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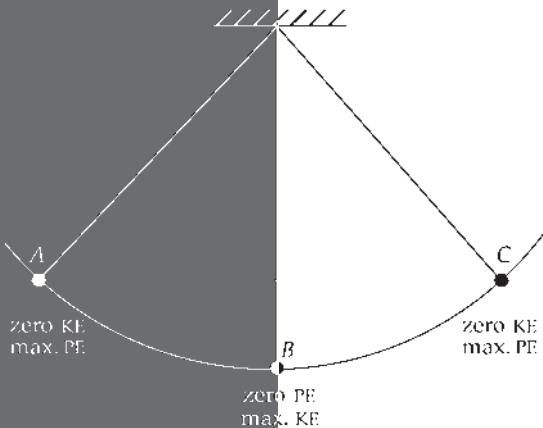
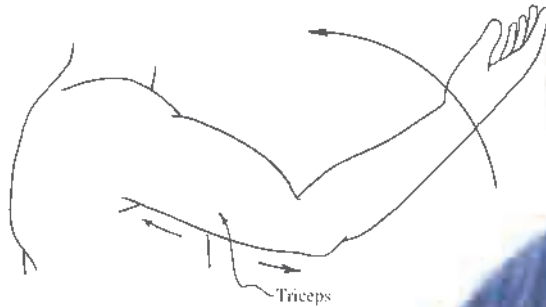
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ROBERT CHUCKROW, PH.D.

PRINCIPLES  
OF NATURAL  
MOVEMENT,  
HEALTH,  
& SELF-  
DEVELOPMENT

# TAI CHI DYNAMICS



*Praise for Tai Chi Dynamics . . .*

Robert Chuckrow has used the insights and experiences gathered from his many years of careful study and teaching of Tai Chi Chuan, physics, and Kinetic Awareness to write a thoughtful, perceptive, open-minded, and at its core, pragmatic approach to the art of Tai Chi Chuan. “I have experienced for *myself* the truth of what I have written,” he states in *Tai Chi Dynamics—Principles of Natural Movement, Health, and Self-Development*.

I have often said that I have never been against Tai Chi’s “supernatural” elements but prefer to say that I am happy and satisfied with its practical aspects. Robert’s book provides Tai Chi practitioners, as well as anyone interested in the dynamics of movement, with many fascinating avenues of practical exploration as a way to discover for themselves the truth Robert writes about.

—*Grandmaster William C.C. Chen, author  
of Body Mechanics of Tai Chi Chuan*

---

It is with great pleasure that I recommend this notable work by my colleague, friend and former classmate, Robert Chuckrow, Ph.D.

Dr. Chuckrow, with his profound knowledge of physics, body mechanics, and Tai Chi Chuan, is in the unusual position of being able to bring his unique perspective to the study of this Chinese exercise and martial art. He analyzes the physical dynamics of the Tai Chi movements in great detail. These insights are particularly relevant to the Western analytical mind.

This book is an important contribution to the body of Tai Chi literature.

—*Lawrence Galante, Ph.D. D.Hom., Director of The Center for  
Holistic Arts NYC, author of Tai Chi: The Supreme Ultimate*

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In *Tai Chi Dynamics*, Robert Chuckrow adeptly combines his understanding of physics with the principles of Tai Chi. Using simple tools of physics such as inertia, the “pendulum” effect, and conservation of energy to explain Tai Chi movements makes the healing and martial value of Tai Chi more understandable to the modern mind, as it uplifts the science of physics to very practical use.

—*Nancy Rosanoff, author of Knowing When It’s Right*

**ROBERT CHUCKROW, PH.D.**

# **TAI CHI DYNAMICS**

**PRINCIPLES OF NATURAL MOVEMENT,  
HEALTH, & SELF-DEVELOPMENT**

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When it comes to martial arts, self defense, and related topics, no text, no matter how well written, can substitute for professional, hands-on instruction. These materials should be used *for academic study only*.

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## Foreword

When two seemingly disparate bodies of knowledge exchange ideas, they both benefit and augment each other. This book exemplifies such an interdisciplinary exchange. Dr. Chuckrow, one of the most inquiring, probing people I know, utilizes his unique gifts of keen perception, love of teaching, and power to connect disciplines. He has studied physics, music, nutrition, Taiji, Qigong, Kinetic Awareness, spiritual teachings, and healing. As a Taiji master and a certified master teacher of Kinetic Awareness, Chuckrow enjoys working to achieve experiential insights. He loves finding the kinetic essentials of a complex Taiji movement and understanding its components. As a physicist, Chuckrow loves the connections that physics brings to understanding the interrelationship between disciplines. One of Chuckrow's great charms is his ability to engage in an intense exploration both verbally and kinetically. He has a searching, perceptive, discovering mind and will wrestle with an idea or insight and strive to connect and understand an idea or experience until it is crystal clear. In this book, which is especially written for intermediate and advanced practitioners, he has used his varied knowledge, organizational skills, and communicative power to translate the language of the body through verbal descriptions and visual images.

Taiji and Kinetic Awareness (KA) are arts that might seem outwardly quite different, but they have a lot in common. Taiji movement is done while upright with only one's feet on the floor, whereas much of KA training involves doing extremely slow and subtle movement, often while lying

on balls on the floor. Taiji has its roots in Daoism, applied to movement and self-defense, and KA is a study of the movement of the human body through an understanding of all of its systems. Both arts develop balance, coordination, independence of movement, optimal alignment, reduced susceptibility to injury, and cultivation and utilization of qi. Also, both are systems of health and healing and help with recovery from trauma and ill health.

**Elaine Summers**, choreographer, filmmaker, inter-media-artist, film-dance & intermedia pioneer.  
Original member of the Judson Dance Theater.

MA New York University

MIT Fellow (Center for Advanced Visual Studies)

Fulbright Scholar

Originator of Kinetic Awareness

Founder of Experimental Intermedia Foundation

Artistic Director of Elaine Summers Dance &  
Film Company

Director of the Kinetic Awareness Center

New York, NY

March 19, 2008

## Acknowledgments

I am indebted to Elaine Summers, from whom I learned the concept of muscular extension, which is a major theme of this book. I trust that Alice Holtman, a spiritual guide who taught me meditation and healing, would have been pleased with my treatment of that subject matter. Of course, what I have learned from my teachers, Zheng Manqing (Cheng Manch'ing), William C.C. Chen, Harvey I. Sober, Kevin Harrington, Michael DeMaio, and Sam Chin Fan-siong, pervades this book. The critical reading of the preliminary manuscript and insightful suggestions of the following people were enormously valuable: Tony Barron, Philip Carter, Sam Chin Fan-siong, Arnold Cohen, Michael Ehrenreich, Michael Fila, Jeffrey M. Fischer, Lawrence Galante, Linda Herko, Marian LeConte, Jack Loghry, Alexis Mohr, Frank Parra, Nancy Rosanoff, Anthony Sciarpelletti, Kenneth Van Sickle, Barbara Smith, Linda Snyder, Harvey I. Sober, and Elaine Summers. I am especially grateful to Jizhen Sun Bredeche for drawing the Chinese characters that appear in this book, to Ken Lara for being my partner for the photographs of the self-defense applications, and to Berty Barranco-Feero, Linda Herko, Marian LeConte, Nancy Rosanoff, Anthony Sciarpelletti, Barbara Smith, and Elly Van Horne for posing for some of the photographs. Finally, I am grateful to Jack Loghry, Nancy Rosanoff, Marian LeConte, and Ruth Baily for taking many of the photographs. I am especially grateful to Kenneth Van Sickle for taking the photograph of Elaine Summers and me.

## Author's Background

The Author has been a T'ai-Chi Ch'uan practitioner since 1970 and has studied T'ai Chi under the late Cheng Man-ch'ing, William C. C. Chen, and Harvey I. Sober. He has studied I Liq Ch'uan with Sam Chin Fansiong, Ninjutsu with Kevin Harrington, Kinetic Awareness with Elaine Summers, and Healing and Re-evaluation with Alice Holtman. He has taught Taiji extensively and has written four other books: *The Tai Chi Book*, *Historical Tuning of Keyboard Instruments*, *The Intelligent Dieter's Guide*, and *Tai Chi Walking*. *The Tai Chi Book* was a finalist in the 1999 Independent Publisher Book Awards as "among the three best books in the health/medicine category."

Chuckrow is certified as a master teacher of Kinetic Awareness, has a Ph.D. in experimental physics from New York University, and has taught Physics at New York University, The Cooper Union, and The Fieldston School in Riverdale, New York.

## Author's Note

Every effort has been made to be accurate and helpful. I have experienced for *myself* the truth of what I have written here. However, there may be typographical errors or mistakes in content, or some of the content may not be applicable to everyone. It is my wish that the reader exercise skepticism and caution in applying the information and ideas herein. The purpose of any controversial parts of this book is to stimulate the reader's thinking rather than to serve as an ultimate source of information.

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# Introduction

Those who study Taiji know that its important concepts are frequently elusive, and, for many practitioners, much of the modern Taiji literature of substantive content is difficult to understand. The pithy written transmissions of the old masters, called *Taijiquan Classics*, tend to be meaningful only *after* one understands their underlying concepts. These transmissions seem to have been intended more for confirming understanding than for imparting it. Originally formulated in Old Chinese, the *Taijiquan Classics* are very compact and poetic and can be quite mysterious when translated into Modern Chinese and then into English. Old Chinese writing conduced more to self-development than to precision of expression but also served to preserve knowledge for insiders and to keep it inaccessible to outsiders. Consider the following excerpt from the *Taijiquan Classics*:

*Every sentence in this thesis is important.  
Not a single word has been added carelessly or for decoration.  
[Those] without a high degree of wisdom won't be able to understand.*

—Wang, Zong-yue<sup>1</sup>

In China a century or more ago, oral teachings and elucidations of the concepts were essentially reserved for family members. Now, much of the essence of Taiji has been lost or scattered, and serious students often need to study with a succession of teachers, undergo much frustration, and frequently struggle to gain an understanding of the Taiji principles let alone an ability to manifest them.

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1. Yang, Jwing-Ming, *Tai Chi Secrets of the Ancient Masters*, YMAA Publication Center, Boston, MA, 1999, p. 23.



Of course, much of Taiji needs to be experienced and practiced perseveringly in order to be understood, and words often limit this understanding (a basic Daoist concept).<sup>2</sup> Whereas articulating concepts in a precise, scientific manner cannot provide a complete understanding, doing so can be of much value. It is my hope that my attempts to explain some of the Taiji mysteries by utilizing scientific knowledge, conjecture,<sup>3</sup> distinctions, phraseology, presentation, and approach will help practitioners of this art develop more quickly.

One of the main thrusts of this book is to clarify what is meant by the important concept of *correct strength* (as opposed to *awkward strength*). The concept of correct strength is widely misunderstood but crucial to a number of dimensions of Taiji practice and applications including health, breathing, correct Taiji movement, push-hands, and self-defense. For a long time, I was unable to discern the difference between “correct” and “awkward” strength. My progress was accelerated, however, once I began to apply concepts of physics and anatomy. In an attempt to share my understanding of correct strength, I have presented here an analysis of the anatomical and physiological aspects of muscular action, without which we cannot do *any* voluntary movement including breathing. I have then applied these principles to the two main breathing modalities encountered in Taiji movement, namely, natural breathing and reverse breathing. Finally, I have extended these principles to stepping, shifting weight, turning, and using strength in push-hands and self-defense. In later chapters, I have treated various other subjects including healing, spirituality, and teaching Taiji.

I learned the concepts herein mainly from my teachers Zheng Manqing, Elaine Summers, Alice Holtman, William C.C. Chen, Harvey Sober, Sam Chin Fan-siong, Kevin Harrington, and Michael DeMaio. Over the years, my own practice and reflection, plus the thought-provoking questions that my students have asked me, have helped me to refine what these masters have taught me. In this book, I have simply applied my teaching skills and physics background in attempting to explain and present, in an organized, logical, and scientific manner, the concepts that were taught me.

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2. See for example, Lao Tzu: “My words are easy to understand,” *Lectures on the Tao Teh Ching* by Man-jan Cheng, Translated by Tam C. Gibbs, North Atlantic Books, 1981.

3. In science, *conjecture* means making an educated guess. Many venerable scientific principles have originated with conjecture.

Throughout, I have striven not to repeat material covered in my first book, *The Tai Chi Book*, but to use entirely new material and/or presentation. In some cases I have revisited prior material with a new perspective.

Pinyin has been used throughout except for names of historical and other masters, for which use of Wade-Giles is more prevalent. The following table lists some correspondences between the two forms of spelling:<sup>4</sup>

<b>Pinyin</b>	<b>Wade-Giles</b>
Taijiquan	T'ai-Chi Ch'uan
Qi	Ch'i
Qi Gong	Ch'i Kung
Peng	P'eng
Kua	K'ua
Pipa	P'ip'a

---

4. For a useful list of Pinyin/Wade-Giles conversions, see <http://library.ust.hk/guides/opac/conversion-tables.html>.



# Muscular Action in Taiji Movement

## TWO KINDS OF STRENGTH

Strength is essential in all martial arts. Without the implied or actual use of physical strength, there is no way that one can defend against a physical attack by a skilled opponent. In fact, without muscular action, no directed movement is possible, not even breathing or circulation of blood. In Taiji, the cultivation and expression of strength are different from that in hard styles such as Karate and Shaolin. Also, Taiji strength is different from the customary strength used in daily life.

My first teacher, Zheng Manqing (Cheng Man-ch'ing),<sup>5</sup> talked about developing “tenacious strength,” or “tenacity.” According to Zheng, “Tenacity is the resistance or tonicity of living muscles. The muscles being relaxed, tenacity cannot involve the bones. Force, on the other hand, is derived from muscles, binding the bones together into a wooden (rigid) system.”<sup>6</sup> Zheng is not alone in making such a distinction; the Taijiquan Classics<sup>7</sup> and other writings frequently mention two corresponding terms, *li* and *jin*. *Li* is translated as *external strength* or *awkward force*, and *jin* is translated as *internal strength* or *correct force*. The character for *li* simply

---

5. See <http://www.ibiblio.org/chinesehistory/contents/c06sa01.html> for a discussion of the various “Romanizations” of Chinese words (using the English alphabet to write Chinese words).

6. See Cheng Man-ch'ing, *T'ai Chi Ch'uan: A Simplified Method of Calisthenics for Health & Self Defense*, North Atlantic Books, Berkeley, CA, 1981, pp. 16–17.

7. See for example, *The Essence of T'ai-Chi Ch'uan, The Literary Tradition*, Edited by Benjamin Pang-jeng Lo, North Atlantic Books, Berkeley, CA, 1985, pp. 10, 33, 50, 82, 85, 87, 97, and 98.



Fig. 1-1. Left: the character for *Li*. Right: the character for *jin*.

means strength, whereas the character for *jin* means strength that has been refined through experience (*jin* = *li* + experience) (see Fig. 1-1). Thus, *jin* must be cultivated through practice over an extended period of time. Unfortunately, too many Taiji practitioners—even experienced ones—have difficulty in understanding (let alone manifesting) *jin*, and they incorrectly use *li* in doing Taiji form and push-hands.<sup>8</sup> Some practitioners use brute strength in doing push-hands, and others are afraid to use force entirely. Both of these extremes prevent practitioners from ever developing *jin*. In push-hands practice, those who never use strength lose the opportunity to develop *jin*, and those who use brute strength usually “win” over more-skilled partners, giving them a false impression of success.

The rest of this chapter attempts to analyze muscular action in a way that should reduce the time for practitioners to understand the distinction between *jin* and *li*, refine *li* into *jin*, and manifest *jin* everywhere in the body and at any time. The idea will be developed that in Taiji, correct strength originates primarily from muscular extension, in which muscles lengthen (rather than originating from contractive muscular action in which muscles shorten). That is, *jin* will be interpreted as arising from muscular extension, which is unified, is capable of being quickly modified, results in a high level of rootedness,<sup>9</sup> and enhances the flow of *qi* (ch’i).<sup>10</sup> By contrast, *li* will be interpreted as strength arising primarily

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8. Push-hands is a two-person exercise for learning to sense a partner’s imbalance and to respond with a carefully timed and placed push that, ideally, will cause one’s partner to become airborne. Proper practice of push-hands cultivates balance, root, sensitivity, ego-reduction, and understanding of yin and yang. For a survey of the principles involved, see Robert Chuckrow, *The Tai Chi Book*, YMAA Publication Center, Boston, MA, 1998, Ch. 11.

9. *Rooted* means being connected to the ground like a tree with deep roots and remaining stable despite any manner of force that an opponent tries to exert.

10. For a discussion of *qi*, see Robert Chuckrow, *The Tai Chi Book*, YMAA Publication Center, Boston, MA, 1998, Ch. 2.

from muscular contraction, which is localized, is difficult to modify with changing conditions, results in balance (root) being relatively easy for an opponent to break, and tends to constrict the flow of qi. Moreover, it will be explained later in this chapter that correct strength is in accord with the balance of yin and yang, whereas incorrect strength is not.

It is not that one form of strength is right in all situations, and the other is wrong. Instead, it is important to recognize the distinction between the two types and be able to use the appropriate combination in a given situation.

## FORCE

In physics, *force* is a quantity<sup>11</sup> that distorts the shape of an object or changes its speed or direction of motion. More simply, force can be thought of as a push or pull. Force is measured by the amount of distortion it produces in a standard object such as a spring. Alternatively, force can be measured by noting the resulting acceleration of a standard mass on which the force is exerted; the larger the force, the greater the acceleration. Various units are used in measuring force: The pound is used in England and U.S.A. The kilogram (which really is a measure of mass, not force, but is proportional to the gravitational force on that mass) is used in most other industrialized countries. The catty is traditionally used in China and other Asian countries (1 catty = 1.333 pounds).

The forces that we experience in daily life are either gravitational or electrical. The *weight* of an object is the term used for the familiar gravitational force of attraction by the earth on that object. All other forces that we experience are actually electrical (nuclear forces, which are a third type, are not experienced directly). For example, when you press on a table, the force between the table and your hand is actually the mutual electric repulsion of the outer electrons in the atoms of your hand and those of the surface of the table in “contact” with your hand. *Contact* is in quotes because, microscopically, the atomic particles of the table and hand never actually touch each other but exert repulsive electric forces through small distances. Similarly, electrical forces can cause objects to resist deformation or adhere to other objects.

---

11. In physics, a quantity is anything that can be expressed numerically.

## Newton's First Law

It is important to understand Newton's first law, which deals with the behavior of objects in the absence of force:

*In the absence of any external force, a stationary object will remain stationary, and a moving object will continue to move at constant speed in a straight line.*

Consequently, movement against gravity and changing our motion or that of external objects is impossible without force. The bones in our bodies are moved against gravity only by the forces exerted on them by muscles. Without muscles and the forces they exert, a human body would be unable to move, breathe, or affect its environment physically.

As one trained in physics, I do not disparage the use of force in Taiji but strive to be precise when I discuss it. Understanding how force originates and is applied is of much value. In order to understand correct strength, it is productive to turn to physics, anatomy, and physiology for an understanding of muscular action and a clarification of the distinction between its two kinds, li and jin.

## MUSCULAR ACTION: CONTRACTION AND EXTENSION

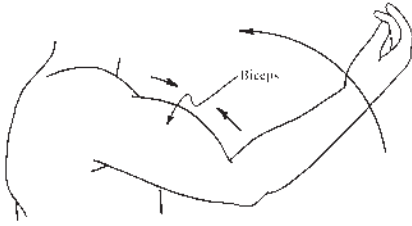
Whereas the assertions made in this section about muscular extension have not been proven scientifically, my own experience has borne out their validity. I would prefer that the reader neither immediately accept or reject these assertions but keep an open mind. Doing so should open new ways of experiencing Taiji movement and movement in general.

It is generally accepted that muscles are capable of contracting (*muscular contraction*), but few people realize that muscles are also capable of extending (*muscular extension*). I learned about muscular extension from one of my movement teachers, Elaine Summers.<sup>12</sup> This concept has accelerated my progress in Taiji over the past three decades by providing a deeper understanding of Taiji movement, breathing, and use of strength. Here are the two ways that muscles can act:

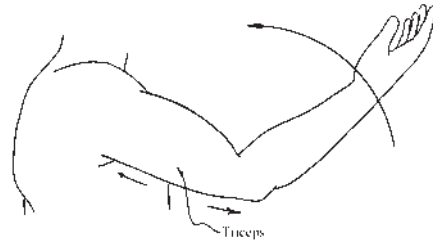
In the first, familiar mode of muscular action, muscle fibers contract along their length, thereby shortening, making the muscle bulge (see Fig. 1-2).

---

12. Summers uses *extension tension* to refer to what we here call *muscular extension*. The word *tension* in physics refers to the stress resulting from outwardly directed forces applied at opposite ends of the object. An example is a piano string held under tension by pins on each end of the string. To avoid possible confusion, the word *tension* in this discussion has here been avoided when discussing extension.



**Fig. 1-2.** Muscular contraction of biceps, causing forearm to rotate upward about the elbow. The biceps becomes shorter in length, tightens, and bulges. The arrows above the biceps represent the directions of forces exerted by and movements of the ends of that muscle.



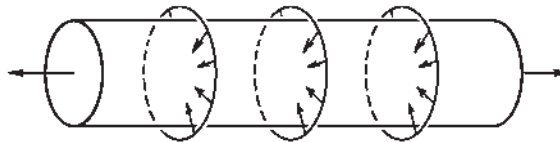
**Fig. 1-3.** The hand extends by means of muscular extension of triceps, causing forearm to rotate upward about the elbow. The biceps becomes shorter in length but stays relaxed. The arrows below the triceps represent the directions of forces exerted by and movements of the ends of that muscle.

People such as weight-lifters, who cultivate strength primarily through muscular contraction, tend to attain a heavy muscle structure with consequent limited flexibility.

In the second mode of muscular action (about which few people are aware), muscles extend (Fig. 1-3). People who are accustomed to using muscular extension tend to have long, slender muscles.

Summers conjectures that a muscle extends by constricting circumferentially, thereby squeezing the muscle fibers they surround, causing them to elongate (see Fig. 1-4).

Muscular contraction is very strong, and most people use it automatically. However, it can only be sustained for a short period of time because blood supply is constricted and lactic acid builds up quickly, causing the muscle to become fatigued and even painful. Muscular extension, on the other hand, takes some training to recognize and develop. Once developed, however, muscular extension can also be strong. But unlike muscular contraction, muscular extension can be



**Fig. 1-4.** Possible circular constriction of muscle fibers, causing axial lengthening of the muscle composed of those fibers. The horizontal cylinder represents a bundle of muscle fibers, and the circles represent the direction of constriction of that bundle, elongating it.



maintained for relatively long periods of time because lactic acid builds up more slowly and is more easily dissipated.

Zheng Manqing was able to stably maintain the “Ward Off” stance with four strong students pushing his extended arm.<sup>13</sup> He could manifest this kind of rooting and expansive strength, called *peng jing*,<sup>14</sup> in the last years of his life. Zheng was slight of build and certainly was not physically strong in the conventional sense (li).<sup>15</sup> There is little doubt that Zheng was using muscular extension to accomplish this feat.

Whereas we are not accustomed to using muscular extension deliberately, we do use it whenever we reach for something, yawn, or stretch naturally (as opposed to the kind of stretching often done in exercise classes). Unnatural stretching involves using one set of muscles and leverage to force the opposing set of muscles to lengthen. Natural stretching occurs when the muscles to be lengthened do so on their own, by muscular extension. Therefore, it should not be difficult to recognize that muscles *are* capable of extending. Once you recognize the feeling accompanying muscular extension, you can capture it and then practice recreating it. The following are exercises for achieving such recognition.

### Exercises for Recognizing: Muscular Extension

**Exercise 1.** Try yawning—recreating the feeling throughout your body of the most intense yawn you ever experienced. Then sustain that open, extended state in the musculature of the trunk of your body and arms, and, at the same time, relax the musculature of the jaw, trachea, and ribs. The state you will be in is that of muscular extension (correct force). Now capture that feeling, and practice recreating it until you can bring it to Taiji or Qigong movements consistently.

**Exercise 2.** Stand with feet parallel and knees somewhat bent. Let the one arm hang naturally. Extend the other arm in front of your body at a comfortable level. Relax the extended arm and hand as much as possible. Start by gently “squeezing” the space between the fingers until the hand starts to feel slightly swollen. Then imagine a ribbon firmly but gently

---

13. For a photograph of Zheng demonstrating this skill, see Robert W. Smith, *Martial Musings*, Via Media Publishing Company, Erie, PA, 1999, p. 288.

14. For a discussion of *pengjin* (expansive strength resulting from jing), see [http://www.taiji-qigong.de/info/articles/jumin\\_transljin\\_en.php](http://www.taiji-qigong.de/info/articles/jumin_transljin_en.php).

15. For more on Zheng Manqing, see Robert W. Smith, *Martial Musings: A Portrayal of Martial Arts in the 20th Century*, Via Media Publishing Company, Erie, PA, 1999. This book has many anecdotes about Zheng. Smith is an accomplished martial artist and was a close student of Zheng.

wrapped around your forearm, starting at the elbow and winding to the wrist (experiment with the direction that it wraps). Create a state inside your arm wherein you are gently squeezing the way the ribbon would. Feel your fingers as you continue to squeeze. Then, use that feeling to extend your hand forward. You should now be experiencing muscular extension. Sustaining this state, wrap an imaginary ribbon around your upper arm. Continue to experiment with gentle extension of the hand.

Next, change the previous action to one of contraction, and note the difference in feeling. Alternate between contraction and extension until you can readily recognize and recreate muscular extension. When you start to tire, slowly lower your arm until it hangs by your side. Compare the feeling in the two arms. Then repeat the entire exercise with the other arm.

### A RECONSIDERATION OF ZHENG'S DISTINCTION BETWEEN THE TWO TYPES OF STRENGTH

Let us now reconsider Zheng's statement, mentioned earlier in this chapter: "Tenacity is the resistance or tonicity of living muscles. The muscles being relaxed, tenacity cannot involve the bones. Force, on the other hand, is derived from muscles, binding the bones together into a wooden (rigid) system." When you achieve the ability to move and exert force on another person by means of muscular extension, it will feel as though you have no bones. Moreover, your muscles will feel relaxed because they are not in a state of familiar muscular contraction. When you change to muscular contraction, you will immediately feel the muscles in a state of contraction and the tendons exerting large forces on the bones. You will also feel a "wooden" rigidity that pervades the body beyond that of the limb being used.

## CATEGORIZATION OF MOVEMENTS

Harvey Sober taught me an aid to learning movements, which involves categorizing movements into types. His method is analogous to that used by musicians who are able to reproduce music by hearing it in terms of chord progressions.

Sober compares the movements of any form to a Chinese-restaurant menu: There may be well over a hundred different dishes, but a good many dishes are composed of only several basic ingredients. There is beef with bean sprouts, beef with Chinese vegetables, beef with mushrooms, beef with snow peas, beef with black bean sauce, and beef with broccoli. Then there is chicken with bean sprouts, chicken with Chinese vegetables, chicken with mushrooms, chicken with snow peas, chicken with black bean sauce, and chicken with broccoli. And so on with pork, shrimp, and duofu (tofu). Similarly, the externals of a good many Taiji movements are likewise variations of only several basic ingredients and can be categorized in at least the following ways:

1. In terms of the plane or planes (sagittal, frontal, or horizontal) in which the movement occurs (see Chapter 3 for definitions of these planes).
2. In terms of clockwise or counterclockwise.
3. In terms of parallel or opposite motion of the hands.
4. In terms of two basic movements, namely, “Ward Off” and “Brush Knee.” The “Ward Off” movements involve one or both hands *rising* along the front of the body and moving outward whereas the “Brush Knee” movements involve one or both hands *descending* along the front of the body and moving outward. The following is such a categorization of some of the movements in the Taiji form:

### Ward Off

- Single Whip
- White Crane
- Cloud Hands
- Four Corners
- Diagonal Flying
- Separate Foot (L & R)
- Parting the Wild Horse’s Mane\*
- Fan Through the Back\*

### Brush Knee

- Roll Back
- Strike with Shoulder
- Carry Tiger to Mountain
- Step Back, Ride Tiger
- Strike Tiger on Right (Left)\*
- Downward Single Whip
- Repulse Monkey
- Strike Ears With Fists\*
- Fan Through the Back\*

\*These movements are in the long form.

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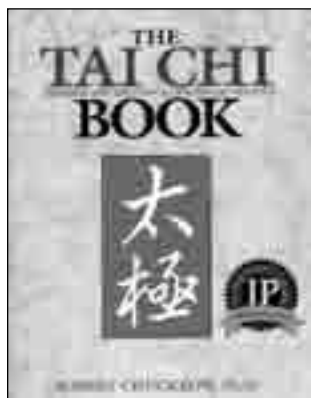
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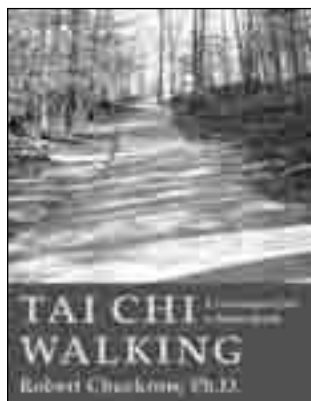


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**Robert Chuckrow** has been studying Tai Chi since 1970 and has studied with the late Cheng Man-ch'ing, William C.C. Chen, and Harvey I. Sober. He is certified as a master teacher of Kinetic Awareness and has authored five books (notably *The Tai Chi Book*).

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