Power over Pain

Intelligent Fitness for the Amateur and Professional

by **Shereen D. Farber**
Ph.D., OTR, FAOTA, BFLT, WFLT

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CPT, ACE, AFAA, Certified Egoscue® Posture, Alignment & Pain Management Specialist

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About the Authors

Shereen D. Farber, Ph.D., OTR, FAOTA, BFLT, WFLT is an occupational therapist and neurobiologist. She is a fellow of the American Occupational Therapy Association and is a teacher in Bones for Life and Walk for Life. She was an associate professor of occupational therapy at Indiana University School of Medicine Allied Health Sciences for twenty-five years and has had two private practices, Ortho-Neuro-Rehab Services, treating people with chronic pain and movement disorders in Indianapolis, Indiana since 1974 and Canine Equine Rehab Services where she treats dogs and horses with movement disorders or pain since 1978. Dr. Farber has lectured on neurorehabilitation all over North America. She is the author of numerous articles and texts.

Debra S. Knapp, CPT, ACE, AFAA, Certified Egoscue Posture, Alignment & Pain Management Specialist has been a teacher, coach and personal trainer for over thirty-five years. She has been certified by the American Council on Exercise, the Aerobics and Fitness Association of America, and Egoscue University. She has authored articles on health, wellness and nutrition for various publications. Deb has given numerous presentations at coaches and leadership conferences. Currently, she is a consultant and trainer for the Indiana Parkinson's Foundation.

Health Disclaimer Any participant having fused bones or joints needs to use care in application of the processes in this book. Results may vary depending on the status of soft tissue and the complexity of dysfunction. Anyone having recent surgery or an ongoing chronic condition should consult a physician before starting an exercise program. Ultimately, you are responsible for monitoring your body while using this book as a guide.

Section 1:
Introduction to the Manual

Initially, we came together as client (Shereen) and trainer (Deb), both having backgrounds in pain management and over eighty years of combined experience in clinical application. We soon became a treatment team seeing individuals with postural problems. Our training differs, allowing us to merge a multitude of ideas and concepts that produce improved methods of addressing pain and innovative restoration procedures that can be utilized by both amateurs and professionals. Our intension was to create a user-friendly manual for the lay public and to expand ideas for health practitioners. Some of these exercises have been adapted from various treatment systems and others are original to our methodology. Our clients emphatically requested that we write and publish our work.

Our exercises serve to reeducate muscles to do their job, restore functionally designed posture, teach the nervous system to modulate muscle tone for the appropriate actions, and improve circulation. Restoration is a process that takes time before reaching full balanced potential. With consistent corrective measures taught in this book executed persistently, you can improve your daily function. You should notice a positive change each time you do a process. Have a spirit and mindset of experimentation and discovery as you work with this material.

Should you experience difficulty or discomfort during an exercise, proceed with caution. As your muscles stretch, and the skeletal system repositions, any discomfort should diminish. However, if you feel pain, that may be a sign that either you have improper alignment or you are forcing range of motion beyond your body's capability. In the muscle reeducation process, you may activate one or more muscles that has been dormant or less than optimally involved in movement. As these muscles become consistently and correctly engaged, you may experience fatigue. It is important that you continue the exercise beyond what is comfortable in order for those muscles to be strengthened within a functional pattern.

Start with the Multi-Focal section of the manual in order to maximize your time and outcome. The exercises in this section are designed to provide relief to the body as a whole. You may choose to do any individual exercise and still produce a positive result. The remainder of the manual is organized in regions from the feet to the head. If you are attempting to remedy a pain in a specific region of your body, remember that the location of the pain may not necessarily be the source of the problem. If you do not get relief after performing body region specific exercises, you need to refer to the Multi-Focal section of the manual.

The Sequence section of the book lists groups of exercises in a specific order so that your body's response to an individual process will prepare you for the remainder of the sequence. You may also notice an improvement in your sense of balance and experience a reduction in pain and/or tightness.

Remember, any exercise in the manual has the potential to influence other body regions, either directly or indirectly. This is especially true if exercises are executed while using ideal alignment. All processes used in this manual have been individually and group tested with our clients.

Section 2: General Principles

Introduction: Three movement pioneers have influenced our ideas, work, and material. We praise the foundational work in movement therapy and somatic education of Dr. Moise Feldenkrais and Ruthy Alon and the posture and muscular reeducation efforts of Pete Egoscue. Our frame of reference continues to evolve but currently consists of the core beliefs we have outlined in this section regarding function, optimal movement, and intervention. Each of the elements listed below is integral to our philosophical base and represents the facets we consider when evaluating clients and developing action plans. Our biomechanical orientation of the musculoskeletal system forms the basis of our means for intervention. We also consider a developmental hierarchy of skill acquisition when planning client programs. Comprehending our rationale will assist you in understanding biomechanical issues and selecting appropriate exercises.

Awareness: In order for change to take place in your status, there must be an element of consciousness. You must take inventory of your posture, habits, discomforts, daily routines, and environment. You cannot identify and change what you do not acknowledge. You must also take personal responsibility for active intervention so that you can experience empowerment as you back away from your pain patterns and substitute and create healthy new movement.

Balance: In any system that functions perfectly, balance prevails. There is an interrelationship between the parts of a system that promotes equilibrium. For example, the biceps and triceps muscles are reciprocal and must be balanced for your arm to function normally and align properly at your side. Pairs or groups of muscles throughout the body work in this manner. Ideal muscular balance allows an individual to prevent falls, create stability, change direction efficiently, and maximize postural alignment. Muscle imbalances are extremely common and can produce postural misalignment, dysfunction, and pain. If a muscular pair remains unbalanced for a prolonged period of time, one of the pair shortens and tightens while the opposing muscle lengthens and weakens (stretch weakness). So many of us sit at

our computers for hours without stopping to get up and move. Most likely, the majority of us have tight chest muscles and weakened muscles in the upper and mid back, creating a muscle imbalance that leads to rounded upper back and forward head and shoulders. As you progress through this book, you will discover many simple and effective exercises you can use to remedy muscle imbalance while taking your breaks.

Bilateral Versus Unilateral: As a result of our everyday routines and our genetics, we develop a dominant body side or region which we often overuse, creating repetitive strain injury and muscular imbalance. If you always train bilaterally, working both sides at the same time, you are unaware of the discrepancy between body sides and any weakness or compensation you have developed. Training unilaterally strengthens weak regions, such as a non-dominant side, and mandates stability on the opposing side. We encourage you to develop skill in your non-dominant side to promote increased stability.

Breathe: Human life cannot exist without respiration, yet many times when you learn a new skill or are lifting weights, you hold your breath. Holding your breath can disrupt the coordination and rhythm of the exercise while disproportionally increasing your blood pressure. In actuality, breathing deeply makes the new skill easier to do or the weight easier to lift.

Change: In general, the human body adapts best to gradual change in most areas of function. We recommend you make changes over time by slow, consistent repetition, allowing you to have more control in the process. In contrast, rapid, forceful movement brings in momentum and reduces control. There are changes that occur following any exercise; however, you can produce long-term results if you maintain an active, balanced exercise program coupled with an awareness of what you are doing and of your postural alignment.

Conditioning: By doing a planned and balanced exercise program with variety, over time you can reduce the amount of effort and demand on your body. In other words you can make yourself more fit. By becoming more fit, all of your body's systems work more efficiently, even your immune system.

Core: Your core is made up of your entire body minus your extremities. Core is foundational to posture, strength, stability, and functional movement. Core muscles serve to protect organ systems, provide an axis of support, improve upright posture, maximize athletic skill, and distribute gravitational stress effectively. We recommend you work in multiple and combination planes of movement in order to optimize your core.

Dynamic Tension: Dynamic tension is defined as a state of tension or pull that exists between the front surface and back surface of the body. This tension must be balanced in order to promote the movements of extension and flexion in a healthy manner (Egoscue, 1998).

Endurance: Endurance is defined as the ability to withstand demand for an extended period of time. It requires the stamina to sustain a physical activity for a sufficient period of time to accomplish the task. Endurance also refers to both cardiovascular and pulmonary durability as well as musculoskeletal resilience. For example, can you climb several flights of stairs without exhaustion?

Neutrality: Within the range of motion of any joint, there is a point called *neutral* at which the tension is balanced on all sides without stress. You need to go into a neutral position prior to initiating a movement or exercise. For example, before lifting your arms, the shoulder region should be neutralized by lifting the sternum up against gravity and pulling the shoulder blades down and back toward midline. This is particularly important if you have tightness in the chest muscles and at the front of your shoulders. The state of neutrality decreases stress and pain, increases range of motion and stability, and improves the quality of movement. Lack of ability to go into neutral creates dysfunctional and compensation patterns. Once dysfunction is imposed on a normal musculoskeletal system, it loses the ability to return to neutral and to optimize movement. Unless this dysfunction is addressed, the quality of movement and range of motion will only decrease.

Nutrition: The quality of your nutrition influences all systems within the body and is actually a determining factor of good health in general. There are numerous resources available to advise you regarding the ideal ratio of protein, carbohydrates, and fats; ideal caloric intake based on body type and activity level; understanding

product labels; amount of hydration necessary, etc. While nutrition is beyond the scope of this book, it is well worth independent study.

Optimal Wellness: When an individual has a balanced awareness of mind/body/spirit, wellness can flourish.

Overflow: Overflow is extraneous movement, often occurring when learning new skills or reeducating new muscular patterns. It can be expressed as a stronger muscular contraction than what is required for that specific pattern or as extra movement taking place outside of the pattern being stimulated. Overflow is maladaptive and if you allow its expression continually, you will not develop the skill or pattern. When overflow happens, you need to simplify the pattern by breaking it down into smaller movement segments, even isolating weaker muscles.

Patterns of Dysfunction: Following trauma, extensive sedentary lifestyle, or repetitive use of compensatory patterns, people often demonstrate lockstepped movement. They cannot isolate individual muscles or muscle groups at least in some part of their bodies. Instead, they unconsciously fire whole patterns of movement that often include flexion, internal rotation, pronation, adduction, and thoracic offset. If you have such dysfunctional patterns, you need to expand your awareness of your inability to isolate a specific movement and then reduce the demand and complexity of the pattern until the desired performance is achieved. Once you can isolate an individual movement, be aware that the individual muscles may fire more slowly at first. With repeated practice of isolated movement, you can achieve efficiency of movement. Occasionally, old patterns, even those newly integrated, can reemerge when your body is stressed. This may be a result of deep fascial binding that is residual from the prior pathological pattern and will require the intervention of a health care professional who works with fascia.

Postural Pain Management: When you first notice even subtle signs of postural pain, discomfort resulting from poor postural alignment, do not ignore the pain. Don't wait for the pain to worsen. Make time to tackle the problem by doing one or more of the exercises listed in the Multi-focal Section of this manual. It is important to note that the source of pain is not necessarily the site of the problem. By addressing the body as a whole, you will dissipate or eliminate the discomfort. Beyond that, you need to heighten your awareness and correct or

change dysfunctional postural patterns as you recognize them. Postural pain will change if you change faulty biomechanics.

Preparation Before Performance: Make sure you have the prerequisite performance elements mastered prior to undertaking more complex or difficult skills. For example, if you decide to add running to your exercise routine, you will need proper heel strike, appropriate stride length, no hip rotation, good hip extension, minimal torso rotation, and correct arm swing. Lack of one or more of these elements can lead to pain or injury because running triples the demand on joints, and compensation patterns will gradually emerge leading to dysfunction over time. A better choice in this case would be to add walking in addition to addressing your specific postural and biomechanical problems. Walking is easier to control and requires less amplitude and frequency of movement, reducing joint impact.

Sedentary Lifestyle: In today's technology-based society, many are continuously consulting smart phones, e-book readers, computers, and game-boys instead of participating in active daily lifestyles. The result is de-conditioned and obese individuals and children who use fine motor movements but lack gross motor skill. We are seeing clients who lack range of motion, strength, endurance and who are in excessive flexion, internal rotation, and pronation. They have a variety of pain issues and repetitive strain problems. Their routine includes sitting for hours without awareness of their postures or work environments. We advocate balancing our lives to include daily exercise and disconnecting from technology long enough to remember how to socially interact. We as a society are losing our ability to move effectively and efficiently. Have you decreased your face-to-face communication? Maybe that is the first exercise you should attempt.

Stability/Mobility: Characteristics of stability include: optimal joint loading, neutrality, ideal center of gravity, and natural base of support. Stability is directly related to ideal postural alignment. The better your posture, the more able you are to manage challenges. A sudden perturbation of balance does not present a problem for one with stable joints. In addition, with good stability, standing on either foot is easy, walking is effortless, hopping or jumping is possible. Mobility in this context refers to the ability to move or flow effortlessly. Each joint has its own specific characteristic movement and range of motion. The body is designed to move by synchronizing all musculoskeletal components. Mobility and stability are reciprocal in nature.

If you have above average flexibility you sacrifice some of your stability. Conversely, if you have above average stability, you will demonstrate less mobility. Maintaining an active lifestyle over decades is essential to sustaining your stability and mobility. When planning your exercise program, achieving proficient mobility and stability should be primary goals.

Straighten Before Strengthen: Aligning your body should be the first step of any exercise program. If you initiate a strengthening program prior to addressing postural issues you are setting yourself up for injury and dysfunction. Any aches or pains may indicate the need to reassess posture, form, and technique. We do not advocate pushing through pain.

Working from the Midline Out: When you are addressing core musculature and stability, you are primarily working the midline muscles. It is important to understand that activation of the midline must come before effectively stimulating peripheral muscles. Midline muscles serve as a solid base of support for use of extremities.

Whole Body View, Analysis of Isolated Components, Post-comparison: Typically, when we see clients for consultation, we observe them from a postural and functional standpoint. We note such things as postural alignment and overall function. The purpose is to gain insight into their pain and obstacles. We then go through a systematic analysis of components including medical and nutritional history, gait, transitional movements, soft tissue balance, range and quality of motion, pain, quantity of hydration, lifestyle patterns, etc. As we address areas needing attention, we build on simple well-executed movements leading into patterns, simple to complex. We are more concerned with the quality of movement than the sheer number of repetitions. At the conclusion of each session, we reevaluate the functional picture.

Congratulations, you have managed to navigate through the dry stuff in this book. Remember the principles we outlined above and enjoy your journey to reduce discomfort and gain power over pain!

Section 3: Equipment

All equipment used in this manual can be purchased from one or more of these sources:

Perform Better Sports Catalog
www.performbetter.com
800-556-7464

Power Systems Fitness Equipment Catalog
www.powersystems.com
800-321-6975

Sportsmith Fitness Products
www.sportsmith.com
888-713-2880

Spri Fitness Equipment
www.spri.com
800-222-7774

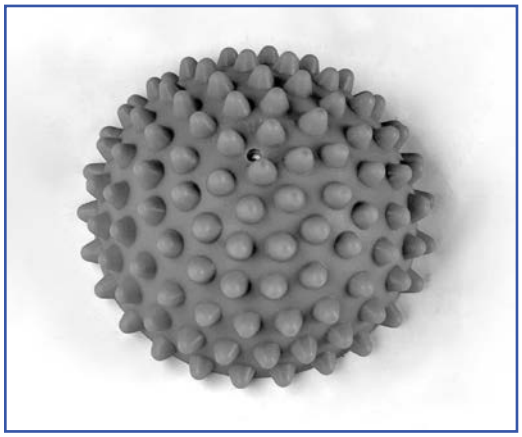
Therapy Zone
www.therapyzone.com
800-822-2889

When selecting tubing, order a variety of resistance bands. You will need different resistance for large versus small muscle groups, small versus large range of motion, and so on. When ordering a stability ball, the general rule is forty-five centimeters for an individual under five feet in height. For those five feet to five feet five inches order fifty-five centimeters size. For five feet six inches and taller order sixty-five centimeters.

Equipment:

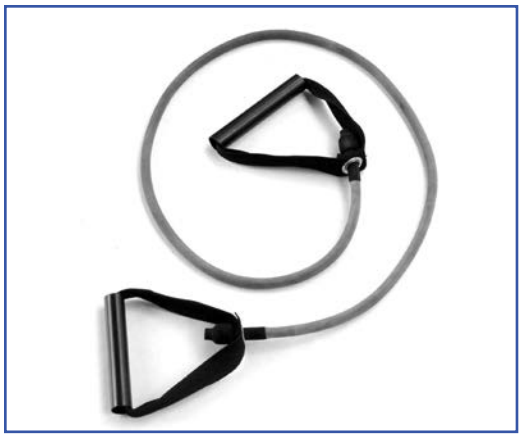
Balance Disc

BOSU



FitPAWS Paw Pods * (This piece of equipment may be used in place of the VersaStep and is slightly smaller.)

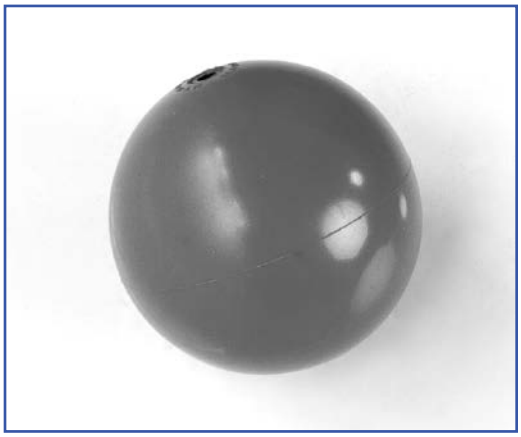
Pilates Ring (optional)



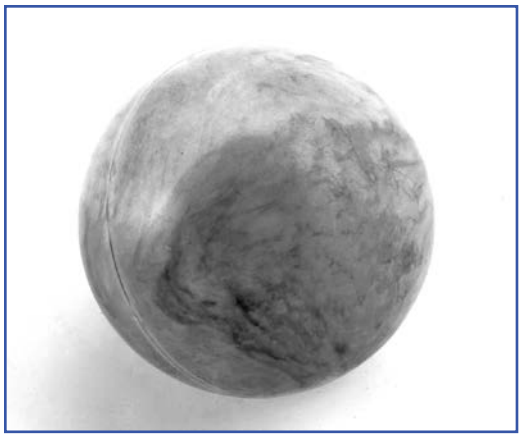
Resistance Tubing

Slant Board or Wedge
(from Therapy Zone)

Small Dumbbells



Small Medicine Balls

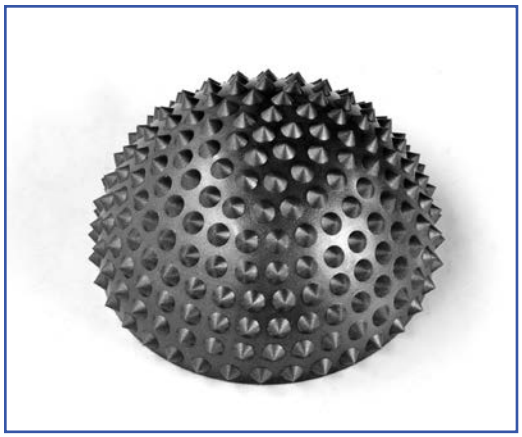


Small Playground Ball

Stability Ball

Towels of Various Sizes

VersaCuff



VersaSteps

Yoga Blocks

Yoga Strap

Section 4: Multi-focal Processes

Introduction: This section of the book contains exercises that address your entire body helping you use your time more efficiently.

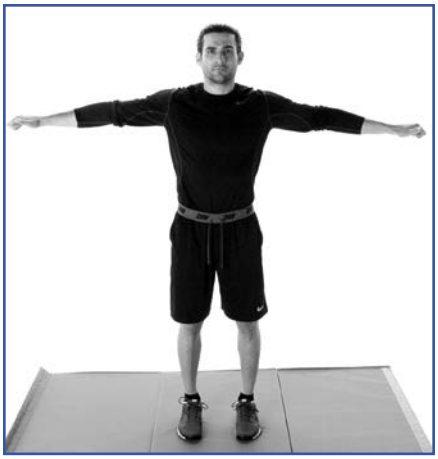
■ Exercise – Arm Circles

Purpose: This exercise serves to strengthen the upper back muscles and modify the dynamic tension and weight distribution throughout the body. It also helps to synchronize the muscles of the shoulder and upper back. If you have head, neck, and shoulder pain, tight chest muscles, weak upper back muscles, forward head, and weak arms, this process is for you.

Contraindications/Precautions: If you have an injury to the rotator cuff you should not do this exercise.

Process:

1. Stand up and assess your posture noting such things as: vertical alignment, position of your shoulders, trunk and hip rotation, forward weight bearing (weight more in the toes and balls of feet versus weight in the heels), and weight evenly distributed.
2. Stand with your shoulders, hips, knees, and ankles all stacked over each other; your head centered over your shoulders.
3. Slightly lift your chest and squeeze your shoulder blades together.
4. Raise your arms to shoulder level with the thumbs forward and palms down.
5. Begin circling the arms up and forward, making six- to eight-inch circles. Make sure you are engaging your upper back, midback, and



Arm Circles - Process 4

shoulder muscles so that they are working together. Work up to thirty to forty repetitions.

6. Rotate the arms so that the palms are upward and thumbs face backward. Circle the arms up and backward, making six- to eight-inch circles while simultaneously contracting muscles of the upper and mid back and shoulders. Work up to thirty to forty repetitions. *Note: this exercise can also be done in sitting.*

7. Reassess your posture.

Arm Circles - Process 6

■ Exercise – Cats and Dogs

Purpose: This exercise bilaterally reeducates all load-bearing joints including upper extremities and improves the transition of the entire spine from flexion to extension. It also facilitates evacuation of the bowel, thus positively affecting mood and energy level.

Contraindications/Precautions: If you have had recent wrist or hand surgery, do this exercise on your knees and forearms instead of hands and knees. If you have had recent knee replacement surgery, consult your physician.

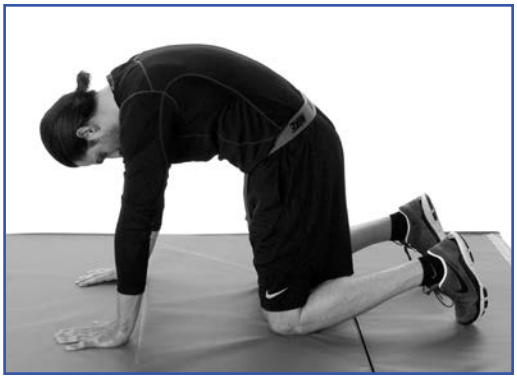
Process:

1. Assess any tightness or discomfort and disparity between your right and left side. Rate from one to ten with ten being the most uncomfortable or having the most inequality between body sides.

2. Assume all fours position with knees under the hip joints and hands under the shoulder joints. The distance between the hands should be consistent with the space between the knees. Make sure you do not hyperextend your elbows.

Cats and Dogs - Process 2

3. The cat movement can be compared to a Halloween black cat with the head down and eyes directed toward your knees. Shorten the muscles on the belly side of your body, pulling the hips toward the face, using the lower abdominals. Don't push the hips forward with the gluteal muscles. Be sure to separate your shoulder blades.



Cats and Dogs - Process 3

4. The dog movement consists of raising the head, pulling the shoulders downward toward your hips and inward toward the spine. Shorten the muscles of the low back, reversing the arch of your spine.

Cats and Dogs - Process 4

5. As you move smoothly between cat and dog, make sure you keep your arms straight without hyperextension at the elbows. Maintain equal weight distribution on the hands and knees. Movement between positions should be strictly vertical. **Do not** shift your weight back to your knees when moving to the cat position. Repeat ten to twelve times.

6. Reassess your discomfort and disparity between body sides.

Modification:

Twisted Cats and Dogs: Once you have completed the recommended ten to twelve repetitions of Cats and Dogs, remain on all fours in the cat position and shift the weight in the hips to the left. Look under your left arm toward the outside of your left hip. Hold this position for one minute.Repeat this movement to the right and hold for one minute. Repeat both sides if necessary.

Twisted Cats and Dogs