

Laryngeal Endoscopy and Voice Therapy

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Sue M. Jones

With contributions from
Carrie Garrett

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My expertise in the assessment and management of singers has been greatly enhanced by working with singing teachers and, recently, in collaborating with Carrie Garrett, who comes from a performing/teaching background as well as being a voice therapist. Carrie has co-authored Chapter 3 and Chapter 4 and I am grateful for her enthusiasm and sharing of knowledge.

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Finally, and most importantly, my husband, Philip H. Jones, Consultant ENT Surgeon – an outstanding laryngologist and teacher – persuaded me that speech and language therapists should perform laryngeal endoscopy and I couldn't have

written this book without his encouragement, sharing of knowledge, and support, and my sons, Ben Winstanley and Alex Winstanley, tolerated my trips away from home to further my knowledge without complaint but always welcomed me home.

Preface

I qualified as a Speech and Language Therapist in the UK in 1982. My first job was in a University Teaching Hospital and it brought me into contact with many patients with voice disorders. I loved the work but there were few voice texts available at that time, and much of my therapy was based on instinct and not science. I was a devotee of Daniel Boone's *The Voice and Voice Therapy* as it actually gave some ideas for therapy techniques.

I knew very little about voice disorders but was keen to learn and took the opportunity to sit in as many Ear, Nose, and Throat (ENT) clinics as I could. At that time in our hospital there was no joint voice clinic and the ENT Consultants were not especially interested in voice disorders, but they were patient with me and generous with their time. I cannot say that I learned much about voice disorders, but I did learn a lot about ENT in general.

In the 1980s and 1990s there were countless developments in the knowledge of voice production. Progress was made in the understanding of the vocal fold structure and pathology, perceptual analysis, acoustics, the role of the respiratory system, and laryngeal visualization. There were also advances in the technology available to view the vocal tract, and instrumentation to measure various aspects of voice production. All of a sudden there were numerous texts available on voice disorders and voice therapy.

As interest in voice disorders grew, the approach to their management became more multidisciplinary. Initially, this was joint working between laryngologists and voice therapists, but more recently it has included singing teachers, osteopaths, physiotherapists, and vocal coaches amongst others.

This in turn has resulted in an abundance of voice courses and conferences worldwide, with eminent professionals in all these fields sharing their expertise. I have since had the good fortune to spend time with many of these experts and I thank them for what I have learned in their company.

Throughout my career I have worked at University Hospital of South Manchester, and have been Head of the Speech, Voice and Swallowing Services since 1993. During this time I have had the opportunity to lead the development of the Voice Clinic Services, initially alongside my husband, Philip H. Jones, Consultant ENT Surgeon, and more recently with Sadie Khwaja,

Consultant ENT Surgeon. As well as running a multidisciplinary voice clinic, voice therapist-led clinics – including those designed specifically for performers – have become a mainstay of our clinical practice. Our aim is always to learn more and develop our skills in order to provide the best clinical services possible for our patients.

The purpose of this book is to act as a practical guide for therapists working in voice clinics and developing voice therapy services. It illustrates how laryngeal endoscopy can help the therapist understand how an individual voice is being produced, both in speech and singing, and how this knowledge can assist in planning therapy. Endoscopic evaluation of the larynx has become an essential part of my clinical practice and I believe it enhances our work as voice therapists.

Sue M. Jones

*To my husband, Philip H. Jones, and my sons,
Ben Winstanley and Alex Winstanley.*

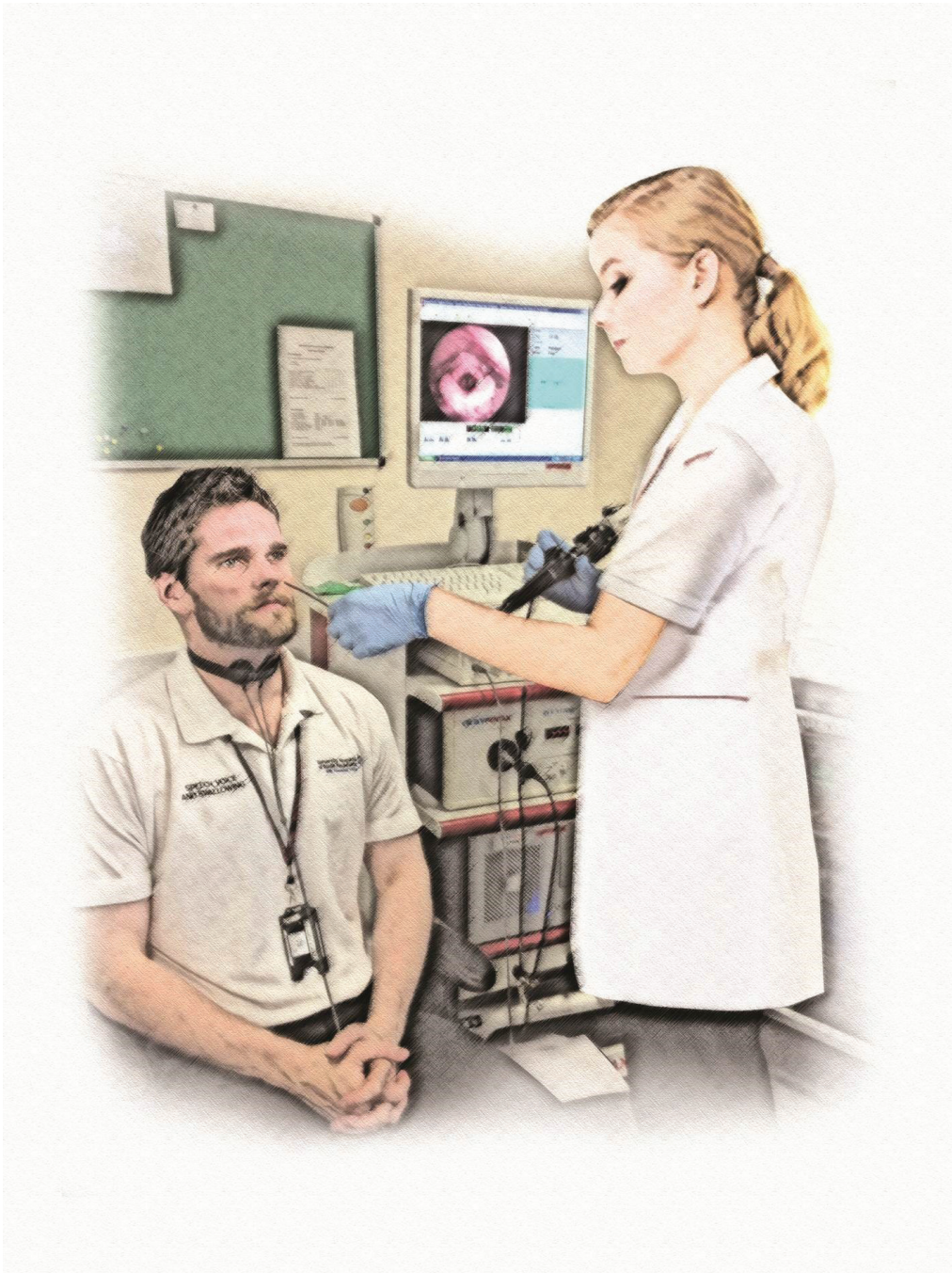


Illustration courtesy of Janine Humphrey

Laryngeal Endoscopy

1.1 The developing role of the voice therapist

Until the 1980s, Ear, Nose, and Throat (ENT) surgeons and voice therapists largely worked separately in the management of voice disorders. Patients with voice problems were mostly seen as part of a general ear, nose, and throat case-load by ENT surgeons, primarily in a hospital setting. Laryngeal examinations were initially performed using a mirror and light which gave an adequate view to exclude large lesions, but did not provide any information on how the voice was being produced and, therefore, no guidance for voice therapy. Differential diagnosis was (and remains) the remit of the ENT surgeon and usually, when no vocal fold pathology or neurological abnormality was found on the laryngological examination, the patient would be referred for voice therapy.

Rigid laryngeal mirrors were still the main examination tool in many clinics. Therapists may have seen a brief glimpse of the vocal folds over the shoulder of the ENT surgeon, but no detailed visual assessment of voice production could be made. The introduction of flexible fibre-optic laryngoscopy into ENT clinics enabled the voice therapist to view the vocal tract through the endoscope while the patient was speaking, and this led to a greater understanding of vocal tract physiology and the spoken voice. The development of cameras linked to the endoscopes and of digital videostroboscopy systems allowed joint viewing of the images in real time. This enabled health professionals to discuss examination findings more easily and to provide visual feedback to the patient when discussing management of the voice problem.

In the 1980s joint voice clinics were developed with an increasingly multidisciplinary approach to the assessment and management of voice disorders. One of the earliest of these was established in the UK at Queen Mary's Hospital in

Sidcup, Kent. The inclusion of other professionals, such as an osteopath and a singing teacher, to address the true multidisciplinary nature of the management voice disorders led to this clinic becoming a blueprint for others to follow.¹ This type of multidisciplinary voice clinic still forms the essential foundation for the management of voice disorders and it is imperative for voice therapists to have straightforward access to this type of clinic, even though many other types of voice clinic now exist.

As understanding of the value of laryngeal endoscopy in the assessment of voice disorders from a therapeutic perspective grew, voice therapists began to perform endoscopy themselves. There were no guidelines or professional position statements available at this time, and much of the initial practice was experimental.

In 1994, Karnell published *Videoendoscopy: From Velopharynx to Larynx*,² which was the first complete guide specifically for therapists performing endoscopy. This included information on rationale and practical suggestions for passing both flexible and rigid endoscopes.

The American Speech–Language–Hearing Association (ASHA) published a position statement in 1998 concerning the roles of otolaryngologists and speech-language pathologists (SLPs) in the performance and interpretation of stroboscoped laryngoscopy, and concluded that SLPs were qualified to use this procedure for the ‘purpose of assessing voice production and vocal function’. The position statement is clear that the otolaryngologist is the only professional able to make a medical diagnosis, but that in interdisciplinary settings the diagnostic and functional assessment procedures can be achieved by the combined skills of both professionals.³ A further position statement was published by ASHA in 2003 outlining the knowledge and skill set required for SLPs for vocal tract visualization and imaging.⁴

There was also recognition by the speech and language therapy (SLT) profession in the UK that endoscopic evaluation of the larynx (EEL) was within the scope of practice for SLTs who were highly specialist in voice disorders, and a position paper was produced by the Royal College of Speech and Language Therapists to provide guidance on the professional clinical context within which EEL was acceptable practice for SLTs. The position paper outlines the context in which SLTs should perform laryngeal endoscopy as well as the competencies, knowledge and skills required. The original position paper was published

in 2004, with further revisions in 2008 to reflect continuing developments in practice.⁵

The role of the speech and language therapist in using laryngeal endoscopy is essentially therefore:

- to evaluate vocal function during speech and singing;
- to trial techniques in order to plan therapy;
- to provide visual feedback to patients in terms of planning therapy; and
- to contribute to confirming the medical diagnosis as part of a multidisciplinary team.

In order to fulfil these roles, the voice therapist will use flexible and/or rigid laryngoscopy with or without , depending on the type of clinic they are working in and the context of the assessment. The voice clinician will need to acquire and maintain the competencies outlined by their professional bodies both in performing and in interpreting the examinations.

1.2 Context of endoscopy in the assessment of clinical voice disorders

Laryngeal endoscopy is clearly only one piece of the jigsaw to be taken into account when assessing voice disorders. Information determined from the case history, auditory-perceptual analysis, observations of posture and breathing, laryngeal palpatory assessment, patient self-report questionnaires, and objective voice analysis all play a key role in reaching a differential diagnosis and determining management. Any programme of voice therapy needs to be based on evidence drawn from all of these elements, and clinicians will tailor their choice of treatment tools based on their overall findings and an individual patient's responsiveness during the rehabilitation programme. Not every patient responds in the same way to each therapy technique⁶ and endoscopic evaluation of the larynx can play a key role in determining which techniques most easily achieve the aims of voice therapy for an individual.

1.2.1 Case history

Many authors have published their own case history formats⁷⁻¹⁰ with some specifically for professional voice users¹¹ and clinicians will adapt the best aspects of each of these to inform their own clinical practice. A thorough case history will obtain all the information included in Table 1.1.

Feature	Detail
Personal information	Age, gender, and occupation
Onset of dysphonia	Sudden Gradual over days/weeks/months
Progression of dysphonia	Improving/worsening over time Variability/consistency Episodic/intermittent Exacerbating/relieving factors
Patient's main concern	Voice quality/vocal stamina/change in range or volume/ throat pain or discomfort/fear of throat cancer/inability to sing/time off work/comments by friends or family/uncon- cerned
Voice use	Home/work/social/performing
Previous/ongoing medical history	Diagnosed medical conditions or undiag- nosed medical symptoms: respiratory/neurological/gastroin- testinal/cardiovascular Upper respiratory tract infections: occasional/frequent Dysphagia Nasal symptoms Hearing loss Thyroid disorders Jaw/dental problems Allergies Trauma/accidents/injuries Surgery: laryngeal/other Intubation Menstrual cycle
Reflux symptoms	Throat clearing/throat mucus/unpleasant taste in mouth or throat/burning throat
Current medication	Prescribed and non-prescribed
Lifestyle Issues	Smoking: active and passive Alcohol consumption Recreational drugs Environmental irritants Weight

Feature	Detail
Vocal care	Hydration
	Diet
	Caffeine intake
Stress and anxiety	Family dynamics
	Major life events
	Emotional reaction to voice problem
	Psychological history
	Current stress levels
Previous investigations	Coping strategies
	Fibre-optic laryngoscopy/rigid laryngoscopy/microlaryngoscopy
	Bronchoscopy/lung function tests
Previous treatment for dysphonia	Medication
	Surgery
	Therapy

Table 1.1: General data required from case history.

There are also a number of structured questionnaires which can be used in addition to the main case history and which can yield further information.

The Vocal Tract Discomfort: Self-Rating Scale⁸ allows the patient to rate the frequency and severity of eight throat sensations/symptoms on a five-point scale. These consist of burning, tight, dry, aching, tickling, sore, irritable, and lump in the throat. In addition to providing information for potential therapy intervention, this self-rating scale can act as an outcome measure where vocal tract discomfort is a significant feature of the patient's presentation.

The Reflux Symptom Index (RSI)¹² and Reflux Finding Score (RFS)¹³ are also commonly used to determine whether laryngopharyngeal reflux (LPR) plays a significant part in the dysphonia. Diagnosis of LPR is the remit of medical professionals, but the voice therapist who is working independently in a variety of voice clinic settings (see Chapter 2) needs to be aware of the signs and symptoms of LPR, the potential effects on the voice, and the possible management options.

For singers, additional information as detailed in Table 1.2 is also very useful.

Feature	Detail
Specific singing problems	Loss of range – top/mid/low Phonation/Pitch breaks Vocal stamina during singing
Singing style	Opera/choral/folk/pop/rock/jazz/country/gospel/musical theatre/barbershop/crossover styles
Performance issues	Recent changes in style/repertoire Frequency of rehearsal/performance Warm-up/cool-down techniques
Type of singing training	Current/previous/ad hoc
Environmental factors	Loud orchestra/band Poor amplification/foldback Smoky atmospheres/dry ice Postural demands during performance
Non-performance related	Socializing after performances Travelling schedules Diet Other vocal demands

Table 1.2: Data specific to singer required from case history.

1.2.2 Perceptual analysis

As clinicians will use information from a variety of sources for assessment and therapy planning, it is impossible to separate what is learned from an EEL examination from the auditory-perceptual evaluation. Madill et al¹⁴ evaluated the consistency, reliability, and agreement made between three experienced clinicians in assessing the effectiveness of training control of the true vocal folds, false vocal folds, and laryngeal height in unimpaired speakers. They found that the judges used their auditory-perceptual skills as well as their visual skills when interpreting the endoscopic examination.

In practice, clinicians will be making an auditory-perceptual analysis of a patient's voice from the moment the initial contact begins. This may be by telephone, in the waiting room, or the clinic room. Other speech disorders such as dysarthria, dysfluency, comprehension, and expressive language difficulties should also be taken into account.⁶ Dysphonia can be inconsistent and it is not infrequent for patients to experience an intermittent dysphonia which is not

present at the assessment. For both baseline measures and outcome measures, and for planning therapy, a structured auditory-perceptual analysis scheme is essential. The scheme chosen by the clinician will depend on the particular situation. There are various published schemes now commonly in use.

GRBAS scheme

One of the oldest perceptual analysis schemes which is still in common use was developed by The Committee of Phonatory Function Tests of the Japan Society of Logopedics and Phoniatics. The GRBAS scheme has an overall measure of the severity of dysphonia (Grade) and four parameters (Roughness, Breathiness, Aesthenia, and Strain). The grade and the four parameters are given a value of 0 to 4, with 0 rated as normal, 1 as mild, 2 as moderate, and 3 as severe. The initial publication of the scheme by Hirano in 1982¹⁵ gave little detail on how it should be used. Koschkee and Rammage¹⁰ proposed more detail and specified the 'psychoacoustic' impressions for the characteristics of each parameter. They define these as:

- Grade – overall severity or abnormality of the dysphonia;
- Roughness – irregular vocal fold vibration;
- Breathiness – air leakage through the glottis;
- Aesthenia – weak voice; and
- Strain – effort and hyperfunction.

The original GRBAS scheme measures laryngeal tone only and, as such, does not assess resonance, pitch, loudness, or many of the other features pertinent to voice production. Dejonckere¹⁶ found the GRBAS scheme to be a reliable perceptual measure of voice and it was recommended by the European Research Group on the Larynx as a tool for clinical and research purposes. Webb *et al.*¹⁷ evaluated the reliability of the three perceptual evaluation schemes most commonly in use at the time (GRBAS, Vocal Profile Analysis Scheme, and Buffalo III Voice Profile) and found that the GRBAS scheme was reliable across all the parameters except strain.

Since then, the scheme has been widely used in studies as a measure of outcome both in voice surgery¹⁸⁻²⁰ and therapy.²¹⁻²⁴ More recently, the scheme has been used as an outcome measure in assessing vocal quality in head and neck surgery^{25,26} and paradoxical vocal fold motion dysfunction.²⁷ Owing to its limitations, various authors have made additions or alterations to the scheme.

Dejonckere²⁸ added the parameter of ‘instability’. Langeveld²⁹ added a further six parameters in order to adequately assess the specific vocal aspects of spasmodic dysphonia (aphonia, diplophonia, staccato, tremor, falsetto, and vocal fry).

In 1998, an expert panel of speech and language therapists was commissioned by the British Voice Association to produce a position document on the formal evaluation of voice quality in the UK. The conclusion of this group was that the GRBAS scheme should be used as a minimum standard by all UK SLTs.³⁰ In 2004, a consensus group was set up by Sue Jones and Paul Carding to discuss the latest developments in vocal perceptual analysis. It was acknowledged that a lack of training courses had resulted in limited dissemination and use of the GRBAS scheme. A training course was developed, based on guidelines and consensus ratings of voices established by this group, and the scheme was extended to include gradings of pitch and loudness.^{31,32}

CAPE-V scheme

The Consensus Auditory Perceptual Evaluation of Voice (CAPE-V) was developed by an expert consensus group from the American Speech and Hearing Association. The international group comprised voice scientists, experts in human perception, and speech-language pathologists/therapists. The aim of the consensus group was ‘to apply scientific evidence about psychophysical measurement to the clinical practice of judging auditory-perceptual features of voice quality’.³³

The scheme developed themes already present in the GRBAS system, but expanded to include pitch and loudness. The protocol is administered and scored in a consistent manner. Instead of an ordinal scale, a visual analogue scale is used and the parameters of roughness, breathiness, strain, pitch, and loudness are rated. In addition, there are two further unnamed visual analogue scales included that allow the clinician to rate any additional features which are of note in a particular voice, such as tremor, diplophonia, etc. The rating scale also allows for features to be rated as consistent or intermittent. There are three tasks: sustaining vowels /a/ and /i/ three times for three to five seconds, reading six sentences which are each designed to elicit particular vocal onset patterns, and a period of spontaneous speech. The clinician marks the 100 mm line rating scale for each parameter for each task.

The CAPE-V is more sensitive to changes in auditory-perceptual measures than the GRBAS scheme and is therefore useful to clinicians when measuring outcomes of therapy.

VSPP scheme

The Voice Skills Perceptual Profile was developed by Shewell.³⁴ It is an auditory-perceptual analysis scheme which assesses in detail the eight parameters of body, breath, channel (vocal tract), phonation, resonance, pitch, loudness, and articulation. There are a different number of key features for the clinician to evaluate within each parameter. Each feature is rated as 0 (no significant features), 1 (mildly significant features), or 2 (markedly significant features).

In total, there are 31 parameters each with a potential rating of 0 to 2, allowing a possible total score of 62. Parameters are judged from conversation and reading. There is also a 'Whole Voice Rating' which is judged by both the client and clinician. This is rated from 0 (no problems) to 3 (severe problems). Because this scheme is so comprehensive it provides a thorough basis for planning therapy, and also offers an overall score which can be used in recording treatment progress.

1.2.3 Musculo-skeletal observations

General observations of habitual posture and breathing are central to the assessment of voice. Postural alignment of the body, neck, jaw, shoulders, and pelvis should be evaluated from both a lateral and anterior viewpoint.³⁵ Chapman³⁶ outlines the key factors for good postural alignment in singers and emphasises the importance of 'core stability'. She describes the requirements for flexibility in the abdominal muscles to allow the body to use its own natural elastic recoil during breathing.

Palpatory examination of the neck area is of use to the voice therapist in evaluating the relative positions of the hyoid bone and laryngeal cartilages, as well any inappropriate tension in the extrinsic laryngeal muscles. It can be particularly informative to compare the results of the endoscopic evaluation of the larynx and of the palpatory examination to assess the symmetry of the laryngeal cartilages and the muscles at rest during speaking or singing. Laryngeal muscle tension may be a primary cause of dysphonia or it may occur as a secondary feature due to an individual attempting to compensate for the voice problem, and in doing so increasing tension in the extrinsic and intrinsic laryngeal muscles.⁸

Several authors have described methods and protocols for palpatory assessment of the larynx.^{35,37-39} All these authors take care to highlight that this type of assessment should only be carried out by voice therapists who have received instructional training in the procedure. Without a detailed understanding of the

anatomy of the head and neck, as well as the palpatory skills taught to perform these protocols, it is possible to cause inappropriate discomfort to patients.

Many authors have described the importance of the assessment of breathing in voice disorders for speakers and singers but breathing techniques remain controversial. Some authors – particularly those who work extensively with singers and actors – recommend breathing techniques as a fundamental element of therapy.³⁴ Others claim that it is never necessary to work upon breathing.⁴⁰ Working upon breathing is likely to be beneficial where the patient's technique is in some way disordered and not conducive to good voice production. It is therefore crucial to assess breathing patterns at rest, during sustained phonation, and during connected speech. These should be evaluated with regard to their impact on an individual's voice and, in particular, patterns of dysfunctional breathing should be noted.

1.2.4 Self-report questionnaires

Self-report questionnaires play a vital part in determining to what extent a patient views their voice problem as affecting their quality of life. They can be used as a basis for deciding with the patient whether or not they wish to attend for therapy at all, and/or as an outcome measure to establish progress. All the self-report questionnaires require a choice to be made from a selection of answers provided. The Voice Handicap Index (VHI),⁴¹ VHI-10,⁴² Singing Voice Handicap Index (SVHI),⁴³ and Voice Symptoms Scale (VoiSS)⁴⁴ all have three domains each with a different number of parameters. The Questionnaire of Vocal Performance (QVP),⁴⁵ Singing Voice Handicap Index 10 (SVHI-10),⁴⁶ Children's Voice Handicap Index 10 (CHVI-10),⁴⁷ Vocal Disability Coping Questionnaire (VDCQ),⁴⁸ and Voice-Related Quality of Life Scale (V-RQOL)⁴⁹ have only one domain, but again vary in the number of their parameters. Scores are calculated, within the domains where applicable, and a total score is reached. Various studies have assessed the validity and reliability of the questionnaires and other studies have tested the correlation between these and perceptual and/or instrumental assessments of voice. Jones and Carding demonstrated that there is good correlation between the severity of dysphonia and the effect on quality of life.⁵⁰

Table 1.3 outlines the questionnaires and their characteristics.

Questionnaire	Number of domains	Number of questions	Parameters for each question	Total score	Significant score
Singing Voice Handicap Index 10 (SVHI-10)	1	10	0 – Never 1 – Almost never 2 – Sometimes 3 – Almost always 4 – Always	0–40	Not specified
Voice-Related Quality of Life Scale (V-QROL)	1	10	1 – None 2 – A small amount 3 – A moderate amount 4 – A lot 5 – Problem is 'as bad as it can be'	10–50	Not specified
Voice Activity and Participation Profile (VAPP)	3 (Perception of voice problem, limitation of, activity, restriction of participation)	28	Visual analogue scale, measured from left of line to give 0–10 for each question: Never _____ Always	0–280	Not specified
Voice Symptom Scale (VoISS)	3 (Impairment, emotional, physical)	30	0 – Never 1 – Occasionally 2 – Some of the time 3 – Most of the time 4 – Always	0–120	Not specified

Questionnaire	Number of domains	Number of questions	Parameters for each question	Total score	Significant score
Vocal Disability Coping Questionnaire (VDCQ)	1	15	0 – Never 1 – Almost never 2 – Sometimes 3 – Quite often 4 – Very often 5 – Always	0–75	Not specified
Children's Voice Handicap Index 10 (CVHI-10)	1	10	0 – Never 1 – Sometimes 2 – Many times 3 – Always	0–30	>4

Table 1.3: Self-report questionnaires

1.2.5 Instrumental voice assessment

Technological development has led to an ever-increasing array of instrumental tools to measure aspects of voice production. These are used in research and have greatly facilitated our understanding of the science of voice production. Equipment to measure pitch, volume, airflow, and vocal fold contact is now widely available for clinicians. Many voice analysis systems can produce a plethora of detail on a wide range of parameters. Baken⁵¹ describes very clearly how a variety of tools can be used and what information can be obtained.

For the practising clinician, however, choosing what is most useful and informative for assessment and planning therapy in a busy clinical setting can be difficult. Instrumentation for clinical purposes needs to be easy to use, meaningful, and reliable. The more recent adoption of relatively inexpensive tablet computers with easy portability and the ability to make high quality and reliable sound recordings has made it easier for voice therapists to use instrumental measures in a clinical environment. There are now a wide range of ‘apps’ available for analysing voice, and others which can be used in therapy as feedback tools. In daily clinical practice the following measures are often the most easily obtained and useful:

- fundamental frequency (F_0);
- pitch range (both in speech and singing where appropriate);
- jitter (cycle-to-cycle variation in frequency);
- shimmer (cycle-to-cycle variation in amplitude); and
- maximum phonation time.

In an assessment clinic where endoscopic evaluation of the larynx is being performed, instrumental measures can give additional information to aid diagnosis and inform therapy management.

1.3 Anatomy and physiology

Therapists working with voice disorders require extensive knowledge of the anatomy and physiology of the vocal tract. This includes a thorough understanding of the interactions of the vocal tract muscles, as well as the microstructure of the vocal folds. Endoscopic assessments give valuable information with regards to muscle interaction and this is discussed more extensively in Chapter 3 and Chapter 4. Other methods of assessing laryngeal physiology, such as laryngeal palpation, are essential in determining the relationships between positions of

the vocal tract structures, including the hyoid bone, thyroid cartilage, and cricoid cartilage.^{35,38,39}

1.3.1 Extrinsic laryngeal muscles

The extrinsic laryngeal muscles raise and lower the larynx. They are the suprahyoid and infrahyoid muscles, reflecting their attachments to structures above and below the hyoid bone. The sternothyroid, sternohyoid, and omohyoid muscles are all involved in lowering the larynx. The thyrohyoid, digastric, stylohyoid, mylohyoid, geniohyoid, hyoglossus, and genioglossus raise the larynx.

Figure 1.1 shows the extrinsic muscles of the larynx.

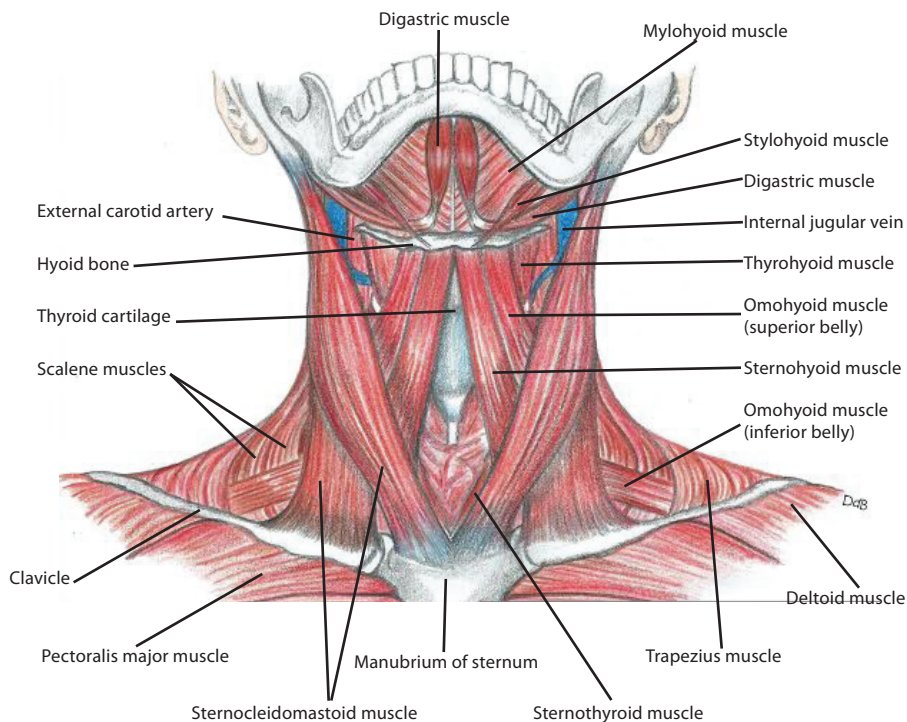


Figure 1.1: Extrinsic muscles of the larynx.

1.3.2 Intrinsic laryngeal muscles

The intrinsic laryngeal muscles are responsible for the abduction and adduction of the vocal folds, degree of vocal fold closure, and the lengthening and tensing of folds to adjust pitch and quality.

About the Authors

Sue M. Jones, BSc., MSc., RCSLT

Sue Jones is Head of Speech, Voice and Swallowing Services at University Hospital of South Manchester, UK. Sue has specialised in Clinical Voice Disorders since 1984 and now works exclusively in this field. She has been instrumental in developing the voice clinic services at UHSM and now acts and as an Expert Advisor, Speech and Language Therapy, where she leads a team of voice specialists, in performing, interpreting and teaching laryngeal endoscopy.



Her particular interests are in developing competencies for practice in all aspects of voice disorders: from newly qualified, to expert level therapists. Sue carried out research into the relationship between severity of dysphonia and voice-related quality of life as part of a Masters Clinical Research programme at Newcastle University. This has led to further interest in and study of the perceptual analysis of voice disorders.

Sue also has a particular interest in the performing voice and has developed her skills in working with professional singers, including classical, musical theatre and rock and pop genres. Her work here led to the establishment of a specialist Performers Voice Clinic service at UHSM.

An adviser to the Royal College of Speech and Language Therapists on voice disorders and co-author of the RCSLT Position Paper on Endoscopy for Voice Disordered Patients, Sue has lectured nationally and internationally and is involved in leading and participating in a variety of research projects into voice disorders.

Carrie Garrett, BA (Hons) Music/Popular Music, BSc (Hons) Speech and Language Therapy, PGCE, cert., MRCSLT, HCPC

Carrie is a voice specialist, speech and language therapist and singing teacher. Her clinical work includes working as a voice specialist at Queen Elizabeth Hospital, Birmingham, UK, and as singing-voice rehabilitation specialist at University Hospital South Manchester, where she has been working closely with Sue Jones and others in the development of the protocol contained in this publication.

Aside from regular appearances as a live performer, she is a singing teacher with 18 years experience, having also run a vocational education music performance department for a number of years. In addition to her work as a Voice Therapist, she runs her own vocal tuition company.

