The Vocal Athlete

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Preface

Meeting Industry Demands of the 21st-Century Vocal Athlete

Through our years of professional singing, training, and performance (resulting in an evolution to become voice pathologists and singing voice specialists), we have encountered a transition in the industry demands and injuries of the 21st-century vocal athlete. Today's commercial music industry demands versatility of vocal athletes who are now expected to be skilled in multiple styles of singing. Not only are these singers asked to perform vocal gymnastics on an eight-show per week schedule, these vocal athletes must also possess excellent acting skills and strong dancing ability to be competitive. These demands on the voice, body, and psyche necessitate a physically, vocally, and mentally fit singer who is agile and adaptable.

In a time when major opera companies are closing their doors, the commercial music industry boasts millions of viewers on a weekly basis through mainstream media outlets (e.g., "The Voice," "American Idol," "X-Factor"). Broadway shows grossed over 400 million dollars in 2012. And in the pop music market, in 2012 alone, physical albums, digital albums, and digital songs surpassed 1.65 billion units indicating a strong public desire and potentially lucrative business for commercial music singers. Yet, there are only two exclusively nonclassical vocal pedagogy training programs in the United States as of this writing. Therefore, these vocal athletes learn their craft by relying on god-given talent, they make their way by imitation, or they study with a voice teacher who may or may not have experience or training in the commercial music genre. Some of these choices may unfortunately lead to vocal problems if they cannot withstand demands of the profession. By no means do we suggest that classical voice pedagogy is not a valid and proven effective method of vocal training. However, even though running is part of a gymnastics floor routine, it would be unlikely that an Olympic gymnast would train exclusively with a running coach when he or she is required to perform backflips on a balance beam.

Similarly, this book was developed to aid singing teachers (of all genres), voice pathologists who work with singers, and the singers themselves in their understanding of the vocal mechanism, specific care of the body and instrument, and the science behind how we learn and how we can maximize performance for longevity in a commercial music market. Section I introduces the Structure and Function of the Voice as it applies to vocal athletes. Chapter 1 presents the mechanics, structure, and function of the singer's body, incorporating anatomy of body framework and the integration of movement and movement strategies for active performers. The next two chapters (Chapters 2 and 3) go beyond typical anatomy and physiology of the respiratory and laryngeal mechanisms. These chapters incorporate relevant research and functional utility of breath and sound production in the commercial music performer including topics on how dancers who sing use different breathing strategies and information on vocal fold vibration patterns in high demand voice users. Chapter 4 details the central command center (neurologic

control) of the voice, from both a physical and emotional perspective. Included in Chapter 4 is information relevant to performance anxiety in vocal athletes. The final chapter (Chapter 5) in Section I sets up a basic understanding of vocal acoustics and resonance, and provides singers and teachers a user-friendly chapter on these often challenging topics using relevant singing illustrations.

As vocal health and fitness are paramount for amateur and elite vocal athletes for long-term careers, Section II—Vocal Health and Fitness, is devoted to providing a unique perspective on relevant topics for vocal athletes. Section II includes invited expert authors on the topics of: the impact of reflux on the singer (Chapter 7, Adam D. Rubin, MD, Cristina Jackson-Menaldi, PhD); what singers need to know when undergoing anesthesia (Chapter 8, Andrew Rosenberg, MD); and team members' roles on a multidisciplinary voice care team (Chapter 11, Leda Scearce, MM, MS). Chapter 6 details the how and why of phonotrauma on the vocal folds and provides insight into wound healing and injury prevention. The Life Cycle of the Voice (Chapter 9) provides an overview of the changes that happen to the singing voice throughout the lifespan with specific attention to the under 40 singers that populate the commercial music scene. Chapter 10 (Medicines, Myths, and Truths) confirms and dispels many of the common old wives' tales related to vocal health and hygiene, including tradition and alternative medical therapies.

The final section of this text (Section III—Vocal Pedagogy for the 21st Century Vocal Athlete) includes six unique chapters. These chapters span a review of both classical and belting pedagogy (Chapters 12 and 13) and the scientific studies on the how and why of belting in elite and student performers (Chapter 14). Currently, there is no book that incorporates this information into one text. The assumption that traditional classical pedagogy can support any style of singing is inconsistent with what singing science research is now showing about physiologic differences between classical and contemporary commercial music (CCM) styles of singing. Chapter 15 and Chapter 16 are based in how we learn and acquire new skills providing singing teachers (regardless of style) invaluable information on maximizing teaching and learner outcomes. The book concludes with an invited chapter on audio technology (Chapter 17, Matthew Edwards, BM, MM) and the understanding and use of current technology (e.g., microphones, sound boards, monitors) by every teacher and singer who sings in a commercial style.

We would be remiss without including functional exercises to develop and train the concepts discussed in this text. Therefore, over 60 exercises, from expert teachers all over the world, to accompany and parallel the concepts presented here are included in the sister workbook: *The Vocal Athlete: Application and Technique for the Hybrid Singer* by Rosenberg and LeBorgne, 2014.

Whether at the professional or novice level, or somewhere in between, there are limited resources for training commercial vocal styles relative to the number of singers who desire to sing. This book aims to provide scientifically based information without usurping the art of singing pedagogy to provide the 21st-century hybrid singer with a guide toward their goal of becoming a proficient and healthy CCM vocalist. This brings us back to the necessity for sound vocal instruction and technique to allow these singers to use their voices as safely as possible in order to promote vocal health in this group of singers who may already be at high-risk for encountering vocal problems.

This is now more important than ever, as musical theater and other CCM styles will continue to raise the bar for vocal performance demands. Composers will continue to be commissioned to write shows that will make money, especially during current economic strains when there is less willingness to finance works that aren't going to assure financial payoff. Therefore, singers will continue to be asked to "defy gravity" and generate more complex vocal acrobatics in order to stay employed. Ultimately, the CCM vocal athlete and teachers are charged with the task of providing voice students with a sound pedagogical technique that will (1) serve them well in their chosen vocal style, (2) allow the singer to cross over to varied vocal styles as demanded, and (3) promote vocal longevity and health.

> hy•brid sing•er – (n). refers to the vocal athlete who is highly skilled performing in multiple vocal styles possessing a solid vocal technique that is responsive, adaptable, and agile in order to meet demands of current and ever-evolving vocal music industry genres.

1

The Singer's Body: Alignment, Movement, and Intention

Introduction

Posture and alignment are among the foundational principles of good singing. Those who have had any sort of training as a singer have likely been taught about posture in some way or another. Singers are therefore aware that the vocal instrument extends beyond the throat. Often, the first impression of a performer is what the performer is conveying via his or her body and stance before we hear any sound. Vocal pedagogy emphasizes body alignment during singing, and most singers are aware of the important role that posture/alignment plays in optimal voice production and efficiency. Fortunately, voice and acting students have benefited from bodywork such as Alexander Technique™, Feldenkrais®, and pilates (to name a few) used to help establish and reinforce optimal musculoskeletal alignment and function at the most basic neuromuscular level.

Efficient use of the singer's body extends beyond good posture. In most styles of singing, including musical theater and opera, movement and/or dancing is incorporated into the performance. The task of the singer is to use the movement or dancing efficiently in order to serve the singing in a productive way, so that the two occur synergistically instead of existing as disparate entities working against one another. Often, the singer is also managing restricting costumes, moving set pieces, a raked stage, and pyrotechnics. Yet, voice lessons typically occur in a static environment with limited space to move. As a result, many singers learn to sing with good posture and alignment while standing somewhat still within the confines of the voice studio, but often are left to their own devices to navigate movement, choreography, and costumes when in a performance venue. This chapter discusses the basic anatomic and physiologic principles of posture and alignment. It also provides readers an overview to the

many complementary and often essential methods used by many singers and actors to facilitate optimal voice production and performance when the desired alignment may be compromised. Relevant research findings on posture and alignment as it relates to the vocal athlete are reviewed.

Posture and Alignment

Consider what comes to mind when you think of your posture. Take a moment to stand erect and notice what you feel. What, in your mind, holds you upright? Do you balance on the balls of your feet, the heel, or on the center? Where do your ears lie relative to your shoulders? Is your chest collapsed, in a military stance, or neutral? How does your head feel balancing on your cervical spine? Are you actively holding your head up? Do you notice that you engage your neck strap muscles to assist in holding your head up? Now sing a short phrase of "Happy Birthday." Does your posture and/or muscular awareness change when singing is introduced? Physical awareness of the body during singing is important to maintain freedom and ease of both the voice and body. The singing student may not be aware of how the body is designed and put together, yet having a solid understanding the anatomy and physiology of the entire musculoskeletal system is an important part of learning good vocal technique and the impact that postural changes may have on vocal output.

Skeletal Structure

Put simply, the role of the skeleton is to provide the framework for the body and provide a place for origin or attachment of muscles. It is designed to efficiently distribute weight and work so that we can move freely without significant effort. When out of balance, the body system works less efficiently and voice production can be compromised. This section highlights some of the common locations for physical misalignment and concession of vocal technique as a result. Figure 1–1 shows a lateral view of the human skeleton. The figure was adapted for "What Every Singer Needs to Know About the Body"(Malde, 2009). Malde's book provides an extended resource for singers of all styles and is recommended for further reading regarding posture, alignment, and body mapping. The authors discuss in detail the six places of balance to facilitate optimal freedom of the body during singing. Imagine a vertical line traveling from head to the feet. The six places of balance, as described by Malde and colleagues (2009) include: (1) atlanto-occipital (A-O) joint, (2) arm structure, (3) thorax/lumbar spine, (4) hip joints, (5) knee joints, and (6) ankle joints. These areas all have dense sensory input to provide tactile feedback about how the body is moving.

The human head accounts for approximately 8% of the entire body mass and can average six to ten pounds. Adding a headpiece, wig, or mask will easily add a few more pounds for the cervical spine to support. The head is supported by the first cervical vertebra called the atlas, and this joins the bottom of the skull at the occiput via the atlanto-occipital joint (A-O joint), the first of the six places of balance. This is an important juncture because proper alignment of the head onto the cervical spine allows for freedom of movement of the head and neck without extraneous involvement of the neck strap muscles.

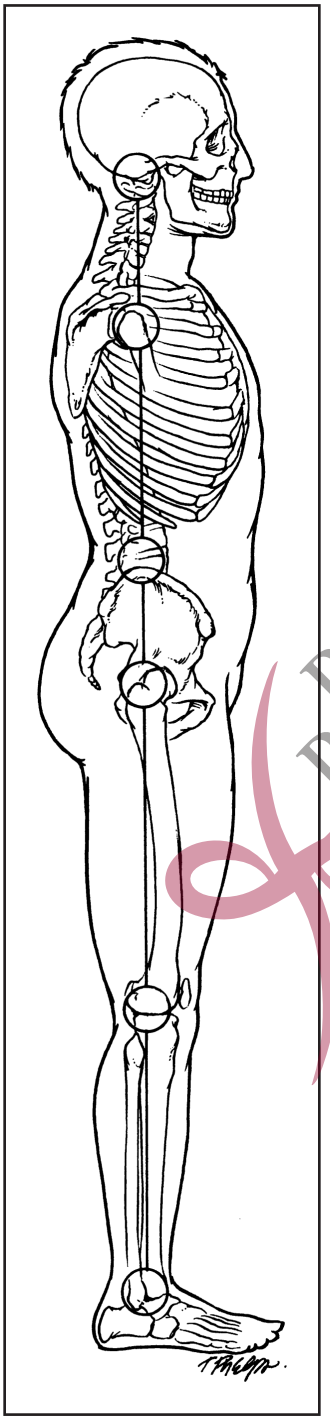

Figure 1–1. Places of balance skeleton, side view. By T. Phelps. Copyright 2008. Used with permission.

If a singer has extensive neck strap involvement during singing check to see if A-O alignment is off causing neck strap muscles to engage limiting freedom and range of motion both at rest and during singing.

When aligned, the A-O joint marks the middle of the skull. Figure 1–2 shows the head centrally aligned on the cervical spine. The cervical spine extends from the base of the skull down to the thoracic spine. The role of the cervical spine is to support the head. It contains seven vertebrae (C1–C7). The first two vertebrae (C1 and C2) allow for rotation of the neck (right and left), while C5–C7 allow for flexion (forward) and extension (backward). This portion of the spine houses and provides protection to the upper part of the spinal cord.

The thoracic spine refers to the upper and middle back. There are 12 vertebrae on the thoracic spine (T1–T12). Unlike the cervical spine, which is designed to be flexible, the thoracic spine trades flexibility for strength and stability in order to hold the body upright. The ribs are paired, with 12 ribs on each side. They are connected at each level of the thoracic vertebrae providing a protective cage for the lungs, heart, and other essential organs. The costal cartilage (Figure 1–3) connects the ribs to the sternum (breastbone). The sternocostal joints connect the cartilaginous portion of ribs two through six to the sternum. The expansion we are able to achieve with the ribs during inhalation is, in part related to the pliability of the costal cartilages. The costal cartilages will ossify (become more bone-like and less flexible) as we age. Thus rib cage expansion is decreased during the aging process. More detail about the

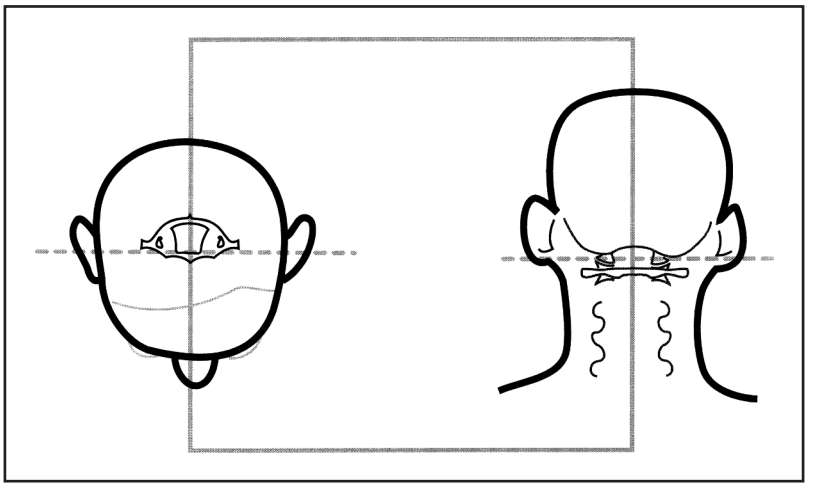

Figure 1–2. A-O joint location. By Conable. Copyright 2001. Used with permission.

skeletal and muscular structures of the ribs is discussed in the chapter on respiration.

The lumbar spine is commonly referred to as the lower back consisting of five vertebrae allowing for flexibility of this part of the spine. The vertebrae in the spinal column are connected with various ligaments and tendons, which further stabilize the spine and also prevent it from moving in a direction that is suboptimal or potentially injurious.

The pectoral girdle (or shoulder girdle), which includes the clavicle (collarbone) and scapula (shoulder blade) connects the arms to the axial (central) skeleton. The arms are not often thought of in terms of body alignment, but they play a crucial role in performance because the arms are involved in stability. Singers may use arm movement to add depth and communication to a performance by intentional movement and gesture, or the arms may hinder a performance by lying limply contributing nonintentional or distracting movement. The pectoral girdle includes both the clavicle (collarbone) and the scapula (shoulder blade). These bony structures attach to the sternum via the sternoclavicular joint. The sternoclavicular joint extends out to the shoulder joint. At that point, the glenohumeral joint (shoulder joint) connects the pectoral girdle to the humerus (upper arm bone). The arm then extends to the elbow joint and finally wrist joints. These four joints allow for generous range of motion. Although one may not view the arms as having an impact on breathing, consider that the clavicle lies parallel to the floor and the clavicle and scapula are meant to suspend symmetrically over the spine and rib cage. Thus, aberrant posturing of the scapula, such as in a militaristic stance, can actually impede range of motion of the ribs during breathing (Malde, 2009).

The pelvic girdle which includes the following bony structures: sacrum, coccyx, ilium, ischium, and pubic bone, provides origins and attachments for muscles

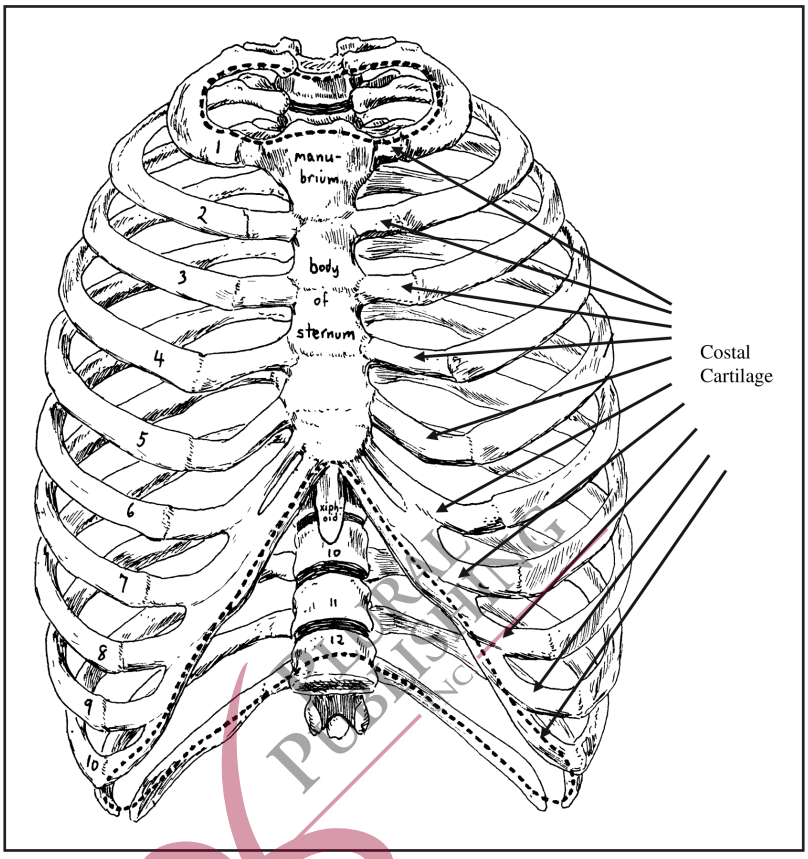

Figure 1–3. The ribs and costal cartilage (anterior view). Adapted from *The Body Moveable* (4th ed., p. 119), by D. Gorman, 2002, Ampersand Press.

that form the pelvic floor and lower abdomen. The pelvic girdle allows for the distribution of the weight of your upper body down to the femur, or thigh bone when standing. The head of the femur (thigh bone) articulates with the pelvic girdle at the acetabulum via a bulbous extension of the femur called the greater trochanter at the acetabulofemoral joint. This connection forms the hip joint and allows for rotation and movement of the upper portion of the leg and bending at the waist. It also serves as the connection from the lower limbs (legs) to the axial skeleton (spine). The leg consists of the femur (thigh bone), knee joint, the tibia (shin bone) and fibula (calf bone), the ankle joint, and the feet. A balanced stance below the knee requires that the points of balance above the knee be aligned. For further detail on anatomy discussed above, the reader is referred to "Atlas of Human Anatomy" (Netter, 1997) and "Clinically Oriented Anatomy" (Moore & Dalley, 2006).