



January 2021

# FitLot Coaches Training Manual

**A guide for leading community fitness programs at FitLot Outdoor Fitness Parks.**

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# Introduction: Our Story

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*A message from **Vadim Mejerson, PhD**, co-founder of FitLot, Principal of Physical Intelligence Inc., and creator of The FitLot Training System.*

FitLot, as a concept, came to my son Adam and me simultaneously. The moment we laid eyes on a “playground for grown-ups,” an outdoor fitness park, we instantly knew it was something special. We said to each other, “...this is so right and so inviting, every neighborhood should have one.”

This has proven to be the beginning of what has been a very long process. Our journey has included questioning, observing, learning, comparing, testing, envisioning and dreaming. The concept of an outdoor fitness park, designed for all and accessible to all, seemed like an absolutely positive idea. Forces were joined. Father and son began building something together. The idea of creating something that we both felt passionate about was exciting. We envisioned a system that could have a positive impact on both individuals and communities. Together, we brought different, but complementary skills, abilities and a spectrum of experiences to the table.



Adam immediately thought of building outdoor fitness parks in New Orleans. Having volunteered to help with the post Katrina recovery efforts, Adam took time off from college and absolutely dedicated himself to the labor and effort required to rebuild a city from such a catastrophe. He never left. This love affair resulted in his involvement in the community, an interest in its needs and problems and a strong motivation to participate in finding solutions. His passion, his academic training in business and

disaster management, and his deep, organic understanding and appreciation of fitness and wellness from having literally grown up in my training facility, led him to fully commit to this inspiring idea.

Step by step, after years of work, a not-for-profit organization was established, specializing in all the necessary aspects of turning this idea into a functional reality. Despite the ups and downs, and the long, slow process, Adam formed FitLot, Inc., a 501c(3) nonprofit organization committed to helping communities find the resources they need to plan, build and program outdoor fitness parks. In order to bring this concept to as many communities as possible, we understood that we would need to partner with a sponsor with a true dedication to public health.



**In 2019, AARP teamed up with FitLot** to celebrate their 60th Anniversary as an organization by providing FitLot with a grant to plan, build and activate one fully-funded AARP Sponsored Outdoor Fitness Park to each state in the country, the District of Columbia, the U.S. Virgin Islands and Puerto Rico over three years. Many of you reading this will be hired with the funds AARP committed to activating these parks for the first 3 years with no-cost community classes. It's an incredible initiative, and by taking this training, you are becoming part of a national team of FitLot Coaches who are all serving and strengthening their communities.

My professional experience lies in the field of Exercise Physiology. For the last three decades, I have been operating a fitness and wellness clinic, located adjacent to my home. I have been interested in physical fitness since my teenage years. As a competitive athlete, I was naturally interested in improving my athletic-performance. The science of exercise physiology was in its infancy, and the concept of physical fitness and the multi-dimensional understanding of it were very vaguely defined. I decided to make the field of physical fitness a focus of my academic studies and my work. Living in Israel, I obtained my undergraduate degree, as well as my fitness coaches' diploma, from Wingate Institute for Physical Education and Sports. I further pursued my graduate studies and a Ph.D. in Exercise Physiology in New York at Adelphi University.

I owe the essence of my practical experience to my very extensive involvement in the training of Israeli Special Forces and Israeli Secret Service. The need for necessary skills, and the required physical fitness to develop and hone those skills, is imperative for operations carried out by both the Special Forces and Secret Service. Often, situations of extreme physical strain present themselves, and trained specialists need to be able to achieve peak performance under stress in order to successfully meet objectives. My experiences in this realm led me to firmly believe that physical fitness is an essential element in all situations.

I also believe that physical fitness affects the quality of our life in immeasurable ways. Physical fitness should be introduced to us in childhood and be part of planning that takes our lives, our longevity and our vitality into consideration. Safety, efficiency, enjoyment and correct performance should be taught by properly trained professionals that treat their task with the utmost responsibility. Though not a simple task, our intent is to provide a mechanism that will help with this very important endeavor. The Fitlot Outdoor Fitness Park and Training Methodology were designed to be useful for all ages and abilities and to provide trainers like you with resources that will expand your toolkit and inspire you to join us in strengthening communities.

Thank you for helping make our dream a reality! We are excited to join forces with you as we increase activity and health one person and one community at a time.

In health,

***Vadim Mejerson, Ph.D.***



## SECTION 1: CURRENT STATE OF HEALTH AND FITNESS

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### Learning Objectives

- Understand current statistics around physical fitness, inactivity and obesity within the US and worldwide
  - Gain an understanding of how obesity and disease impact healthcare costs and overall public health
  - Understand how FitLot Outdoor Fitness Parks can be part of the solution
- 

Obesity and physical inactivity are issues that span beyond all borders and affect humanity on a global scale. With the growing trends of wearable activity trackers, mail order meal prep programs, in-home digital fitness experiences, and downloadable guided meditations, “a healthy lifestyle” seems as if it should be within reach. Despite these efforts, the objectives of decreasing risk of disease and improving overall health remain far from being met within the United States or worldwide.

### What do the statistics reveal?

#### Worldwide:

(Source: <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>)

- In 2016, more than 1.9 billion adults aged 18 years and older were overweight. Of these, over 650 million adults were considered obese.
- In 2016, 39% of adults aged 18 years and over (39% of men and 40% of women) were overweight.
- The worldwide prevalence of obesity nearly tripled between 1975 and 2016.

#### United States:

(Sources: Hales et al. 2017)

- The prevalence of obesity was 39.8% and affected about 93.3 million US adults in 2015-2016.



- Obesity-related conditions include heart disease, stroke, type 2 diabetes, and certain types of cancer. These are some of the leading causes of preventable, premature death in the U.S.

### **For children and adolescents aged 2-19 years in the United States**

- The prevalence of obesity was 18.5% and affected about 13.7 million children and adolescents.
- Obesity prevalence was 1-3.9% among 2- to 5-year-olds, 18.4% among 6- to 11-year-olds, and 20.6% among 12- to 19-year-olds.

## **What is the cost?**

- According to a report issued by the McKinsey Global Institute in 2014, "...the global cost of obesity has risen to \$2 trillion annually, [which is] more than the combined costs of armed violence, war and terrorism (Bereson, 2014)
- The estimated annual health care costs of obesity-related illness are \$190.2 billion, nearly 21% of annual medical spending in the United States (Cawley, 2012).

**Despite the rising costs and staggering statistics, the problem still exists.** The FitLot Training System aims to provide a simple strategy to increase physical activity within communities. Our vision is for every American to live within walking distance of an outdoor fitness park where they can have a safe space to exercise and be active, while also having a community of support to keep them motivated and accountable.

## **The Public Health Issue**

It has been well researched how modern life contributes to physical inactivity and sedentary lifestyles. Think about how many of us spend our days hunched over a computer, or live in high rise apartments with little access to active spaces. Not surprisingly, the environment plays a huge role in the habits that are formed within communities. According to Impact:

"The built environment includes all of the physical parts of where we live and work (e.g., homes, buildings, streets, open spaces, and infrastructure). **The built environment influences a person's level of physical activity.** For example, inaccessible or nonexistent sidewalks and bicycle or walking paths contribute to sedentary habits. These habits lead to poor health outcomes such as obesity, cardiovascular disease, diabetes, and some types of cancer. Today, approximately two thirds of Americans are overweight" (Impact, 2011).

Another recent research study estimates, "The average American now spends 90 percent of their life indoors. Some 40 percent of adults no longer engage in any leisure physical activity at



all. Some 90 percent of healthcare costs go to treating the 132 million Americans who suffer from treatable chronic diseases such as diabetes, depression, anxiety, and high blood pressure.” (Green, 2019).

**Is there a solution?** According to John Henderson, Executive Director of *Park Rx America*, one solution involves **2 key strategies**: (Green, 2019).

- **Get people outdoors**
- **Get people active**

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Enter FitLot! By welcoming people to get outside and use their FitLot Outdoor Fitness Park and providing a safe and effective training program, we aim to make generational change in physical activity. Our goal is to strengthen individuals and communities by supporting the creation of public outdoor fitness parks, and making effective exercise training accessible to all.





## SECTION 2: HISTORY AND BENEFITS OF OUTDOOR FITNESS

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### Learning Objectives

- Understand the history of outdoor fitness and outdoor fitness parks
  - Describe the health benefits of exercising outdoors
  - Explain the potential impact of accessible green space and outdoor fitness parks on public health and communities
- 

Outdoor exercise is gaining popularity, and for good reason. Training programs using outdoor fitness equipment can be kept simple, and routines can be flexible in order to accommodate a wide variety of fitness levels. Being outdoors is often perceived as “more fun” and may attract a wider range of users (Spears, 2017). From a financial perspective, outdoor fitness may be an affordable option when expensive gym memberships and classes are cost prohibitive. This can also benefit local trainers by allowing them to serve a broader spectrum of clients.





## History

The benefits of nature to overall health and wellness is not a new idea. On the other hand, facilitating outdoor exercise using gym-like equipment is a relatively new concept. Fitness parks built for outdoor use are constructed of the same all-weather powder coated steel materials that are used for a typical children's playground.

The concept of outdoor gyms has gained popularity in Asia and Europe over the past several decades. In the 1960s and 1970s, "fitness trails" that were built throughout the United States and Europe were often referred to as outdoor gyms (Randall et al. 2008). The fitness trail, as seen below, which typically spaces equipment along a path, is quite different from the modern "Outdoor Fitness Park" and FitLot design which places equipment together to resemble a conventional indoor fitness facility.

**Fit-Trail** **Enjoy Every Move You Make!**

**HERE'S HOW IT WORKS**

- FIT-TRAIL is a series of exercise stations located along a trail or in one central location.
- You are at the **INFORMATION STATION** of the system.
- Each exercise station has an **EXERCISE INSTRUCTION** sign and **EXERCISE APPARATUS**.
- Do each exercise **SLOWLY** and **CAREFULLY** according to your physical condition and ability.
- Proceed from station to station and perform the exercises as
- You can monitor your heartbeat by using the **TARGET HEART BEAT RANGE GUIDES**.
- **TAKE YOUR 10 SECOND PULSE RATE BEFORE STARTING THROUGH THE SYSTEM.** This rested pulse rate will be used during the cool down phase of the system. At the end of your workout, cool down until your pulse rate returns to its beginning level.
- All exercises are for both **MEN** and **WOMEN**.
- Be sure to consult your doctor before starting any exercise

FIT-TRAIL is a registered trademark of International Development Corporation. Manufactured by SouthWest Corporation, 302 Ave. 4800, Ocala, FL. 34476. 1-800-777-4886. www.FIT-TRAIL.com. Copyright 1987

The diagram shows a circular path with eight exercise stations. A person is shown at the 'Finish' station, and another person is shown at the 'Start' station. The stations include: a person standing on a platform, a person performing a lunge, a person sitting on a bench, a person performing a sit-up, a person performing a plank, a person performing a push-up, a person performing a leg raise, and a person performing a core exercise.

Source: (Fittrail.com)







Before hosting the 2008 Summer Olympic Games, China initiated a national fitness campaign, which committed over 20,000,000 square meters across the country to publicly accessible outdoor gyms (Olympic, 2008). Today, there are more than 600,000 pieces of outdoor equipment in China!



Source: <https://thecityfix.com/blog/beijing-redefining-public-space-temple-heaven-mark-wessel/>

The United Kingdom soon followed suit in 2012, recognizing that outdoor adult playground sites offered solutions to cost and accessibility obstacles, two common barriers to exercise for adults (Rise, 2012).



Source: <https://www.tgogc.com/news-article/tgo-gyms-commercial-sponsorship-adidas>



## Personal Health Benefits

Ample research supports the notion that exercising outdoors provides a variety of benefits. While simply spending time outdoors can positively affect people, those who participate in an outdoor exercise program experience even more positive impacts on their health and well-being. Take a look at some of the examples below, and think about the ways that spending time outside has enhanced your own wellness.

- For example, “...going out daily [has been shown to be] beneficial among independent older people, correlating with reduced functional decline and improved health measures” (Jacobs et al. 2008).
- Participating in outside exercise experiences may even be more enticing and enjoyable for people. One study found that “...outdoor training enhances affective responses to exercise and leads to greater exercise adherence than indoor training...” (Lacharité-Lemieux et al. 2015).
- In an examination of whether or not environmental settings influenced psychological and physiological responses in women with obesity, while both settings improved overall fitness, the outdoor experiences “...presented improved psychological responses,” and seemed to “...promote long-term adherence to a physically active lifestyle” (Krinski et al.2017).
- In addition, one study found that encouraging outdoor fitness initiatives with children “...may be an effective strategy for increasing physical activity and preventing increases in overweight and obesity” (Cleland et al. 2008). The same investigation showed “...the prevalence of overweight among older children at follow-up was 27-41% lower among those spending more time outdoors at baseline” (Cleland et al. 2008).
- According to a Harvard Health Letter published in 2010, just being outside more provides health benefits, including increased intake of Vitamin D, improved mood, decreased stress levels and quickened recovery and healing.
- The literature suggests that just being outdoors also appears to benefit children, as it is associated with increased physical activity and even higher physical activity intensity (Cooper et al. 2010; Cleland et al. 2008).





## Community and Public Health Benefits

Urban planning should include ample green space that encourages and welcomes people to move and exercise. The natural environment provides major health benefits, specifically the presence of trees and greenery (Donovan et al. 2013). It is commonly understood to city planners that, "...Laying out more green areas close to apartment houses, and making these areas more accessible, could make for more restorative environments. Outdoor areas that provide environments free from demands and stress, and that are available as part of everyday life, could have significant positive effects on health..." (Grahm et al. 2003).

In 2011, researchers Lindsay Campbell (US Forest Service) and Anne Wiesen (Meristem, Inc.) explored the results of a 2007 forum called "Restorative Commons for Community Health." This forum brought together professionals from healthcare, architecture (including landscaping and urban planning), and natural resource management. Bringing their unique expertise, these professionals examined how collaboration between them could reframe urban planning and holistically benefit communities in a major way. The conclusions drawn, as explained below, are exciting and completely in line with our mission at FitLot:

"Participants asserted that these spaces should be accessible, especially to vulnerable populations; should respond to needs at the neighborhood level; and should create opportunities for social engagement, economic empowerment, nature access, and stewardship. They are community-driven, ecologically sustainable, and answer the very human impulse to seek and create beauty in our everyday surroundings. They are a primary foundation for a resilient community." (Campbell and Wiesen, 2011).

### **Outdoor exercise is trending!**

According to ACSM's [Worldwide Survey of Fitness Trends](#) for 2020, "outdoor activities" ranked 13 out of 20, moving up 12 levels from 2011 (Thompson, 2019). Though most agree that more research is needed on usage patterns for stand-alone equipment without instructor guided programs, the popularity of outdoor fitness equipment, especially among active aging groups, is evident (Chow et al. 2017). The literature appears to support the belief that having such equipment available in public spaces allows a wider variety of participants to receive vital health benefits.



## SECTION 3: GROUP TRAINING IN PUBLIC SPACES

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### Learning Objectives

- Understand the benefits of exercising in groups
  - Identify considerations for training in outdoor and public spaces
  - Identify specific areas of concern for instructors leading classes safely in outdoor public spaces
- 

Those of us who have experienced or taught group exercise classes know how many advantages they provide. Not only are they fun and energizing to participants, they can also be easily integrated into public spaces. Initiating these classes is an excellent strategy to foster a more active community. That said, creating high quality group community classes takes planning, especially when utilizing public outdoor fitness parks. To truly create a culture of health around these spaces, we must make sure that people understand how to use them safely and effectively. Hosting group training classes at your outdoor fitness park creates an opportunity for community members to learn proper form under the supervision of a fitness professional. It also gives them the opportunity to be surrounded by a supportive group of neighbors and friends who they can look to for motivation and accountability.





The ACSM survey that ranked “outdoor activity” 13 out of 20 ranked “group training” 3 out of 20 (Thompson, 2019). Together, we have pure magic! In this survey, group classes are described as effective, motivational sessions for different fitness levels, with instructors teaching many types of classes and utilizing a variety of equipment.

Let’s examine the benefits of group training and how best to plan high quality community classes in an outdoor public setting.

### Benefits of Exercising as a Group (Matthews, 2016)

- Expert Guidance – puts the structure and organization of the training session into the hands of a certified professional
- Accountability – can help participants stay consistent; pre-registration is often required for classes
- Social Support – creates a sense of community and opportunities for social engagement
- Variability – exposes participants to new movements and ensures a well-rounded workout
- Fun – sets participants up for an enjoyable and interactive experience

*When clients enjoy their training, they are more likely to make it a habit rather than something they have to do...” (Jett et al. 2013).*

## Considerations for Group Training in Outdoor and Public Spaces

Use this list as a starting point for hosting outdoor fitness classes.

### Location

- Timing – When are people available and interested in participating? How is traffic?
  - Which class times are best: before, during or after school or work?
- Lighting – Is there enough lighting, natural or otherwise, to keep clients safe?
  - Can we plan the program calendar around daylight savings time?
- Parking and Restrooms – Is there adequate parking and restroom facilities nearby?
  - Are these restrooms available for use by participants?
- Visibility – Is the location secluded enough where participants do not feel on display, but visible enough to attract newcomers and create curiosity?
- Is the surface of the fitness park free of trash and debris?
  - Inspect the area before each class to ensure a clean, safe environment.

### Liability

- Are individual permits needed for the instructors?
- Is insurance handled by the owner of the property, i.e. Parks and Recreation, or does each instructor need their own?
- Is there a place for participants to safely leave personal items during class? Who is responsible for theft?
- As a trainer you will be responsible for making sure each individual has registered for the class online and signed a liability release waiver before participating.



### Operation

- Is there signage indicating when the public area is in use?
- Who is responsible for creating and putting up signage?
- What is the procedure when someone else is using the equipment?
- What are the policies and procedures of the property owner, ie. Parks and Recreation, for accidents and emergencies?

Who is responsible for outreach/marketing the group programs?

### Class Design

- What equipment is available for use?
- What space around and in the area is available for use?
- Is the surrounding space clear of obstacles?
- Will there be a limit on class size?

## Environmental factors

The ideal instructor is aware of the following when utilizing outdoor public spaces:

Music volume	Safety of terrain	Personal space
Vocal volume	Safety of personal belongings	Presence of animals
Appropriate language	Lighting	Unexpected foot traffic

This photo depicts how the time of day may affect lighting. This is an example of how simple things, like the shadows cast by the afternoon sun, could make it more visually challenging for some participants. While classes could still be held at this time, a trainer would want to be aware of potential issues and adjust individual instruction appropriately. Outdoor settings may present different challenges to trainers who are used to working in indoor spaces.





## SECTION 4: CIRCUIT TRAINING OVERVIEW

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### Learning Objectives

- Understand the history behind circuit training programs
  - Learn the benefits of circuit training, based on research
  - Understand why circuit training is effective in a community class setting
- 

Circuit training was first created in the 1950s. It initiated a distinct mode of training that delivered both strength and cardiovascular benefits, while proving to be time-efficient and engaging. Circuit training is proven to be an effective methodology to improve physical fitness and overall health. It is an accessible training method, inclusive of a wide variety of age groups and fitness abilities. The FitLot Training System utilizes circuit training style fitness programs in outdoor fitness parks in order to best serve the general public in a simple, safe and effective manner.

“Elements of circuit-style training programs were present early on in history. The modern form of circuit training was developed by R.E. Morgan and G.T. Anderson in 1953 at the University of Leeds in England (8). It was initially examined as a 9 to 12 exercise protocol where participants performed exercises at a moderate intensity (about 40% to 60% of 1 Rep Max values) for a specified number of repetitions or amount of time. Once the repetitions were performed or time expired, the participant would move to the next exercise station with very little rest. Improvements in muscle strength and endurance were observed, as well as components of aerobic fitness (8). The efficiency of this type of training grew in popularity and expanded because of advances in equipment by the United States (selectorized and hydraulic equipment)” (Klika et al. 2013).

### What does the science say about CIRCUIT TRAINING?

- Circuit training can elicit adaptations in the cardiovascular system and decrease fat mass in the elderly population (Romero-Arenas et al. 2013).
- Circuit training was associated with a greater metabolic disturbance and cost during the early phases of Excess Post-Exercise Oxygen Consumption (EPOC) in untrained women (Braun et al. 2005).



- “Circuit weight training is a great strategy to improve the body composition, muscle strength and cardiovascular functions and, consequently, to maintain functional capacity during aging” (Romero-Arenas et al. 2013).
- Combining circuit weight training and high intensity interval training is effective for achieving significant caloric expenditure and metabolic and cardiorespiratory response (Nunez et al. 2020).
- Integrating cardio interval stations into circuit weight training routines may enhance fitness benefits and maximize time-efficiency more so than traditional circuit training methods (Skidmore et al. 2012).
- An exercise circuit including functional training exercises can be beneficial for an elderly person wishing to improve physical functioning and mobility (Whitehurst et al. 2005).
- A lower-intensity circuit comprised of just strength exercises can elicit a good cardiovascular response (Gotshalk et al. 2004).
- Circuit training improves the physical fitness qualities of speed, agility, and explosive power, and serves as an effective training strategy for participants (Gopinathan, 2019).



*Community members of various ages and fitness levels participate in a circuit training class using a FitLot Outdoor Fitness Park in New Orleans, LA, USA.*





## SECTION 5: REVIEW OF ANATOMY

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### Learning Objectives

- Reinforce the importance of a basic understanding of bones and muscles
  - Review the basic joint actions and types of muscle contractions
  - Review the anatomical planes and understand their utilization in exercise programming
  - Foundational Movement Elements
- 

An understanding of anatomy is essential to successful group fitness instruction. Having a strong knowledge base of the structure and function of muscles and bones allows a trainer to better coach participants through an effective class experience. Trainers should also have a firm grasp on movement concepts, including joint actions, types of muscular contractions and planes of motion. By understanding the structure and function of the human body, we are better able to create and coach fitness programs that deliver results. In addition, we can educate our participants and help them to better understand their bodies.

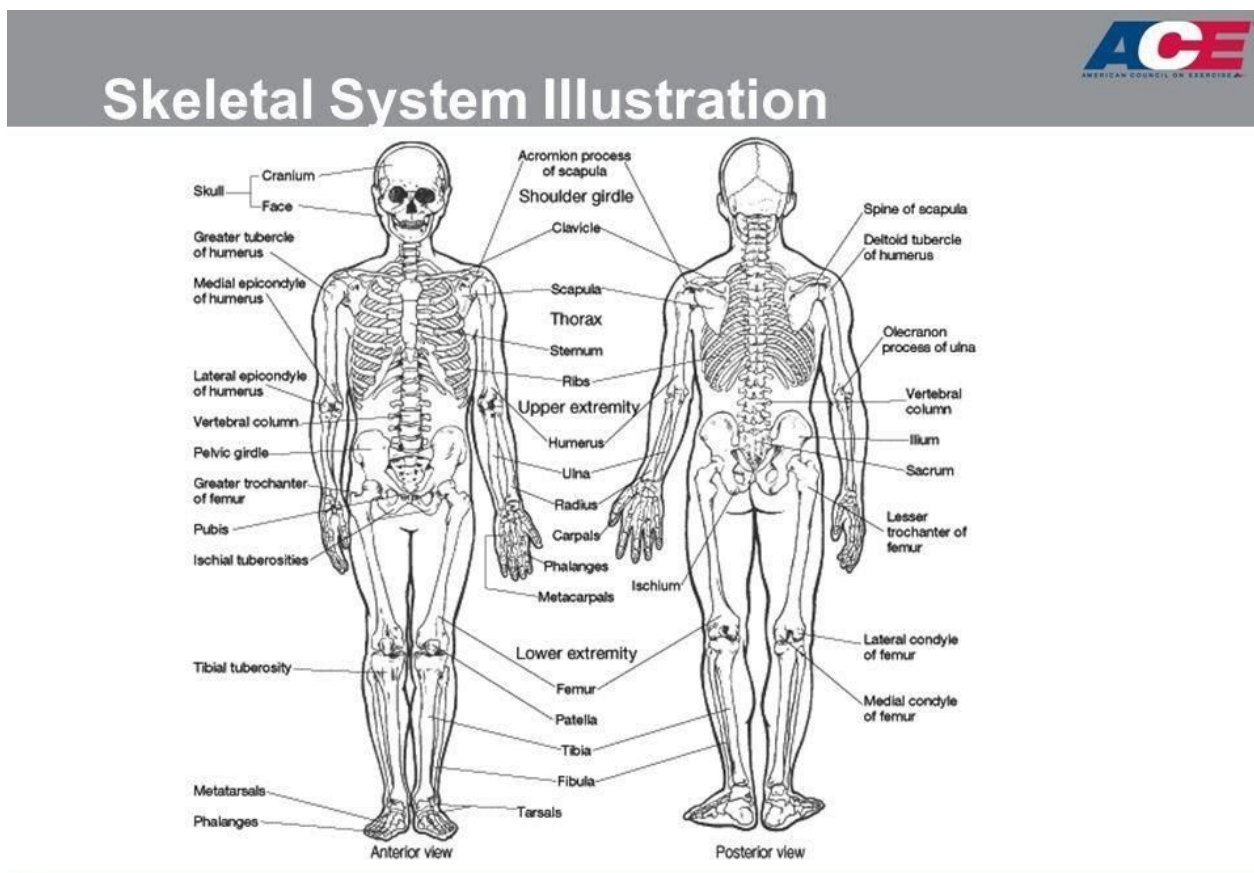


An educated trainer with strong knowledge of the muscular and skeletal systems is able to provide more detailed instruction for participants who need it.



## Bones

While it is not necessary to memorize the names of every bone in the body, it is helpful to know the major bones and girdles. Referencing specific bones may help trainers fine-tune cues to assist participants in attaining proper form and technique, and can add color to their instruction. Use the below illustration to brush up on your skeletal system knowledge.



Source: [www.acefitness.org](http://www.acefitness.org)

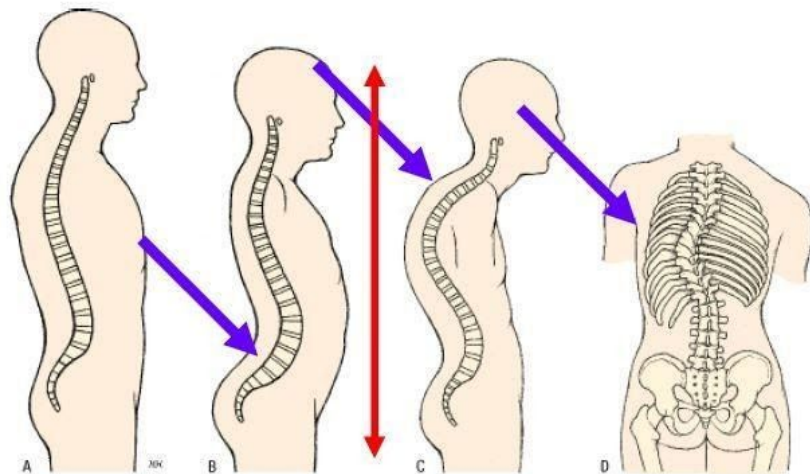
## The Spine

Understanding the natural curvature and structure of a healthy spine will help trainers to recognize deviations and imbalances that participants may present. By offering regressions or modifications to those with spinal imbalances, trainers can help individuals feel more comfortable on equipment and more successful with exercise execution. Posture correction can also result in better, pain free movement both during class and at home.



## Normal & Abnormal Curvatures

Lateral (Side) Spinal Column



A. Normal    B. Excessive Lordosis    C. Excessive Kyphosis    D. Scoliosis

Adapted from: <https://www.memorangapp.com/flashcards/80418/Metabolic+Bone+Diseases+%2B+Osteo+Tx/>

**Scoliosis** is a common medical condition in which a person's spinal axis has a three-dimensional deviation. Although it is a complex three-dimensional condition, on an X-ray, viewed from the rear, the spine of a patient with scoliosis often resembles an "S" or a "C" rather than a straight line. Diagnosis is confirmed with X-rays.

**Kyphosis** refers to the abnormally excessive convex kyphotic [curvature of the spine](#) as it occurs in the thoracic and sacral regions. It can result from degenerative diseases such as arthritis, as well as developmental problems; [osteoporosis](#) with compression fractures of the vertebra; multiple myeloma; or trauma. Scheuermann's kyphosis is the most classic form of hyperkyphosis and is the result of wedged vertebrae that develop during adolescence.

**Lordosis** refers to the normal inward lordotic curvature of the lumbar and cervical regions of the spine. Excessive curvature of the lower back is known as lumbar hyperlordosis. A major feature of lumbar hyperlordosis is a forward pelvic tilt, resulting in the pelvis resting on top of the thighs.

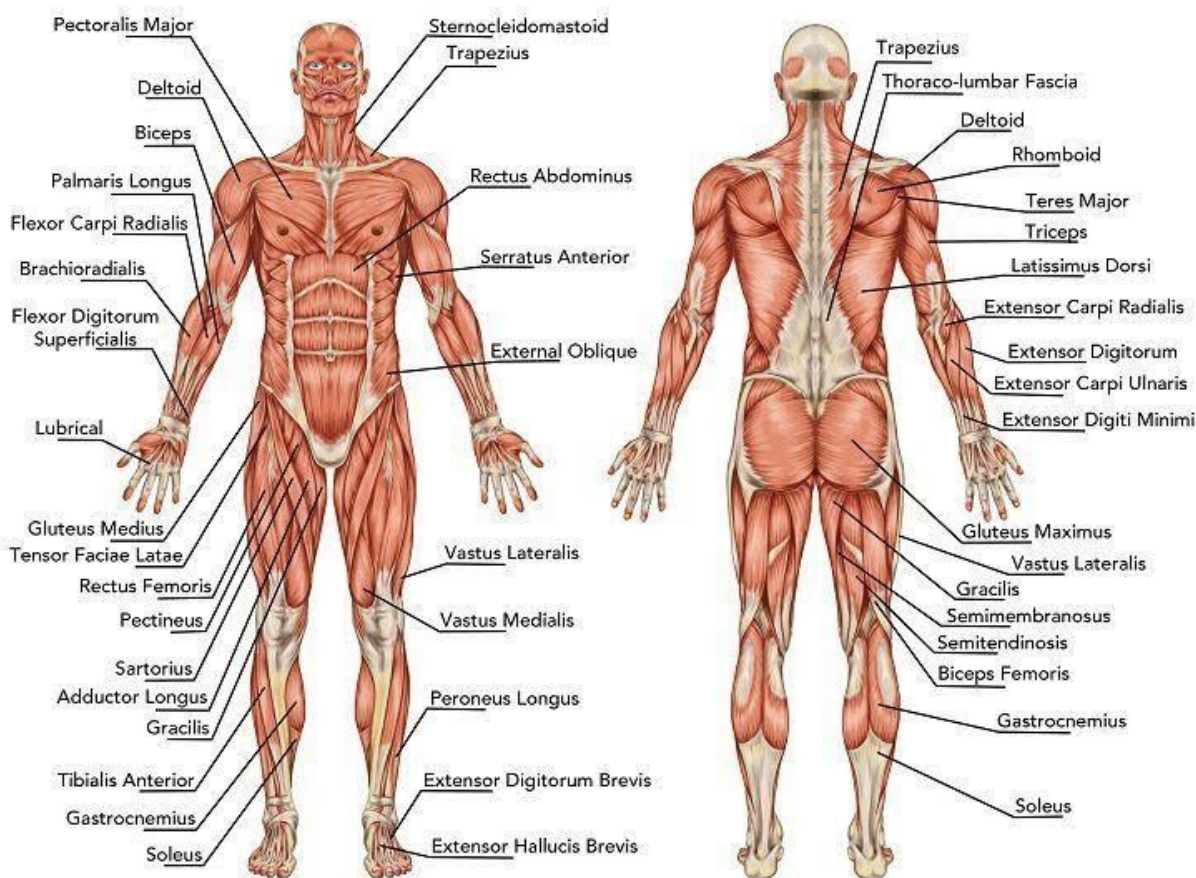
[Adapted from: <https://www.spine-health.com/glossary/lordosis>]



## Muscles

Knowing a muscle's location, origin, insertion, and joint action helps a trainer understand how best to challenge it, strengthen it, and/or stretch it. An experienced trainer will be able to communicate where in the body participants should feel a particular movement. Identifying weakness, tightness, or other muscular imbalances allows trainers to provide valuable information to individuals that will help them move and feel better.

### BASIC MUSCLE CHART

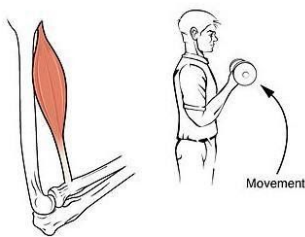


JOINT ACTIONS	
FLEXION	Bending movement; decreases relative angle between segments
EXTENSION	Straightening movement; increases relative angle between segments

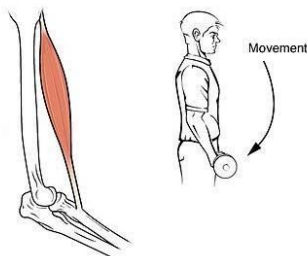


PLANTARFLEXION	Extension at the ankle; toes point away from knee
DORSIFLEXION	Flexion at the ankle; toes flex towards knee
ABDUCTION	Movement away from the midline of the body
ADDUCTION	Movement toward the midline of the body
INTERNAL ROTATION	Rotation toward the midline of the body
EXTERNAL ROTATION	Rotation away from the midline of the body

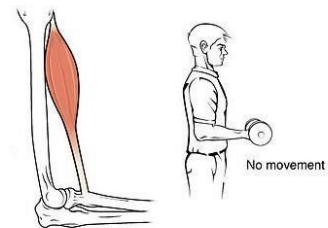
TYPES OF MUSCLE ACTIONS	
CONCENTRIC	muscle contracts and shortens; joint angle decreases
ECCENTRIC	muscle elongates and lengthens; joint angle increases
ISOMETRIC	muscle contracts; force production occurs with no noticeable change in joint angle or muscle length



**CONCENTRIC**  
(shortening)



**ECCENTRIC**  
(lengthening)

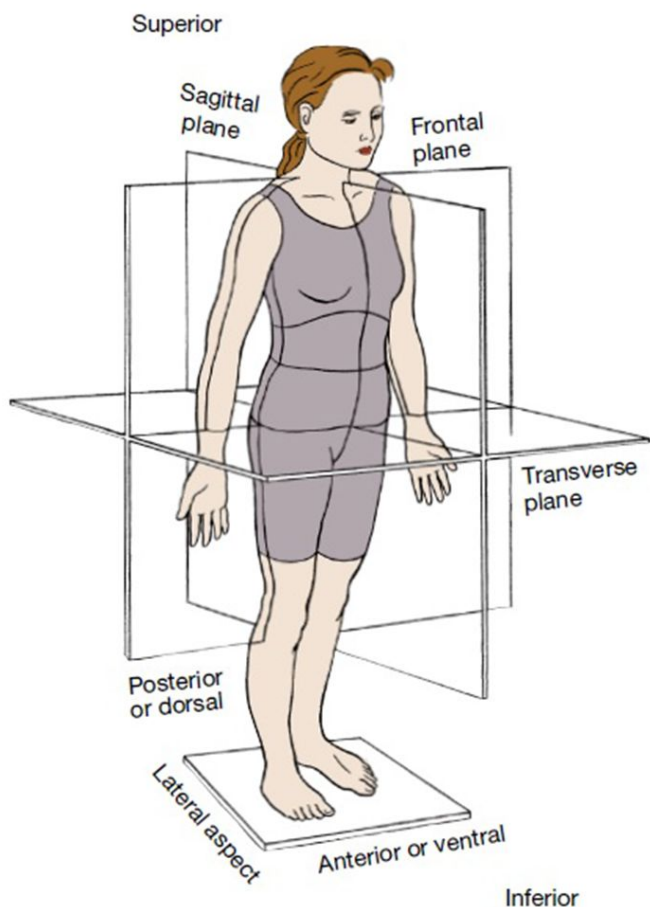


**ISOMETRIC**  
(no movement)

Source: [www.wodconnect.com](http://www.wodconnect.com)



## Anatomical Position and Planes of Motion



Anatomical position is the standard position used to describe the locations of body parts and their relationship to one another. A body in anatomical position stands upright with head and feet pointed forward, arms extended by the sides, and palms facing forward.

The human body is designed to move in multiple directions and in multiple planes of motion. When creating balanced exercise classes, all planes of motion - Sagittal, Frontal, and Transverse - are addressed. Participants should be challenged in different directions, at different angles, and in various positions for optimal results. By being mindful of these ideas, we ensure that participants are training the way the body is designed to move, which can improve performance and minimize pain in daily life and sport.

Source: [www.acefitness.org](http://www.acefitness.org)

## Foundational Movement Elements

The **Foundational Movement Elements** list should be used as an additional guide to help you create balanced and complete FitLot Circuit Training sessions. While it isn't necessary to include all elements in every session, over time, each element should be integrated. In addition, there may be other movement concepts that individual trainers would like to incorporate with various groups.

<b>Sagittal Plane</b>	Plane of motion that cuts the body into left and right sides. Exercises performed on this plane move front and back.
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<b>Frontal Plane</b>	Plane of motion that cuts the body into anterior (front) and posterior (back) halves. Exercises performed on this plane move side-to-side.
<b>Transverse Plane/Rotation</b>	Plane of motion that cuts the body into top and bottom halves. Exercises performed on this plane are rotational.
<b>Forward flexion</b>	The act of bending forward, creating a C-curve in the spine. An example exercise is an abdominal crunch.
<b>Back extension</b>	The act of bending the spine backward. Back extension exercises work muscles along the posterior chain.
<b>Lateral Flexion</b>	The act of bending the spine laterally, or to the side. An example exercise is a side bend situp. These exercises target the internal and external obliques.
<b>Multi-joint/Compound</b>	Exercises involving more than one muscle group and more than one joint
<b>Ground to standing</b>	A movement that takes one from the ground to a standing position
<b>Body weight only</b>	Exercises incorporating no external load
<b>Bracing</b>	Exercises requiring stabilization of the spine and torso
<b>Balance/Stability</b>	Movement drills requiring body control
<b>Unilateral</b>	Single leg or single arm movements
<b>Bilateral</b>	Movements involving both sides of the body, arms and legs



## SECTION 6: REVIEW OF FOUNDATIONAL TRAINING PRINCIPLES AND CONCEPTS

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### Learning Objectives

- Understand the basic components of physical fitness
  - Explain basic principles of exercise programming
  - Review select points of exercise physiology and the various energy pathways
- 

The FitLot Training System is built upon research-based exercise science principles and methodologies. As a trainer, having a firm understanding of exercise science and kinesiology will help you better facilitate FitLot Training classes. Understanding the foundational concepts covered in this section helps trainers better communicate the benefits behind the movements being performed during class. For some participants, understanding “the why” behind the movement not only helps build credibility and trust in the trainer, but also motivates and encourages them to focus on proper execution and technique. While sample circuit workouts are provided, you as a trainer should feel comfortable creating your own. Ensuring that the following principles are applied to the creation of a workout helps maintain the effectiveness and consistency of the FitLot Training System.

Let’s take a closer look at some important principles and concepts related to the FitLot Training System.

### Components of Physical Fitness

The most common components of physical fitness are divided into two groups: health-related attributes and skill-related attributes. Both components of fitness are addressed through the structure of FitLot Training Circuit classes. A skilled trainer ensures that both health-related and skill-related attributes are integrated into a training session. While they may not all be addressed in every class, programming should aim to train each component in appropriate ways and for a variety of fitness and skill levels.





<b>Health-related Components of Physical Fitness</b>	
<b>Cardiorespiratory</b>	The ability of the circulatory and respiratory systems to supply oxygen to working muscles during sustained exercise or physical activity
<b>Muscular endurance</b>	The ability of a muscle to perform repeated or sustained contractions without fatigue
<b>Muscular strength</b>	The ability of a muscle to exert maximal force
<b>Flexibility</b>	The range of motion at a joint
<b>Body composition</b>	The amounts of fat mass and fat-free mass in the body

Adapted from: *ACE Group Fitness Instructor Handbook, 2016*

<b>Skill-related Components of Physical Fitness</b>	
<b>Agility</b>	The ability to rapidly and accurately change the position of the body in space
<b>Coordination</b>	The ability to accurately perform complex movements
<b>Balance</b>	The ability to maintain equilibrium while stationary or moving
<b>Power</b>	The ability to perform with maximum effort in as short of a period of time as possible; performing muscle contractions at high velocity
<b>Reaction time</b>	The amount of time elapsed between the stimulus for movement and the beginning execution of the movement
<b>Speed</b>	The ability to perform a movement or cover distance within a short period of time

Adapted from: *ACE Group Fitness Instructor Handbook, 2016*

## **Principles of Exercise Prescription**

Creating and implementing safe and effective exercise prescriptions for clients are priorities for FitLot instructors. The following principles should guide trainers as they create new classes and use example classes provided by FitLot. With a basic knowledge of exercise physiology and how the human body responds to physical activity, a trainer should be well equipped to assist participants as they aim to improve their health and reach their fitness goals.



## The FITT-VP Principle

The FITT-VP Principle is the foundation of exercise program design. It includes specification of the Frequency (F), Intensity (I), Time or duration (T), Type or mode (T), Volume (V), and Progression (P) of the exercises being performed. By manipulating these variables, a program with clear objectives can be created to meet the goals and needs of the individual (ACSM, 2014)

## The SAID Principle

The 'Specific Adaptation to Imposed Demands' Principle asserts that the human body will adapt specifically to the stressors or demands, both biomechanical or neurological, that are imposed upon it.

(Also referred to as simply the Principle of Specificity.)

## The Overload Principle

The overload principle states that increased demands must be placed on the body to elicit a training effect or change. Progressive overload refers to the idea that these demands must be regularly increased over time in order to continue to get a response from the body. The amount of overload necessary to be safe and effective depends on the training state of the individual (Matthews et al. 2016).

## The Progression Principle

This principle asserts that in order to continue to see gains and improvements from an exercise program, the exercise must gradually increase in intensity and become more challenging. Progression is the last piece of the FITT-VP principle, and can be implemented into programming by manipulating the other factors, FITT-V.

## The Reversibility Principle

The physiological and neuromuscular effects and adaptations of exercise training, both resistance training and cardiovascular training, are reversible when individuals discontinue an exercise program. Muscles may atrophy and become weaker, while cardiovascular fitness may also decrease.



## Peripheral Heart Action

Peripheral Heart Action (PHA) training involves alternating lower body exercises with upper body exercises in order to keep blood consistently circulating during the resistance training session. PHA training promotes positive adaptations in cardiovascular function and blood pressure, improves heart rate variability, and elicits increases in muscular strength (Piras et al. 2015) (Kravitz, 2016).

## Ground to Standing

Ground to Standing movement patterns refer to those that require a person to get off the ground from various positions, and to finish in a standing position. Research has found that the ability and ease of getting from the ground to a standing position is directly linked to decreased mortality rates, meaning a person is predicted to live longer (Brito et al., 2014).



## Variability Training

Variability Training (VT) refers to the notion that when exposed to a variety of stimuli, the body responds in accordance. In addition to FITT-VP, other factors can be manipulated during exercise to elicit different responses from the body. These factors can include direction, plane of motion, speed, tempo, rhythm, hand position, foot position, range of motion, threshold, intensity, power, foundation, body position, and equipment. Variability Training increases physiological development, improves cardiovascular health and improves performance. Creating variation in training builds a body better suited to overcoming a variety of challenges, less inclined to injury, and overall more resilient.



## Summary of Energy System Pathways

Applying evidence based training principles to exercise programming and prescription allows for the creation of safe, effective, progressive, and goal-oriented experiences for group class participants. In accordance with ACSM guidelines, the recommendation for resistance training is 2-3 days per week for each muscle group. The recommendation for cardiovascular training for most adults is 150 minutes per week of moderate-intensity aerobic activity; 75 minutes per week of vigorous-intensity aerobic activity; or a combination of both for substantial health benefits. (ACSM, 2014). See Appendix A for ACSM’s list of benefits of exercise.

Creatine Phosphate System/Phosphagen System/ATP-PC	
<b>Rate of ATP Production</b>	Immediate - Anaerobic
<b>Substrate</b>	ATP Phosphocreatine
<b>Capacity</b>	Extremely limited – approximately under 20 seconds
<b>Utilization</b>	High Intensity, very short duration activities

Glycolytic Anaerobic/Glycolysis/Anaerobic	
<b>Rate of ATP Production</b>	Rapid – Anaerobic
<b>Substrate</b>	Carbohydrate, blood glucose, muscle glycogen
<b>Capacity</b>	Limited – approximately 15 seconds to 2 minutes
<b>Utilization</b>	High Intensity, short duration activities

Aerobic/Oxidative Pathway	
<b>Rate of ATP Production</b>	Slow aerobic
<b>Substrate</b>	Glucose, glycogen, fatty acids
<b>Capacity</b>	Unlimited – longer than 2 minutes
<b>Utilization</b>	Lower Intensity, longer duration activities



## SECTION 7: REVIEW OF TRAINING FUNDAMENTALS

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### Learning Objectives

- Describe and demonstrate fundamental movements
  - Understand the fundamental elements that are incorporated into FitLot Circuit Training classes
  - Identify the 11 fixed stations of the outdoor fitness park structure and describe exercises that may be performed at each of them.
- 

A **FitLot Circuit Training Session** is a 60-minute workout consisting of 1-3 rounds of 12-24 different exercise stations providing a full body workout. It is designed to improve cardiovascular fitness, increase muscular strength and endurance, and improve overall mobility and flexibility. Participants begin each session with a warm up, spend between 30-60 seconds at each station of the circuit depending on the class design and objective, and end each session with a cool down, including stretching and mobility work.



### Fundamental Movements

FitLot provides a hub for a variety of training preferences utilizing progressive resistance and personal body weight. In addition, it is a platform for training methods such as Circuit Training, Pilates, Yoga, TRX, Calisthenics, CrossFit and more. While not exhaustive, below is a list of fundamental movements that can be a great foundation for FitLot classes. Mastering these movements and understanding how to modify and progress each one to accommodate various fitness levels will help trainers coach participants with differing skills and abilities. With a strong grasp of the basics, a trainer is then able to be more creative and thoughtful with each new class.

<i>Simple and effective strategies of modifying most movements</i>	
<i>To Regress...</i>	<i>To Progress...</i>
<ul style="list-style-type: none"><li>● Slow the pace or tempo</li></ul>	<ul style="list-style-type: none"><li>● Increase speed or change tempo</li></ul>
<ul style="list-style-type: none"><li>● Make it low impact</li></ul>	<ul style="list-style-type: none"><li>● Add impact and/or power</li></ul>
<ul style="list-style-type: none"><li>● Reduce range of motion</li></ul>	<ul style="list-style-type: none"><li>● Increase range of motion</li></ul>
<ul style="list-style-type: none"><li>● Decrease resistance or external load</li></ul>	<ul style="list-style-type: none"><li>● Add resistance or external load</li></ul>



## Fundamental Movement Guide

	<h3>Crunch/Roll up</h3> <p><b>Preparation:</b> Lie on your back (supine position) with knees bent. Place hands behind the head with the elbows pointing outward.</p> <p><b>Execution:</b> Curl torso keeping the chin tilted upward and hands held lightly behind the head. Return to original position. Exhale moving up, on exertion. Inhale moving down.</p> <p><b>Comments:</b> Keep the eyes up and avoid driving the chin toward the chest or pulling on the back of the head.</p>
<h3>Back Extension</h3> <p><b>Preparation:</b> Lie in a prone position, and extend your legs keeping your heels together. Place the back of your hands under your chin or your forehead, elbows pointing outward.</p> <p><b>Execution:</b> Lift your upper back pressing your hips down, allowing your head, hands and chest to rise. Inhale moving up, on exertion. Exhale moving down.</p> <p><b>Comments:</b> Keep your head and neck neutral. Maintain a steady pace through both the downward and upward phase of the movement. (No momentum).</p>	
	<h3>Push up</h3> <p><b>Preparation:</b> Assume a high plank position, hands on the floor underneath your chest, feet flexed in line with the hips. Squeeze your thighs and glutes for stability. Engage your core.</p> <p><b>Execution:</b> While keeping body straight, gradually lower body to floor by flexing arms. When elbows are aligned with shoulders, gradually push up. Inhale to lower the body. Exhale moving up on exertion.</p>



Comments: Both upper and lower body must be kept straight throughout the movement. Keep your head and neck neutral. Maintain a steady pace through both the downward and upward phase of the movement. (No momentum).



## Squat

Preparation: Stand upright, feet parallel, shoulder width apart, knees pointing and in line with the big toe. Heels flat on the floor. Arms extended forward. Abs engaged, lower back arch maintained, chin balanced, look straight ahead.

Execution: Flex knees and hips until the thighs are parallel to the floor. Inhale going down. Return to the upward position. Exhale on exertion, going up.

Comments: Maintain a rigid core and a straight back throughout the movement. Knees should not go forward past the toes. Maintain a steady pace through both the downward and upward phase of the movement. (No momentum).

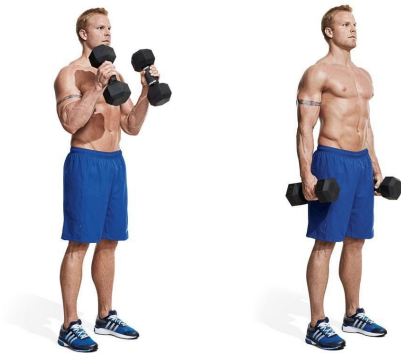
## Static Lunge/Split Squat

Preparation: Stand upright, feet parallel. Take one step forward flexing the knees and the hips until the rear leg knee almost touches the floor. The rear knee is under the shoulder, the front knee doesn't exceed the toes of the lead foot.

Execution: Return to the original upright position. Exhale on exertion, going up. Inhale moving down.

Comments: Keep the chest up, core tight, shoulders retracted. Maintain a steady pace through both the downward and upward phase of the movement. (No momentum).





## Arm Curl

**Preparation:** Stand upright, feet parallel, shoulder width apart. Core engaged, knees not locked. Hold on to the barbell, dumbbell, or resistance band handles. Arms extended, palms facing up, elbows next to and slightly ahead of your body.

**Execution:** Keeping elbows stable, flex your arm to bring your palms toward your shoulders. Exhale moving up, on exertion. Inhale moving down.

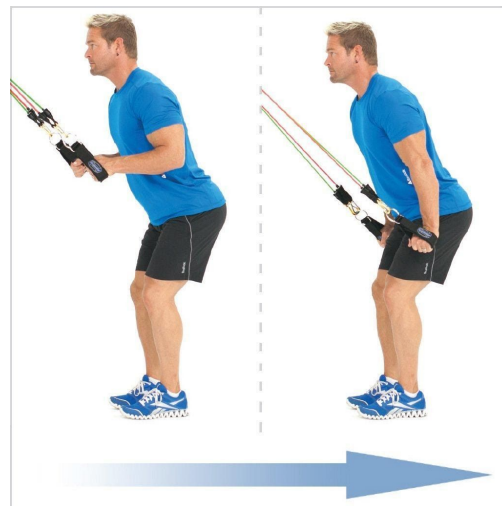
**Comments:** Keep chest up, shoulders retracted, don't lean back. Maintain a steady pace through both the downward and upward phase of the movement. (No momentum).

## Triceps Extension

**Preparation:** Standing upright with the torso straight, bring the upper arms close to your body and perpendicular to the floor, elbows next and slightly ahead of the body. The forearms should be pointing towards the apparatus as they hold the bar(handles).

**Execution:** Gradually lower your forearms until arms are fully extended perpendicular to the floor. The upper arms should always remain stationary next to your torso and only the forearms should move. Exhale moving down, on exertion. Inhale moving up.

**Comments:** Keep chest up, shoulders retracted. Core engaged. Maintain a steady pace through both downward and upward phases. (No momentum)





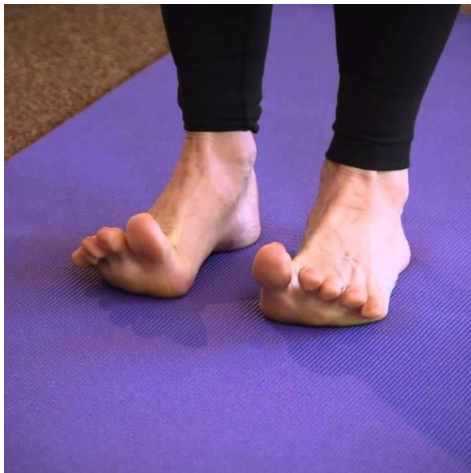


## Heel Raise

**Preparation:** Stand upright, feet parallel, shoulder width apart, knees pointing forward and in-line with the big toe. Heels flat on the floor. Arms extended forward for support. Core engaged, lower back arch maintained, look straight ahead.

**Execution:** Raise heels off the floor by extending the ankles as high as possible, return to the starting position. Exhale moving up, on exertion. Inhale moving down.

**Comments:** Keep knees straight throughout the exercise. Weight distribution over the big toes. Maintain a steady pace through both the downward and upward phase of the movement. (No momentum)



## Toe Raise

**Preparation:** Stand upright, feet parallel, shoulder width apart, knees pointing forward and in-line with the big toe. Heels flat on the floor. Arms extended forward for support. Core engaged, lower back arch maintained, look straight ahead.

**Execution:** Lift the toes, flex your feet off the floor while keeping the heels on the floor and the knees straight. Hold for a count of 5. Lower the toes. Exhale moving up, inhale moving down.

**Comments:** Keep chest up, shoulders retracted, don't lean back. Maintain a steady pace through both the downward and upward phase of the movement. (No momentum).



## Lateral Shoulder Raise

**Preparation:** Stand upright, feet parallel, shoulder width apart. Core engaged, knees not locked. Arms to the side.

**Execution:** Raise arms laterally to approximately shoulder level, and then lower to original position. Exhale moving up, on exertion. Inhale moving down.

**Comments:** Keep arms straight and neck relaxed. Trunk should stay stationary throughout the movement. Maintain a steady pace through the downward and upward phase of the movement. (No momentum).

## Front Shoulder Raise

**Preparation:** Stand upright, feet parallel, shoulder width apart. Core engaged, knees not locked. Arms in front of the thighs.

**Execution:** Raise arms forward to approximately shoulder level, and then lower to original position. Exhale moving up, on exertion. Inhale moving down.

**Comments:** Keep arms straight and the neck relaxed. Trunk should stay stationary throughout the movement. Maintain a steady pace through the downward and upward phase of the movement. (No momentum)





## High Plank

**Preparation:** Assume a high plank position, hands on the floor underneath your chest, feet flexed in line with the hips. Squeeze your thighs and glutes for stability. Engage your core.

**Execution:** Maintain this isometric position for a defined period of time, while breathing regularly.

**Comments:** Both upper and lower body must be kept straight throughout the exercise. Keep your head and neck neutral.

## Forearm Plank

**Preparation:** Lie down on your stomach. Place forearms on the floor with elbows below shoulders and arms parallel to your body at about shoulder width. Feet hip width apart. Stabilize yourself on your forearms and toes. Maintain regular breathing.

**Execution:** Drive your forearms into the floor, gradually tighten your quads, glutes and core.

Raise your body parallel to the floor. Keep your core engaged.

**Comments:** Both upper and lower body must be kept straight throughout the exercise. Keep your head and neck neutral.





## The FitLot Stations

The FitLot Outdoor Fitness Park offers 11 fixed stations. These stations can be used on their own to create a class, or in addition to the other free space and resistance band attachment sites. Resistance bands and other equipment can be easily attached to the fixed structure, in order to allow for additional possibilities.

### 11 Stations of the FitLot Outdoor Fitness Park

1. Vertical ladder
2. Elliptical
3. Hand Cycle
4. Dip/Parallel Bars
5. Chest/Back Press
6. Ab Crunch/Leg Lift
7. Plyometric Benches
8. Chin Up Bars
9. Mountain Climber Grip Pull Up Bar
10. Cardio Stepper
11. Jump Touch Panel

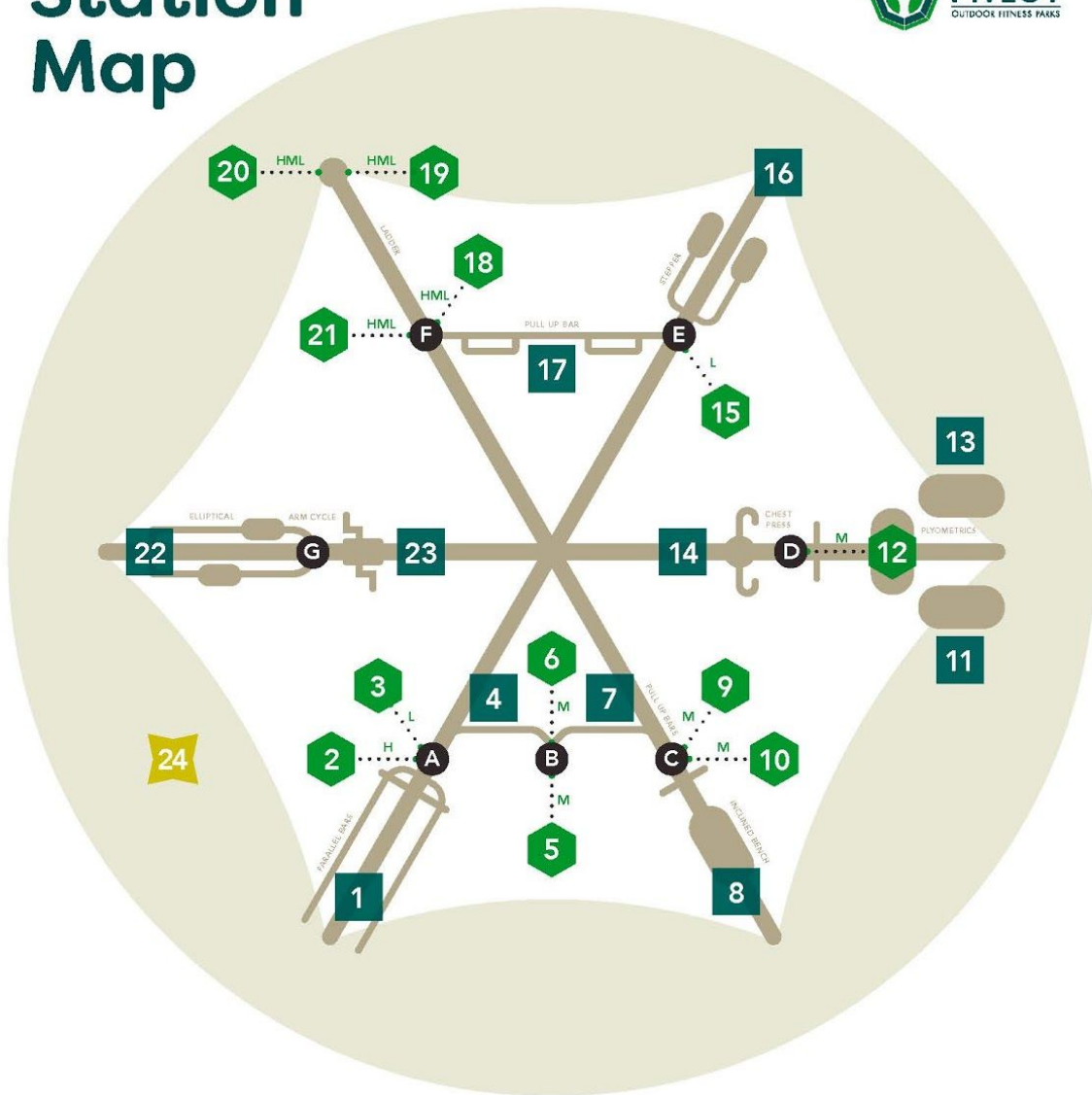
### Station Map

The below station map is a birds eye view of all of the equipment stations and resistance band attachment points of each FitLot. Park users and trainers can use the station map to plan their workouts.

At [FitLot.org/use](https://www.fitlot.org/use), you can download a pdf version of the map below that will allow you to fill in the blanks and create your own circuit layouts.



# Station Map



## KEY



Equipment Station



Resistance Band Station  
H M L: High, Medium, or Low Hookups



Groundwork Station



Support Pole



## SECTION 8: FITKIT RESISTANCE BAND TRAINING

---

### Learning Objectives

- Understand the FitKit Resistance Band System and how to incorporate it into FitLot training
  - Explain how the FitKit resistance bands, and other equipment utilizing anchor points, attach to the FitLot structure
  - Understand existing research that supports the effectiveness of resistance band training
  - Describe specific exercises that use the FitKit resistance bands
- 

The **FitKit Resistance Band System** was developed by SportCord in the early 1980's by physical therapist Topper Hagerman and athletic trainer John Atkins as a means to keep the US Olympic Ski Team in shape while traveling. It proved to be an effective tool for maintaining strength and rehabilitating athletic injuries and is now used by athletes and physical trainers worldwide. FitLot Circuit Training classes integrate usage of the FitKit Resistance Band System. The bands can be easily attached to the park's many attachment sites to add stations. This provides **more variability** to classes and **increased scalability** of exercises and movements, which allows the inclusion of many different fitness levels and helps participants meet their individual fitness goals.





The FitKit Resistance Band System is very portable, lending to easy set up and removal. Black bands are heavy resistance, good for lower body movements like squats and lunges. Red or Blue resistance bands are medium resistance.

The FitLot Outdoor Fitness Park has 30 different attachment sites for resistance bands located on the upright beams of the shade structure at ankle, waist and shoulder height.



### **What does science say about training with resistance bands and tubing?**

- Training with resistance bands, incorporating elastic tension, is an effective way to increase strength (Bellar et al. 2011).
- Elastic tubing can serve as a practical and effective means of eliciting strength gains in adults over the age of 65 in home-based resistance training programs (Mikesky et al. 1994).
- Combining elastic resistance bands and traditional weight training is linked to increased peak power and peak force, thus increased athletic performance (Wallace et al. 2006).



## FitKit Fundamentals



Here is an example of a coach demonstrating a palm up bicep curl using medium resistance bands while facing the low anchor point.



Palms Facing Up



Palms Facing Down





## FitKit Terminology

<b>Equipment Terminology</b>	
Attachment Site	The site where the resistance band attaches to the structure
Door Anchor	The piece used to secure the band using a closed door
Medium Resistance (Red)	The red resistance band
Heavy Resistance (Black)	The black resistance band
High Level Attachment	The attachment site on the structure at shoulder level
Medium Level Attachment	The attachment site on the structure at waist level
Low Level Attachment	The attachment site on the structure at ankle level
<b>Training Terminology</b>	
Facing the Anchor Point (AP)	Positioning of the body with chest toward the attachment site
Facing Away from the Anchor Point	Positioning of the body with back toward the attachment site
Aside the Anchor Point	Positioning of the body with side toward the attachment site
Step Towards the Anchor Point	Moving a foot towards the structure and attachment site, which will decrease resistance
Step Away from the Anchor Point	Moving a foot away from the structure and attachment site which will increase resistance
Palms Up	Using handles with palms facing up
Palms Down	Using handles with palms facing down
Feet in Handles/Loops	Using the “door anchor” as a loop for foot placement



## FitKit Safety Considerations

- Never release the handle while under tension.
- Always take the FitKit off the structure after use, and take the equipment with you

## Helpful Resources for Trainers and Users

Below is the movement chart found on the welcome sign of each FitLot Outdoor Fitness Park. The chart is broken out into different muscle groups for easy reference. Downloadable printable copies of this chart are available for all park users at [FitLot.org/use](https://FitLot.org/use). This chart is a fantastic tool for trainers planning their workouts.



# Resistance Band Exercises



## LOWER BODY

Step Up	Squat	Lunge	Heel Raise	Toe Raise	Leg Press Down
			<b>BEFORE YOU START</b> <ul style="list-style-type: none"> <li>• Consult your doctor before beginning a new exercise regimen</li> <li>• Warm up before training</li> <li>• Work larger muscle groups first</li> <li>• Exhale on exertion</li> <li>• Incorrect form may result in injuries</li> <li>• Increase resistance by distancing from attachment point</li> </ul>		
Scissors	Frog	Running			

## CHEST

Chest Press	Incline Chest Press	Fly	One Arm Fly	Push Up	Lying Press Down

## BACK

Standing Press Down	Behind Back Press	Standing Row	Seated Press Down	Back Extension

## CORE

Core Rotation	Knee Raises	Leg Raises	Straight Leg Raise	Roll Up

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**SHOULDERS**

Shoulder Press	Shrug	Frontal Raise	Lateral Raise	External Rotation	Internal Rotation
Boxing					

**ARMS**

Standing Arm Curl	Tricep Extension Down	Tricep Extension Up	Tricep Extension Forward	Boxing	Seated Tricep Extension
Seated Curl	Lying Curl	Lying Tricep Extension			

**STRETCH**

WE HIGHLY RECOMMEND STRETCHING AFTER TRAINING

Back	Lower Back	Standing Hamstring	Hamstring	Seated Hamstring	Groin
Thigh	Calves	Side	Shoulders		





## FitLot’s Instructional Video Library

We strongly suggest looking through FitLot’s Instructional Video Library to watch demonstrations on the correct form of over 45 movements. You can easily access these videos anytime at [FitLot.org/library](https://FitLot.org/library). Sort the movements by muscle group, or click on Bands to see a combination of movements you can do with the FitKit Resistance Bands. You’ll notice the pace of the movement and breathing cues are called out in each video. While instructing with bands, be mindful to cue the starting position, foot position, and how to isolate the targeted muscle group.

# Instructional Video Library

Sort by movement types

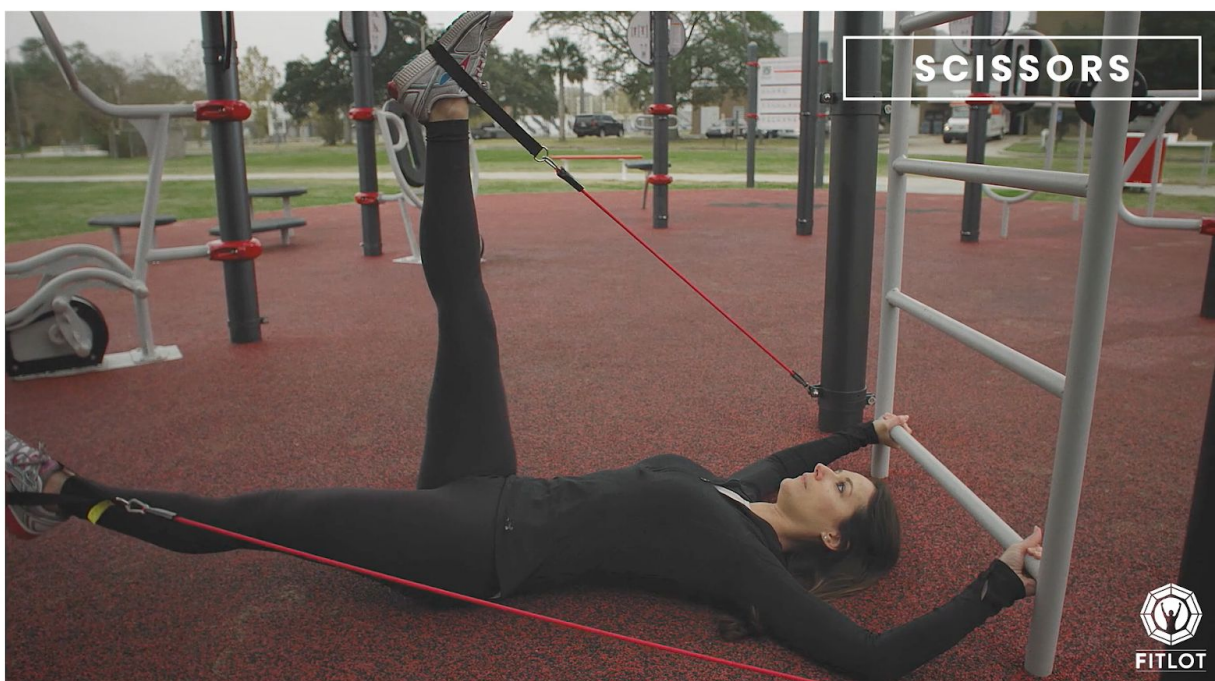
All

[All](#) / [Arms](#) / [Back](#) / [Balance](#) / [Bands](#) / [Cardio](#) / [Chest](#) / [Core](#) / [Lower Body](#) / [Shoulders](#) / [Strength](#) / [Stretches](#)

ARM CURL	BACK STRETCH	BEHIND BACK PRESS	BOXING	CALVES STRETCH	CHEST PRESS
Arm Curl	Back Stretch	Behind Back Press	Boxing	Calves Stretch	Chest Press
CHEST PRESS	CORE ROTATION	DIPS	ELLIPTICAL	FLY	FROG
Chest Press with Bands	Core Rotation	Dips	Elliptical	Fly	Frog
FRONTAL RAISE	GROIN STRETCH	HAMSTRING STRETCH	HAND CYCLE	HEEL RAISES	KNEE RAISES
Frontal	Groin	Hamstring	Hand Cycle	Heel Raises	High Knees



FitLot's Executive Director, Adam Mejerson, demonstrates a Chest Press with bands while facing away from the anchor point.



FitLot Neighborhood Coach Jessica Bigness demonstrates Scissor Kicks while in the supine position using foot straps.



## SECTION 9: FITLOT CIRCUIT TRAINING PROGRAM

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### Learning Objectives

- Understand FitLot Circuit Training Program methodology
  - Understand how FitLot Circuit Training classes are organized and implemented
  - Learn how to plan a FitLot Circuit Training class
- 

While there are numerous ways to guide participants through circuit training programs, years of experience and testing have resulted in the creation of best practices for planning and coaching FitLot Circuit Training Classes in a public setting geared towards engaging and educating the general public in safe and effective fitness practices. No cost community classes are an amazing opportunity for people to work with a fitness professional and learn how to exercise.

Our programs are geared towards engaging and educating people new to fitness so that they can eventually maintain an effective fitness routine on their own. It is strongly recommended that trainers review and apply the suggested methods outlined in this training manual for best results.

### Planning Outdoor Fitness Park Programming

Best scenario:

- Participants register for a 6-12 week series through the program organizer, i.e. Department of Parks and Recreation. Series dates will often coincide with programmatic seasons. i.e. a Fall or Spring FitLot Series of Classes.
- One trainer is assigned to the group and the series.
- Participants meet 2 or 3 times each week in order to get into a regular routine.
- Trainer creates a full body circuit training program appropriate for a wide range of ages and abilities. Trainer is prepared to provide progressions, regressions, and modifications for each exercise.
- Each participant is provided with a “Circuit Training Tracker Card” in order to record and track progress during the series. It can also be used as a guide for solo workouts after the series has ended. (Downloadable link can be found at <https://fitlot.org/use/>)



Other FitLot Class formats include Stand Alone Classes and Intro Classes:

- The Department of Parks and Recreation creates a schedule of classes, where participants are able to drop-in as desired or sign up for a series of classes.
  - If the Program Organizer needs assistance putting together a registration system, reach out to FitLots Program Manager by emailing [Jessica@FitLot.org](mailto:Jessica@FitLot.org). We build a custom landing page for each FitLot and registration systems for communities that need one to organize their classes. Here is a link to a [custom park landing page](#) for a FitLot in St. Petersburg, FL.
- Each workout is treated as a stand-alone total body conditioning experience, and progressive programming is not necessarily provided.
- “Circuit Trainer Tracker Cards” may or may not be given out to participants. As a coach, if you are able to print them out and guide your participants on how to use them. Fantastic! That is the gold standard in circuit training.







## FitLot Circuit Training Class Format

The timing and structure of a FitLot Circuit Training class may vary from one class to the next, but the basic format should remain consistent.

Each class should include the following:

### 1. Welcome and introduction

The trainer provides participants with an overall session description and ensures that all participants are properly registered, have signed a liability waiver and have disclosed any injuries or health conditions that the trainer should be aware of as it relates to their ability to participate in a fitness class.

### 2. Attendance

The trainer counts the number of participants in order to confirm final details regarding station setup, as well as to cross-check the registration list.

### 3. Overview of Stations

The trainer gives a brief overview of the stations and exercises that will be included during the class. This includes a short demonstration and concise description of each exercise. Each station overview should take approximately 10-30 seconds.

### 4. Warm Up

During the warm up, the trainer should lead the class through movement preparation drills. The warm up should include: movement rehearsal, exercises intended to raise the heart rate and increase core body temperature, joint mobilization, dynamic stretching, and multi-directional and multi-planar movement patterns. The warm up may be performed as a large group, as a separate circuit of stations, or even include team or partner work. Class warm ups may vary, as long as the core objectives listed above are met. Some FitLot coaches like to start the group in a circle for the warm up. Tip: use your circuit training timer and speaker during the warm up to get the group familiar with the timing and work/rest split.

### 5. Circuit Training

The main body of the class should consist of circuit training. A timer and speaker should be used to keep the group moving from one station to the next. One circuit consisting of multiple stations may be repeated for up to 3 rounds/sets. Each circuit may be performed for 1 or more rounds each.

For example, if you have a group of 8 participants. You can put together an 8 station circuit. If the group works for 40 seconds and rests/transitions for 20 seconds, each station



will take 1 minute and each circuit will take 8 minutes. If you have the group do two rounds of the 1st circuit that will take 16 minutes. If you have the group do 2 rounds of 2 different 8 station circuits that will take approximately 32 minutes not including a water break and demonstration in between circuits. While planning a 1 hour class you should plan to have the group do between 30 and 40 stations. If you have a larger group of 20 people, you may decide to do one large 20 station circuit twice. Which would take at least 40 minutes to work through.

## 6. Cool Down/Stretch (7-10 minutes)

This portion of the class should include static and/or dynamic stretching and mobility work with the goal of fostering recovery and improving flexibility and active range of motion. During the cool down, the heart rate should gradually lower and participants' breathing rates should normalize. Trainers should share encouraging words during this time, in an effort to acknowledge hard work, provide positive feedback, and promote community, accountability and regular attendance.

## Terms and Definitions

Term	Definition
<b>Station</b>	A designated area or piece of equipment used to perform one exercise or movement
<b>Circuit</b>	A series of different exercises performed one after another with relatively little rest in between
<b>Round</b>	One full completion of a specific series of exercises, or circuit
<b>Repetitions</b>	The number of times one movement is performed in a row without rest
<b>Set</b>	One cycle of a certain number of repetitions of a single exercise performed in a row without rest



## Details of A FitLot Circuit Training Class

**Number of Stations:** The number of stations utilized may vary based on the number of participants, timing of work and recovery, the number of rounds, and the space available. There are 24 stations available at each FitLot Park. If there is usable greenspace available outside of the FitLot, additional exercise stations can be added.

**Number of Rounds:** The number of rounds may vary between 1-3, depending on the number of stations, the objective of the workout, and the trainer's plan.

**Total Class Duration:** The recommended total length of the circuit training session is 60 minutes. If needed, a trainer or the Department of Parks and Recreation may choose to offer 30 or 45 minute classes as well.

### Recommended Class Break Down

Training Session Segment	Time
Entire session	60:00 minutes
Warm up	7:00-10:00 minutes (including intro of stations)
Main Circuit	40:00-45:00 (including work and rest periods)
Rest between rounds	3:00-5:00 minutes
Cool down/Flexibility and Mobility	7:00-10:00 minutes

### Possible Work/Rest Ratios for Main Circuit

Work	Rest
30 seconds	30 seconds
40 seconds	20 seconds [*This would be challenging if participants are documenting their repetitions.]
50 seconds	25 seconds
60 seconds	30 seconds
60 seconds	60 seconds



## Additional Training Tools and Methodologies

FitLot Circuit Training Sessions may also integrate a variety of other popular fitness equipment, including but not limited to, resistance bands, jump ropes, medicine balls, TRX straps, cones, plyo boxes, and kettlebells. In addition, trainers may integrate various training methodologies in which they have experience teaching and proper education/credentials, including but not limited to yoga, Pilates, calisthenics, dance, barre, boxing/martial arts and obstacle course training.

The below circuit training tracker is a helpful tool in planning and tracking your workouts using the fitness park. We've created space to list the station number, muscle group, exercise, date as well as work/rest ratio for that workout. In the date column, the user can record the number of reps they performed during the time allotted. Over time the user should be able to see trends in performance and make adjustments to their training approach based on the numbers.

We've made this document available on our [website](#) so that anyone can download and edit it (using free Adobe software) to create their own workouts. As a coach you can use the circuit below as a class example. Additional sample circuits can be found in the Appendix.

### Circuit Training



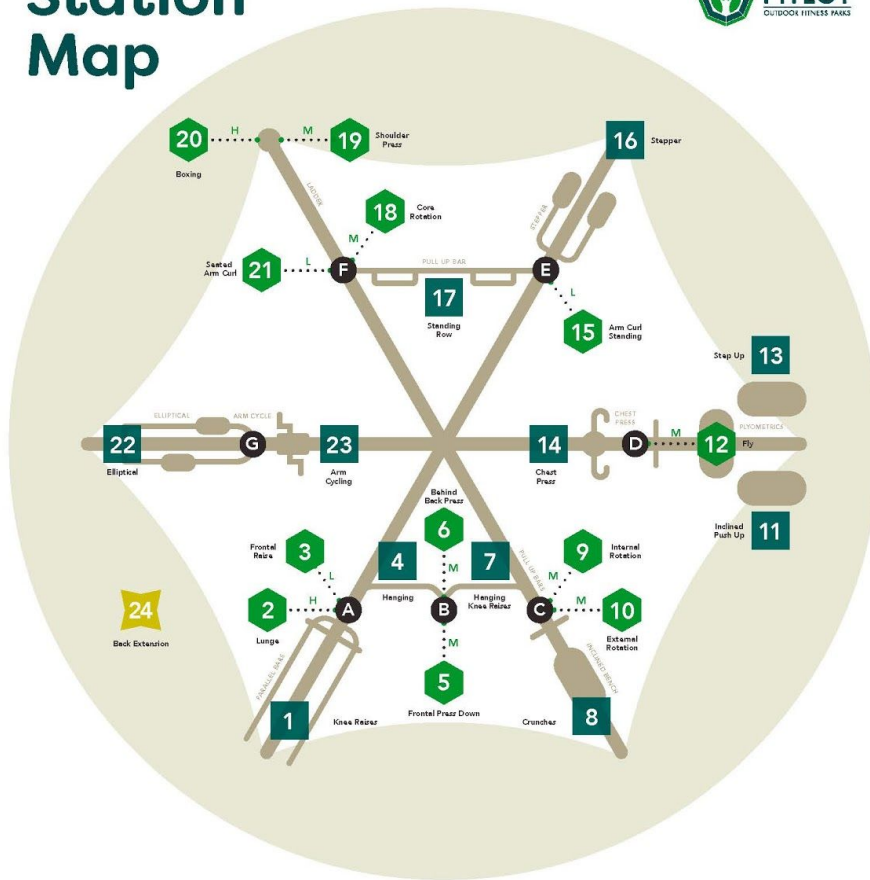
NAME	NO.	MUSCLE GROUP	EXERCISE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
				WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST
	1	Lower Body	Knee Raises										
	2	Lower Body	Lunge										
	3	Shoulders	Frontal Raise										
	4	Shoulders	Hanging										
	5	Back	Frontal Press Down										
	6	Back	Behind Back Press										
	7	Core	Hanging Knee Raises										
	8	Core	Crunches										
	9	Shoulders	Internal Rotation										
	10	Shoulders	External Rotation										
	11	Chest	Inclined Push Up										
	12	Chest	Fly										
	13	Lower Body	Step Up										
	14	Chest	Chest Press										
	15	Arms	Standing Arm Curl										
	16	Lower Body	Stepper										
	17	Back	Standing Row										
	18	Core	Core Rotation										
	19	Shoulders	Shoulder Press										
	20	Arms	Boxing										
	21	Arms	Seated Arm Curl										
	22	Lower Body	Elliptical										
	23	Arms	Arm Cycling										
	24	Back	Back Extension										
	TOTAL												

1. Count and document your reps
  2. Rotate, as soon as you are done
  3. Watch the next station
  4. Maintain correct form
  5. Exhale on exertion
  6. Work through the entire range of motion
  7. Move gradually
- FITLOT.ORG







**Pro Tip:** Use the FitLot Station Map and Circuit Training Tracker/Planner documents together to plan your workouts. The map will help you remember where each piece of equipment is located and the planner will help you list out your movements and stations. You'll notice that the FitLot Station Map below matches the circuit laid out in the tracker/planner above. You can download blank pdf versions of the station map to customize for your classes and participants by [clicking here](#).

## Station Map



KEY

 Equipment Station	 Resistance Band Station H M L : High, Medium, or Low Hookups	 Groundwork Station	 Support Pole
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## SECTION 10: COACHING AND CLASS INSTRUCTION

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### Learning Objectives

- Understand successful techniques for teaching outdoor fitness classes in a community setting
  - Understand best practices for class execution regarding music, timing, vocal instruction, monitoring intensity, and class preparation
- 

The goal of each class is to help participants adopt safe, healthy fitness habits by working with them to perfect their form and approach their workouts in an organized and effective manner. Below you will find strategies and recommendations for accomplishing this in an outdoor fitness park setting.

### Getting Started

When setting up and explaining stations, use the Tell-Show-Do method.

1. **Tell** them what the exercise is and generally how to do it [auditory cueing].
2. **Show** them how to do it by demonstrating the exercise [visual cueing].
3. Have the participant **do** the exercise and think about how it feels [kinesthetic cueing,].
4. Answer any questions.

Recommendations for Instructors Teaching a Circuit Training Class:

- Steps 1 and 2 should occur after the class introduction and before the warm up.
- After the warm up, participants should go to their assigned first station. They should be given the opportunity to do a few repetitions of the exercise and to ask any questions before the round begins.
- Encourage participants to watch the person at the next station as a mental reminder of what to expect next.



## Class Execution

### Timing

Instructors are encouraged to use a bluetooth speaker and electronic audio cueing for managing the circuit training. The app “Seconds” allows trainers to set rounds, rest time, and number of circuits. Having a loud audible bell helps the participants to stay on track. If a bluetooth speaker is not available, the coach should use a stopwatch or timer to ensure accurate execution of the desired work and rest periods. The timer can be visible to participants, but it is not necessary. We strongly suggest using the audio cue and speaker.

### Music

Instructors are encouraged to play music during class. The music should be motivational and upbeat. Because it is being played in a public space, the lyrics should be appropriate and the volume should be kept at a level that takes into consideration other people enjoying the public park.

Instructors may use a portable bluetooth speaker to connect to their phone or other device. Your program organizer i.e. Department of Parks and Recreation may have a portable sound system that can be used as well.

Music sets the tone for the experience, and according to research, “can enhance endurance [of participants] by 15%” (Brunell, 2008). In addition, music can serve as an “ergogenic aid” to class participants (Bicknell, 2013). Taking the time to put together a great playlist takes effort, but the energy and enjoyment it can bring to your class is well worth it. Visit [FitLot's Spotify Playlist](#) for some fun upbeat music you can use.

### Vocal Instruction

Most instructors will not need a microphone. Some trainers may prefer to use one, as repeated class instruction does take a toll on an instructor’s vocal cords. The Department of Parks and Recreation may also have a portable mic system available. Instructors should feel free to use whatever suits them best.

Instructors not using microphones should be sure to use techniques that lend to adequate and safe vocal projection. Additional information and specific instructions on how to improve your vocal projection can be found here: <http://mitcommlab.mit.edu/be/wp-content/uploads/sites/2/2017/09/Vocal-Exercises-to-Improve-Projection.pdf>.



## Monitoring Intensity

Instructors are encouraged to monitor exercise intensity using the Rating of Perceived Exertion scale and/or heart rate monitors if available. Instructors should use cues that describe signs of physical exertion to help participants clearly identify the intensity level they are working within. Be prepared to offer regressions, progressions and modifications for a wide variety of fitness levels and experience. The goal is to provide everyone with a safe, effective, and positive outdoor fitness experience.

See Appendix C for an RPE intensity chart that can be used for reference.

## Station Identification and Using FitLot's Deck of Movement Cards

Cones or station cards can be used to identify the different stations of the circuit. Here you can find a [link](#) to a “Deck of Movements” that you can print and use as station identifiers. These cards and visual aids are especially useful for helping class participants understand which resistance band movement you would like them to do at any of the 30 resistance band attachment sites located throughout the fitness park.

**Printing Instructions:** We recommend having these printed locally on a heavy card stock of 110 lbs Color Copy Cover or a 10 Pt C1S paper. Cards should be printed large enough to be visible. Laminating is suggested, and you can use adhesive magnets or magnets with clips to temporarily place these cards on the upright beams of the park.







## SECTION 11: CONSIDERATIONS FOR SPECIAL POPULATIONS AND HEALTH EMERGENCIES

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### Learning Objectives

- Understand the importance of pre-screening and health risk assessment procedures as part of the registration process
- Identify common conditions that may present special health and safety concerns in an outdoor fitness park class
- Identify special populations that may require extra attention and modifications during an outdoor fitness park class
- Describe environmental conditions that may arise when instructing outdoor fitness classes and how to handle them safely
- Identify emergency conditions and situations and explain corresponding appropriate action

---

Instructors leading FitLot training sessions should be aware of apparent risk factors that may affect individuals participating in the program. Class participants may be dealing with specific issues, chronic health related conditions, and physical challenges. While a trainer should never go beyond their scope of practice, awareness is paramount so that appropriate modifications, regressions and/or progressions can be provided. Please note the information in this section is not all inclusive and serves to be a reminder of the training you should have received during your fitness certification process. We recommend and expect that all practicing fitness professionals be certified, self insured and hold a current CPR certification.

### Pre-Screening

Since health risk assessment questionnaires and liability release forms are included in the registration process, a trainer's responsibility lies in ensuring all class members have officially completed the process before participating in a training session. All participants will be informed of the importance of obtaining a doctor's clearance before engaging in any fitness classes. Trainers and park staff members should be familiar with factors that contribute to increased health risk when exercising, in the event that appropriate action needs to be taken. Please reference Appendix B for ACSM's intake form that may be used to assess risk.



## Common Cardiac Conditions

**Coronary Heart Disease (CHD):** CHD is a condition resulting from the development of atherosclerosis in the coronary arteries. The accumulation of hard plaque narrows the artery walls, blocking the flow of blood and oxygen. CHD is the most common cause of sudden death in people over age 65, and men are 10 times more likely to experience this than women (Matthews et al. 2016).

**Hypertension:** Hypertension is the term for high blood pressure, categorized by a systolic blood pressure of >140 mmHg and/or a diastolic blood pressure of >90 mmHg. According to the Centers for Disease Control, about 75 million American adults (32%) have high blood pressure, which is equivalent to 1 in 3 adults (Nwankwo et al. 2013).

Recommendations for Instructors:

- Encourage participants to continually self-monitor exercise intensity
- Offer modifications to avoid abrupt changes in position, specifically seated or lying down to standing, which may cause dizziness
- Encourage participants to avoid holding their breath during the exertion phase of an exercise (also known as the Valsalva maneuver).

Exercise causes an increase in heart rate and blood pressure, which adds additional stress to the heart during training sessions and increases the risk of a cardiac event. Instructors should be aware of participants affected by both CHD and hypertension.

## Common Pulmonary Conditions

**Chronic Obstructive Pulmonary Disease (COPD):** COPD refers to a group of diseases that cause respiratory conditions that obstruct airflow, including emphysema, asthma and bronchitis. According to the CDC, 16 million Americans suffer from COPD (National, 2018).

**Asthma:** Asthma is a chronic inflammatory disorder that causes obstruction to airflow. Afflicted individuals may experience difficulty breathing, coughing, wheezing and overall feelings of chest tightness. Exercise and physical activity can induce an asthmatic response in some individuals, which is referred to as exercise-induced asthma.

Recommendations for Instructors:

- Encourage participants to hold off from participating in class if symptoms are active



- Guide participants through extended warm ups and cool downs, in order to avoid sudden changes in intensity
- Remind participants to stay hydrated and to keep airways moist before, during and after class sessions.
- Check in with participants throughout class to observe the rate of perceived exertion (RPE) and possible shortness of breath.
- Become familiar with techniques that may help people with COPD breath better, ie. pursed-lip breathing and diaphragmatic breathing.
- Require participants to carry inhalers or other necessary medication on their person.
- Be aware of environmental factors that may exacerbate COPD symptoms, including cold temperatures, air quality, and allergen levels.



## Responding to Cardiorespiratory Emergencies

All outdoor fitness park instructors are required to be trained in CPR and AED safety and hold current certifications.

Condition	Possible Signs/Symptoms	Recommended Action
Heart Attack	Pain in chest, arms, back, jaw; breathing difficulty, nausea, dizziness, anxiety, fatigue	Call EMS
Asthma Attack	Difficulty breathing, tightness in chest and neck, wheezing, coughing, pale appearance	Instruct participants to use medication; Call EMS if symptoms persist or consciousness is lost
Choking	Coughing, unable to speak, pale or blue colored skin, loss of consciousness	Call EMS; Attempt to dislodge



## Other Health Conditions

**Arthritis:** Arthritis is a degenerative joint disease and can lead to disabilities, activity limitations, and pain. Two common types of arthritis are osteoarthritis, caused by joint wear and tear, and rheumatoid arthritis, an autoimmune disease where the body attacks the joints.

Recommendations for instructors:

- Provide modifications to decrease range of motion if necessary.
- Encourage participants to decrease exercise intensity during flare ups.
- Help participants differentiate between normal discomfort associated with exercise and unsafe levels of pain.
- Guide participants through extended warm ups with a strong focus on building heat, increasing blood flow, joint mobilization and specific movement rehearsal
- Choose bilateral exercises first to ensure proper form, technique and adequate strength

**Diabetes Mellitus:** Diabetes Mellitus is a condition in which blood sugar (glucose) levels are abnormally high, because the body does not produce enough insulin to meet its needs. Diabetes is generally used to describe various syndromes that result in the disruption of glucose usage. According to the CDC, 30.3 million people have diabetes (9.4% of the US population) (CDC, 2018).

Recommendations for Instructors:

- Identify participants with diabetes and privately discuss specific needs and concerns before the workout begins.
- Be sure the participant's glucose level is in a safe range before engaging in physical activity.
- Know how to identify symptoms of an insulin reaction (hypoglycemia). Early symptoms include confusion, irritability, anxiety, and headaches. Late symptoms include sweating, rapid pulse, nausea, loss of consciousness, pale and moist skin, and double vision.



- Instruct the participant to check glucose levels if they're having an insulin reaction, and to consume orange juice or another rapidly absorbing carbohydrate.
- Call EMS if the participant remains in a state of distress.



## Responding to Environmental Emergencies

Condition	Possible Signs/Symptoms	Recommended Action
Heat Cramps	Painful cramps, feeling weak, thirst and dehydration	Stop activity, drink fluids slowly, cool body temperature
Heat Exhaustion	Weak, rapid pulse, headache, dizziness, clammy skin, excessive sweating, elevated core temperature	Cool down the body, drink fluids slowly, stop activity; Call EMS if symptoms are not alleviated
Heat Stroke	Hot, dry skin, rapid pulse, red appearance of skin, difficulty breathing, irritability, elevated core temperature	Call EMS; stop activity, cool skin of participant
Hypothermia	Body temperature drops below 97 degrees F, shivering, numbness in extremities, burning sensation in ears and nose, lethargy	Warm the body, provide warm fluids; Call EMS if symptoms are not alleviated.

**Soft Tissue Injuries:** Injuries including lacerations, punctures, avulsions, and abrasions are results of acute trauma to areas of the skin. There may be bleeding, pain, and exposed bone. If bleeding cannot be stopped, there is exposed bone or an obvious break, and/or internal pain, medical treatment should be sought immediately. All outdoor fitness park instructors are required to be trained in basic first aid.



## Special Populations

**Older Adults:** The terms active aging and healthy aging are often used to refer to motivated groups of older adults interested in improving their quality of life. Exercise and physical activity that focus on balance, mobility, strength, cognitive function, and bone health are especially helpful for this demographic. Movement training that helps combat sarcopenia, muscle loss attributed to aging, aids in fall prevention, and fosters the ability to move from the ground to standing positions which can provide older adults with confidence and improved functional ability.

Recommendations for Instructors:

- Trainers should get to know any limitations or issues of an older participant
- Focus on core work involving bracing and stability, as opposed to spinal flexion.
- Emphasize exercises that activate the back and foster healthy posture.
- Include movements that help improve balance, stability, and mimic tasks of daily life, including getting up off the ground, reaching overhead and rotating safely.
- Encourage participants to start with smaller ranges of motion before moving to larger, helping them move proximal to distal.
- Focus on building community and providing opportunities to create social interaction and engagement.
- Incorporate longer warm ups and cool downs, and allow enough time for transitions during class.
- Be aware of cues, understanding that participants may have visual and auditory limitations.



**Youth:** For children and adolescents aged 2-19 years, the prevalence of obesity between 2015 and 2016 was 18.5% and affected about 13.7 million children and adolescents (Hales et al, 2017). Lack of regular physical activity can impact growth and development, as well as foster a lifestyle prone to obesity and other chronic diseases. Helping youths get more physical activity can create healthy habits for a lifetime.

Recommendations for Instructors:

- The thermoregulatory systems of children are not as mature as adults, so frequent opportunities for hydration breaks and rest should be given, especially in hot and humid weather.
- Place an emphasis on having fun and making physical activity enjoyable.
- Check in regarding intensity using simple terms, for example easy, hard, and very hard.
- Emphasize form and technique during strength training for safety.
- Be sure youths are accompanied by a parent or adult, or that their participation meets the established rules outlined by the recreation department.

**Pregnant and Postpartum Women:** Exercise can be very beneficial for participants who are pregnant or just returning to exercise after having a baby. Physical activity may help pregnant women reduce fatigue, maintain cardiovascular health, mitigate back pain, reduce anxiety, and improve sleep quality, among other things. After giving birth, exercise may help alleviate and/or ward off depression, aid in weight loss, and restore pre-pregnancy fitness levels.

Recommendations for Instructors working with Pregnant Participants:

- Design workouts that will reduce intensity and incorporate more rest breaks. Provide modifications for movements that may require balance, require quick changes in direction or are high impact in nature.
- Focus on exercises to improve posture and to strengthen the core, especially those requiring stabilization and bracing, versus spinal flexion.
- After the first trimester, avoid exercises that require lying prone or supine. Provide alternate position options, including side-lying, angled supine, quadruped on hands or elbows, and standing.



- Encourage frequent hydration breaks, offer longer warm up and cool down segments, and promote proper thermoregulation.
- In general, avoid programming that includes repetitive jumping and bouncing, and encourage participants to only move through comfortable ranges of motion.
- Encourage participants to work at an intensity that is moderate, avoiding extremely high heart rates, and to speak with their doctor before beginning any exercise program.
- Instructors should be aware that every pregnancy is unique, and experiences and parameters may vary greatly from one woman to the next.
- Call EMS if any questionable situation arises or participant's condition declines.

#### Recommendations for Instructors working with Postpartum Participants:

- Encourage participants to start slowly and gradually move towards higher intensity.
- Emphasize the need for staying hydrated and wearing supportive sports bras, especially if nursing.
- Encourage participants to seek specialized care for rehabbing abdominal trauma, especially if diastasis recti has occurred.
- Be sure the participant has obtained medical clearance to engage in exercise, noting any limitations, including those that may result from having a C-section.

**Wheelchair Users:** The FitLot Circuit Training program is wheelchair accessible and aims to create an inclusive environment. For individuals using wheelchairs, exercise can increase the ability to perform activities of daily living, increase physical independence, improve self-confidence, and create opportunities for social engagement. All wheelchair users should obtain clearance from their physician before beginning an exercise program.

#### Recommendations for instructors:

- Wheelchairs should be in the locked positions before beginning an exercise, and powered mobility devices should be turned off.
- Instructors must pay special attention to stability, as tipping over could cause injury or death.
- Trainers should assist participants and act as a spotter when new exercises are attempted or equipment is used for the first time.





- Ensure that the maximum weight capacity of the chair or mobile device is not exceeded by additional exercise weight.
- Proper positioning is essential for safety when using equipment, so trainers should check the chair position and use extra supports to keep the chair stationary if needed.
- Straps or safety belts can be used to keep individuals secure during exercise.
- Stability of chairs may be improved by adjusting castor position, rear axle position, use of a weight or front hold on foot support, leaning, and/or use of restraints.
- Participants may need to adjust holds or grips due to specialized gloves or protective hand equipment.
- Trainers can find more information by referencing this link:

<http://www.soill.org/wp-content/uploads/2014/09/Discover-Accessible-Fitness-A-Wheelchair-Users-Guide.pdf>





# APPENDIX A

## BOX 1.4

### Benefits of Regular Physical Activity and/or Exercise

#### IMPROVEMENT IN CARDIOVASCULAR AND RESPIRATORY FUNCTION

- Increased maximal oxygen uptake resulting from both central and peripheral adaptations
- Decreased minute ventilation at a given absolute submaximal intensity
- Decreased myocardial oxygen cost for a given absolute submaximal intensity
- Decreased heart rate and blood pressure at a given submaximal intensity
- Increased capillary density in skeletal muscle
- Increased exercise threshold for the accumulation of lactate in the blood
- Increased exercise threshold for the onset of disease signs or symptoms (e.g., angina pectoris, ischemic ST-segment depression, claudication)

#### REDUCTION IN CARDIOVASCULAR DISEASE RISK FACTORS

- Reduced resting systolic/diastolic pressure
- Increased serum high-density lipoprotein cholesterol and decreased serum triglycerides
- Reduced total body fat, reduced intra-abdominal fat
- Reduced insulin needs, improved glucose tolerance
- Reduced blood platelet adhesiveness and aggregation
- Reduced inflammation

#### DECREASED MORBIDITY AND MORTALITY

- Primary prevention (*i.e.*, interventions to prevent the initial occurrence)
- Higher activity and/or fitness levels are associated with lower death rates from coronary artery disease
- Higher activity and/or fitness levels are associated with lower incidence rates for CVD, CAD, stroke, Type 2 diabetes mellitus, metabolic syndrome, osteoporotic fractures, cancer of the colon and breast, and gallbladder disease
- Secondary prevention (*i.e.*, interventions after a cardiac event to prevent another)
- Based on meta-analyses (*i.e.*, pooled data across studies), cardiovascular and all-cause mortality are reduced in patients with post-myocardial infarction (MI) who participate in cardiac rehabilitation exercise training, especially as a component of multifactorial risk factor reduction
- Randomized controlled trials of cardiac rehabilitation exercise training involving patients with post-MI do not support a reduction in the rate of nonfatal reinfarction

#### OTHER BENEFITS

- Decreased anxiety and depression
- Improved cognitive function



- Enhanced physical function and independent living in older individuals
- Enhanced feelings of well-being
- Enhanced performance of work, recreational, and sport activities
- Reduced risk of falls and injuries from falls in older individuals
- Prevention or mitigation of functional limitations in older adults
- Effective therapy for many chronic diseases in older adults

CAD, coronary artery disease; CVD, cardiovascular disease.  
Adapted from (26,37,55).

**Source: ACSM'S Guidelines  
for Exercise Testing and  
Prescription, NINTH EDITION  
(2014), p. 10**



# APPENDIX B

15:06

ACSM'S RESOURCES FOR THE PERSONAL TRAINER

## Assess your health status by marking all *true* statements

---

### History

You have had:

- a heart attack
- heart surgery
- cardiac catheterization
- coronary angioplasty (PTCA)
- pacemaker/implantable cardiac defibrillator/rhythm disturbance
- heart valve disease
- heart failure
- heart transplantation
- congenital heart disease

### Symptoms

- You experience chest discomfort with exertion
- You experience unreasonable breathlessness
- You experience dizziness, fainting, or blackouts
- You experience ankle swelling
- You experience unpleasant awareness of a forceful or rapid heart rate
- You take heart medications

### Other health issues

- You have diabetes
- You have asthma or other lung disease
- You have burning or cramping sensation in your lower legs when walking short distance
- You have musculoskeletal problems that limit your physical activity
- You have concerns about the safety of exercise
- You take prescription medications
- You are pregnant

### Cardiovascular risk factors

- You are a man  $\geq 45$  yr
- You are a woman  $\geq 55$  yr
- You smoke or quit smoking within the previous 6 mo
- Your blood pressure is  $\geq 140/90$  mm Hg
- You do not know your blood pressure
- You take blood pressure medication
- Your blood cholesterol level is  $\geq 200$  mg · dL<sup>-1</sup>
- You do not know your cholesterol level
- You have a close blood relative who had a heart attack or heart surgery before age 55 (father or brother) or age 65 (mother or sister)
- You are physically inactive (*i.e.*, you get  $<30$  min of physical activity on at least 3 d per week)
- You have a body mass index  $\geq 30$  kg · m<sup>-2</sup>
- You have prediabetes
- You do not know if you have prediabetes

None of the above

*If you marked any of these statements in this section, consult your physician or other appropriate health care provider before engaging in exercise. You may need to use a facility with a **medically qualified staff**.*

*If you marked two or more of the statements in this section you should consult your physician or other appropriate health care as part of good medical care and progress gradually with your exercise program. You might benefit from using a facility with a **professionally qualified exercise staff**<sup>a</sup> to guide your exercise program.*

*You should be able to exercise safely without consulting your physician or other appropriate health care provider in a self-guide program or almost any facility that meets your exercise program needs.*

<sup>a</sup>Professionally qualified exercise staff refers to appropriately trained individuals who possess academic training, practical and clinical knowledge, skills, and abilities commensurate with the credentials defined in *Appendix D*.



# APPENDIX C

## RATING OF PERCEIVED EXERTION AND TALK TEST

EXERTION SCALE (1-10)*	ZONE	EXERTION LEVEL	EXAMPLE OF ACTIVITY	TALK TEST	RANGE (% of MHR)**
(Based on how hard you feel you are working)	(Find the zone that best meets your goals)	(Varies by individual and fitness level)	(Activities that correlate to level of exertion)	(Use the Talk Test to gauge how hard you are working on the 1-10 scale)	(Use the range to calculate upper and lower limits in beats per minute)
1	Inactive	Very Light	Standing	Normal breathing; can talk normally	40% - 45%
2		Light	Walking	Normal breathing; can talk normally	46% - 50%
3	Health Improvement Zone	Moderate no sweat	Brisk walk	Can carry on a conversation; light breathing	51% - 55%
4		Moderate sweat	Fast walk/jog	Can carry on a conversation; moderate breathing	56% - 60%
5	Fitness Zone	Moderate vigorous sweat	Very fast walk/jog	Can carry on a conversation; heavy breathing	61% - 67%
6		Vigorous	Run	Only able to complete 1-2 sentences; heavier breathing	68% - 75%
7	Performance Zone	Vigorous strenuous	Fast run	Broken sentences; heavy breathing	76% - 80%
8		Strenuous	Very fast run	Only able to speak in syllables; very heavy breathing	81% - 85%
9	High Performance Zone	Strenuous severe	Race pace	Can't talk; very heavy breathing	86% - 92%
10		Severe	Race pace to win	Can't talk; gasping for breath	93% - 100%

### HOW TO CALCULATE YOUR MAXIMUM HEART (MHR) AND HEART RATE RANGE

FORMULA	RANGE	EXAMPLE:	1. Calculate MHR	2. Calculate Range	3. Range in Beats Per Minute
Maximum Heart Rate (MHR) 220 - Age = MHR	To calculate your range: MHR x Range of MHR	Using Fitness Zone, Level 6 for a 50 yr. old	220 - 50 = 170 (MHR)	170 x .68 = 116 170 x .75 = 128	Heart Rate Range = 116 - 128 beats per minute



Note: RPE is especially useful when heart rate is not an accurate measure of exertion.

\*Modified Borg scale adapted by Productive Fitness Products Inc.

\*\*Heart rate is subjective and varies widely dependant on several factors including age, weight & fitness level. These are "on average" figures.

[www.productivefitness.com](http://www.productivefitness.com)

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# APPENDIX D

## SAMPLE FITLOT CIRCUIT TRAINING WORKOUTS

The following circuits are examples of different circuits you as a coach can use to lead a class. Remember that the No. column on the left refers to the station number from the station map.

### Circuit Training



NAME	NO.	MUSCLE GROUP	EXERCISE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
				/	/	/	/	/	/	/	/	/	/
				WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST
				1	2	1	2	1	2	1	2	1	2
	1	Lower Body	Knee Raises										
	2	Lower Body	Lunge										
	3	Shoulders	Frontal Raise										
	4	Shoulders	Hanging										
	5	Back	Frontal Press Down										
	6	Back	Behind Back Press										
	7	Core	Hanging Knee Raises										
	8	Core	Crunches										
	9	Shoulders	Internal Rotation										
	10	Shoulders	External Rotation										
	11	Chest	Inclined Push Up										
	12	Chest	Fly										
	13	Lower Body	Step Up										
	14	Chest	Chest Press										
	15	Arms	Standing Arm Curl										
	16	Lower Body	Stepper										
	17	Back	Standing Row										
	18	Core	Core Rotation										
	19	Shoulders	Shoulder Press										
	20	Arms	Boxing										
	21	Arms	Seated Arm Curl										
	22	Lower Body	Elliptical										
	23	Arms	Arm Cycling										
	24	Back	Back Extension										
	TOTAL												

- 1. Count and document your reps
  - 2. Rotate, as soon as you are done
  - 3. Watch the next station
  - 4. Maintain correct form
  - 5. Exhale on exertion
  - 6. Work through the entire range of motion
  - 7. Move gradually
- FITLOT.ORG



## Circuit 2



NAME	NO.	MUSCLE GROUP	EXERCISE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
				/	/	/	/	/	/	/	/	/	/	/
				WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST
				:	:	:	:	:	:	:	:	:	:	:
	1	Triceps	Dips											
	2	Legs	Squat											
	3	Lats	Press Down											
	4	Core	Knee Raises											
	5	Biceps	Standing Bicep Curl											
	6	Shoulders	Shoulder Press											
	7	Arms	Hanging											
	8	Core	Sit Up											
	9	Shoulders	Shoulder Shrug											
	10	Shoulders/triceps	Boxing with Bands											
	11	Chest	Inclined Push Up											
	12	Lats	Behind Back Press											
	13	Legs and Cardio	Step Ups											
	14	Chest	Chest Press											
	15	Biceps	Seated Arm Curl											
	16	Legs and Cardio	Stepper											
	17	Back	Standing Row											
	18	Core	Core Rotation											
	19	Lats	Seated Press Down											
	20	Shoulders	Lateral Raise											
	21	Legs	Lunges											
	22	Legs/Arms/Cardio	Elliptical											
	23	Arms and Cardio	Hand Cycle											
	24	Back	Back Extension											
	TOTAL													

1. Count and document your reps
  2. Rotate, as soon as you are done
  3. Watch the next station
  4. Maintain correct form
  5. Exhale on exertion
  6. Work through the entire range of motion
  7. Move gradually
- FITLOT.ORG



# Wheelchair Circuit



NAME _____			DATE / /	DATE / /	DATE / /	DATE / /	DATE / /	DATE / /	DATE / /	DATE / /	DATE / /	DATE / /	DATE / /
NO.	MUSCLE GROUP	EXERCISE	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST	WORK:REST
			: :	: :	: :	: :	: :	: :	: :	: :	: :	: :	: :
1	Arms	Dips											
2	Back	Press Down											
3	Core	Core Rotation											
4	Triceps	Triceps Extension											
5	Biceps	Bicep Curl											
6	Shoulder	Shoulder Press											
7	Chest	Fly											
8	Back	Behind Back Press											
9	Core	Descending Core Rotation											
10	Shoulders	Frontal Raise											
11	Triceps	Triceps Extension Up											
12	Chest	Chest Press Ascending											
13	Core	Core Rotation											
14	Chest	Chest Press											
15	Back	Seated Row											
16	Triceps	Boxing											
17	Arms/Cardio	Arm Cycle											
18													
19													
20													
21													
22													
23													
24													
TOTAL													

- 1. Count and document your reps
- 2. Rotate, as soon as you are done
- 3. Watch the next station
- 4. Maintain correct form
- 5. Exhale on exertion
- 6. Work through the entire range of motion
- 7. Move gradually







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