

The Vocal Athlete

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Contents

<i>Preface</i>	<i>xi</i>
<i>Acknowledgments</i>	<i>xv</i>
<i>Contributors</i>	<i>xvii</i>
Section I. Structure and Function of the Voice	1
Chapter 1. The Singer's Body: Alignment, Movement, and Intention	3
Introduction	3
Posture and Alignment	4
Assessing Posture and Alignment	14
Beyond Posture	18
Chapter Summary	23
References	23
Chapter 2. Respiratory Kinematics	25
Introduction	25
Historical Overview of Respiratory Pedagogy	25
Contemporary Respiratory Pedagogical Training	30
Respiratory Pedagogical Summary	31
Anatomy and Physiology of the Respiratory Mechanism for the Singer	31
Respiratory Kinematics for Vocal Athletes—What the Research Tells Us	38
Chapter Summary	40
References	41
Chapter 3. Laryngeal Anatomy, Physiology, and Function During Singing	43
Introduction	43
Role of the Larynx	43
Basic Laryngeal Anatomy and Physiology	44
Review of Nerve Supply to the Intrinsic Muscles	55
Microstructure of the Vocal Folds	57
Vocal Fold Vibration	60
Phonatory Onset	67
Vibrato	68
Chapter Summary	70
References	70
Chapter 4. Neurologic Control of Voice Production	73
Working from the Top Down: From the Singer's Brain to the Singer's Body	73

Central Nervous System	74
Peripheral Nervous System	78
Autonomic Nervous System	81
Summary of Neuromotor and Neurosensory Pathways for Voice Production	81
Musical Performance Anxiety and Emotional Aspects of Singing	83
References	85
Chapter 5. Resonance and Vocal Acoustics	87
Introduction	87
Resonators and Resonance	87
Focus and Placement	98
Chapter Summary	105
References	105
Section II. Vocal Health and Fitness	107
Chapter 6. Impact of Phonotraumatic Behaviors on Vocal Health and Singing	109
Introduction	109
What Is Phonotrauma?	110
Risk for Phonotrauma	111
Impact of Phonotraumatic Behaviors on Voice and Singing	111
When Is Vocal Rest Indicated?	112
Voice Rest and Vocal Fold Surgery	112
Wound Healing Physiology	114
Vocal Rest Versus Vocal Exercise	116
Management of Phonotrauma	116
Behavioral Intervention	117
Direct Voice Therapy	117
Medical and Surgical Management	120
Chapter Summary	121
References	121
Chapter 7. Laryngopharyngeal Reflux: What the Singer Needs to Know	123
<i>Adam D. Rubin and Maria Cristina Jackson-Menaldi</i>	
Introduction	123
Symptoms	123
Complications of Reflux	125
How Do I Know if I Have Reflux?	126
Treatment	128
Chapter Summary	130
References	130

Chapter 8. The Singer's Guide to Anesthesiology and Voice	133
<i>Andrew Rosenberg</i>	
Introduction	133
Basics of Anesthesia	133
Procedures that Require Airway Devices	135
Singer Concerns	137
Airway and Vocal Tract Complications	137
Chapter Summary	141
References	141
Chapter 9. The Life Cycle of the Singing Voice	143
Overview	143
The Pediatric Performer: Considerations for Vocal Performing in Children Through Adolescence	143
Aspects of the Aging Voice and the Nonclassical Singer	153
Chapter Summary	157
References	157
Chapter 10. Medicine, Myths, and Truths	161
Introduction	161
Medications and the Voice	162
Reflux Medications	165
Herbal Supplements and Vitamins	165
Chapter Summary	179
References	179
Chapter 11. Multidisciplinary Care of the Vocal Athlete	183
<i>Leda Scarce</i>	
Introduction	183
Chapter Summary	192
References	192
Section III. Vocal Pedagogy for the 21st-Century Vocal Athlete	195
Chapter 12. History of Classical Voice Pedagogy	197
Overview	197
Chapter Summary	211
References	211
Appendix 12-A. Classical Vocal Pedagogy Resources	213
Chapter 13. Belting Pedagogy: An Overview of Perspectives	217
Introduction	217
Increasing Demand for Commercial Pedagogy and Belting	218
Overview of History and Pedagogical Approaches for Belting	218

Chapter Summary	225
References	225
Chapter 14. Belting: Theory and Research	227
Introduction	227
Belting—Perceptual Research	227
Laryngeal Muscle Activity and Action during CCM Singing	228
Voice Source Information on Belting	230
Formants and Harmonic Findings/Singers Formant/Formant Tuning	231
Intensity Findings	233
Vibrato Findings	234
Timbre/Spectral Slope Findings	234
Nasality Findings	235
Registration Findings	235
The Science Behind the Singing: Inertance and Compliance Theories	236
Chapter Summary	239
References	240
Chapter 15. Exercise Physiology Principles for Training the Vocal Athlete	243
Introduction	243
Muscle Fibers and Laryngeal Function	243
Skeletal (Limb) Muscles	244
Basic Training Principles for Exercise Science	245
Research on Exercise Science for Voice	246
Application of Exercise Physiology Principles for Training Vocal Athletes	248
Vocal Warm-Ups	250
Voice Fatigue	252
Monitoring Vocal Effort	254
Chapter Summary	255
References	255
Chapter 16. Application of Motor Learning Principles to Voice Training	259
Introduction	259
Motor Performance Versus Motor Learning	260
Stages of Motor Learning	261
Establishing Training Goals	262
Structuring a Lesson	263
The Forgetting Hypothesis	265
Feedback and Cueing	266
Reducing Learner Dependency	267
Directing Learners' Attention	268
Chapter Summary	268
References	269

Chapter 17. The Art of Perfection: What Every Singer and Voice Teacher Should Know about Audio Technology	271
<i>Matthew Edwards</i>	
Introduction	271
Audio Engineers and the Art of Perfection	272
Recording in the Early 20th Century	272
Modern Recording Methods	273
Live Performance	273
Opera	275
Listening Levels	275
Understanding Modern Recording Technology	276
Signal Processing	284
The Basics of Live Sound Systems	286
Teaching with Audio Equipment	287
Chapter Summary	293
References	293
<i>Index</i>	295



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 Scarce, 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.





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.

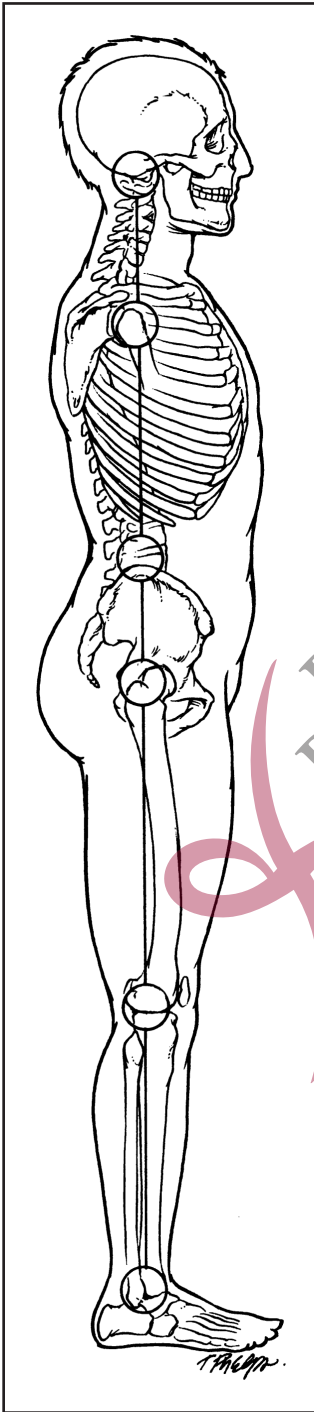


Figure 1-1. Places of balance skeleton, side view. By T. Phelps. Copyright 2008. Used with permission.

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

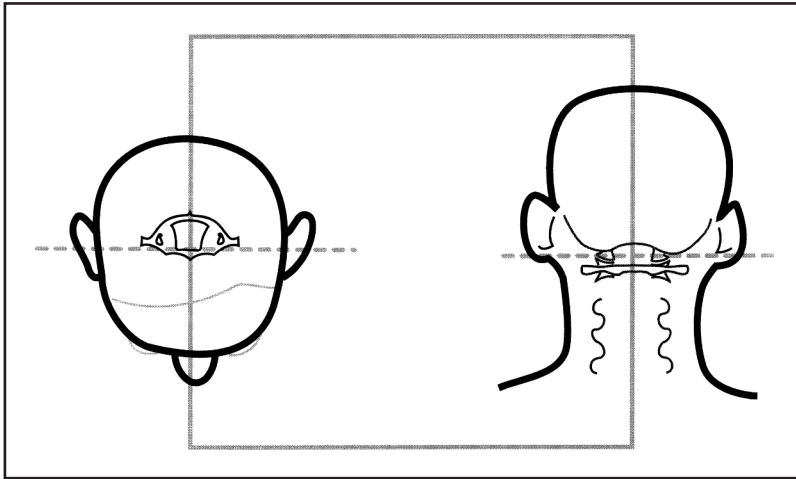


Figure 1–2. A-O joint location. By Conable. Copyright 2001. Used with permission.

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

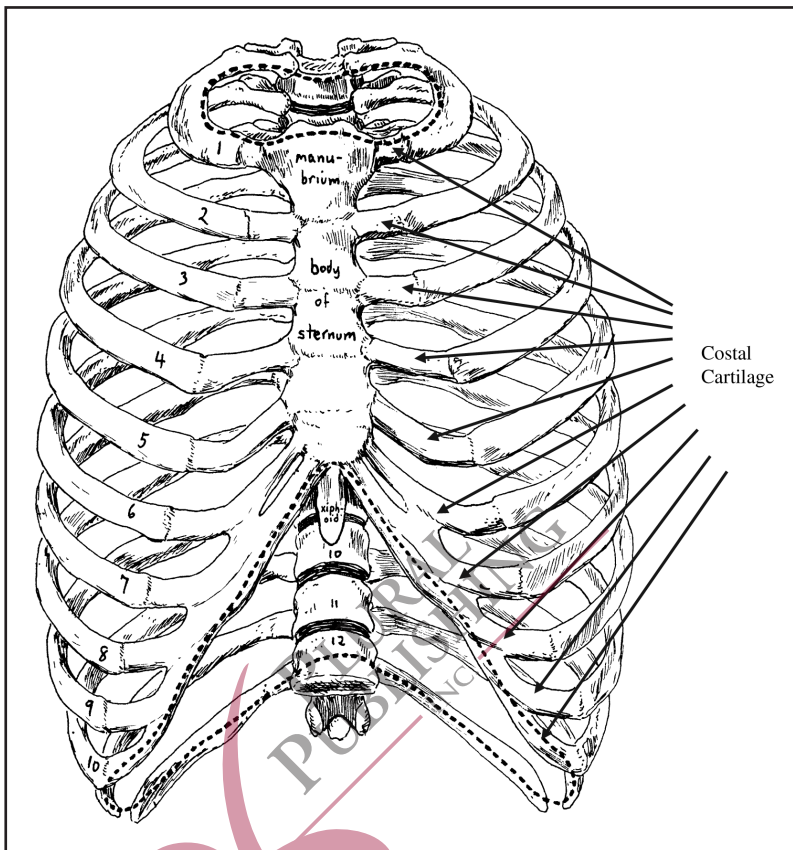


Figure 1–3. The ribs and costal cartilage (anterior view). Adapted from *The Body Moveable* (4th ed., p. 119), by D. Gorman, 2002, Ampersand Press.

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).