



ORIGINAL ARTICLE

Preliminary development of a complex intervention for osteopathic management of dysfunctional breathing



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KEYWORDS

Abnormal breathing pattern disorders;
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Abstract *Background:* Breathing retraining (BRT) is commonly used during osteopathic consultations as an adjunct to osteopathic manual therapy (OMT) for assessment and treatment of breathing-related dysfunction. Although BRT and OMT are widely recognised within osteopathy and other allied health disciplines, there are few descriptions of clinically applicable protocols in the literature.

Objective: To describe the development of a dual-protocol framework (BRT and OMT) for assessment and treatment of dysfunctional breathing.

Design: Development and evaluation of a complex intervention.

Methods: Cyclical, iterative processes of development, feasibility and piloting, evaluation and subsequent redevelopment were applied in the design of two conceptual protocols for BRT and OMT.

Results: The resulting BRT protocol consists of progressive steps of breathing practice in three body positions (neutral, flexion, extension), followed by a guide for more advanced breathing challenges that can be tailored towards the individual. The OMT protocol provides a semi-standardised assessment and treatment plan, which details body regions for assessment of somatic dysfunction and a list of techniques that can be selected according to practitioner clinical judgement, based on patient presentation and preferences, and clinical context.

Conclusions: Here we present a clinically applicable guide for a complex

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intervention entailing assessment and management of dysfunctional or abnormal breathing. Implementation of this protocol within the clinical setting is now recommended, along with ongoing development, and further randomised clinical trials assessing its efficacy, effectiveness, and acceptability.

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Implications for practice

- A novel, clinically-applicable osteopathic approach to dysfunctional breathing is described.
- The cyclical process of development, piloting and evaluation of the complex intervention presents a valuable model for designing osteopathic interventions.
- The intervention was developed in consultation with a large number of clinicians and experts in the field.
- Implementation and further randomised clinical trials assessing its efficacy, effectiveness and acceptability are recommended.

Introduction

Dysfunctional breathing (DB) is an alteration in the normal patterns of breathing and results in intermittent or chronic symptoms mediated through biomechanical, biochemical and psychological mechanisms.¹ Multifactorial, diffuse, but cumulative pathological and pathophysiological changes make DB difficult to diagnose, and a diagnosis of DB is often arrived at by exclusion.² DB may present with diverse symptoms and signs including respiratory, cardiac, neurological, metabolic and gastrointestinal presentations.³ Many of these symptoms arise from respiratory alkalosis brought about by chronic or transient bouts of hyperventilation and the term 'hyperventilation syndrome' has often been used to describe this state.⁴ However, it is now accepted that the clinical picture of DB encompasses more than traditionally recognised hyperventilation syndrome, since experimentally provoked hyperventilation will not consistently elicit symptoms, and symptoms may appear in the absence of decreased end-tidal pCO₂.^{5,6} Furthermore, distinctions have recently been made between thoracic (involving ventilatory alterations), and extra-thoracic (e.g. vocal cord dysfunction) forms of DB.^{3,7}

Symptoms arising from DB may occur independently of other medical conditions or secondary to them.^{4,8,9} DB is also strongly associated with anxiety and affective states.¹⁰ To date there has been no attempt to establish a consensus on diagnostic criteria for DB. For this reason, and because most evidence associating DB with other medical conditions is cross-sectional, it is difficult to establish whether conditions may cause or exacerbate DB or, conversely, when symptoms arising from DB exacerbate the existing condition.

Various interventions have been developed to address DB.^{11,12} These can be broadly classified into two groups: (i) those that focus on improving conscious neuromuscular control of ventilation, commonly referred to as 'breathing retraining' (BRT); and (ii) those that apply manual therapy to improve the mechanical function of body structures involved in breathing.

Courtney and Greenwood,¹³ and more recently Chaitow,^{14,15} have outlined principles of osteopathic assessment and management of DB. Despite this, there are few clear descriptions of a practical osteopathic approach to DB in the literature. We propose that a comprehensive approach should encompass both BRT and osteopathic manual therapy (OMT). The aims of BRT are to aid neuromuscular reacquisition of normal breathing patterns and to utilise and reinforce alterations in respiratory function facilitated by OMT. OMT, or particular manual therapy techniques, may have a role in improving breathing mechanics, in those with chronic conditions^{16–19} or in healthy individuals,²⁰ by mitigating biomechanical or somatic dysfunction that interferes with motor skill training in the form of BRT. Thus, BRT and OMT may be co-dependent within an intervention.

Complex interventions comprise multiple interacting features, those arising from the intervention itself, as well as from a diversity of behavioural characteristics of both patients and practitioners.²¹ Craig et al. have described a process of development, feasibility and piloting, evaluation, and implementation as key elements in the design of complex interventions.²¹ Here we describe iterative cycles of these elements

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