REFORMER 1

A DETAILED GUIDE FOR TEACHING PILATES

By Nora St. John

2019 Edition

Balanced Body Inc, Sacramento California

CREDITS AND GRATITUDE

This manual would not have been possible without the support of the following people and places:

- The Pilates elders, Eve Gentry, Kathy Grant, Carola Trier, Romana Kryzanowska, Ron Fletcher, Lolita San Miguel and Mary Bowen all of whom I have had the pleasure to know and work with.
- My teachers and mentors, Diana Herold, Michele Larsson, Elizabeth Larkam, Alan Herdman, Marie Jose Blom and all of my colleagues at St. Francis Hospital and Turning Point Studios.
- The teachers of all of the Balanced Body Master Instructors who so generously shared their knowledge and wisdom.
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IMPORTANT INFORMATION

This Manual is intended to be used as part of a Pilates teacher training program or for clients who are working under the supervision of a trained Pilates teacher. If you are using this manual to learn these Pilates exercises and you are not under the supervision of a trained Pilates teacher please keep in mind that the material presented is physically challenging and Balanced Body is not liable for any injuries caused by attempting these exercises without proper supervision. Balanced Body highly recommends that you get a thorough evaluation from a qualified health or fitness professional and work with a trained Pilates teacher in order to receive the maximum benefit from these exercises.

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BALANCED BODY EDUCATION

Welcome to the Balanced Body Pilates Instructor Training Program!

Balanced Body is your partner in mind body fitness. We work with the best educators in Pilates and related disciplines to provide learning opportunities that are stimulating, personal and deeply rooted in the art and science of movement. We look forward to working with you to develop your Pilates career and to bringing the benefits of Pilates to clients at fitness centers, studios and rehabilitation clinics around the world.

Balanced Body offers a full range of Pilates instructor training programs for Mat, Reformer, Trapeze Table, Chair and Barrels as well as continuing education through Pilates on Tour, Balanced Body workshops, Balanced Body education partners and Passing the Torch. We are committed to supporting your personal and professional growth now and in the future.

The Balanced Body Pilates program combines the traditional repertoire with contemporary exercises based on the latest advances in movement science and related disciplines. Our curriculum meets national guidelines and is designed to prepare you for the Pilates Method Alliance, national Pilates certification exam which can be taken upon completion of the full program.

Our teacher training program is one of the best in the world. Our Master Instructors are experienced, caring and passionate teachers committed to providing you with the best possible Pilates training.

REQUIREMENTS OVERVIEW

Balanced Body recognizes four levels of achievement within the Balanced Body curriculum:

- Balanced Body Pilates Mat Instructor
- Balanced Body Mat and Reformer Instructor
- Balanced Body Reformer Instructor
- Balanced Body Comprehensive Pilates Instructor

Each individual module (Mat 1, Reformer 1, etc.) includes a written and practical test. Certificates of completion will be issued after each module. After completion of additional personal practice, observation and teaching hours you will be recognized as a fully qualified Balanced Body Pilates Mat, Mat and Reformer, Reformer or Comprehensive Instructor and a certificate of completion will be awarded.

Balanced Body Instructor Training

PROGRAM STRUCTURE

Classroom Hours

Every course includes lectures, workouts, exercise demonstrations and practice teaching. Students are expected to learn and practice the exercises, practice teaching the exercises and understand the principles and history of the Pilates method.

ADDITIONAL REQUIREMENTS

In addition to the classroom hours, students are required to do additional personal practice sessions, observation hours and student teaching hours. To receive a certificate of completion, students must complete all of the requirements for their chosen program and pass a final written and practical exam. For the Reformer and Comprehensive programs, completion of a basic anatomy course is also required.

Personal Sessions

Students can count any classes or Pilates personal training sessions they have already taken. Developing and committing to a personal Pilates practice is an essential part of becoming an effective and inspiring instructor.

Observation Hours

Observation hours include watching experienced instructors, live or on video, teach group classes or private sessions. Observation is a great way to understand verbal and manual cueing, program sequencing and to hone your teaching skills.

Student Teaching Hours

Teaching hours include any Pilates teaching: either as an employee at a fitness center or studio, or for family and friends.

Anatomy

A basic understanding of anatomy provides a strong foundation for an effective Pilates instructor. Anatomy is required for the Reformer and Comprehensive programs and is highly recommended for the Pilates Mat program. This requirement can be fulfilled through Balanced Body's Anatomy in Three Dimensions or other musculoskeletal anatomy courses. Contact the Balanced Body office for more information. Students who have already taken a college level anatomy course or are a licensed health professional (MD, PT, AT, OT, etc.) can waive this requirement.

Balanced Body Pilates Mat Instructor

Prerequisites: 10 Pilates Mat Classes
Recommended: Anatomy and 6 months work experience in a related field.

REQUIREMENTS FOR COMPLETION

To become a fully qualified Balanced Body Pilates Mat Instructor, students must complete the following:

- Anatomy (strongly recommended)
- Balanced Body Movement Principles
  Course work, written & practical test (16 hours)
- Balanced Body Mat 1
  Course work, written & practical test (16 hours)
- Balanced Body Mat 2
  Course work, written & practical test (16 hours)
- Balanced Body Mat 3
  Course work, written & practical test (16 hours)
- Mat practical hours (70 hours total):
  - 20 Mat personal sessions
  - 15 observation hours
  - 35 student teaching hours
- Final written and practical exam

Total hours for completion of Pilates Mat program:
134 hours (not including anatomy)

Upon completion of all of the requirements, a certificate of completion as a Balanced Body Pilates Mat Instructor will be issued.

Balanced Body Pilates Mat and Reformer Instructor

Prerequisites: 10 Pilates Mat and 20 Pilates Reformer Classes
Recommended: 1 year work experience in related field

REQUIREMENTS FOR COMPLETION

To become a fully qualified Balanced Body Pilates Mat and Reformer Instructor, students must complete the following:

- Anatomy (must be completed prior to final test out)
- Balanced Body Movement Principles (if not included in their Pilates Mat course)
- Balanced Body Mat Instructor training or equivalent
- Balanced Body Reformer 1
  Course work, written & practical test (16 hours)
- Balanced Body Reformer 2
  Course work, written & practical test (16 hours)
- Balanced Body Reformer 3
  Course work, written & practical test (16 hours)
- Mat practical hours (70 hours total)
- Reformer practical hours (150 hours total):
  - 30 Reformer personal sessions
  - 30 observation hours
  - 90 student teaching hours
- Final written and practical exam

Total hours for completion of Mat and Reformer program:
332 hours (not including anatomy)

Upon completion of all of the requirements, a certificate of completion as a Balanced Body Pilates Mat and Reformer Instructor will be issued.

Balanced Body Pilates Reformer Instructor

Prerequisites: 20 Reformer Classes
Recommended: 1 year work experience in related field

REQUIREMENTS FOR COMPLETION

To become a fully qualified Balanced Body Pilates Reformer Instructor, students must complete the following:

- Anatomy (must be completed prior to final test out)
- Balanced Body Movement Principles (16 hours)
- Balanced Body Reformer 1
  Course work, written & practical test (16 hours)
- Balanced Body Reformer 2
  Course work, written & practical test (16 hours)
- Balanced Body Reformer 3
  Course work, written & practical test (16 hours)
- Reformer practical hours (150 hours total):
  - 30 Reformer personal sessions
  - 30 observation hours
  - 90 student teaching hours
- Final written and practical exam

Total hours for completion of Reformer program:
214 hours (not including anatomy)

Upon completion of all of the requirements, a certificate of completion as a Balanced Body Pilates Reformer Instructor will be issued.

Balanced Body Comprehensive Pilates Instructor

Prerequisites: 20 Pilates studio sessions
Recommended: 1 year work experience in related field

REQUIREMENTS FOR COMPLETION

To become a fully qualified Balanced Body Comprehensive Pilates Instructor, students must complete the following:

- Anatomy (must be completed prior to final test out)
- Balanced Body Mat Instructor training or equivalent
- Balanced Body Reformer Instructor training
- Balanced Body Trapeze Table/Cadillac or Tower (18 hours) or Apparatus 1 (14 hours) - Course work, written and practical test
- Balanced Body Chair (14 hours) or Apparatus 2 (12 hours) Course work, written and practical test
- Balanced Body Barrels (6 hours) or Apparatus 3 (12 hours) Course work, written and practical test
- Mat practical hours (70 hours total)
- Reformer practical hours (150 hours total):
- Apparatus practical hours (150 hours total)
  - 35 Apparatus personal sessions
  - 20 observation hours
  - 95 student teaching hours
- Final written and practical exam

Total hours for completion of Apparatus program:
188 hours (not including anatomy)

Total hours for completion of Comprehensive Pilates Instructor program:
520 hours (not including anatomy)

Upon completion of all of the requirements, a Certificate of Completion as a Balanced Body Comprehensive Pilates Instructor will be issued.

Balanced Body Bridge Program

Students who have completed a Pilates Instructor Training program through other organizations and are interested in obtaining a Balanced Body certificate of completion should contact the Balanced Body office to inquire about the Balanced Body Bridge program.

Final Exam

Once a student has completed all required Mat, Reformer and/or Apparatus course work and hours, they must pass a written and practical exam demonstrating their teaching ability before receiving their final certificate of completion. Exams will be regularly scheduled at Balanced Body host sites and at trade shows and conferences in the US and abroad.

If instructors are not able to attend a practical exam because it is too far to travel, testing out by video may be arranged.

Students do not need to test out individually for Mat, Reformer, and Apparatus. Students only need to test out when they have reached the highest level they intend to complete. For example, students completing only the Mat will test out after Mat, students completing Mat and Reformer will test out after Reformer and students finishing the comprehensive program will test out after they have completed all of the requirements.

THE PRACTICAL EXAM

The final test consists of a written exam and the observation of a session with a client or class. Once a student has completed all of their hours and is ready to test out, they send in an application (available at www.pilates.com) to the Balanced Body office. Balanced Body verifies the coursework and hours and provides the student with test outs available in their area.

During the practical exam the student will be assessed on the following skills:

- Correct set up and execution of the exercises
- Client safety
- Appropriate sequencing
- Appropriateness of the exercises to the client or class
- Understanding and application of the principles
- Cueing and the ability to communicate with the client or class

If the student does not pass on the first try, they will be informed of what they need to focus on in order to pass and a time line will be set up for completion.

The cost for completing the final certification exam will vary depend on the location and specific circumstances. The cost ranges between $150 and $350.

ADDITIONAL COSTS OF THE PROGRAM

All published prices for Balanced Body courses include the course and materials fee only. The cost of personal sessions and any costs associated with completing observation and student teaching hours are not included in the cost of the training program and are the responsibility of the student. Successful completion of the program does not guarantee employment.

NEED MORE INFORMATION?

If you need information regarding additional training, certificates of completion, continuing education or anything else, please contact Balanced Body at:

Contact Information
Balanced Body Education

Toll free: (800) PILATES (745-2837)
International: +1 (916) 386-6234
Fax: (916) 388-0609
E-mail: education@pilates.com
www.pilates.com

Al Harrison, Director of Education
al.harrison@pilates.com

Nora St. John, Director of Educational Programming
nora.stjohn@pilates.com

Thanks for joining us!

Pilates Mat Instructor Requirement Records

Mat Personal Sessions

20 hours required. Date and initial each session taken.

1		2		3		4		5	
6		7		8		9		10	
11		12		13		14		15	
16		17		18		19		20	

Mat Observation Hours

15 hours required. Date and initial each session taken.

1		2		3		4		5	
6		7		8		9		10	
11		12		13		14		15	

Mat Student Teaching Hours

35 hours required. Date and initial each session taken.

1		2		3		4		5	
6		7		8		9		10	
11		12		13		14		15	
16		17		18		19		20	
21		22		23		24		25	
26		27		28		29		30	
31		32		33		34		35	

Pilates Reformer Instructor Requirement Records

Reformer Personal Sessions

30 hours required. Date and initial each session taken.

1		2		3		4		5	
6		7		8		9		10	
11		12		13		14		15	
16		17		18		19		20	
21		22		23		24		25	
26		27		28		29		30	

Reformer Observation Hours

30 hours required. Date and initial each session taken.

1		2		3		4		5	
6		7		8		9		10	
11		12		13		14		15	
16		17		18		19		20	
21		22		23		24		25	
26		27		28		29		30	

Pilates Reformer Instructor Requirement Records (cont.)

Reformer Student Teaching Hours

90 hours required. Date and initial each session taken.

1		2		3		4		5	
6		7		8		9		10	
11		12		13		14		15	
16		17		18		19		20	
21		22		23		24		25	
26		27		28		29		30	
31		32		33		34		35	
36		37		38		39		40	
41		42		43		44		45	
46		47		48		49		50	
51		52		53		54		55	
56		57		58		59		60	
61		62		63		64		65	
66		67		68		69		70	
71		72		73		74		75	
76		77		78		79		80	
81		82		83		84		85	
86		87		88		89		90	

Pilates Apparatus Instructor Requirement Records

Apparatus Personal Sessions

35 hours required. Date and initial each session taken.

1		2		3		4		5	
6		7		8		9		10	
11		12		13		14		15	
16		17		18		19		20	
21		22		23		24		25	
26		27		28		29		30	
31		32		33		34		35	

Apparatus Observation Hours

20 hours required. Date and initial each session taken.

1		2		3		4		5	
6		7		8		9		10	
11		12		13		14		15	
16		17		18		19		20	

Pilates Apparatus Instructor Requirement Records, cont.

Apparatus Student Teaching Hours

95 hours required. Date and initial each session taken.

1		2		3		4		5	
6		7		8		9		10	
11		12		13		14		15	
16		17		18		19		20	
21		22		23		24		25	
26		27		28		29		30	
31		32		33		34		35	
36		37		38		39		40	
41		42		43		44		45	
46		47		48		49		50	
51		52		53		54		55	
56		57		58		59		60	
61		62		63		64		65	
66		67		68		69		70	
71		72		73		74		75	
76		77		78		79		80	
81		82		83		84		85	
86		87		88		89		90	
91		92		93		94		95	

APPLYING TO TEST OUT

Upon completion of all of the coursework and hours, go to www.pilates.com to download the application to test out. Copy these hours records and send them in with your application. Once Balanced Body has verified the information in your application, you will receive a list of test outs at locations near you. Contact the office for further information.

BALANCED BODY EDUCATION CONTACTS

Phone: (800) PILATES, (800) 745-2837, **Fax:** (916) 388-0609, **E-mail:** education@pilates.com

WHAT IS PILATES?

Pilates is an exercise system developed by Joseph Pilates to strengthen muscles, increase flexibility and improve overall health. Exercises are performed on a mat and on specially designed equipment. The Pilates system includes exercises for every part of the body and applications for every kind of activity. Created in the early part of the 20th century, Pilates was so far ahead of its time that it did not begin to achieve popular recognition until the first few years of the 21st century. Over 10 million people are now practicing Pilates in the United States and the numbers are growing every year.

WHY IS PILATES SO POPULAR?

Pilates focuses on engaging the mind and body together to create exercises that involve the whole person. Every exercise is performed with attention to the breath, proper form and efficient movement patterns. Pilates strengthens the core, improves balance, increases coordination and decreases stress. The exercises are relatively safe, low impact and appropriate for anyone from 10 to 100. Pilates focuses on learning to move better so the benefits are felt in everyday life.

Pilates is used in fitness centers, private studios, rehabilitation clinics and hospitals to improve the health and well being of clients from the recently injured to the super fit. As more and more people participate, Pilates continues to grow and evolve to meet the needs of anyone wanting to improve their ability to move with strength, ease and grace.

A BRIEF HISTORY OF JOSEPH H. PILATES AND THE DEVELOPMENT OF CONTROLOGY

Joseph Hubertus Pilates was born in Germany around 1883. He had rheumatic fever, asthma and rickets as a child and was plagued by a weak respiratory system. In order to improve his own health he began exploring ways to strengthen his body and his mind. Early on, Joe became intrigued by the classical notion of the ideal man who combined a well trained body with an equally well trained intellect. In pursuit of this goal he participated in boxing, fencing, wrestling and gymnastics with his father and brother. Germany was a fertile ground for these explorations at the turn of the 20th century with many ground breaking leaders in movement science, dance and psychology working there.

Joe was in England touring with a boxer when World War I broke out. He was held as a resident alien in an internment camp on the Isle of Man for the duration of the war. While in the camp he took it upon himself to lead his fellow detainees in a daily exercise program. According to Joe, when the influenza epidemic of 1918–1919 broke out, none of the inmates who followed his regimen got sick.

Joe's success with his group of inmates brought him to the attention of the camp leaders and he was given the job of an orderly at a hospital for wounded soldiers. He was put in charge of 30 patients and worked with them every day to exercise whatever they could move. This was in the days when western medicine was in its infancy and there were few treatments to offer patients other than surgery and morphine. Nursing during this time usually meant extended bed rest which lead to muscular atrophy, loss of aerobic capacity and a weakened immune system. Joe's exercises helped his patients to get better faster and helped them to fend off the secondary infections that killed so many people in similar circumstances.

Working as an orderly also led to the development of Joe's first piece of exercise equipment. Manually working out 30 patients every day was exhausting so Joe came up with the idea of attaching springs to the patient's bed frames and thus the first Cadillac was born! Now the patients could exercise themselves under Joe's supervision.

After Joe was released from the camps and returned to Germany, he was approached by the "brown shirts" (who were to become the Nazi party) to train their police force. Joe didn't want to have anything to do with them, so he left Germany on a boat for America and met his soon-to-be-wife Clara on the passage over. Clara was a nurse who became a true partner for Joe, working beside him in the studio everyday and taking care of any clients Joe didn't want to work with.

When Joe and Clara arrived in New York in 1926, they rented a small studio in the same building as the New York City Ballet on 8th Ave. and started teaching what Joe named "Contrology." Joe worked with clients from all walks of life but he made an especially strong impression on the dance community working with Ted Shawn, Ruth St. Denis, George Balanchine and many others who sent their dancers to Joe's for rehabilitation following injuries.

Joe was an inventor who was always working on developing new exercise equipment. He designed the Universal Reformer, the Wunda Chair, the Cadillac, the Ladder Barrel, the Spine Corrector and many other wonderful inventions during his lifetime. He made many of the machines himself and often designed them to fit a particular client. Many of Joe's original machines are still working today.

Joe had a dream of introducing his vision of mind-body fitness into every aspect of life, from elementary schools to military training, and, had he not been so far ahead of his time, it might have happened. Instead, he taught a small group of devoted teachers and students, a few of whom went on to continue the work and keep it alive until the rest of the world caught up with his revolutionary thinking. Joe spent many years talking to anyone who would listen about his work, but did not receive much recognition during his lifetime.

Joe's studio was destroyed by fire in 1967 and he died soon after that from complications of smoke inhalation. His wife Clara carried on the work until her death in 1977.

Among the primary teachers who carried on Joe's work after his death was **Romana Kryzanowska**, a ballet dancer who worked very closely with Joe and taught at his studio for many years. She started one of the first teacher training programs in the country and has trained hundreds of instructors to teach the work as Joe taught it to her. She was associated with the Pilates Guild for many years and currently teaches through Romana's Pilates.

Eve Gentry was a well known modern dancer who worked with Joe and Clara as a student and teacher for over 20 years before moving to Santa Fe, New Mexico and opening a studio there. Joe helped to rehabilitate Eve after a radical mastectomy and helped her to regain the full use of her arm and torso. Eve died in the late 1990's. Her work is carried on by Michele Larsson through Core Dynamics.

Ron Fletcher was a Martha Graham dancer who worked with Joe and Clara very late in their lives. Ron credits Clara with inspiring him to develop his unique work on the Step Barrel/Spine Corrector and to open a studio in Los Angeles on Rodeo Drive. Ron was the first teacher to bring Pilates to the West Coast and to introduce it to many famous actors and actresses. His work incorporated a more "dancerly" style and more complicated choreography into the original exercises. His work is carried on by the Ron Fletcher Program of Study and is known as Ron Fletcher Work. Ron died in 2012.

Carola Trier trained with Joe and opened her own studio in New York where she taught until her death in the late 1990's. Her work is carried on by several senior students including Jillian Hessel in Los Angeles and Deborah Lessen in New York.

Kathleen Stanford Grant originally came to Joe with a knee injury she sustained as a dancer. She was one of only two students to be certified by Joe to teach Pilates. After dancing and choreographing for many years she started teaching at New York University where she taught a Mat class to the students and ran a small studio until her death in 2010.

Lolita San Miguel is a well known dancer and choreographer who was certified by Joe while she was dancing in New York. She moved to Puerto Rico and founded the Ballet Concierto de Puerto Rico, one of the island's premier dance companies where she incorporated Pilates into the training program for her dancers. Ms. San Miguel teaches Pilates workshops nationally and internationally and has produced several DVDs.

Mary Bowen was a comedian performing in New York when she first started working with Joe. She now combines Psyche and Pilates in her current life as a Jungian psychoanalyst and Pilates instructor at her studio in Northampton, MA and her office in Killingworth, CT. She has taken at least one Pilates session a week for over 50 years and continues to deepen her own understanding of the balance between mind and body.

Pilates has now become a household word thanks to the work of all of these first generation teachers and many others who kept the method alive after the death of Mr. Pilates. Without them, we would not have the wonderful exercise system we have today. We are grateful to all of them.

THE DEVELOPMENT OF BALANCED BODY EDUCATION

The Balanced Body Pilates instructor training was developed by Nora St. John, MS. who has been practicing Pilates since 1981 and teaching since 1989. She originally trained at St. Francis Memorial Hospital with Patrice Whiteside and Elizabeth Larkam and has studied the work with Alan Herdman, Eve Gentry, Michele Larsson, Romana Kryzanowska, Carola Trier, Kathy Grant, Lolita San Miguel and Karen Clippinger.. Nora has degrees in Biology, Dance and Traditional Chinese Medicine as well as certifications in Pilates, Oriental Bodywork and the Franklin Method.

The Balanced Body program combines the full bodied, athletic aspects of the original work with the refinement and anatomical understanding of the more contemporary schools of Pilates. Nora's background in movement science provides a strong foundation for the ongoing development of the Balanced Body Pilates instructor training program.

PILATES PRINCIPLES

"Physical fitness is the first requisite of happiness. Our interpretation of physical fitness is the attainment and maintenance of a uniformly developed body with a sound mind fully capable of naturally, easily, and satisfactorily performing our many and varied daily tasks with spontaneous zest and pleasure. To achieve the highest accomplishments within the scope of our capabilities in all walks of life, we must constantly strive to acquire strong, healthy bodies and develop our minds to the limit of our ability". **— Joseph Hubertus Pilates**

1) BREATHING

"Breathing is the first act of life, and the last. Our very life depends on it."

The breath is the essential link between the mind and the body. It draws our wandering mind back into our bodies and back to the task at hand. It is the foundation of our existence and the rhythm that accompanies us from birth to death. In Pilates the breath is integrated into every movement in order to focus our awareness on what we are doing, to improve the flow of oxygen through our bodies and to improve the capacity of our lungs.

2) CONCENTRATION

"... and always keep your mind wholly concentrated on the purpose of the exercises as you perform them."

To concentrate is to pay attention to what you are doing. To be present with and in control of the task at hand. Without concentration the exercises lose their form and their purpose. When teaching it is important to have a client do only as many repetitions as they can without losing their concentration. As Joe often said, "It is better to do five repetitions perfectly than 20 without paying attention."

3) CONTROL

To be in control is to understand and maintain the proper form, alignment and effort during an entire exercise. Pilates exercises are never done without engaging the mind to control the movements and the efforts that the body is making.

4) CENTERING

In Pilates all movement radiates outward from the center. Developing a strong, stable and flexible center is one of the defining features of this form of exercise.

5) PRECISION

Precision is the ability to perform exercises with optimum alignment, unconscious control and just the right amount of effort. Precision is the end product of concentration, control, centering and practice.

6) BALANCED MUSCLE DEVELOPMENT

"However, there is another important reason for consistently exercising all our muscles; namely, that each muscle may cooperatively and loyally aid in the uniform development of all our muscles."

Understanding, developing and maintaining correct alignment and form is essential to Pilates and over time will lead to balanced muscle development. With practice these principles become second nature and lead to improved posture, increased comfort and enhanced physical abilities.

7) RHYTHM/FLOW

All movements in Pilates are done with a sense of rhythm and flow. Flow creates smooth, graceful and functional movements. It decreases the amount of stress placed on our joints and develops movement patterns that integrate our body into a smoothly flowing whole.

8) WHOLE BODY MOVEMENT

Pilates is fundamentally about integration: integrating movement into a flowing whole body experience, integrating the mind and body to create clarity and purpose, integrating mind, body and spirit to create a life of balance.

9) RELAXATION

To be healthy in body and mind it is important to understand the balance between effort and relaxation. In Pilates we learn to use just the amount of effort needed to complete the exercise correctly, no more, no less. Learning to release unnecessary tension in our bodies helps us to find ease and flow in movement and in the rest of our lives.

PILATES INSTRUCTOR RESOURCE LIST

PILATES

Pilates' Return to Life Through Contrology
Joseph H. Pilates &
William John Miller
Originally published in 1945, republished in 1998 by Presentation Dynamics

The Pilates Body
Brooke Siler
Broadway Books, 2000

Pilates' Body Conditioning: A Program Based on the Techniques of Joseph Pilates
Anna Selby and Alan Herdman
Barron's Educational Series, Inc., 2000

Pilates
Rael Isacowitz
Human Kinetics, 2006

Movement Analysis Workbooks
Rael Isacowitz
BASI Books

Ellie Herman's Pilates Manuals
Ellie Herman
Ellie Herman Books, 2005

NATIONAL PILATES ORGANIZATION

Pilates Method Alliance,
pilatesmethodalliance.org

EQUIPMENT AND VIDEOS

Balanced Body
800-PILATES (745-2837)
pilates.com

MOVEMENT, ANATOMY AND IMAGERY

Anatomy of Movement
Blandine Calais-Germain
Eastland Press, 1985

Dance Anatomy and Kinesiology
Karen Sue Clippinger
Human Kinetics, 2006

Trail Guide to the Body, 4th edition
Andrew R. Biel
Books of Discovery, 2010

Manual of Structural Kinesiology, 15th edition
R. T. Floyd, Ed. D, A.T.C., C.S.C.S., and Clem W. Thompson Ph.D., F.A.C.S.M.
WCB, McGraw-Hill, 1998

Dance Kinesiology
Sally Sevey Fitt,
Schirmer Books, 1988

Anatomy Coloring Book
Wynn Kapit and Lawrence W. Elson,
Harper and Row, 1977

Muscle Testing and Function
Florence Peterson Kendall, P.T., F.A.P.T.A, Elizabeth Kendall McCreary and Patricia Geise Provance, P.T.
Williams and Wilkins, 1993

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INTRODUCTION TO THE REFORMER

The Universal Reformer is the most versatile piece of equipment developed by Joseph H. Pilates. Using a simple wooden frame, a movable carriage, springs, a footbar and adjustable leather straps, Joe invented an exercise machine that addresses virtually every part of the body. From leg presses to abdominals to arm work to standing work, Joe developed exercises that can be used with clients of all kinds from the novice to the super fit.

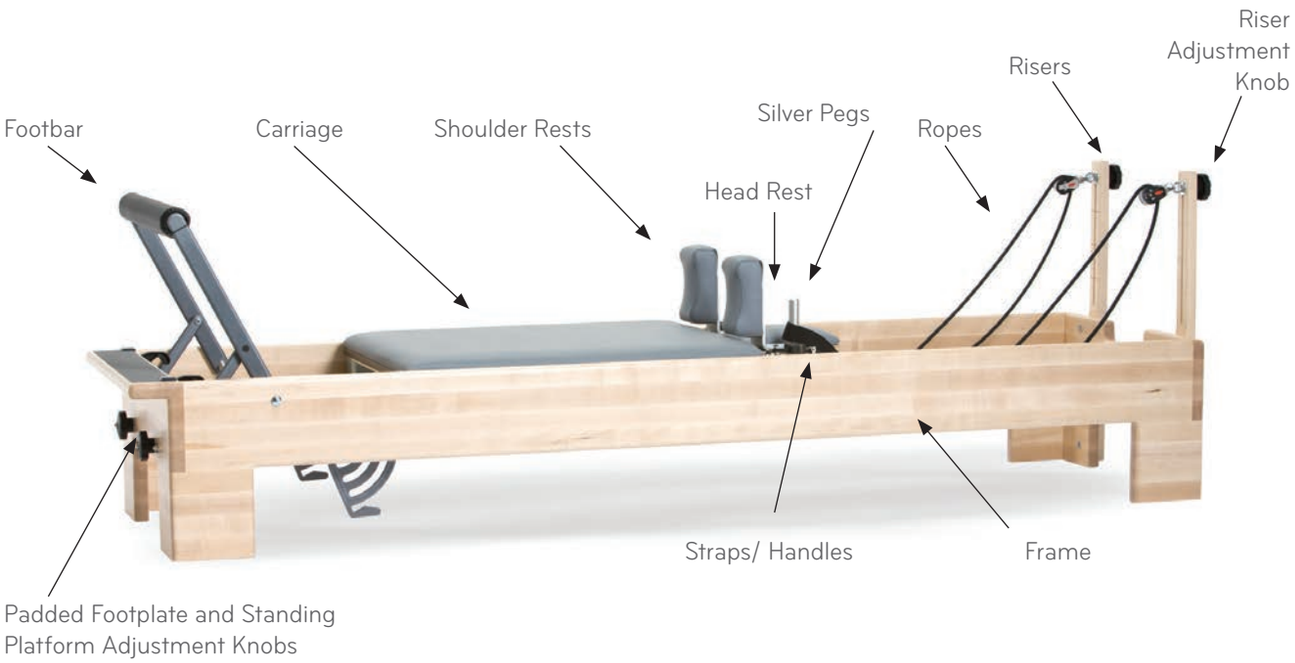
Springs of varying strengths provide resistance and support while the client pushes on the footbar, pulls on the straps, lies on the box or stands on the carriage. Starting with just the exercises that Joe invented there are over 100 different moves that can be varied to suit the client's needs and fitness level. Exercises vary from simple isolated movements of the arms and legs to complex exercises involving the whole body. A well designed program addresses the whole client. Reformer sessions provide a refreshing and energizing workout while improving strength, muscle tone, flexibility and coordination.

Balanced Body springs

REFORMER ANATOMY

For this manual we used a Balanced Body Studio Reformer with ropes and risers and an adjustable footbar. See diagram below for names of Reformer parts referenced in the text.

Many parts of the Reformer are adjustable for different exercises and different size clients. Balanced Body makes a full line of Reformers each of which provides a unique set of features. The following instructions include information and adjustments for all of the current models.



SPRING WEIGHT

The resistance or support the Reformer provides is based on the number of springs attached to the springbar. Spring weight guidelines listed in the manual are as follows:

- **1 spring** indicates a light weight. Usually used for arm work.
- **2 springs** indicates a light to moderate weight. Used for arm work, leg work and exercises where the carriage is providing support to the client.
- **2-4 springs** indicates a moderate to heavy weight. Usually used for leg work.
- **All springs** generally indicates that the carriage needs to be stabilized for the exercise. For example, all springs are used with the Short Box Abdominal series to keep the carriage from moving. All springs are also used to provide maximum resistance for stronger clients.
- **0 springs** means the client will need to control the carriage without the support of the springs. Exercises where the client needs to control the carriage (Kneeling Abdominals, Elephant, Long Stretch series) are much harder with light or no springs.

Different spring configurations are indicated for each exercise in the manual. The settings listed are general guidelines. The instructor will adjust the springs to suit the individual needs of the client.

ADJUSTING THE SPRINGBAR OR SPRING ATTACHMENTS

The springs can generally be attached in two different positions (A, pre-loaded or B, neutral tension) on the Reformer allowing the instructor to fine tune the resistance for each exercise.

In the 'A' or pre-loaded position

The spring is under a small amount of tension (pre-loaded) and thus provides more resistance during an exercise.

On the Studio, CenterLine, Infinity, and Ron Fletcher Reformers the springbar can be placed in one of two slots in order to adjust the spring tension. The "A" position is the slot closer to the frame of the Reformer.

On the Revo, Legacy, Allegro 1, Allegro 2 and One–Step Reformers, the springs are adjusted by attaching them to the hooks or buttons closest to the frame or closest to the carriage. The "A" position is achieved by attaching the spring to the button or hook closest to the frame.

In the 'B' or neutral tension position

The spring has no tension on it to begin and thus provides less resistance during an exercise.

On the Studio, CenterLine, Infinity, and Ron Fletcher Reformers, the springbar is moved into the slot closer to the carriage for the "B" position.

On the Revo, Legacy, Allegro 1 and 2 and One–Step Reformers, the "B" position is achieved by attaching the spring to the button or hook closest to the carriage.

Springs on the 'A' or pre-loaded position

Springs on the 'B' or neutral tension position

SPRING PROGRESSIONS FOR THE REFORMER

Please note that these spring combinations represent the usual progression for a standard new machine and may vary slightly depending on the age and specific strength of your springs.

SPRING STARTING POSITIONS

'A' or pre loaded: Heavier: When the springbar is farther from the carriage or the springs are on the buttons closest to the frame.

'B' or neutral tension: Lighter: When the springbar position is closer to the carriage or the springs are on the hooks or buttons closest to the carriage.

SPRING COLOR CODING

These color codes are standard for Balanced Body Reformers:

Y	**Yellow:** Super Light
B	**Blue:** Light
R	**Red:** Medium
G	**Green:** Heavy

Standard Springs - 3R, 1B, 1G

Light Weight: 1 spring

B	Blue
R	Red
G	Green

Medium Weight: 2-3 springs

BR	1 Blue, 1 Red
BG	1 Blue, 1 Grn.
RR	2 Red
RG	1 Red, 1 Grn.
RRB	2 Red, 1 Blue

Heavy Weight: 3-5 springs

RRR	3 Red
RRG	2 Red, 1 Grn.
RRRB	3 Red, 1 Blue
RRRG	3 Red, 1 Grn.
RRRGB	3 Red, 1 Grn., 1 Blue

Light Springs - 3R, 1B, 1Y

Light Weight: 1-2 springs

Y	1 Ylw.
B	1 Blue
R	1 Red
YB	1 Ylw., 1 Blue
YR	1 Ylw., 1 Red

Medium Weight: 2-3 springs

BR	1 Blue, 1 Red
RR	2 Red
RBY	1 Red, 1 Blue, 1 Ylw.
RRY	2 Red, 1 Ylw.
RRB	2 Red, 1 Blue

Heavy Weight: 3-5 springs

RRR	3 Red
RRBY	2 Red, 1 Blue, 1 Ylw.
RRRY	3 Red, 1 Ylw.
RRRB	3 Red, 1 Blue
RRRBY	3 Red, 1 Blue, 1 Ylw.

Allegro 2, headrest flat

HEADREST

On all the Reformers, the head rest has three positions, adjustable to optimize a client's position when lying down. For most clients, the goal is to align the ear over the center of the shoulder with the chin perpendicular to the carriage. Clients with deeper rib cages generally need a higher head rest position while clients with a shallow rib cage or a flatter upper back use a lower position. Towels can be used to fine tune the height.

On all the Reformers except the Allegro 2, the head rest is adjusted by a notched kickstand. On the Allegro 2, a knob on the side of the headrest is used to adjust the height. Head rest positions are noted in the text as follows:

Flat: The head rest is level with the carriage.

Middle or 1/2 Way: The kickstand is supported on the middle notch or the headrest latch is in the middle position and the head rest is elevated above the carriage.

Up: The kickstand is all the way up or the headrest latch is in the high position and the head rest is elevated above the carriage.

FOOTBAR

The footbar can be adjusted both vertically and horizontally for various exercises and for different size clients. Adjusting the footbar is used most commonly for the leg and footwork exercises in order to position the client's knees and hips at approximately 90 degrees of flexion in the starting position. The footbar can also be adjusted to decrease the amount of flexion in the knees and hips for clients recovering from surgery or injuries. Adjustments can also be used to change the mechanics of other exercises.

GENERAL FOOTBAR ADJUSTMENT GUIDELINES

The higher and/or closer footbar is generally used:

- For shorter clients.
- To increase hip and knee flexion.
- To increase lumbar flexion.

The lower and/or farther footbar is generally used:

- For taller clients.
- To decrease hip and knee flexion.
- To decrease lumbar flexion.

VERTICAL ADJUSTMENTS

Studio, CenterLine and Ron Fletcher

The Studio, CenterLine and Ron Fletcher footbar has 3 vertical positions and is adjusted by moving the footbar kickstands.

High position: Place the long kickstand in the springbar slot closest to the footbar end of the Reformer.

Low position: Place the short kickstand in the springbar slot closest to the footbar end of the Reformer.

No bar position: Take the kickstands out of the springbar slot and lay the footbar down on the frame of the Reformer.

Studio reformer vertical footbar settings

Revo, Legacy and One-step

The Revo, Legacy and One-step footbars are adjusted by placing the kickstand in one of the 3 notches inside the footbar end of the Reformer frame.

Extra high position: Place the the kickstand in the highest notch and slide the plastic holder under the slot to lock it in place.

High position: Place the kickstand in the middle notch.

Low position: Place the kickstand in the lowest notch.

No bar position: Take the kickstand out of the notch and lay the footbar down on the frame of the Reformer.

Infinity reformer vertical footbar settings

Infinity (2005 and earlier) and Allegro 1

The Infinity (2005 and earlier), and Allegro 1 footbars each have 4 footbar adjustments. The current Infinity has 5 adjustments, with a new vertical position added in 2006.

High position: Squeeze the clamps in order to disengage the pin from the hole in the plate. Move the pin into the highest hole and release the clamp.

Low position: Place the pin in the 2nd hole from the top on the plate.

Extra low position: Place the pin in the 3rd hole on the plate.

No bar position: Place the pin in the lowest hole on the plate.

Allegro 1 vertical footbar settings

Allegro 2

The Allegro 2 footbar has 4 footbar adjustments.

Vertical position: Holding the footbar in the center, disengage it by pulling it toward you and rotate it until it clicks into the vertical position.

High position: Pull the bar toward you and lower it into the high position.

Low position: Pull the bar toward you and lower it into the low position

No bar position: Pull the bar toward you and lower it as far as it will go.

Allegro 2 vertical footbar settings

The Footbar settings listed in the manual Include:

Extra High (available on the Infinity, Revo, Legacy, Allegro 2 and One-Step): Used for shorter clients and for clients with an increased lumbar curve or tighter backs for footwork. Or to increase the hip and knee flexion leading to increased effort.

High (available on all Reformers): This position or the Low position are the most common positions for most exercises on the Reformer.

Low (available on all Reformers): This is a standard position.

Extra Low (available on the Allegro and Infinity Reformers): This is an extra low position for taller clients or to decrease flexion of the hips and knees.

No bar: The bar is moved out of the way for certain exercises such as standing and prone work on the box.

HORIZONTAL ADJUSTMENTS

Horizontal adjustments can be made with the footbar on the Infinity, Allegro 1 and Allegro 2 Reformers and with the springbar on the Revo Reformer in order to custom fit the Reformer for clients of different sizes and abilities. Horizontal adjustments change the distance between the carriage and the footbar without changing the height of the footbar. This adjustment is useful for taller and shorter clients and for clients with decreased hip or knee flexion due to an injury or surgery.

INFINITY, ALLEGRO 1 AND ALLEGRO 2

The Infinity footbar has 31 horizontal adjustments, the Allegro 1 footbar has 4 the Allegro 2 footbar has 9 and the Revo has 5. On the Infinity and Allegro 1, the horizontal adjustment is made by pulling the black knobs out of the holes at the bottom of the footbar and sliding the footbar into the desired position. On the Allegro 2, the footbar is pulled up and rotated toward the carriage until it is beyond the vertical position. The footbar is then slid into the desired position, pulled up and rotated back to the desired vertical adjustment.

Infinity Footbar™ has 31 horizontal adjustments

Allegro 2 has five horizontal adjustments

REVO FOOTBAR

The Revo and Legacy can be adjusted horizontally by changing the position of the springbar. In order to adjust the carriage, straddle the carriage facing the footbar or stand at the footbar end of the Reformer and pull the large metal handle up until the carriage can slide freely. Slide the springbar and the carriage into the new position and release the metal handle.

Revo reformer spring bar

ROPES AND STRAPS

The ropes are adjusted according to the demands of the specific exercise and the size of the client. To adjust the rope length on all Reformers except the Allegro 2 and machines with leather straps, pop the rope out of the cleats by looping a finger under the rope and pulling up. Pull the rope to the right length and press it back into the cleats. Many studios don't adjust the ropes at all and instead use a double loop strap which allows the client to have the ropes at two different lengths without having to adjust them.

On the Allegro 2, the ropes are adjusted by pulling the small lever on the side of the headrest to release the straps. The straps can then be pulled to the desired length and released.

The leather straps on the CenterLine, Ron Fletcher and Legacy are adjusted by either slipping the leather off the hook for the Legacy or changing the hole in the buckle for the Ron Fletcher. The settings called for in the manual are listed below.

Regular straps: The ropes are adjusted so the loop or handle the client is holding is gently taut on the shoulder rests. With the double loop straps, the client will hold the longer loop. Used for most exercises.

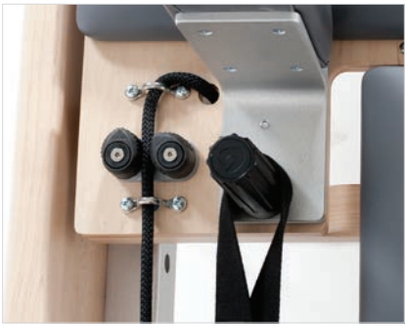
Short straps: The ropes are adjusted so the loop or handle the client is holding is gently taut on the silver pegs. With double loop handles the client holds the smaller loop. Used for rowing, some arm work.

Very short straps: The ropes are adjusted so that the loop or handle is about 5 inches shorter than the headrest. Used for kneeling arm work facing the straps.

Long straps: The ropes are adjusted so the loop or handle the client is holding is longer than the shoulder rest by the length of one cotton loop. Used for long spine stretch or for feet in the straps for clients with shorter hamstrings.

Leather straps for the CenterLine, Ron Fletcher and the Legacy

Ropes with double loops



Studio Reformer cleats

FOOTPLATE/JUMPBOARD ATTACHMENTS

Padded Footplates or Jumpboards are available for all of the Balanced Body Reformers. They are used for jumping exercises to train clients for power and strength as well as for providing a flat surface to mimic the mechanics of standing and walking.

Allegro 2 jumpboard

Studio jumpboard

Allegro 1 jumpboard

ATTACHING THE FOOTPLATE TO THE REFORMER

Studio, CenterLine and Ron Fletcher Reformers: Place the short kickstand in the springbar groove closest to the frame. Loosen the knobs on the outside of the footbar end of the Reformer and slide the footplate into the metal sleeve. The footbar should contact the wooden bar on the back of the footplate. Tighten the knobs to hold the footbar securely against the footplate.

Revo and Legacy Reformers: Place the footbar kickstand in the low position and slide the footplate into the metal strap. Tighten the knobs to hold the footbar securely against the footplate.

Infinity Reformer: Slide the footbar horizontally to the 4th hole from the footbar end and place the footbar in the 4th hole from the bottom on the vertical adjustment. Slide the footplate into the sleeve and tighten the knobs.

Allegro 1 Reformer (pre 2007): Slide the footbar horizontally to the 2nd hole from the carriage end and place the footbar in the 2nd hole from the top on the vertical adjustment. Slide the footplate into the metal sleeve and attach the bungee cords to the holes on the top of the wheel brackets or to the D rings in the footstrap loops.

Allegro 1 Reformer (2007 and later): Slide the footbar horizontally to the 2nd hole from the carriage end and place the footbar in the 2nd hole from the top on the vertical adjustment. Slide the footplate onto the wide metal hook on the outside of the Allegro frame. No bungees or extra adjustments are necessary.

Allegro 2 Reformer: Slide the square metal legs on the footplate into the holes in the Allegro 2 frame. No footbar adjustments or support are necessary.

FOOTWORK

BEGINNING • REPS 10 EACH

Springs: RRB to RRR **Footbar:** High or Low **Head Rest:** As needed

STARTING POSITION

Lie supine on the carriage with the head on the headrest, shoulders just below the shoulder rests and the feet on the footbar with the knees bent at no more than 90 degrees. The lumbar spine is in a neutral position and the heels are in line with the ischial tuberosities (sit bones). Adjust the footbar as needed to create the correct starting position. (See the introductory section for how to do this on your Reformer)

FOOT AND LEG POSITIONS

Heels

Place the center of the heels on the footbar with the legs in parallel.

MOVEMENT SEQUENCE

Exhale: Straighten the legs, maintaining the position of the back on the carriage.

Inhale: Bend the knees as the carriage returns.

Starting position. Heels with legs in parallel.

Starting position. Heels with legs together.

1. Starting position Heels. Heels on footbar, knees bent.

2. Straighten the legs and push back.

Toes/Balls of the feet

Place the balls of the feet on the footbar with the heels slightly raised and the legs in parallel.

Starting position Toes

1. Straighten the legs and push back.

2. Bend the knees keeping the heels slightly raised.

Prehensile

Wrap the balls of the feet around the footbar like you are trying to hold onto the bar with your foot. The heels are underneath the bar, the legs are parallel. Keep the toes wrapped around the bar and the heels reaching under it as the knees bend.

Starting position Prehensile

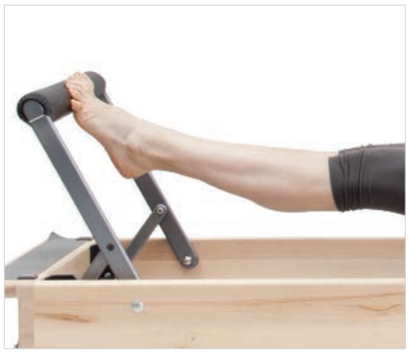
V Feet

Place the balls of the feet on the footbar with the heels partially raised and pressed together, the legs turned out and the knees bent. Keep the heels at the same height throughout the exercise.

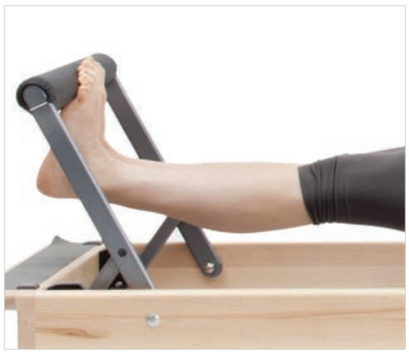
Starting position V-Feet.

Tendon stretch (Lift/Lower)

Place the balls of the feet on the footbar with the legs parallel. Push the carriage back by straightening the knees and rising onto the balls of the feet. Keeping the knees straight, lower the heels, raise the heels and bend the knees to return.



1. Starting position Tendon stretch. Toes on the bar, heels slightly elevated.



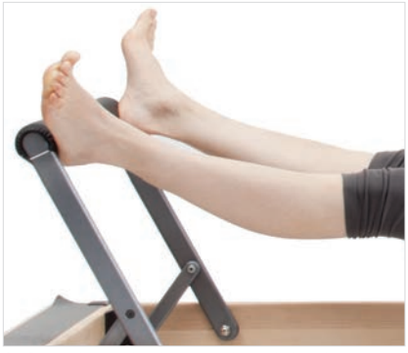
2. Flex the heels underneath the footbar.

Wide/2nd position

Place the heels wide on the footbar with the legs turned out and the knees bent. For the standard footbar, place the heels at the ends of the bar. When using the Allegro or Infinity footbar, the heels can be placed on the footbar directly above the sides of the Reformer frame or at the ends of the footbar for a deeper knee bend.

Starting position Wide/2nd

1. Heels on the bar, knees bent, legs turned out.



2. Straighten the legs and push back.

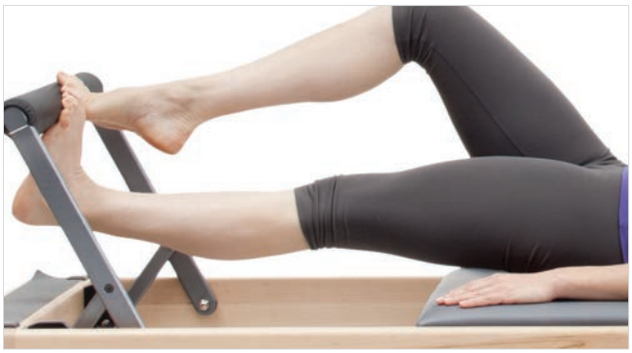
Turned in (Internal rotation)

Place the heels on the uprights and the toes on the footbar. Maintaining knee and foot alignment, bend and straighten the knees.

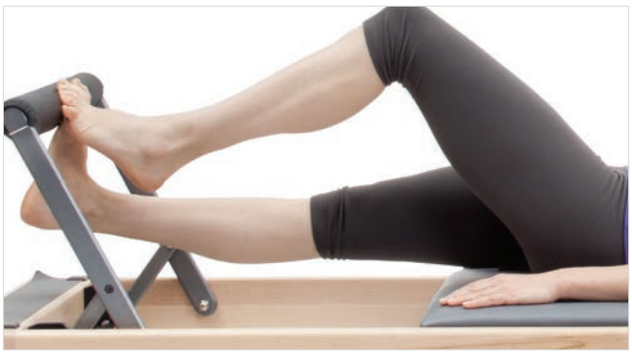
Starting position Turned in

Running in place

Place the balls of the feet on the footbar with the legs parallel. Push the carriage back by straightening the knees, dorsiflex and drop one heel under the bar while bending the other knee. Straighten both legs before switching. Alternate legs 20-50x.



1. Running in Place. Flex the left heel under the bar, bend the right knee.



2. Flex the right heel under the bar, bend the left knee.

CUEING AND IMAGERY

- Engage the abdominals before you press back.
  - Draw the navel toward the spine.
  - Draw the hip bones together.
- Keep the hips, knees, ankles and feet in line.
  - Ideally, the ASIS, center of the knee cap, middle of the ankle and 2nd toe are on one line.
- Maintain a neutral position of the pelvis and spine throughout the exercise.
  - Imagine holding a glass of water on your stomach. Don't spill it.
  - Place your hands under your waist and keep the pressure even throughout the exercise.
- Make the movement smooth and continuous. Don't bump at the bottom or the top.
  - Imagine a waterwheel continuously rotating.

PURPOSE

- Strengthen the leg muscles including the internal and external rotators, quadriceps, hamstrings, abductors, adductors, calf muscles and ankle stabilizers.
- Develop support for neutral spine.
- Teach lumbopelvic stability.
- Correct hip, leg and ankle alignment.
- Increase circulation.

PRECAUTIONS

Knee, hip and ankle injuries: Decrease knee and hip flexion by limiting carriage return with footbar adjustments or stopper blocks. Avoid if symptoms increase.

Sensitive feet: Pad the footbar or work with shoes on.

Low back, hip and sacroiliac joint injuries: Support the low back with a towel, wedge or roll. Avoid if symptoms increase.

Neck and shoulder injuries: Use sticky pads on the carriage and pad the shoulder rests to keep the shoulders from jamming into the shoulder rests.

Pregnancy: Elevate torso or avoid after 16 weeks.

ROLL DOWN

BEGINNING • REPS 10 EACH

Springs: R to RB **Footbar:** No bar **Straps:** Short **PR:** Comfortable with spinal flexion

STARTING POSITION

Sit on the carriage facing the straps with the hips at least six inches from the footbar end of the carriage. Sit on the center of the sit bones with the spine aligned directly over the pelvis. Bend the knees and place the feet on the headrest, take hold of the straps keeping the elbows straight.

MOVEMENT SEQUENCE

Inhale: Engage the abdominals and draw the sit bones together to begin.

Exhale: Scoop the abdominals in and up lengthening the low back while gently rounding the pelvis under and rolling back until the sacrum is close to or on the carriage.

Take a small inhale without releasing the abdominals.

Exhale: Roll back up engaging the abdominals and maintaining a slight curve in the lumbar spine until you sit back up on the sit bones and straighten the back.

1. Starting position. Sitting up, arms straight, knees bent.

2. Engage the abdominals, tuck the pelvis under and roll down.

OBLIQUE VARIATION

Begin sitting up on the sit bones, rotate the knees to one side and let the torso move slightly to the other side. Engage the abdominals and roll down maintaining the angle of the legs and torso. Switch the legs and torso at the bottom of the roll down and engage the abdominals to roll up to the other side.

1. Starting position Oblique Variation. Rotate torso to one side and knees to the other.

2. Roll down to one side, switch at the bottom, roll up.

ARM WORK VARIATIONS

Biceps Curl

Once you have rolled down and the sacrum is on the carriage, add 4 to 6 biceps curls by bending and straightening the elbows without changing the back. Inhale to pull the straps toward you, exhale to release.

1. Biceps Curl. Roll down to begin. Bend and straighten the elbows, keeping the back rounded.

Posterior Shoulder Press

Open the arms out to the side and press back 4 to 6 times. Inhale to press the straps out, exhale to release.

Rows (no photo)

Cross the straps and bend the elbows to pull the straps to the torso. The elbows go behind the torso. Keep the arms slightly below shoulder height.

1. Posterior Shoulder Press. Roll down to begin. Open the arms and press back, keeping the back rounded.

CUEING AND IMAGERY

- Lift the abdominals in and up to begin.
  - Scoop the abdominals inward.
  - Imagine you are zipping up a pair of tight pants.
- Keep the arms straight as you roll down and up.
  - Lock the elbows.
  - Imagine you don't have arms.
- Keep the inner thighs together.
  - Hold a ball or piece of paper between the knees. Don't drop it!
- Make the curve as long as possible.
  - **Instructor cue:** Place your hands on the low back to see if it is staying round.
- Keep the shoulders down.
  - Imagine your shoulder blades are sliding into your back pockets.

PURPOSE

- Strengthen the abdominals.
- Stretch the low back.
- Strengthen the arms, especially the elbow flexors, and posterior shoulder girdle.
- Maintain abdominal support for the low back while in lumbar flexion.

PRECAUTIONS

Low back, hip and sacroiliac joint problems: Limit the range of motion, keep the abdominals working, and keep the lumbar in slight flexion.

Neck and shoulder injuries: Don't roll back very far.

Pregnancy: Caution after 16 weeks.

Avoid with osteoporosis, active lumbar disc injuries and sciatica.

SUPINE ARM WORK

BEGINNING • REPS 10 EACH

Springs: R to RB **Footbar:** Any **Straps:** Regular **Headrest:** as needed

STARTING POSITION

Lie supine on the Reformer with the head on the head rest and the knees at 90 degrees (chair position). Hold the straps in the hands with the elbows bent and the palms facing toward the legs.

MOVEMENT SEQUENCE

Exhale: Hollow the abdominals as the arms move down toward the hips.

Inhale: Return the arms to the starting position.

MODIFICATIONS

Beginning version

Bring the knees into the chest if you can't keep the low back stable with the knees at 90 degrees.

ARM POSITIONS

Triceps Pull

With the elbows bent at 90 degrees and the upper arm resting on or just off the carriage, pull the straps down toward the carriage and return. To target different parts of the triceps, change the forearm position from pronation to neutral to supination.

1. Starting position. Knees together, elbows bent.

2. Pull straps toward hips by straightening arms.

Posterior Deltoid Pull

With the elbows straight and the arms reaching toward the ceiling directly in line with the shoulders, pull the straps down toward the carriage and return.

1. Starting position. Arms to ceiling, elbows straight, knees above hips.

2. Pull straps toward hips.

ARM POSITIONS (CONT.)

Arm Circles (no photo)

With the elbows straight and the arms reaching toward the feet at a 45 degree angle, circle the arms several times in each direction. Keep the hands below shoulder height.

Latissimus Dorsi Pull

With the elbows straight and the arms abducted to slightly less than 90 degrees, pull the straps down toward the hips and return.

1. Starting position Lat Pull. Arms to sides, knees over hips.

2. Pull straps toward hips.

CUEING AND IMAGERY

- Engage the abdominals before the arms move.
  - Draw the hip bones together then move the arms.
  - Pull the navel toward the spine.
- Keep the low back neutral throughout the exercise.
  - Imagine holding a glass of water on your stomach. Don't spill it!
  - Instructor monitor with hands at waist.
- Keep the elbows straight.
- Keep the wrists neutral.
  - Imagine you have a piece of wood strapped to the back of your wrist.
  - Curl the wrist forward to start the exercise.
- Keep the chest open.
  - Feel the back of the shoulder blades on the carriage.
- Keep the shoulders away from the shoulder rests.

PURPOSE

- Strengthen the arms including triceps, latissimus dorsi, lower trapezius, deltoid, pectoralis major.
- Strengthen the abdominals.
- Maintain neutral spine.
- Learn to use arms and abdominals together.

PRECAUTIONS

Low back, hip and sacroiliac joint problems: Keep the knees into the chest and the low back on the carriage or in a supported neutral position. Rest between exercises.

Wrist and elbow injuries: Keep the wrists straight, be careful with triceps pulls.

Neck and shoulder injuries: Keep the arms below the shoulders, decrease the range of motion.

Pregnancy: Elevate torso or avoid after 16 weeks.

THE HUNDRED

BEGINNING TO INTERMEDIATE • REPS 10 EACH

Springs: R to RR **Footbar:** Any **Straps:** Regular **Head Rest:** As needed

PR: Ability to do the Hundred on the Mat.

STARTING POSITION

Lie supine on the carriage with the head on the headrest. Place the knees at 90 degrees (in chair position) and the hands in the straps with the arms straight and reaching toward the ceiling.

MOVEMENT SEQUENCE

Exhale: Engage the abdominals, draw the ribs toward the hips to lift the head and lower the arms until they are just slightly above the carriage and parallel to the torso.

Pump the arms in a small arc as you breathe in for 5 pulses and out for 5 pulses. The breathing can be percussive, taking a small sniff with each pulse, or continuous, breathing smoothly in for 5 pulses and smoothly out for 5 pulses.

Choose the leg position based on your ability to maintain the stability of the back. For beginners, keep the low back on the mat or use a supported neutral to stabilize the lower back as the legs lower.

MODIFICATIONS

Preparation

With the knees in chair position, exhale as you lower the arms and lift the head and upper body off the mat into a partial sit up. Inhale to lower the torso back to the mat.

Level 1

The knees stay bent at 90 degrees. Low back stays on the mat or in a supported neutral position.

Level 2

The legs straighten to the ceiling. The leg position can be parallel or turned out. Bend knees with tight hamstrings.

Level 3

The legs lower as far as possible while the back remains stable. The leg position can be parallel or turned out.

CHALLENGES

Leg variations

- Raise and lower the legs as the arms pulse.
- Flex and point the feet as the arms pulse.
- Rotate the legs internally and externally as the arms pulse.

1. Starting position. Knees bent, straps in hands, arms to ceiling.

2. Level 1. Knees bent, head up, hands reach toward feet.

CUEING AND IMAGERY

- Engage the abdominals before beginning the exercise.
  - Scoop the abdominals in and keep them in throughout the exercise.
- Focus on posterolateral or rib breathing for the 100.
  - Keep the abdominals in while using the ribs to breath.
- Lower the legs only as far as the back can stay stable.
  - Instructor monitor the position as the student lowers the legs.
- Keep the chest open and the shoulders away from the ears.
  - Feel the tips of the shoulder blades on the carriage.
- Keep the head and torso steady as the arms move.
  - Don't bounce. No bobbing heads or funky chickens!

PURPOSE

- Teach lumbopelvic stability.
- Strengthen abdominals and hip flexors.
- Increase thoracic flexibility.
- Learn to connect the arms to the core.

PRECAUTIONS

Low back, hip and sacroiliac joint problems: Keep the knees bent at 90 degrees.

Neck and shoulder injuries: Support the upper body with a pillow, towels or a wedge.

Pregnancy: Avoid after 16 weeks.

Avoid with osteoporosis, active lumbar disc injuries and sciatica.

2. Level 2. Legs straight to the ceiling, hands reach to hips.

3. Level 3. Legs lower as far as possible without the back moving.

KNEELING ABDOMINALS FACING BACK

BEGINNING • 10 REPS

Springs: Y to RB **Footbar:** No bar **Straps:** None **PR:** Comfortable in all fours position.

STARTING POSITION

Kneel on all fours facing the straps with the hands on the edges of the Reformer frame and the knees against the shoulder rests. Externally rotate the humerus so the elbows are facing the Reformer frame.

MOVEMENT SEQUENCE

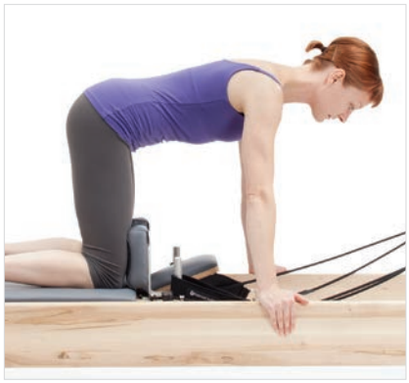
Exhale: Engage the abdominals to draw the carriage toward the hands.

Inhale: Return to the starting position.

VARIATIONS

Flat back

Engage the abdominals and draw the carriage toward the hands by flexing the hips. Keep the spine neutral and parallel to the ground and the shoulders over the wrists throughout the movement.



1. Starting position. Shoulders over wrists, hips over knees.

2. Draw the knees in keeping the shoulders over the wrists and the back flat.

Round back

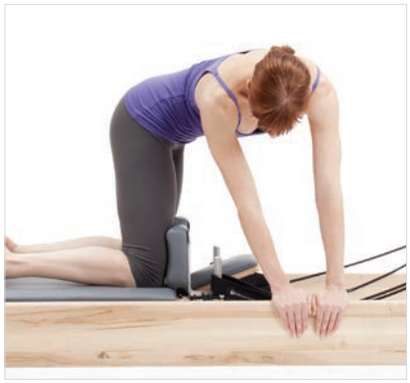
Engage the abdominals, focus your gaze on the abdomen and draw the carriage toward the hands by rounding the back. Keep the shoulders over the wrists throughout the movement.

1. Starting position. Curve the spine.

2. Draw the knees in keeping the back round and the shoulders over the wrists.

Oblique

Place both hands on one side of the frame allowing the torso to laterally flex and rotate while keeping the hips as square as possible. Engage the abdominals and round the back to draw the knees toward the hands. The back can be round or flat.



1. Staring position. Hands centered under chest on same side of frame.

2. Draw the knees in keeping the chest centered over hands.

STARTING POSITION

Kneel on all fours facing the straps with the hands on the edges of the Reformer frame. Place one knee against the shoulder rest and reach the other leg out parallel to the ground with the leg straight.

1. Starting position. Straighten and lift one leg hip height.

MOVEMENT SEQUENCE

Exhale: Engage the abdominals to draw the carriage toward the hands. Keep the spine neutral, the hips level and the free leg parallel to the ground as you pull.

Inhale: Return to the starting position.

2. Draw the knee in keeping the free leg straight.

CHALLENGES

Latissimus Dorsi Pull

Begin with the hands higher than the shoulders and draw the shoulders over the wrists before starting the exercise.

Single arm/single leg

Lift one leg and the opposite arm out and pull the carriage in.

CUEING AND IMAGERY

- Engage the abdominals before moving the legs.
  - Scoop the abdominals first.
- Keep the shoulders over the wrists.
  - **Instructor cue:** Place your hands on top of the client's shoulders and cue the client not to press their shoulders into your hands as they initiate the movement.
- Keep the head in line with the spine and maintain the position of the back during the exercise.
  - Focus your eyes directly in front of you to maintain a neutral spine.
  - Focus your eyes on thighs or abdomen to maintain a rounded spine.
  - Place a foam roller or dowel along the spine and make sure it touches the sacrum, mid thorax and head.

PURPOSE

- Strengthen the abdominals.
- Increase pelvic stability.
- Increase scapular stability.
- Strengthen latissimus dorsi, teres major, serratus anterior, pectoralis major, rotator cuff.
- Strengthen hip flexors.

PRECAUTIONS

Sore wrists and hands: Pad the frame.

Low back injuries: Begin with a small range of motion in hip flexion and extension or avoid if symptoms increase.

Knee injuries: Pad the knees, hold a ball between the knees or avoid.

Pregnancy: Caution after 12 weeks.

KNEELING ABDOMINALS FACING FRONT

BEGINNING • 10 REPS

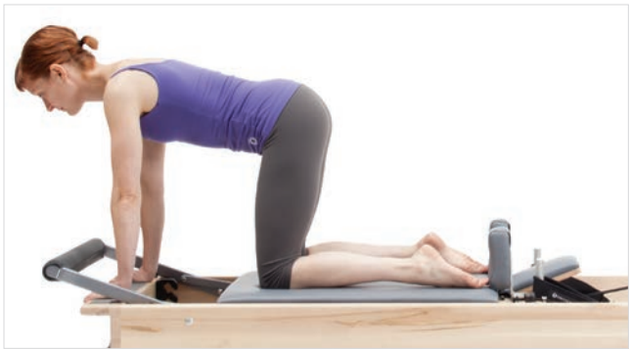
Springs: 0 to Y **Footbar:** No bar **Straps:** None **PR:** Comfortable in all fours position.

SAFETY NOTE:

When using no springs, make sure the client is in control of the carriage. Stabilize the carriage for the client until they are in position. Teach the client how to keep the carriage steady as they get into the starting position.

STARTING POSITION

Kneeling on all fours facing the footbar with the hands on the standing platform.



1. Starting position. Hands on standing platform under wrists, knees under hips.

MOVEMENT SEQUENCE

Inhale: Move the carriage away from the standing platform.

Exhale: Engage the abdominals and draw the carriage back into the stoppers.

2. Move the carriage back keeping shoulders over wrists.

MODIFICATION

Light spring

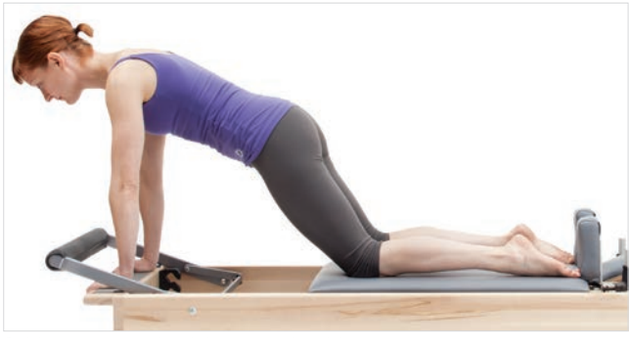
Use a light spring rather than no springs.

CHALLENGE

Add the arms

Push the carriage away from the stoppers, press the shoulders away from the hands then draw the carriage into the stopper and the shoulders back over the wrists.

1. Starting position. Wrists under shoulders, knees under hips.



2. Move carriage back keeping shoulders over wrists.

CUEING AND IMAGERY

- Engage the abdominals before moving the legs.
  - Scoop the abdominals first.
- Keep the shoulders over the wrists.
  - **Instructor cue:** Place your hands on top of the client's shoulders and cue the client not to press their shoulders into your hands as they initiate the movement.
- Keep the head in line with the spine and maintain the position of the back during the exercise.
  - Focus your eyes directly in front of you to maintain a neutral spine.
  - Focus your eyes on thighs or abdomen to maintain a rounded spine.
  - Place a foam roller or dowel along the spine and make sure it touches the sacrum, mid thorax and head.

PURPOSE

- Strengthen the abdominals.
- Increase pelvic stability.
- Increase scapular stability.
- Strengthen shoulder and scapular stabilizers including latissimus dorsi, teres major, serratus anterior, pectoralis major, rotator cuff.
- Strengthen hip flexors.

PRECAUTIONS

Sore wrists and hands: Pad the frame or place a sitting box across the footbar end of the carriage frame and place the forearms on the box.

Low back injuries: Begin with a small range of motion in hip flexion and extension or avoid if symptoms increase.

Knee injuries: Pad the knees, hold a ball between the knees or avoid.

Pregnancy: Caution after 12 weeks.

3. Press shoulders away from frame.

4. Draw the carriage back under the hips keeping the shoulders steady.

FEET IN STRAPS

BEGINNING • 6 TO 10 REPS

Springs: RB to RR **Footbar:** Low or High (to get into the straps) **Straps:** Regular

PR: Adequate hamstring flexibility, ability to stabilize the back

STARTING POSITION

Lie supine on the carriage with the head on the headrest and the straps on the arches of the feet.

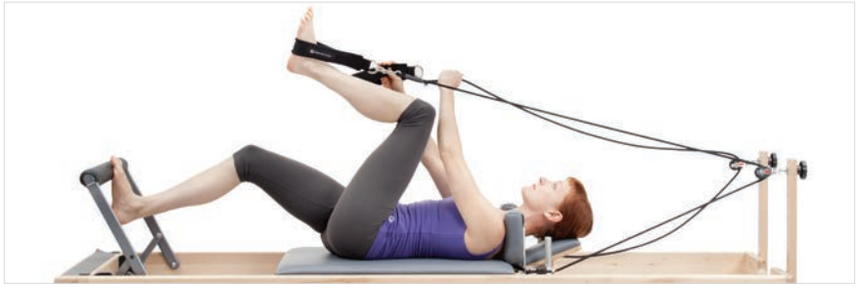
To place the straps on the feet, hold the straps in the hands, place one foot on the footbar and place the other foot in one footstrap. Press into the footstrap and hold the rope to stabilize the leg as you place the other foot in the second footstrap. Flex the hips and raise the legs as close to 90 degrees as possible while keeping the pelvis neutral.

MOVEMENT SEQUENCE

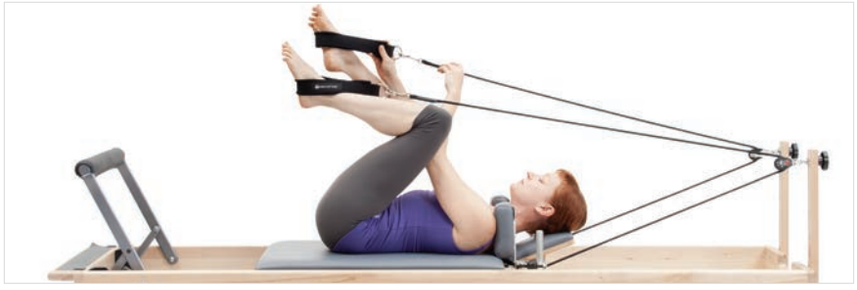
Exhale: Engage the abdominals to stabilize the back and start the exercise. Maintain the position of the back and pelvis throughout the movement.

Inhale: Return the legs to the starting position.

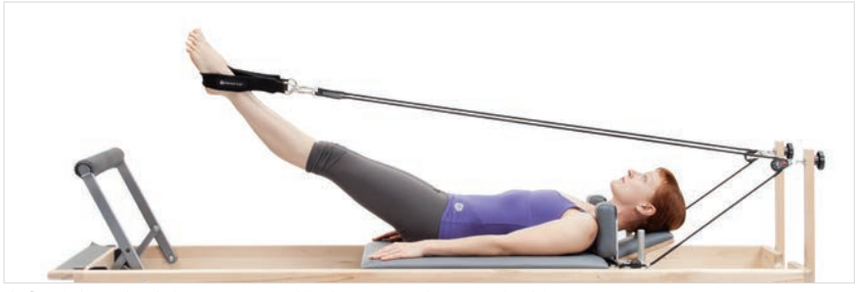
1. Getting into position. Lie supine on the carriage with the feet on the footbar and the straps in the hands.



2. Keep one foot on the footbar and place the other in the footstrap. Press into the strap and hold the rope to stabilize the leg.



3. Keep the first leg steady and place the other foot in the footstrap.



4. Straighten both legs out to a 45-degree angle from the hips.

POSITIONS

Leg Lowers

With the pelvis stable and the inner thighs together, lower and raise the legs.

- **Leg positions:** Parallel, turned out or turned in.
- **Adductors:** Place a ring or ball between the ankles to increase adductor work.

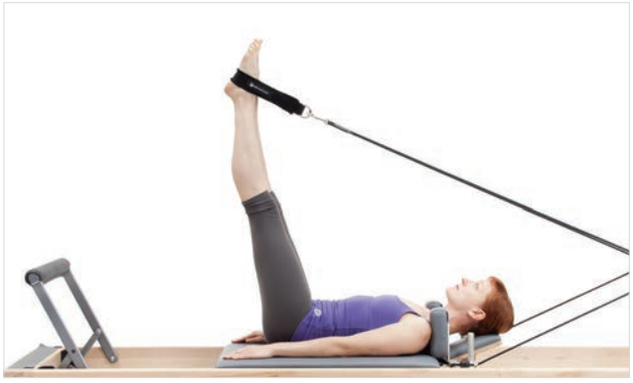
1. Starting position. Feet in straps, legs straight above the hips.

2. Lower the legs without moving the back.

Scissors

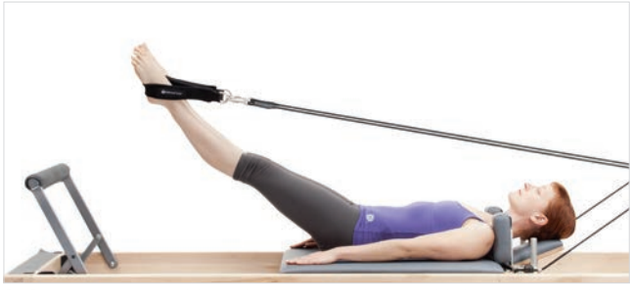
With the pelvis stable and the inner thighs together, open the legs out to the sides and return.

- **Leg positions:** Parallel, turned out or turned in.
- **Carriage steady:** Legs stay over hips and the carriage stays steady.
- **Carriage moving:** Legs move down toward the bar as if drawing a V. The carriage will move.



1. Starting position. Feet in straps, legs straight above the hips.

2. Carriage steady. Open the legs to the side.



2. Carriage moving. Move the legs together in a V shape toward the footbar. The carriage will move.

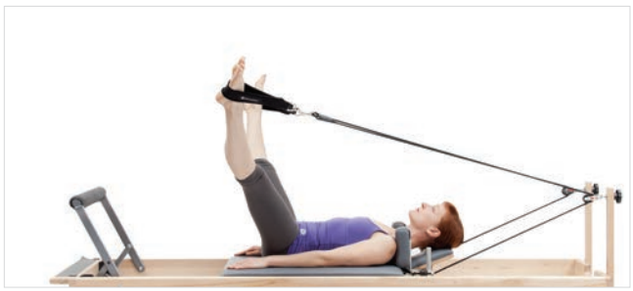
Circles

With the pelvis stable and the inner thighs together, move the legs down, open the legs out to the sides and circle them around to the starting position. Do 6 to 10x in each direction.

- **Leg positions:** Parallel, turned out or turned in.
- Place the straps around the knees to warm up the hips and decrease the challenge.

1. Starting position Circles. Feet in straps, legs straight to the ceiling.

2. Keeping the inner thighs together, lower the legs then open them to begin circling up toward the head.



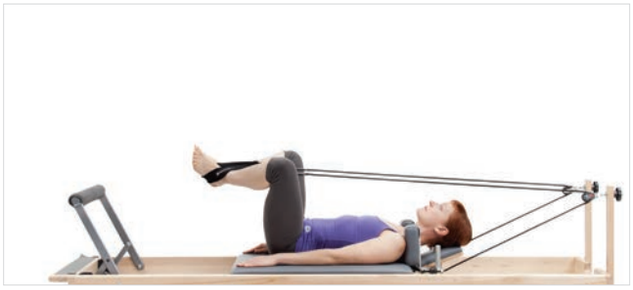
3. Continue to circle out and upward.

4. Bring the legs together to start again.

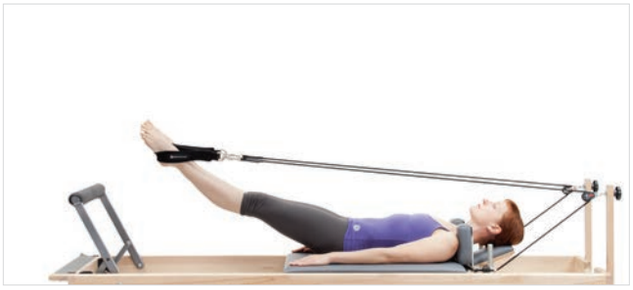
Frogs

With the pelvis stable, the legs turned out, the knees bent and the heels together, press the straps out and in by straightening and bending the knees. ▼

- **Breaststroke:** From the frog position, straighten the legs into a V, bring the inner thighs together and bend the knees to start again. Reverse directions.
- **Diamond Leg Lowers:** From the frog position, move the legs up and down without changing the position of the legs.



1. Starting position Frogs. Heels together, knees bent.

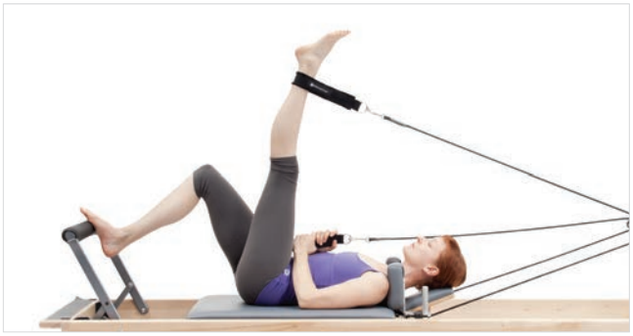


2. Press the legs out and press inner thighs together.

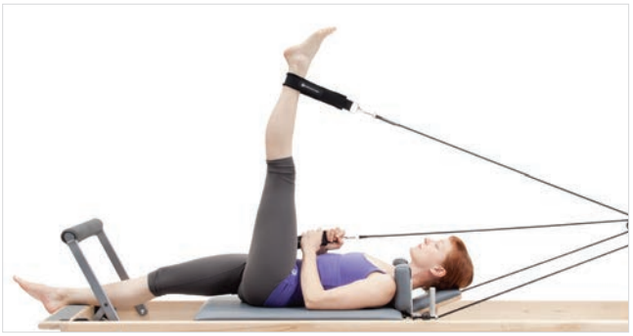
STRETCHES

Hamstring

Place one ankle in the strap and the opposite leg on the footbar. Straighten the leg in the strap to stretch the hamstring. Straighten the leg on the footbar to decrease the stretch.



1. Hamstring Stretch Level 1. One ankle in strap with the leg extended above the hip, opposite foot on the footbar.



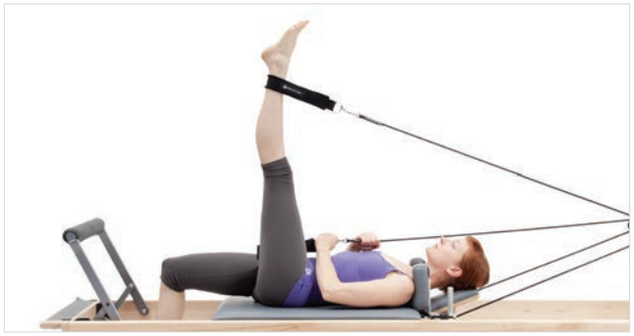
2. Hamstring Stretch Level 2. Extend the free leg under the footbar.

Lateral hamstring/ITB (no photo)

Place one ankle in the strap and the opposite leg on the footbar. Straighten the leg in the strap and bring it across the body to stretch the side of the hip and thigh.

Hamstring and hip flexor

Place one ankle in the strap and straighten the leg to stretch the hamstring. Place the other foot on the floor to stretch the hip flexors.



1. Hamstring and Hip Flexor. One ankle in strap, foot over hip with leg straight. Other foot on the floor in the well.

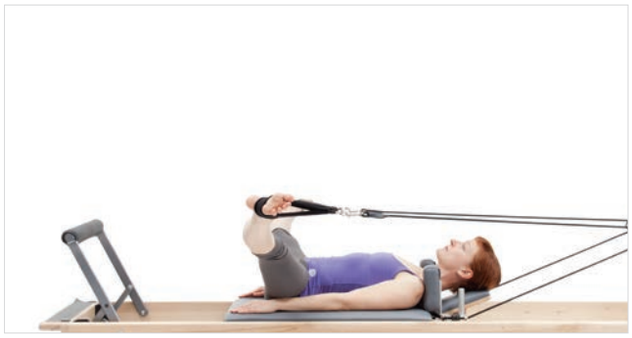
Single leg adductor

Place one foot in the strap and open the leg out to the side.

1. Single Leg Adductor. Open the strapped leg to the side, maintaining pelvic stability.

Adductor

Place both feet in the straps and open the legs to the side to stretch the adductors.



1. Adductor Stretch. Open both legs to the side.

CUEING AND IMAGERY

- Engage abdominals before the legs lower and keep them engaged.
  - Scoop abdominals to begin and don't let them pop as the legs lower.
- Lower legs only as far as back can stay stable throughout exercise.
  - Instructor or student can monitor low back position with hands.
- Move the legs symmetrically.
  - Cue client to emphasize the weaker leg.
- Don't hyperextend the knees.
  - Keep the knees soft.

PURPOSE

- Strengthen abdominals.
- Strengthen the hamstrings, adductors, deep hip external rotators, gluteus maximus, hip abductors.
- Increase flexibility of the hamstrings, adductors and hip flexors.
- Increase pelvic stability.
- Develop balance in the hip musculature.

PRECAUTIONS

Low back and sacroiliac joint problems: Make sure the low back is not changing position as the legs move. Support the low back in a neutral position with a towel. Limit the range of motion as the legs lower. Avoid if symptoms increase.

Hip flexor injuries and hip arthritis: Work only in a range of motion that does not increase symptoms. Work with the knees rather than the feet in the straps to decrease the load on the hips or avoid if symptoms increase.

Limited hamstring flexibility: In order to avoid stress on the low back, hamstring flexibility needs to be great enough to allow the back to stay stable as the legs move to approximately 65 degrees of hip flexion. If the student doesn't have this range it is preferable to do these exercises on the Cadillac, Trapeze Table, tower or wall unit.

Pregnancy: Elevate torso or avoid after 16 weeks.

LONG BOX PULLING STRAPS

BEGINNING TO INTERMEDIATE • 6 REPS

Springs: B to RR **Box:** Long box **Footbar:** No bar **Straps:** Very short or holding the ropes

PR: Ability to lie prone.

STARTING POSITION

Lie prone on the long box facing the straps with the chest off the front edge of the box. Grasp the straps either directly below the shoulders for the easier and more shoulder safe version or reach forward to hold the straps or ropes with the hands above the shoulders. Use a sticky mat under the torso if you slide on the box.

MODIFICATION

Shoulders at 90 degrees of abduction or scaption

Begin each of the exercises with the arms level with the shoulders rather than reaching up above the shoulders.

MOVEMENT SEQUENCE

Exhale: Lift the abdominals off the mat and slide the shoulder blades down the back to begin.

Inhale: Pull the straps toward the hips.

Exhale: Return to the starting position maintaining the abdominal lift and the position of the shoulder blades.

CHALLENGE

Torso flexion

Begin the exercise with the upper body in flexion off the end of the box and lift the torso into neutral or extension as the arms move.

ARM VARIATIONS

Pulling Down

Pull the straps to the hips along the sides of the Reformer.

1. Starting position Pulling Down. Hold straps with the hands below the shoulders.

2. Pull the straps back to the hips..

Pulling in a T (Airplane)

Pull the straps to the hips with arms extended out to the sides in abduction.

1. Starting position Pulling in a T. Hold straps with the arms out to the sides.

2. Pull the straps to the hips.

Triceps Pull Back

Pull the straps to the hips along the sides of the Reformer until the arms are parallel to the torso. Keeping the upper arm parallel to the torso, flex and extend the elbow.

1. Starting position Triceps. Elbows bent, upper arms parallel to the floor.

2. Straighten the elbows to pull the straps to the hips.

Pulling Straps

Pull the straps along the edge of the carriage as the abdominals engage, the shoulder blades slide down the back and the upper body extends off the box.

1. Starting position Pulling Straps. Hands in front of shoulders.

2. Engage abdominals, slide shoulder blades down the back and lift the spine into back extension.

CUEING AND IMAGERY

- Engage the abdominals to support the back.
  - Imagine the box is coated with lava, lift your belly off the lava!
  - Imagine you are an arrowhead.
- Keep the front of the hips in contact with the box.
  - Press the pubic bone into the box as you pull the straps back.
- Keep the legs together.
  - Place a ball or towel between the knees if it's more comfortable.
- Keep the shoulders away from the ears.
  - Slide the shoulder blades down the back and reach into the straps.
- Keep the head in line with the torso.
  - Choose a line to focus on as the torso stays flat.
  - Imagine watching a marble roll across the floor as the head and torso lift up.
  - Don't wrinkle the back of the neck.

PURPOSE

- Strengthen the back of the body including the latissimus dorsi, teres major, lower trapezius, erector spinae, gluteus maximus and hamstrings.
- Strengthen the abdominals in a prone position.
- Increase scapular stability.
- Improve leg and torso alignment.

PRECAUTIONS

Shoulder injuries: Keep the arms below 90 degrees of abduction or flexion or avoid.

Elbow injuries: Make sure the wrists stay neutral, eliminate the triceps variation.

Wrist and hand injuries:
Make sure the client is comfortable gripping the straps or the handle. If not, then use the velcro ankle cuffs around the wrist or avoid.

Back injuries: For minor discomfort, place a pillow or folded towel under the hips to decompress the low back or avoid if client cannot tolerate extension.

Pregnancy: Avoid after 12 weeks

LONG BOX OVERHEAD PRESS & SWAN

INTERMEDIATE • 4-8 REPS

Springs: B to RR **Box:** Long **Footbar:** Low or extra low for Overhead Press. Low, high or extra high for Swan

Straps: None **PR:** Ability to lie prone.

Overhead Press

STARTING POSITION

Lie prone on the long box facing the footbar with the chest off the front edge of the box. Place the hands on the footbar slightly wider than the shoulders. Use a sticky mat under the hips if the box feels slippery.

MOVEMENT SEQUENCE

Exhale: Engage the abdominals, slide the scapulae down the back and press the bar away while keeping the torso on the box.

Inhale: Return to the starting position.

ARM POSITION VARIATIONS

Hands up

Place the hands on the footbar with the fingers pointing toward the ceiling and the elbows pointing toward the floor.

1. Starting position Hands up, elbows down.

2. Straighten the arms.

Hands in

Place the hands on the footbar with the fingers pointing toward each other and the elbows pointing away from the body.

1. Starting position Hands in, elbows wide.

2. Straighten the arms.

Single Arm

Lighten the weight and take one hand off the footbar. Press back with one arm while maintaining the position of the shoulder. Place the free hand behind the back, on the front edge of the box or under the forehead. Use a sticky mat under the hips if the box feels slippery.

1. Starting position Single Arm. One hand on bar, other hand behind the back.

2. Straighten the arm on the bar.

1. Starting position Swan. Hands on bar, elbows bent, carriage at stoppers.

2. Extend the arms.

3. Press down on the bar and lift the torso into extension as the carriage comes in to the stoppers.

4. Lower the torso back to the box with the arms straight, the carriage will move back out.

5. Bend the elbows to bring the carriage back to the starting position.

Swan

STARTING POSITION

Same as Overhead Press but you can use a higher footbar to increase the extension of the back.

MOVEMENT SEQUENCE

Exhale: Engage the abdominals, slide the scapulae down the back and press the bar away until the elbows are straight.

Inhale: Press the arms down on the bar to lift the torso into back extension as the carriage moves in toward the footbar.

Exhale: As the torso lowers back onto the box and the carriage moves away from the footbar.

Inhale: Bend the elbows and return to the starting position.

CUEING AND IMAGERY

- Engage the abdominals to support the back.
  - Imagine there is a river of lava flowing under your belly, engage the abdominals to lift them off the lava.
- Keep the front of the hips in contact with the box as you rise up into the Swan.
- Keep the legs together.
  - Depending on client comfort, place a ball or towel between the knees to keep the legs together.
- Keep the shoulders away from the ears.
  - Slide the shoulder blades down the back.
- Keep the head in line with the torso.
  - Imagine watching a marble roll across the floor as the head and torso lift up.

PURPOSE

- Strengthen the posterior shoulder, torso, hips and legs.
- Strengthen and stretch the abdominals.
- Strengthen the triceps and pectoralis major.
- Increase scapular stability.

PRECAUTIONS

Shoulder, elbow and wrist injuries: Use very light weight and limit range of motion or avoid.

Back injuries: The client must be comfortable in a prone position. Place a pillow or a pad under the hips to decrease the extension of the back.

Pregnancy: Avoid after 12 weeks.

SHORT BOX ABDOMINALS

ALL LEVELS • 6 REPS

Springs: All springs **Box:** Short **Footbar:** No bar **Straps:** Foot strap **Other:** Pole

PR: Reformer Roll Downs, Cadillac Roll Downs.

Round Back

STARTING POSITION

Sit on the short box facing the footbar with the ankles hooked under the foot strap. Make sure there is at least four inches between the back of the hips and the back edge of the box.

MOVEMENT SEQUENCE

Exhale: Engage the abdominals, lightly engage the gluteals and roll down with a long curve maintaining a slight flexion of the lumbar spine.

Inhale: Take a small sip of air at the bottom of the roll down.

Exhale: Roll back up.

Inhale: Prepare to start again.

MODIFICATIONS

Tight lower backs and hamstrings
Begin with the knees bent and the feet on the standing platform. Allow the legs to straighten as you roll down.

Tall clients
Place the back edge of the short box over the shoulder rests.

CHALLENGES

Weighted bar
Hold a weighted bar in the hands and lift it up and down three times when the torso is in the roll down position.

Picture frame
Reach the arms overhead so the arms are parallel with the ears. Roll down and back up keeping the arms in line with the head.

1. Starting position Round Back. Seated upright with arms crossed over chest.

1. Starting position with Pole. Seated upright with hands holding pole in front of chest, arms straight.

2. Engage the abdominals, tuck the pelvis and roll down.

2. Engage the abdominals, tuck the pelvis under and roll down.

Flat Back

STARTING POSITION

Same as Round Back.

MOVEMENT SEQUENCE

Inhale: Prepare.

Exhale: Engage the abdominals, lightly engage gluteals and lean back maintaining a neutral lumbar curve. Make sure the lumbar spine does not change position during the exercise.

Inhale: Take a small sip of air at the bottom of the roll down.

Exhale: Return to the starting position.

1. Starting position Flat Back. Seated upright with hands holding pole in front of chest, arms straight.

2. Engage the abdominals and lean back without flexing or extending the lower back.

CUEING AND IMAGERY

- Engage the abdominals and lightly squeeze the buttocks to begin.
- Roll back only as far as you can maintain the position of the back.
  - **Instructor cue:** Place fingers on spinous processes of lumbar vertebrae and make sure they stay in place as client rolls or leans back. During the round back, the lumbar should be slightly flexed and with the flat back the lumbar should be neutral.
- Keep legs together and aligned.
  - Imagine holding a $100 dollar bill over a street grate. Don't loose it.
  - Place a ball above knees or at ankles to keep inner thighs engaged.
- Keep the shoulders away from the ears.
  - Slide the shoulder blades into your back pockets.

PURPOSE

- Strengthen abdominals.
- Strengthen back extensor muscles (especially in flat back version).
- Stretch the low back (especially in the round back version).
- Teach balanced strength between abdominals and back extensors.

PRECAUTIONS

Low back and sacroiliac joint issues: Avoid if lumbar flexion increases symptoms. Bend the knees to facilitate flexion. Limit the range of motion in the roll down if extension increases symptoms.

Neck injuries: Limit the range of the roll down to keep the neck symptom free.

Shoulder injuries: Cross the arms across the chest rather than holding bar or limit range of motion in shoulders and use a light bar.

Pregnancy: Caution after 16 weeks.

Avoid with osteoporosis.

BRIDGING & PELVIC LIFT

INTERMEDIATE • 6 REPS

Springs: RR to RRR **Footbar:** High **Head Rest:** Down **PR:** Mat Pelvic Press.

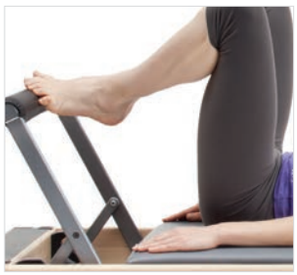
STARTING POSITION

Lie supine with the head on the head rest, the shoulders slightly away from the shoulder rests and the feet on the footbar in one of the positions listed below.

LEG POSITION VARIATIONS

- Either heels or toes can be on the footbar.
- Pilates V (traditional).
- Legs parallel, heels sit bone width apart.
- Legs parallel, inner thighs together.
- Wide (2nd position) feet on the edges of the footbar with the legs in external rotation.

Toes on footbar, legs parallel and together.



Pilates V (traditional), toes on and apart, heels together.

Heels on footbar, legs parallel and together.

Wide (2nd position) heels on footbar, legs in external rotation.

Bridging - Stable Carriage

MOVEMENT SEQUENCE

Inhale: Prepare.

Exhale: Engage the abdominals and roll the pelvis up off the carriage one vertebra at a time. Don't move the carriage.

Inhale: At the top.

Exhale: Roll the spine down one vertebra at a time.

1. Starting position. Knees bent, balls of the feet on the footbar.

2. Roll the hips up off the carriage keeping the carriage at the stopper. Don't roll up higher than the top of the shoulder blades.

3. Roll the hips back down to the starting position without moving the carriage.

Pelvic Lift (Bottom Lift)

STARTING POSITION

Lie supine with the head on the head rest, the shoulders slightly away from the shoulder rests and the feet on the footbar in one of the positions listed above. This is also called Bottom Lift and is traditionally done with the legs in Pilates V or in a Wide, second position with the balls of the feet on the bar.

1. Starting position. Feet on footbar, legs parallel and together.

MOVEMENT SEQUENCE

Inhale: Prepare.

Exhale: Engage the abdominals and roll the pelvis up off the carriage one vertebra at a time until the knees form a straight diagonal with shoulders. Don't go past top of shoulder blades.

Inhale: Straighten the legs to press the carriage back. Keep the pelvis at the same height throughout the exercise.

Exhale: Bring the carriage in.

Press back and forth 4 to 10 times.

Inhale: Roll the spine back down onto the carriage.

2. Roll the hips up off the carriage keeping the carriage at the stopper. Don't roll up past the shoulder blades.

3. Press the carriage out keeping the hips at the same height.

4. Bring the carriage back into the bumpers before rolling down.

5. Roll down to the starting position without moving the carriage.

Single Leg

STARTING POSITION

Lie supine with the head on the head rest, the shoulders slightly away from the shoulder rests and the feet on the footbar in parallel with either the toes or the heels on the bar.

MOVEMENT SEQUENCE

Inhale: Prepare.

Exhale: Engage the abdominals and roll the pelvis up off the carriage one vertebra at a time until the knees form a straight diagonal with the shoulders.

Inhale: Take one foot off the footbar and straighten it toward the ceiling. Press the carriage back with the other leg. Keep the pelvis level throughout the exercise.

Exhale: Bring the carriage in.

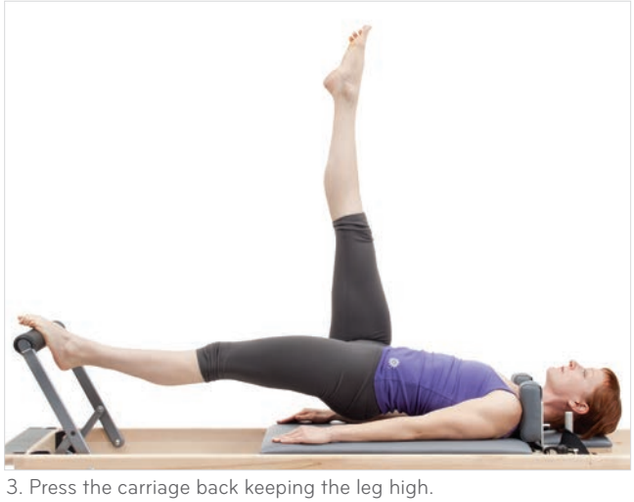
Press back and forth 4 to 6 times.

Keep the hips up, switch legs and repeat.

Inhale: Bring both feet to the bar and the carriage into the bumper then roll down to the starting position.

1. Roll the hips up without moving the carriage.

2. With the carriage at the bumper and the hips lifted, raise one foot off the footbar.



3. Press the carriage back keeping the leg high.

CUEING AND IMAGERY

- Engage the abdominals to begin.
  - Draw belly toward lowest part of ribs.
- Roll up and down one vertebra at a time to articulate the spine.
  - Imagine you are wearing a striped shirt. Place one strip down at a time.
  - Imagine your spine is a string of beads. Place one bead down at a time.
- Maintain leg alignment throughout the exercise.
  - Use a ball if necessary.
- Roll up to the middle or top of the shoulder blades only. Do not roll onto the neck.
  - The shoulders create a wide support for you to stand on.
- Keep the shoulders away from the ears.
  - Press upper arms into carriage as you roll up.

PURPOSE

- Strengthen the gluteals, hamstrings and back extensors.
- Increase the flexibility and articulation of the spine.
- Teach lumbopelvic stability.
- Teach balanced abdominal and lumbar strength.

PRECAUTIONS

Osteoporosis: Limit range of motion or avoid.

Low back and sacroiliac joint issues: Avoid if Mat Pelvic Press or Bridging increases symptoms.

Neck injuries: Do not roll up past bottom of shoulder blades.

Knee injuries: Limit range of motion in knee flexion, take a wider stance or avoid if symptoms increase.

Pregnancy: Avoid after 16 weeks.

KNEE STRETCH

INTERMEDIATE • 8 REPS

Springs: RB to RRR **Footbar:** Low or high **PR:** Comfortable in all fours position.

Single Leg Knee Stretch Flat Back

STARTING POSITION

Stand with one leg on the floor beside the Reformer and the opposite foot on the closest shoulder rest. Place both hands on the footbar in line with the shoulders.

MOVEMENT SEQUENCE

Place the standing leg slightly behind the pelvis with the knee straight. Maintain a long, flat back with the head in line with the spine.

Exhale: Press the carriage away from the stoppers while maintaining the position of the back and head.

Inhale: Bring the carriage back in almost to the stoppers.

1. Starting position Flat Back. Standing leg behind pelvis and straight. Other knee bent and foot on shoulder rest. Arms straight, back flat.

2. Press the leg back, maintain position of spine.

Single Leg Knee Stretch Round Back

STARTING POSITION

Place the standing leg directly under the pelvis. Curve the spine from the tailbone to the top of the head, keeping your eyes on your abdomen and maintain this position throughout the exercise.

MOVEMENT SEQUENCE

Exhale: Engage the top of the buttocks and hamstrings to press the carriage away from the stoppers while maintaining the position of the pelvis and head. The range of motion will be limited in this position.

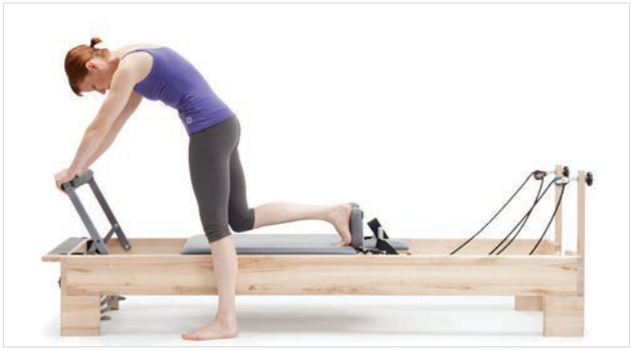
Inhale: Bring the carriage back in almost to the stoppers.

CHALLENGE

Balance

Take one arm off the footbar to increase the challenge. Or take both arms off and stand up using a pole for balance.

1. Starting position Round Back. Standing leg under pelvis, other knee bent and foot on shoulder rest. Round the back.



2. Press the leg back while maintaining position of head and pelvis.

Double Leg Knee Stretch Flat Back

STARTING POSITION

Kneel on the Reformer facing the footbar with both feet against the shoulder rests and the hands on the footbar. Straighten the arms and sit back over your heels keeping the back straight and the head in line with the spine.

MOVEMENT SEQUENCE

Exhale: Press the carriage away from the stoppers while maintaining the position of the back and the head. Don't go so far that the low back arches.

Inhale: Bring the carriage back in almost to the stoppers.

1. Starting position Flat Back. Kneel on Reformer and sit back over heels with straight arms, keep the back straight.

2. Press both legs back, maintain position of back, arms and shoulders.

Double Leg Knee Stretch Round Back

STARTING POSITION

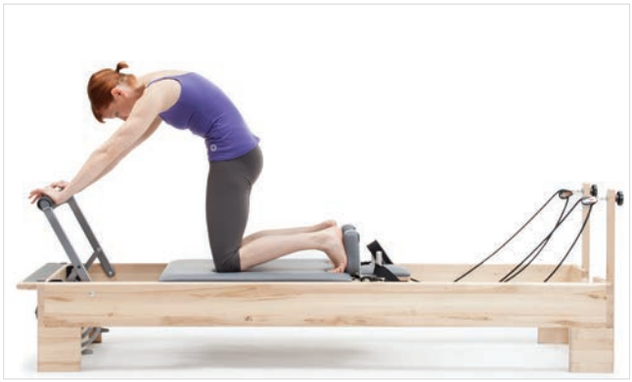
Kneel on the Reformer facing the footbar with the feet against the shoulder rests and the hands on the footbar. Straighten the arms and curve the spine from the tailbone to the top of the head, keeping your eyes on your navel. Make sure your hips are behind your knees to begin. If you are not tall enough to get in the position required, place a small box in front of the shoulder rests and place the feet against the small box.

MOVEMENT SEQUENCE

Exhale: Tuck the tailbone under and maintain this position as the legs press out against the shoulder rests. Press back only until the pelvis starts to move. Focus on engaging the hamstrings and gluteus maximus.

Inhale: Return to the starting position.

1. Starting position Round Back. Kneel on Reformer with straight arms and curl the spine to look at the navel.



2. Press both legs back while maintaining the position of the spine, arms and shoulders.

CUEING AND IMAGERY

- Engage abdominals before moving legs.
- Keep shoulders down.
  - Widen scapulae away from spine.
  - Imagine shoulder blades are slippery bars of soap and slide them down the back.
- Keep head in line with spine.
  - Use the focus of the eyes to direct the head.
- Maintain position of the back.
  - Instructor feedback is essential here. Tell client when they have gone as far as they can go.
- Keep hips, knees and ankles in line throughout exercise.
  - Press through ball of foot on shoulder rest. Watch alignment with a round back.

PURPOSE

- Strengthen quadriceps, hamstrings and gluteals.
- Strengthen abdominals.
- Increase pelvic stability.
- Increase scapular stability.

PRECAUTIONS

Shoulder, arm and wrist injuries: Grip footbar with hands and roll wrists forward to decrease flexion of wrists. Decrease weight or avoid if symptoms increase.

Low back injuries: Begin with a small range of motion in hip flexion and extension or avoid if symptoms increase.

Knee injuries: Place a ball between the knees to engage the inner thighs and decrease the pressure on the knees, pad the knees or avoid.

Pregnancy: Caution with Double Leg Knee Stretch after 16 weeks.

ELEPHANT

BEGINNER • 10 REPS

Springs: R to RB **Footbar:** High (tighter clients) Low (looser clients) **PR:** Comfortable in starting position.

STARTING POSITION

To mount the Reformer place one hand on the footbar first followed by the other hand. Keeping the carriage stable, place the foot against the farther shoulder rest then place the second foot against the closer shoulder rest. Lift the toes up. Bring the carriage into the stopper. Round the back and look at the navel while keeping the shoulders down.

For more stretch or shorter, more flexible bodies, move the feet forward on the carriage.

Instructor note: Hold the carriage into the bumpers with your foot as the student mounts the Reformer until they are comfortable controlling the carriage.

Round Back Elephant

MOVEMENT SEQUENCE

Inhale: Press the heels back to stretch the calves and hamstrings.

Exhale: Engage the abdominals to draw the carriage in while maintaining a round back.

1. Starting position Round Back. Heels up against shoulder rests, legs and arms straight, back rounded, look at naval.

2. Press the carriage back, keep the back rounded.

Flat Back Elephant

STARTING POSITION

Place the heels against the shoulder rests with the toes up and the hands on the footbar. Flex the hips and flatten the back keeping the head in line with the spine and the shoulders down.

MOVEMENT SEQUENCE

Inhale: Press the heels back to stretch the calves and hamstrings.

Exhale: Engage the abdominals to draw the carriage in flexing the hips and maintaining a flat back.

1. Starting position Flat Back. Heels up against shoulder rests, legs and arms straight. Flex the hips, flatten back and bring head in line with the spine.

2. Press the carriage back, maintain a flat back.

Walking Elephant (No photos)

STARTING POSITION

Same as for Flat Back version.

MOVEMENT SEQUENCE

Inhale: Bend the right knee and press the carriage back with the left heel to stretch the calf.

Exhale: Draw the carriage in while straightening the right knee and bending the left.

Inhale: Press the carriage back with the right heel.

Exhale: Draw the carriage back in. Repeat 8-12 times alternating sides and keeping the movement smooth.

CUEING AND IMAGERY

- Engage the abdominals before moving the legs.
  - Scoop the navel toward the spine.
- Keep the head in line with the spine.
  - Use the focus of the eyes to direct head.
- Maintain the position of the shoulders and upper body during the exercise.
  - Keep the ears between the arms.

PURPOSE

- Strengthen abdominals (round back).
- Increase back, hamstring and calf flexibility.
- Increase scapular stability.
- Strengthen hip flexors (flat back).

PRECAUTIONS

Shoulder, arm and wrist injuries: Grip the foot bar to take pressure off the wrists. Avoid if the arms won't tolerate flexion above shoulder height or if symptoms increase.

Tight hamstrings: Use the round back position, place the footbar in high position or increase the height of hand hold by placing the padded foot plate on the Reformer and holding on to the top edge of it rather than the footbar.

Low back injuries: Use the flat back position or avoid if symptoms increase.

Knee injuries: Avoid hyperextending the knees.

LONG STRETCH

INTERMEDIATE • 4 REPS

Springs: R to RR **Footbar:** Low or High **Head Rest:** Up

PR: Comfortable in a plank position on the mat.

STARTING POSITION

Place the hands shoulder width apart on the footbar. With the legs together, place the balls of the feet in the channel between the headrest and the carriage padding with the heels lifted. Engage the abdominals, connect the inner thighs and squeeze the buttocks to bring the body into one long line from the top of the head to the heels. See the Elephant for how to mount the Reformer safely.

MOVEMENT SEQUENCE

Exhale: Flex the shoulders to press the footbar away and move the carriage away from the stopper.

Inhale: Draw the shoulders down to bring the body forward over the footbar as far as possible or until the carriage comes to the stoppers.

CHALLENGE

Light spring

Try lighter springs to increase the challenge.

VARIATIONS

Upper back flexion

Curve the upper back into flexion as the torso moves forward over the footbar.

Upper back extension

Arch the upper back into extension as the torso moves forward over the footbar.

Push ups (no photos)

Add a series of push ups when the torso is over the footbar.

1. Long Stretch. Press the carriage back by flexing the shoulders while maintaining a long, straight line from head to feet.

1. Upper back flexion. Press the carriage back to begin.

2. Pull the torso forward over the footbar as far as possible or until the carriage comes to the stoppers.

2. Round the upper back as the torso moves forward over the footbar and the carriage comes in toward the bumpers.

CUEING AND IMAGERY

- Maintain a long line from top of head to tail.
  - **Instructor cue:** Place a pole or roller along clients back making sure head, mid thoracic and sacrum all connect to the line.
  - Seeing the body in a mirror can help your client to find the right position.
- Keep the head in line with the spine.
  - Use the focus of the eyes to keep head in line.
- Maintain the position of the shoulders and upper body during the exercise.
  - Keep the elbows straight, slide the shoulders down the back and widen the shoulder blades.

PURPOSE

- Strengthen the torso including the abdominals, erector spinae, gluteus maximus, adductors and shoulder girdle.
- Strengthen scapular stabilizers including serratus anterior, lower trapezius and pectoralis major.
- Increase scapular stability.

PRECAUTIONS

Shoulder, arm and wrist injuries: Grip the footbar to take the pressure off the wrists or avoid if the arms won't tolerate being flexed above shoulder height or if symptoms increase. Place the sitting box across the Reformer frame at the footbar end and place the forearms on the box as a modification.

Pregnancy: Caution after 16 weeks.

1. Upper back extension. Press carriage back with a flat back.

2. Arch the upper back into extension as the torso moves forward over the footbar.

UP STRETCH

INTERMEDIATE • 5 REPS

Springs: R to RR **Footbar:** Low or High **Head Rest:** Up

PR: Reformer Long Stretch

STARTING POSITION

Place the balls of the feet on the carriage and the heels on the shoulder rests as if in high heels. Place the hands shoulder width apart on the footbar. Engage the abdominals, connect the inner thighs and gently squeeze the buttocks to bring the body into one long line from the top of the head to the heels. See the Elephant for how to mount the Reformer safely.

PREPARATION (PLANK TO PIKE)

Exhale: Fold at the hips to bring the carriage into the stoppers.

Inhale: Extend the hips to return to the plank position.

MOVEMENT SEQUENCE

Inhale: Extend the shoulders to move the torso forward and look over the footbar.

Exhale: Engage the abdominals and round the back to bring the carriage into the stoppers. For shorter people, this may not be necessary.

Inhale: Hold onto the footbar and flex the hips to bring the hips back over the feet keeping the carriage at the stoppers.

Exhale: Move the carriage back as the torso straightens out into the starting position.

CHALLENGE

Light spring

Lighten the springs to increase the challenge.

1. Starting position. Plank position with arms and legs straight, carriage pushed out.

2. Move the torso forward over the footbar until the carriage comes into the stoppers.

CUEING AND IMAGERY

- Maintain a long line from the top of the head to the tail in the plank position.
- Keep the head in line with the spine.
  - Use the focus of the eyes to keep the spine in line.
- Maintain the width of the shoulders and upper body during the exercise.
  - Keep the elbows straight, the neck long and the shoulders down.
- Allow the movement to flow smoothly from one position to the next.
  - Swing the hips back over the feet.
- Keep the carriage into the stoppers as the hips flex to keep the abdominals engaged as long as possible.

PURPOSE

- Strengthen the torso including abdominals, erector spinae, gluteus maximus, adductors and shoulder girdle.
- Increase scapular stability.
- Strengthen scapular stabilizers including serratus anterior, lower trapezius and pectoralis major.
- Improve coordination.

PRECAUTIONS

Shoulder, arm and wrist injuries: Grip the footbar to take pressure off wrists. Avoid if the arms won't tolerate being flexed above shoulder height or if symptoms increase. Substitute plank position on the elbows on the mat if it is tolerable.

Pregnancy: Caution after 16 weeks.

3. Keeping the carriage at the stoppers, swing the hips back over the heels.

4. Press the carriage out to return to the starting position.

ARM WORK FACING STRAPS

BEGINNING TO INTERMEDIATE • 4 -10 REPS

Springs: B to RR **Footbar:** No bar **Straps:** Very short, short or regular Box: Long or none

PR: Comfortable in starting position.

STARTING POSITION

Sit or kneel in one of the positions listed below facing the straps with the torso lined up over the sit bones and the straps or handles in the hands. Adjust the straps so there is a small amount of tension on the ropes to begin the exercise. Suggested lengths are listed below.

SITTING POSITIONS

Sitting (level 1)

- **Sitting on the long box:** very short ropes.
- **Sitting on the carriage, x-legged:** short ropes.
- **Sitting on the carriage with the legs straight out in front:** short ropes.
- **Kneeling, hips on the heels:** short ropes.

Kneeling (level 2)

- **Kneeling, hips up:** very short ropes.

MOVEMENT SEQUENCE

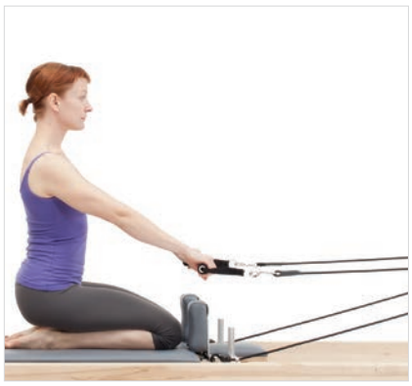
Exhale: Engage the abdominals and pull the straps back.

Inhale: Return the arms to the starting position with control.

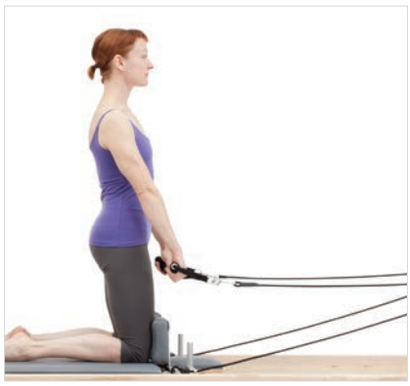
1. Starting position Sitting on Box.

2. Starting position Sitting Cross Legged

3. Starting position Sitting, Legs Straight



4. Starting position Kneeling, Hips on Heels



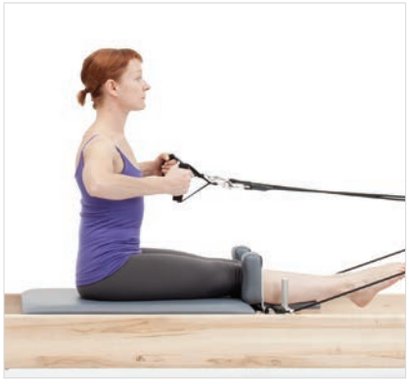
5. Starting position Kneeling, Hips Up

ARM WORK VARIATIONS

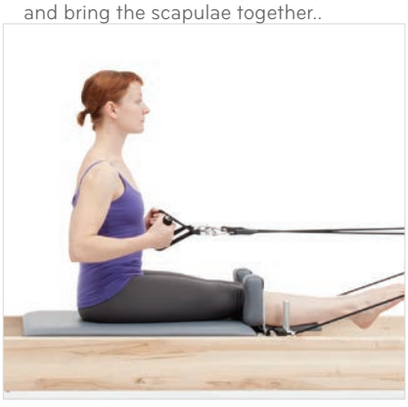
Rows (wide or narrow elbows)

Hold both straps with the straps crossed and the elbows bent. Pull the straps back keeping the elbows bent. Rowing can be done with the elbows close to the torso, abducted to 45 degrees or to 90 degrees.

1. Starting position Rows (wide). Hold one strap in each hand at shoulder height.



2. Wide. Bend the elbows, pull straps back and bring the scapulae together..



2. Narrow. Bend the elbows and pull the straps back.

Triceps/Posterior Deltoid (Chest Expansion)

Begin with the arms straight, just in front of the hips with the palms facing backwards. Pull the straps back as far as possible without rolling the shoulders forward.

1. Starting position Triceps. Arms straight, palms down, just below shoulders.

2. Press the straps back without rolling the shoulders forward.

Alternating Double Arm Twist

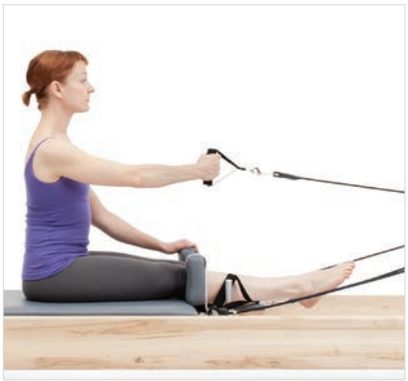
Hold one strap in each hand. Rotate the torso to the right as you pull the right strap back, keeping the elbow into the body. Reach the left arm forward as the torso twists back to increase the rotation. Repeat to the other side.

1. Starting position Twist. Hold ropes in straight arms at shoulder height.

2. Rotate the torso to the right as you pull the right strap back. Reach the left arm in opposite direction.

Single Arm Twist (X-straps)

Take one strap in the opposite hand, rotate the torso and pull the strap back, keeping the elbow close to the body. Return by initiating with the torso. Repeat 4-10 times to one side then switch.



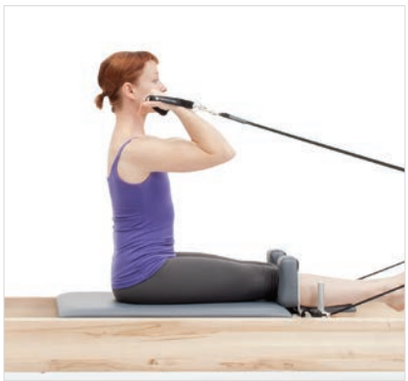
1. Starting position One Arm Twist. Hold the opposite rope with a straight arm at shoulder height.

2. Rotate the torso to the right as you pull the right strap back.

Biceps Curls

Bend the elbows and bring the palms toward the shoulders. For beginners, keep the elbows at the waist as the elbows bend. For more advanced students, begin with the arms in front of the body at 45 to 90 degrees of shoulder flexion.

1. Starting position Biceps. Arms straight, palms up, shoulder height.



2. Keep the upper arms still and bend the elbows to bring the straps in to the shoulders.

External Rotation (no photos)

Hold both straps in the hands with the straps crossed and the elbows level with the waist and slightly away from the torso. Externally rotate the shoulders with the palm up to pull the straps wide. Use a light spring.

CUEING AND IMAGERY

- Engage the abdominals before moving the arms.
  - Exhale and pull the abdominals in then move arms.
- Sit up on top of the sit bones throughout the exercise.
  - **Instructor cue:** Press down gently on the center of the client's head.
  - Imagine you are carrying a large package on your head.
  - Have the client find the center of their sit bones by tilting the pelvis forward and backward.
- Keep the chest open, the shoulders away from the ears and the eyes looking straight ahead.
- Keep the wrists straight.
  - Curl the wrists forward to start.

PURPOSE

- Strengthen arm and shoulder muscles including rotator cuff, brachialis, biceps, triceps, pectoralis major, latissimus dorsi and deltoid.
- Strengthen scapular stabilizers including serratus anterior, trapezius and rhomboids.
- Increase torso stabilization.
- Improve sitting posture.

PRECAUTIONS

Shoulder, arm and wrist injuries: Check to see whether handles or straps are more comfortable to hold. Keep wrists straight. Keep arms below 90 degrees of flexion or abduction.

Low back injuries: Choose the most comfortable sitting position for the back.

ARM WORK FACING FOOTBAR

BEGINNING TO INTERMEDIATE • 4-10 REPS

Springs: B to RB **Footbar:** None **Straps:** Regular **Box:** Short/None **PR:** Ability to sit comfortably.

STARTING POSITION

Sit or kneel in one of the positions listed below facing the footbar with the torso lined up over the sit bones and the straps or handles in the hands.

MOVEMENT SEQUENCE

Exhale: Engage the abdominals and press the straps forward.

Inhale: Return the arms to the starting position with control

SITTING POSITIONS

Sitting (Level 1: see Arm Work Facing Straps for photos)

- Sit on the short box.
- Sit on the carriage, x-legged.
- Sit on the carriage, legs out in front.
- Kneeling with the hips on the heels.

Kneeling (Level 2)

- Kneel with the hips over the knees.

ARM WORK VARIATIONS

Serve a Tray

Sit facing the footbar with straps in hands, the elbows bent and the palms facing up toward the ceiling. Reach forward until the elbows are straight and the arms are level with the center of the chest. Open the arms out to the sides with the palms up. Bring the arms back in front of the chest, bend the elbows and return to the starting position.

Hug a Tree

Face the footbar with straps in hands, arms out to the sides and palms facing each other. Keep elbows soft, arms slightly round and bring the fingertips together. Open the arms to return to the starting position.

1. Starting position Serve a Tray. Facing footbar with straps in hands, palms up.

2. Reach the arms forward with the palm up.

1. Starting position Hug a Tree. Arms out to the sides with palms facing each other.

3. Open the arms out to the sides.

4. Reach the arms forward in front of chest.

2. Bring the hands toward the midline.

Salute

Sit facing the footbar with straps in hands, the palms facing away from the body and the elbows bent. The fingertips are level with the forehead. Press the straps forward and up on a diagonal. Bend the elbows to return to the starting position.

1. Starting position Salutes. Straps in hands, palms facing away from the body and the elbows bent.

2. Press the hands out at an angle.

Twist Front (Punching)

Sit facing the footbar with one strap in each hand, rotate the torso and push one strap forward. Rotate to the other side and push the other strap forward. Alternate arms focusing on the rotation of the torso.

1. Starting position Twist Front. One strap in each hand, rotate the torso and push one strap forward.

2. Rotate to the other side and push the other strap forward.

CUEING AND IMAGERY

- Engage the abdominals before moving the arms.
  - Exhale and pull the abdominals in then move arms.
- Sit up on top of the sit bones throughout the exercise
  - **Instructor cue:** Press down gently on the center of the client's head.
  - Have the client find the center of their sit bones by tilting the pelvis forward and backward.
- Keep the chest open, the shoulders away from the ears and the eyes looking straight ahead.
- Keep the wrists straight.
  - Curl the wrists forward to start.

PURPOSE

- Strengthen arm and shoulder muscles including brachialis, biceps, triceps, pectoralis major, latissimus dorsi, rotator cuff and deltoid.
- Strengthen scapular stabilizers including the serratus anterior, trapezius and rhomboids.
- Increase torso stabilization.
- Improve sitting posture.

PRECAUTIONS

Shoulder, arm and wrist injuries: Check to see whether handles or straps are more comfortable to hold. Keep wrists straight. Keep arms below 90 degrees of flexion or abduction.

Low back injuries: Choose the most comfortable sitting position for the back.

STANDING/SIDE SPLITS

BEGINNING • 8 REPS

Springs: Y to R **Footbar:** No bar **Other**: Standing platform (if needed) **PR:** Ability to stand comfortably.

SAFETY NOTE

Spot your client as they get on and off the Reformer by holding their hand or having your hand available the first few times. Teach your clients to always stand on the frame or non-moving part first before standing on the carriage. One image here is that the standing platform is a dock and the carriage is a boat. Always step from the dock to the boat.

STARTING POSITION

To mount the Reformer, step on the standing platform first, then step onto the carriage. Begin with equal weight on both feet and the torso centered over the legs. Most Reformers and Allegros are equipped with a wide platform at the footbar end of the Reformer frame to use in standing exercises when working parallel. For working in turnout, an extra wide standing platform can be attached to the wooden Reformer.

MOVEMENT SEQUENCE

Inhale: Line the torso up over the feet and press the carriage out. Depending on the variation, the torso will remain evenly balanced between both legs or the weight will stay over one leg as the other leg moves.

Exhale: Bring the carriage in without banging into the stopper.

EXERCISE FOCUS (ADDUCTION VS. ABDUCTION)

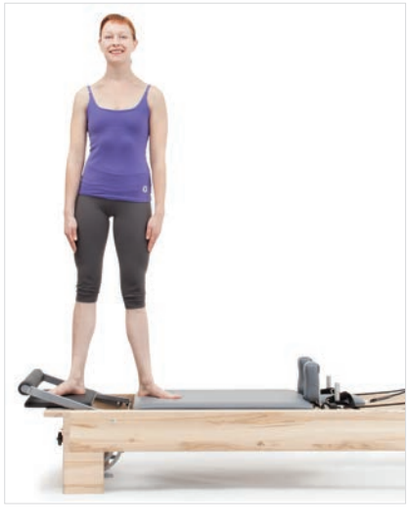
Adduction focus

To focus on the hip adductors, use a resistance that is light enough to require control when pulling the carriage toward the standing platform.

Abduction focus

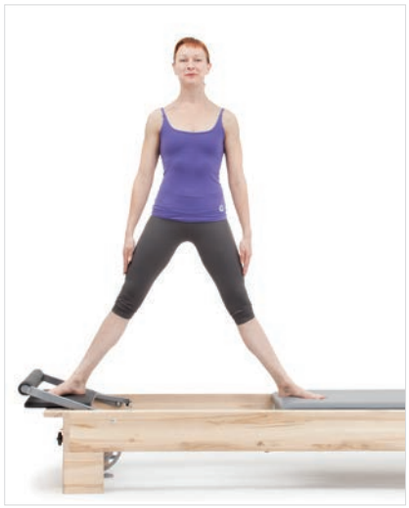
To focus on the hip abductors, use a spring load that is strong enough to create resistance when pushing the carriage away from the standing platform.

1. Legs Straight, parallel. One foot on the platform, the other on the carriage.



1. Legs Straight, external rotation. One foot on the platform, the other on the carriage.

2. Press away from the bumper keeping the torso centered over the legs.



2. Press away from the bumper keeping the legs straight and the torso centered between the legs.

EXERCISE VARIATIONS

Knees straight, weight centered.

- Legs parallel.
- Legs in external rotation.

Knees bent, weight centered.

- Legs parallel.
- Legs in external rotation.

Hand position

Hands can be at the sides as shown, on the hips or out to the side.

Knees bent, weight on standing leg

Weight stays centered over the leg on the platform while the other leg presses the carriage out and in.

- Legs parallel.
- Legs in external rotation.

1. Starting position Knees Bent. One foot on the platform, the other on the carriage.

1. Starting position Knees Bent, Weight on Standing Leg.

2. Press away from the bumper keeping the torso centered over the knees with the knees bent.

2. Keep the torso over the standing leg as the moving leg pushes the carriage out and pulls it back in.

CUEING AND IMAGERY

- Maintain correct standing alignment.
  - The plumb line in a side view should run from the earlobe through the center of the shoulder, the greater trochanter, the center of the side of the knee to just in front of the medial malleolus.
- Keep hips, knees and ankles lined up.
- Keep the chest open, the shoulders away from the ears and the eyes looking straight ahead.

PURPOSE

- Strengthen leg and hip muscles including hip adductors, abductors and external rotators along with quadriceps and hamstrings.
- Improve balance.
- Improve standing posture.

PRECAUTIONS

Knee injuries: Limit range of motion in abduction to decrease stress on medial knee. Adjust weight or avoid if symptoms increase.

Balance problems: Spot client throughout exercise. Be careful getting on and off Reformer.

SI joint problems: Limit range of motion or avoid.

Pregnancy: Caution after 16 weeks.

LUNGES

BEGINNER • 4 REPS

Springs: B to R **Footbar:** High

STARTING POSITION

Stand with one foot on the floor level with the front edge of the Reformer and the other foot on the shoulder rest. Both knees are bent and the back knee is resting on the carriage if you are using a wooden reformer. On the Allegro the back knee will be off the carriage. Make sure the front knee stays behind the toes as you bend. Place both hands on the footbar with the elbows straight.

1. Starting position Lunges. Stand on one foot with the toes at the front of the frame. Place the other foot on the shoulder rest with the knee on the carriage.

MOVEMENT SEQUENCE

Exhale: Press back into the shoulder rest by bending the front knee and stretching the front of the back hip. Keep the abdominals engaged and the hips level. To increase the stretch, take the inside arm off the footbar and reach it up to the ceiling. Hold the stretch for 30 to 45 seconds or return to the starting position immediately.

Inhale: Return to the starting position with control.

2. Press the carriage back stretching the front of the back hip.

VARIATIONS

Hand raise

Take the hand on the same side as the stretching leg and reach it up toward the ceiling to enhance the stretch.

Lateral flexion

With the arm raised, laterally flex the torso away from the stretching leg to increase the stretch.

3. Lift the inside arm up for more stretch.

Eve's Lunge

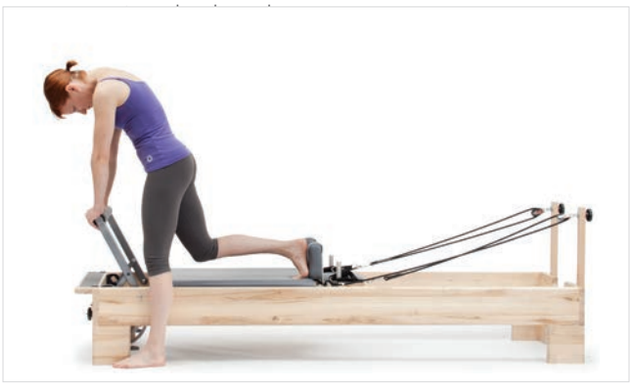
STARTING POSITION

Stand with one foot on the floor level with or behind the front edge of the carriage and place the other foot on the shoulder rest. The knees should be parallel to each other or the stretching hip should be in slight flexion. The standing leg is straight and the back knee is off the carriage. Place both hands on the footbar, round the back and focus the eyes on the navel.

MOVEMENT SEQUENCE

Inhale: Press the carriage away with the back leg and uncurl the spine as the standing leg bends.

Exhale: Return to the starting position immediately or hold the stretch for 30 to 45 seconds. To return, curl the tailbone under to increase the stretch through the front of the hip as you round the back and bring the



1. Starting position Eve's Lunge. Stand with left leg straight under the hip, hands on the footbar, back rounded, eyes to naval, right foot on the shoulder rest, knee lifted. NOTE: Stretching knee should be parallel with standing knee. (Photo is incorrect)

2. Extend the spine and press the carriage back.

CUEING AND IMAGERY

- Keep the standing knee behind the toes.
  - Look down and make sure you can see your toes.
- Keep both hip bones facing forward and as level as possible.
  - Imagine your hip bones are headlights and keep them aiming straight ahead.
- Keep the chest open, the shoulders away from the ears and the eyes looking straight ahead.
  - Roll shoulders back, slide shoulders down back, focus your eyes.

PURPOSE

- Stretch the anterior hip including psoas, iliacus, rectus femoris and sartorius.
- Stretch the abdominals.

PRECAUTIONS

Low back injuries, sacroiliac joint dysfunction and anterior hip strains: Limit range of motion in hip extension, use abdominals to support back and hold the stretch very briefly. Avoid if symptoms increase.

Pregnancy: Caution after 16 weeks.

SIDE STRETCH/MERMAID

BEGINNER • 6 REPS

Springs: B to R **Footbar Position:** High or low

STARTING POSITION

Sit on the carriage facing the side of the Reformer with both knees bent, one shin against the shoulder rests and the other heel in front of the hips (triangle position). Place one hand on the footbar slightly in front of the shoulder.

1. Starting position. Sit on the carriage facing the side with knees bent.

MOVEMENT SEQUENCE

Inhale: Press the carriage out and reach the hand overhead to stretch the side.

Exhale: Rotate the torso toward the floor, bring the free hand to the bar and move the supporting hand toward the far side of the footbar.

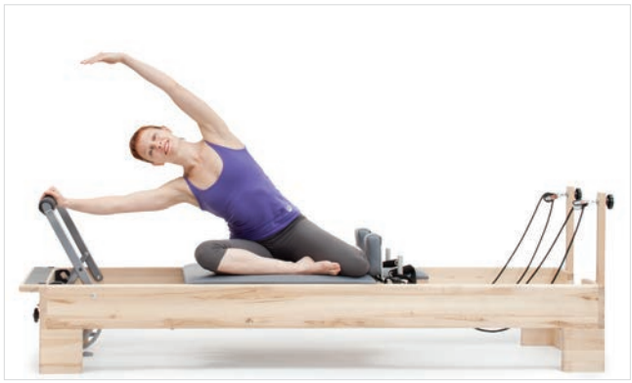
Inhale: Breathe into the sides of the ribs and stretch.

Exhale: Take the front hand off the bar and reach the arm under the side of the torso to increase the stretch.

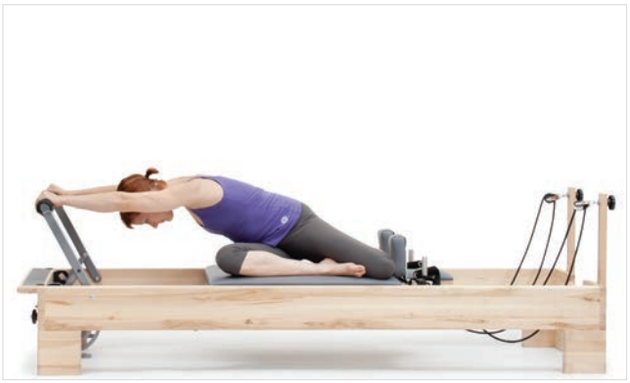
Inhale: Return from rotation to face front with the front hand off the footbar.

Exhale: Bring the carriage in as the arms and torso return to the starting position.

Inhale: Stretch to the other side by taking the hand off the footbar and reaching it toward the ceiling as the other arm rests on the shoulder or head rest.



2. Side bend, torso facing front.



3. Rotate towards the footbar.

MODIFICATION

No springs, feet on floor

Begin sitting on the side of the Reformer with the feet on the floor and in line with the hips. Place one hand on the bar, reach the free hand up and bend toward the bar allowing the hips to glide sideways, return to the starting position. Add rotation if desired.

CUEING AND IMAGERY

- Anchor both sit bones to increase the side stretch. If the hip closest to the shoulder rests doesn't reach the carriage, imagine that it is connected to the carriage by an elastic cord. Or place a towel under the hip in order to keep that sit bone anchored and increase the stretch.
- Keep the supporting arm slightly in front of the torso.

PURPOSE

- Stretch the lateral torso including quadratus lumborum, latissimus dorsi, internal and external obliques and intercostals.
- Stabilize scapulae.

PRECAUTIONS

Shoulder and neck injuries: Decrease weight and bend the supporting elbow to decrease stress on the shoulder. Avoid if symptoms increase.

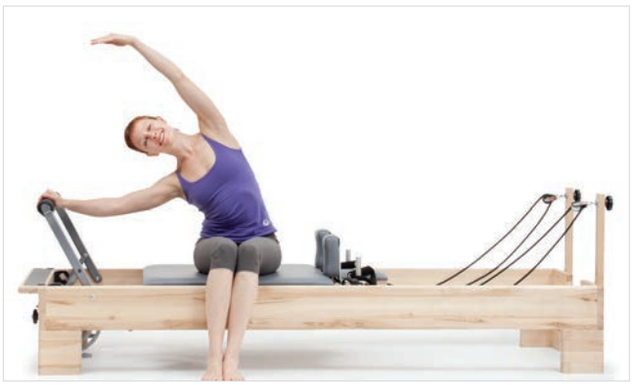
Knee and hip injuries: Place the feet on the floor rather than in triangle position.

Pregnancy: Caution after 16 weeks.

4. Reach arm under torso to increase twist.

5. Return from rotation to face front in a side bend.

6. Stretch to the other side by taking the hand off the footbar and reaching toward the risers.



1. Alternate starting position. Seated facing sideways of the Reformer with the feet on the floor and in line with the hips.

CLEOPATRA

INTERMEDIATE • 6 REPS

Springs: B to R **Footbar Position:** High or low

STARTING POSITION

Sit on the carriage facing the side of the Reformer with both knees bent, one foot stacked on top of the other and both feet against the back shoulder rest. Place the front hand on the footbar and reach the back hand toward the front edge of the carriage. Look toward the feet to begin.

MOVEMENT SEQUENCE

Inhale: Press the carriage out with the hand on the footbar. Lead with the bottom ribs toward the floor as the head looks up toward the ceiling.

Exhale: Return the carriage to the stopper reaching the top hand further toward the front edge of the carriage to increase the stretch.

CUEING AND IMAGERY

- Maintain the curve of the spine as you press the carriage away.
  - Lead with the ribs as you press out.
  - Look toward the feet as you come back in.
- Keep the supporting arm slightly in front of the torso.

PURPOSE

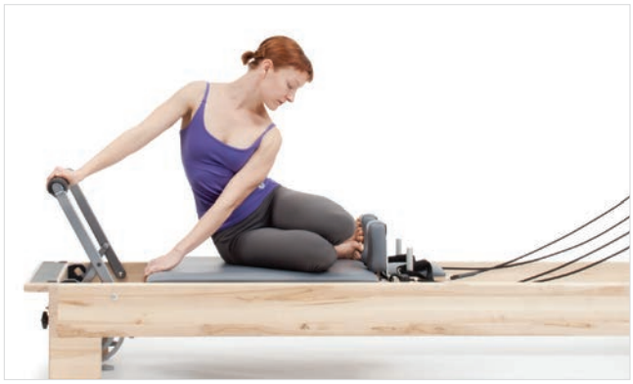
- Stretch the lateral torso including quadratus lumborum, latissimus dorsi, internal and external obliques and intercostals.
- Stabilize scapulae.

PRECAUTIONS

Shoulder and neck injuries: Decrease weight and bend the supporting elbow to decrease stress on the shoulder. Avoid if symptoms increase.

Knee and hip injuries: Use the Mermaid version with the feet on the floor.

Pregnancy: Caution after 16 weeks.



1. Starting position. Sit on the carriage facing side with knees bent and stacked. Front hand on footbar, other reaches across waist to end of the carriage.

2. Press the carriage out leading with the ribs and looking up toward the ceiling.

Teaching a Reformer Class or Personal Training Session

The Reformer is a very versatile piece of equipment with a wide array of exercises to choose from. Designing a session for a class or personal training session can be daunting to the new instructor. Here are a few things to keep in mind as you plan your classes.

Pilates is intended to be a full body workout that addresses all the key muscle groups and movements in a 1 hour session. Include exercises from each of the following groups for a well rounded session.

- Abdominals/Spinal Flexion
- Back Muscles/Spinal Extension
- Spinal Rotation
- Lateral Spinal Flexion

- **Hips, Legs and Feet including:**
  - Quadriceps
  - Hamstrings
  - Adductors
  - Abductors
  - Plantar Flexion
  - Dorsiflexion

- **Shoulders and Arms including:**
  - Scapular Stability
  - Scapular Mobility
  - Anterior Shoulder and Arm (pushing and elbow extension exercises)
  - Posterior Shoulder and Arm (pulling and elbow flexion exercises)
  - Deltoid (pushing overhead)
  - Latissimus Dorsi (pulling down)

- **Flexibility for key muscle groups including:**
  - Spinal Extensors
  - Torso Rotators
  - Lateral Torso
  - Hamstrings
  - Hip Flexors
  - Hip Adductors
  - Posterior Calf Muscles
  - Chest Muscles
  - Shoulder Muscles

Real life happens in a variety of positions so help your client prepare for it by including exercises in:

- Supine
- Prone
- All fours
- Sitting
- Standing
- Side lying

At the end of this lecture and in each manual are a variety of workouts based on both classical and contemporary Pilates styles. Each workout is designed to address the key muscle groups and body positions. Pick one and teach it to several people until you get comfortable with the sequences, machine set up and variations that each client will present. Once you can teach that program without referring to the book, pick another one. As your familiarity with the system grows, you start to find connections and variations that suit you and your clientele.

Changing from one exercise to the next can be simple or complicated depending on the sequences you choose. For example, setting up the box involves getting off the machine, getting the box and placing it on the machine along with adjusting springs or ropes. This can cause the session to lose momentum so don't do this transition more than once in a class. Choosing a series of exercises that involve a minimum amount of adjusting helps to create flow and keep the energy up. See how few changes you can make and still cover all the body positions and exercises.

Transitions are an opportunity for staying present and efficient with your movements. In a well-taught class, the transitions are just part of the exercise rather than an opportunity to space out so don't be afraid of transitions, just be conscious of where they are and how to make them as smooth as possible. Consider choreographing spring changes, box changes and footbar adjustments and cueing the transitions as you cue the exercises.

In a private or duet session you can set up the equipment for the client and transitions are not quite as important as they are when teaching a class.

Pilates can involve a lot of detail and sometimes instructors can lose the forest for the trees. Focus on what you can fix easily, let the rest go and have faith that if you follow the program, the body will change.

REFORMER SEQUENCES

INTRODUCTORY SESSION

The introductory session provides a full bodied workout while introducing the key Pilates principles of breathing, pelvic and scapular stability, abdominal strengthening and alignment. It also covers several of the basic body positions used on the Reformer. Beginning or modified versions can be used for exercises such as feet on the straps and sitting arm work. Depending on the client or class, this is about what you will get through in a first session.

REFORMER EXERCISES

Introduction
Springs, Footbar, Straps/ropes

Warm-up
- Breathing
- Bridging for back flexibility and stability
- 100 prep with feet on footbar
- Find neutral in supine

Footwork - 15x each
- Heels
- Toes
- Wide
- Running in Place

Abdominal Work 1
100s prep or 100: 10 preps or 2 sets of 50

Feet in straps: 10x each
Feet in straps (flexible hamstrings) or knees in straps (tight hamstrings)
- Leg Lowers
- Circles
- Scissors
- **Hamstring Stretch:** hold for 30 seconds
- **Adductor Stretch:** hold for 30 seconds

Abdominal Work 2: 6-8 sets
Choose 1
- **Roll Downs**
- **Kneeling**

Arm Work - 6 - 10x each
Choose 1 or 2
- **Seated on box or carriage:** Biceps, Triceps, Serve a Tray, Hug a Tree
- **Supine on carriage:** Triceps, Posterior Deltoid Pull, Arm Circles

Lunge: 4x moving, 1 hold

Mermaid: 4x to each side

Finish
Sit on the side of the Reformer, lean forward to stretch the back. Stack the spine back up and rise to standing.

Beginner 1: The Basics

This workout builds on the introductory sequence adding Bridging, an additional abdominal series, more arm work and the Single Leg Knee Stretch. Beginner 1 helps you focus in on teaching the basics of pelvic and scapular stability as well as abdominal and core strengthening.

PREPARATION

- Breathing
- Bridging for back flexibility and stability (all springs)

REFORMER EXERCISES

Footwork: 10x each position
- Heels
- Toes
- V-feet
- Wide/2nd Position
- Flex/Releve
- Running in Place

100's - 2 sets of 50

Feet in Straps: 6 - 10x each exercise
Knees or feet in straps
- Circles
- Scissors
- Leg Lowers
- Hamstring Stretch: hold for 30-45 seconds
- Adductor Stretch: hold for 30-45 seconds

Arm Work 1: 10x each exercise
- **Supine on carriage:** Triceps, Posterior Deltoid Pull, Arm Circles

Abdominal Work 2: Choose 1 or 2
- **Roll Downs:** 6 sets
- **Short Box Abdominals:** 8 sets
- **Kneeling abdominals:** 8 sets
- 100's prep with feet on footbar
- Knee drops to each side

Arm Work 2 - 10x each
- **Seated on box or carriage:** Biceps, Triceps, Serve a Tray, Hug a Tree

Bridging, stable carriage: 6x

Single Leg Knee Stretch: 10x
Flat and/or curved back

Lunge: 4 moving, one hold

Mermaid: 4x each side

Beginner 2: The Full Program

Beginner 2 adds prone work, Knee Stretch, Elephant and Standing to the basic program. This program includes all of the basic body positions including short box, long box, prone, long stretch (in the form of Elephant) and Standing. This program can keep a beginner busy for a while perfecting form, alignment, movement sequencing and coordination.

PREPARATION

- Breathing
- Bridging for back flexibility and stability (all springs)

REFORMER EXERCISES

Footwork: 10x each position
Full sequence

100's: 2 sets of 50 or 1 set of 100

Feet in Straps: 6 - 10x each exercise
Knees or feet in straps

- Circles
- Scissors
- Leg Lowers
- **Hamstring Stretch:** use contract/release
- **Adductor Stretch:** use contract/release

Arm Work 1 - 6 - 10x each

- Supine on carriage: Triceps, Posterior Deltoid Pull, Arm Circles

Abdominal Work 2

- **Roll Downs with arm work:** 4 Roll Downs with 3-4 reps of arm work each
- **Short Box Abdominals:** 8x

Prone work

- **Pulling Straps choose 2 variations:** 6x each

Knee Stretch: round back 10x, flat back - 15x

Bridging: moving carriage - 6x

- 100's prep with feet on footbar
- Knee drops to each side

Arm Work 2: 10x each

- **Seated on box or carriage:** Biceps, Triceps, Serve a Tray, Hug a Tree

Elephant: 6x

Standing: 6x each

- Straight legs
- Bent legs to each side

Lunge: 4 moving, one hold

Mermaid: 4x each side

Beginner 3: The Full Program

Beginner 3 increases the intensity of Beginner 2 by adding more arm work, Long Stretch and perhaps the kneeing version of Sitting Arm Work front and back. This increases the challenge to core and upper body strength as well as providing a variety of exercises.

PREPARATION

- Standing roll downs with hamstring stretch
- Breathing
- **Supine:** Bridging for back flexibility and stability (all springs)
- 100's prep with feet on footbar
- Knee drops to each side

REFORMER EXERCISES

Footwork: 10x each position
Full sequence

100's: 2 sets of 50 or 1 set of 100

Feet in Straps: 6 - 10x each exercise
Knees or feet in straps

- Circles, Scissors, Leg Lowers, Frogs
- **Hamstring Stretch:** use contract/release
- **Adductor Stretch:** use contract/release

Arm Work 1: 6 - 10x each
- Supine on carriage: Triceps, Posterior Deltoid Pull, Arm Circles

Abdominal Work 2
- **Short Box Abdominals:** 8x

Pulling Straps (choose 2): 6x each

Knee Stretch: 10x round back, 15x flat back

Elephant: 6x - add walking

Long Stretch: 4x

Arm Work 2 - 10x each
- **Sitting or kneeling on carriage facing straps:** Biceps, Triceps, Twist
- **Sitting or kneeling on carriage facing footbar:** Hug a Tree, Serve a Tray, Punching

Bridging: 6x

Standing: 6x each
- Straight legs
- Bent legs to each side

Lunge: 4 moving, one hold

Mermaid or Cleopatra: 4x each side

Beginner 4: Variation on the Full Program

Beginner 4 is a variation of the previous program with the addition of an earlier arm work set, additional feet in the straps exercise, increased back extension and the full body coordination of Up Stretch. Both Beginner 3 and 4 are great for developing overall strength and flexibility.

PREPARATION

- Standing roll downs with hamstring stretch
- Breathing
- **Supine:** Bridging for back flexibility and stability (all springs)
- 100's prep with feet on footbar
- Knee drops to each side

REFORMER EXERCISES

Footwork: 10x each position
Full sequence

Arm Work 1: 6 - 10x each
- Supine on carriage: Triceps, Posterior Deltoid Pull, Arm Circles

100's: 2 sets of 50 or 1 set of 100

Feet in Straps: 6 - 10x each exercise
Knees or feet in straps
- Circles, Scissors, Leg Lowers, Frogs
- **Hamstring Stretch:** use contract/release
- **Adductor Stretch:** use contract/release

Abdominal work 2
- **Short Box Abdominals add 3 arm lifts:** 6x

Prone work
- **Pulling Straps full sequence:** 6x each
- **Overhead Press -** 8x each hand position
- **Swan:** 6x

Knee Stretch: 10x round back, 15x flat back

Elephant: 6x, add walking

Long Stretch: 4x

Up Stretch: 4x

Arm Work 2: 10x each
- **Sitting or kneeling on carriage facing straps:** Biceps, Triceps, Twist
- **Sitting or kneeling on carriage facing footbar:** Hug a Tree, Serve a Tray, Punching

Bridging: 6x
Single Leg: 2 sets of 4 lifts each side

Standing : 6x each
- Straight legs
- Bent legs to each side

Lunge: 4 moving, one hold

Mermaid or Cleopatra: 4x each side

Beginner 5: More for the Core

Beginner 5 focuses on abdominal strengthening in a variety of positions including adding the Mat abdominal series as part of the warm up. Keeping your cueing focused on the abdominal work in each exercise will intensify the work.

SUPINE PREPARATION

- Breathing
- Bridging for back flexibility and stability

REFORMER EXERCISES

Footwork: 10x each position
Full sequence

Arm Work 1: 6 – 10x each
- **Supine on carriage:** Triceps, Posterior Deltoid, Lat Pulls

100's: 2 sets of 50 or 1 set of 100
- Add legs rising and lowering

Feet in Straps: 6 - 10x each exercise
Knees or feet in straps

- Circles, Scissors, Leg Lowers, Frogs
- **Hamstring Stretch:** use contract/release
- **Adductor Stretch:** use contract/release

Abdominal Work 2
- **Kneeling Abdominals: face back -** 6x
- **Kneeling Abdominals: face back single leg -** 6x each leg

Abdominal Work 3
- **Short Box Abdominals: add 3 arm lifts with the pole -** 6x

Prone work
- **Pulling Straps:** full series– 6x each
- **Swan:** 6x
- **Mat abdominal series:** 100, Single leg stretch, Single straight leg stretch, Double leg stretch

Knee Stretch: 10x round back, 15x flat back

Elephant: 6x

Long Stretch: 4x

Up Stretch: 4x

Arm Work 2: 10x each
- **Kneeling on carriage facing straps:**
  - Biceps
  - Triceps
  - Twist
- **Kneeling on carriage facing footbar:**
  - Hug a Tree
  - Serve a Tray
  - Punching

Bridging: 6x plus single leg 2 sets

Standing: 6x each
- Straight legs
- Bent legs to each side

Lunge: 4 moving, one hold

Mermaid or Cleopatra: 4x each side

Beginner 6: Strong Arms

Strong Arms provides a full-body workout with an emphasis on the upper body. Great for men and athletic women and for working on scapular mobility and stability in a variety of positions.

STANDING PREPARATION

- Shoulder circles, shoulder shrugs
- Arms flex and extend while the knees bend
- Arms abduct and adduct while the knees bend

REFORMER EXERCISES

Footwork
Full sequence: 10x each

Arm Work 1: 10x each
- **Supine on carriage:** Triceps, Posterior Deltoid, Lat Pulls, Arm Circles

Abdominal Work 1
- **100's:** 2 sets of 50 or one set of 100

Feet in Straps: 6 - 10x each exercise
Knees or feet in straps

- Circles, Scissors, Leg Lowers, Frogs
- **Hamstring Stretch:** use contract/release
- **Adductor Stretch:** use contract/release

Abdominal/Arm work 2
- **Roll Downs with arm work - 3 sets,**
  - 1st set: Roll down and up - 3x
  - 2nd set: Roll Down, add 4 biceps curls 2 sets
  - 3rd set: Roll down, add 4 posterior deltoid pulls 2 sets
- **Kneeling Abdominals:** 6 sets

Prone arm work
- **Pulling Straps full series:** 6x each
- **Overhead Press:** 8x double arms, 2 sets of 4 single arms

Abdominal work 2
- **Short Box Abdominals: 6x add 3 arm lifts with pole**
- **Plank position on the footbar with the feet on the floor:** 5
- Breathing

Knee Stretch: 10x round back, 15x flat back

Elephant: 6x add walking

Long Stretch: 4x add push ups on the bar

Up Stretch : 4x

Arm Work 2: 10x each
- **Kneeling on carriage facing straps:**
  - Biceps
  - Triceps
  - Twist
- **Kneeling on carriage facing footbar:**
  - Hug a Tree
  - Serve a Tray
  - Punching

Lunge: 4 moving, 1 hold

Mermaid or Cleopatra: 4x each side

Beginner 7: Mostly Legs

Mostly legs works the lower body with a goal of strengthening and toning the buns, thighs and calves. As always, Pilates provides a full bodied workout with and emphasis on a particular area. Great for building strength for activities such as running, biking and skiing.

STANDING PREPARATION

- Knee bends with arm raises
- Squats with arm raises
- Toe raises with arm raises

REFORMER EXERCISES

Footwork: 10x each

Full sequence

100's: 2 sets of 50 or 1 set of 100
- Add legs rising and lowering

Feet in Straps: 6 - 10x each exercise
Knees or feet in straps
- Circles, Scissors, Leg Lowers, Frogs
- **Hamstring Stretch:** use contract/release
- **Adductor Stretch:** use contract/release

Prone Arm Work 1
- **Pulling Straps all 4 versions:** 6x each

Abdominal Work 2
- **Short Box Abdominals: add 3 arm lifts -** 6x

Prone Arm Work 2
- **Swan:** 8x

Knee Stretch: 10x round back, 15x flat back

Elephant: 6x, add walking

Long Stretch: 4x with push ups

Arm Work 2: 10x each
- **Kneeling on carriage facing straps:** Biceps, Triceps, Twist
- **Kneeling on carriage facing footbar:** Hug a Tree, Serve a Tray, Punching

Bridging, moving carriage: 2 leg positions - 2 sets
Pilates V and wide plus single leg

Standing: 6x
Straight legs, bent legs to each side: decrease weight for adductors, increase for abductors

Lunge: 4 moving, one hold

Mermaid or Cleopatra: 4x each side

What Makes a Teacher?

Teaching is an opportunity to pass on your skills, your knowledge and your inspiration to the next generation. Whether you think of yourself as a teacher or not, one of the key features of being human is your ability to teach those around you what they need to know to be part of the human community. Teaching Pilates is one kind of teaching that may be new to you, but all your skills as a communicator, performer, parent, sibling or adviser can come into play as you develop your unique teaching style.

In observing the development of many Pilates teachers over the last several years, I have noted distinct stages students pass through on their way to becoming truly skilled professionals. All of the stages represent the process of acquiring skills that are necessary for progressing to the next level.

LEVEL 1: THE EXERCISE LEADER

The exercise leader is a teacher who can successfully get their students to perform the exercise. If an exercise leader is teaching a group class, they can successfully demonstrate the exercises in an appropriate sequence and the students can follow along without too much confusion. If the exercise leader is teaching a private or semi-private session, they can set up the equipment, make appropriate adjustments and get the students to perform the exercises successfully and efficiently.

The exercise leader understands the exercises they are teaching in order to successfully communicate:

- **Correct equipment set up (if required):** # of springs, position of footbar
- **Proper body position:** supine with feet on footbar
- **Movement sequence:** press the carriage back and return
- Number of repetitions
- Transition to next exercise
- Basic safety instructions for clients without physical limitations
- Program sequencing and flow to fulfill the objectives of the class

This is the basic level of skill required to teach and it takes practice to achieve all of these things. The goal of the personal sessions and student teaching hours are to develop this level of ability. Until you can successfully teach an exercise safely and efficiently to a student or client you have not reached the basic level required of a Pilates teacher.

LEVEL 2: THE PILATES TEACHER

The Pilates teacher can take a student or a class and teach them not just how to perform the exercise but how to perform it better. The Pilates teacher's goal is to help his or her students achieve optimum function and performance in whatever they do. Whether the student is a mother, a computer programmer, a casual runner or a professional athlete, the Pilates teacher works with the individual student's goals to design a program to address postural, functional and performance goals.

The Pilates teacher can take a student without substantial physical limitations and design a specific program to help them to:

- Improve overall strength and flexibility
- Correct common muscular imbalances
- Improve posture
- Improve physical function in daily activities
- Achieve their fitness goals
- Improve their performance in the athletic activities of their choice

Becoming a Pilates teacher takes many years. It requires practice on a wide variety of body types over a long period of time before the common problems become clear and the solutions, straightforward. Every student provides an opportunity to learn something new about what a particular body or personality needs to succeed.

Pilates Teachers add the following skills to those of **the Exercise Leader:**

- Coaching and motivation for clients of all personality types
- An ability to understand and analyze common postural, movement and muscular imbalances and address them effectively
- A commitment to work with each student at their level and support their process
- An interest and ability in creative problem solving
- A thorough understanding of the mechanics of the Pilates equipment and the effect of each adjustment on each exercise
- A thorough understanding of the Pilates repertoire and how to modify as needed
- An ongoing commitment to continuing education

The goal of the Balanced Body Pilates Instructor Training program is to create masterful, inspiring and compassionate Pilates Teachers.

LEVEL 3: THE PILATES MASTER NSTRUCTOR

The Pilates Master Instructor can possess a variety of skills depending on what they are most passionate about. Master instructors can excel in teaching a specific kind of student, for example dancers or golfers, they can excel in teaching clients with injuries, or they can excel in their creativity and ability to stretch the boundaries of Pilates.
Many master instructors become teachers of Pilates teachers and choose to pass on their experience to the next generation. Master Instructors are recognized by the Pilates community as having unique skills that are of value to our profession.

As a Pilates teacher you will work with students of all kinds. Most instructors discover, once they start teaching, that mastering the Pilates equipment and exercises is a lot easier than learning how to communicate with the wide range of students that show up at classes. Cueing that works beautifully for one person often makes no sense to someone else. A skilled teacher learns to communicate in a variety of ways in order to address the many learning styles of their students. Here are a variety of options for you to consider when you get stuck or can't think of another way to express something.

Verbal, Visual, Manual or Kinesthetic Teaching Styles

People take in information in a variety of ways. One way to categorize this is through what senses we are using to receive and process the information. In your teaching, the more categories you can combine in your instructions, the more effective you will be in your teaching.

VERBAL

Verbal instruction is the words that you say and the order you say them in as well as the qualities of the voice and the body language that accompanies them. Being able to articulate what you want your class or client to do is an essential first step in teaching. Verbal communication includes many aspects of the voice beyond just the words that are being spoken. Aspects of this non-verbal communication that are important to consider include:

Quality of the voice

- Is your voice pleasant or irritating to listen to?
- Does your voice convey the quality of the movement it is asking for?
- Do you speak at an appropriate volume for your client?

Rhythm of the voice

- Do you vary the rhythm of your voice when you are speaking?
- Do you speak in a monotone?
- Do you use your voice to convey the rhythm of the exercise?

Emotional content of the voice

- Is your voice expressive or dull?
- How does your voice make people feel?
- Can you give corrections and take control of a class without getting angry or causing pain or embarrassment to your students?
- Does your voice create a calm, energetic, manic or boring atmosphere?

VISUAL

Visual cues can be the physical movements that a person sees, or they can be hinting cues that create a mental picture that the client can use.

Actual visual cues include:

- Performing the movements exactly as the client will be doing them as in demonstrating for a Mat class
- Indicating the motion desired with a smaller body motion as in rotating the torso to indicate rotation to a client or using the arms to indicate movement of the legs.

Visual imagery cues can include:

- Reach your arms out to the sides as if you are making the shape of a 'T'.
- Imagine your spine is like the trunk of a young tree, bending gently in the wind.

MANUAL

Manual cueing uses the sense of touch to instruct the student and is used in addition to auditory instructions to facilitate movement, muscle engagement or muscle tone.

Examples of manual cueing include:

- **Facilitating movement:** When teaching a student how to rotate the torso, manual cueing can help the student to feel the movement clearly and to understand what the instructor is looking for.
- **Encouraging muscle engagement:** Placing a hand on the muscle to be used can help the student to identify what they are trying to use.
- **Moderating muscle tone:** A hand on an area can help bring the students awareness to that area and to decrease or increase the amount of muscle tone.

PRECAUTIONS REGARDING MANUAL CUEING

Not every client is comfortable with manual cueing. Make sure you ask permission before you touch them and let them know what you will be doing and why. If you are a hands on teacher, let them know that in the first session and if they are comfortable with it then you don't have to ask each session.

Move your client into position only as a last resort. In order to facilitate the learning process for the client, it is more for effective for them to find the placement themselves then for you to put them there. Resist the impulse to pick up their foot and move it two inches to the right on the footbar. Have them do it themselves unless they just aren't getting it.

Cue bilaterally if possible. The nervous system does not get a balanced signal if you only touch one side of the body in a bilateral movement. For example, if you are placing your hands on a client's shoulders to encourage them to relax, place your hands on both shoulders. Otherwise their nervous system gets a very mixed message.

KINESTHETIC

Kinesthetic learners learn by feeling and doing. This is a fairly rare learning style that is most common among dancers and other athletes who have spent many years training their kinesthetic sense. Many new teachers, especially those from a movement or dance background, will demonstrate exercises assuming their students will be able to learn it just from watching. For most students this is not the most effective way to learn and it is quite time consuming so you may consider trying verbal cueing first and using demonstration as a secondary skill. Kinesthetic learning is exactly what you are teaching your client to be better at. Through experience, they will understand the exercise better and be able to refine it more effectively.

REFINING YOUR VERBAL CUEING

Since verbal cueing is most of what you will be doing in your teaching, it is worth exploring how you use language and how you can expand your cueing repertoire. The key things that need to be communicated about an exercise include:

- What is the starting position?
  - **Equipment set up:** 2 springs, footbar
  - **Body position:** prone, supine, sitting
- What is the movement sequence?
- What is the breathing pattern?
- How many repetitions?

Use positive cues rather than negative cues

When giving a cue, know that it is much easier for a client to do something you want them to do than to stop doing something you don't want them to do. For example, if someone's shoulders always rise. Try active cues such as "Slide the shoulder blades down your back", "Lower your shoulders" or "Melt your shoulders down" rather than "Don't raise your shoulders".

Get creative

Once you have covered the basics and the student understands essentially what they are doing, cueing moves to the next level and can include a tremendous amount of creativity. Once the mechanics of the exercise are understood, a variety of images and explanations can improve the student's understanding and refine their experience of the exercise. Imagery categories include:

- **Anatomical cueing and explanations:** Engage your abdominals to bring your ribs toward your pelvis.
- Tighten the quadriceps to pull the patella up.
- **Kinesthetic cueing:** Feel your ribs slide down the front of your torso .
- Imagine someone is lifting your upper body up as the abdominals engage.
- **Visual cueing:** Picture your ribs melting toward your pelvis as the torso rises off the mat.
- Imagine a pebble sinking from your navel to your spine as the abdominals engage.
- To feel the transversus working, imagine you have plastic wrap across your hip bones and it pulls tighter as you engage the muscles.
- **Movement oriented cueing:** Imagine energy is shooting out the top of your head as you stand.
- Reach the arms toward the ceiling as if you are reaching for something you want more than anything
- And lots more...

As a teacher you get to experiment with and develop your individual style and you will attract students who need your particular skills. If you are working in a studio with other instructors, keep your ears open for new ways of saying things and borrow what you feel drawn to. Find cues that feel true to you and that you can vividly imagine as you are using them. Your student's response is directly proportional to your connection to the image. If you are very clear about what you are asking, they will follow along. If you are fuzzy, they will be too.

As an instructor it is extremely important to be patient and to remember how long it takes to learn a new physical skill. If you are an accomplished athlete or dancer it may be difficult to remember how many years it took you to learn the skills you currently possess. For many of your clients without much of an athletic background it can take quite a while for the basic principles of Pilates to start to take root. Be patient. The mind is fast, the body is slow. Allow your client time to get used to all the new ideas you are throwing at them and to begin to digest the new vocabulary and experiences you are leading them through.

Take your time; enjoy the process of becoming a teacher.
If you enjoy people and movement and the miracles the body contains you will have a very rewarding and successful career in Pilates.

Leg and Foot Alignment on the Reformer

NORMAL STRUCTURAL ALIGNMENT

Correct alignment of the hip, leg and ankle allows the forces generated by walking and running to be spread efficiently through all of the joints without allowing stress to build up at any one point.

Optimum alignment of the lower limb is indicated by drawing a straight line from just inside the ASIS, through the center of the patella and the center of the ankle joint when viewed from the front.

From the side the line runs from the greater trochanter through the mid lateral point of the knee joint to just anterior to the lateral malleolus. When assessing alignment in motion, the ankle, knee and hip should line up over each other and maintain approximately the same alignment as they go through a full range of motion in whatever activity the client is engaged in.

The goal when working on the hip, leg and ankle is to balance the strength and flexibility of the muscles that surround and support each joint in order to optimize correct alignment and balance the forces that move from the foot to the ankle to the knee to the hip. The vast majority of issues in this area are due either to misalignment, muscular imbalance, overuse or trauma. Any program for the lower limb would consist of the following:

- Mat and apparatus exercises focusing on creating balanced muscular support for all of the joints of the lower limb in order to minimize joint stress and muscle overuse.
- Stretching of the psoas, quadriceps, iliotibial band, hamstrings, adductors, calves and feet to maximize full range of motion of the joints and to correct imbalanced pull on the joints.
- In the case of ligament tears or other traumas that result in loss of stability to the knee or ankle, treatment is aimed at strengthening the appropriate muscles to compensate for the loss of ligamentous support.
  - For anterior cruciate ligament sprains and tears focus on hamstring strength.
  - For posterior cruciate ligament sprains and tears focus on quadriceps strength.
- For lateral ankle sprains focus on peroneal, posterior tibialis, toe flexor and extensor strength.

Any program for correcting alignment will take time, persistence and patience. Keep working on the pattern and let the client's body adapt to the change through practice. Home exercises or specific postural cues for the client to practice on their own are very useful in creating lasting change.

COMMON MISALIGNMENTS AND MUSCULAR IMBALANCES OF THE LOWER LIMB

What follows are examples of common structural misalignments and suggestions for corrective strategies. It is a rare client that falls squarely into any one category so these patterns represent starting points from which to start unraveling your client's individual issues.

GENU VALGUM "KNOCK-KNEES" AND GENU VARUM "BOWLEGS" ASSESSMENTS

One simple way to assess bowlegs and knock-knees is to have the client stand in parallel with the medial border of their feet touching. If their knees don't touch, they are bowlegged and if their knees "knock" into each other or overlap, they are knock-kneed.

Bowlegs and knock-knees are related to what is called the 'Q angle' of the femur and it refers to the difference between the mechanical axis of the knee which runs from the center of the hip joint through the center of the knee and the line formed by the shaft of the femur. This angle is usually about 10 degrees. If the angle is less than 10 degrees, the client is considered to have a genu varum or bow legged alignment and if it is greater than 10 degrees the client has a genu valgum or knock-kneed posture. To assess the Q angle visually, draw a plumb line from just inside the ASIS to the floor. The center of the patella should fall in the center of the line. If the center of the patella is outside the line, the client has bowlegs and if it falls inside the line the client is knock-kneed.

GENU VALGUM "KNOCK-KNEES"

With knock-knees, when a client stands in a parallel position, their knees will touch but the ankles won't.

Possible correctives:

- **Increase the range of motion and strength of the muscles that support the medial knee:** vastus medialis, adductors, medial hamstrings and tibialis posterior.

- **Stretch and release muscles that stress the lateral side of the joint:** hip external rotators, vastus lateralis and biceps femoris.
- Work with the client on the Mat, Reformer and Chair to develop and pattern their optimum alignment when flexing and extending the knees in parallel, external rotation and internal rotation.
- Use balls or resistance bands at ankles and knees to help train correct alignment during footowork.

GENU VARUM "BOWLEGS"

If a client has bowlegs, when they stand in a parallel position, their ankles will touch but their knees won't.

Possible correctives:

- **Increase the range of motion and strength of the muscles that support the lateral knee:** abductors, vastus lateralis, IT band, lateral hamstrings.
- **Stretch or release the muscles that stress the medial knee joint:** gracilis, sartorius, medial hamstrings.
- Work with the client on the mat, reformer and chair to develop and pattern their optimum alignment.

"MALICIOUS MALALIGNMENT"

Malicious malalignment is a colorful name for a fairly common pattern of internally rotated femurs accompanied by externally rotated tibias and pronation of the feet. As a pattern it can cause stress in the foot, ankle, knee, hip or back and working to optimize this misalignment can be very helpful.

Possible correctives:

- Work to improve the range of motion and strength of external rotation of the hip and to improve the strength of the arch.
- Work to lengthen the adductors, abductors and peroneals.
- Develop a program that gradually works to improve their functional alignment. Make small changes in alignment at a time. Allow the new pattern to settle in before increasing the range of motion.

GENU RECURVATUM "HYPER-EXTENDED KNEES"

Hyper-extended knees occur when the ligaments in the knee are loose enough to allow the knee to extend beyond a full 180 degree extension. It is often accompanied by an imbalance between the quadriceps and the hamstrings and the client will often have a structure that allows them to collapse into their ligaments. This misalignment can make a client more prone to injuries caused by instability of the knee such as arthritis, ligament sprains or tears and patellar tracking disorders.

Possible correctives:

- Improve the balance between quadriceps and hamstring strength and encourage the client to support the knee in a neutral position when standing or working out.
- Assess the flexibility of the quadriceps and hamstrings and correct any imbalances in this area.
- Work with the client on the mat, reformer, chair and in standing to develop and pattern their optimum alignment.
- If you are working with a dancer who uses the hyperextension to create a better visual line, encourage them to use their hyperextension when they are non-weightbearing only.

INTERNAL ROTATION OF THE FEMUR (CROSS – EYED KNEES)

The patellae will point towards each other on full extension of the knee and hip. Although there is a slight natural internal rotation of the femur on full knee extension, this is a more extreme version.

Possible correctives:

- Increase the range of motion and strength of the hip in external rotation.
- Stretch and release the hip flexors and internal rotators.
- Work with the client on the mat, reformer and chair to develop and pattern their optimum alignment .
- Use a resistance band around the thighs or a pad between the upper inner thighs during leg and footwork on the chair and reformer to keep the external rotators working.

EXTERNAL ROTATION OF THE FEMUR

External rotation of the hip and knee is common in clients who do activities that require external rotation such as dancing or who are knock-kneed. It often indicates a weak medial leg structure including a weak vastus medialis, adductors and medial hamstrings and tight hip external rotators, vastus lateralis and lateral hamstrings.

Possible correctives:

- Increase the range of motion and strength of internal rotators, adductors and vastus medialis.
- Stretch and release hip external rotators, vastus lateralis, Iliotibial band and biceps femoris.
- Work with the client on the mat, reformer and chair to develop and pattern their optimum alignment.
- Use balls above the knees and or ankles to help the client to feel their optimum alignment.

LATERAL PATELLAR TRACKING

This is a very common pattern in many knee complaints and usually indicates weak medial knee muscles, especially the vastus medialis, and a tight iliotibial band. To see if this is a problem for your client, observe the path of the knee cap as the quadriceps tighten when the leg is in full extension. The path should be relatively straight and the knee cap shouldn't pull toward the lateral side of the patellar groove. Observe or palpate the contraction of the vastus medialis and note whether it is firing early in the contraction of the quadriceps, late in the cycle or not at all. Teach the client to feel for the contraction and train the muscle to tighten as early as possible. This is called a Quad set.

Possible correctives:

- Work to improve the strength of the vastus medialis (VMO) through Quad sets and tactile feedback during apparatus work.
- Stretch and release tightness in the lateral thigh and iliotibial band using foam roller, balls or hands on techniques.
- Gradually increase the difficulty of the program until they can maintain the engagement of the VMO in all of their knee work.
- Add proprioceptive and balance challenges such as foam mats, the Bosu, rotator discs and inflatable discs to the leg work exercises on the reformer, chair and in standing work.

TIBIAL TORSION OR TIBIAL BOWING

In a well aligned leg, the ridge of the tibia will draw a straight line from the center of the knee to the center of the ankle. Tibial torsion occurs when the tibia externally rotates relative to the femur causing the feet to be more externally rotated than the knees.

Tibial bowing occurs when the tibia curves outward between the knee and the ankle. Both of these situations will effect the alignment of the legs and change the way force is transferred from the foot to the knee and hip. Once a tibial pattern has been identified, look up and down the chain and see what other effects it is having.

Possible correctives:

- General advice for this situation is to correct the alignment from the hip to the knee and then to correct the alignment of the foot and ankle as much as you can without causing strain or discomfort.
- Correct pronation or supination as required.
- Work to improve the tracking of the leg in all exercises and in a variety of positions.

ANKLE MISALIGNMENTS: PRONATION

Pronation of the foot occurs when the medial foot collapses toward the floor leading to a "flat foot". Walking and moving over a pronated foot can lead to excessive pressure on the medial knee, incorrect patellar tracking, tight iliotibial bands, lateral ankle stress and bunions.

Possible correctives:

- Strengthen the arch through toe curls, towel pulls, prehensile work on the reformer and resistance band exercises focusing on ankle inversion.
- Teach correct alignment in plantar flexion and dorsi flexion.
- Improve the strength of the medial chain of the leg, including vastus medialis and adductors, as well as medial ankle.

SUPINATION

Supination of the foot occurs when the medial foot is tight and the weight is carried on the outside of the foot. Supination is often accompanied by a high arch.

Possible correctives:

- Strengthen the lateral ankle through resistance band exercises focusing on ankle eversion.
- Stretch and lengthen the arch of the foot by massaging the sole of the foot on tennis balls or specially designed tools.
- Teach correct alignment in plantar flexion and dorsi flexion.
- Improve the strength of the lateral chain of the leg including peroneals and abductors

If you are working with a client with injuries or after surgery and you are not sure what to do, be sure to consult a more experienced instructor or ask the client if you can contact their doctor or therapist for advice. If the foot, ankle, knee or hip are swollen, red, painful or have limited range of motion, refer them to a medical practitioner before working with them.

Osteoporosis Information for Pilates Instructors

The following information is from National Osteoporosis Foundation: www.NOF.org.

Osteoporosis, or porous bone, is a disease characterized by low bone mass and structural deterioration of bone tissue, leading to bone fragility and an increased susceptibility to fractures, especially of the hip, spine and wrist, although any bone can be affected.

PREVALENCE

An estimated 44 million Americans, or 55 percent of the people 50 years of age and older have osteoporosis or osteopenia. In the U.S. today, 10 million individuals are estimated to already have osteoporosis and almost 34 million more are estimated to have low bone mass, placing them at increased risk for osteoporosis.

- Of the 10 million Americans estimated to have osteoporosis, 8 million are women and 2 million are men.
- One in two women and one in four men over age 50 will have an osteoporosis-related fracture in her/his remaining lifetime.
- Significant risk has been reported in people of all ethnic backgrounds.
- While osteoporosis is often thought of as an older person's disease, it can strike at any age.

Women

- 80% of those affected by osteoporosis are women.
- The prevalence of osteoporosis in women over 50 varies based on ethnicity:
  - 20% of white and Asian women are estimated to have osteoporosis.
  - 5% of black women are estimated to have osteoporosis.
  - 10% of Hispanic women are estimated to have osteoporosis.

Men

- 20% of those affected by osteoporosis are men.
- The prevalence of osteoporosis in men over 50 also varies based on ethnicity:
  - 7% of white and Asian men are estimated to have osteoporosis.
  - Four percent of black men are estimated to have osteoporosis.
  - Three percent of Hispanic men are estimated to have osteoporosis

DETECTION

Specialized tests called bone density tests can measure bone density in various sites of the body. A bone density test can:

- Detect osteoporosis before a fracture occurs.
- Predict your chances of fracturing in the future.
- DXA BMD can determine your rate of bone loss and/or monitor the effects of treatment.

CATEGORIES OF BONE LOSS

The screening technique most commonly used is dual energy x-ray absorptiometry or DEXA for short. Bone loss is measured in relationship to the normal bone mass of a young adult and is called the T-score.

- Low bone mass or osteopenia is indicated by a T-score of -1 to -2.5 which is equivalent to 1 to 2.5 standard deviations below young adult bone mass and indicates a bone loss of 10% to 25% of normal. Osteopenia can be an indication of impending osteoporosis or it can be a normal state for that person that may or may not progress toward osteoporosis.
- **Osteoporosis is indicated by a T-score of >-2.5 indicating bone loss of more than 25%:** 30%.

SYMPTOMS

Osteoporosis is often called the "silent disease" because bone loss occurs without symptoms. People may not know that they have osteoporosis until their bones become so weak that a sudden strain, bump or fall causes a fracture or a vertebra to collapse. Collapsed vertebrae may initially be felt or seen in the form of severe back pain, loss of height, or spinal deformities such as kyphosis or stooped posture.

FRACTURES

One in two women and one in four men over age 50 will have an osteoporosis-related fracture in their remaining lifetime. Osteoporosis is responsible for more than 1.5 million fractures annually.

The primary fracture sites are:

- Vertebra (45%)
- Hip (20%)
- Wrist (15%)

PREVENTION

By about age 20, the average woman has acquired 98 percent of her skeletal mass. Building strong bones during childhood and adolescence can be the best defense against developing osteoporosis later. There are four steps, which together, can optimize bone health and help prevent osteoporosis. They are:

- A balanced diet rich in calcium and vitamin D
- Weight-bearing exercise
- A healthy lifestyle with no smoking or excessive alcohol intake
- Bone density testing and medication when appropriate.

NUTRITIONAL CONSIDERATIONS

Encourage client to increase calcium and Vitamin D intake or to consult with a nutritionist to help them modify their diet.

MEDICAL CONSIDERATIONS

Make sure that your students with osteoporosis are under the care of an appropriate medical practitioner who can oversee their care and any needs for testing, medication or other treatment.

Exercise is one of the best ways to build bone mass, improve posture and balance, and decrease a person's likelihood of getting osteoporosis or falling and causing a fracture. The only types of exercise that have been studied in relationship to osteoporosis prevention are weight bearing exercise and weight training. Studies show that both of these can be helpful if the person is persistent and keeps progressing or changing their program to keep their bones responding. Pilates has not been directly shown to help and in fact many traditional Pilates exercises are contraindicated for clients with osteoporosis.

A Pilates program that is specifically designed to increase weight bearing, improve posture and balance, and improve spinal extension may help limit the progression of the condition. Many instructors have reported that clients have experienced improvement in their bone density scores after doing Pilates programs specifically designed for osteoporosis.

CONTRAINDICATED MOVEMENTS

Several studies have been done relating specific movements to increased risk of fracture, particularly in the spine.

The specific contraindicated movements include:

Spinal Flexion: Especially with resistance as in Hundreds and abdominal curls.

Spinal Rotation: Especially when combined with spinal flexion as in oblique abdominal exercises.

This means that many of the traditional Pilates core strengthening exercises are unsafe for clients with osteoporosis or osteopenia for example:

- **Abdominals:** Hundreds, Roll Up, Neck Pull, Single Leg Stretch, Double Leg Stretch, Single Straight Leg Stretch, Double Straight Leg Stretch, Criss Cross, Teaser
- **Rolling exercises:** Rolling Like a Ball, Open Leg Rocker, Seal
- **Spinal exercises:** Roll over, Jackknife, Corkscrew (full version), Hip Circles
- **Abdominals:** Hundred, Coordination, Roll Downs, Short Box Abdominals, Teaser, Back Stroke,
- **Spinal Exercises:** Short Spine Stretch, Long Spine Stretch, Jackknife, Corkscrew

PRECAUTIONS WHEN WORKING WITH CLIENTS WITH OSTEOPOROSIS

- Avoid loaded flexion of the spine i.e. abdominal curls, all rolling exercises, all rolling up exercises
- Use a neutral spine position in bridging
- Be careful with rotation as in saw and spine twist
- If the client has any fractures be even more careful. Avoid or minimize spine flexion, rotation and side bending and teach the client movement strategies to deal with their decreased range of motion.

PILATES MOVEMENT PRINCIPLES TO EMPHASIZE:

Wolff's Law: Bones become stronger in response to increased stress. In order to continue to build bone the stress placed on it must be greater than the stress to which it has become accustomed. So in order to build bone you need to challenge the client to keep working harder or to place different kinds of stress on the bones in order to make them respond

Specific movements and principles that have been shown to improve bone mass and/or decrease the likelihood of fractures include:

SPINAL EXTENSION EXERCISES

Including Swan, Swimming and prone work in any position including:

- **Mat:** Swan, Swimming
- **Reformer:** Swan on the box, Pulling Straps, Breast Stroke

WEIGHT BEARING EXERCISES

These can include standing, kneeling, all fours and plank position exercises for example:

- **Mat:** Leg Pull, Push Ups,
- **Reformer:** Sitting Arm Work, All Fours Abdominals, Long Stretch series

MODERATE IMPACT LOADING

In order to increase bone mass, exercise needs to be moderately strenuous. Keep progressing the resistance you use with each exercise to maintain a moderate level of effort with your client.

MUSCLE GROUP SPECIFIC STRENGTH TRAINING

Target spinal extensors, pelvic and scapular stabilizers, upper and lower limbs in all muscle groups while keeping the spine neutral.

AEROBIC ACTIVITY

Encourage your clients to walk, use low impact aerobic machines, swim or other activities that encourage increased aerobic capacity and overall physical fitness.

BALANCE AND COORDINATION TRAINING

Add balance challenges such as standing on one leg or moving on unstable surfaces in order to train the nervous system and the muscular system to react appropriately to balance challenges. Very important to prevent falling and fractures.

FLEXIBILITY EXERCISES

Maintain flexibility in the torso, shoulder girdle and hips in order to help the client to maintain good posture.

RESOURCES FOR FURTHER INFORMATION

Osteoporosis Exercise Protocols by Physicalmind Institute available through www.themethodpilates.com or www.pilates.com

The Osteoporosis Exercise Book by Sherri Betz, PT available through www.pilates.com or www.therapilates.com.

Sheri teaches an excellent course for Pilates instructors interested in teaching classes specifically for osteoporosis. Her schedule can be found at www.therapilates.com.

NIH website: www.osteo.org

National Osteoporosis Foundation: www.nof.org

Foundation for Osteoporosis Research: www.fore.org

RISK FACTORS

Certain people are more likely to develop osteoporosis than others.

Risk factors for osteoporosis include:

- Personal history of fracture after age 50
- Current low bone mass
- History of fracture in a 1° relative
- Being female
- Being thin and/or having a small frame
- Advanced age
- A family history of osteoporosis
- Estrogen deficiency as a result of menopause, especially early or surgically induced
- Abnormal absence of menstrual periods (amenorrhea)
- Anorexia nervosa
- Low lifetime calcium intake
- Vitamin D deficiency
- Use of certain medications
- Presence of certain medical conditions
- Low testosterone levels in men
- An inactive lifestyle
- Current cigarette smoking
- Excessive use of alcohol
- Women can lose up to 20 percent of their bone mass in the five to seven years following menopause, making them more susceptible to osteoporosis.

PILATES AND PREGNANCY

Exercise during pregnancy is an important part of maintaining a healthy lifestyle. However, the physical changes that accompany pregnancy may require your clients to modify their exercise routines during their pregnancy and immediately after delivery. The general guidelines and precautions for the various stages of pregnancy are as follows:

FIRST TRIMESTER, UP TO 12 WEEKS

During the first trimester there are no specific contraindications as far as body positions or specific exercises. Exercise should be based on the energy level of the mother and geared to minimize fatigue. Some women continue on with all of their normal routines while others experience fatigue, nausea and disturbed sleep that limits their ability to perform at their previous level. Be sensitive to the individual's needs for rest or taking it easy during this period.

The primary exception to this rule is in high risk **pregnancies for example:**

- 1st pregnancies in women over 35
- Women with a history of miscarriages
- Women who are undergoing in vitro fertilization
- Women who tell you they are high risk for some other reason

In this case you may suggest that they stop exercising or minimize their routine until they are past the 12 week mark. It is also important to make sure these women are being seen be a doctor and that they have been cleared to exercise before they resume their Pilates program.

EXERCISES TO FOCUS ON DURING THE FIRST 3 MONTHS

Early in pregnancy is a great time to develop a program that will address the key needs of the pregnant woman. These exercises include

- Pelvic floor exercises
- Adductor work (use a small ball between the knees in leg work)
- Abdominal strengthening
- Core stabilization
- Arm and upper back strengthening
- Low back and chest flexibility
- Decrease inversion exercises such as short spine stretch and rolling exercises

MONTH 3 TO 4

Sometime around the end of the third month or during the fourth month, it will become uncomfortable to lie on the stomach and prone work should be discontinued. Your client will usually indicate when they start to feel like they don't want to lie prone. The abdominals also begin to feel a bit out of touch around this time as the abdomen stretches and the pregnancy starts to show. If your client was having issues with morning sickness and fatigue, they will usually ease up about this time and they will have more energy to work with.

PROGRAM MODIFICATIONS DURING MONTHS 3 AND 4

- Discontinue prone work
- Discontinue inversion exercises and rolling exercises (Short spine stretch, roll over, rolling like a ball)
- Develop stretches for the low back
- Find abdominals that are comfortable
- Emphasize pelvic stability
- Maintain the flexibility of the abdominals by doing Cat/Camel or supine stretches over a physioball
- If the client has issues with low blood pressure, teach them to change positions slowly

MONTH 4 - 5

During the fourth to fifth month the uterus is large enough to start putting pressure on the arteries that run along the inside of the spine when the client is supine.

Program modifications during months 4 and 5

- Use a wedge pillow to elevate the heart above the pelvis for all supine exercises. In high risk situations, you may choose to eliminate supine work entirely.
- If your client starts feeling light headed or her legs feel weak or tingly, bring her out of supine immediately.
- Discontinue exercises that deeply work the psoas and the hip flexors as in Teaser
- Focus on stability of the pelvis and shoulders rather than on mobility.

MONTH 6 – 9

At this point in the pregnancy the size of the mother's abdomen will start to affect her ability to flex her spine and to deeply flex her hips. The hormone relaxin is starting to circulate in the body at higher levels leading to a loosening of the ligaments around the joints. This can lead to a lack of stability around the pelvis and cause low back, sacroiliac joint problems and hip problems to flare up. Edema can also start to settle in the ankles and lower legs.

PROGRAM MODIFICATIONS DURING MONTHS 6 – 9

Modify abdominals to suit the growing abdomen (Roll back with straight legs works better than Teaser)

- Use a wider leg position on leg and foot work
- Emphasis the limbs rather than the core
- Increase stability of the pelvis and hips
  - Adductor exercises (Work gently so as not to disturb the pubic symphysis. Isometrics or working with legs together is a good option, using a magic circle or standing on the Reformer may be too much)
  - Abductor exercises
  - Light abdominal work
  - Gluteal strengthening
  - Quad strengthening
- Work arm and upper torso strength for holding the baby
- Keep the feet up when possible to decrease swelling

As with any program, each individual will be different, particularly if there are any rehabilitative issues involved or if the mother is already 'super-fit' (dancer, yogi, pilates goddess).

POST-NATAL

Once the baby is born the mother can start doing simple core activation, pelvic floor and pelvic stability work as soon as she feels like moving. If the delivery was vaginal, she will be be able to return to a beginning level routine as soon as she has stopped bleeding and feels up to it. If she had any episiotomy repairs she may want to minimize hip adduction and anything uncomfortable for 4 to 6 weeks until the area begins to heal.

If the baby was delivered by caesarian section, strenuous exercise is usually not suggested for 6 to 8 weeks following delivery. Gentle core work is very helpful but it is not wise to put stress on the sutures that are healing. Once they are cleared by their doctor for exercise, it is wise for them to start off slowly until they feel they have their full energy back.

REFORMER EXERCISES FOR PREGNANCY

See the Reformer 2 manual for a Reformer program for women in the last trimester of pregnancy.

- **Footwork:** Modify with a wider leg position, substitute stomach massage or use a wedge after 4 months.
- **Feet in the straps:** particularly hamstring stretch. (For the other exercises, Trap is better.) Limit the amount of time in this position around 5 months and start decreasing the range of motion around 7-8 months
- Kneeling Abdominals
- **Arm work:** seated on box or kneeling (with ball at knees)
- Elephant
- **Knee Stretch:** Single and Double leg
- Pelvic Lift/Bridging/Bottom Lift (Minimize after 4 months)
- Lunge
- Mermaid

BALANCED BODY® MOVEMENT PRINCIPLES™

OVERVIEW

The Balanced Body® Movement Principles™ teach Pilates and fitness professionals how the body moves so they can help students, clients and patients move better. The Movement Principles provide practical tools for observing, analyzing and improving movement by gaining a deeper understanding of anatomy, kinesiology, biomechanics and optimum movement patterns.

Balanced Body® Movement Principles™

MODULE 1: WHOLE BODY MOVEMENT

Whole Body Movement

Learning to see, evaluate and influence whole body movement patterns is the ultimate goal of any trainer. This section includes information on observing the body from three different levels:

- Global movement - observing the whole body.
- Planar movement - looking at the body from the sagittal, frontal and transverse planes.
- Local movement - seeing local and regional movement patterns.

Posture and Alignment

Good posture and proper alignment of the joints allow the force of gravity to move through the body in an optimal way. This section includes:

- Postural observations..
- Common misalignments and dysfunctional patterns.

MODULE 2: TRUNK INTEGRATION

Trunk Integration includes the core and the muscle systems that integrate movement between the trunk and the limbs. Trunk Integration includes information on:

- Breathing.
- Inner unit and core activation.
- Outer unit and lumbopelvic stability.
- Spinal mobility and strength.

MODULE 3: LOWER BODY TRAINING

The lower body carries us everywhere we go and teaching good alignment, balanced strength and optimum range of motion are vital for training agility, endurance and power in movement. This section includes information on:

Lower Body Training Principles

- Alignment.
- Balanced muscle development and range of motion.
- Functional movement skills.

MODULE 4: UPPER BODY TRAINING

Training the upper body prepares us for everyday activities and creates power and speed for athletic pursuits. This section includes:

Upper Body Training Principles

- Movements of the upper body.
- Glenohumeral stability, scapular stability and mobility.
- Functional movement patterns.
- Integrating the upper body into whole body movement.

MODULE 5: MOBILITY AND RESTORATION

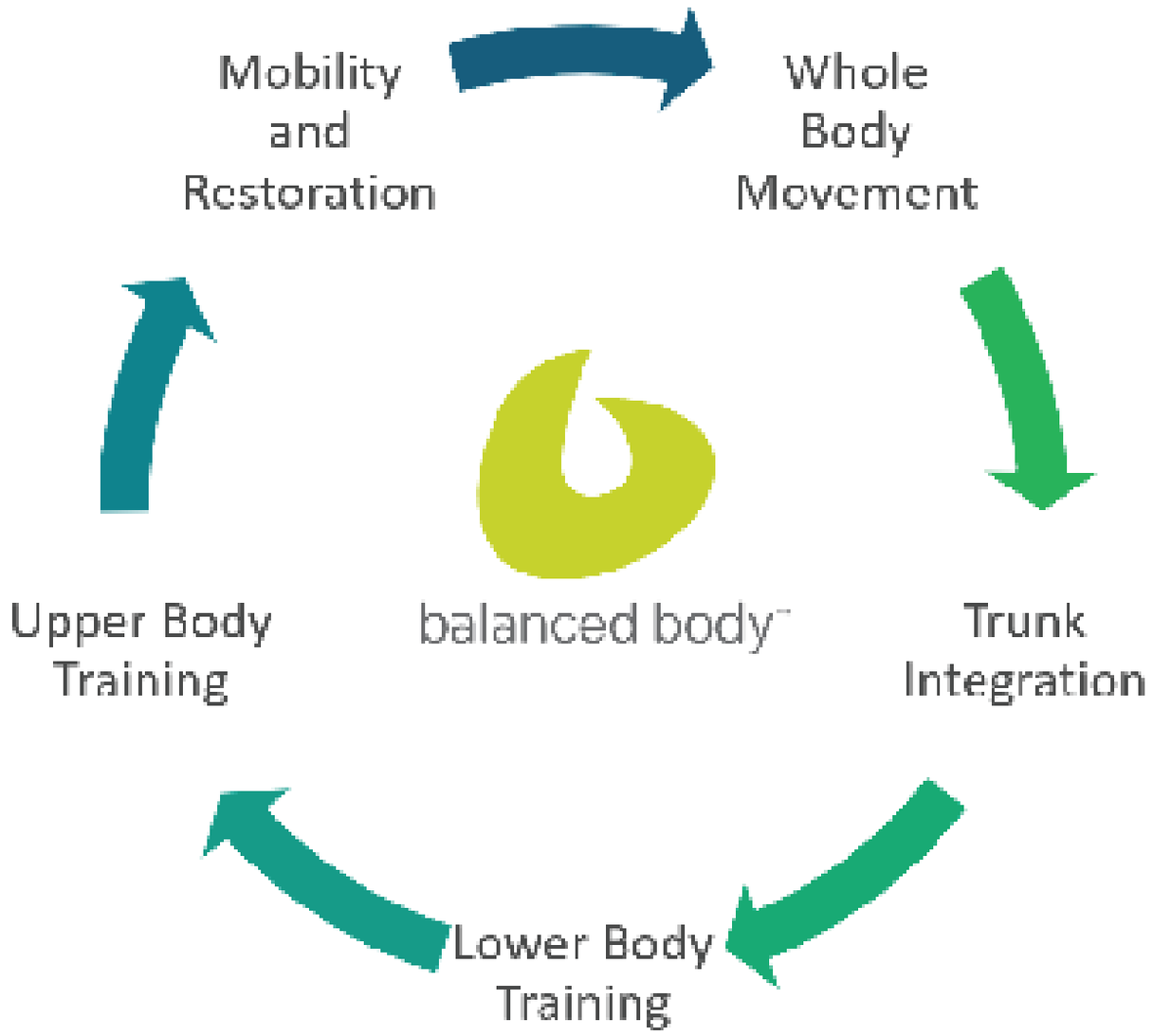
The body requires a balance of effort and relaxation to recharge and refresh. This section includes information on:

Mobility

- What it is, why mobility is useful and techniques for enhancing mobility.

Restoration, recovery and relaxation

- The importance of rest and relaxation to the recovery process.
- Self massage techniques to help the body recover.



WHOLE BODY MOVEMENT

GLOBAL, PLANAR AND LOCAL

Training clients to move better means training their whole body to move better. The most effective trainers focus on understanding and training functional, whole body movement in order to create pain free, efficient and effective movement patterns. Whether training an athlete for higher levels of performance, a senior citizen to stay active and healthy or an injured client to recover a pain free life, understanding how the body works and developing strong movement foundations are the key to creating effective fitness programs.

Training Whole Body Movement

Whole Body Movement requires the integration and coordination of multiple body systems working together. Whole body movement includes walking, standing, lifting, throwing, pushing, pulling and many other daily and sports related activities we engage in on a regular basis.

In order for the body to move through each day with ease, each of the following systems must play their part:

- Skeletal system
- Muscular system
- Fascial system
- Cardiovascular system
- Nervous system

Harmonious movement patterns are evidence that all of these systems are working in perfect synergy. Dysfunctional or impaired movement patterns point to disharmony somewhere in the body. One of the great joys and challenges of being a movement teacher is the need to continually refine one's ability to recognize and understand harmonious and impaired movement patterns and to expand one's ability to improve them.

GLOBAL, PLANAR AND LOCAL

To simplify the process of understanding and improving movement patterns, Balanced Body has developed a systematic framework for observing the body in motion.

The system involves observing the body from three different levels:

- Global movement patterns
- Planar movement patterns
- Local or regional movement patterns

GLOBAL MOVEMENT

Global movement is the highest level view. It is stepping back to observe the proverbial forest before tackling the trees. This panoramic view provides information on:

- Postural patterns
- Movement strategies
- Strength imbalances and side dominance
- Coordination and balance

PLANAR MOVEMENT

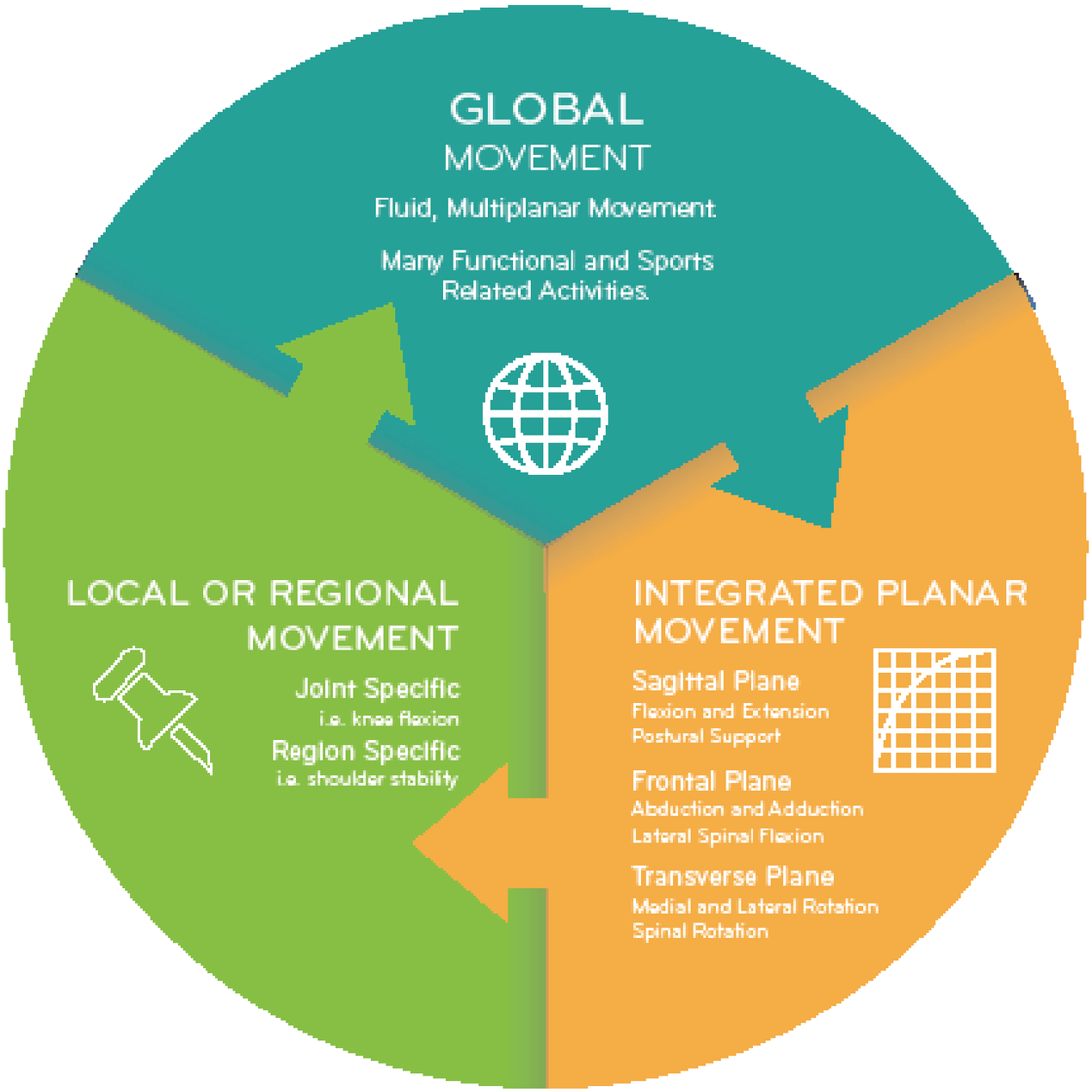
Understanding whole body or global movement can be very complex and difficult to analyze. Breaking down the observation of global movement into movement in the sagittal, frontal and transverse planes helps teachers more easily analyze what they are seeing.

As instructors, observing the body from the front, side and back is an excellent way to assess movement in each plane in order to more easily identify impaired movement patterns.

LOCAL MOVEMENT

Local movement includes regional and joint specific motions like the action of the shoulder in a push up or the alignment of the knee in a squat. Global and planar observations often lead to identifying one area or joint that is creating a disruption in the movement pattern. Once the movement pattern of the local area is improved, observation returns to the planar or global level to see if correcting the local issue improved the global movement pattern.

Learning to continuously move between the three levels of observation and learning the skills to improve a client's movement foundations at every level are at the heart of being an excellent movement teacher.



Analyzing Posture

Postural analysis is the science of understanding the optimum relationship of the body to gravity. To analyze posture we begin by identifying key bony landmarks and how they line up in a standing position.

This simple two page form can be used to chart static posture. It is helpful to establish baseline posture prior to beginning an exercise program and to occasionally re-assess client progress. Use the images to identify deviations and the space below for relevant notes and observations.

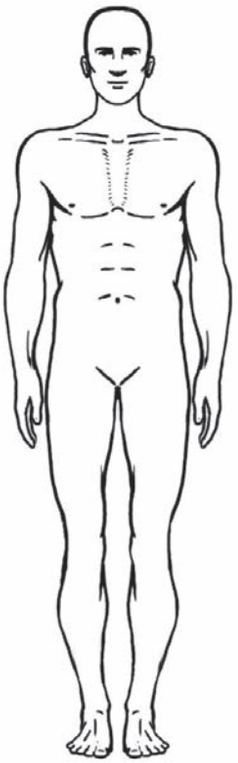
SIDE VIEW

VERTICAL OBSERVATION POINTS

- Tip of earlobe
- Top of shoulder
- Center of rib cage
- High point of iliac crest
- Mid point of the lateral side of the knee
- Slightly in front of the lateral malleolus of the ankle

FRONT VIEW

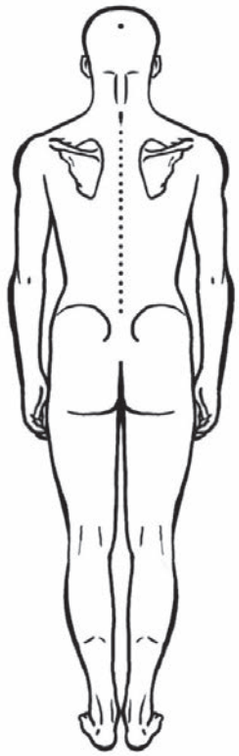
VERTICAL OBSERVATION POINTS



- Nose
- Center of Sternum
- Navel
- Center of pubic bone
- Inside ASIS
- Center of patella
- Center of the front of the ankle
- Space between 1st & 2nd toe

BACK VIEW

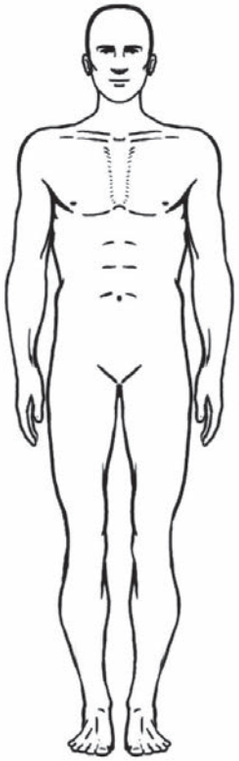
VERTICAL OBSERVATION POINTS



- Center of skull
- Spine straight
- Center of sacrum and tailbone
- Center of gluteal fold
- Center of back of knee
- Center of Achilles tendon

FRONT VIEW

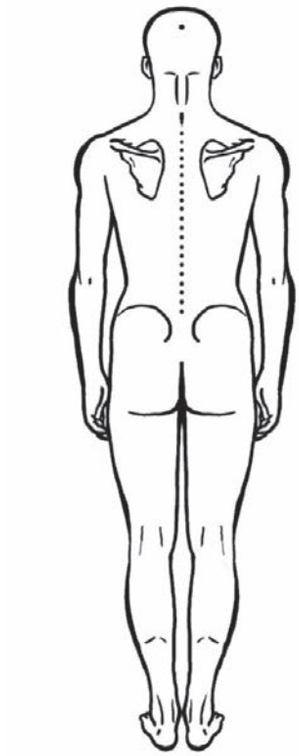
HORIZONTAL OBSERVATION POINTS



- Eyes level
- Shoulders level
- Equal distance between arms and torso
- ASIS level
- High point of iliac crests level
- Greater trochanters level
- Both knees even
- Equal turnout on both feet

BACK VIEW

HORIZONTAL OBSERVATION POINTS



- Ears level
- Level and balanced scapulae
- Equal distance between spine and sides of ribs
- PSIS level
- High point of iliac crests level
- Knees level

Common Misalignments/Deviations

Each of the following patterns are caused by a combination of bone structure, joint mobility, habitual patterns, muscular tightness and muscular strength. In addressing them, change will come about most easily with patterns that are primarily muscular and will be hardest to change in patterns that are embedded in the bones and joint structure. The goal is to create as much balance as the client's structure will allow and to work gently and gradually toward improved movement patterns.

SPINE AND PELVIS

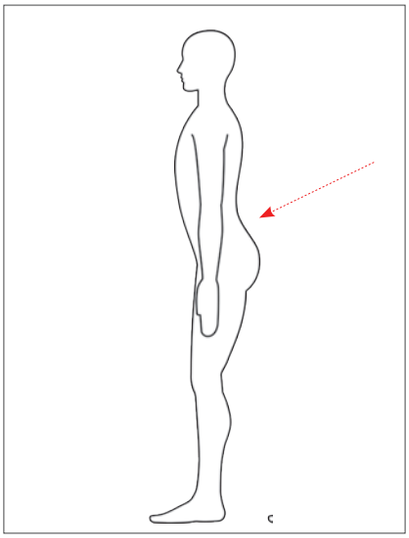
Scoliosis

- **Definition:** A lateral deviation of the spine usually accompanied by rotation. Scoliosis that occurs in one part of the spine such as the thorax is called a C curve scoliosis. If the scoliosis occurs in two parts of the spine, for example a right curve in the thorax and a left curve in the lumbar, it is called an S curve scoliosis.
- **General guidelines:**
  - Work to balance the client's posture by cueing them to maintain as much balance as possible.
  - Consider gently stretching the tighter sides of the curve and strengthening the open sides of the curve.
  - If this population is of interest, consider taking continuing education courses on scoliosis for more specific direction.

Scoliosis

Lordosis

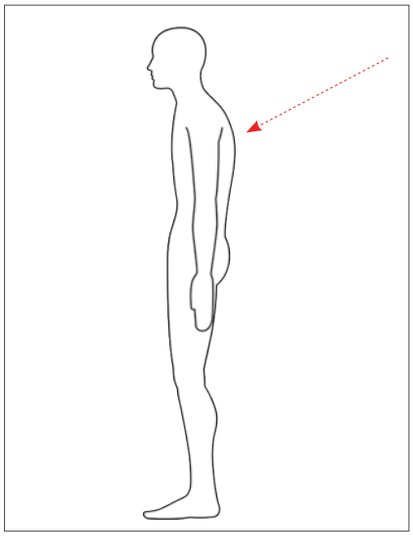
- **Definition:** A spinal curve toward the front of the body. There is supposed to be a small forward curve or lordosis in the lumbar and the cervical sections of the spine. An excessive curve can be called a lordosis or more accurately a hyperlordosis.
- **General guidelines:**
  - Lumbar lordosis is usually accompanied by tight low back extensors, an anteriorly tilted pelvis, tight hip flexors and weak abdominals in the neutral range.
  - Correct the pattern through increasing the flexibility of the lumbar and hip flexors and increasing the strength of the abdominals and hamstrings while actively stabilizing the pelvis in neutral.



Lordosis with an anteriorly tilted pelvis

Kyphosis

- **Definition:** A spinal curve toward the back of the body. There is supposed to be a small kyphotic curve in the thoracic spine. An excessive curve can be called a kyphosis or more accurately a hyperkyphosis.
- **General guidelines:**
  - Thoracic kyphosis is usually accompanied by weak thoracic extensors, tight anterior chest muscles and weak scapular stabilizers.
  - Correct the pattern by stretching the chest and strengthening the thoracic extensors and scapular stabilizers.



Kyphosis with a posteriorly tilted pelvis

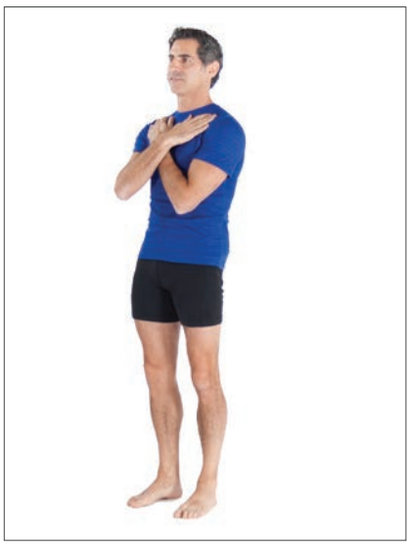
Anterior pelvic tilt

- **Definition:** When the ASIS is anterior of the pubic bone.
- **General guidelines:**
  - Lengthen the hip flexors and lumbar extensors and strengthen the hamstrings and abdominals.
  - Train to maintain posture in standing and functional movements.

Anterior Pelvic Tilt

Posterior pelvic tilt

- **Definition:** When the ASIS is posterior to the pubic bone.
- **General guidelines:**
  - Strengthen the hip flexors and lumbar extensors and lengthen the hamstrings and abdominals.



Posterior Pelvic Tilt

Pelvic up slip and down slip ("high hip or low hip")

- **Definition:** When the high point of the iliac crest is not level, the high hip side is called an up slip and the low hip side is called a down slip.
- **General guidelines:**
  - Balance the lateral system including hip abductors and adductors, quadratus lumborum and lateral torso muscles.

Pelvic inflare and outflare (Pelvic rotation)

- **Definition:** When one ASIS is anterior and closer to the midline while the other hip is posterior and farther from the midline, the anterior hip is in inflare while the posterior hip is in outflare. This is by definition accompanied by counter rotations of the femurs and the torso.
- **General guidelines:**
  - Balance the rotation of the torso and pelvis through the anterior and posterior oblique slings and the hip rotators.

COMMON MISALIGNMENTS

LEGS

Femoral medial rotation

- **Definition:** When the femurs are rotated toward the midline around their long axis. This can often be seen by the patellas aiming toward the midline when the legs are straight as if they were "cross eyed." This may be a postural pattern which is easier to change or it may be caused by the structure of the hip joint in which case work to balance the alignment as much as the structure will allow.
- **General guidelines:**
  - Strengthen lateral femoral rotation and stretch the adductors and medial rotators.

Femoral lateral rotation

- **Definition:** When the femurs are rotated laterally around their long axis. In this case the patellas will aim away from the midline when the legs are in a relatively neutral position.
- **General guidelines:**
  - Strengthen the femoral medial rotators and stretch the lateral rotators.

Knee hyperextension

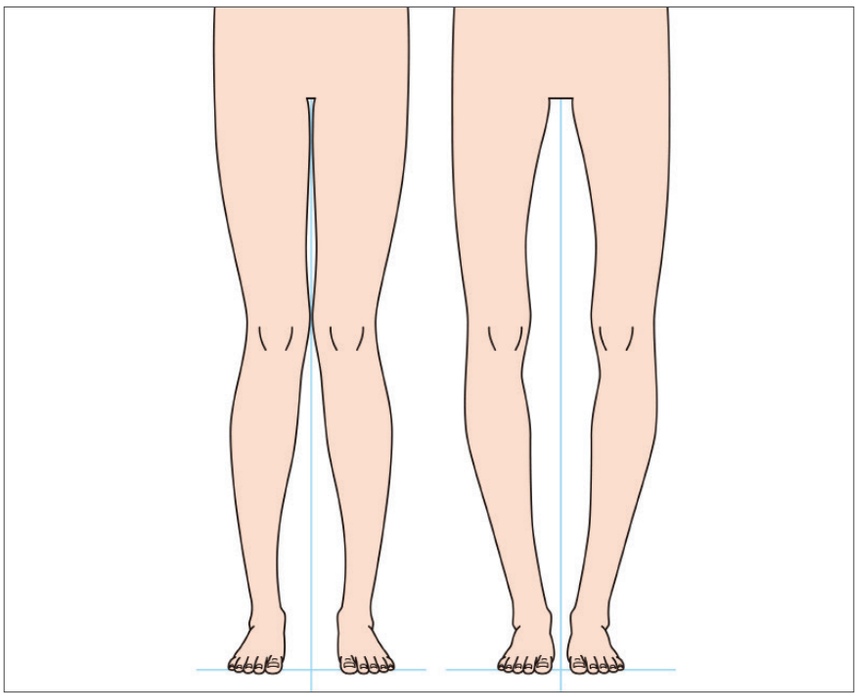
- **Definition:** In standing alignment viewed from the side, the knees are posterior to the plumb line. This is usually caused by hypermobility of the knee.
- **General guidelines:**
  - Make sure the knees do not hyperextend in any weight bearing exercises.
  - Focus on balance between hamstrings and quadriceps to stabilize the knee

Knock knees (genu valgum)

- **Definition:** When standing with the knees straight, the knees may touch but the medial border of the feet do not. This is called an increased Q angle. Knock knees are more common in women because of their wider hips. Knock knees and bow legs are caused by the structure of the hip and knee joint. The training focus is on creating the best alignment and muscle balance possible.
- **General guidelines:**
  - Cue the student to correct the alignment as much as possible while exercising.
  - To improve knock knees, assess hip rotation and the balance between hip abductors and adductors.

Bow legs (genu varum)

- **Definition:** A decreased Q angle shown in standing alignment with the legs straight when the knees don't touch but the medial borders of the feet do. Bow legs are often accompanied by knee hyperextension and sometimes correcting the hyperextension will correct the leg position.
- **General guidelines:**
  - Cue the student to correct the alignment as much as possible while exercising.
  - For Bow legs, look at hip rotation, knee hyperextension and the balance between hip abductors and adductors.



Genu Valgum (knock knees) and Genu Varum (bow legs)

Pronation

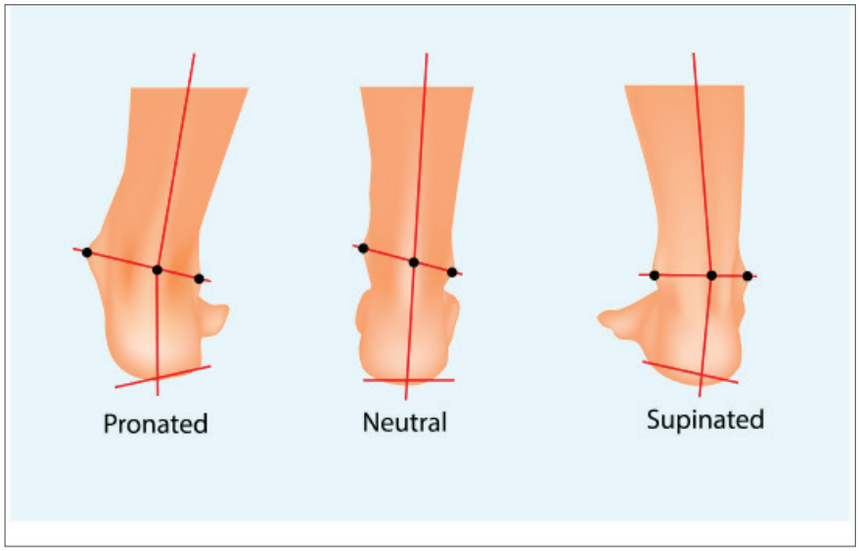
- **Definition:** In standing alignment, the arch flattens toward or contacts the ground and the Achilles tendon bows toward the medial side of the foot. In pronation the weight is carried on the medial side of the foot when standing. This generally indicates a lack of strength and stability on the medial side of the leg from the ankle through to the pelvis.
- **General guidelines:**
  - Strengthen the arch and the medial line of the legs. Observe and correct for habitual compensation.

Supination

- **Definition:** In standing the arch is lifted and the weight is carried on the outside of the foot. This pattern is usually one of stiffness in the joints and muscles of the foot which may limit the amount of change possible.
- **General guidelines:**
  - Stretch the arch and the medial side of the legs. Observe and correct for habitual compensation.

Bunions

- **Definition:** A bunion is a deviation of the toe towards the center of the foot. Bunions usually occur on the big toe.
- **General guidelines:**
  - Correct tendency to over turn out the legs and feet and correct tracking of the foot in gait.



Pronation, supination and neutral foot alignment (right foot shown)

Winging scapula

- **Definition:** When the medial border of the scapula lifts away from the rib cage. Can indicate a weak serratus anterior or a shallow rib cage.
- **General guidelines:**
  - Strengthen the scapular stabilizers and thoracic extensors.

Winging Scapulae

Elevated scapula

- **Definition:** When the scapulae are lifted up towards the ears. It usually indicates tightness in the upper trapezius, pectoralis minor and levator scapulae and a weakness in the inferior fibers of the serratus anterior and lower trapezius.
- **General guidelines:**
  - Strengthen the scapular depressors in their inner range.
  - Improve coordination of scapulohumeral rhythm in upward rotation.

Elevated Scapulae

Neutral Lumbopelvic Position

According to current research in biomechanics, the core works best to stabilize and support the pelvis and lumbar spine when in a "neutral" position. When standing or sitting with a neutral pelvis, the action of gravity on the trunk musculature leads to balanced engagement of the muscles around the spine and abdomen. This decreases the stress on the spine and helps to prevent low back pain and injury.

IDENTIFYING NEUTRAL

There are different landmarks that can be used to identify a neutral lumbopelvic position. When teaching movement, the easiest landmarks to use are the ASIS and the pubic bone. When these two bony landmarks are on a plane perpendicular to the floor in standing or sitting, or parallel to the floor in supine, the pelvis is considered to be neutral.

Finding the right starting position for each exercise provides a solid foundation to move from and creates more comfortable and efficient movement patterns. Research on a neutral lumbopelvic position has primarily been studied when the pelvis and low back are in a standing or upright position. Some modifications may need to be made when lying supine.

NEUTRAL PELVIS AND EXERCISE

Many exercises will challenge and strengthen neutral posture in standing. Maintenance of the spinal curves and neutral pelvis through movement is key to training dynamic core strength and integrating the core with the limbs.

IMAGES AND EXERCISES FOR IDENTIFYING A NEUTRAL PELVIS

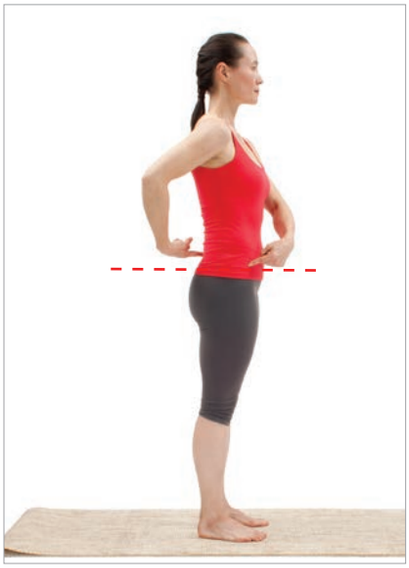
Using the bones
Place the heel of each hand on the ASIS and the second or third finger on the pubic bone to create a triangle with the point facing down. Notice which way the triangle is tipped.

Anterior pelvic tilt
If the ASIS is anterior to the pubic bone, then the pelvis is anteriorly tilted.

Posterior pelvic tilt
If the ASIS is posterior to the pubic bone, the pelvis is posteriorly tilted. Gently move the pelvis forward and back until the pelvis is relatively neutral.

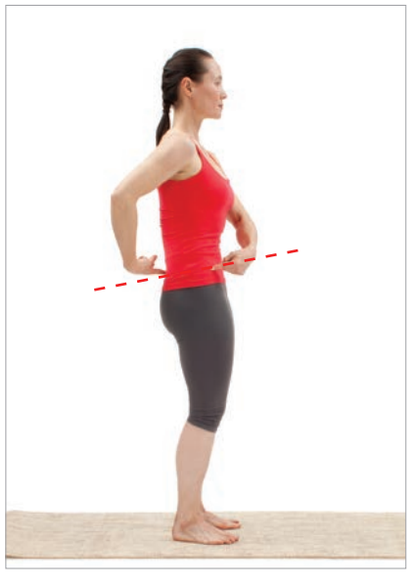
Using imagery
Imagine the pelvis is a bowl full of water balanced over the legs. If the bowl is level, the water won't spill. If the pelvis is anteriorly tilted, the water will spill out the front. If the pelvis is posteriorly tilted, the water will spill out the back.

Neutral is dynamic, not fixed
Neutral pelvis is not a fixed position to create. It is a dynamic concept that shifts and changes slightly in relationship to the movement being performed.



Neutral Pelvis

Anteriorly Tilted Pelvis



Posteriorly Tilted Pelvis

NEUTRAL POSITION IN SUPINE

When standing, sitting or walking, a neutral lumbopelvic position is optimum for efficient movement. When supine, gravity is in a different relationship to the spine and adjustments to neutral lumbopelvic positioning may be necessary.

For example, in exercises where both legs are lowered toward the floor as in the Hundred, the core and abdominal muscles should be strong enough to keep the lower back stable as the legs lower. This keeps the psoas from pulling the lumbar spine forward and potentially causing pain or discomfort. If the core is not strong enough, the lower back position may be adjusted to provide support for these exercises.

Imprinted Spine

An imprinted spine provides support by placing the spine against the mat so it is externally stabilized. An imprinted spine can be created by increasing the flexion in the lumbar spine, posteriorly tilting the pelvis or placing a pad under the sacrum to passively tilt the pelvis and bring the spine closer to the floor.

Imprinted spine. In supine position, press the lower back towards the floor.

Supported Neutral

Supported neutral provides external support by placing a pad underneath the lumbar curve to fill in the space between the lower back and the floor. This position can be useful for teaching new students what a neutral spine is, stabilizing an unstable lower back or supporting a client with an increased lordosis.

Supported neutral. Place a lumbar support under the lower back.

EXCEPTIONS TO NEUTRAL

Neutral pelvis position may also not be appropriate for some clients with low back injuries. The following conditions may prefer an imprinted spine or a posteriorly tilted pelvis:

- Spondylolisthesis
- Spinal stenosis
- Spinal arthritis
- Some sacroiliac joint dysfunctions
- Some disc injuries

TRUNK INTEGRATION

INTRODUCTION

Trunk Integration is an essential concept in movement training. The trunk transfers forces from the lower body to the upper body, from the upper body to the lower body, from one side of the body to the other and from one leg to the opposite arm. The systems that make up Trunk Integration must be trained to work harmoniously in order to create coordinated, effective, efficient and powerful movement patterns.

The Evolution of Core Training

The concept of core training began when physical therapists were looking for a new model to help them treat clients with lower back pain. The first model focused on the action of the "core" as a stabilizer of the lower back during activities of daily living and in athletic pursuits. The first resource was "Clinical Biomechanics of the Spine" by Panjabi and White (1978) This book looked in detail at the biomechanics of the spine and its muscular support system and proposed that the action of the transversus abdominis and multifidi worked as partners to stabilize the spine when the body was in a neutral position.

This original idea of the "core" was expanded, researched and worked with until another seminal work came out, "Therapeutic Exercises for Spinal Segmental Stabilization in Lower Back Pain: Scientific Bases and Clinical Approach" by Richardson et al.(1999). This book put the biomechanical insights of the first book into clinical practice and focused on ways to help clients consciously retrain the stabilization system of the lumbar spine. The concept of the core was expanded to include the action of the pelvic floor and the diaphragm in addition to the transversus abdominis and multifidi.

Through practice with many clients in many environments, the importance of the core became clear but for creating the dynamic stability needed for both managing lower back pain and for optimizing lower back function in healthy, active people, the idea of the core needed to be expanded. In "The Pelvic Girdle: An Integration of Clinical Expertise and Research" by Diane Lee et al, The concept of lumbopelvic stability was expanded to include not just the inner support cylinder or inner unit but also the outer unit where the thorax, spine and pelvis connect to the limbs to create full body movement.

Trunk Integration

Balanced Body has integrated these concepts and many more into the ideas presented in this manual. Our goal is to help movement teachers understand the interconnections that tie the body together so they can work more effectively to create harmonious, whole body movement.

THE FOUR ELEMENTS OF TRUNK INTEGRATION INCLUDE THE FOLLOWING:

Breathing
This repetitive, unconscious action can profoundly effect movement, mood and energy levels. And the diaphragm forms the "ceiling" of the core or inner unit.

The core or inner unit
Consists of the pelvic floor, transversus abdominis, multifidi and diaphragm and forms the inner cylinder tying our pelvis, spine and rib cage together.

The four outer units
These four systems maintain the relationship between the upper limbs, thorax, spine, pelvis and lower limbs in functional activities of all kinds. The four outer units consist of the anterior and posterior oblique slings, the deep longitudinal system and the lateral system.

Spinal mobility
The focus of many core and trunk integration exercises is on stability. To balance stability, spinal mobility must be balanced and harmonious.

All of these elements are discussed and examples are given of the principles in action in this section.

References

Clinical Biomechanics of the Spine by Manahar M. Panjabi and Augustus A. White III, 1st edition 1978, 2nd edition 1990, Lippincott, Williams and Wilkins

Therapeutic Exercises for Spinal Segmental Stabilization in Lower Back Pain: Scientific Bases and Clinical Approach

by Carolyn Richardson, PhD, BPhty (Hons), Gwendolen Jull, PhD, MPhty, Grad Dip Manip Ther, FACP, Paul Hodges, PhD, MedDr, DSc, BPhty (Hons) and Julie Hides, PhD, MPhtyST, BPhty, 1st edition 1999, 2nd edition 2004, Elsevier Limited

The Pelvic Girdle: An integration of Clinical Expertise and Research by Diane Lee, BSR, FCAMPT, CGIMS, Linda-Joy Lee, PhD, BSc(PT), FCAMPT, CGIMS, MCPA, Andry Vleeming, PhD, PT , 1st edition 1989, 4th edition 2011, Churchill Livingstone/Elsevier

Breathing

"Breathing is the first act of life and the last." - J. Pilates.

It is the foundation of our existence and creates the fundamental rhythm that underlies our life. It is essential for maintaining and creating optimum health and wellbeing. Breathing techniques can be used to decrease stress, lower or raise blood pressure, improve aerobic capacity and calm the mind and spirit. Breathing has been used by every culture to change mind and body states in meditation, exercise and daily living.

How Breathing Works

The diaphragm is the primary muscle of respiration. It forms a dome whose bottom edge attaches to the inside of the rib cage, the spine, the 12th rib, the lowest costal cartilages and the xiphoid process. The other end of the muscle fibers of the diaphragm attach to a tendinous ring that sits at about the level of the 5th rib when the diaphragm is at rest.

On the inhale, the diaphragm contracts, drawing the top of the dome down as much as four centimeters with a full inhale. This increases the volume of the lungs and draws the air in. As the diaphragm relaxes, the dome rises back up and the air is pushed out of the lungs.

On the Inhale

- The diaphragm contracts and the dome moves down
- The volume of the lungs increases and draws air in
- Abdominal pressure increases
- Pelvic floor responds

On the Exhale

- The diaphragm relaxes and the dome moves up
- The volume of the lungs decreases and air flows out
- Abdominal pressure decreases
- Transversus abdominis contracts
- Pelvic floor responds

Accessory breathing muscles

In addition to the diaphragm, the following muscles are also involved in breathing by helping to move the rib cage:

- The internal and external intercostals, serratus posterior superior and inferior, the scalenes and the upper trapezius

The Breath in Movement

Breathing techniques can be used to facilitate movement, improve strength and increase mobility as well as improve lung capacity and focus the mind. As a general rule:

- Inhaling facilitates spinal extension
- Exhaling facilitates spinal flexion
- Either inhaling or exhaling can facilitate lateral flexion
- Either inhaling or exhaling can facilitate spinal rotation

When teaching a beginner these are good rules to follow. In order to challenge a more advanced student, reverse the breathing pattern to bring awareness back to the exercise.

Bracing for Stability

Exhaling during a challenging exercise helps to activate the trunk stabilizers and "brace" the torso. Bracing is often used for safety with clients rehabilitating from lower back and other injuries. As the deep structural muscles of the core get stronger, less bracing is required to do the same task.

Diaphragm, inferior view

The Inner Unit: Spine and Abdominal Support

The multifidi, transversus abdominis , pelvic floor and diaphragm work together to provide three dimensional support to the abdominal cavity.

Multifidi

- The multifidi are small muscles connecting the transverse processes of each vertebra to the spinous processes of the vertebra from three to four (or more) levels above. The multifidi run from C2 through the sacrum.
- They function to support the spine at the deepest level.

Transversus Abdominis

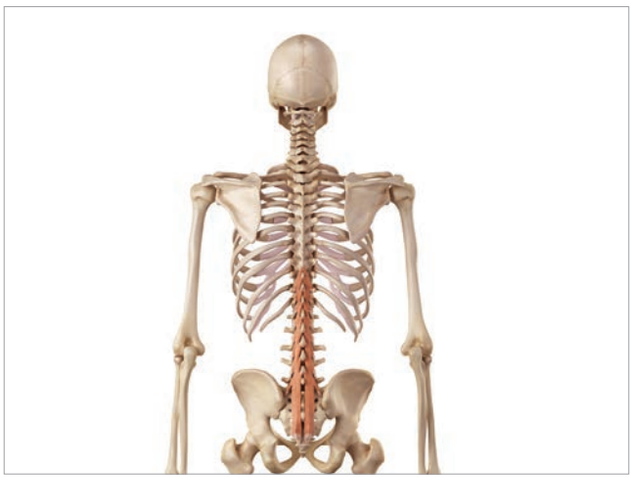
- The muscle fibers of the transversus abdominis wrap horizontally around the abdomen creating the deepest layer of the abdominals. The transversus abdominis acts like a corset to draw in the abdominal muscles and decrease the diameter of the waist.
- The transversus abdominis provides structure to the abdominal wall.

Diaphragm

- The diaphragm is the top or roof of the core and organizes the rib cage and spine in preparation for movement.
- As discussed in the Breathing section, an exhale can be used to activate the core, creating stability of the lumbar spine, pelvis and rib cage.
- In aerobic activities, the diaphragm works with the core to create stability while allowing full respiration to meet cardiovascular demands.

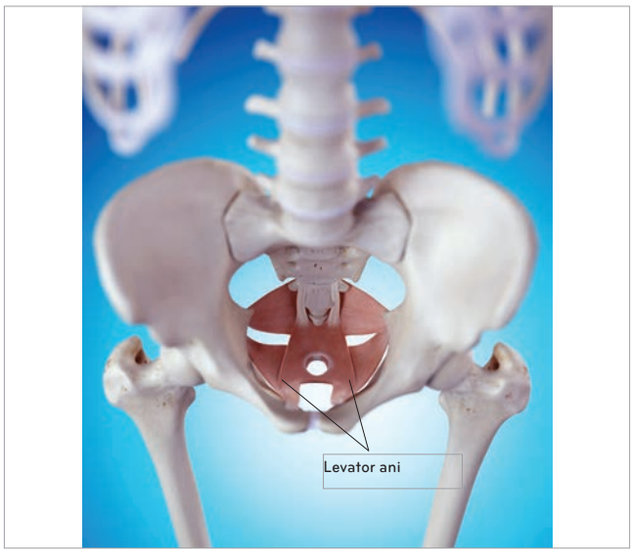
Pelvic Floor

- The pelvic floor is a group of muscles filling in the bottom of the pelvis and forming the "floor" of the core.
- The primary purpose of the pelvic floor is to hold the contents of the abdomen up against gravity.
- The pelvic floor includes muscles that control the flow of urine and feces, as well as muscles that hold the pelvis together and connect the pelvis to the femur.
- In women they are essential for childbirth and in both men and women, a healthy pelvic floor facilitates better sexual function.



Lumbar Multifidi

Transversus Abdominis



Pelvic Floor, internal view

Myofascial Connections

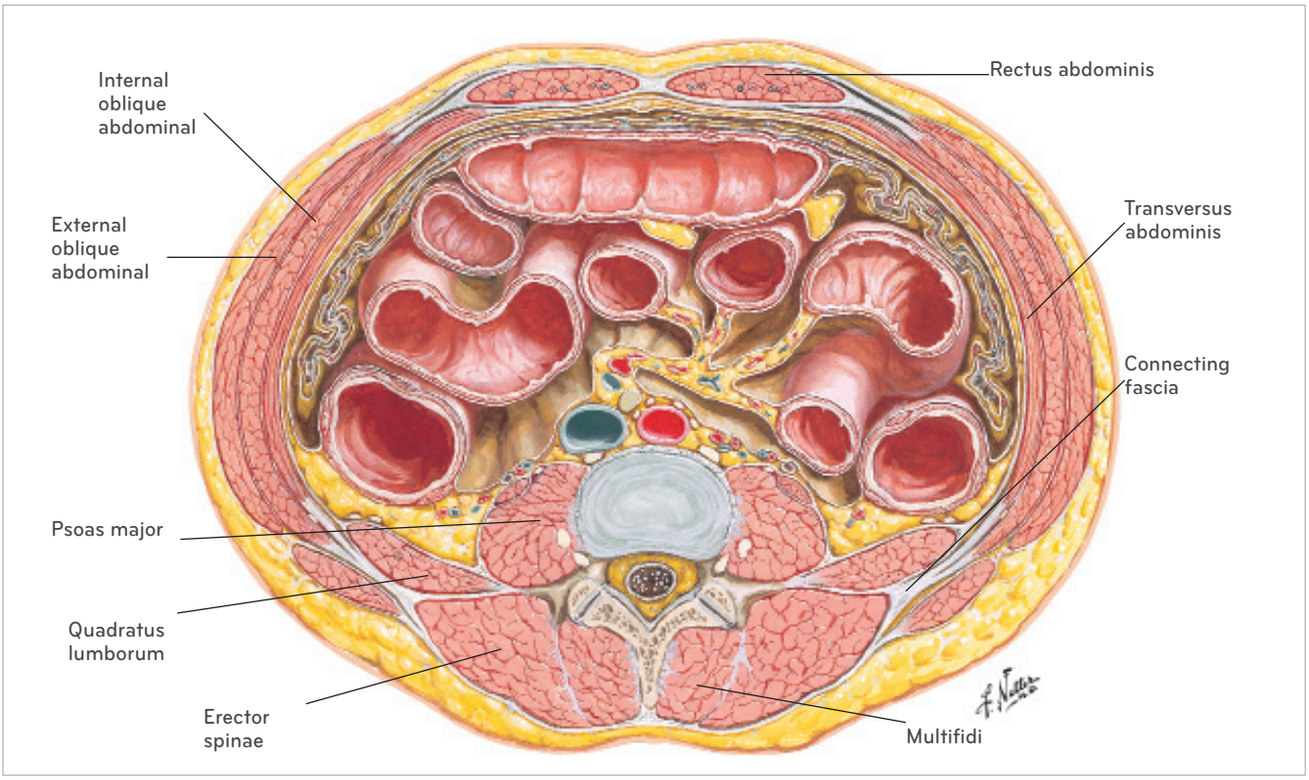
The inner unit stabilizes the lumbar spine through the myofascial connections between all of the elements of the inner unit. The myofascia consists of the muscles (myo) and their associated fascia. Fascia is the connective tissue that surrounds and interpenetrates all of the muscles and creates connections between them and their associated joints. The myofascial system ties the action of different muscles together to create the synergy necessary for integrated, whole body movement. In the lower back, the fascial system is called the thoracolumbar fascia.

This illustration is a cross section through the body at the level of the third lumbar vertebra. It shows the relationship between the muscles surrounding the lower spine and the transversus abdominis. By following the white fascia surrounding the transversus abdominis and connecting it to the fascia surrounding the erector spinae and quadratus lumborum, one might imagine that if the transversus abdominis contracts, it will increase the tension on the thoracolumbar fascia.

The thoracolumbar fascia acts much like a sausage casing around the filling of the multifidi. When the multifidi contract against the tension of the casing, they gently squeeze the spine creating a stabilizing force on the many joints between the vertebrae. The pressure of the casing against the multifidi also helps to create space between the vertebrae which is called decompression or axial elongation.

Based on electromyographic studies, in a normal healthy body, the multifidi, transversus abdominis, diaphragm and pelvic floor will fire in an appropriate sequence to stabilize the lower back in anticipation of spinal loading. With lower back pain, this sequence is often delayed or dysfunctional.

In a normal healthy body all of this happens automatically as part of a reflexive reaction to load being placed on the spine. When training clients to activate their inner unit, conscious cueing should be combined with movements designed to reactivate the reflexive sequences.



Cross section through L3. Lumbopelvic stability is generated by a light contraction of the transversus abdominis to tension the thoracolumbar fascia. The multifidi contracts into the tightened fascia, increasing its volume thus stabilizing the spine and creating axial elongation.

The Outer Unit

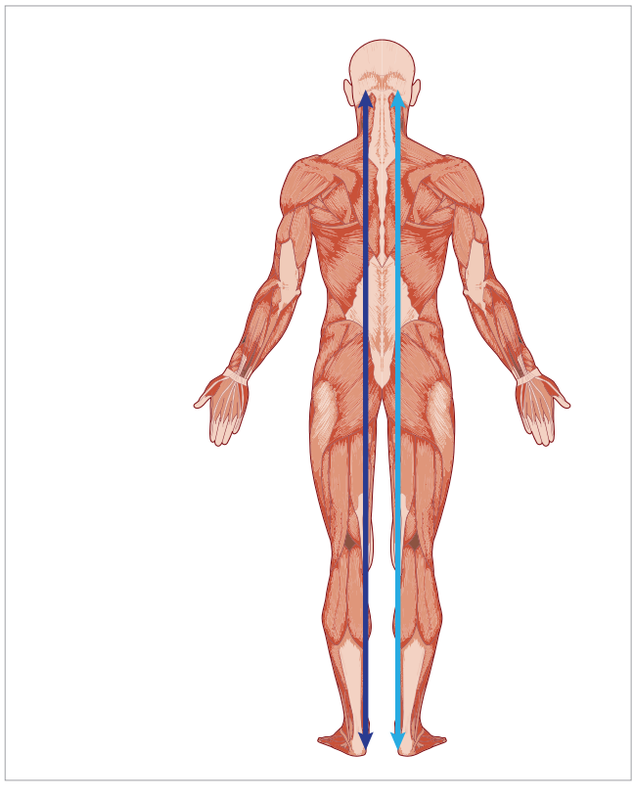
The Outer Unit consists of four subsystems, the Deep Longitudinal System, Lateral System and Anterior and Posterior Oblique Slings. These four systems work together to integrate and coordinate movement between the shoulder girdle, thorax, spine, pelvis and femurs. The Outer Unit creates movement and stability in the sagittal, frontal and transverse planes to produce fully balanced three dimensional movement.

THE DEEP LONGITUDINAL SYSTEM: SAGITTAL PLANE INTEGRATION

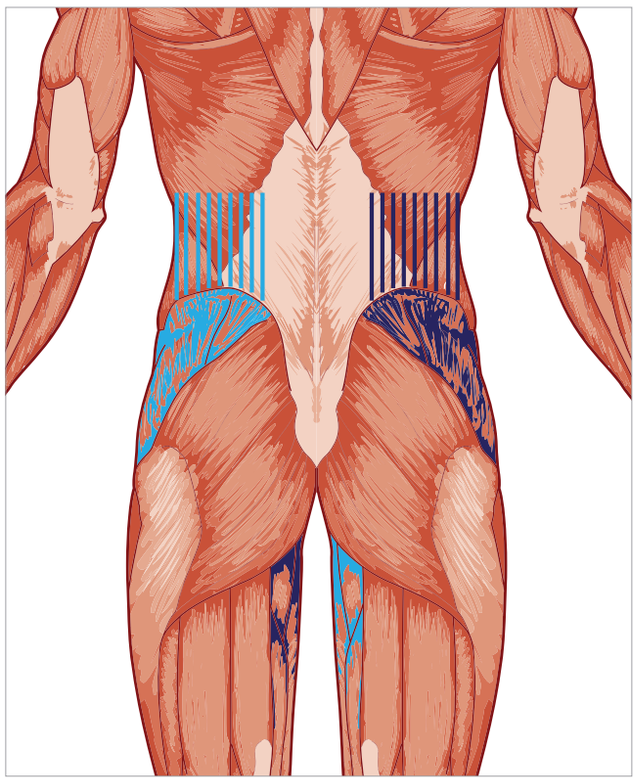
- The deep longitudinal system includes the erector spinae, sacrotuberous ligament, biceps femoris, gastrocnemius and plantar fascia.
- It supports the body upright against gravity.
- It is responsible for spinal extension when activated bilaterally and lateral flexion when activated unilaterally.
- It works with the posterior oblique sling to create extension and counterbalances the anterior oblique sling which initiates flexion.

THE LATERAL SYSTEM: FRONTAL PLANE INTEGRATION

- The lateral system includes the quadratus lumborum, abductors and adductors.
- These muscles are responsible for adduction and abduction of the hips and for up slip and down slip of the pelvis.
- The lateral system acts to balance the forces on the pelvis and to keep it level over the femurs in walking and standing.



Deep Longitudinal System



The Lateral System

The Oblique Slings: Transverse Plane Integration

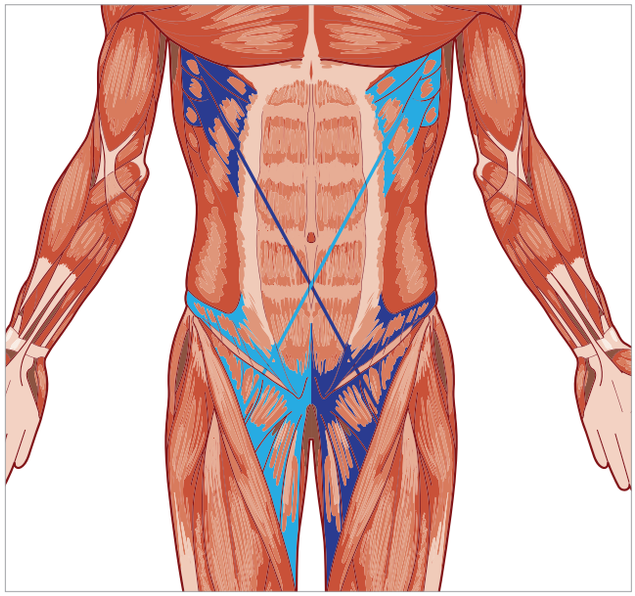
The anterior and posterior oblique slings (AOS and POS) are responsible for integrating the upper limbs, torso, spine, pelvis and lower limbs in whole body exercises such as running, throwing and swimming. The opposing slings (left to right AOS and right to left POS) create rotation while the parallel slings (right to left AOS and POS) create lateral flexion and rib translation.

THE ANTERIOR OBLIQUE SLING SYSTEM

- The anterior oblique sling includes serratus anterior, external oblique abdominals, contralateral internal oblique abdominals and contralateral adductors
- This system creates torso flexion when activated bilaterally and creates rotation between the rib cage and the pelvis when activated unilaterally.

Imagery

The anterior oblique system runs like a sash Miss America would wear over her shoulder or like crossed bandoliers and covers the line of the anterior serratus, external oblique abdominal, internal oblique abdominal and adductor muscles.



Anterior Oblique Sling

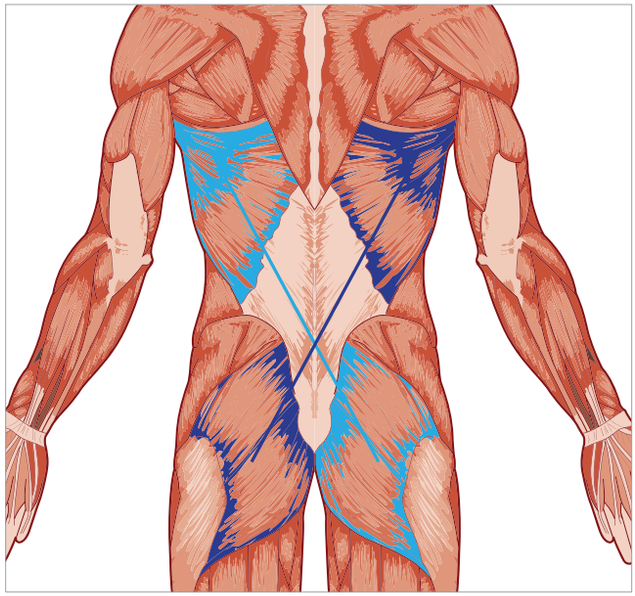
THE POSTERIOR OBLIQUE SLING SYSTEM

- The posterior oblique sling includes the latissimus dorsi and the contralateral gluteus maximus.
- The posterior oblique sling system creates torso extension when activated bilaterally and partners with the anterior oblique sling to create rotation and lateral flexion when activated unilaterally.

Imagery

The posterior oblique system runs like the back of the sash or bandolier covering the latissimus dorsi and the opposite gluteus maximus.

The anterior and posterior oblique slings keep the upper and lower body balanced for activities like walking and running. Both systems are activated in exercises such as an oblique abdominal curl or lateral spinal flexion.



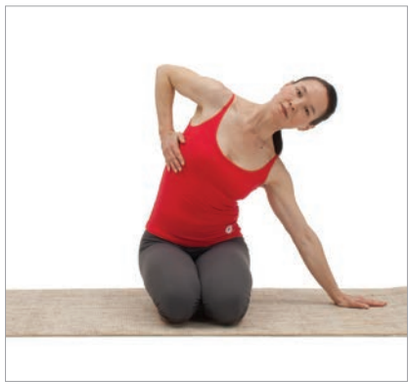
Posterior Oblique Sling

TRUNK INTEGRATION

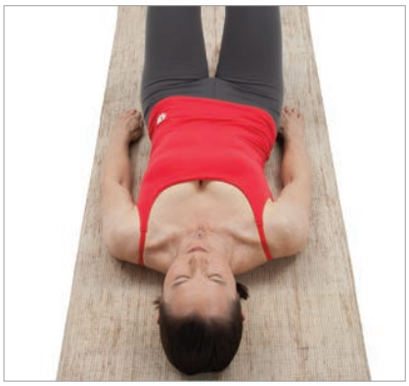
EXERCISE PROGRESSIONS: BREATHING AND INNER UNIT ACTIVATION

Diaphragmatic Breathing

Posterolateral Breathing



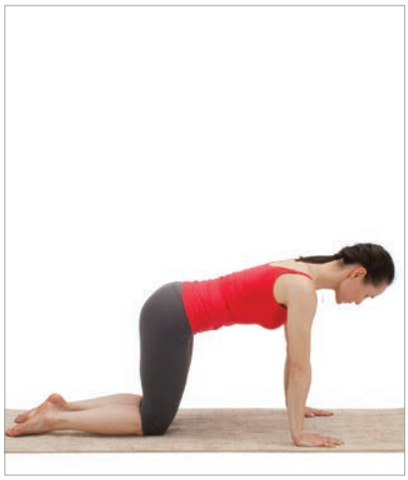
One Lung Breathing



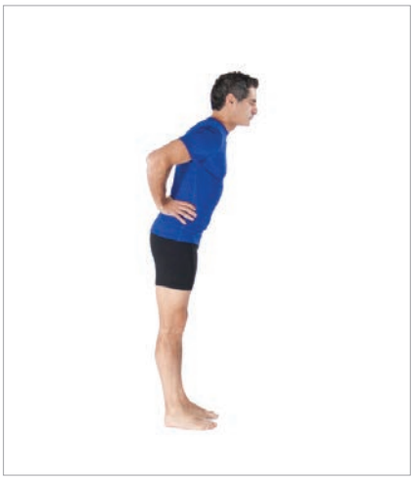
Pelvic Clock

Fingertip Abdominals

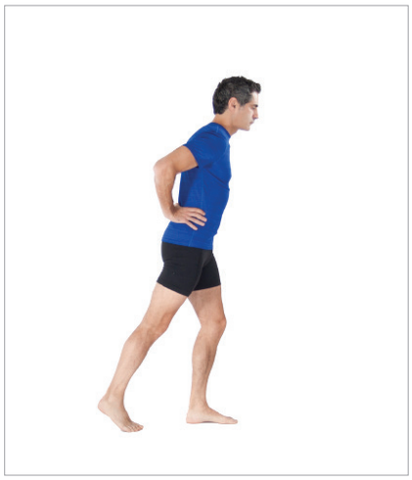
Pelvic Floor Activation



All Fours Abdominals



Standing Multifidi



Standing Multifidi
Single Leg

Marching

Abdominal Curl

Oblique Abdominal Curl

Opposite Arm and Leg Reach

The Spine

The spine creates the central axis of the body. Its position, symmetry and pyramidal shape give it strength while its tapering curves support and balance the three weight centers of the body: the head, thorax and pelvis. The spine has the capacity to absorb shock, is designed to protect the delicate spinal cord and has the capacity to support the weight of the body through various ranges of motion. Optimizing spinal mobility and strengthening the muscles supporting the spine is key to minimizing joint stress and maximizing overall health, physical wellbeing and activity specific performance.

FUNCTIONS OF THE SPINE

Force transference

- The many joints of the spine act to transfer force moving from the lower body to the head or from the shoulders to the pelvis. Because the spine is made up of many units like beads on a string, some energy is lost as the force moves from one bone to the next allowing ground forces to dissipate.
- The spine also acts as the fluid connection between the legs, pelvis, rib cage, shoulders and head. It connects and integrates the actions of the entire body.

Protects the spinal cord and nerve roots

- The segmental nature of the spine allows it to protect and distribute the nerves to the rest of the body.
- The interlocking structure of the vertebrae provide a vertical central channel to protect the spinal cord while the many lateral channels distribute the nerve roots to the body.

Creates Movement

- The segmental structure of the spine allows for a small amount of movement in multiple planes at each joint. This allows the torso to rotate, flex, extend and laterally flex without putting too much pressure on any one joint.
- The bones also provide attachment points for the many muscles that hold the spine together and coordinate the movement of both adjacent and distant vertebrae.

MOVEMENTS OF THE SPINE

The primary integrated movements of the spine are:

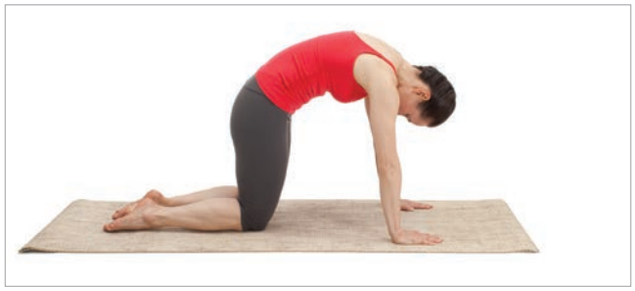
- Flexion
- Extension
- Lateral Flexion
- Rotation

Spinal Flexion

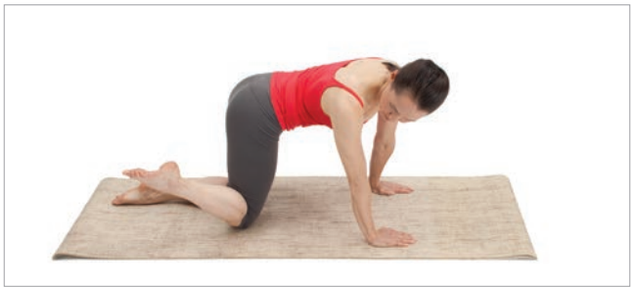
Spinal Extension

Spinal Lateral Flexion

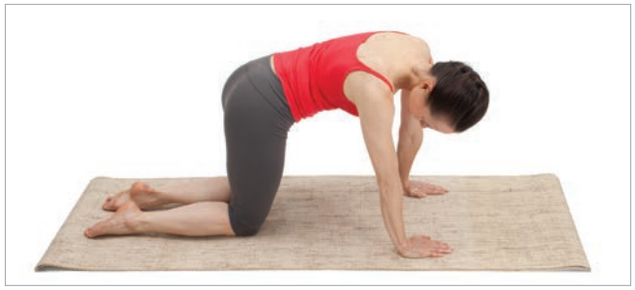
Spinal Rotation



Cat/Cow



Tail Wag



Poodle Tail

Bridging

Bridging with Hip Dips, Typewriter and Figure Eights

Rockets

Mini Swan

LOWER BODY TRAINING

INTRODUCTION

The Lower Body

The lower body forms the foundation of mobility, strength and endurance for daily and athletic activities. A well trained, aligned and balanced lower body provides a lifetime worth of pain free movement. This section focuses on key training principles for helping clients to move well and stay healthy.

Lower Body Training Principles

Train optimum leg alignment

- Organize hip, knee and ankle in optimal alignment.
- Work with client's structure to find and train optimum alignment of the hip, knee, ankle and foot.

Balance range of motion

- Assess ranges of motion of the hip, knee and ankle and work to create the best possible range of motion on all sides of the joints.

Balance muscular strength

- Assess strength on all sides of each joint and work to create balanced strength between the agonists and antagonists to optimize support and optimum mechanics of the lower body.

Create strength and endurance

- Endurance is necessary for the lower body to perform its functions of walking, standing, squatting, lifting and lunging.

Train agility, balance and coordination

- Agility, balance and coordination are essential skills for the lower body.

TRAIN OPTIMUM LEG ALIGNMENT

Training clients to optimally align the legs can decrease wear and tear on the joints and help the muscles to provide balanced support for all the movements of the hip, knee and ankle.

In ideal alignment, the hip joint, knee joint and ankle joint are lined up directly over each other in standing and in squatting or lunging. Ideal alignment is exactly that, ideal. When working with clients, the goal is usually to correct, balance and strengthen the best alignment possible for that individual.

When working with athletic clients, their sport or activity might include working in ranges well outside of ideal alignment. In this case, work to strengthen and balance the lower body to be able to tolerate the stresses put on it by their sport or activity.

Leg Alignment - Hip, knee and ankle in line

BALANCE RANGE OF MOTION

Creating muscular balance on all sides of each joint is an important principle in training the lower body. Muscular imbalances in either strength or flexibility can easily lead to stress on the joints.

Without good range of motion on both sides of a joint, the muscles can't work correctly. This is called reciprocal inhibition. For example, if the hip flexors are too tight, the hamstrings won't have enough range to work well and strength gains will be difficult. Hip mobility, dynamic flexibility and myofascial release exercises are used to balance mobility of the lower body.

Balanced muscle development is important in both joint specific movements like hip extension, flexion, adduction and abduction shown below and in functional lower body moves like squatting, lunging and walking.

BALANCE MUSCULAR STRENGTH

Promoting balanced muscular development optimizes joint function, enhances power and creates support and stability for the joints. Strengthen the muscles around each of the joints in three dimensions:

Hip flexion and extension, abduction and adduction, medial and lateral rotation and circumduction.


Hip flexion


Hip extension


Hip abduction

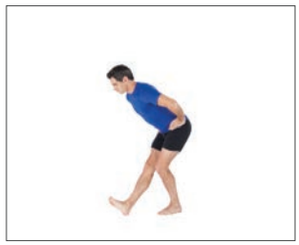

Hip adduction


Hip lateral or external rotation


Hip medial or internal rotation

Knee flexion and extension and tibial medial and lateral rotation.


Knee flexion


Knee extension

Ankle plantarflexion and dorsiflexion.


Ankle plantarflexion


Ankle dorsiflexion

Foot inversion, eversion and toe flexion and extension.

CREATE STRENGTH AND ENDURANCE

The lower body is often used to develop good cardiovascular health through repetitive, high output activities designed to challenge the heart and lungs. While walking, running, biking, swimming or climbing, the lower body needs a significant amount of both strength and endurance to stay healthy over time. With good leg alignment and muscle balance the client can work the lower body to develop the strength and endurance necessary to meet their goals.

Train good mechanics in functional movement patterns including:

- Locomotion: Walking, running, biking or swimming
- Squatting and lunging in a variety of ways.
- Foot and ankle work like heel raises and jumping to stabilize the ankle and improve balance.

TRAIN AGILITY, BALANCE AND COORDINATION

In order to handle ordinary and unexpected situations, clients need to work on agility, balance and coordination at a level appropriate to their goals. These elements create the whole body movement skills necessary for a person to manage their daily and athletic activities successfully.

- Agility can be as simple as being able to respond quickly to a change in the environment like a slippery patch of ice or as complex as training a soccer or basketball player.
- Balance is a multisensory skill that begins to deteriorate after the age of 30. Having a good sense of balance is important for keeping clients safe, especially as they age. Incorporating balance challenges in each session can help keep this system tuned up and clients moving with confidence and grace.
- Coordination of complex movements is what we are designed to do. Training clients in functional movement patterns involving coordination of the lower body, trunk and upper body are essential for overall health and wellbeing whether clients are a 60 year old gardener or a 20 year old tennis player. Coordination is the key to moving efficiently, generating power, and accuracy and minimizing wear and tear on the joints.

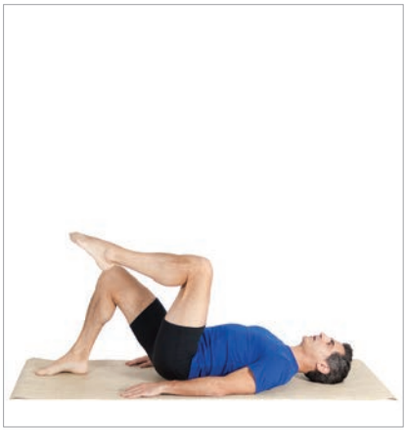
In designing an exercise program for the lower body, the goals and condition of the client will dictate which elements to focus on. If the client is strong but very tight, mobility may be the focus. If the client has had repeated knee injuries, alignment, balanced muscle development and mobility may all be included to balance the forces around the knee. For an older client who wants to remain fit and active, overall strength, endurance and balance may be the focus.

Agility

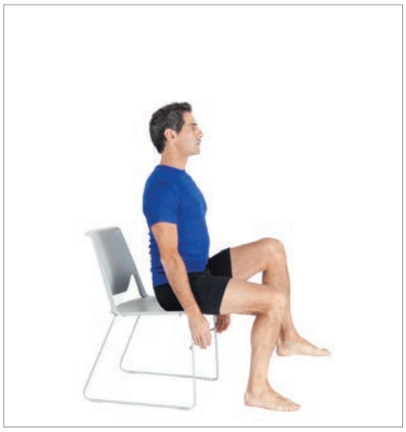
Balance

Coordination

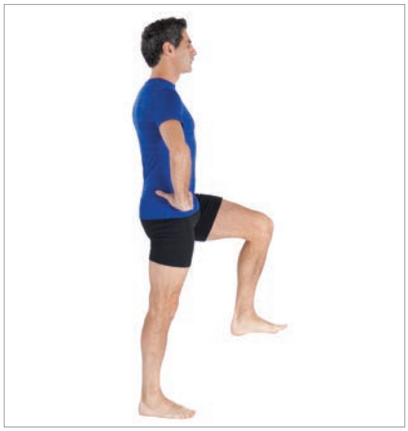
Hip Flexion above 90°



Marching Supine

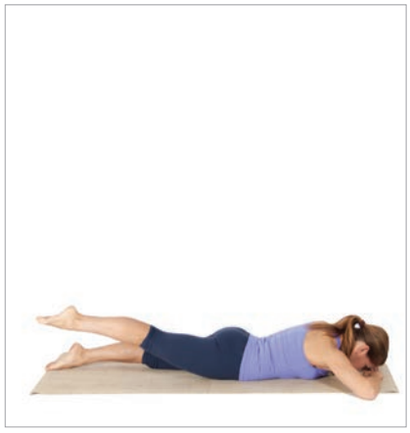


Marching Seated

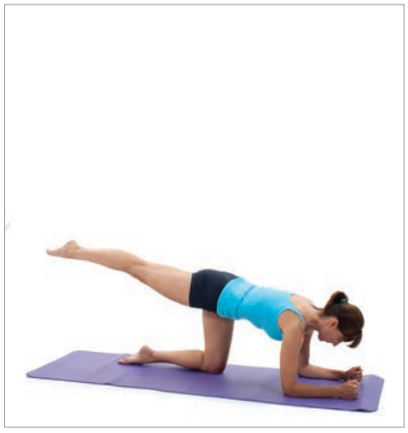


Marching Standing

Hip Extension



Hip Extension Prone



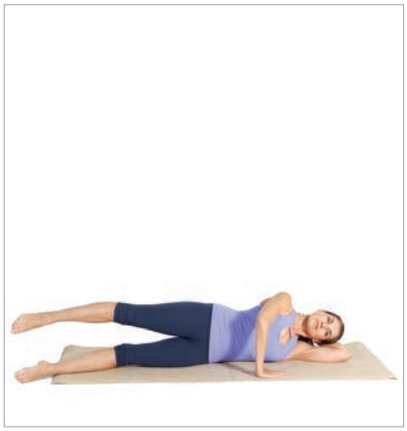
Hip Extension All Fours

Hip Extension Standing

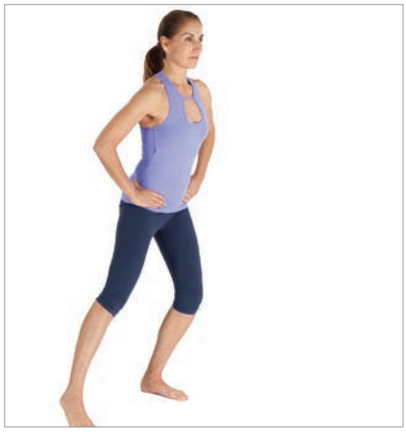
LOWER BODY TRAINING

EXERCISE PROGRESSIONS: HIP ABDUCTION AND ADDUCTION

Hip Abduction



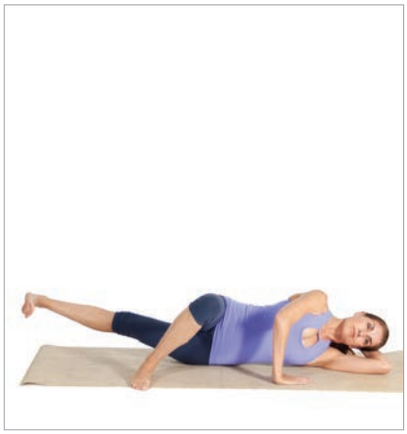
Side Lying Leg Lifts - Abduction



Stepping Out Abduction

Standing Leg Lifts - Abduction

Hip Adduction



Side Lying Leg Lifts - Adduction

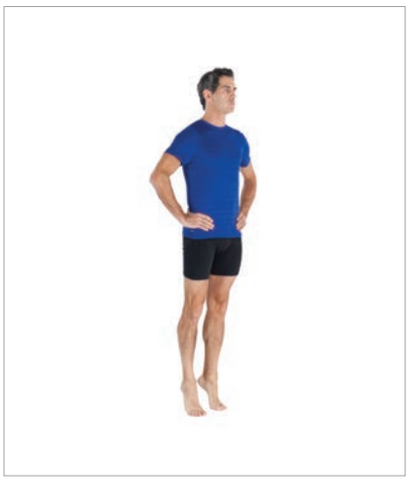
Standing Leg Lifts - Adduction

Seated Isometric Adduction

Foot and Ankle Strength

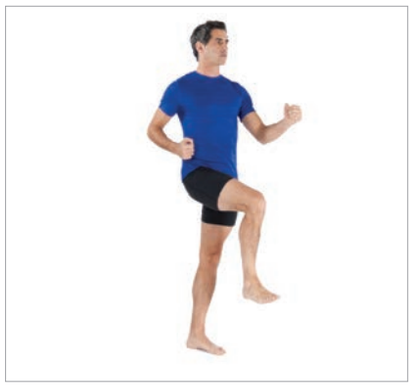
Plantar Flexion

Dorsi Flexion

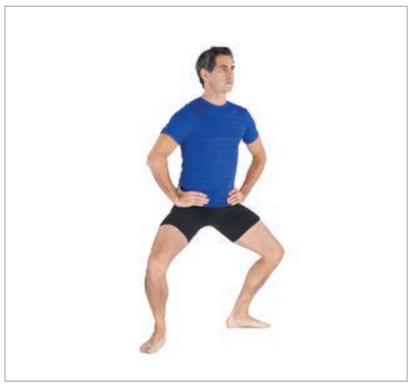


Heel Raise

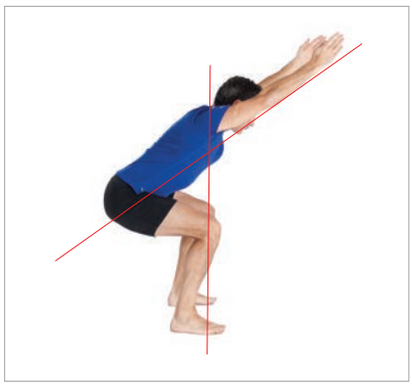
Functional Movements



Marching with Arm Swings

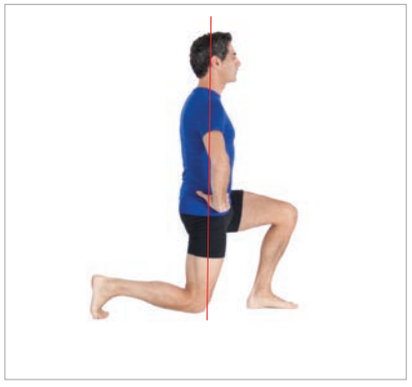


Knee Bends

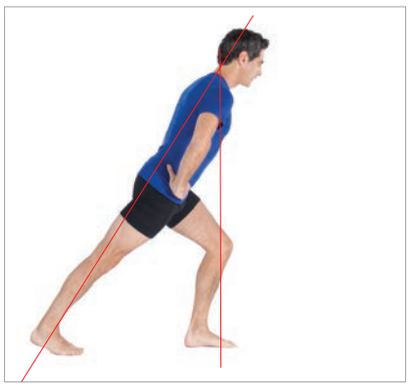


Squats - Narrow, Parallel

Squats - Wide, Turned Out



Upright or 90/90 Lunge



Tilt or Forward Lunge

UPPER BODY TRAINING

TRAINING PRINCIPLES

The Upper Body

The upper body consists of the cervical spine, thoracic spine, ribs, shoulders, arms, elbows, wrists and hands. Upper body actions run on a spectrum from the fine motor skills of texting, drawing and sculpting to the power moves of throwing a ball or lifting a heavy object. The anatomical complexity and multiple functions of the upper body require a solid understanding of upper body anatomy, biomechanics and training principles to successfully train clients for functional and athletic activities.

Upper Body Training Principles

There are many ways to design an effective upper body training program but any program should begin by creating optimum movement patterns with a balance of strength, mobility and stability. When upper body movement is not well coordinated, injury can easily be the result. The following principles provide a framework for creating strength and balance in the upper body:

Optimize joint mobility and stability

- Create glenohumeral stability, coordination and endurance.
- Develop appropriate scapular mobility.
- Train dynamic scapular stability or scapular control.

Train functional movement patterns

- Pulling, pushing and lifting with both arms, one arm and in multiple directions.

Integrate upper body movements with the rest of the body

- Include rotation, cross body moves and exercises like throwing where power moves through the body to the arm.

OPTIMIZING JOINT MOBILITY AND STABILITY

The upper body has many more joints participating in most actions than the lower body does so understanding the balance between stability and mobility and thinking in terms of integrated rather than joint specific movement patterns is crucial for training success. The two areas to focus on are glenohumeral stability and endurance and scapular stability and mobility.

GLENOHUMERAL STABILITY AND ENDURANCE

Glenohumeral stability and endurance means training the rotator cuff to position the humeral head in the glenoid fossa so larger muscles and movements can be performed without compromising the glenohumeral joint. The muscles in this area are small so training should focus on endurance rather than strength or high repetitions with low resistance rather than high resistance with low repetitions. Training should also focus on maintaining the congruency of the joint or keeping the humerus relatively centered in the glenoid fossa as it rotates.

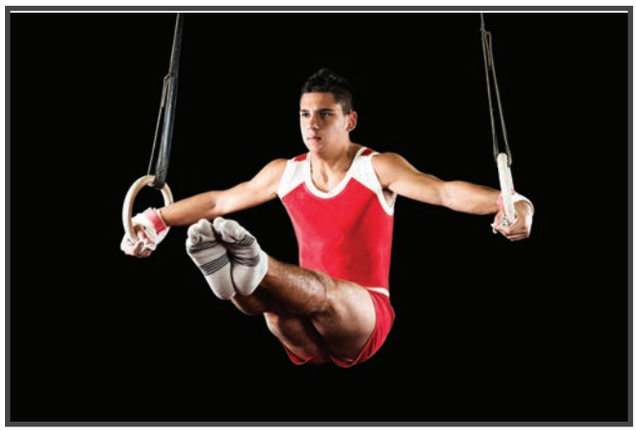
SCAPULAR MOBILITY AND COORDINATION

Optimizing scapular stability and mobility are important for creating power transfer through the shoulder joint and for minimizing stress on any one element of the upper body kinetic chain. Mobility exercises are designed to coordinate the actions of the lower body, spine, shoulder, arm and head to maximize power transfer and minimize joint stress in functional movements. If there is a limitation in mobility, for example the scapula is not moving into upward rotation when the arm is lifted, stress will be placed on the glenohumeral joint potentially leading to shoulder impingement.

SCAPULAR STABILITY AND DYNAMIC CONTROL

Scapular stability means positioning the scapula for optimum force transfer during movement. For example, in a push up, the scapulae may move into retraction as the body lowers but should return to a neutral position before starting a second rep. This provides a stable base for the glenohumeral joint to move into extension as the body lowers and to flex as the body rises.

In the case of raising the arm overhead in preparation for throwing a ball, the stability of the scapulae needs to be dynamically controlled through the range of motion. In other words it needs to move at just the right speed into upward rotation to support the action of the glenohumeral joint and the rest of the arm. In this example, if the scapulae stayed perfectly stable in one position, the arm could not rise high enough to produce the necessary power to throw the ball.



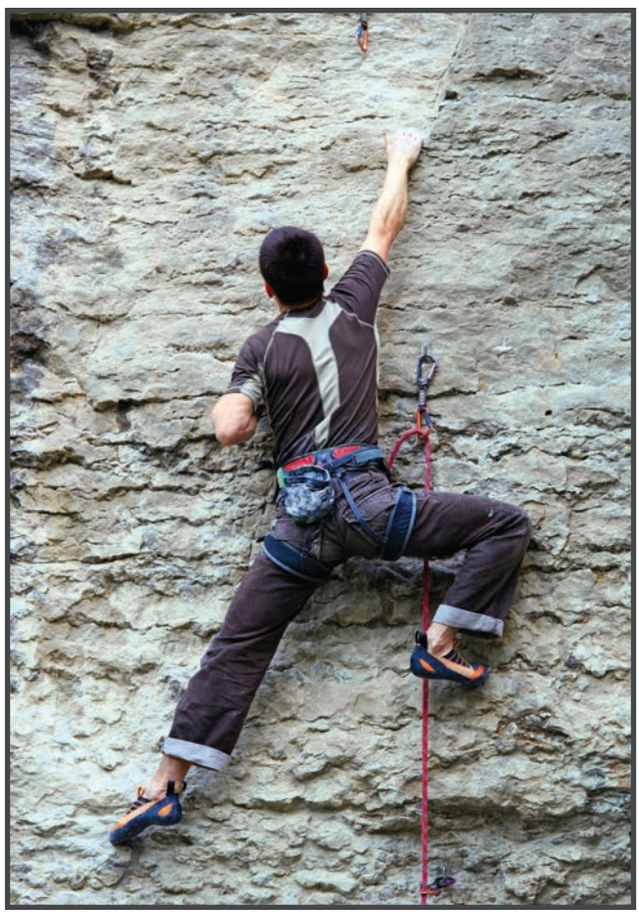
PULLING, PUSHING AND LIFTING

Because of the multi planar and multi joint actions of the upper body, training functional movement patterns is the best way to create strength and balance in the upper body. Pushing in all directions: forward, overhead, down and laterally; pulling in all directions: in, down and up and lifting in a variety of ways all provide a general framework for planning a well balanced training session. Using one or both hands and working with different hand grips can easily modify the exercise to create applications for any activity.

INTEGRATING THE UPPER AND LOWER BODY IN FUNCTIONAL MOVES

In addition to pushing, pulling and lifting, the upper body should be trained in movements incorporating the legs, hips and spine. For a power move like a tennis serve, most of the force hitting the ball is not generated by the shoulder and arm but by the legs and spine. Working on moves like throwing, or rotational moves can integrate the upper and lower body creating both more power and less likelihood of injury because a well coordinated movement spreads the load out between joints and transfers the energy smoothly from segment to segment.

For example, a golfer who does not integrate the rotation of the swing through the body from the feet to the hands to the club to the ball, will not generate the power needed for a good drive. Developing integrated mobility of the upper and lower body is crucial for many functional movements and a common limitation to developing power and efficiency in daily and athletic activities.



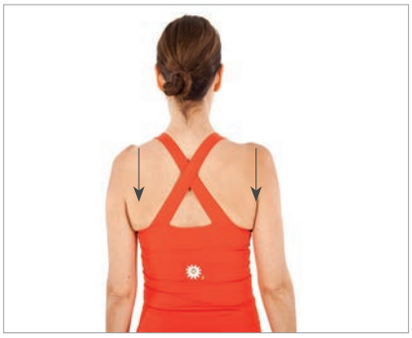
Shoulder Stability, Mobility and Muscle Balance

The scapulae are relatively mobile islands of bone floating on the back of the rib cage and connected through the acromioclavicular joint, the clavicle and the sternoclavicular joint to the thorax. The clavicle, the scapula and all of their associated joints work together to create movement of the shoulder. The scapulae function as platforms which the upper limbs use for support. The position, stability and strength of the scapulae are almost entirely dependent on the action of the muscles that surround them. This complex system is called the scapulothoracic joint. The shoulder muscles work isometrically in balanced partnerships to stabilize the scapulae for weight bearing exercises like the plank. The same partnerships work concentrically and eccentrically to move the scapulae and the upper limb for exercises such as lat pulls. These muscular relationships allow the scapulae to be supported in all planes for safe and efficient motion.

ELEVATION AND DEPRESSION OF THE SCAPULA

Elevation slides the shoulder blades up toward the head while depression draws them down toward the hips. The balance of these two actions keep the scapulae centered between the head and the bottom of the rib cage. The scapular depressors are generally weaker and less active than the elevators and require more training to create balance.

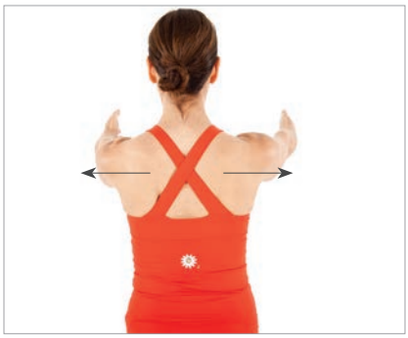
Scapular elevation



Scapular depression

PROTRACTION AND RETRACTION OF THE SCAPULA

Retraction pulls the scapulae toward the spine. Protraction pulls the scapulae away from the spine and around the rib cage. These muscles work together to keep the scapulae stable and balanced between protraction and retraction when bearing weight on the upper body as in a plank exercise. Dynamic scapular stability is critical for generating power in the upper body.



Scapular protraction

Scapular retraction

UPWARD AND DOWNWARD ROTATION OF THE SCAPULA

In upward rotation, the scapulae rotate so the glenohumeral joint angles up toward the ceiling while the bottom tip of the scapula swings laterally and superiorly around the rib cage. As the arms lower the scapulae depress and downwardly rotate, swinging the bottom tip of the scapulae toward the spine. The scapulae upwardly rotate approximately 1 degree for every 2 degrees of humeral movement in abduction or flexion above 60 - 90 degrees. This is called scapulohumeral rhythm.

Scapular upward rotation

Scapular downward rotation

Movements of the Glenohumeral Joint

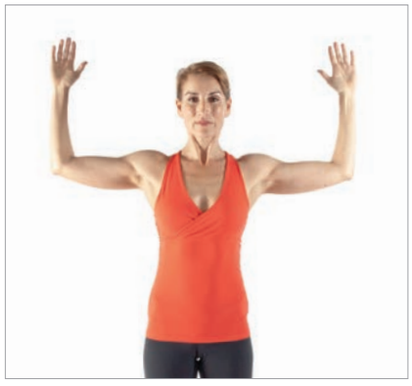
The glenohumeral joint is designed for maximum range of motion. The humeral head is a very big ball fitting into the very small socket of the glenoid fossa of the scapula. Compare this to the close fitting ball and socket of the hip which also has a large range of motion but much more structural stability than the glenohumeral joint. Unlike the hip joint, the glenohumeral joint combines its motion with the scapula and the clavicle to allow the shoulder to throw a ball, swing from a trapeze or pull ourselves out of the pool.

In addition to the synergy between the glenohumeral joint and the rest of the shoulder joints, many actions of the arm are accompanied by movements of the thoracic spine. For example, the range of motion of the arm in flexion may be limited by the mobility of the thoracic spine in a client with kyphosis. Or, in observing a tennis player serving, or a baseball pitcher throwing, thoracic extension is part of the wind up to deliver power to the ball. Most functional moves of the upper body are working multiple joints in multiple planes so training for that reality is essential for success.

MEDIAL AND LATERAL ROTATION

The humerus rotates in the glenoid fossa into medial (internal) and lateral (external) rotation. The rotators are responsible for positioning the humerus in the glenoid fossa so the larger, more superficial power muscles can move the humerus safely.

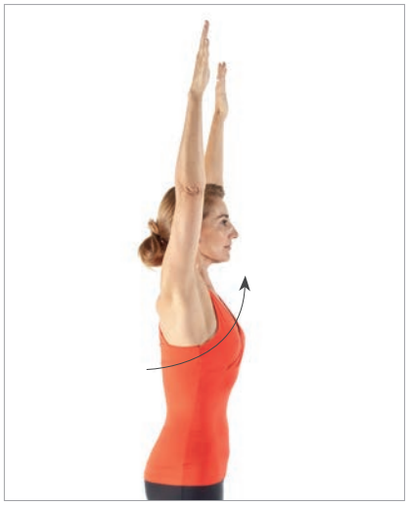
Shoulder medial rotation



Shoulder lateral rotation

FLEXION AND EXTENSION

The flexors and extensors move the arms forward and back in the sagittal plane. Once the arms move above shoulder height, upward rotation of the scapulae is necessary to allow the humerus to keep moving. For full flexion or flexion beyond straight overhead, thoracic extension is often necessary.

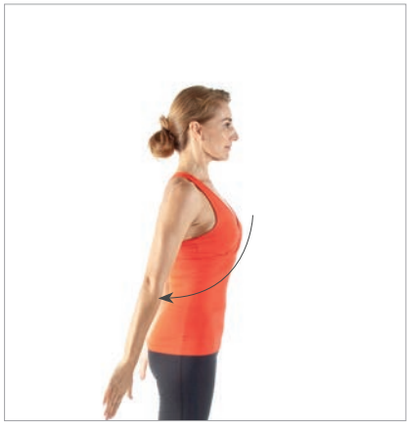


Shoulder flexion

ABDUCTION AND ADDUCTION

Abduction takes the arms away from the torso while adduction brings the arms to the side of the body or toward the midline if combined with flexion or extension. Upward rotation is again necessary when the arms move above shoulder height in abduction.

Shoulder abduction and adduction



Shoulder extension

UPPER BODY TRAINING

EXERCISE PROGRESSIONS: GLENOHUMERAL STABILITY AND SCAPULAR MOBILITY

Glenohumeral Stability

Lateral Glenohumeral Rotation

Medial Glenohumeral Rotation

Scapular Mobility

Arm Raises Together

Arm Raises Alternating

Angels in the Snow

Telescope Arms

Pinwheel

Develop Scapular Stability - Plank Preps

Sternum Drop

Plank Prep - All Fours Single Arm Lift

Front Plank

Modified Front Plank

Front Plank

Front Plank with One Leg Lifted

Front Plank with Opposite Arm and Leg Reach

Front Forearm Plank or Hover

Push Up

UPPER BODY TRAINING

EXERCISE PROGRESSIONS: BACK AND SIDE PLANK

Back Plank

Back Plank - Elevation

Back Plank - Depression

Modified Back Plank

Mod. Back Plank - Marching

Back Plank

Back Plank - Leg Lift

Side Plank

Modified Side Plank

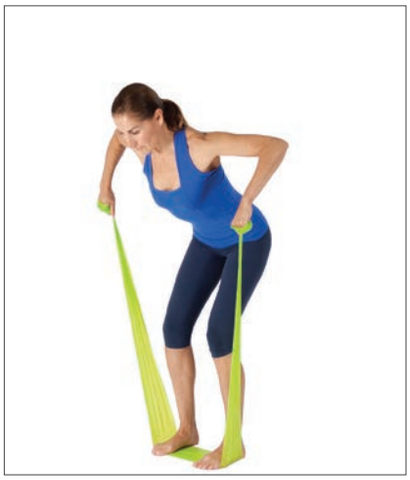
Side Plank - Feet Staggered

Side Plank - Feet Stacked

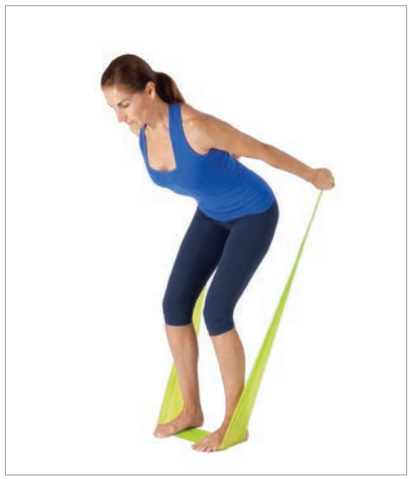
Side Plank with One Leg Lifted

Side Forearm Plank or Hover

Activating the Posterior Shoulder

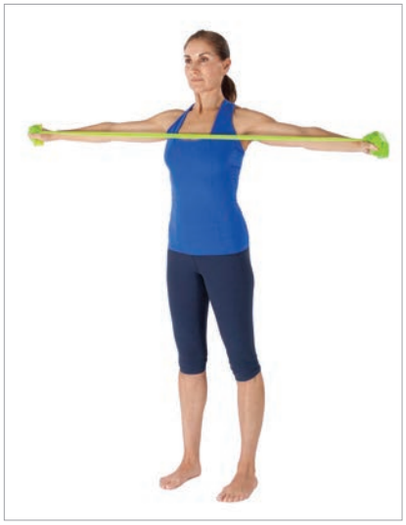


Rows



Triceps Press

Triceps Dip

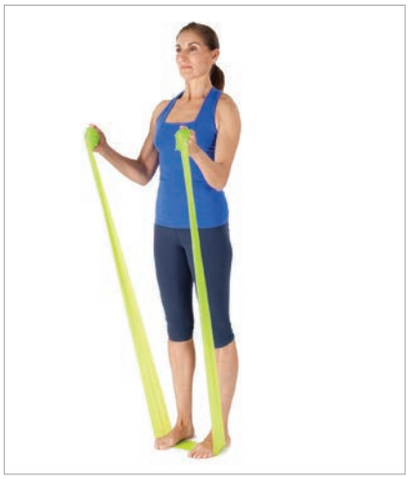


Lateral Press

Overhead Press

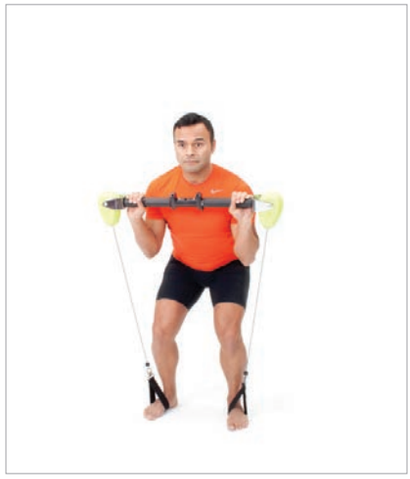
Pulling Down

Activating the Anterior Shoulder

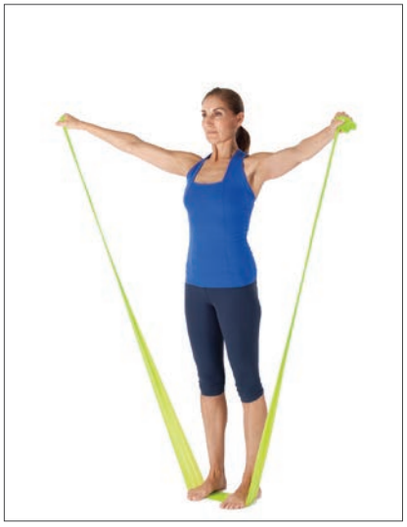


Biceps Curl

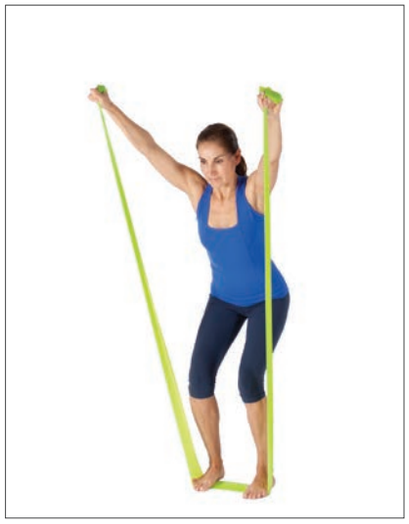
Chest Press



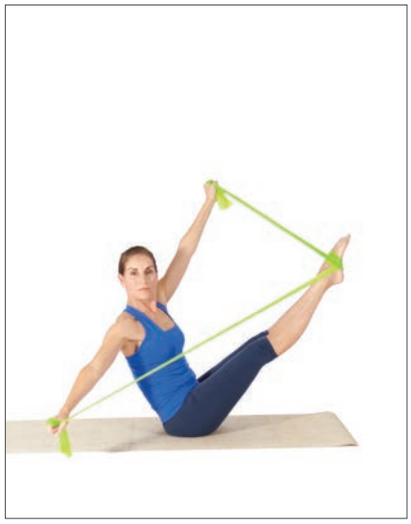
Lifting



Side Raise



Forward Raise



Integration of Upper and Lower Body

Stretching

Ever watch a dog or a cat after they the get up from a rest? One of the first things they do, after a great big yawn, is stretch. It is a natural instinct in all animals, including us humans. Stretching, as part of any physical fitness regime, provides an opportunity to restore and relax the body while facilitating both recovery and flexibility. While there are many theories surrounding stretching and the different stretching techniques it is clear that stretching is a great way to enhance flexibility, muscle control, awareness and range of motion.

Stretching techniques vary, but they all strive to increase flexibility and range of motion by overcoming the stretch reflex. Stretching techniques include static stretching, contract/release and active isolated stretching. Stretching can be slow and controlled, ballistic or dynamic. Each of these versions have value and can be used to find the most effective stretch for the client.

The Stretch Reflex

The human body has many brilliant ways of protecting itself against potential harm. The stretch reflex is one such mechanism. It moderates muscle length and protects against overstretching a joint. When a muscle is stretched, sensors called muscle spindles are stimulated and send a signal to the brain to contract the stretching muscle to limit its range of motion. To change the range of motion of a joint and reset this stretch reflex, many different strategies are employed. Some clients respond better to one technique than another so it is good to have options in your training toolkit.

Dynamic Stretching Techniques

Dynamic stretching involves gaining flexibility by moving in and out of end ranges of motion. It is an excellent way to increase flexibility while simultaneously developing stability of the joint at the end range. While some literature categorizes dynamic stretching as a technique of its own, others refer to it as dynamic preparatory movements for real world and sports specific activities. Activities such as yoga and Pilates are exercise modalities known for their dynamic stretching exercises.

Contract/Release

Contract/Release, or hold relax, is one form of PNF (proprioceptive neuromuscular facilitation) stretching. In a hamstring stretch for example, the muscle is put in a stretched position then the hamstring is contracted isometrically and released. Isometrically contracting a muscle for longer than 6 seconds creates high tension which is followed by sudden relaxation. This negative feedback lengthening is called autogenic inhibition. To perform, contract and release the muscle for 6 seconds three times before holding a sustained stretch for 30 seconds.

Active Isolated Stretch

Active Isolated Stretching, or AIS, is a method which is intended to naturally create neuromuscular relaxation by activating the antagonist of the muscle being stretched. In a hamstring stretch, for example, the hip flexors would be used to stretch the hamstring. It is the concentric contraction of the opposing muscle which creates the stretch in the targeted muscle. Activation of the opposite side of the joint pulls the muscle into a stretched position. Activation is designed to overcome the tendon stretch reflex by creating short, slow and controlled movements of the joint enhancing the stretch tolerance. Six to ten repetitions of a slow movement through range of motion is recommended before holding the stretch.

Static Stretching

Static stretching is a widely used and accepted form of stretching. A stretch is held for a specific period of time, usually for 30 – 45 seconds or longer. To improve flexibility, the American College of Sports Medicine recommends 2 to 4 repetitions totaling 60 seconds. It is currently believed that static stretching overcomes the stretch reflex by desensitizing receptors to tension. This in turn allows muscles to handle more force.

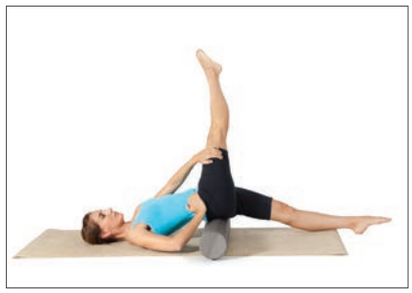
MOBILITY AND RESTORATION

EXERCISE PROGRESSIONS: LOWER BODY STRETCHES - SUPINE, KNEELING AND SEATED

Supine Stretches

Hip Lateral Rotators

Hamstrings



Abductors/Lateral Leg

Adductors

Hip Flexors

Quadriceps

Kneeling and Seated Stretches

Hip Flexors

Quadriceps

Hamstrings

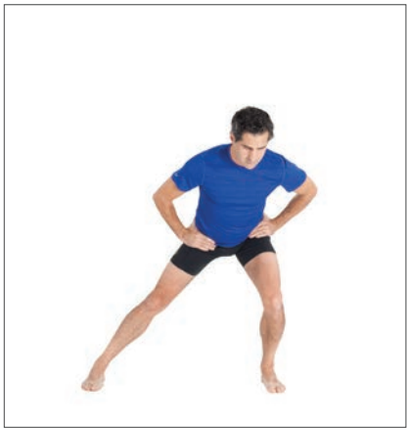
Abductors/Lateral Leg

Adductors

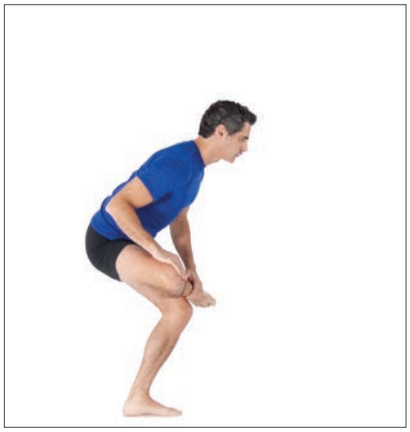
Hip Lateral Rotators

Standing Stretches

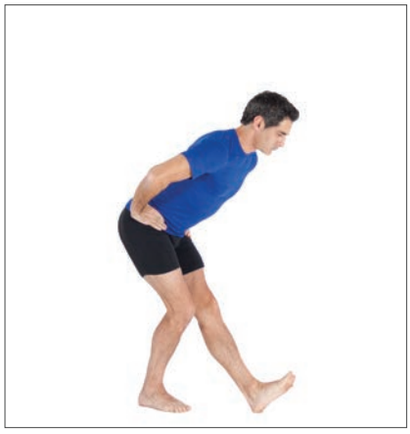
Hip Flexors



Adductors

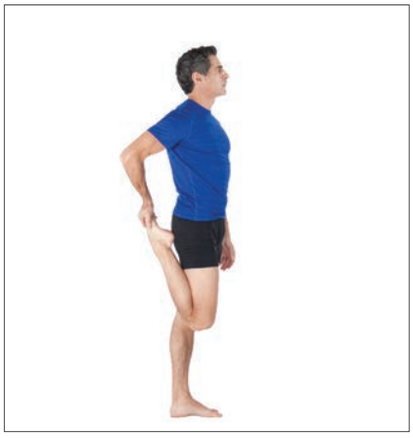


Hip Lateral Rotators

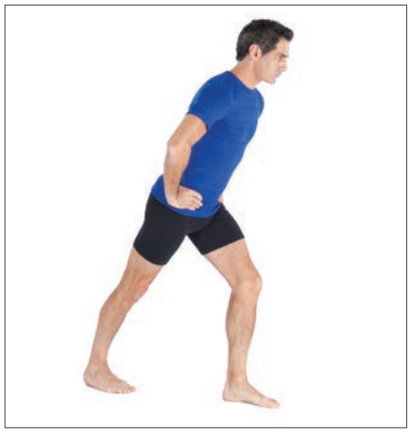


Hamstrings

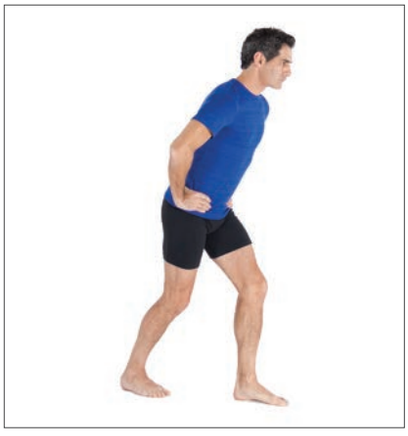
Abductors/Side Body



Quadriceps



Calf

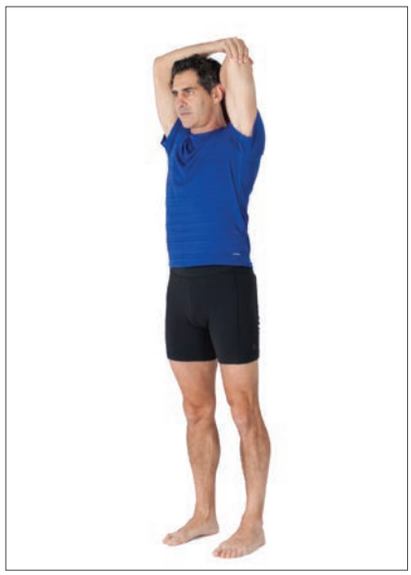


Soleus

Upper Body Stretches

Chest

Posterior Shoulder



Triceps

Eagle Stretch

Neck

Stretching

Forearm and Wrist Extensors - Starting Position

Forearm and Wrist Extensor Stretch

Wrist and Finger Extensors

Wrist and Finger Flexors

Fingers and Thumb

MOBILITY AND RESTORATION

MYOFASCIAL RELEASE, REST AND RECOVERY

Rest, Relaxation and Recovery

In our modern, always on the go society, rest and relaxation are not always a priority. Many ancient forms of health care and physical practice, from meditation to yoga, emphasize the rejuvenating power of rest in creating greater levels of awareness, fostering creativity and healing the effects of our daily activities.

Stress and Relaxation

Stress affects the autonomic nervous system (ANS) which controls many of our life sustaining functions such as heart beat, thermoregulation, respiration, and digestion. The ANS also works with the mind, affecting our emotions and our behavior. Continuous stressful stimuli can interfere and exhaust the routine ANS function while relaxation soothes the body and restores us to our natural state by modulating hormone release, slowing respiration rate and clearing the mind.

WHOLE BODY MOVEMENT AS RELAXATION

Movement can itself be a form of relaxation. Rhythmic, breath driven movements like those used in Tai Chi, or the repetitive action of running or cycling have been proven to release endorphins which can create a feeling of well being. Whole body exercise has also been shown to improve the function of the cardiovascular, respiratory, myofascial and neurological systems. When these systems are tuned up, the body is better able to handle stress and recover from illness, injury or hard physical training.

Incorporating moments of rest, breath and mindfulness into a session or into a client's home program will encourage them to take better care of themselves and to respect their bodies need for recovery. Cueing clients to focus on the breath in any given activity helps facilitate ease and relaxation which in turn creates a more productive learning environment, increases awareness of functional and dysfunctional movement patterns, decreases the likelihood of injury and increases client empowerment and satisfaction.

We encourage you to find these moments within the exercises and incorporate them into the client's workouts.

Recovery and Rest

An important part of physical training is the concept of recovery. Recovery takes many forms including resting between sets in an exercise sequence, getting a good night's sleep to allow tissues to recover and the nervous system to integrate a new skill and performing myofascial release or self-massage techniques to help tissues recover from over work.

Allowing time between intensive exercise sessions is critical to minimizing injury and maximizing strength and performance gains. Cellular repair is done by the body at night while we sleep so making sure there is recovery time between training sessions keeps the body from breaking down from too much strenuous activity.

Sleep and rest are also critical for learning a new skill or improving performance. When a client is having trouble with a new move, simply sleeping on it will often bring about positive change. On a smaller scale, incorporating short rest periods into a training session allows the muscles to recover enough to keep pushing.

Myofascial Release or Self Massage

The term myofascial release is often used to describe different manual therapy techniques which include soft tissue massage, manipulation and mobilization, trigger point therapy, strain-counterstrain therapy and foam rolling. All of these techniques are designed to positively effect musculoskeletal limitations by relaxing muscles, improving blood and lymphatic circulation, and removing toxins from immobile tissue.

As a personal trainer or Pilates instructor, hands on techniques may be beyond your scope of practice so using self massage or myofascial release techniques on the foam roller are an excellent way to help clients recover. They can also be used to loosen tissue and improve range of motion through providing pressure on the tissue. Myofascial release can be used very successfully at the beginning of a session to decrease chronic tension patterns at the end of a session to help the tissues recover from the workout. Self massage can be used quite successfully with dynamic flexibility techniques to improve or maintain range of motion.

Roller Stretches

Chest Opener

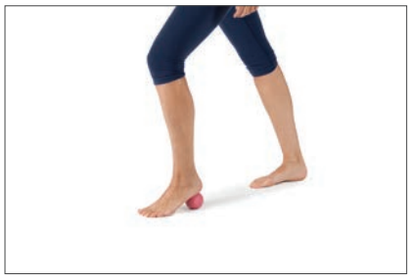
Bookends Starting Position

Bookends Stretch

Flip Flops

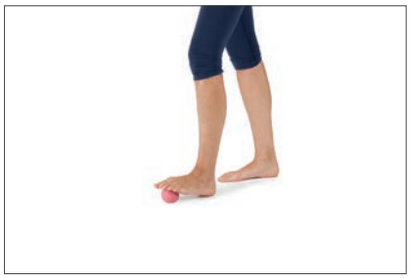
Angels in the Snow

Myofascial Release for the Feet



Heel Release

Arch Release



Metatarsal Release

Toe Release

MOBILITY AND RESTORATION

MYOFASCIAL RELEASE AND SELF MASSAGE

Myofascial Release

Posterior Hip

Hamstrings - Two Legs

Hamstrings - Single Leg

Calves - Hips Down

Calves - Hips Up

Quadriceps/Anterior Thigh

Tibialis Anterior - Anterior Shin

Iliotibial Band/Lateral Thigh - Supported

Iliotibial Band/Lateral Thigh - Unsupported

Adductors/Medial Thigh

Lateral Torso

Upper Back

Occiput and Head