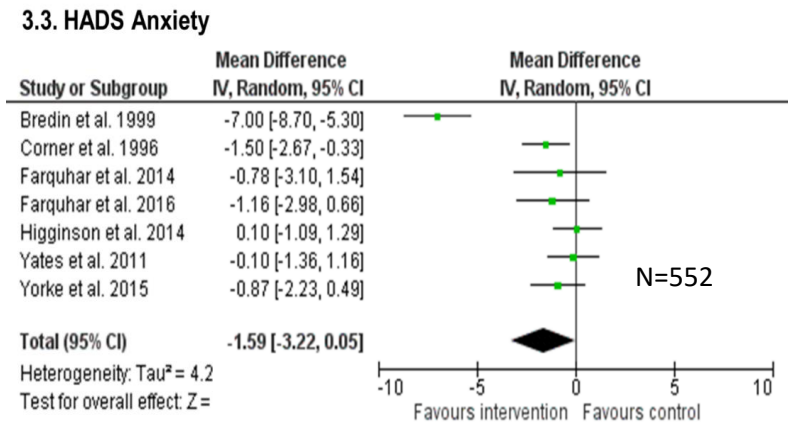
Focus on the **person before their disease**

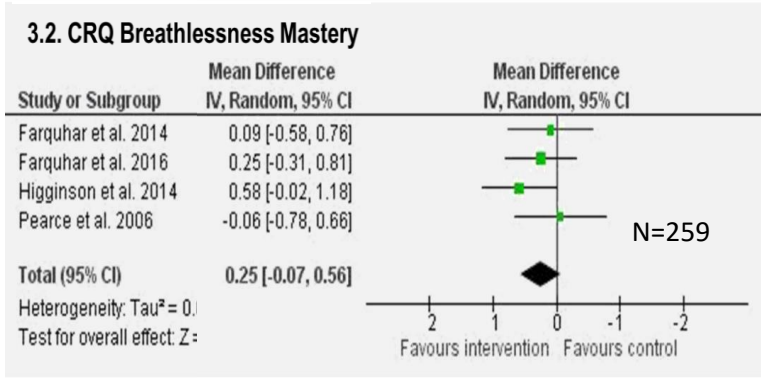
Corner et al. Pall Med. 1996:10:299-305
Higginson et al. Lancet Respir Med 2014;2(12):978-87

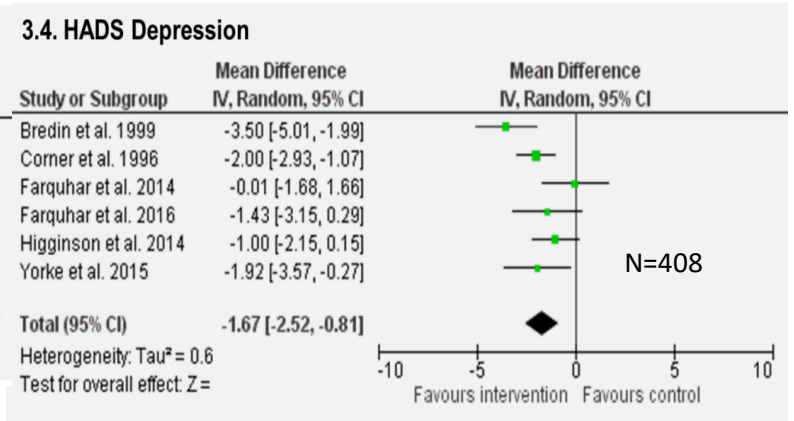
Brighton et al. Thorax. 2019;74:270–281
Reilly et al. Curr Opin Support Palliat Care. 2019:13:193–199

Breathlessness services









- Few and minor safety concerns
- Small gains in QALYs found in 6/7 studies

Brighton et al. Thorax. 2019;74:270–281

Spathis et al. Eur Respir Rev 2024; 33: 240054
Takemura et al. Curr Opin Support Palliat Care 2024,00:1-8

Patient and carer experiences

Valued service characteristics

- Tailored education & information
- Simple, portable, effective tools
- Psychological and social support
- Involving family and carers
- Staff skills in dignified care

12 studies (n=216)

Perceived changes

- Increased understanding & confidence
- Feeling less isolated
- Feeling 'in control'
- Reduced anxiety

Challenges to engagement

- Low initial expectations
- Importance of motivation

Brighton et al. Thorax. 2019;74:270–281

Spathis et al. Eur Respir Rev 2024; 33: 240054

Take home messages

- Breathlessness is **common, distressing and burdensome symptoms** that are too often neglected in clinical practice.
- Beyond recognition and assessment, there are **many evidence-based treatments** we can offer patients and families.
- Based on existing best evidence, **non-drug treatments should be prioritised** in most contexts.
- Breathlessness highlights the **relevance of a rehabilitation approach** within palliative care services.