Hypnosis and the Relief of Chronic Breathlessness

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BSCAH annual conference

MANAGING BREATHLESSNESS

- definition & incidence
- genesis – phenomenon of the mind
- outline of current management
- ‘integrated hypnosis’ – case histories
- review of non-pharmacological interventions and hypnosis
- using a *Breathing, Thinking, Functioning* approach

BREATHLESSNESS IS A PHENOMENON OF THE MIND

"…..it is an *unpleasant* type of breathing, though it is not painful in the usual sense of the word. It is *subjective* and, like pain, it involves *both* the *perception* of the sensation by the patient and his *reaction* to the sensation" (Comroe, 1966:3).

DEFINITIONS

"chronic breathlessness syndrome", is defined as "*breathlessness that persists despite optimal treatment of the underlying pathophysiology and that results in disability.*" Johnson et al, 2017 ERJ

CHRONIC BREATHLESSNESS: A SUITABLE CASE FOR TREATMENT

- **Why?** common, distressing, *potentially 'prognosis-altering,'* significant cost to health services/patients in unscheduled ***futile*** use of medical services

- **Who?** those troubled by *chronic breathlessness* in spite of diagnosis of & optimal medical treatment of the underlying condition

- **When?** as early as possible, potential to improve medical outcomes

- **How?** mostly non-pharmacological treatments in the mobile patient

- **Where?** depends on stage of illness & facilities available – most treatment needs to be at home and will take time.

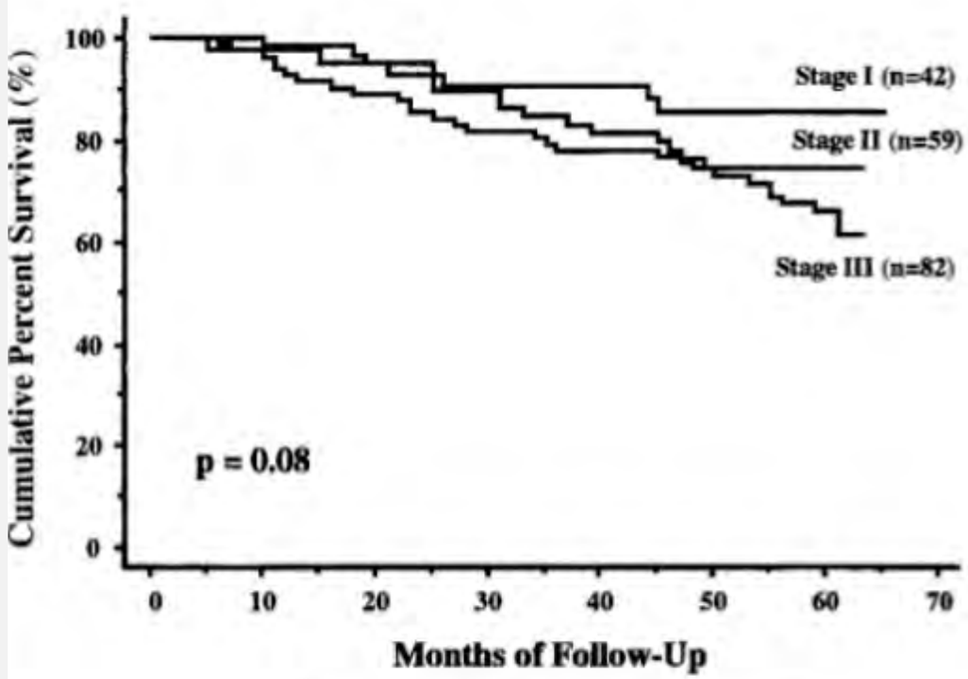
STATISTICS FOR UK

- Lung disease affects 1 in 5 people in UK
- Breathlessness affects 2 million people in UK
- 550 000 lung disease new diagnoses per annum
- Estimated NHS cost of £9 billion per annum

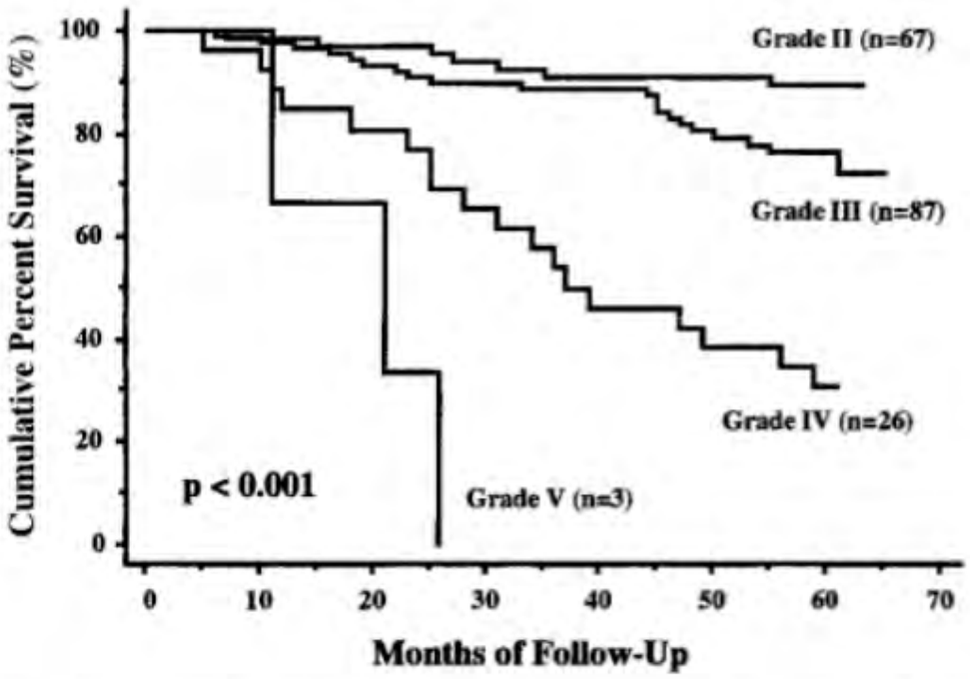
British Lung Foundation. Estimating the economic burden of respiratory illness in the UK, 2017:https://www.blf.org.uk/what-we-do/our-research/economic-burden

Royal College of Physicians. National COPD primary care audit 2014–15 national report (Wales). 2017

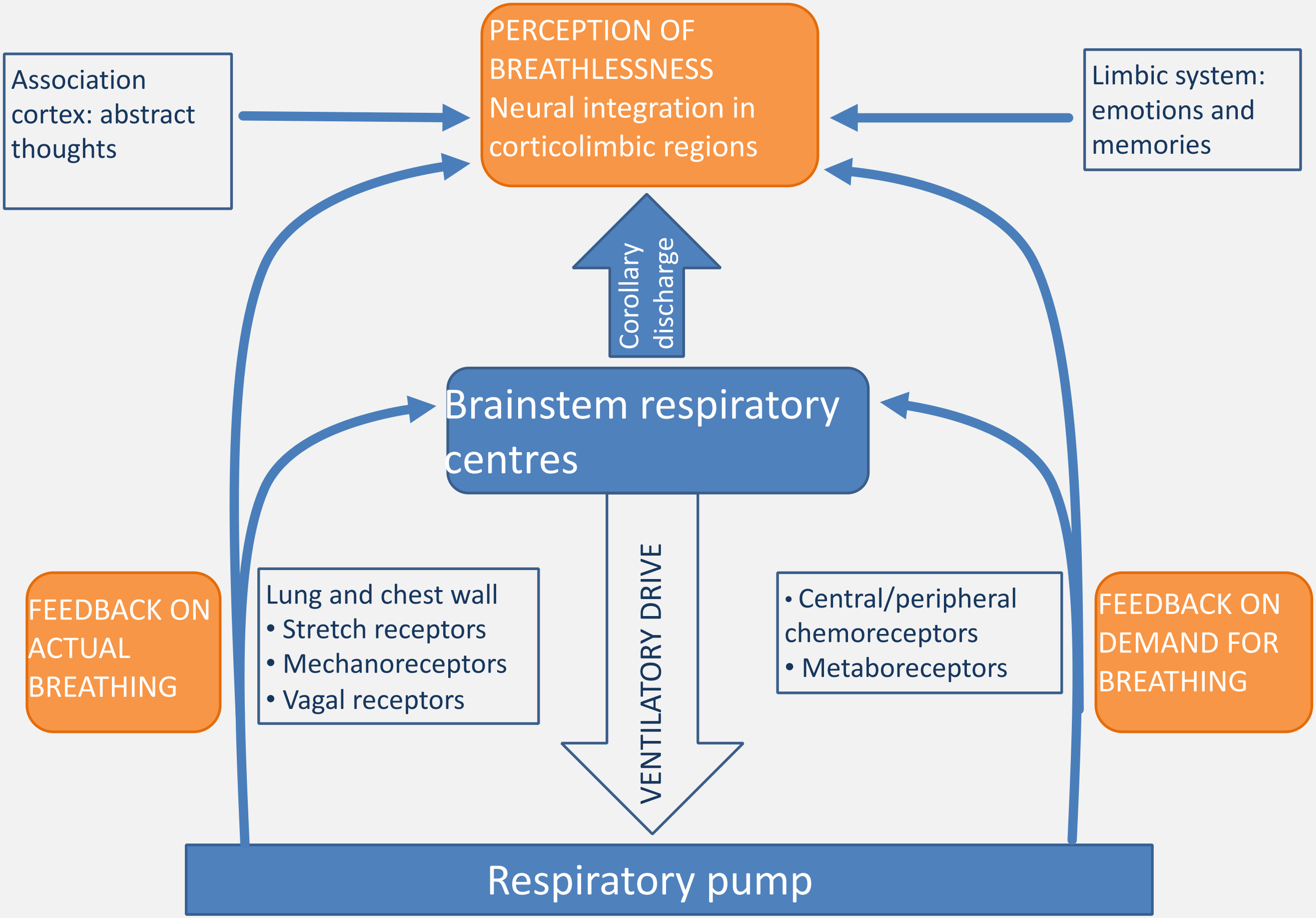
Dyspnea Is a Better Predictor of 5-Year Survival Than Airway Obstruction in Patients With COPD* *(CHEST 2002; 121:1434–1440)*



5-year survival according to FEV1



5-year survival according to MRC dyspnea scale


PERCEPTION OF BREATHLESSNESS
Neural integration in corticolimbic regions
Association cortex: abstract thoughts
Limbic system: emotions and memories
Corollary discharge
Brainstem respiratory centres
VENTILATORY DRIVE
FEEDBACK ON ACTUAL BREATHING
Lung and chest wall
• Stretch receptors
• Mechanoreceptors
• Vagal receptors
• Central/peripheral chemoreceptors
• Metaboreceptors
FEEDBACK ON DEMAND FOR BREATHING
Respiratory pump

NEUROPHYSIOLOGY OF BREATHLESSNESS

Imaging confirms that breathlessness is generated: ***in the brain***

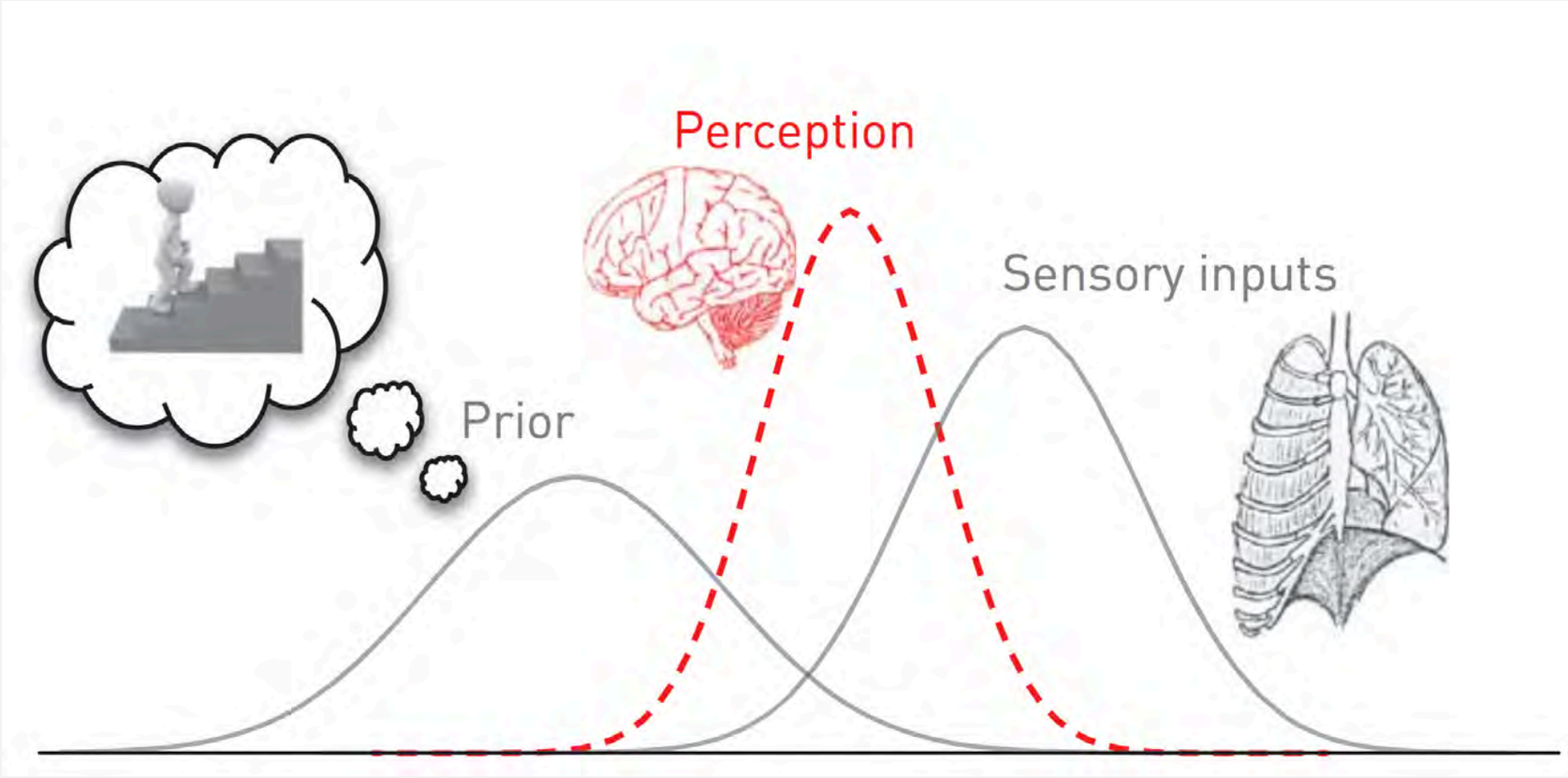
*'These have found consistent activation in the **insular cortex, the anterior cingulate cortex** and **the amygdala.'***

"Dyspnoea and the brain" Respiratory Medicine, *Herigstad et al , 2011*

Breathlessness and the Brain, Booth et al, 2015

BAYESIAN BRAIN HYPOTHESIS

FAULL ET AL, 2017



SYMPTOMS

- Peripheral generators
- Central processors

- Both offer approaches to amelioration
- ‘Priors’ may act as triggers/exacerbators

PERCEIVING BREATHLESSNESS

"…a *subjective experience* of breathing discomfort that consists of ***qualitatively distinct sensations*** that vary in intensity. The experience derives from interaction among multiple *physiologic, psychological, social, and environmental factors* and may induce secondary physiological and behavioural responses"

(ATS, 1999a:322, updated 2012).

SYMPTOM PERCEPTION, PLACEBO EFFECTS & BAYESIAN BRAIN

Biomedical models (brain = stimulus conversion organ) do not explain:

- Experience of symptoms without pathophysiological disruption
- Experience of relief after placebo treatments

Ongaro & Kaptchuk, PAIN, January 2019; 160; 1:1- 4

‘PERCEPTION IS COGNITIVELY MODULATED…’

……..Mostly ‘nonconsciously’

‘might best be viewed as a process of prediction, based on an integration of *sensory inputs, prior experience and contextual cues*.’

ALL SYMPTOMS

Associated with an activated inflammatory response

TAWAKOL *ET AL, THE LANCET* 2017;389:834-845

293 patients (median age 55 years [IQR 45·0–65·5]) ..included in longitudinal study, 22 …had a cardiovascular disease event during median follow-up of 3·7 years (IQR 2·7–4·8**). Amygdalar activity ...associated with increased bone-marrow activity** (*r*=0·47; p<0·0001) **arterial inflammation** (*r*=0·49; p<0·0001), and risk of cardiovascular disease events (standardised hazard ratio 1·59, 95% CI 1·27–1·98; p<0·0001), a finding that remained significant after multivariate adjustments.

TAWAKOL ET AL, 2017

"The *association between amygdalar activity and cardiovascular disease events* seemed to be mediated by increased bone-marrow activity and arterial inflammation."

TAWAKOL *ET AL*, 2017

Relationship between resting amadylar activity and cardiovascular events: a longitudinal and cohort study

‘…our findings raise the possibility that efforts to attenuate psychosocial stress could produce benefits that extend beyond an improved sense of psychological wellbeing…’

The Lancet 2017; 389: 834–45

PSYCHONEUROIMMUNOLOGY, DARUNA 2012

- The brain and CNS
- The endocrine system
- The immune system

All work together and affect each other

‘ It is clear that disease begins within organismic microenvironments and that complexity is not diminished by progressively narrowing the focus of analysis. ’

HYPNOSIS AND DYSPNEA

Current clinical **trial in Paris**, 20 people but includes healthy volunteers, awaiting more information, finished recruiting 20 subjects in 2018

Anbar *et al*, 2006 – paediatric patients, dyspnea with normal lung function.

- Retrospective chart review of children receiving hypnosis
- 17 children, mean age 13.4 years (range 8-18 years)
- 1-2 sessions 15
- Imagery of lung used *unhealthy to healthy*

MANAGING BREATHLESSNESS: GENERAL PRINCIPLES - A *COMPLEX INTERVENTION*

1. **Non pharmacological measures**
2. Opioids
3. Oxygen - not for palliation of breathlessness
4. Other drugs e.g. antidepressants
5. Manage other symptoms
6. **Carer support**

Research article

Open Access

Is a specialist breathlessness service more effective and cost-effective for patients with advanced cancer and their carers than standard care? Findings of a mixed-method randomised controlled trial.

Morag C Farquhar, **A Toby Prevost**, **Paul McCrone**, **Barbara Brafman-Price**, **Allison Bentley**, **Irene J Higginson**, **Chris J Todd** and **Sara Booth**

▸ Author Affiliations

For all author emails, please log on.

BMC Medicine 2014, **12**:194 doi:10.1186/s12916-014-0194-2

Published: 31 October 2014

Results

BIS reduced patient distress due to breathlessness (primary outcome: −1.29; 95% CI −2.57 to −0.005; P =0.049) significantly more than the control group; 94% of respondents reported a positive impact (51/53). BIS reduced fear and worry, and increased confidence in managing breathlessness. Patients and carers consistently identified specific and repeatable aspects of the BIS model and interventions that helped. How interventions were delivered was important. BIS legitimised breathlessness and increased knowledge whilst making patients and carers feel 'not alone'. BIS had a 66% likelihood of better outcomes in terms of reduced distress due to breathlessness at lower health/social care costs than standard care (81% with informal care costs included).

Conclusions

BIS appears to be more effective and cost-effective in advanced cancer than standard care.

ASSESSMENT

- Establish credentials and interest in symptom (Booth et al, 2001)
- **Listen**
- The experience and impact of breathlessness for patient
- Pattern of breathlessness
- Rapidly progressive or relatively stable disease?
- Breathlessness on exertion only or at rest?
- Quantify e.g D12 *Yorke et al, 2011.*
- Comprehensive symptom status
- Assess carer’s needs and available support network.

NON-PHARMACOLOGICAL CORE INTERVENTIONS

1. Education & information
2. Use of hand-held fan
3. Encouraging exercise
4. Activity pacing
5. Positioning
6. Recovery breathing
7. Relaxed breathing
8. Anxiety Management / relaxation
9. Detection and treatment of depression
10. Managing chronicity - attenuating inflammatory response
11. Support for carers

Assessment is crucial

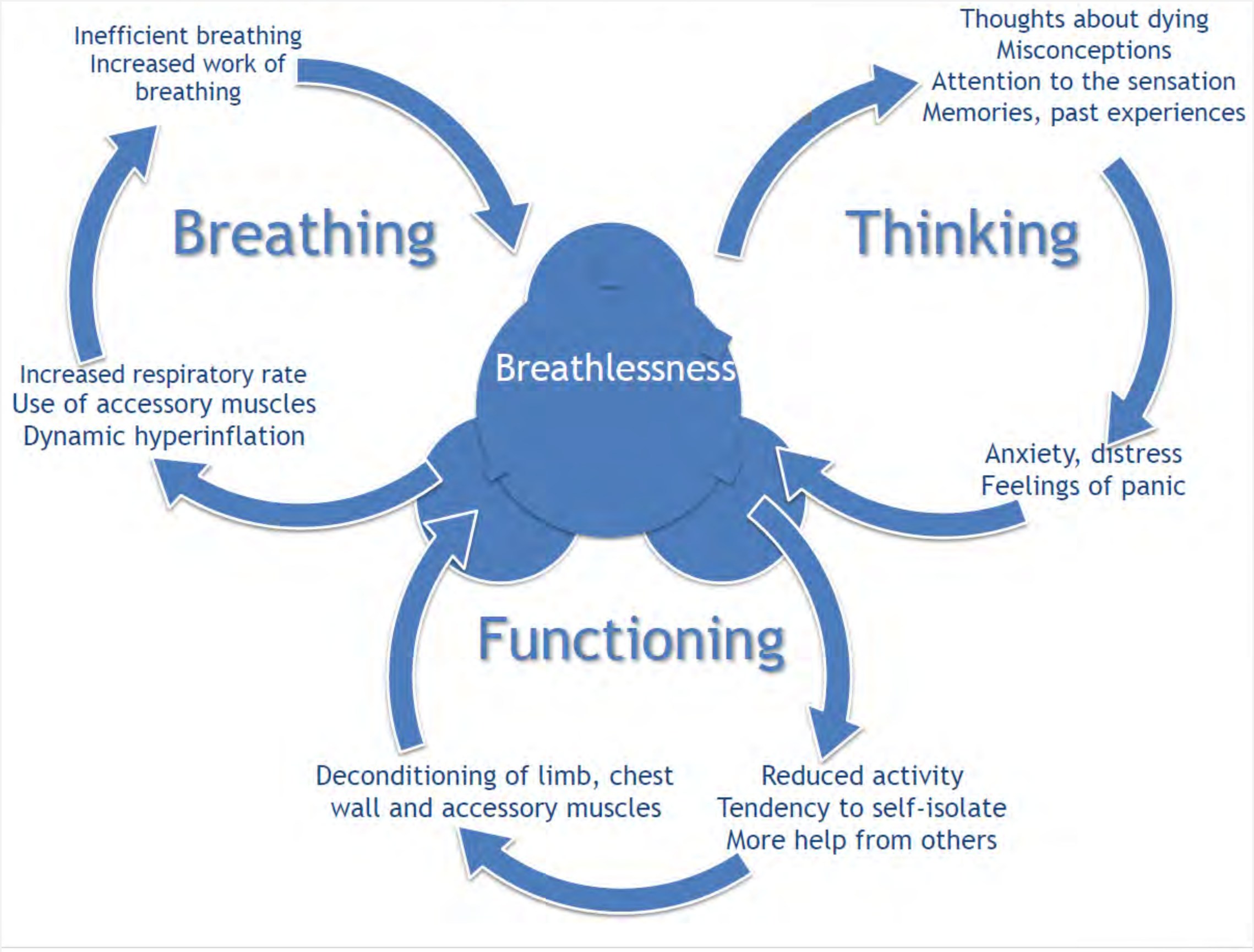
IS THERE 'EPISODIC BREATHLESSNESS?'

- Episodic breathlessness 'a short period of severe breathlessness that occurs mainly daily and impairs patients' quality of life by limiting activity and causing panic and fear .'

Simon *et al*, 2012, Simon *et al,* 2013, Linde *et al,* 2018

- Usually a trigger – emotion – panic
- Feels 'out of the blue' and therefore more threatening

Manage the trigger



Used with permission, Sara Booth & Anna Spathis: Cambridge Breathlessness Intervention Service

ASSESSMENT IS KEY

- Assessment can be therapeutic
- Think about what asking and saying carefully
- See ‘dyads’ separately
- Remember reliving what experiencing when talk, don’t reinforce

ASSESSMENT

- Listen
- Show you are listening
- Act on what you hear

Inefficient breathing
Increased work of breathing

Breathing

Increased respiratory rate
Use of accessory muscles
Dynamic hyperinflation

Thoughts about dying
Misconceptions
Attention to the sensation
Memories, past experiences

Thinking

Anxiety, distress
Feelings of panic

Breathlessness

Functioning

Deconditioning of limb, chest wall and accessory muscles

Reduced activity
Tendency to self-isolate
More help from others

BREATHING CYCLE

Modifying mechanisms of *peripheral* genesis

Breathing training

- expiration techniques (rectangle, candle imagery, pursed lip)
- positioning
- diaphragmatic breathing
- pacing and prioritising
- stair/walking breathing

BREATHING CYCLE

Modifying mechanisms of peripheral genesis

Skeletal muscle exercise – *Be Active*

- inspiratory muscle training
- quadriceps aerobic training
- neuro-muscular electrical stimulation

BREATHING CYCLE

Modifying mechanisms of peripheral genesis

Cool facial air flow

- Battery operated hand held fan
- Cool water spray

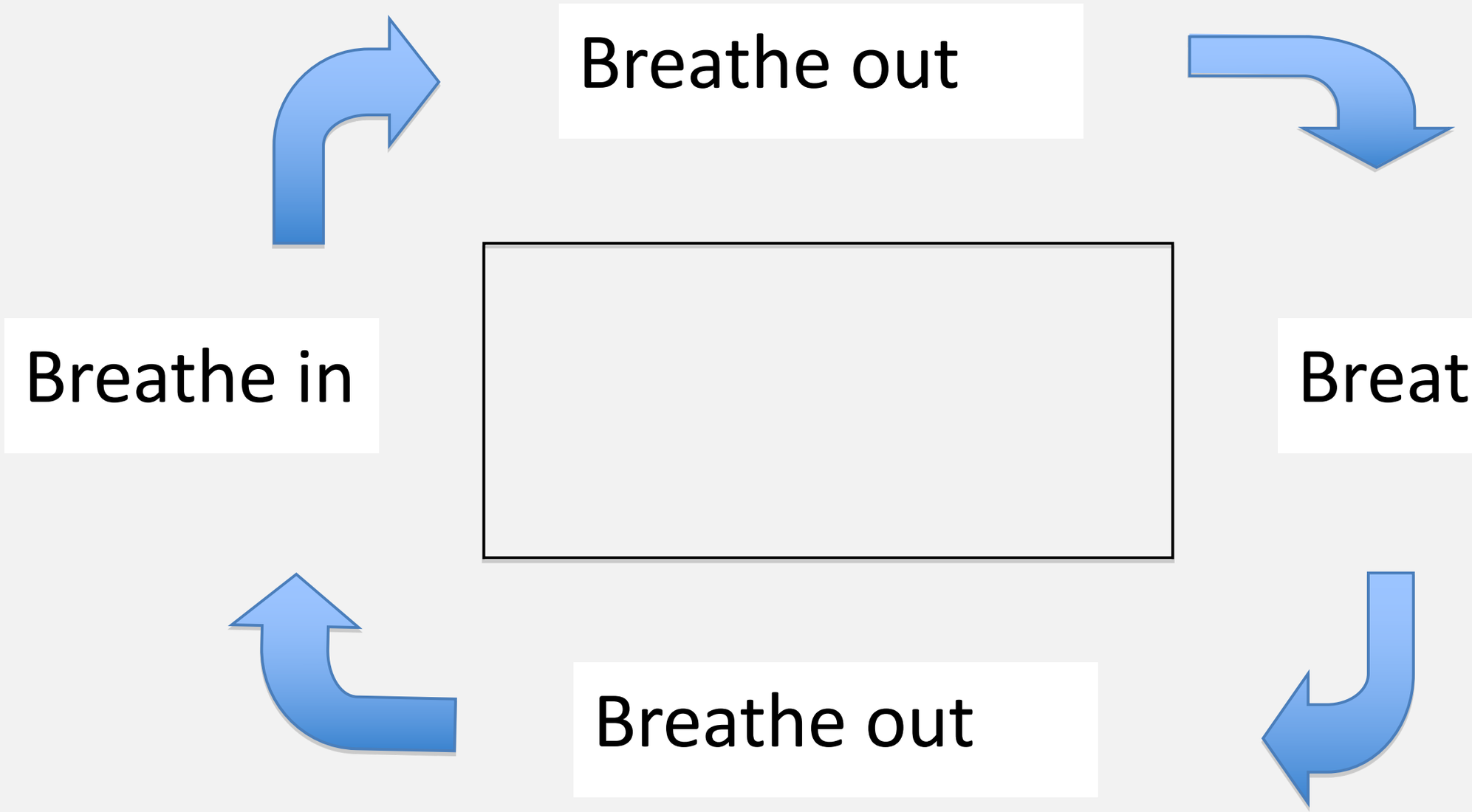
OUTLINE

- Breathing control
- Diaphragmatic breathing
- Recovery breathing

Breathe round a square

- Breathe in on the corners
- Breathe out along the edges

Breathe round a rectangle



BREATHING RETRAINING DIRECTIONS

- Posture
- Relax body & mind
- ‘Feel the breath’

- Notice tummy rise & fall
  - Float air in
  - Relax breath out
- Gentle breaths, quiet

- Notice natural pause
- Rest in the pause

Relax accessory muscles, tune into breathing

Focus on diaphragm movement, deflate to lower lung volumes

Relax flow & tidal volume

Reduce resp. rate

(Booth et al, 2013)

RECOVERY BREATHING

RECOVERY BREATHING

Obstructive lung condition (i.e. COPD, asthma)

Fan

Forward lean

Focus on long breaths out through pursed lips

(Booth et al, 2013)

RECOVERY BREATHING

Restrictive lung condition (i.e. ILD, pulmonary fibrosis) or cancer

Fan

Drop shoulders

Focus on relaxed breaths out

(Booth et al, 2013)

Inefficient breathing
Increased work of breathing

Breathing

Thoughts about dying
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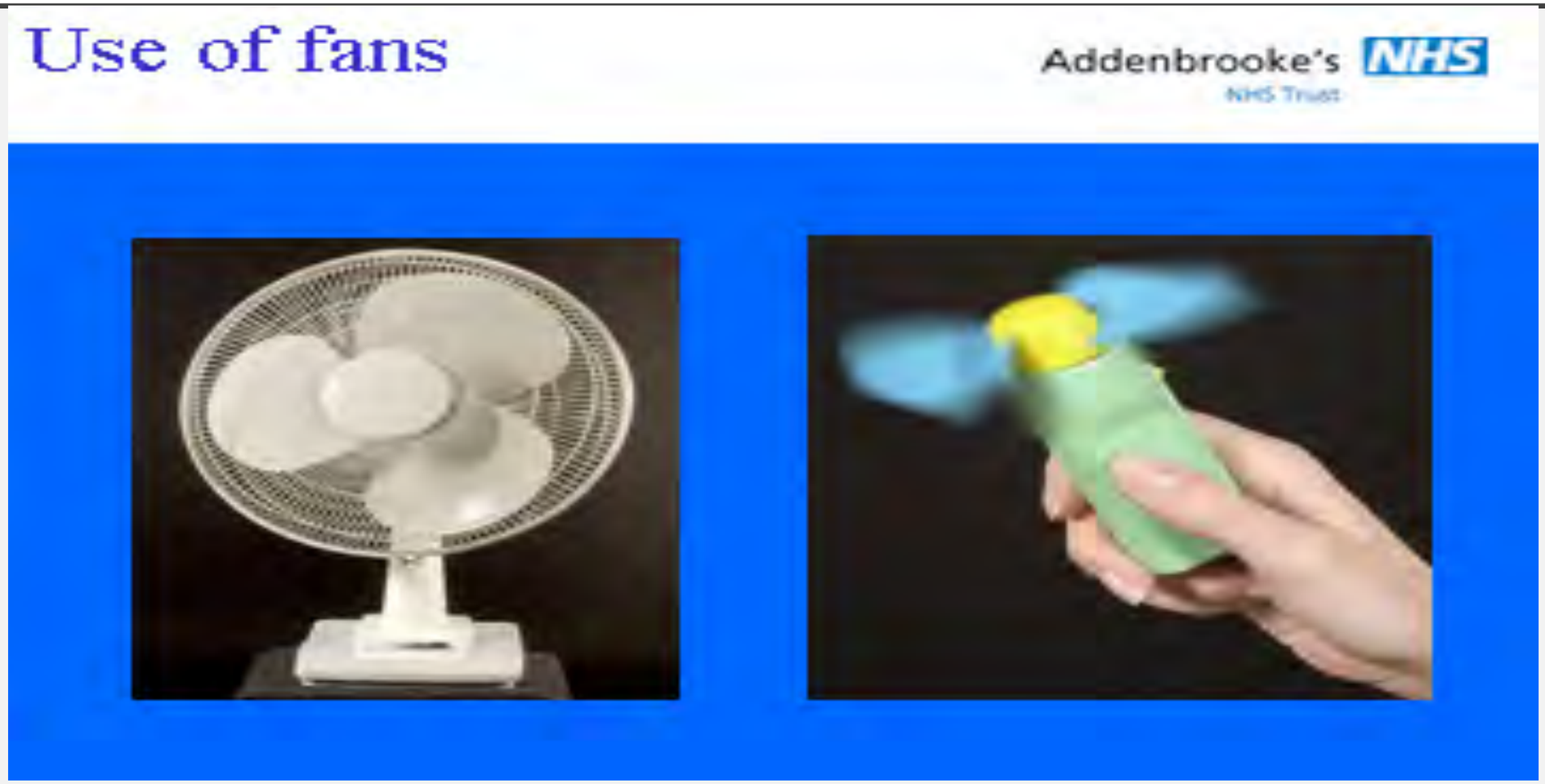
SCHWARTZSTEIN *ET AL*, 1987



Cold facial stimulation reduces breathlessness induced in normal subjects

American Review of Respiratory Diseases 136 (1) 58 - 61

BREATHLESSNESS: THE FAN *REDUCES SENSATION OF BREATHLESSNESS* IN ADVANCED DISEASE

- Cross-over RCT: 49 patients analysed
- 23 male
- Mean age 71.3 years (33-90 years)
- Fan to face & fan to leg
- Outcome measure: change 1 cm in breathlessness on VAS

p=0.03

'fan had a 'carry over effect'

Galbraith et al, 2010 JPSM
Booth et al, 2015 JPSM
Luckett et al, 2017 JPSM

THE FAN: A COMPLEX INTERVENTION ITSELF

- cheap therefore have several to support different activities
- portable
- easily - explained - ***but needs explaining***
- increases self-efficacy where helplessness can be disabling
- safe
- easily obtained
- useful for carer to use in ‘ritual for crisis’ of episodic breathlessness

BREATHING; IMAGERY

- Female, 70s, ILD (restrictive lung condition)
- Self-referral back to BIS team as family suggesting opioids
- Using breathing techniques e.g. relaxed shoulders, slow abdominal breathing, sips of water to reduce cough, fan, up-right positioning, nose breathing. ON oxygen 2 l/min

INTEGRATED HYPNOTIC TECHNIQUE

- Fan, water, positioning helping
- Struggling with breathing techniques
- On higher dose of oxygen now

Assessment

- Patient forcing breathing, trying too hard with stiff lungs,
- ‘It’s like breathing through concrete.’

INTEGRATED HYPNOTIC TECHNIQUE

- Patient enjoyed ice-skating in childhood
- Lying propped up on sofa (position supportive of breathing), feeling ease of movement, shoulders relaxed, swinging arms loose by side, cool breeze on face, looked at breathing rectangle whilst experiencing ice-skating.
- CM drew attention to patient's effortless breathing –

'This is all you need, allowing breathing to happen, let breathlessness pass…'

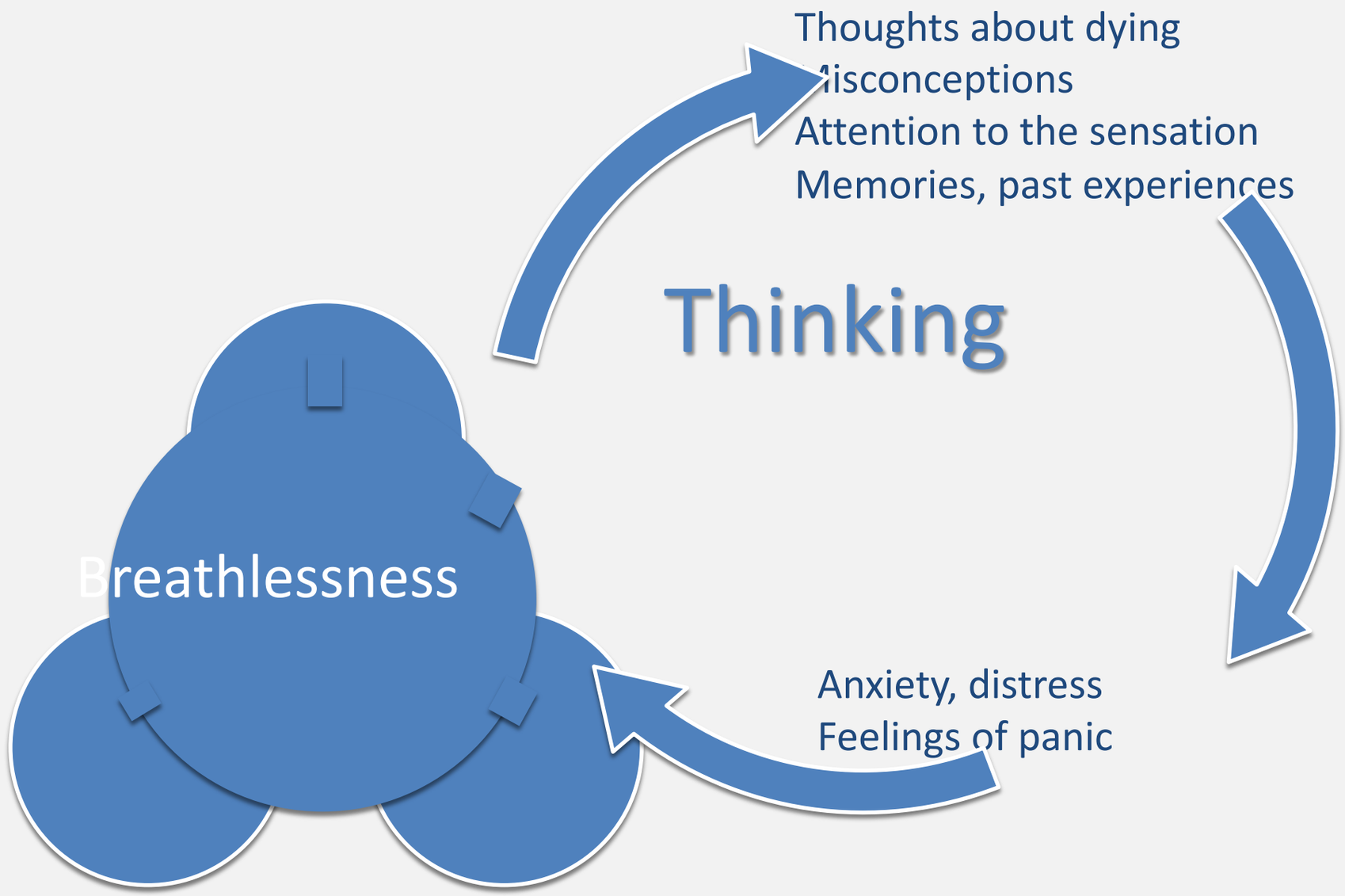
NB she had wooden floors and walked on stockinged feet, allowing herself to slide/rock slightly, with shoulders relaxed.

INTEGRATED HYPNOTIC TECHNIQUE

Feedback from patient

Key was relaxing the shoulders. Sliding feet room to room, water bottle in one hand for sips of water, fan in the other, imagining skating.

Note: Stayed off opioids until last few weeks of life, which pleased her.



Spathis *et al,* 2017 Primary Care Respiratory Medicine

INTEGRATED HYPNOSIS

- Patient, 70s, male, severe COPD
- Needed NIV (non-invasive ventilation)
- Poor co-ordination with machine, puffs in panic
- Takes off mask and therefore not receiving treatment

Action by CM, going through SOB episode step by step

INTEGRATED HYPNOSIS

Ideas

- Not in room where previous bad experience
- Was able to use at night when sleepy – use distraction e.g. initially when getting sleepy, when wife in room, with music
- Use, ‘when it feels right, no pressure to do that day, just if it feels the right time, give it a go, no expectation, even a few breaths, just on and off and see how it goes.’

ACTION PLAN FOR BREATHLESSNESS

I have had this feeling before – I know it will go away soon

1. I am going to use my fan
2. I am focusing on breathing <u>out</u> for longer, gradually longer and longer with each breath out
3. I am gently relaxing and dropping my shoulders a little more each time I breathe out

I can do this – I am doing it now

THE NATURE OF FEELINGS:

- is breathlessness a pathology of feeling?
- is this of evolutionary advantage?

'Feelings are mental experiences of bodily states….constitute a crucial component of the mechanisms of life regulation…'

Damasio and Carvalho, 2013

PATHOLOGY OF FEELING?

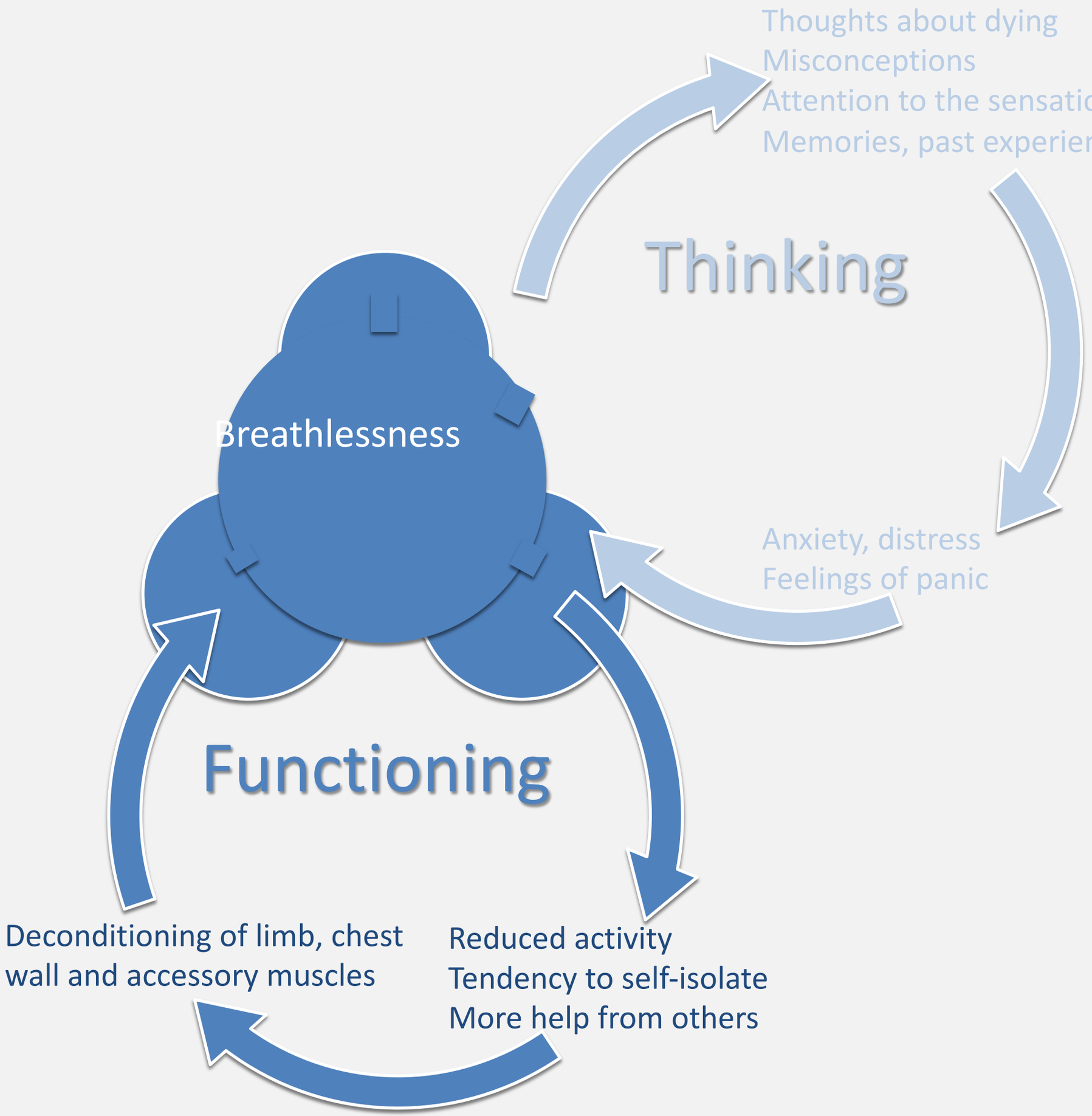
pain, hunger, thirst, dyspnoea - all subserved by in the same area of the cerebral cortex

‘Feelings emerge from older parts of the brain (limbic system)

….addition of a felt experiential component to the basic

somatic mapping ….has evolutionary advantage…’

Damasio & Carvalho 2013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More help from others
Deconditioning of limb, chest wall and accessory muscles

HAS THERE BEEN A TRIGGERING EVENT?

EPISODIC BREATHLESSNESS

- Episodic breathlessness Linde et al, 2018 Simon et al, 2012,
- Usually a trigger – emotion – panic
- Feel ‘out of the blue’ and therefore more threatening

Manage the trigger

SAFE/SPECIAL PLACE

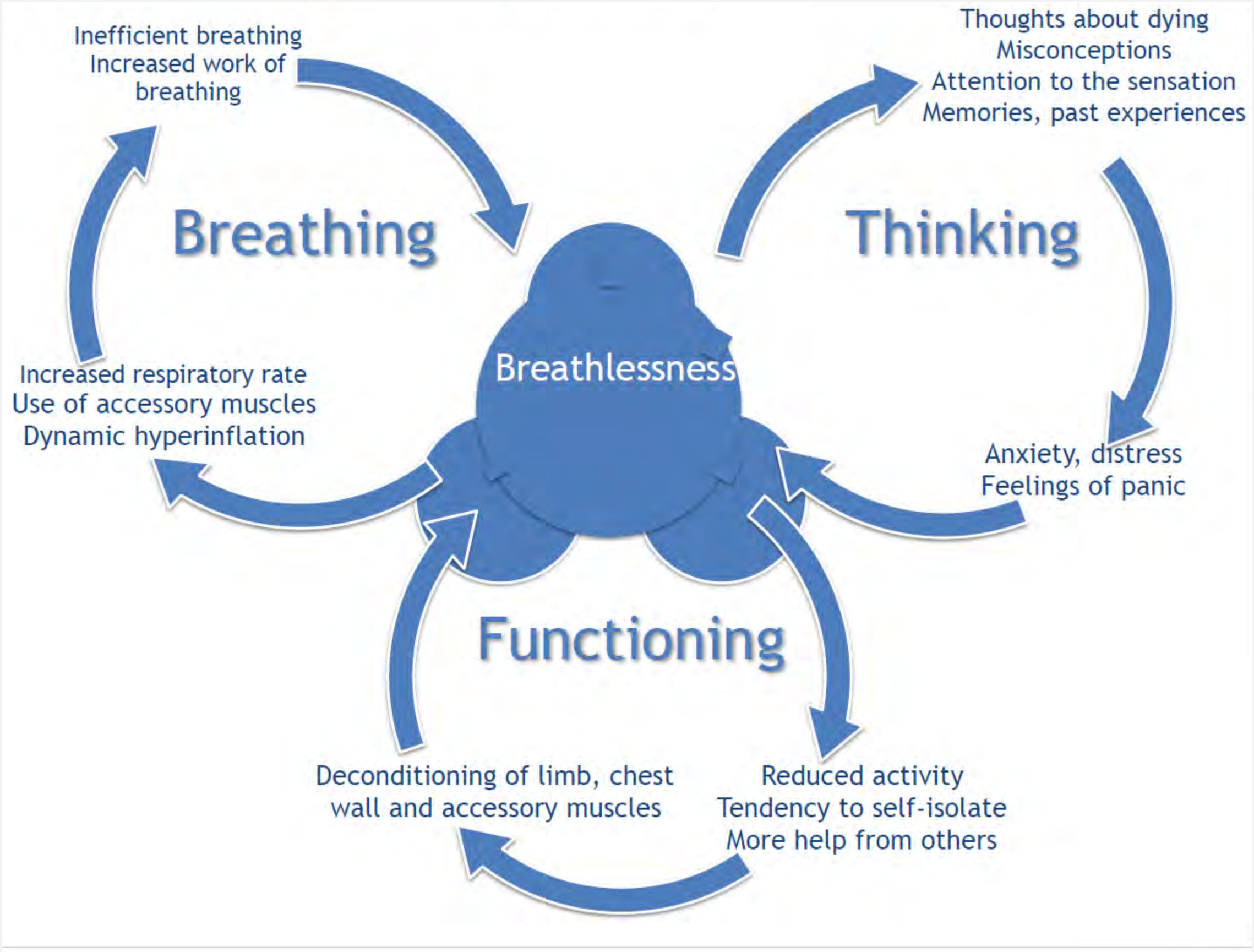
- Man in 60s, severe COPD
- Difficult childhood, very poor family, dreadful housing, violent father, city centre Glasgow
- Now very disabled, house bound
- Wife with Hungtindon’s chorea
- One happy childhood memory was being Scouts/Boys brigade and going out camping
- Able to relieve SOB with use of special place

FUTURE REHEARSAL

- Man in 70s, severe COPD becoming wheelchair bound
- Wife under severe strain
- Would be better for him to be as active as can

Action:

Future rehearsal of walking in garden, using special place and allowing ‘panic’ to drain away.



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CHRONICITY, DIFFERENT FROM ACUTE DISEASE

- *anxiety reduction*
- *nutrition*
- *exercise*
- *social contacts*
- *preventing or early treatment of depression*
- *caring for carers*

DRUG – FREE INTERVENTIONS

- Comprehensive, empathetic assessment including carers' needs, Booth et al, 2006, Farquhar et al, 2017
- Exercise – activity, pulmonary rehabilitation where possible, McCarthy *et al*, 2015, Cochrane
- Breathing exercises/retraining, Booth et al, 2018
- The hand-held fan, Galbraith *et al,* 2006, Luckett *et al,* 2017, Kako *et al,* 2018
- Assess/treat other symptoms – cough, fatigue; Yorke *et al,* 2017
- Pacing and prioritising, Booth *et al,* 2018
- Mobility Aids, Bausewein *et al,* 2008
- Increasing resilience Booth et al, 2018, 2019

AN OFFICIAL AMERICAN THORACIC SOCIETY STATEMENT

Update on the mechanisms, assessment and management of dyspnea

‘Further research is needed in areas of ***neuromodulation, neuroimaging*** ..associated ***unpleasantness*** and affective distress...clinical translational studies...’

Parshall M.B., Schwartzstein R.M., Adams L. *et al. The American Journal of Respiratory and Critical Care Medicine*, (2012) **185** (4): 435-452.

TEACHING HEART FAILURE PATIENTS HOW TO BREATHE

‘There are more ways to improve symptoms than stimulation of the failing organ, and the progress of disease in human beings is complex and multifactorial and offers multiple approaches to amelioration.’

Coats A J S
Lancet 1998; **351:** 1299 - 1300

DISCUSSION

MULARSKI *ET AL*, 2009

‘….facilitating a less distressful interpreted experience of physical disorders…..’

Mularski, 2009

WEBSITE

Breathlessness Intervention Service

http://www.cuh.org.uk/breathlessness