Logopedics Phoniatrics Vocology, 2012; 37: 144–150

informa
healthcare

ORIGINAL ARTICLE

Reflections on clinical applications of yoga in voice therapy with MTD

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Abstract
This paper explores the application of modified yoga techniques, as an adjunct to voice therapy, by a speech pathologist who is also a yoga teacher.

Yoga practices, with effects that may be short-term, are not considered a substitute for comprehensive and integrated somatic retraining systems (such as the Alexander Technique or Feldenkrais ATM). However, when yoga is conducted emphasizing kinaesthetic and proprioceptive awareness, the client may achieve an 'awareness state' that facilitates the learning of vocal remediation techniques (for example, by more easily 'tuning in' to the subtle sensations of supralaryngeal deconstriction). Core yoga elements and clinical applications are identified. The potential benefits and considerations when using yoga as an adjunct to the treatment of muscle tension dysphonia (MTD) are explored.

Key words: *arousal states, breathing, kinaesthetic awareness, motor learning, MTD, voice therapy, well-being, yoga*

This paper explores the use of yoga in voice therapy and in particular the application of selected yoga techniques modified for the treatment of muscle tension dysphonia (MTD). The contents of this paper arose from a workshop presented at PEVOC9.

It is widely accepted amongst voice professionals that a number of psycho-emotional factors impact on MTD. It is also generally understood that muscular tension symptoms, including extralaryngeal muscle activity, may be caused or exacerbated by overactivity in the autonomic and voluntary nervous systems as a result of anxiety or hyper-arousal (1). Within the literature the precise causes and contributions to the development of MTD and appropriate treatments are still emerging. A number of biopsychosocial factors have been identified in the literature as being pertinent to MTD (1,2). These include psychosomatic well-being (3,4), personality traits (3,5–8), coping strategies (9), proneness to anxiety (4), psychological stress reactivity (8), and emotional processing deficits (2). Studies within the area of yoga show some promising results in the treatment of stress and related issues.

Randomized, controlled trials of yoga have shown that yoga has been effective in: coping with exam stress (10), management of stress in epilepsy (11), and the management of hypertension (12).

Yoga has also been shown to be effective in reducing medication and in the long-term management of asthma (13,14). Individual yogic breathing techniques, such as unilateral nostril breathing, have been found to have significant effects on autonomic nervous system activity levels (15,16). Yoga exercise has also been shown to result in decreased serum cortisol (17) and lactate levels (18). Meditation, a key component of yoga practices, has been successfully used to treat anxiety (19).

Studies on the physiological effects of meditation report increased muscle relaxation (12,20), lowered blood pressure (21–23), increased sensory perception and attentiveness (24), improved reaction times (25), and increased melatonin levels (26).

Yoga techniques including relaxation, imagery, deep breathing, and meditation have been applied in sports psychology, and with musicians, as strategies to increase attentional focus for both motor learning and performance (27,28). Yoga techniques would appear to have the potential to impact on the pre-practice phase, as described by McCabe et al. (29), of motor skill acquisition in direct voice therapy.

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(Received 31 January 2012; accepted 25 August 2012)

ISSN 1401-5439 print/ISSN 1651-2022 online
DOI: 10.3109/14015439.2012.731080

Yoga and other body–mind techniques drawn from Eastern practices such as 'tai chi' and 'qi gong' have already influenced, or been applied in, theatre voice (30–32). Katherine Reid and Katherine Verdolini have both explored the potential of theatre voice techniques to be used in the treatment of voice disorders (32,33). Speech and language therapist and voice practitioner Christina Shewell describes a number of 'breathwork' exercises that are aligned with or drawn from yoga (34).

I have practiced as a speech pathologist for 25 years and, since completing yoga teacher training 12 years ago, have applied selected yoga practices and principles in the treatment of voice disorders. Further somatic training, as well as close collegiate collaboration and extensive supervision with a psychologist, has also informed my application of yoga in voice therapy. Modification of yoga techniques to optimize safety, ease of practice, engagement of core musculature, and efficient linkage with vocal remediation has developed over this time.

I use what is widely described as hatha yoga in my practice. Hatha yoga is a system of physical, breathing, and meditative practices developed in India (35–37). It primarily involves linking body movements with focused attention on 'the breath' to promote relaxation. (I have used the term 'the breath' to be consistent with language used in yoga to promote absorption of focus on breathing.)

Classical hatha yoga employs a gentle 'receptive' inhalation with natural thoracic expansion and diaphragmatic release. The attitude cultivated with this 'receptive' inhalation is one of acceptance or receiving the breath with the intention of 'softening' the entire upper body. This 'receptive' inhalation together with a 'grounding' exhalation (engaging 'core musculature'), is used to achieve a balanced, centred state of well-being (36,38). Visualization and other practices that impact on the autonomic nervous system are also used in yoga to activate specific states of mind (36,37,39).

Integral to yoga is the achievement of the state of 'flow' (40), described in yoga as a state in which the body, breath, and mind act as one. Factors accompanying the 'flow' state include: concentration, the merging of action and awareness, immediate feedback, effortlessness of action, and a sense of personal control (40).

A retrospective survey over the last 4 years of my case notes of clients with MTD revealed that I have employed yoga with approximately 50% of this caseload (totalling 55 clients). On reviewing the case notes and reflecting on my clinical decision-making process, I found I had selectively applied yoga when stress and/or poor kinaesthetic and proprioceptive awareness appeared to limit the client's capacity to respond to direct voice therapy techniques and acquire new motor skills. Particular yoga meditation techniques were also applied with clients who already exhibited well-developed kinaesthetic awareness, for example singers.

The application of yoga in this context refers to the use of selected, modified, beginner-level hatha yoga techniques. No physically demanding yoga postures were used; for example 'downward facing dog pose' (35 p. 100) was replaced with 'wall push' (35 p. 63), and 'head-stand' and 'shoulder-stand' (41 p. 90) were never recommended.

Core elements of yoga approach

I have identified four core elements essential to my yoga approach. These include:

1. Conducting stretches of various muscle groups with attention directed to both sensations experienced and the breathing process. This promotes distraction from extraneous thoughts and absorption in the present moment.
2. The use of specific selected language including 'somatic language' (to invite 'noticing' and attending to sensation) and the engagement of non-reactive, non-interpretative witnessing or 'mindfulness' (42). The resulting heightened sensitivity to internal body processes can then be applied to more subtle sensations such as those of supralaryngeal deconstriction.
3. The use of 'internal imagery' (43) to maximize proprioceptive/sensory awareness and to facilitate a positive mind-set.
4. The intentional and integrated use of the instructor's vocal tone, rhythm, and intonation to facilitate connection to sensations and body awareness, induce deeper relaxation, and to reflect connection to inner experience.

Clinical situations in which I have applied yoga in voice therapy

I will now outline the clinical situations in which I have used hatha yoga principles and practices in voice therapy.

When clinical judgement indicated addressing 'bodywork' or 'breathwork', according to the framework proposed by Shewell (34)

Selected postures were used to explore various aspects of breathing and link these with voice production. The stress-reducing effects of many practices appeared to interact with other effects on breathing to improve

breath flow for phonation. 'Vinyasa' (movements linked with breath) were used to induce general relaxation and for initial-stage breathing awareness. When yoga was conducted in slow motion, in a manner like tai chi or qi gong, it was used to experience 'non-efforting', which was then linked with easy onset of phonation.

Modified yoga postures or stretches were used to release excess tension in specific muscle groups or activate musculature to assist with alignment or head, neck, and torso anchoring.

Yoga was used for initial-stage postural awareness only and not as a substitute for comprehensive integrated somatic systems addressing body alignment such as Feldenkrais ATM or the Alexander Technique.

Within sessions to prepare for optimal learning and overcome barriers to acquisition of new vocal techniques and patterns

Yoga was frequently used to regulate arousal/anxiety and increase the capacity to focus for voice therapy. Yoga techniques were considered particularly useful for high-stress-reactive clients to reduce perceived threat and to provide both a new perspective and a new coping strategy.

Yoga was also used to impact on 'background feeling states' (44) and linked with creating a cascade of positive thoughts and feelings for clients with high negative affect.

When low kinaesthetic awareness or low self-awareness presented as a barrier to motor or general learning and self-evaluation

Yoga was found to be particularly helpful for clients 'deadlocked in Phase One of therapy (externalized dependency and low awareness)' as described by De Jong (45). In addition to specific body and breathing exercises, 'outer sense withdrawal' or 'internalizing' techniques were used to deepen inner sensing and focus. The increased kinaesthetic awareness appeared to have aided recognition of muscular tension patterns and enhanced motor learning of vocal techniques of forward tone, deconstriction, easy onset of phonation, and anchoring in particular.

When clients reported or demonstrated that home practice was not successful

Yoga was particularly useful if the client required 'de-stressing' or focusing prior to vocal exercises, or maintenance of positive mind-set to progress. The addition of yoga prior to, or within, the self-practice routines was found to increase self-efficacy, success, and adherence.

When self-regulatory tools for stress control were indicated

Yoga has in common with the cognitive behavioural therapy (CBT) approach to stress management the assumption that we are not passive victims of our emotional environment, and our thinking directly impacts on how we feel. Most clients applying the yoga techniques reported that they experienced enhanced well-being as well as more success and confidence with applying new vocal patterns or techniques.

When an 'anchor' was needed for transfer of emerging behaviours impacting on voice production

An actual focusing technique or a 'remembered sense of well-being' was successfully employed by some clients to 'remind' them to employ resonant voice, improved breath placement, head and neck alignment, or supralaryngeal deconstriction. This was found to be especially useful in situations that involved multiple cognitive demands.

When clients needed to unlearn specific techniques

Clients with a highly developed kinaesthetic awareness, such as singers, have sometimes needed to unlearn specific techniques that had not been successfully mastered, or had been misapplied on a hyper-aroused system. This group, who have already developed a more refined somatic intelligence, reported benefiting from more advanced or 'subtle' yoga practices for targeted focusing on different body areas. These practices included meditation tools for various learning preferences: 'mudras' or hand positions (kinaesthetic), 'mantra' or repeated sounds (auditory), 'yantra' or visual images (visual). These tools appeared to be particularly beneficial when accessing a new sense of 'supralaryngeal deconstriction'.

Effectiveness of yoga

In general terms, yoga was not effective for those few clients who failed to access a sense of global well-being when yoga practices were trialled. Yoga was not pursued with these clients as it appeared that despite attempts to cater for a range of learning styles, they remained unresponsive to yoga instruction.

For other clients the process of individualized prescription of yoga (including 'stimulability', the use of self-generated internal imagery, and on-going

monitoring of responses) ensured that yoga practices were modified until a state of 'flow' could be achieved.

To ensure the safety and effectiveness of the application of yoga as an adjunct to voice therapy in MTD, a number of factors should be considered. The importance of an individualized approach, potential negative outcomes, guidelines for safe practice, and contraindications will now be briefly considered.

The importance of an individualized approach to yoga application in MTD

When prescribing yoga for voice clients, programmes need to be individually tailored and carefully monitored to meet both psychological and physical requirements of the individual (35,36,41,42,46).

When selecting yoga practices, their specific effects should be understood. For example, different yoga practices are used for those clients who present as 'scattered' and require concentration or directing of focus, compared with clients who present as narrowly focused with poor kinaesthetic awareness who would benefit from broadening or expanding focus to include the whole body.

The individuals' response to practices must be monitored and practices modified accordingly. Developing sensitivity to 'the body and the breath' is a goal of yoga, and clients' level of sensitivity and self-monitoring abilities must be considered. For example, some clients with vocal nodules (who may present with a personality profile which reflects high extraversion, aggression, stress-reactivity and low impulse control (7)) are likely to over-recruit and 'effort' when attempting yoga. If observation of movements, breath flow, or muscle tension indicates 'efforting', then poses may be more effectively conducted in a slow-motion manner consistent with 'taoist-style yoga' (tai chi, qi gong).

Clients with a dominant negative affect, self-critical attitude, or those who are extremely poor at locating and naming their feelings, may benefit from structuring of exercises to allow time to find their own expression of movement and experiences in yoga. An approach inviting more playful exploration, using imagination or creative expression, may be preferred with these clients. Excess focus on alignment applied from the outside, rather than encouraging a sense of 'the body' finding its own naturally integrated alignment, can be detrimental in yoga instruction, particularly with clients who may be so focused on 'getting it right', that they cannot achieve a state of 'relaxed attention'.

A key to effective yoga practice that requires close monitoring in MTD is the release of excess tension from what is known as the 'central channel' including the face, jaw, tongue, throat, and respiratory diaphragm. In hatha yoga theory, the central channel provides significant linkage between conscious and unconscious content.

Potential negative outcomes of misapplication of yoga with clients with MTD

If breathing or physical practices are prescribed at too difficult a level, or not closely monitored for 'efforting' or over-recruitment patterns, negative outcomes may occur. These may include: reinforcing 'efforting', creating excess muscular tension patterns, a reduction in sense of well-being, general postural holding and poor breathing patterns. In addition, poorly taught or extensive unsupervised incorrect practice of what has been popularized as 'yoga' without integrated awareness of both 'the body and the breath' may also induce unhelpful habits. These may include rigid chest position, drawing the shoulders back and down, failure to release abdominal musculature activation and a range of unhelpful breathing patterns.

Caution must be exercised when applying certain breathing techniques, such as 'Ujjayi breath', which may induce supralaryngeal constriction if not correctly instructed and applied.

Contraindications

If strong postures are inappropriately attempted there is potential for physical injury. Specific techniques must be avoided or modified with certain medical conditions and musculoskeletal problems. These include but are not limited to: history of stroke, back pain, herniated discs, high and low blood pressure, glaucoma, pregnancy, cardiac issues, asthma, and musculoskeletal injuries (37,41).

Specific applications for yoga in addressing symptoms of anxiety and depression should be understood when applying yoga with clients with mood disorders (47–50). Appropriate consultation with a mental health professional is recommended prior to using yoga with clients who have a documented psychiatric history, evidence of recent disassociation, or disordered thinking.

Guidelines for safe practice

Many of the potential problems with the misapplication of yoga can be prevented by an intelligent practice of yoga, informed by yoga principles such as 'non-striving' and monitoring ease of the breath (36,51), and thorough physiological and anatomical understanding (37,46).

General guidelines for safe practice include: conducting warm-ups, utilizing safe stretching and

muscle activation principles (for example not stretching the spine and hamstrings at the same time), employing muscular co-activations to protect joints, and not over-breathing. For optimal safety it is recommended that postures should only be conducted if they can be achieved by local integrated musculature rather than externally applied forces (37).

For safety and effectiveness of practice, only the easiest variations, or modifications of 'postures' (physical exercises), are recommended, and even these may require simplification and gradual learning of components with some clients.

Application of yoga by the voice practitioner

Incorporating a yoga framework into current practice

Simple body stretches already commonly used in voice therapy could be conducted with a yoga focus by including awareness directed to the experience of sensation and the process of breathing. The voice practitioner should be aware that a key to yoga is a state of 'relaxed attention' on movement synchronized with the breath and the effectiveness of the 'yoga' is determined by the outcome of enhanced well-being, rather than the achievement of a particular stretch (51). If the practitioner is appropriately skilled, then further enhancement of a client's sense of well-being may be facilitated by applying principles employed in 'positive psychology'. This is an approach that focuses on positive emotional experiences throughout the learning process to improve learning and goal attainment (52). Thus the framework of current voice therapy methods could be simply expanded to incorporate some hatha yoga principles without going beyond the scope of well-established practice.

Utilizing simple beginner-level yoga

Direct experience of and thorough familiarity with beginner-level yoga practices and their effects (as well as safety and alignment points) are essential for voice practitioners wishing to further explore using yoga as an adjunct to voice therapy. Personal practice and training in yoga and/or other somatic disciplines is highly recommended to enable embodiment of the qualities of movement, relaxation, and self-awareness that voice practitioners wish to facilitate in their clients.

The preceding precautions must also be observed. I have used and recommend physical yoga exercises which are within the scope of standard practice and physically less arduous, or with lower risk of injury, than a number of theatre voice exercises employed with physically fit actors.

Use of advanced yoga

For precise application and sequencing, and for more advanced yoga techniques, consultation with a skilled qualified yoga practitioner or physiotherapist is recommended.

Standards of yoga teacher qualification vary; however, many teacher training programmes are certified by organizations such as the 'Yoga Alliance' in the UK, and further specialized training may also be undertaken for 'yoga therapy' (53).

Whilst the techniques described can be considered within the scope of, or a simple development of, standard practice, speech–language therapists/speech–language pathologists should verify that they are covered by their professional indemnity insurance when practising voice therapy that utilizes yoga techniques.

In conclusion

I propose several benefits of conducting selected modified hatha yoga techniques in the 'pre-learning phase' of voice therapy. These benefits may include achieving optimal arousal states, positive body and mind states, focused awareness, and increased mindfulness. Certain yoga techniques appear to increase kinaesthetic awareness, enhancing the ability to use 'body-mapping' and 'internal imaging', and assisting focus and sensitivity to sensation. This in turn appears to enhance motor learning of vocal remediation techniques and 'unlearning' patterns of use involving excess tension.

Future directions for research include further empirical study and randomized, controlled trials that focus on the potential role of yoga in increasing psychosomatic well-being and positive therapy outcomes in clients with MTD.

Acknowledgements

I wish to acknowledge and thank Dr. Katherine Reid (Speech Pathologist) and Mr Kieran Riordan (Psychologist) for their valuable feedback and support in the preparation of this manuscript. I also with to express gratitude to the reviewers for their guidance.

Declaration of interest: The author reports no conflicts of interest.

Forum Editor's comment:

It should be stressed that, in the interests of patient safety, it is inadvisable for voice clinicians to use yoga techniques with voice disordered patients unless they

are qualified yoga instructors. In addition, even if they are qualified yoga instructors, they should establish whether or not their professional indemnity insurance remains valid if yoga techniques are used in the treatment of voice disordered patients.

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