

2015 Achievement Awards Virginia Association of Counties

APPLICATION FORM

All applications must include the following information. Separate applications must be submitted for each eligible program. **Deadline: June 1, 2015.** Please include this application form with electronic entry.

PROGRAM INFORMATION

Locality: County of Henrico

Program Title: Expanding a Culture of Fitness Through Collaboration: Firefighter Fitness Manual

Program Category: Organizational Development

CONTACT INFORMATION

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Title: County Manager

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Expanding a Culture of Fitness Through Collaboration: Firefighter Fitness Manual

Short Overview/Brief Summary of the Program

Supporting employee wellness through a wide variety of programs is a critical element of Henrico County culture. A high level of physical fitness is essential for all firefighters given the unique risks faced by Henrico County firefighters in the course of providing emergency services to the citizens. In order to support the culture of physical fitness among the County's firefighters, the Division of Fire and the Department of Human Resources' Fitness and Wellness Division collaborated to create a structured, fire station-based, fitness program. The Firefighter Fitness Manual provides a modular fitness program designed to improve overall firefighter fitness levels and to reduce the risk of injury through a specific focus on core strength. The Firefighter Fitness Manual is based on a six-month, progressive program that is adaptable to any fitness level. Firefighter Peer Fitness Trainers receive extensive training on program delivery and are available to all firefighters for group or individualized program support. The Firefighter Fitness Manual is available in all fire stations and through the Division of Fire's on-line training platform. The program is updated as needed and is used regularly by Division of Fire staff.

The Problem/Challenge/Situation

Henrico County is committed to fostering a culture of fitness and wellness for all employees. This commitment is especially critical in the public safety sphere. A high level of physical fitness is key to consistent mission success in the emergency setting, reduces the risk of injury, and helps to build the psychological resilience that is necessary for firefighters facing a career of responding to critical, often dangerous emergencies. In 2013, the Division of Fire initiated an annual Work Performance Evaluation (WPE) to ensure that all firefighters could demonstrate the ability to perform a set of essential job functions. Although initial WPE results were very good, a post-WPE analysis identified several barriers to

improving firefighter physical fitness including: the decentralized nature of fire station locations; a wide variation in fitness levels among firefighters, even among those who were successful in the WPE; a lack of knowledge regarding physical fitness program best-practices; and historically inconsistent physical fitness programming. It became clear that a modular program that required little or no equipment, was designed for firefighters of all fitness levels and that could be led by the immediate supervisor in the fire station, would provide a cost-effective solution.

How the Program Was Carried Out (Description)

The Division of Fire conducted a Work Performance Evaluation (WPE) in 2013. After a review and analysis of the results, several barriers to improving firefighter physical fitness were identified. These included the decentralized nature of fire station locations, a wide variation in fitness levels among firefighters, a lack of knowledge regarding physical fitness program best-practices, and historically inconsistent physical fitness programming. With the goal of finding a cost-effective means to overcome these barriers, Division of Fire personnel met with staff from the Department of Human Resources Fitness and Wellness Division to collaborate on a solution. Together, the cost-effective idea to produce a Firefighter Fitness Manual was born.

Division of Fire personnel and Fitness and Wellness staff created a draft outline of a proposed fitness manual. Once the outline was reviewed and approved, a member of the Fitness and Wellness staff developed a 6-month, 2-level progressive fitness program that allowed for individually tailored workouts within a set of structured parameters. The program is designed to improve current fitness levels and is designed to be completed at any fire station or similar environment using a minimal amount of equipment.

Prior to beginning the program, the firefighter performs a self-administered comprehensive fitness assessment. The fitness assessment provides an individualized benchmark to gauge the effectiveness of the program for each specific firefighter. The assessment includes a core assessment plank hold test, the YMCA sit-and-reach test, a cardiovascular endurance assessment, a muscular endurance test and fitness data such as resting heart rate, blood pressure, weight, waist-to-hip ratio and muscular strength.

Firefighter Fitness Program Level 1 is designed to be used for the first three months of the program.

Level 1 focuses entirely on bodyweight exercises and is progressive, with three tiers that advance every 4-6 weeks based on improvements in core strength, stability and cardiovascular endurance. Level 1 focuses on developing core strength and stability, preventing back injury, improving muscular and cardiovascular endurance, improving flexibility and enhancing overall performance. The program is designed in three, 4-week tiers and each tier consists of four segments: dynamic warm-up, bodyweight resistance training, cardiovascular training and cool-down and flexibility. Intensity and difficulty of the movements progresses as you move through the tiers so fitness and performance improve and do not plateau. Level 1 only requires a venue for running (treadmill/track/loop or elliptical machine) and the body. No weights or other traditional exercise equipment are required.

Firefighter Fitness Program Level 2 is designed to be used for the second three months after successful completion of Level 1. Firefighters with higher initial fitness assessment scores may start the program at Level 2. Level 2 is a high-intensity interval resistance training program with a metabolic conditioning regimen. It is designed to be performed three times per week or every other day and allows the user to build their own workout by choosing from a menu of exercises. There are five segments in each Level 2 regimen: dynamic warm-up, bodyweight mini-block circuit, high intensity resistance training, core and abdominals and cool-down and stretching. Level 2 requires a minimal amount of low-cost, low-tech

equipment, such as dumbbells, kettlebells, a tire, a sledgehammer, agility cones, a battle rope, a pull-up bar or a barbell plate weight, depending on which movements are chosen for a particular workout.

The Firefighter Fitness Manual was completed in June 2014 and was made available at all 20 fire stations and in Fire Administration. The manual was also placed on the internal online, web-based training platform that is utilized by all Division of Fire members. Guidelines based on the WPE completion time of completion were provided to fire personnel. For example, firefighter's with WPE completion time greater than the 8:44 benchmark were recommended to start at Level 1, moving on to Level 2 only after demonstrating significant progress on the physical fitness assessment. Firefighters who completed the WPE under the 8:44 benchmark were advised to start at Level 2. The online manual is updated as needed and many firefighters and administrative staff in the Division of Fire use the manual regularly as a guide in their workouts. The manual also includes several reference guides to be used as a rapid planning tool for building a customized workout based on fitness level, and available time and equipment.

To ensure the manual was sound and easy-to-use, Fire Administration staff participated in the program using the manual and were led by the fitness trainer for one hour workouts, three-times per week from July 2014 through November 2014. In addition, the fitness trainer trained 19 Division of Fire Peer Fitness Trainers on the Firefighter Fitness Manual. Based on feedback and observations, small changes were made to the program and manual as needed.

The Firefighter Fitness Manual is more than 160 pages of exercise descriptions, pictures and tables. A firefighter, who is also a certified fitness trainer, posed for all of the pictures to ensure familiarity for the firefighters using the manual and also as a means to guarantee that accurate representation of proper exercise form is represented. There are more than 275 photographs of the exercises and 130 different exercise descriptions. In addition, many extra tips, facts and motivations are contained throughout the

manual as well as an appendix that includes quick reference workout cards for every level and tier that can be easily printed to have on hand when working out. It provides myriad ways to create a unique workout. Please refer to the attached copy of the manual.

Financing and Staffing/Use of Technology

Current staff conceived of, designed, and implemented the manual utilizing existing resources, such as digital photography and the Internet as supplemental tools. Although staff time is extremely valuable, it is a cost the County would incur with or without this project. The only tangible cost for the project was the cost of printing several hard copies of the manual for training and staff. The County's internal Print Shop was utilized for this, further keeping even this small cost in-house.

Despite the recent upturn in the economy, the era of tight budgets in local government continues. At the same time, the demand for the delivery of high quality emergency services continues to grow. The prevention of, preparation for, and response to high risk incidents involving critical life safety issues will always remain a key job component of public safety agencies regardless of the fiscal environment in the community. This combination of high service demand along with the described budget challenges requires organizations to develop creative, cost-effective solutions. Specifically, a high level of physical fitness is an essential foundational element for all firefighters, regardless of economic circumstances. Having unfit fire personnel can increase costs if injuries and accidents occur and can lead to decreased mission readiness and ultimately unacceptable outcomes. The County of Henrico sought to identify a low-cost way to improve and maintain firefighter physical fitness. Through collaboration with the Division of Fire and the Fitness and Wellness Division of the Department of Human Resources, an in-house solution was found utilizing the expertise of current staff, resulting in the production of an excellent product at a very low cost. The Firefighter Fitness Manual will provide fitness guidance and direction for many years at little cost.

The firefighter fitness manual was designed and formatted in Microsoft Word and saved in the Adobe PDF format. Pictures for the manual were taken with a digital camera and were cropped, re-sized and formatted in Microsoft Picture Manager. In addition, images obtained from the Internet were used for the appendix. Several web sites were used for reference in developing the exercise descriptions in the manual.

Email was used extensively in setting up meetings and scheduling picture sessions and training sessions. The manual is available to all fire personnel on the Division of Fire's Target Solutions Intranet page. Any edits to the manual are done in Word, and the manual is re-saved as a PDF and uploaded to the Web without delay so that the latest version is available.

Program Results

The Firefighter Fitness Manual, along with the Division of Fire Peer Fitness Trainers, will no doubt improve the Division of Fire's ability to field an effective firefighting force, while minimizing the cost to the taxpayer, for years to come. Physical fitness is a strong component of the Fire Chief's overall vision for the County's Division of Fire and the Firefighter Fitness Manual is a key tool in helping to achieve that vision. Over 320 workouts were completed by fire staff in the first 4 months that the manual was available and it continues to be used today. It is available to all Division of Fire personnel, and the Fitness and Wellness Division of Human Resources utilizes this manual for any firefighter who is referred for physical training assistance. The fitness trainer has personally exposed over 70 Henrico County firefighters to the manual and he trained 25 firefighters on how to use/teach the program as well. The number of firefighters who passed the WPE in 2014 (compared to 2013) increased from 87% to over 95%. The Fire Chief, Anthony McDowell, has personally thanked staff involved in this project, noting its positive impact on the Division of Fire (please see attachment of email string begun by the Fire Chief to the County Manager). In addition, Assistant Fire Chief Andrew Baxter told the fitness trainer that this

Manual has saved the Division of Fire and the County thousands of dollars. The Firefighter Fitness Manual has already netted significant positive results and will continue to do so for years to come.

It is widely recognized that physical fitness is a critical element for successful operations in the public safety setting. The Firefighter Fitness Manual is a low-cost, easily-replicated solution that supports the development and continuous improvement of firefighter physical fitness. Creating the manual in-house allows it to adapt to the culture of the organization developing it and controls cost. Any organization can tap into the resources available: online information and internal personnel who can replicate this type of tool to best meet their needs. The Firefighter Fitness Manual is an innovative program that addresses an imperative county government need in a low-cost manner. It is an innovative solution that will ultimately benefit Henrico County residents for years to come.

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FIREFIGHTER FITNESS TRAINING PROGRAM

A Guide to Improving Your Work Performance



**CREATED BY JOSHUA GASKINS
ISSUED BY THE DEPARTMENT OF HUMAN RESOURCES
FITNESS AND WELLNESS DIVISION
HENRICO COUNTY, VIRGINIA
JUNE 2014**

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A firefighter's physical fitness is vital to his/her work performance. Optimal fitness can be attained with a combination of exercise, lifestyle, nutrition and habit changes.

FIELD FITNESS PROGRAM

DEVELOPMENT AND IMPLEMENTATION

The Henrico County Firefighter fitness program offers the ability to design your own workouts with structured parameters for all firefighters who want to improve and/or maintain a current fitness status. An additional benefit is that the program is a fire-station-based program with a minimal equipment approach, that can also be completed at home or at fitness facility.

Following the firefighter fitness program can assist in one or more of the following:

- Improve the WPE completion time
- Improve cardiovascular endurance
- Improve muscular endurance
- Improve core strength and stability
- Improve flexibility, mobility and range of motion around joints
- Improve muscular strength
- Improve overall fitness and conditioning
- Help reduce the risk of musculoskeletal injuries
- Gain the ability to design workouts

How to use this program:

1. The easiest way to start is with the Level 1 program and then progress as needed or recommended, especially if you are unsure of your current fitness level.
2. Add the Level 1 program to your existing regimen to add core strength and stability.
3. Begin with the Level 2 program if current fitness level is intermediate-to-advanced.
4. **If WPE time of completion was greater than the 8-minutes and 44-second (8:44) benchmark:**
 - a. By meeting this criterion it is recommended to begin with the Level 1 program, and then progress to Level 2 to partake in the entire 6-month program.
5. **If WPE time of completion was less than 8-minutes and 44-seconds (8:44):**
 - a. By meeting this criterion you can begin with the Level 2 program by meeting the standards of the comprehensive fitness assessment, or
 - b. Complete the entire 6-month program as it is and progress to Level 2 after completing Level 1 and the comprehensive fitness assessments.

The firefighter fitness program is delivered by a Company Officer, supported by Division of Fire (DOF) Peer Fitness Trainers (PFTs), and built by the Henrico County Fitness and Wellness staff with full support and approval by the Division of Fire. DOF PFTs have received training in how to administer this fitness program.

Any DOF member who seeks to improve their fitness level may seek the assistance of a DOF PFT. The DOF PFTs will provide the group training to all DOF members participating in the program and will be a continuing resource for DOF members.

Any DOF member who needs or seeks specific training assistance or accommodations outside of this program will be referred to the Henrico County Fitness and Wellness Division for assessment and consultation.

Any copying or reproducing of this manual or anything in this manual outside of Henrico County Fire or Henrico County Fitness and Wellness is strictly prohibited.

COMPREHENSIVE FITNESS ASSESSMENTS

Fitness Assessments: The following assessments can be self-administered at the beginning and at the completion of the Level 1 program. The information obtained from the following assessments should be interpreted by a DOF PFT or a staff fitness trainer in the Henrico County Fitness and Wellness Division. It can also be used solely for monitoring individual progress.

- 1. Core Assessment:** Plank Hold Test (note form and stability for each segment; modify where needed- e.g., on knees)
 - a. 30 second plank hold (Move forward if successfully completed)
 - b. 15 second 1-arm plank hold each side (Complete c & d despite attempt successfulness)
 - c. 15 second 1-leg plank hold each side
 - d. 30 second plank hold

- 2. Flexibility Assessment:** the YMCA sit-and-reach test (Trunk Flexion)
 - a. A yardstick is placed on the floor and tape is placed across it at a right angle to the 15-inch mark.
 - b. The participant sits with the yardstick between the legs, with legs extended at right angles to the taped line on the floor
 - c. Heels of the feet should touch the edge of the taped line and be about 10 to 12 inches apart. (Note the zero point at the foot/box interface and use the appropriate norms.)
 - d. The participant should slowly reach forward with both hands as far as possible, holding this position ~2 seconds. Be sure that the participant keeps the hands parallel and does not lead with one hand.
 - e. Fingertips can be overlapped and should be in contact with the measuring portion or yardstick of the sit-and-reach box.
 - f. The score is the most distant point (in centimeters or inches) reached with the fingertips. The better of the two trials should be recorded.
 - i. To assist with the best attempt, the participant should exhale and drop the head between the arms when reaching. Testers ensure the knees stay extended, but not pressed down.
 - ii. Breathe normally and do not hold breath.(*see appendix for percentiles of performance)

- 3. Cardiovascular Assessment** (choose one of the following):
 - a. 1.5 mile test for time
 - i. Cover the distance in the shortest period of time.
 - b. Cooper 12-minute test
 - i. Cover the greatest distance in the allotted time period.
 - c. Rockport One-Mile Fitness Walking Test (for those unable to run/jog/severely deconditioned)
 - i. Walk 1 mile as fast as possible on a level surface.
 - ii. Obtain a 10-second heart rate (HR) immediately on completion of the 1-mile (multiply by 6 to find beats per minute).(*see appendix for percentiles of performance)

4. Muscular Endurance Assessments: (complete both)

- a. One minute push-up test
 - i. Complete as many repetitions as possible in one minute.
 - ii. Begin in the push-up position, with the body in a straight line.
 - iii. When time begins, lower the body as one unit, until the chest makes contact with the fist of the DOF peer fitness trainer.
 - iv. Once contact with the fist is made, raise the body, as one unit, until both arms are fully locked out.
 - v. Rest in the UP position only.
 - vi. The DOF peer fitness trainer will count the repetitions out loud as the participant's arms reach full extension.
 - vii. The DOF peer fitness trainer will NOT count any push-ups incorrectly performed and will stop the test if the firefighter or participant fails to keep the body off of the floor.

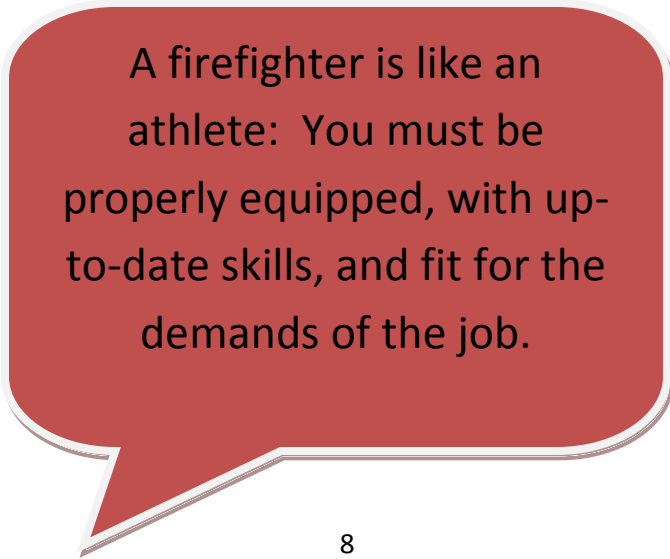
(*see appendix for fitness categories of performance)

- b. One minute Sit-up test
 - i. Complete as many repetitions as possible in one minute.
 - ii. Begin in the sit-up position with the elbows on the knees and the hands touching the sides of the head (over the ears).
 - iii. When time begins, lower the torso until the shoulder blades touch the floor, then return to the UP position by touching the elbows to the top of the knees.
 - iv. Any resting must be held in the UP position.
 - v. The hands must remain in contact with the head the entire time.
 - vi. The hips must stay on the floor the entire time.
 - vii. DOF peer fitness trainers will NOT count any sit-up performed incorrectly.

(*see appendix for percentiles of performance)

5. Other voluntary assessments:

- a. Resting HR
- b. Resting blood pressure (BP)
- c. Weight
- d. Waist-to-hip ratio (the circumference of the waist divided by the circumference of the hips.)
 - Very High Risk = men- WHR > 0.95, women- WHR > 0.86
 - Age 60-69 Very High Risk = men- WHR > 1.03, women- WHR > 0.90
- e. Muscular strength
 - i. 1-, 4-, 6-, or 8-rep max (RM) bench press and leg press



A firefighter is like an athlete: You must be properly equipped, with up-to-date skills, and fit for the demands of the job.

KEY CONCEPTS

1. Abdominal Bracing (aka Core Engagement)

This is the “stiffening” or “tightening” of the abdomen wall muscles without pulling in or pushing out. By doing so, the back extensor muscles also contract, therefore supporting the trunk. This will enhance stability by increasing the effectiveness of the obliques, a crisscross muscle.

2. Neutral Spine (aka Correct Postural Alignment)

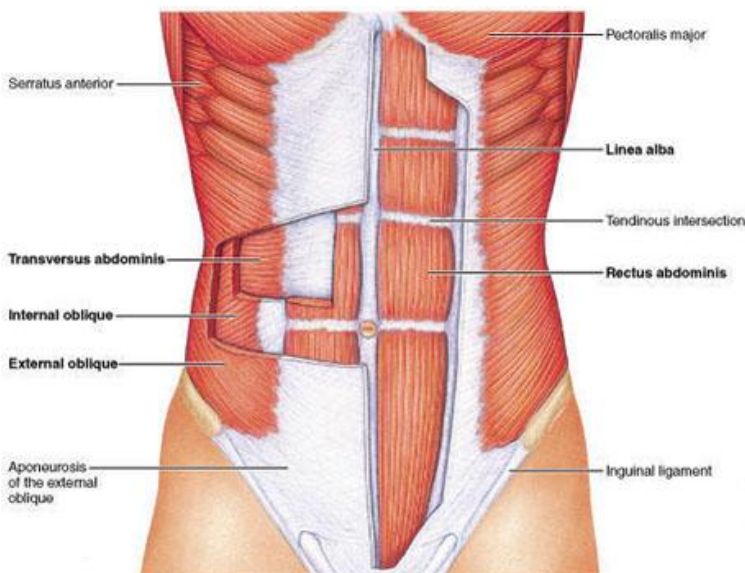
This is the posture where all three curves in the spine are normal and maintained. The spine is evenly balanced at this position. The position of the pelvis is neither rotated anteriorly or posteriorly too much. (An anterior rotation of the pelvis causes the low back to arch and belly protrusion. A posterior rotation of the pelvis causes the low back to flatten with no curve in the lumbar portion of the spine.)

3. Activation of the Pelvic Floor

These are the muscles at the bottom of the pelvis and are responsible for stabilizing the pelvis and the spine. Not only are they crucial in core stability, but keeping them strong helps keep the organs in their respective positions preventing a prolapse.

4. Lengthening of the Spine

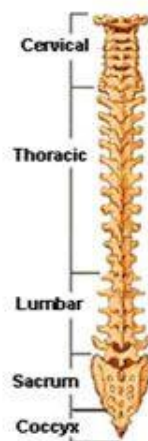
Either sitting or standing, by lengthening the spine or making yourself taller, with correct postural alignment, you will keep the joints of the spine decompressed. The body will be more apt to strenuous work without a warm-up if you are in this position rather than with a slouched posture while sitting or standing.



Lateral (Side) Spinal Column



Posterior (Back) Spinal Column



LEVEL 1 TRAINING PROGRAM

The Core

Is known as the power center,
and is where most movements
are transferred through.

LEVEL 1 TRAINING PROGRAM OVERVIEW

Summary:

- The easiest way to start is with the Level 1 program and then progress as needed or recommended, especially if you are unsure of your current fitness level.
- Add the Level 1 program to your existing regimen to add core strength and stability.
- Level 1 is also recommended for Firefighters who did not complete the WPE or completed the WPE with a time greater than the 8:44 (8 minutes, 44 seconds) benchmark.

Goal:

- To provide a beginner-to-intermediate level fitness program
- To focus on developing:
 - core strength and stability
 - cardiovascular endurance
 - muscular strength and endurance
 - flexibility
- To use a progressive approach to:
 - help prevent back injury
 - enhance overall performance

Equipment Needed:

- Mat
- Treadmill/Elliptical

Tier 1 Overview:

Movements	Duration	Frequency	Sets	Reps/Time	Rest Period
-Most basic -Make modifications where needed.	4 weeks	-3x/week -1 day rest b/w each session	1-2	-Various workout schemes	Up to 60 seconds between sets.

Tier 2 Overview: Perform after Tier 1 completion.

Movements	Duration	Frequency	Sets	Reps/Time	Rest Period
-1 st Progression from Tier 1. -Make modifications where needed.	4 weeks	-3x/week -1 day rest b/w each session	2	-Various workout schemes	Up to 45 seconds between sets.

Tier 3 Overview: Perform after Tier 2 completion.

Movements	Duration	Frequency	Sets	Reps/Time	Rest Period
-2 nd Progression from Tier 1. -Make modifications where needed.	4 weeks	-3x/week -1 day rest b/w each session	2-3	-Various workout schemes	Up to 15-30 seconds between sets.

After completion of all 3 tiers, perform the Comprehensive Fitness Assessments to monitor progress. To monitor progress more frequently you can do the assessments after every tier.

DYNAMIC WARM-UP INSTRUCTIONS

Core Training Significance:

To prevent unwanted injuries from duty or activities of daily living. Core training and strengthening are essential to an exercise program.

DYNAMIC WARM-UP INSTRUCTIONS

Instructions:

Perform this warm-up for all 3 tiers of the Level 1 Program.

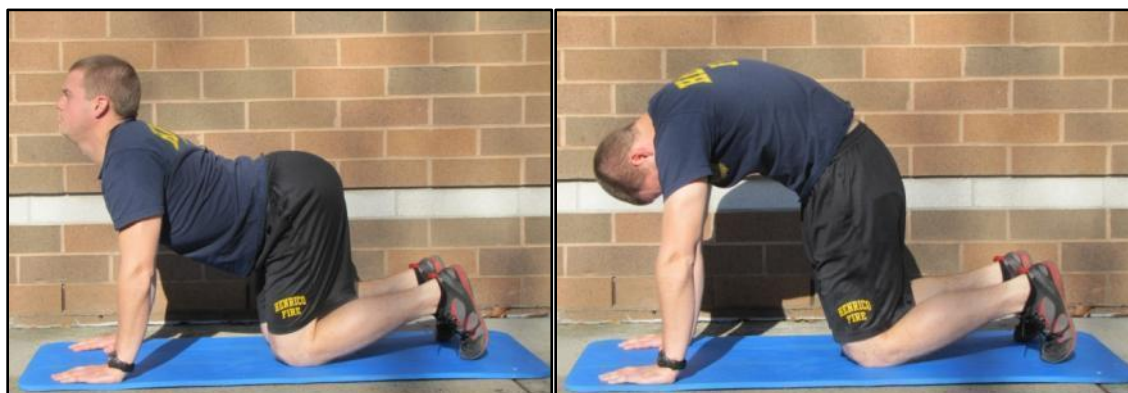
- The goal of the warm-up is to actively take the core and back muscles through the range of motion to prepare for the more dynamic movements of the workout.
- Listed are the overview and the detailed instructions for each movement. Refer back to this section for the detailed movement instructions if a review is needed during tier 2 or 3.

LEVEL 1 DYNAMIC WARM-UP OVERVIEW

EXERCISE	SETS	REPS	TIME	REST
LIGHT CARDIO/DYNAMIC MOBILITY	1	N/A	5 MINUTES	N/A
CAT	1	5-8	N/A	15-30 SECONDS
LATERAL TILT	1	5-8 EACH SIDE	N/A	15-30 SECONDS
TABLETOP SPINAL ROTATION W/ FLEXION & EXTENSION	1	5-8 EACH SIDE	N/A	15-30 SECONDS
SUPINE TRUNK ROTATION	1	5-8 EACH SIDE	N/A	15-30 SECONDS

*Note: Additional time and/or movements may be added during warm-up if needed. See level 2 warm-up for more, pp. 74-49.

Cat



A. Preparation:

- Kneel on the floor on all fours.
- Align the hands directly beneath the shoulders.
- Align the knees directly beneath the hips.

B. Movement:

- Begin by rounding the spine toward the ceiling.
- Try to make a “c” curve from the head to the tail.
- Keep the shoulder blades down as the spine rounds.
- Draw the navel in, toward the spine as you exhale, to increase the rounding of the spine.
- Release the rounded spine and allow the belly to drop their belly toward the floor and relax the abdominal muscles.
- Repeat for the recommended number of repetitions.

Lateral Tilt



A. Preparation:

- i. Stand with the feet shoulder-width apart.
- ii. Hold the arms up at shoulder level, forming a “T” position with the body.

B. Movement:

- i. Begin by gently tilting the torso to one side.
- ii. Be sure to keep the chest open and the core muscles engaged.
- iii. Begin to tilt, reaching as far down toward the floor as possible without losing posture.
- iv. Alternate to the other side.
 - i. Repeat for the recommended number of repetitions.

The Warm-up

The goal of the warm-up should be to prepare the body for the subsequent workout by actively moving the muscles through its range of motion and the body through all planes of motion.

Tabletop Spinal Rotation with Flexion and Extension



A. Preparation:

- i. Kneel on the floor on all fours.
- ii. Align the hands directly beneath the shoulders.
- iii. Align the knees directly beneath the hips.
- iv. Place one hand behind the head (without putting downward pressure on the head).

B. Movement:

- i. Begin by rotating the spine while lifting the elbow toward the ceiling.
- ii. Rotate back inward toward the opposite forearm.
- iii. There should be no movement from the lumbar spine/sacrum area, however the cervical spine/head is allowed to move with the upper body.
- iv. Take the body/joint through a full available range of motion using controlled momentum/movement.
- v. Repeat on the alternate side.
- vi. Repeat for the recommended number of repetitions.

Supine Trunk Rotation



A. Preparation:

- i. Lie face-up with hips and knees flexed about 90°.
- ii. Place the arms straight out to the side (abducted), with the palms of the hand in contact with the floor.

B. Movement:

- i. Begin by slowly rotating the hips to one side, stopping when either the opposite shoulder blade begins to leave the floor or the outer thigh touches the floor.
- ii. Take the body/joint through a full available range of motion using controlled momentum/movement.
- iii. Alternate side to side.
- iv. Repeat for the recommended number of repetitions.

LEVEL 1

TIER 1

PROGRAM

Proper Technique

Which is also known as the quality of the movement, should be the primary focus before quantity.

LEVEL 1 - TIER 1 PROGRAM OVERVIEW

Instructions:

Complete all 4 segments of the workout 3 times per week, every other day for 4 weeks.

- Segment 1- Dynamic Warm-up
- Segment 2- Bodyweight Resistance workout
- Segment 3- Cardiovascular workout
- Segment 4- Flexibility/Cool-down

Total time of workout completion = approximately 1 hour

TIER 1 - SEGMENT 1 DYNAMIC WARM-UP

DYNAMIC WARM-UP OVERVIEW				
EXERCISE	SETS	REPS	TIME	REST
LIGHT CARDIO/DYNAMIC MOBILITY	1	N/A	5 MINUTES	N/A
CAT	1	5-8	N/A	15-30 SECONDS
LATERAL TILT	1	5-8 EACH SIDE	N/A	15-30 SECONDS
TABLETOP SPINAL ROTATION W/ FLEXION & EXTENSION	1	5-8 EACH SIDE	N/A	15-30 SECONDS
SUPINE TRUNK ROTATION	1	5-8 EACH SIDE	N/A	15-30 SECONDS

*See the Dynamic Warm-up section of this workbook for detailed instructions, pp.15-19.

**Note: Additional time and/or movements may be added during warm-up if needed.

Move to the next page.

TIER 1 - SEGMENT 2

BODYWEIGHT RESISTANCE WORKOUT

A. Listed are the 10 exercises you will perform. The table provides a general layout of Tier 1. Use B to create a workout scheme. Be sure to use variety as much as possible throughout the 4 weeks.

BODYWEIGHT RESISTANCE WORKOUT OVERVIEW				
EXERCISE	SETS	REPS	TIME EQUIVALENCY	REST
AIR SQUAT	1-2	12-15	45 SECONDS	UP TO 60 SECONDS
AB CRUNCH REVERSE	1-2	12-15	45 SECONDS	UP TO 60 SECONDS
COBRA	1-2	12-15	45 SECONDS	UP TO 60 SECONDS
PUSH-UP	1-2	12-15	45 SECONDS	UP TO 60 SECONDS
BRIDGE	1-2	12-15	45 SECONDS	UP TO 60 SECONDS
SIDE PLANK	1-2	12-15 RAISES EACH SIDE WITH A 3 SEC. HOLD	45 SECONDS	UP TO 60 SECONDS
PRONE 1-LEG/OPPOSITE ARM EXTENSION	1-2	12-15 EACH SIDE	45 SECONDS	UP TO 60 SECONDS
AB DRAW-IN LEG SLIDE	1-2	12-15 EACH	45 SECONDS	UP TO 60 SECONDS
TOE TOUCH CRUNCH	1-2	20 REPS	45 SECONDS	UP TO 60 SECONDS
PLANK HOLD	1-2	MAX HOLD	MAX	UP TO 60 SECONDS

B. Pick a workout scheme:

CHOOSE ONE OF THE FOLLOWING TO USE FOR THE BODYWEIGHT WORKOUT:
A. 5 MINI-BLOCK COUPLETS- CHOOSE TWO EXERCISES AND PERFORM THE RECOMMENDED REPETITIONS FOR EACH BACK-TO-BACK WITH MINIMAL REST BETWEEN THEM. REST UP TO 60 SECONDS BETWEEN EACH COUPLET. DO 1-2 SETS OF EACH COUPLET.
B. FULL CIRCUIT. COMPLETE ALL 10 EXERCISES IN SUCCESSION WITH MINIMAL REST BETWEEN EACH. REST UP TO 2-MINUTES BETWEEN ROUNDS (UP TO 2 ROUNDS).
C. PERFORM AS MANY QUALITY REPS AS POSSIBLE FOR 45 SECONDS FOR EACH EXERCISE. REST UP TO 60 SECONDS BETWEEN EACH EXERCISE. DO 1-2 SETS OF EACH EXERCISE.
D. COMBINATION OF SEGMENT 2 BODYWEIGHT TRAINING AND SEGMENT 3 CARDIO. -PERFORM ONE ROUND OF THE EXERCISES. THEN COMPLETE HALF THE TIME OF SEGMENT 3. THEN REPEAT TO FINISH. -CHOOSE SCHEME A. ADD A 200-METER RUN/JOG BETWEEN EACH COMPLETED COUPLET FOR A TOTAL OF FIVE 200M RUNS.

C. Rest 2-4 minutes. Move to the next segment. Move to the flexibility segment if scheme D was completed.

TIER 1 - SEGMENT 2

MOVEMENT INSTRUCTIONS

Air Squat



A. Preparation:

- i. Stand with feet about shoulder-width apart and slightly turn toes out.
- ii. Keep the head up, looking slightly above parallel.

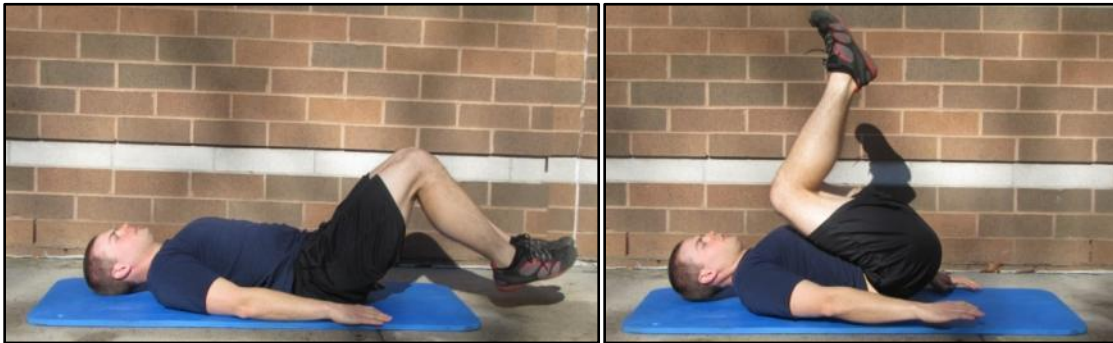
B. Movement:

- i. Keep the midsection tight.
- ii. Send the butt back and down.
- iii. The knees should track over the mid-line of the foot.
- iv. Keep as much pressure on the heels as possible.
- v. Lift the arms out and up as you descend.
- vi. Stop when the fold of the hip is below the knee – breaking parallel with the thigh.
- vii. Squeeze the glutes and hamstrings and rise without any forward lean or shifting of balance.
- viii. Keep the heels pressed down, and return to a standing position.
- ix. Repeat for the recommended number of repetitions.

Modifications:

- Sit to a chair/bench.
- To help with back pain, place a stability ball against the wall. Be sure to place the ball on the lower back, and the feet a little farther out in front of the body.
- If the range of motion is the limiting factor, descend as far as proper form allows.

Ab Crunch Reverse



A. Preparation:

- i. Lie on the floor with the knees bent and the shoulders flat against the floor.
- ii. Place the hands next to the body to help anchor the upper body during the exercise.

B. Movement:

- i. Begin by contracting the abdomen and drawing the knees in to the chest.
- ii. Hold and release.
- iii. Do not use momentum during the movement. Use abdominal contraction to draw the knees in.
- iv. Drop the feet back toward the floor.
- v. Repeat for the recommended number of repetitions.

Cobra



A. Preparation:

- i. Lie on the floor face-down in the prone position, and place the arms beside the ears.
- ii. Activate the core by drawing the navel toward the spine and squeezing the glutes.

B. Movement:

- i. With the core and glutes activated, begin by lifting the chest and the arms off the floor.
- ii. Pause momentarily at the top of the lift, then return to the starting position; be sure to keep a neutral spine.
- iii. Upon completion of the movement, repeat.
- iv. DO NOT over emphasize the arching of the back in order to lift the chest off the floor. Only lift to where you are comfortable – no lower back pain should be felt.
- v. Repeat for the recommended number of repetitions.

Modification:

To eliminate spinal compression or back pain, begin in the all fours position with the hands and knees on the floor. Extend both the opposite arm and leg simultaneously. Pause. Then repeat.

Push-up



A. Preparation:

- i. In a prone position, place the hands at a width that will allow the forearms to be perpendicular to the floor when the elbows are flexed at 90°.
- ii. Come into a plank position with the elbows extended; make sure the entire body is in a neutral position.

B. Movement:

- i. Begin by flexing at the elbows. While maintaining a neutral spine, lower the body to the floor.
- ii. Push the body back to the starting position without allowing the elbows to lift in front of the shoulders or postural compensation.
- iii. Repeat for the recommended number of repetitions.

Modifications:

- Place the knees on the floor. Be sure the back is flat.
- Place the hands on an elevated surface. The higher the surface the lower the difficulty.
- To increase the difficulty, place the feet on an elevated surface.

Bridge



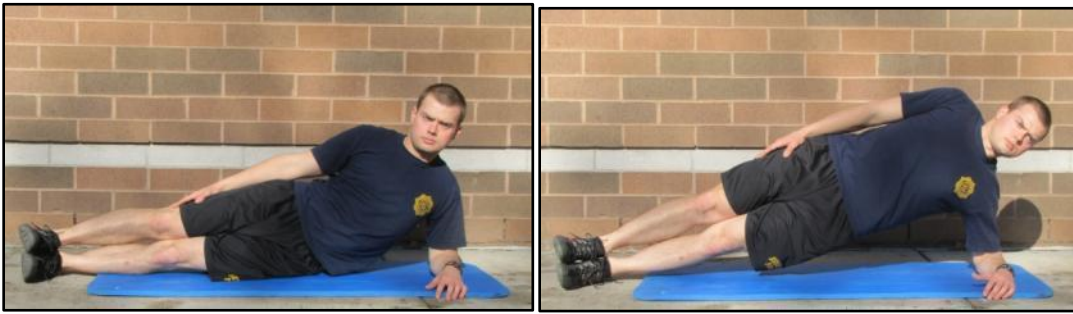
A. Preparation:

- i. Lie face-up on the floor in a supine position with the knees bent, feet flat, toes pointing straight ahead and arms by sides.
- ii. Activate the core by drawing the navel in toward the spine and squeezing the glutes.

B. Movement:

- i. With the core activated and glutes squeezed, begin by lifting the hips off floor to form a straight line between the knees and the shoulders.
- ii. Hold the position and slowly return back to floor.
- iii. If you feel the hamstring cramping, check the pelvis for neutral alignment, or just stretch the hamstrings and repeat.
- iv. Repeat for the recommended number of repetitions.

Side Plank Raise



A. Preparation:

- i. Lie on the right side of the body with the elbows, shoulders, hips and knees in alignment and the legs straight.
- ii. Before movement begins, optimal postural alignment is mandatory.
- iii. Place the right elbow directly under the right shoulder for support.

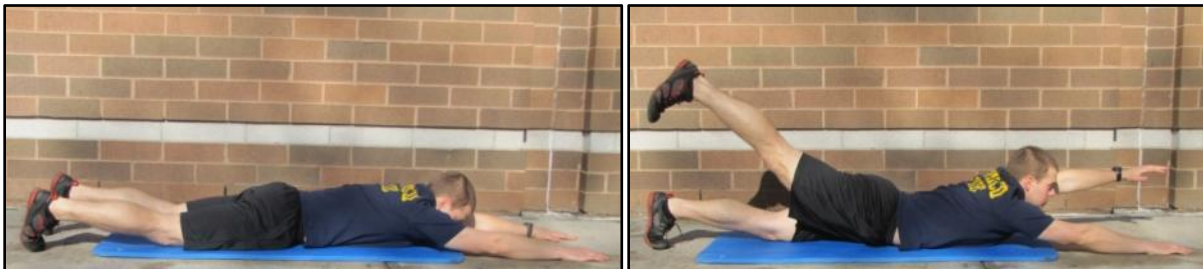
B. Movement:

- i. Draw the lower abdomen inward toward the spine.
- ii. While maintaining the drawing-in maneuver, begin by lifting the body up onto the forearm and feet as shown in the picture above and hold for 3 seconds.
- iii. While still maintaining the drawing-in maneuver, lower the body to the floor.
- iv. The cervical spine must stay in a neutral position!
- v. Repeat for the recommended number of repetitions.

Modification:

Bend either the leg closest to the floor or both knees.

1-Leg/Opposite Arm Extension- Alternating



A. Preparation:

- i. Lie face-down in the prone position with the arms extended and toes into the floor.

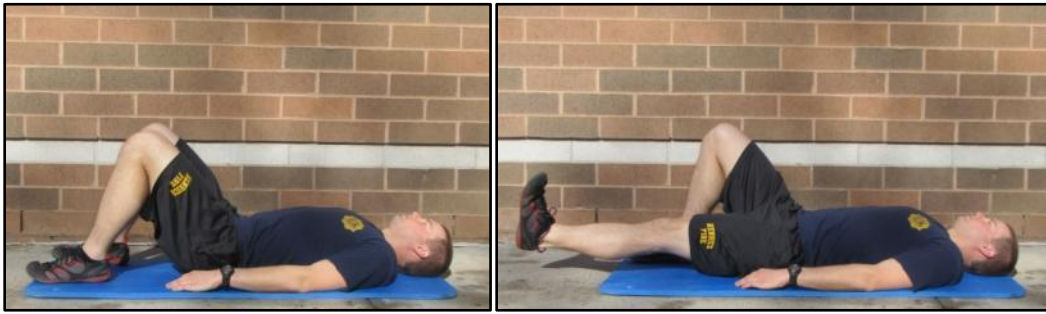
B. Movement:

- i. Engage the core and the pelvic floor muscles.
- ii. While keeping the leg straight, extend the hip as high as the range of motion will allow without lifting the hips off the floor.
- iii. Keep the pelvis in contact with the floor while simultaneously raising the opposite arm in front of you, until it is parallel to the floor.
- iv. Hold momentarily and then alternate with the other leg and opposite arm.
- v. Repeat for the recommended number of repetitions.

Modification:

To eliminate spinal compression or back pain, begin in the all fours position with the hands and knees on the floor. Extend both the opposite arm and leg simultaneously. Pause. Then repeat.

Abdominal Draw-In Leg Slide



A. Preparation:

- i. Lie face-up with the knees bent and feet flat on the floor.
- ii. You may place the hands under the low back to use as a pressure control.

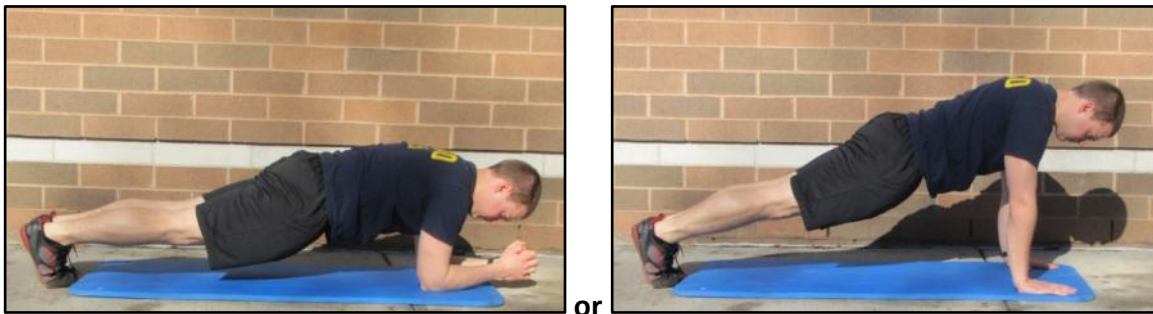
B. Movement:

- i. Draw the lower abdomen inward toward the spine.
- ii. Perform a slight posterior tilt. The backward motion of the pelvis (posterior pelvic tilt) should place slight pressure on the floor. Be sure to relax the glutes!
- iii. While maintaining pressure on the hands, slowly slide one leg forward.
- iv. Be sure to slide the leg away from the body while maintaining pelvic/abdominal stabilization and not allowing the knee to pass the hip joint.
- v. Slowly return the leg. Alternate sides or continue on one side.
- vi. Repeat for the recommended number of repetitions.

Modification:

To increase the difficulty, hold both feet off the floor so your hips are stacked and legs are parallel to the floor.

Plank Hold



A. Preparation

- i. In a prone position on the forearms, place the elbows under the shoulders.
- ii. The alternate position is the elbows extended with the hands placed directly under the shoulders with a flat back.

B. Movement:

- i. Draw the lower abdomen inward toward the spine.
- ii. In optimal postural alignment, tighten the glutes and lift the body up onto the forearms.
- iii. While maintaining the abdominal draw-in contraction, hold optimal alignment for the desired duration.
- iv. The spine should be in a neutral position (from cervical to lumbar spine), and the glutes should remain tight without compensatory motion.
- v. Keep the chin tucked in.
- vi. Reduce the hold time if form is compromised. Form is more important than how long you hold!

Toe Touch Crunch



A. Preparation:

- i. Lie face-up with the legs extended and the feet in the air so the heels are facing the ceiling.
- ii. Hold the arms directly over the face.

B. Movement:

- i. Begin by contracting the abdomen and lift the upper body off the floor, until the shoulder blades lose contact with the floor as you reach for the toes with the hands.
- ii. Exhale and return back to the starting position.
- iii. Repeat for the recommended number of repetitions.

Modifications:

- Bend the knees so the hips are stacked and the legs are parallel to the floor. Then crunch.
- Placing the feet on the floor will be the easiest option for crunching.
- To eliminate back pain, try lying across a stability ball and then perform the crunch.

Plank Variations

These are the best for improving the core stabilizers and improving endurance of the core musculature.

Most back injuries occur due to muscular fatigue. So adding planks to your regimen will help reduce the risk.

TIER 1 - SEGMENT 3

CARDIOVASCULAR WORKOUT

Instructions:

Complete the treadmill walk listed in the table.

- Included are a 5-minute warm-up walk and a 3-minute cool-down walk.
- This is a low-to-moderate and interval-based intensity workout.
- If a higher intensity cardio session is needed, refer to Tier 2 on page 44 or Tier 3 on page 59.

Note: This treadmill workout can also be followed on an elliptical if unable to use the treadmill.

Treadmill Walk	
Time	Pace (mph)
00:00 – 05:00	2.7 (Warm up walk)
05:00 – 06:00	3.0
06:00 – 08:00	3.4
08:00 – 09:00	3.8
09:00 – 11:00	4.0
11:00 – 12:00	4.2
12:00 – 13:00	3.8
13:00 – 14:00	4.2
14:00 – 15:00	3.5
15:00 – 16:00	4.2
16:00 – 17:00	4.4
17:00 – 18:00	3.8
18:00 – 19:00	4.4
19:00 – 20:00	4.2
20:00 – 22:00	3.8
22:00 – 25:00	3.0 (Cool down walk)



TIER 1 - SEGMENT 4

FLEXIBILITY & COOL-DOWN

Instructions:

Perform after completion of the first 3 segments of Tier 1.

- Focus on elongating used muscle groups to help improve overall flexibility at the joints.
- Each stretch should be performed until there is slight discomfort.

See the flexibility section to find the detailed movement instructions, pp. 61-69.

FLEXIBILITY & COOL-DOWN OVERVIEW				
EXERCISE	SETS	REPS	TIME	REST
STANDING HAMSTRING REACH	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SEATED GLUTE-KNEE TO CHEST	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SEATED ERECTOR SPINAE	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SEATED GROIN	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SIDE-LYING QUAD	1-2	N/A	15-30 SECONDS	0-15 SECONDS
KNEELING HIP FLEXOR	1-2	N/A	15-30 SECONDS	0-15 SECONDS
UPWARD DOG	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SIDE BEND- TFL	1-2	N/A	15-30 SECONDS	0-15 SECONDS
IRON CROSS	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SUPINE SHOULDER ROTATION	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SUPINE 3-PT. ELBOW DROP	1-2	N/A	15-30 SECONDS EACH	0-15 SECONDS

*See the Flexibility/Cool-down section of this workbook for detailed instructions, pp. 61-69.

LEVEL 1 TIER 2 PROGRAM

Congratulations, you've made it to Level 1 Tier 2. Now that you have mastered the Level 1 Tier 1 movements, begin to further challenge the core and body with these new and more challenging moves.

Workout Design

The core workouts are designed to train all the major movement patterns including flexion, extension, rotation, adduction, abduction and side to side.

LEVEL 1 - TIER 2 PROGRAM OVERVIEW

Instructions:

Complete all 4 segments of the workout 3 times per week, every other day for 4 weeks.

- Segment 1- Dynamic Warm-up
- Segment 2- Bodyweight Resistance workout
- Segment 3- Cardiovascular workout
- Segment 4- Flexibility workout

Total time of workout completion = approximately 1 hour

TIER 2 - SEGMENT 1 DYNAMIC WARM-UP

DYNAMIC WARM-UP OVERVIEW				
EXERCISE	SETS	REPS	TIME	REST
LIGHT CARDIO/DYNAMIC MOBILITY	1	N/A	5-10 MINUTES	N/A
CAT	1	5-8	N/A	15-30 SECONDS
LATERAL TILT	1	5-8 EACH SIDE	N/A	15-30 SECONDS
TABLETOP SPINAL ROTATION W/ FLEXION & EXTENSION	1	5-8 EACH SIDE	N/A	15-30 SECONDS
SUPINE SPINAL ROTATION	1	5-8 EACH SIDE	N/A	15-30 SECONDS

*See the Dynamic Warm-up section of this workbook for detailed instructions, pp.15-19.

**Note: Additional time and/or movements may be added during warm-up if needed.

Move to the next page.

TIER 2 - SEGMENT 2

BODYWEIGHT RESISTANCE WORKOUT

A. Listed are the 10 exercises you will perform. The table provides a general layout of Tier 2. See B for a workout scheme. Be sure to use variety as much as possible throughout the 4 weeks.

BODYWEIGHT RESISTANCE WORKOUT OVERVIEW				
EXERCISE	SETS	REPS	TIME EQUIVALENCY	REST
AIR SQUAT	2	15-20	45 SECONDS	UP TO 45 SECONDS
OBLIQUE CRUNCH STRAIGHT LEG RAISE	2	12-15	45 SECONDS	UP TO 45 SECONDS
SUPERMAN	2	12-15	45 SECONDS	UP TO 45 SECONDS
PLANK-TO-PUSH-UP	2	12-15	45 SECONDS	UP TO 45 SECONDS
1-LEG BRIDGE	2	12-15	30-45 SECONDS EA.	UP TO 45 SECONDS
SIDE PLANK HOLD	2	1 EACH	20-30 SECONDS EA.	UP TO 45 SECONDS
SUPERMAN PLANK: ALTERNATING	2	3-5 LIFTS EACH LIMB	45 SECONDS	UP TO 45 SECONDS
AB DRAW-IN DOUBLE-LEG SLIDE	2	12-15	45 SECONDS	UP TO 45 SECONDS
BODY ROW	2	12-15	30-45 SECONDS	UP TO 45 SECONDS
PLANK HOLD: 1-LEG	2	1-2 EACH	30 SECONDS EA.	UP TO 45 SECONDS

B. Pick a workout scheme:

CHOOSE ONE OF THE FOLLOWING TO USE FOR THE BODYWEIGHT WORKOUT:
<p>A. 5 MINI-BLOCK COUPLETS- CHOOSE TWO EXERCISES AND PERFORM THE RECOMMENDED REPETITIONS FOR EACH BACK-TO-BACK WITH MINIMAL REST BETWEEN THEM. REST UP TO 60 SECONDS BETWEEN EACH COUPLET. DO 2 SETS OF EACH COUPLET.</p>
<p>B. FULL CIRCUIT. COMPLETE ALL 10 EXERCISES IN SUCCESSION WITH MINIMAL REST BETWEEN EACH. REST UP TO 2-MINUTES BETWEEN ROUNDS (2 ROUNDS).</p>
<p>C. PERFORM AS MANY QUALITY REPS AS POSSIBLE FOR 45 SECONDS FOR EACH EXERCISE. REST UP TO 60 SECONDS BETWEEN EACH EXERCISE. DO 2 SETS OF EACH EXERCISE.</p>
<p>D. COMBINATION OF SEGMENT 2 BODYWEIGHT TRAINING AND SEGMENT 3 CARDIO. -PERFORM ONE ROUND OF THE EXERCISES. THEN COMPLETE HALF THE TIME OF SEGMENT 3. THEN REPEAT TO FINISH. -CHOOSE SCHEME A. ADD A 200-METER RUN/JOG BETWEEN EACH COMPLETED COUPLET FOR A TOTAL OF FIVE 200M RUNS.</p>

C. Rest 2-4 minutes. Move to the next segment. Move to the flexibility segment if scheme D was completed.

TIER 2 - SEGMENT 2

MOVEMENT INSTRUCTIONS

Air Squat



A. Preparation:

- i. Stand with the feet about shoulder-width apart and slightly turn toes out.
- ii. Keep the head up, looking slightly above parallel.

B. Movement:

- i. Keep the midsection very tight.
- ii. Send the butt back and down.
- iii. The knees should track over the mid-line of the foot.
- iv. Keep as much pressure on the heels as possible.
- v. Lift the arms out and up as you descend.
- vi. Stop when the fold of the hip is below the knee – breaking parallel with the thigh.
- vii. Squeeze the glutes and hamstrings and rise without any forward lean or shifting of balance.
- viii. Keep the heels pressed down and return to a standing position.
- ix. Repeat for the recommended number of repetitions.

Modifications:

- Sit to a chair/bench.
- To help with back pain, place a stability ball against the wall. Be sure to place the ball on the lower back, and the feet a little farther out in front of the body.
- If the range of motion is the limiting factor, descend as far as proper form allows.

Oblique Crunch Straight Leg Raise

Progression #1. See Page 30, if regression is needed.



A. Preparation:

- i. Lie face-up with the legs straight and the toes pulled toward the shin.
- ii. Extend the arms overhead so the back of the hands touch the floor.

B. Movement:

- i. As you draw-in the abs, begin to lift one-leg off the floor.
- ii. Simultaneously begin to crunch.
- iii. Move the opposite arm toward the hip as you crunch.
- iv. At the top of the crunch position, with the shoulder blades off the floor, the leg should be lifted so it is almost perpendicular to the floor.
- v. Return both arms and leg while keeping the abdomen tight.
- vi. Repeat on the other side.
- vii. Repeat for the recommended number of repetitions.

Superman

Progression #1. See Page 26 or 28, if regression is needed.



A. Preparation:

- i. Lie face-down on the floor in the prone position, and extend the arms overhead.
- ii. Activate the core by drawing the navel toward the spine and squeezing the glutes.

B. Movement:

- i. With the core and glutes activated, lift the chest and both arms off the floor while simultaneously lifting both legs off the floor.
- ii. Pause momentarily at the top of the lift, then return to the starting position; at all times keep the chin tucked into the chest.
- iii. Upon completion of the movement, repeat.
- iv. DO NOT over emphasize the arching of the back to lift the chest off the floor. Only lift to where it is comfortable – no lower back pain should be felt.
- v. Repeat for the recommended number of repetitions.

Modification:

To eliminate spinal compression, begin in the all fours position with the hands and knees on the floor. Extend both the opposite arm and leg simultaneously. Pause.

Plank-to-Push-up

Progression #1 from Extended Plank Hold Position. See page 29 option 2.



A. Preparation

- i. In a prone position on the forearms, place the elbows under the shoulders.

B. Movement:

- i. Draw the lower abdomen inward toward the spine.
- ii. In optimal postural alignment, tighten the glutes and lift the body up onto the forearms.
- iii. While maintaining the abdominal draw-in contraction, transfer bodyweight from the forearms to the hands so you move in to the push-up position.
- iv. Return back down onto the forearms while maintaining the plank position.
- v. The spine should be in a neutral position (from cervical to lumbar spine), and the glutes should remain tight without compensatory motion.
- vi. Be sure to keep the chin tucked in.
- vii. Repeat for the recommended number of repetitions.

1-Leg Bridge

Progression #1. See Page 27, if regression is needed.



A. Preparation

- i. Lie face-up on the floor in the supine position with both knees bent.
- ii. Extend one leg held off the floor at about 45-degrees with arms by sides.
- iii. Activate core by drawing the navel in toward the spine and squeezing the glutes.

B. Movement:

- i. With the core activated and the glutes squeezed, lift both hips off floor to form a straight line between knees and shoulders.
- ii. Pause and slowly return back to floor, touching the floor momentarily then repeat.
- iii. If you feel the hamstring cramping, check the pelvis for neutral alignment, or just stretch the hamstrings and repeat.
- iv. Repeat on the alternate side.
- v. Repeat for the recommended number of repetitions.

Side Plank Hold

Progression #1. See Page 28, if regression is needed.



A. Preparation

- i. Lie on the right side of the body with the elbows, shoulders, hips and knees in alignment and the legs straight.
- ii. Before the movement begins, optimal postural alignment is mandatory.
- iii. Place the right elbow directly under the right shoulder for support.

B. Movement:

- i. Draw the lower abdomen inward toward the spine.
- ii. While maintaining the drawing-in maneuver, begin by lifting the body up onto the forearm.
- iii. Hold for 20-30 seconds.
- iv. Repeat on the other side.
- v. The cervical spine must stay in a neutral position!

Modification:

Bend either the leg closest to the floor or both knees.

Superman Plank (1-limb alternating)

Progression #1: From the extended plank hold or all-fours position with arm/leg extensions.



A. Preparation:

- i. Get into the push-up position with the hands directly under the shoulders.
- ii. The feet should be shoulder-width apart for better support.
- iii. Before movement begins, optimal postural alignment is mandatory.

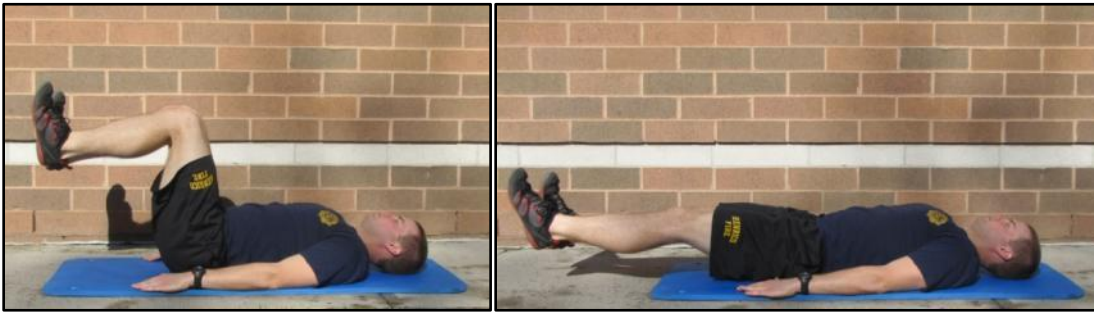
B. Movement:

- i. Draw the lower abdomen inward toward the spine.
- ii. While maintaining the drawing-in maneuver, lift one arm off the floor reaching out over the head. Hold for a moment.
- iii. Keep the spine in the neutral position and the eyes down on the floor.
- iv. Return the hand back down and repeat the movement with the other arm.
- v. Return the hand back down and extend the hip, lifting the leg straight off the floor.
- vi. Return the leg back down and repeat on the other side.
- vii. Repeat for 3-5 lifts on each limb.

Modification:

If unable to balance or hold, place the knees down and do the same movements in the all fours position with the hands and knees both on the floor.

Abdominal Draw-In Double Leg Slide



A. Preparation:

- i. Lie face-up with the knees bent at 90-degrees and feet off the floor.
- ii. Place the hands under the low back to use as a pressure control.

B. Movement:

- i. Draw the lower abdomen inward toward the spine.
- ii. Perform a slight posterior tilt. The backward motion of the pelvis (posterior pelvic tilt) should place slight pressure on the hands. Be sure to relax the glutes!
- iii. Maintain abdomen bracing and slowly slide both legs away from the body.
- iv. The closer the feet get to the floor the harder the movement becomes.
- v. Pull the legs back to the starting position.
- vi. Repeat for the recommended number of repetitions.

Body Row



Modifications:

- To decrease the difficulty, raise the bar or bend the knees.
- To increase the difficulty, lower the bar or place your feet on an elevated surface.

A. Preparation

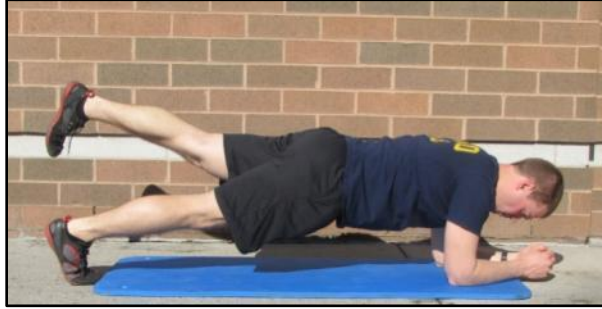
- i. Set a bar, rings or straps at shoulder height. (height may need to be adjusted based on individual abilities)
- ii. Place the hands on the bar at shoulder-width distance.

B. Movement:

- i. Step feet in toward the bar.
- ii. With a firm grip, lower the body back at an angle toward the floor.
- iii. Push the heels through the floor, squeeze the glutes and tighten the abdomen.
- iv. While keeping the legs straight (but not locking the knees), pull the chest toward the bar so the hands are at about armpit level driving the elbows behind you.
- v. Return slowly.
- vi. Repeat for the recommended number of repetitions.

1-leg Plank Hold

Progression #1. See page 29 plank hold, if regression is needed.



A. Preparation

- i. Begin in the plank position on the forearms with elbows directly under the shoulders and resting on toes.
- ii. Activate the core and contract the pelvic floor.

B. Movement:

- i. Lift off the floor and form a straight line from head to toe.
- ii. Draw-in the abdominals, and extend the hip by activating glutes and lifting one leg off the floor.
- iii. Hold for time and slowly return leg to floor and then the body to the floor, keeping the chin tucked and the back flat.
- iv. Rest momentarily.
- v. After completion of one side, repeat on the alternate side.

Modification:

If unable to hold the leg up for the length of time, try doing toe taps instead.

TIER 2 - SEGMENT 3

CARDIOVASCULAR WORKOUT

Instructions:

Complete the treadmill walk/jog interval workout listed in the table.

- Included are a 5-minute warm-up walk and a 3-minute cool-down walk.
- This is a moderate intensity treadmill walk/jog workout.
- The 2-minute walking period is used as the recovery part of the interval workout between the jogs.

Note: This treadmill workout can also be followed on an elliptical if unable to use the treadmill.

Treadmill Walk/Jog	
Time	Pace (mph)
00:00 – 05:00	3.0 (Warm up walk)
05:00 – 07:00	3.5
07:00 – 09:00	5.0
09:00 – 11:00	3.8
11:00 – 13:00	5.5
13:00 - 15:00	4.0
1500 – 17:00	5.0
17:00 – 19:00	3.5
19:00 – 21:00	6.0
21:00 – 23:00	4.5
23:00 – 25:00	5.5
25:00 – 27:00	4.0
27:00 – 30:00	3.0 (Cool down walk)



TIER 2 - SEGMENT 4

FLEXIBILITY & COOL-DOWN

Instructions:

Perform after completion of first 3 segments.

- Focus on elongating used muscle groups to help improve overall flexibility at the joints.
- Each stretch should be performed until there is slight discomfort.

See the flexibility section to find the detailed movement instructions, pp. 61-69.

FLEXIBILITY & COOL-DOWN OVERVIEW				
EXERCISE	SETS	REPS	TIME	REST
STANDING HAMSTRING REACH	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SEATED GLUTE-KNEE TO CHEST	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SEATED ERECTOR SPINAE	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SEATED GROIN	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SIDE-LYING QUAD	1-2	N/A	15-30 SECONDS	0-15 SECONDS
KNEELING HIP FLEXOR	1-2	N/A	15-30 SECONDS	0-15 SECONDS
UPWARD DOG	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SIDE BEND- TFL	1-2	N/A	15-30 SECONDS	0-15 SECONDS
IRON CROSS	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SUPINE SHOULDER ROTATION	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SUPINE 3-PT. ELBOW DROP	1-2	N/A	15-30 SECONDS EACH	0-15 SECONDS

*See the Flexibility/Cool-down section of this workbook for detailed instructions, pp. 61-69.

LEVEL 1 TIER 3 PROGRAM

Congratulations, you've made it to Level 1 Tier 3. Now that you have mastered the Level 1 Tier 2 movements, begin to further challenge the core and body with these new and more challenging moves.

The Core Focuses on
Functionality...

Rather than isolating single muscle groups. It is engaged in other exercises, not just abdominal exercises.

LEVEL 1 - TIER 3 PROGRAM OVERVIEW

Instructions:

Complete all 4 segments of the workout 3 times per week, every other day for 4 weeks.

- Segment 1- Dynamic Warm-up
- Segment 2- Bodyweight Resistance workout
- Segment 3- Cardiovascular workout
- Segment 4- Flexibility/Cool-down

Total time of workout completion = approximately 1 hour and 15 minutes

TIER 3 - SEGMENT 1 DYNAMIC WARM-UP

DYNAMIC WARM-UP OVERVIEW				
EXERCISE	SETS	REPS	TIME	REST
LIGHT CARDIO/DYNAMIC MOBILITY	1	N/A	5-10 MINUTES	N/A
CAT	1	5-8	N/A	15-30 SECONDS
LATERAL TILT	1	5-8 EACH SIDE	N/A	15-30 SECONDS
TABLETOP SPINAL ROTATION W/ FLEXION & EXTENSION	1	5-8 EACH SIDE	N/A	15-30 SECONDS
SUPINE TRUNK ROTATION	1	5-8 EACH SIDE	N/A	15-30 SECONDS

*See the Dynamic Warm-up section of this workbook for detailed instructions, pp. 15-19.

**Note: Additional time and/or movements may be added during warm-up if needed.

Move to the next page.

TIER 3 - SEGMENT 2

BODYWEIGHT RESISTANCE WORKOUT

A. Listed are the 10 exercises you will perform. The table provides a general layout of Tier 2. See B for a workout scheme. Be sure to use variety as much as possible throughout the 4 weeks.

BODYWEIGHT RESISTANCE WORKOUT OVERVIEW				
EXERCISE	SETS	REPS	TIME EQUIVALENCY	REST
PRISONER AIR SQUAT	2-3	15-20	45 SECONDS	15-30 SECONDS
BICYCLE CRUNCH	2-3	15-20 EACH SIDE	45 SECONDS	15-30 SECONDS
PLANK: KNEE TO OPPOSITE ELBOW	2-3	12-15 EACH SIDE	45 SECONDS	15-30 SECONDS
HAND-RELEASE PUSH-UP	2-3	15-20	45 SECONDS	15-30 SECONDS
ALTERNATING 1-LEG BRIDGE	2-3	12-15 EACH SIDE	45 SECONDS	15-30 SECONDS
ALTERNATING T-PLANK	2-3	8-12 EACH SIDE	30-45 SECONDS WITH A HOLD	15-30 SECONDS
SUPERMAN PLANK: ALTERNATING 1-ARM/LEG WITH 3 SEC. HOLD	2-3	8-12 EACH SIDE	45 SECONDS WITH A HOLD	15-30 SECONDS
SPLIT SQUAT	2-3	12-15 EACH SIDE	30 SECONDS EA.	15-30 SECONDS
BODY ROW 1-LEG	2-3	12-15	30-45 SECONDS	15-30 SECONDS
SIDE PLANK WITH LEG RAISE	2-3	1 HOLD EACH	HOLD FOR 20-30+ SECONDS EACH	15-30 SECONDS

B. Pick a workout scheme:

CHOOSE ONE OF THE FOLLOWING TO USE FOR THE BODYWEIGHT WORKOUT:

- A. 5 MINI-BLOCK COUPLETS- CHOOSE TWO EXERCISES AND PERFORM THE RECOMMENDED REPETITIONS FOR EACH BACK-TO-BACK WITH MINIMAL REST BETWEEN THEM. REST UP TO 60 SECONDS BETWEEN EACH COUPLET. DO 2-3 SETS OF EACH COUPLET.
- B. FULL CIRCUIT. COMPLETE ALL 10 EXERCISES IN SUCCESSION WITH MINIMAL REST BETWEEN EACH. REST UP TO 2-MINUTES BETWEEN ROUNDS (2-3 ROUNDS).
- C. PERFORM AS MANY QUALITY REPS AS POSSIBLE FOR 45 SECONDS FOR EACH EXERCISE. REST UP TO 60 SECONDS BETWEEN EACH EXERCISE. DO 2-3 SETS OF EACH EXERCISE.
- D. COMBINATION OF SEGMENT 2 BODYWEIGHT TRAINING AND SEGMENT 3 CARDIO.
 -PERFORM ONE ROUND OF THE EXERCISES. THEN COMPLETE HALF OR ONE-THIRD OF THE TIME OF SEGMENT 3. THEN REPEAT 1-2 MORE TIMES TO FINISH.
 -CHOOSE SCHEME A. ADD A 200-METER RUN/JOG BETWEEN EACH COMPLETED COUPLET FOR A TOTAL OF FIVE 200M RUNS.

C. Rest 2-4 minutes. Move to the next segment. Move to the flexibility segment if scheme D was completed.

TIER 3 - SEGMENT 2

MOVEMENT INSTRUCTIONS

Prisoner Air Squat



A. Preparation:

- i. Stand with the feet about shoulder-width apart and slightly turn toes out.
- ii. Keep the head up, looking slightly above parallel.
- iii. Interlock the fingers behind the head and squeeze the shoulder blades.

B. Movement:

- i. Keep the midsection very tight.
- ii. Send the butt back and down.
- iii. The knees should track over the mid-line of the foot.
- iv. Keep as much pressure on the heels as possible.
- v. Keep the chest open and the shoulder blades squeezed as you descend.
- vi. Stop when the fold of the hip is below the knee – breaking parallel with the thigh.
- vii. Squeeze the glutes and the hamstrings and rise without any forward lean or shifting of balance.
- viii. Keep the heels pressed down and return to a standing position.
- ix. Repeat for the recommended number of repetitions.

Bicycle Crunch



A. Preparation:

- i. Lie face-up with the legs straight and the toes pulled toward the shins.
- ii. Place the fingers on the ears.

B. Movement:

- i. Engage the abdominal muscles and begin to lift one-leg off the floor.
- ii. Bend one leg as you bring the knee to the chest.
- iii. Simultaneously begin to “crunch,” bringing the opposite elbow toward the knee.
- iv. Keep the fingers in touch with the ears.
- v. Return both the arm and the leg. Begin the movement on the opposite side so both sides of the body are moving at the same time.
- vi. Try to keep the feet elevated off of the floor during the entire set to keep tension in the abdomen.
- vii. Repeat for the recommended number of repetitions.

Plank: Knee to Opposite Elbow



A. Preparation:

- i. Begin in the push-up position with hands directly under shoulders and the toes into the floor, hip-width apart.

B. Movement:

- i. Engage the abdominal muscles and begin to lift one leg off the floor.
- ii. Flex the hip by bringing one knee toward the opposite elbow across the body.
- iii. Simultaneously turn at the waist so the hips are almost perpendicular to the floor.
- iv. Extend the hip and return the leg. Be sure the upper body is square with the floor just like the starting position.
- v. Continue on the same side or alternate legs.
- vi. Repeat for the recommended number of repetitions.

Modifications:

If balance or stabilization is an issue, instead of the twist bring your knee to the same elbow. Then alternate.

Hand-Release Push-up



A. Preparation:

- i. In a prone position, place the hands at a width that will allow the forearms to be perpendicular to the floor when the elbows are flexed at 90°.
- ii. Come into a plank position with elbows extended. Make sure the entire body is in a neutral position.

B. Movement:

- i. Begin by flexing at the elbows and lower the body all the way to the floor, while maintaining a neutral spine.
- ii. The chest and the thighs should lower at the same rate.
- iii. Release the hands from the floor momentarily.
- iv. Push back to the starting position, without postural compensation.
- v. Repeat for the recommended number of repetitions.

Alternating 1-Leg Bridge

Progression #2. See page 40, if regression is needed.



A. Preparation

- i. Lie on the floor in a supine position with both knees bent, feet flat, toes pointing straight ahead and the arms by the sides.
- ii. Activate the core by drawing the navel in toward the spine and squeezing the glutes.

B. Movement:

- i. With the core activated and the glutes squeezed, lift both hips off the floor to form a straight line from the knees to the shoulders.
- ii. Pick one foot off the floor and bring the knee toward the chest without compensating postural alignment.
- iii. Return the hips back down to the floor touching the floor momentarily, and then repeat with the other leg.
- iv. If you feel the hamstring cramping, check the pelvis for neutral alignment, or just stretch the hamstrings and repeat.
- v. Repeat for the recommended number of repetitions.

Alternating T-Plank

Progression #2. See page 39, if regression is needed.



A. Preparation:

- i. Begin in the plank position on the elbows.
- ii. Activate the core. (Note it is important to lock the pelvis and rib cage so the spine remains rigid during the movement)

B. Movement:

- i. Roll onto one elbow or hand by lifting the other off the floor and pivoting the feet.
- ii. Extend the other arm above the shoulder, attempting to stack the shoulders and hips at the full range of motion, forming a side-lying "T" position with the body.
- iii. Hold momentarily.
- iv. Maintain activation of the core and roll/transfer the body back to the starting position.
- v. Transition to the opposite side, forming the side-lying "T" position again and hold momentarily.
- vi. Repeat for the recommended number of repetitions.

Modifications:

- For a stronger base, stagger the feet to allow an easier pivot.
- Try just alternating lifting the arms off the floor, if deemed unprepared for the "T" position.
- You can also do this movement on your hands.

Superman Plank: Alternating 1-Arm/Opposite Leg with a 3-second Hold

Progression #2. See page 41, if regression is needed.



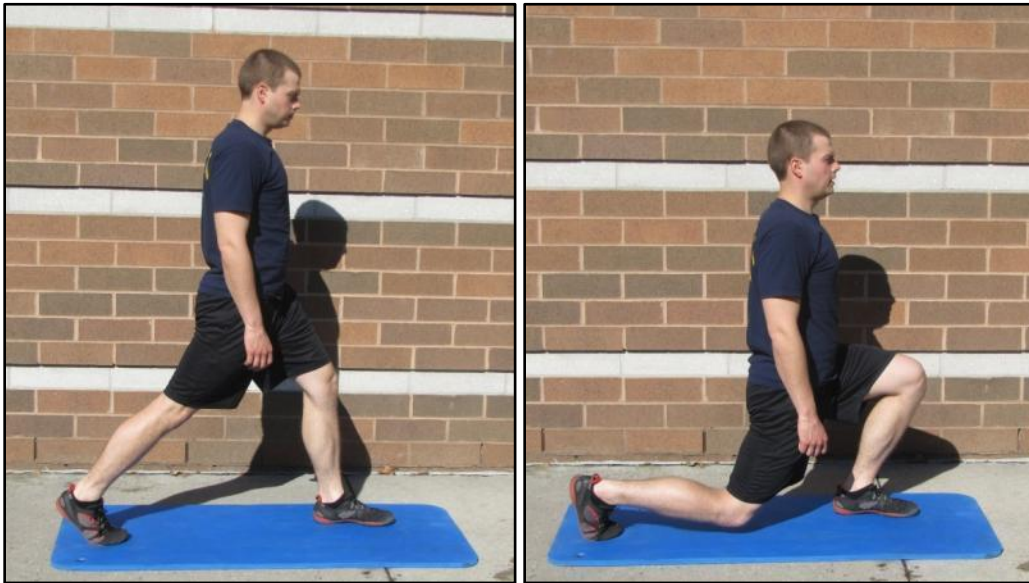
A. Preparation:

- i. Get into the push-up position with the hands directly under the shoulders.
- ii. Both feet should be shoulder-width apart for better support.
- iii. Before movement begins, optimal postural alignment is mandatory.

B. Movement:

- i. Draw the lower abdomen inward toward the spine.
- ii. While maintaining the drawing-in maneuver, lift one arm off the floor reaching out over the head. Hold for 3 seconds.
- iii. Note: if too easy, lift the opposite leg off the floor simultaneously and keep the leg straight.
- iv. Keep the spine in the neutral position and the eyes down on the floor.
- v. Return the hand back down and repeat on the other arm.
- vi. Repeat for the recommended number of repetitions.

Split Squat



A. Preparation:

- i. Stand in proper alignment with the hands by the side of the body or on the hips.
- ii. Place the feet straight ahead and shoulder width apart.
- iii. Step one foot back about 3-feet so only the toes are on the floor with a slight bend in the knee.

B. Movement:

- i. From optimal postural alignment, draw the lower abdomen inward toward the spine for stabilization.
- ii. While maintaining optimal spinal alignment, descend slowly by bending at the hips, knees and ankles.
- iii. During the descent maintain weight distribution between the front heel and mid-foot and on the back toes.
- iv. Do not allow the feet to cave inward or shift outward.
- v. The knees should track between the first and second toes.
- vi. Perform downward reps slowly. Concentrate on the descent and the alignment of the body.
- vii. Only descend as far as you can maintain optimal alignment.
- viii. Keep the upper torso erect to reduce potential injury to the spine, knee and ankle.
- ix. Return back up to the starting position, pushing the front heel and back toes through the floor and squeezing through the glutes.
- x. Repeat for the recommended number of repetitions.

Body Row 1-leg

Progression #1. See page 42, if regression is needed.



A. Preparation

- i. Set a bar, rings or straps at shoulder height. (Height may need to be adjusted based on individual abilities)
- ii. Place the hands on the bar at shoulder-width distance.

B. Movement:

- i. Step feet in toward the bar.
- ii. With a firm grip, lower the body back at an angle toward the floor.
- iii. Engage the core and lift one leg off the floor in a straight line.
- iv. Push the other heel through the floor, squeeze the glutes and tighten the abdomen.
- v. Keeping the legs straight (but not locking the knees), pull the chest toward the bar so the hands are at about armpit level driving the elbows behind you.
- vi. Repeat for the recommended number of repetitions.

Modifications:

- To decrease the difficulty, raise the bar or bend the knees.
- To increase the difficulty, lower the bar or place one foot on an elevated surface while the other hovers.

Side Plank with Leg Raise

Progression #2. See page 40, if regression is needed.



A. Preparation

- i. Lie on the right side with the elbows, shoulders, hips and knees in alignment and the legs straight.
- ii. Before the movement begins, optimal postural alignment is mandatory.
- iii. Place the right elbow directly under the right shoulder for support.
- iv. Stack the feet on top of each other.

B. Movement:

- i. Draw the lower abdomen inward toward the spine.
- ii. While maintaining the drawing-in maneuver, lift the body up onto the forearm.
- iii. Then lift the top leg, keeping it straight, so it is hovering in the air.
- iv. Hold for 15-25 seconds or more (seconds may vary depending on individual abilities).
- v. While still maintaining the drawing-in maneuver, lower the body to the floor.
- vi. The cervical spine must stay in a neutral position!
- vii. Repeat on the other side.

Modifications:

- To decrease the difficulty, instead of holding the leg up, lift and lower the leg repetitiously for the required time.
- To increase the difficulty, do the movement while on your hand with the elbow extended.

TIER 3 - SEGMENT 3

CARDIOVASCULAR WORKOUT

Instructions:

Complete the treadmill jog interval listed in the table.

- Included are a 5-minute warm-up jog/fast walk and a 5-minute cool-down walk.
- This is a moderate-to-moderately-hard intensity treadmill jog workout.
- The intervals are a longer and slower jog : shorter and faster jog, using a pyramid style of speed by steadily going faster in the intervals, and then recovering at a slower pace.
- If you are unable to keep up with this pace, then use this same pyramid style at a slower pace or add 1-minute walking intervals after each faster jog.

Note: This treadmill workout can also be followed on an elliptical if unable to use the treadmill.

Treadmill Jog	
Time	Pace (mph)
00:00 – 05:00	4.0 (Warm up jog)
05:00 – 10:00	5.5
10:00 – 12:00	6.0
12:00 – 15:00	5.5
15:00 – 17:00	6.5
17:00 – 20:00	7.0
20:00 – 22:00	6.0
22:00 – 25:00	6.5
25:00 – 27:00	5.5
27:00 – 30:00	5.0
30:00 – 35:00	3.0 (Cool down walk)



TIER 3 - SEGMENT 4

FLEXIBILITY & COOL-DOWN

Instructions:

Perform after completion of first 3 segments.

- Focus on elongating used muscle groups to help improve overall flexibility at the joints.
- Each stretch should be performed until there is slight discomfort.
- See the flexibility section to find the detailed movement instructions, pp. 61-69.

FLEXIBILITY & COOL-DOWN OVERVIEW				
EXERCISE	SETS	REPS	TIME	REST
STANDING HAMSTRING REACH	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SEATED GLUTE-KNEE TO CHEST	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SEATED ERECTOR SPINAE	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SEATED GROIN	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SIDE-LYING QUAD	1-2	N/A	15-30 SECONDS	0-15 SECONDS
KNEELING HIP FLEXOR	1-2	N/A	15-30 SECONDS	0-15 SECONDS
UPWARD DOG	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SIDE BEND- TFL	1-2	N/A	15-30 SECONDS	0-15 SECONDS
IRON CROSS	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SUPINE SHOULDER ROTATION	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SUPINE 3-PT. ELBOW DROP	1-2	N/A	15-30 SECONDS EACH	0-15 SECONDS

*See the Flexibility/Cool-down section of this workbook for detailed instructions, pp. 61-69.

Move to the next page.

FLEXIBILITY & COOL-DOWN INSTRUCTIONS

Why Stretch?

Elongates shortened muscles to prevent injury, improves performance, and improves flexibility around all joints.

FLEXIBILITY/COOL-DOWN INSTRUCTIONS

Instructions:

Hold each stretch for 15-30 seconds to the point of slight discomfort. Perform 1-2 sets for each stretch.

Standing Hamstring Reach



A. Preparation:

- i. Stand and lift the one leg onto a steady surface. Extend the lifted leg. If there is no surface to place the leg, keep the foot on the floor and bend the opposite knee slightly.

B. Movement:

- i. Bend forward from the hips and reach for the toes of the extended leg.
- ii. Ensure that forward flexion is coming from the hips and not from the thoracic vertebrae. (Keep the shoulders pulled back and chest open)
- iii. Hold the stretch and then repeat on the other side.

Modifications:

- Sit on the floor. Bring one foot to your inner thigh and the working leg out straight. While maintaining good posture fold at the hip and reach for your toes.
- Lie face up on the floor with both legs straight. While keeping one leg straight on the floor, pull the other leg up. Keep your leg as straight as possible.
- Downward dog stretch- Start in plank on your hands. Then walk your hands toward your feet and push your hips upward, keeping your legs straight and heels down.

Seated Glute- Knee-to-Chest



A. Preparation:

- i. In a seated position bend one knee, and cross the foot over the thigh.

B. Movement:

- i. Wrap the arms around the knee and pull the knee toward the chest.
- ii. Hold the stretch and then repeat on the other side.

Modification:

Pigeon stretch- the only difference is you will be lying face down on the floor using this same crossover position. Place your hands or elbows on the floor for support.

Seated Erector Spinae



A. Preparation:

- i. In a seated position bend one knee, and cross the foot over the thigh.
- ii. Place the opposite elbow on the outside of the bent knee.

B. Movement:

- i. While pressing the elbow into the knee for leverage, turn the body at the waist in the opposite direction, looking over the back shoulder.
- ii. Place the other hand on the floor, behind the hip, for balance.
- iii. Hold the stretch and then repeat on the other side.

Seated Groin



A. Preparation:

- i. In a seated position with the back straight, press the bottoms of the feet together.
- ii. Pull the feet toward the body.

B. Movement:

- i. While pulling the feet toward the body, flex forward from the hips.
- ii. Do not round the thoracic vertebrae. Keep the chest open.
- iii. Ensure the pelvis is neutral and the weight is not on the tailbone.
- iv. Hold for recommended time.

Modification:

Prayer stretch- With your feet shoulder-width apart or wider, drop your hips as low as possible, keeping your heels on the floor. Put your hands together then use your elbows to push open your knees for the stretch.

Side-Lying Quad



A. Preparation:

- i. Lie on one side of the body comfortably and get into a straight line so the hips and shoulders stack each other.
- ii. Bend the knee that is on the top.
- iii. Look forward and be sure the neck is in the neutral position, or resting on the arm.

B. Movement:

- i. While the knee is bent, grab the ankle.
- ii. Pull the ankle toward the glute while rotating pelvis posteriorly.
- iii. Hold and then repeat on the other side.

Modifications:

- This stretch can also be performed by lying on your belly or standing upright.

Kneeling Hip Flexor



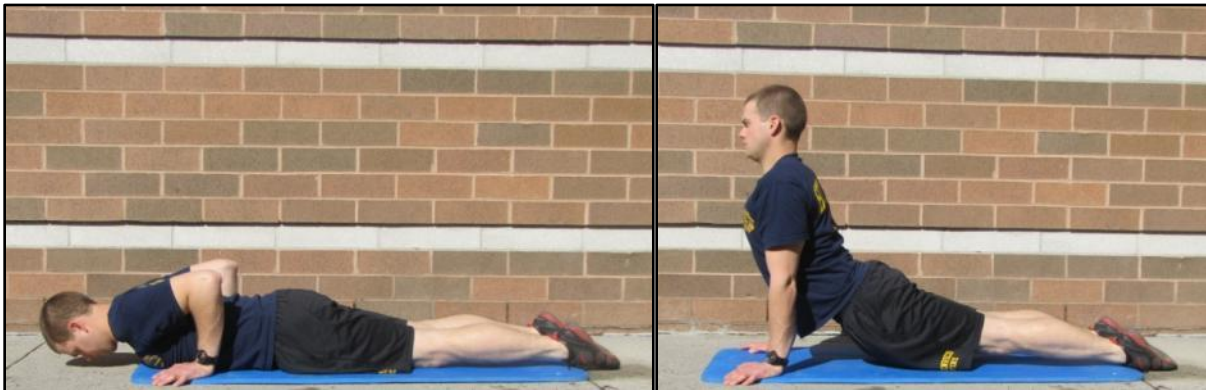
A. Preparation:

- i. Begin with the back leg in a kneeling position so the knee is directly under the hip and the front leg bent at a 90° angle with the foot flat.

B. Movement:

- i. Draw the belly button inward.
- ii. Squeeze the buttocks while rotating pelvis posteriorly.
- iii. Slowly, move the body forward until a mild tension is achieved in the front of the hip being stretched.
- iv. Hold and then repeat on the other side.

Upward Dog



A. Preparation:

- i. THIS EXERCISE SHOULD BE AVOIDED IF ANY LOW BACK PAIN/DISCOMFORT/INJURIES ARE A CURRENT ISSUE!
- ii. Lie face-down and place the hands just outside the tops of the shoulders.

B. Movement:

- i. Inhale deeply and begin pressing upward (push up). As you slowly push up, exhale and push the pelvis toward the floor/mat. It is very important to relax the buttocks & spine muscles!
- ii. Hold the position at the top until you need to take a breath.
- iii. As you inhale, slowly lower the body to the floor.
- iv. Repeat up to 10 times.
- v. This is not a strength exercise! It is designed to aid in restoring normal motion in the spine.

Side Bend- Tensor Fascia Latae (TFL)



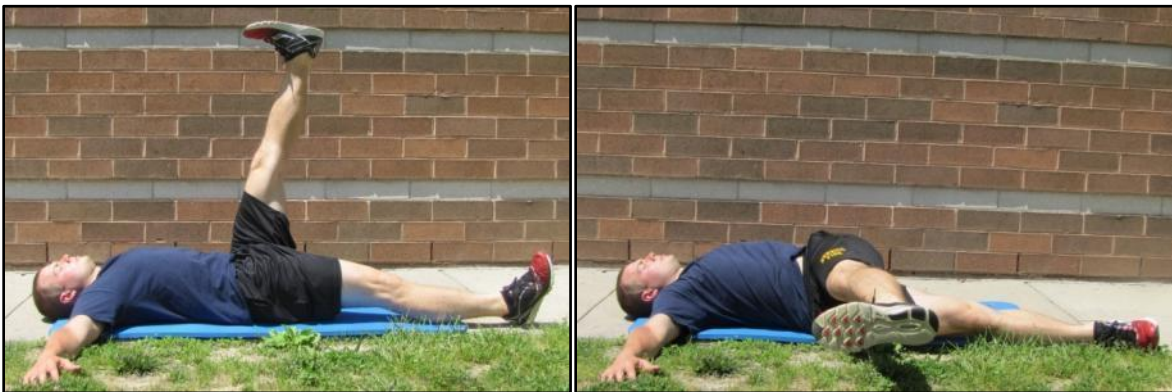
A. Preparation:

- i. Stand with the feet shoulder-width apart, one arm overhead and the other hand on the hip.

B. Movement:

- i. Core activation should be maintained prior to and throughout the stretch.
- ii. While activating same side glute, perform a posterior tilt (flatten back) while maintaining an erect posture.
- iii. To enhance the stretch, reach same side arm up and over.
- iv. It is important not to deviate forward or backward while reaching up and over.
- v. The pelvis should be 'tucked under' throughout stretch (posterior pelvic tilt).
- vi. A posterior tilt, along with hip external rotation and activation of the gluteus maximus, allows for greater TFL isolation.
- vii. Hold the stretch and then repeat on the other side.

Iron Cross



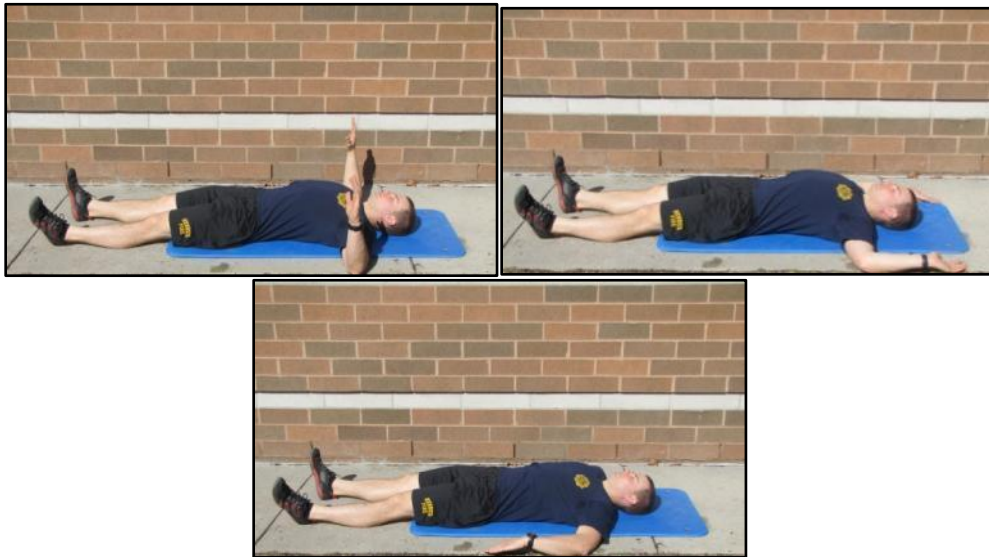
A. Preparation:

- i. Lie on the floor face-up with the arms extended at shoulder height and palms down.
- ii. Ensure that you maintain adequate drawing-in to maintain ideal spinal angles.

B. Movement:

- i. Begin the movement by lifting one straight leg up and over toward the opposite hand.
- ii. The movement should be fluid and SLOW. Rotation should occur through the entire Lumbo-Pelvic-Hip Complex.
- iii. Watch that the head and shoulders stay on the floor; that there is a fluid movement through the lumbar spine, hips, and pelvis; and that the kicking foot can touch the outstretched hand – if not, more corrective stretching is needed.
- iv. Hold the stretch and then repeat on the other side.

Supine Shoulder Rotation



A. Preparation:

- i. Lie on the floor face-up with elbows straight out from shoulders and bent 90°.

B. Movement:

- i. Slowly rotate hands from below elbow to above elbow attempting to touch floor with the hands in both directions.
- ii. Hold each position for the recommended time.

Supine Three Point Elbow Drop



A. Preparation:

- i. Lie on the floor face-up and grab both elbows with the hands.

B. Movement:

- i. Slowly drop elbows from side to side and overhead attempting to touch the floor on all sides.
- ii. Hold each position for the recommended time.

Congratulations, you have completed the Level 1 Training Program!

Be sure to complete the comprehensive fitness assessments to document your improvement and to test whether your body is ready for the Level 2 Program.

Now that you have mastered the Level 1 movements, begin to further challenge your body with these new and more challenging moves with added resistance and more challenging exercise schemes.

LEVEL 2 TRAINING PROGRAM

Metabolic Conditioning

Is a training method that uses compound exercises with minimal rest in an effort to maximize calorie burn during and after the workout.

LEVEL 2 TRAINING PROGRAM OVERVIEW

Summary:

- A successful completion of the Level 1 Training Program with marked improvements deems readiness.
- Start the Level 2 program if the current fitness level is intermediate-to-advanced, need resistance training or variability in a current regimen.
- Level 2 is for individuals who completed the WPE with a time that is less than 8 minutes and 44 seconds (8:44, the benchmark).

Goal:

- To provide a metabolic conditioning program 3 times per week, with one day of rest between each session, to further improve overall fitness and work performance.
- **In addition, it is recommended to add at least one extra session of cardio per week that is interval based, long and slow, pace training or at least 30 minutes in duration.**

Program Layout:

- 5 Segments
 1. Dynamic Warm-Up
 - Includes a light cardio session, dynamic movements and drills to prepare the body for exercise.
 2. Bodyweight Mini-Block Circuit
 - A short, fast-paced bodyweight circuit to amp the metabolism and prepare the body for the High-Intensity Interval Resistance Training Workout (HIRT) portion of the workout.
 3. HIRT
 - This is the main workout. This is a metabolic conditioning based workout that uses strength movements and mini-cardio bursts to improve cardiovascular endurance, muscular strength, and muscular endurance.
 4. Core & Abs
 - Includes various core exercises to improve local muscular endurance, strength and stability of the muscles surrounding the spine, midsection and hips.
 5. Cool-down & Stretching
 - After all is completed, stretching all major muscle groups will help lengthen the muscles used and improve overall flexibility. During this portion, the heart rate should decrease, making it safer to depart from the workout.

Equipment Needed: This will depend on which movements are being performed that day.

- A pair of dumbbells
- A pair of kettlebells
- A tractor tire
- A long-lever sledgehammer
- Agility Cones
- Battle Rope
- Pull-up bar
- Barbell plate (10-45#)

Benefits of Rest Days

The body will adapt to stress.
The training effect will take place.
The body will replenish energy.
The body will repair tissue damage.
Your performance will improve.

DYNAMIC WARM-UP INSTRUCTIONS

SEGMENT 1

A. Complete the following warm-up drills to properly prepare the body for exercise.

LEVEL 2 DYNAMIC WARM-UP AND DRILLS			
DRILLS	SETS	REPS	DISTANCE
3-5 MINUTE JOG	1		
TRUNK TWISTS	1	10 EACH	
KNEE HUGS	1	10 EACH	
BUTT KICKS	1		25 YARDS
CHERRY PICKERS- 3 COUNT	1	10	
INCH WORMS	1		10 YARDS
ARM SWINGS & ARM CIRCLES	1	10 EACH	
INSIDE HEEL TAPS	1	10 EACH	
SCORPIONS	1	10 EACH	
BOOT-STRAPPERS	1	10	
WINDMILLS	1	10 EACH	
FRANKENSTEINS	1		25 YARDS
HIGH KNEES	1		25 YARDS
JUMPING JACKS	1	25	
GROINERS	1	5 EACH	
IRON CROSS SWINGS	1	10 EACH	
AIR SQUATS	1	10	
PUSH-UPS	1	10	
LUNGES WITH BACK EXTENSION	1	5 EACH	
SHOULDER ROTATIONS	1	12 EACH	
SHOULDER FLOOR SLIDES	1	12	
ANY OTHER MOVEMENT THE TRAINER DEEMS NECESSARY			

B. After completion, move on to Segment 2.

LEVEL 2 DYNAMIC WARM-UP AND DRILLS

INSTRUCTIONS

Trunk Twists

A. Preparation:

- i. Stand with the feet shoulder-width apart.
- ii. Hold the arms out straight at shoulder height.

B. Movement:

- i. Be sure to keep the core engaged throughout the movement.
- ii. Twist the body side to side at the waist, alternating sides using a medium tempo.
- iii. Repeat for the recommended number of repetitions.

Knee Hugs

A. Preparation:

- i. Stand with the feet hip-width apart and the arms by the sides of the body.

B. Movement:

- i. Be sure to maintain a neutral spine throughout the movement. Avoid an upper body forward lean.
- ii. Flex at the hip and pull one knee toward the chest.
- iii. Grab the knee with the arms and pull the knee up and toward the mid-line of the body.
- iv. Place the foot back down and repeat the movement on the other side. Repeat for the recommended number of repetitions.

Butt Kicks

A. Preparation:

- i. Stand with the feet hip-width apart and the arms by the sides of the body.

B. Movement:

- i. Begin by kicking one foot behind the body while bending the knee so the foot “kicks” the buttock.
- ii. Be sure to keep the knees directly under the hips while performing this movement.
- iii. Focus on proper form rather than speed when performing this warm-up drill.
- iv. Repeat for the recommended distance.

Cherry Pickers- 3-count

A. Preparation:

- i. Stand with the feet wider than shoulder width apart.
- ii. Place the hands on the hips

B. Movement:

- i. While maintaining a flat back position, keep a slight bend in the knees and fold forward at the hip joint.
- ii. Push the hips back so you feel a slight stretch in the hamstrings.
- iii. Reach the fingers toward the floor in front of the toes and touch the floor. That's 1.
- iv. Reach the fingers directly between the feet and touch the floor. That's 2.
- v. Reach the fingers slightly behind the feet and touch the floor. That's 3.
- vi. Return to the starting standing position to complete the first repetition.
- vii. Repeat for the recommended number of repetitions.

Inch Worms

A. Preparation:

- i. Begin in the push-up position.

B. Movement:

- i. Taking small steps walk the feet toward the hands.
- ii. Keep the legs straight and push the hips upward into a pike position.
- iii. While keeping the feet still and legs straight, walk the hands forward to return to the push-up position.
- iv. Repeat for the recommended distance.

Arm Swings

A. Preparation:

- i. Begin in a standing position with the arms by the side of the body and the feet hip-width apart.

B. Movement:

- i. While keeping the arms straight, swing the arms forward over the head and back behind the hips so they brush by the sides of the body.
- ii. Be sure to use the full range of motion allowed by the shoulder joint.

Arm Circles (forward and reverse)

A. Preparation:

- i. Begin in a standing position with the arms out to the sides forming a “T” with the body and the feet hip-width apart.

B. Movement:

- i. While keeping the arms straight, make medium circles forward.
- ii. Repeat for the recommended number of repetitions.
- iii. Repeat in the other direction.

Inside Heel Taps

A. Preparation:

- i. Begin in a standing position with the arms by the sides of the body and feet hip-width apart.

B. Movement:

- i. As you travel forward, kick the foot upward so the inside of the foot faces upward.
- ii. Tap the foot with the opposite hand and then return the foot to the floor.
- iii. Continue to alternate legs.
- iv. Repeat for the recommended number of repetitions.

Scorpions

A. Preparation:

- i. Begin by lying face-down with the arms stretched out at shoulder height and the legs straight, forming a “T” position with the body.

B. Movement:

- i. Lift the right leg and begin to swing it to the other side of the body.
- ii. Slightly let the hip/pelvis lose contact with the floor, but keep the shoulders down.
- iii. As you swing the leg to the other side, bend the knee and reach the foot toward the opposite hand on the floor, or as far as your range of motion allows.
- iv. Pull the leg back to the starting position and alternate on the other side.
- v. Repeat for the recommended number of repetitions.

Boot-Strappers

A. Preparation:

- i. Begin in the push-up position.
- ii. Walk the feet in toward the chest, bend the knees and place them directly under the hips so the thighs are perpendicular to the floor and the knees are 90-degrees.
- iii. Keep the knees off the floor, the hips at shoulder height, and the hands under the shoulders.

B. Movement:

- i. Begin by pushing the hips upward as you straighten the legs, forming a pike position. Push the weight of the body into the heels toward the floor.
- ii. Fully extend the shoulders so the head is slightly in front of the shoulders pointing down and arms are fully locked out. Pause.
- iii. Drop the knees back to the starting position.
- iv. Repeat for the recommended number of repetitions.

Windmills

A. Preparation:

- i. Stand with the feet slightly wider than shoulder width apart.
- ii. Extend the left arm straight overhead and the right arm pointing down toward the right foot.
- iii. Keep the eyes on the left hand in the air for the entire movement.

B. Movement:

- i. Begin by pushing the hip out to the left.
- ii. Then while maintaining a neutral spine and open chest, slowly reach toward the right foot with the right hand.
- iii. The left leg should stay straight and the right leg should slightly bend.
- iv. Be sure to perform the movement with proper form without squatting or twisting the back
- v. Return back to the starting position.
- vi. Repeat for the recommended number of repetitions.
- vii. Then repeat on the other side.

Frankensteins

A. Preparation:

- i. Stand with the feet hip-width apart.
- ii. Extend the arms straight out in front with the palms facing down.

B. Movement:

- i. While maintaining a neutral spine, kick the leg up straight so it kicks the hand. Avoid an upper body forward lean.
- ii. Return the foot back to the floor and repeat with the other leg.
- iii. Repeat for the recommended number of repetitions.

High-Knees

A. Preparation:

- i. Stand with the feet hip-width apart and the arms by the sides of the body.

B. Movement:

- i. While maintaining a neutral spine, bend one knee and flex the hip so the knee moves toward the chest. Avoid an upper body forward lean.
- ii. Be sure to keep the toes pulled toward the shins and the ankles directly under the knees.
- iii. Alternate sides rapidly.
- iv. Repeat for the recommended distance.

Jumping Jacks

A. Preparation:

- i. Stand with the feet hip-width apart and the arms by the sides of the body.

B. Movement:

- i. Begin by simultaneously jumping both legs open away from the mid-line of the body and swinging the arms out away from the mid-line so the arms go over head.
- ii. Simultaneously jump the legs back together, and swing the arms back down by the sides of the body to return to the starting position.
- iii. Repeat for the recommended number of repetitions.

Groiners

A. Preparation:

- i. Begin in the push-up position.

B. Movement:

- i. While maintaining a flat back position, begin by pulling one foot up to the outside of the hand on the same side of the body.
- ii. Place the heel down and keep the back leg straight.
- iii. Drop the hips a few inches for a light stretch, and then return the hips.
- iv. Place the foot back to the starting position and repeat on the other side.
- v. Repeat for the recommended number of repetitions.

Iron Cross Swings

A. Preparation:

- i. Begin by lying face-up with the arms out at shoulder height and palms facing up, forming a "T" position with the body.
- ii. Keep the legs straight throughout the movement.
- iii. Throughout the movement keep the shoulders, head and upper back in contact with the floor.

B. Movement:

- i. Begin by lifting the right leg and swing it over to the opposite side of the body toward the opposite hand.
- ii. Rotate the hip slightly so the toe points toward the hand during the swing.
- iii. While swinging back, let the hip rotate the other direction so it "opens," and then swing it toward the other side of the body so the toe points toward the hand of the same side.
- iv. Repeat for the recommended number of repetitions and then repeat on the other leg.

Air Squats- see page 25 for review.

Push-ups- see page 27 for review.

Lunges with Back Extension

A. Preparation:

- i. Stand in proper alignment with the hands by the sides of the body or on the hips.
- ii. Stand with the feet between hip and shoulder width apart.

B. Movement:

- i. While maintaining optimal spinal alignment, step forward and descend slowly by bending at the hips, knees and ankles.
- ii. During the descent, maintain weight distribution between the front heel and mid-foot.
- iii. Do not allow the feet to cave inward or shift outward.
- iv. Only descend down as far as you can while maintaining optimal alignment without compensating form.
- v. While you are in the down position reach the arms overhead and lean back slightly.
- vi. Return the upper body back center so the torso is straight.
- vii. Push through the front heel and return to the starting position. Alternate legs.
- viii. Repeat for the recommended number of repetitions.

Shoulder Rotations- see page 67 for review.

Shoulder Floor Slides

A. Preparation:

- i. Begin by lying face-up with the arms out at shoulder height and palms facing up, forming a “T” position with the body.
- ii. Keep the legs straight throughout the movement.
- iii. Throughout the movement keep the shoulders, head, upper, and lower back in contact with the floor.
- iv. Bend the arms at 90-degrees and keep the upper arms in contact with the floor.
- v. Rotate the shoulders so the back of the hands are touching the floor next to the head. (Note: if the shoulders are inflexible, they may not make contact with the floor without arching the back.)

B. Movement:

- i. Begin by extending the arms over head, so they slide against the floor.
- ii. Pull the arms back down, bending the elbows and squeezing the shoulder blades together.
- iii. Repeat for the recommended number repetitions.

Importance of the Dynamic Warm-up

While it prepares the neuromuscular system to work efficiently together, it simulates and prepares the body for more intense movements. This is much better than a regular cardio warm-up.

BODYWEIGHT MINI-BLOCK CIRCUIT

SEGMENT 2

In this segment you will choose one upper body exercise and one lower body exercise. Then you will choose a rep scheme (listed below) to follow. Each day you perform the bodyweight circuit, within a 7 day cycle, you will use as many variations of the exercises and rep schemes as possible, without ever using the same one twice.

A. Pick one upper-body and one lower-body bodyweight exercise:

UPPER (PP. 81-87)	LOWER (PP. 88-95)
PUSH-UP	AIR SQUAT
SPIDER PUSH-UP	FORWARD LUNGE
PLANK-TO-PUSH-UP	REVERSE LUNGE
BODY ROW	SQUAT JUMP
PULL-UP	JUMPING LUNGE
PIKE PUSH-UP	SURRENDER
T- PUSH-UP	ICE SKATER
CHIN-UP	LOW SPRAWL
ANY OTHER VARIATION	ANY OTHER VARIATION

B. Pick one rep scheme:

CHOOSE ONE OF THE FOLLOWING TO USE FOR THE BODYWEIGHT WORKOUT:

- A. **PYRAMID: BEGIN AT ONE REP OF EACH AND INCREASE BY ONE REP EACH ROUND. REPEAT AS MANY ROUNDS AS POSSIBLE FOR 5 MINUTES (1-EACH, 2-EACH, 3-EACH, & SO FORTH).**
- B. **3 ROUNDS: RD. 1= 5 REPS EACH; RD. 2= 10 REPS EACH; RD. 3= 15 REPS EACH**
- C. **3 ROUNDS: RD. 1= 10 REPS EACH; RD. 2= 15 REPS EACH; RD. 3= 20 REPS EACH**
- D. **3 ROUNDS: RD. 1= 20 REPS EACH; RD.2= 15 REPS EACH; RD. 3= 10 REPS EACH**
- E. **5-7 REPS EACH. AS MANY ROUNDS AS POSSIBLE IN 3-5 MINUTES.**
- F. **5 ROUNDS: 8 REPS EACH**
- G. **5 MINUTES: 30 SECONDS UPPER, 30 SECONDS LOWER. (TOTALS 5 SETS OF BOTH)**
- H. **1 ROUND: 40 REPS EACH (COMPLETE THE 40 REPS ANYWAY)**
- I. **ATHLETE'S CHOICE. CREATE ANY SCHEME THAT CAN BE COMPLETED IN LESS THAN 7 MINUTES.**

C. After completion rest 2-4 minutes. Move on to Segment 3.

SEGMENT 2

UPPER BODY MOVEMENT INSTRUCTIONS

Push-up



A. Preparation:

- i. In a prone position, place the hands at a width that will allow the forearms to be perpendicular to the floor when the elbows are flexed at 90°.
- ii. Come into a plank position with the elbows extended; make sure the entire body is in a neutral position.

B. Movement:

- i. Begin by flexing at the elbows. While maintaining a neutral spine, lower the body to the floor.
- ii. Push the body back to the starting position without postural compensation.
- iii. Repeat for the recommended number of repetitions.

Spider Push-up



A. Preparation:

- i. In a prone position, place hands at a width that will allow the forearms to be perpendicular to the floor when the elbows are flexed at 90°.
- ii. Come into a plank position with elbows extended; make sure the entire body is in a neutral position.

B. Movement:

- i. Begin by flexing at the elbows. While maintaining a neutral spine, lower the body to the floor.
- ii. As you are lowering, slightly abduct the hip by pulling the knee out away from the midline.
- iii. Simultaneously drive the knee toward the elbow as you reach the bottom position of the push-up.
- iv. Push the body back to the starting position without postural compensation.
- v. Repeat on the other side and continue to alternate.
- vi. Repeat for the recommended number of repetitions.

Plank-to-Push-up



A. Preparation

- i. In a prone position on the forearms, place the elbows under the shoulders.

B. Movement:

- i. Draw the lower abdomen inward toward the spine.
- ii. In optimal postural alignment, tighten the glutes and lift the body up onto the forearms.
- iii. While maintaining the abdominal draw-in contraction, transfer bodyweight from the forearms to the hands so you move in to the push-up position.
- iv. Return back down onto the forearms while maintaining the plank position.
- v. The spine should be in a neutral position (from cervical to lumbar spine), and the glutes should remain tight without compensatory motion.
- vi. Be sure to keep the chin tucked in.
- vii. Repeat for the recommended number of repetitions.

Body Row



A. Preparation

- i. Set a bar, rings or straps at shoulder height. (height may need to be adjusted based on individual abilities)
- ii. Place the hands on the bar at shoulder-width distance.

B. Movement:

- i. Step feet in toward the bar.
- ii. With a firm grip, lower the body back at an angle toward the floor.
- iii. Push the heels through the floor, squeeze the glutes and tighten the abdomen.
- iv. While keeping the legs straight (but not locking the knees), pull the chest toward the bar so the hands are at about armpit level driving the elbows behind you.
- v. Return slowly.
- vi. Repeat for the recommended number of repetitions.

Pull-up



A. Preparation

- i. Place the hands on the pull-up bar with the palms facing forward.
- ii. The grip width should be at least shoulder width apart with entire body hanging straight down.

B. Movement:

- i. Draw the belly button inward toward the spine.
- ii. Maintaining optimal spinal alignment, in a controlled manner, pull the body upward. The shoulder blades should move downward and the will arms follow.
- iii. Only move for as far as you can maintain core stability. Return to the starting position.
- iv. The return motion must be controlled involving shoulder girdle upward rotation and elevation. Note: The return motion should be stopped just before the muscles relax.
- v. Do not allow head to “jet” forward.
- vi. Relax the arms as much as possible, placing the emphasis on the back muscles.
- vii. Do not round the back!
- viii. Common mistakes to avoid:
 - Raising the legs to help begin the pulling-up motion
 - Rotating the shoulders forward
 - Hunching up the shoulders by the ears (indicating possible weakness in lower-mid shoulder girdle musculature)
 - Arching low back and rocking body
- ix. Repeat for the recommended number of repetitions.

Pike Push-up



A. Preparation:

- i. Begin in a push-up position and lift the hips up high to form a pike position with the arms outstretched.

B. Movement:

- i. Maintain the pike position with the body and bend the elbows to lower the head and upper body toward the floor.
- ii. Push back to the starting position. Keep the abdominal muscles tight.
- iii. Exhale as you push back up and inhale as you lower the upper body toward the floor again.
- iv. Repeat for the recommended number of repetitions.

T-Push-up



A. Preparation:

- i. In a prone position, place the hands at a width that will allow the forearms to be perpendicular to the floor when the elbows are flexed at 90°.
- ii. Come into a plank position with the elbows extended; make sure the entire body is in a neutral position.

B. Movement:

- i. Tighten the glutes and abs. While keeping the back straight, lower the upper body toward the floor by bending the elbows.
- ii. Push yourself back up to the starting position. Rotate the torso and legs to one side, about 90-degrees so that the body is facing away from the floor. Simultaneously, raise the arm to the sky so that the upper body forms a "T" position.
- iii. Return the torso and legs to the starting position for a push-up so that the upper body again faces the floor. This completes 1 repetition.
- iv. Repeat this action, except this time extend the other arm into the air to equally work both sides.
- v. Repeat for the recommended number of repetitions.

Chin-Up



A. Preparation

- i. Place the hands on the pull-up bar with the palms facing the body.
- ii. The grip width should be about shoulder-width apart, with the entire body hanging straight down.

B. Movement:

- i. Draw the belly button inward toward the spine.
- ii. Maintaining optimal spinal alignment, in a controlled manner, pull the body upward and drive the elbows down, keeping them by the side of the body.
- iii. Only move for as far as you can maintain core stability. Return to the starting position.
- iv. The return motion should be stopped just before the muscles relax.
- v. Do not allow head to “jet” forward.
- vi. Relax arms as much as possible, placing the emphasis on back muscles.
- vii. Do not round back!
- viii. Common mistakes to avoid:
 - Raising the legs to help begin the pulling motion
 - Rotating the shoulders forward
 - Hunching up the shoulders by the ears (indicating possible weakness in lower-mid shoulder girdle musculature)
 - Arching low back and rocking body
- ix. Repeat for the recommended number of repetitions.

SEGMENT 2

LOWER BODY EXERCISE DESCRIPTIONS

Air Squat



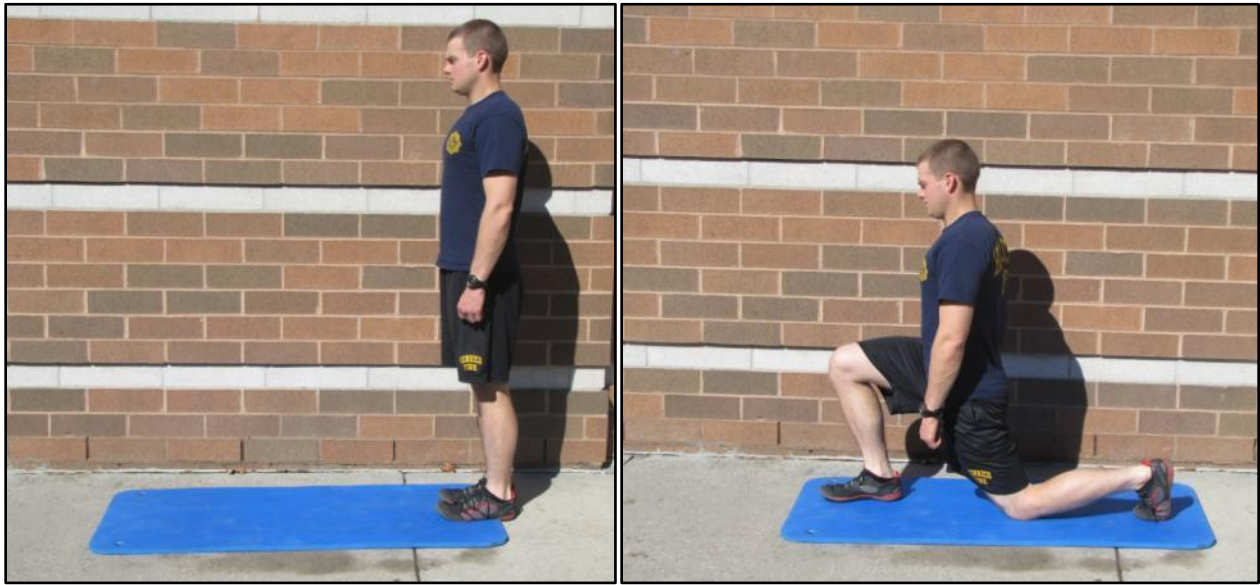
A. Preparation:

- i. Stand with feet about shoulder-width apart and slightly turn toes out.
- ii. Keep the head up, looking slightly above parallel.

B. Movement:

- i. Keep the midsection tight.
- ii. Send the butt back and down.
- iii. The knees should track over the mid-line of the foot.
- iv. Keep as much pressure on the heels as possible.
- v. Lift the arms out and up as you descend.
- vi. Stop when the fold of the hip is below the knee – breaking parallel with the thigh.
- vii. Squeeze the glutes and hamstrings and rise without any forward lean or shifting of balance.
- viii. Keep the heels pressed down, and return to a standing position.
 - i. Repeat for the recommended number of repetitions.

Forward Lunge



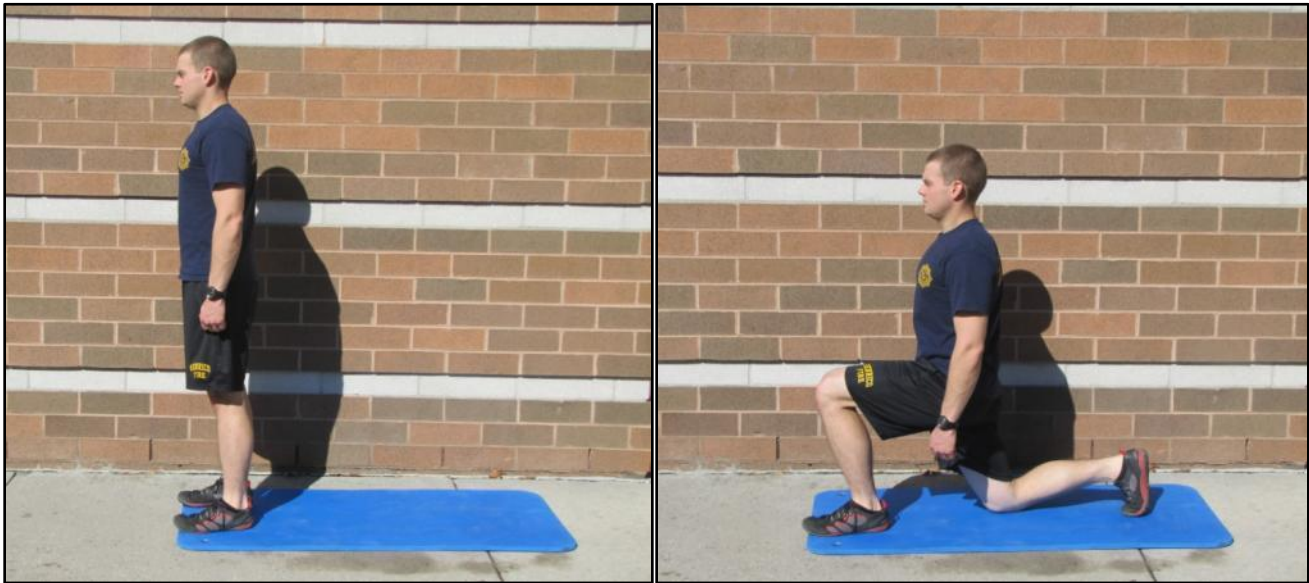
A. Preparation:

- i. Stand in proper alignment with hands by the side of the body or on the hips.
- ii. Place the feet straight ahead and shoulder-width apart

B. Movement:

- i. From optimal postural alignment, draw the lower abdomen inward toward the spine
- ii. While maintaining optimal spinal alignment, step forward about 3-feet and descend slowly by bending at the hips, knees and ankles.
- iii. During the descent, maintain weight distribution between the front heel and mid-foot.
- iv. Do not allow the feet to cave inward or shift outward.
- v. Perform downward reps slowly and concentrate on the descent and the alignment of the body.
- vi. Only descend down as far as you can maintain optimal alignment without compensating form.
- vii. Keep upper torso erect and do not lean forward.
- viii. Push through the front heel and stand back up to the starting position. Alternate legs.
- ix. Repeat for the recommended number of repetitions.

Reverse Lunge



A. Preparation:

- i. Stand in proper alignment with the hands by the side of the body or on the hips.
- ii. Place the feet straight ahead and shoulder-width apart.

B. Movement:

- i. From optimal postural alignment, draw the lower abdomen inward toward the spine.
- ii. While maintaining optimal spinal alignment, step backward about 3-feet so only the toes are on the floor, and descend slowly by bending at the hips, knees and ankles.
- iii. During the descent, maintain weight distribution between the front heel and mid-foot.
- iv. Do not allow the feet to cave inward or shift outward.
- v. Perform downward reps slowly. Concentrate on the descent and the alignment of the body.
- vi. Only descend down as you can maintain optimal alignment without compensating form.
- vii. Keep upper torso erect to reduce potential injury to the spine, knee and ankle.
- viii. Return back up to the starting position, pushing the front heel and back toes through the floor and squeezing through the glutes. Alternate legs.
- ix. Repeat for the recommended number of repetitions.

Squat Jump



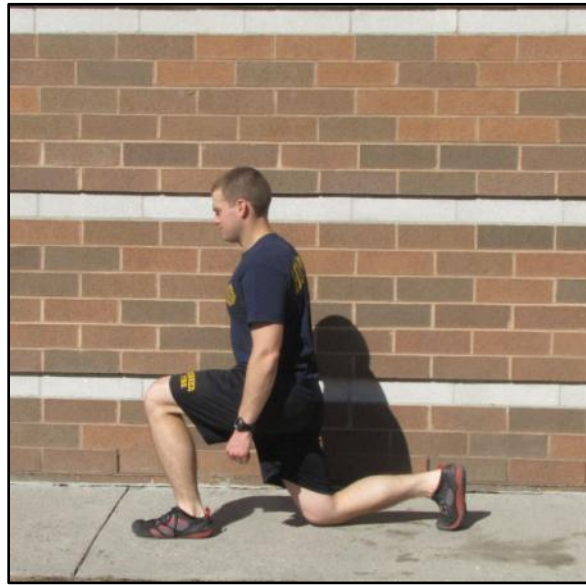
A. Preparation:

- i. Begin with the feet shoulder-width apart, toes forward and the arms by the side of the body.

B. Movement:

- i. Squat down slightly with the knees aligned over the mid-foot and jump up into the air, extending the arms up overhead (as if reaching for the sky).
- ii. Bring the arms back to sides during landing.
- iii. Land softly in a controlled manner, on the reactive part of the feet maintaining control of entire body.
- iv. Repeat for the recommended number of repetitions.

Jumping Lunge



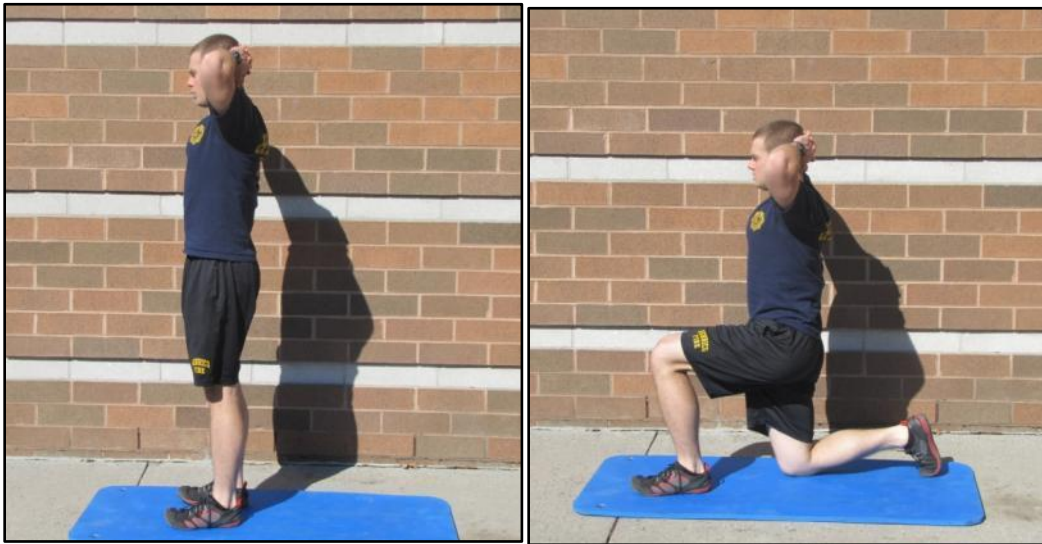
A. Preparation:

- i. Stand straight up, with the feet shoulder-width apart and staggered about 3-feet.
- ii. Drop the back knee, and plant the toes in the floor.

B. Movement:

- i. Jump up off the floor, and quickly switch the position of the feet in mid-air.
- ii. Keep the torso straight throughout the entire exercise.
- iii. Land in the mirror-image of the original position - the forward leg bent at ninety degrees at the knee and hip, with the opposite foot back behind the body.
- iv. Bend the knees to absorb the impact.
- v. Jump back off the floor, switching the feet to the original position.
- vi. Repeat for the recommended number of repetitions.

Surrender



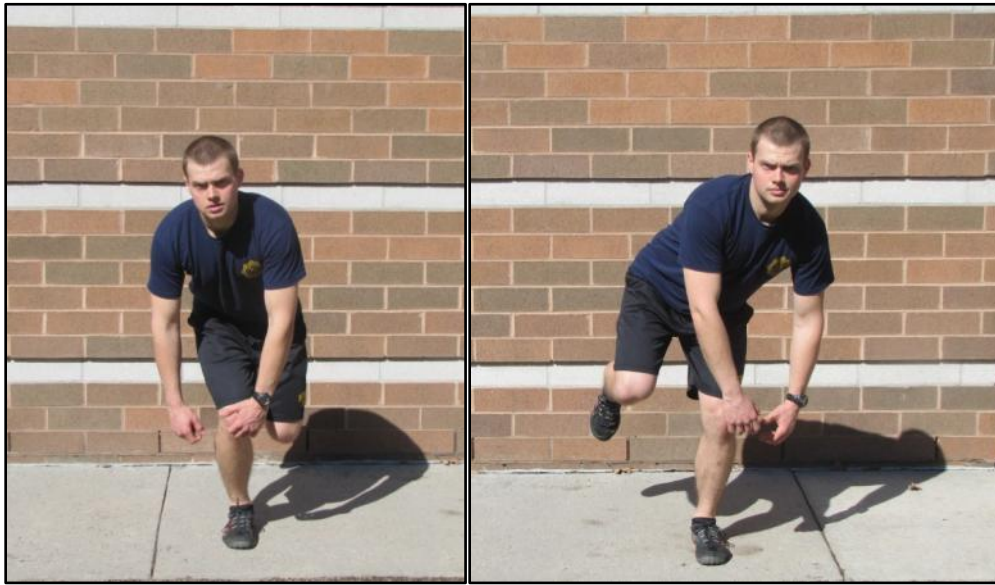
A. Preparation:

- i. Begin by standing with the back straight, eyes focused ahead of you, arms behind the head and the feet shoulder-width apart.

B. Movement:

- i. With the arms still in place, step backward with one foot placing the one knee on the floor.
- ii. From this position, drop the other leg so that both knees are on the floor.
- iii. Re-enter the starting position by stepping the foot forward followed by the other foot.
- iv. Repeat the motion, starting with the other leg this time.
- v. Repeat for the recommended number of repetitions.

Ice Skater



A. Preparation:

- i. Begin in a runner's stance, with the knees and elbows bent.

B. Movement:

- i. Perform a lateral hop, accelerating through the outside leg. Keep the body in proper alignment.
- ii. Land on a flat foot (the heel and toes at the same time) and decelerate through knee and hip flexion.
- iii. Jump back to the starting position with same technique.
- iv. Make sure to control the hips in the frontal plane and keep the centre of gravity inside the planted leg.
- v. Repeat for the recommended number of repetitions.

Low Sprawl



A. Preparation:

- i. Begin by lying face-down with the hands under the armpits and toes into the floor, like you're going to do a push-up.

B. Movement:

- i. Forcefully explode off the floor, extending the elbows.
- ii. While keeping the hands in contact with the floor, simultaneously jump the feet by the hands driving the knees out.
- iii. Hop back to the push-up position by kicking the legs out into full extension and dropping onto hands.
- iv. In the brief push-up position make sure legs are fully extended, glutes contracted, and back is flat with abdominals drawn in.
- v. Perform repetitions as quickly as can be controlled.
- vi. Repeat for the recommended number of repetitions.

H.I.R.T.

SEGMENT 3

Segment 3 is the High-Intensity Interval Resistance Training (H.I.R.T.) workout. This will be performed after completion of segment 2. Similar to segment 2, you will select one exercise from each of the upper body and lower body sections, and also choose one exercise from the cardio section. The weight used must be challenging, yet light enough to maintain form and technique in order to be effective! Next, you will choose the rep scheme/workout layout. Each day that you perform the metabolic circuit, within a 7 day cycle, you will use as many variations of the exercises and rep schemes as possible, without using the same combination twice.

1. Pick one upper, one lower, and one “cardio.” Be sure the “cardio” choice coincides with the rep scheme.

UPPER (PP. 98-106)	LOWER/COMBINATION (PP. 107-116)	CARDIO (PP. 117-124)
PLANK ROW	KB SWING	1. MOUNTAIN CLIMBER SPRAWLS
PUSH PRESS	OFFSET SQUAT	2. BURPEES
ALTERNATING FLOOR/BENCH PRESS	GOBLET SQUAT	3. MOUNTAIN CLIMBERS
UPRIGHT ROW	STIFF-LEGGED DEADLIFT	4. SLEDGEHAMMER-TO-TIRE HIT
BENT-OVER ROW	DEADLIFT	5. BEAR CRAWL 50 YARDS
SHOULDER PRESS	SIDE LUNGE	6. TIRE FLIPS: 5-10 FLIPS (DEPENDS ON SIZE)
WEIGHTED DIP	CLEAN	7. BATTLE ROPE VARIATIONS
WEIGHTED PUSH-UP	SNATCH/FLOOR-TO-OVERHEAD	8. 200M, 300M OR 400M RUN
SHOULDER-TO-SHOULDER KB PRESS	TURKISH GETUP	9. SUICIDE- 5 TO 10 YDS BETWEEN EACH CONE
PULL-UP	OVERHEAD LUNGE	10. 100-YD SHUTTLE (4X25YDS)

Variation Tips

Alternate between a dumbbell and kettlebell for most of the exercises.

Try a single-arm or single-leg variation.

Piston-style or alternating arms is challenging to the core and balance.

2. Pick the rep scheme or workout layout:

CHOOSE ONE OF THE FOLLOWING TO USE FOR THE HIRT WORKOUT:

- A. PERFORM 10 REPS OF THE UPPER AND LOWER BODY EXERCISE FOLLOWED BY 1 MINUTE OF CARDIO #1, 2, 3, 4, 5, 7, 9. PERFORM AS MANY ROUNDS AS POSSIBLE IN 12-20 MINUTES. (CHOOSE THE TIME)
- B. 3-5 ROUNDS- 10-12 REPS OF THE UPPER AND LOWER BODY EXERCISE FOLLOWED BY CARDIO #8, 9, OR 10.
- C. TABATA PROTOCOL- 20 SECONDS OF AS MANY REPS AS POSSIBLE OF THE UPPER BODY. REST 10 SEC. 20 SECONDS OF AS MANY REPS AS POSSIBLE OF THE LOWER BODY. REST 10 SEC. 20 SECONDS OF AS MANY REPS AS POSSIBLE OF THE CARDIO # 1, 2, 3, 4, 5, 6, 7 OR 9. CONTINUE TO CYCLE WITH THE SAME CHOICES FOR A TOTAL OF 9 MINUTES STRAIGHT.
- D. DO 45 SECONDS OF EACH SECTION. REST 1 MINUTE. REPEAT 3-5 ROUNDS.
- E. DOUBLE TABATA PROTOCOL- 40 SECONDS OF WORK OF THE UPPER BODY. REST 20 SEC. 40 SECONDS OF WORK OF THE LOWER BODY. REST 20 SEC. 40 SECONDS OF WORK OF THE CARDIO #1-7, 9 & 10. COMPLETE 4-6 ROUNDS.
- F. 3-5 ROUNDS- 8-12 REPS OF UPPER, LOWER AND 5 REPS OF TIRE FLIPS.
- G. PYRAMID- START AT 1 REP AND ASCEND BY 1 REP EVERY ROUND UP TO 10 FOR THE UPPER AND LOWER BODY EXERCISE. USE CARDIO #4, 6, 7, 8, 9 OR 10.
- H. 15 MINUTES AS MANY ROUNDS AS POSSIBLE OF 10 REPS OF UPPER AND LOWER BODY AND 20 REPS OF CARDIO #1, 2, 4, OR 7.
- I. 20 MINUTES, AS MANY ROUNDS AS POSSIBLE OF 6 REPS OF UPPER, LOWER, AND CARDIO #6 OR 8.
- J. ATHLETE'S CHOICE. CHOOSE ANY TWO EXERCISES AND 1 CARDIO AND CREATE YOUR OWN SCHEME. TIME CAP IS 20 MINUTES.

3. After completion rest 3-5 minutes. Move on to Segment 4.

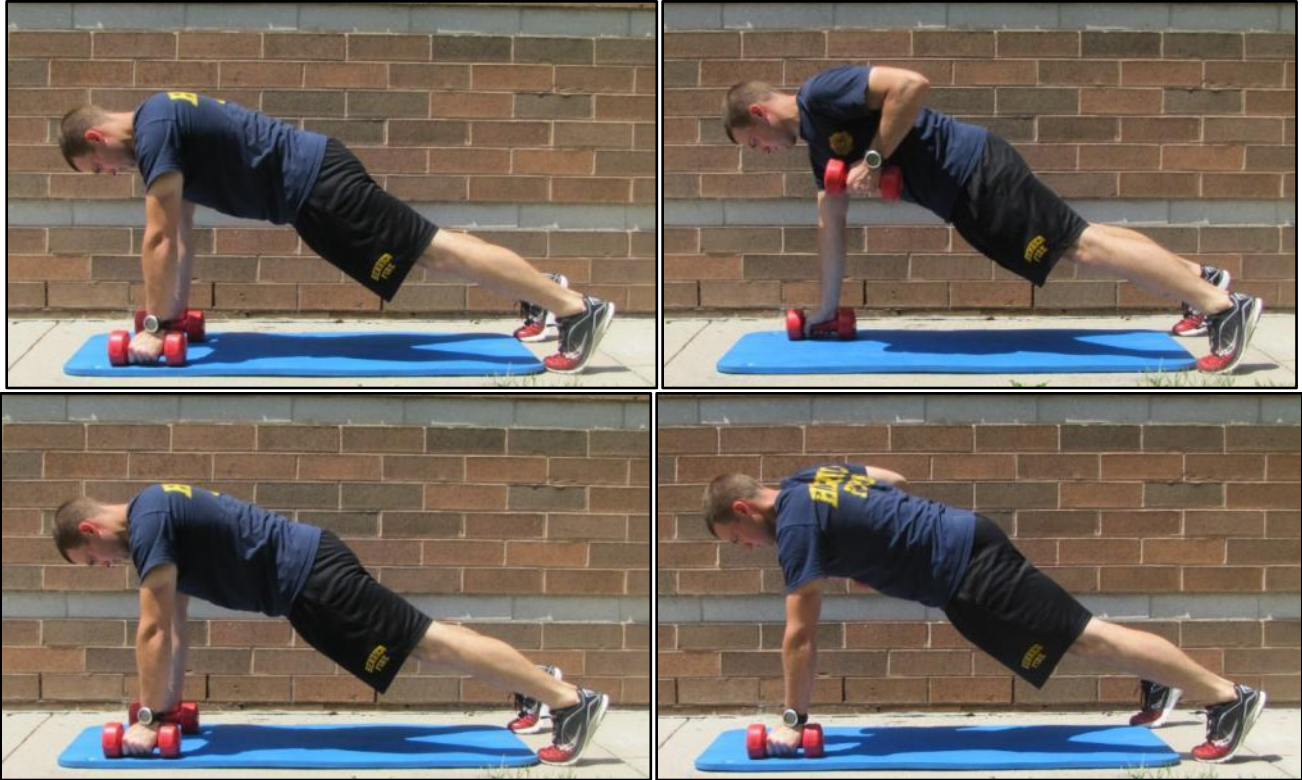
Kettlebell Training

An effective training tool that vastly improves strength, endurance, mobility, flexibility, and body composition because of the dynamic and multi-directional movements it possesses.

H.I.R.T. - SEGMENT 3

UPPER BODY EXERCISE DESCRIPTIONS

Plank Row



A. Preparation:

- i. Begin in a plank position with the legs wider than hip-width distance; the wider stance makes you more stable.
- ii. Hold onto the dumbbells, keeping the wrists locked to protect the joints.

B. Movement:

- i. With the core tight and the glutes engaged, exhale, stabilizing the torso as you lift the right elbow to row; feel the right scapula sliding toward the spine as you bend the elbow up toward the ceiling.
- ii. While maintaining a neutral spine through the neck, return the weight to the floor and repeat the movement on the left side.
- iii. Repeat for the recommended number of repetitions.

Dumbbell Training

Alternating arm exercises or single arm exercises put more emphasis on the core to help correct imbalances and weaknesses.

Push Press Dumbbell Variation



Kettlebell Variation



A. Preparation:

- i. Position the feet hip-width apart and the DB/KB in the "rack" position; bent arms resting against the trunk and the palms toward the midline.

B. Movement:

- i. Dip the lower body into a shallow squat.
- ii. Powerfully extend the lower body and shrug the shoulders to accelerate up.
- iii. Finish the movement by extending the arms overhead.
- iv. As the KB's center of mass shifts back overhead, the body weight should counterbalance forward.
- v. Absorb the descent with the lower body by bending the knees.
- vi. Repeat for the recommended number of repetitions.

Alternating Floor Press (DB/KB) Dumbbell Variation



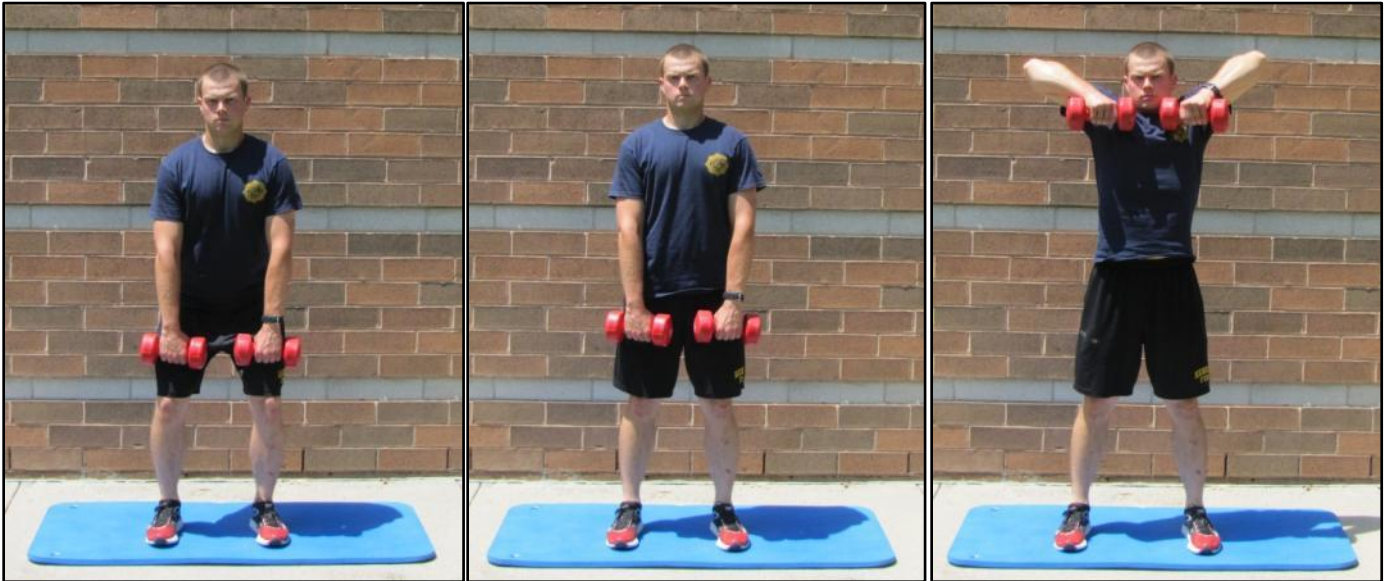
A. Preparation:

- i. Lie face-up holding the dumbbells between 45-and 90-degrees away from the body. The knees can be straight or bent.
- ii. Begin with the dumbbells in the down position above the armpits with the elbows touching the floor.

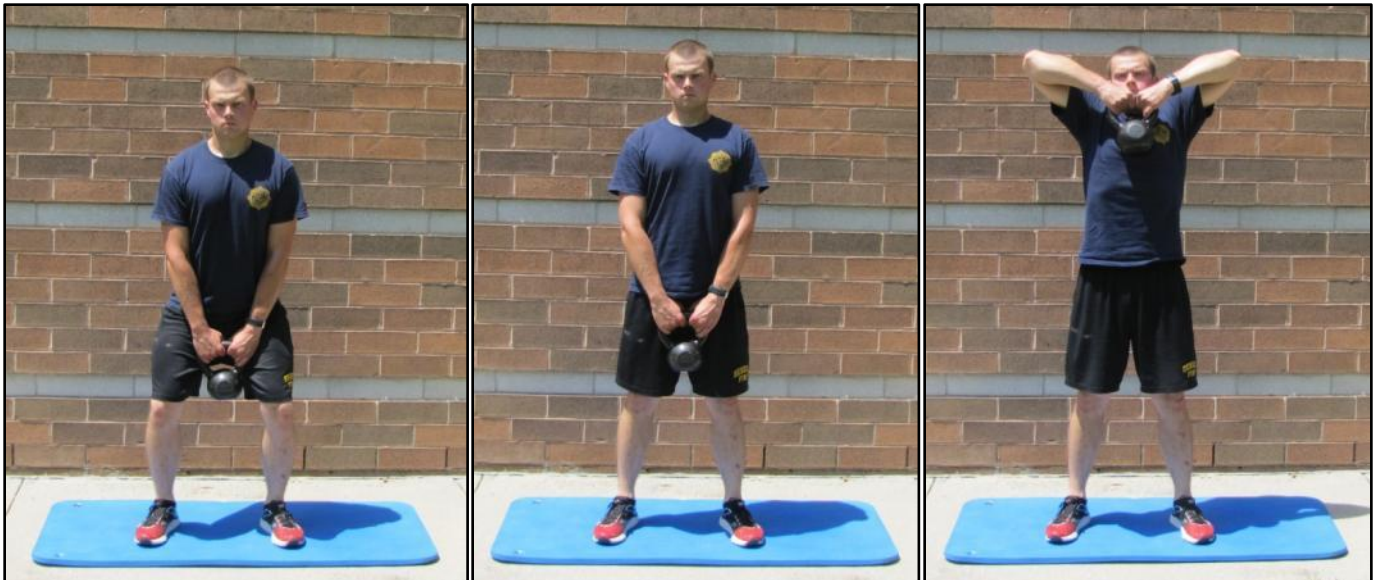
B. Movement:

- i. Engage the core by flattening the back into the floor.
- ii. Push and extend one elbow straight up above the chest, while keeping the opposite arm down in the starting position.
- iii. As you lower the weight, simultaneously extend the other elbow so both dumbbells are moving at the same time. Be sure to keep the core engaged.
- iv. Be sure the upper arm comes in contact with the floor every time you lower the weight. Tuck the elbows for emphasis on triceps, or to focus on the chest- angle the arms to the side.
- v. Repeat for the recommended number of repetitions.

Upright Row Dumbbell Variation



Kettlebell Variation



A. Preparation:

- i. Begin standing with the feet hip width apart and a dumbbell or a single kettlebell in each hand in front of the thighs with the palms facing in.

B. Movement:

- i. Exhale and raise the dumbbells, bending the arms at the elbow up to chest height and keeping the elbows above the weight.
- ii. Pause and slowly lower the weights back down to the starting position.
- iii. Repeat for the recommended number of repetitions.

Bent-Over Row Dumbbell Variation



Kettlebell Variation



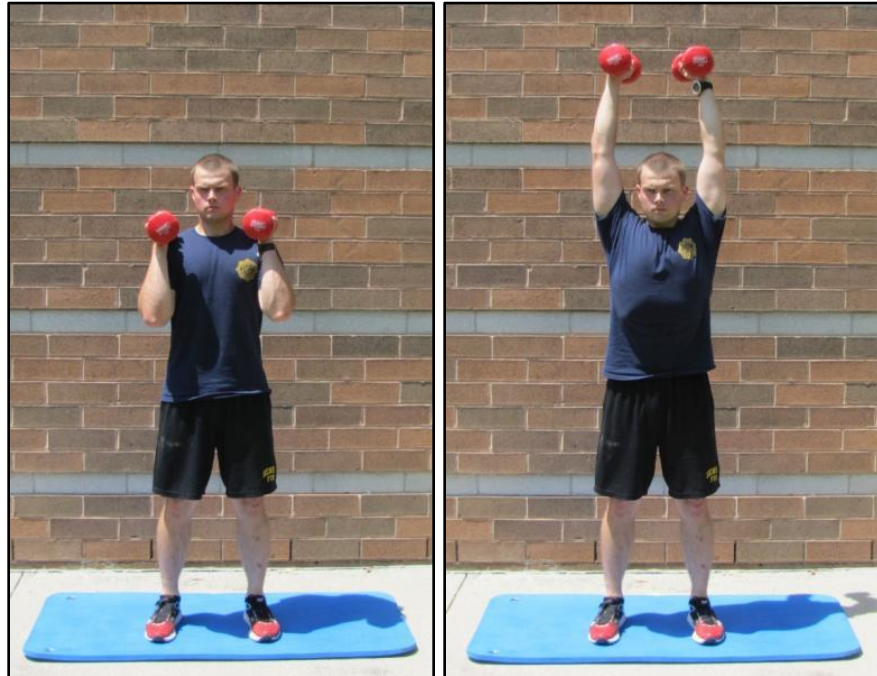
A. Preparation:

- i. With a dumbbell or kettlebell in each hand (palms facing the torso), bend the knees slightly and bring the torso forward by bending at the hips.
- ii. As you bend forward make sure the core is engaged. Keep the back straight, until it is almost parallel to the floor.
- iii. The weights should hang directly under the shoulders as the arms hang perpendicular to the floor and the torso.

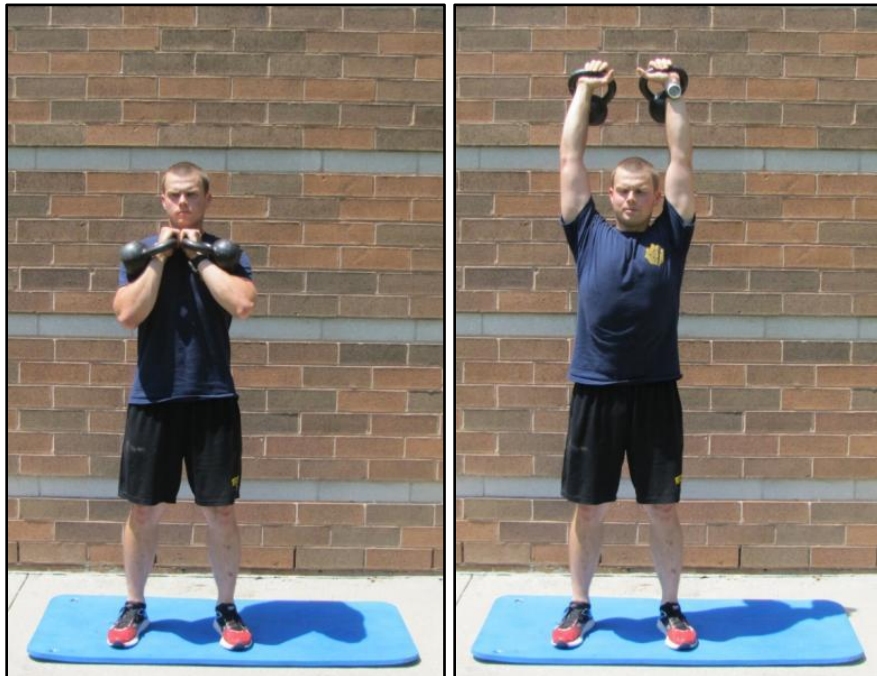
B. Movement:

- i. While keeping the torso stationary, lift the dumbbells somewhere between the sides of the body and 90-degrees, and drive the elbows back. Exhale.
- ii. Squeeze the back muscles.
- iii. Slowly lower the weight again to the starting position as you inhale.
- iv. Repeat for the recommended number of repetitions.

Shoulder Press Dumbbell Variation



Kettlebell Variation



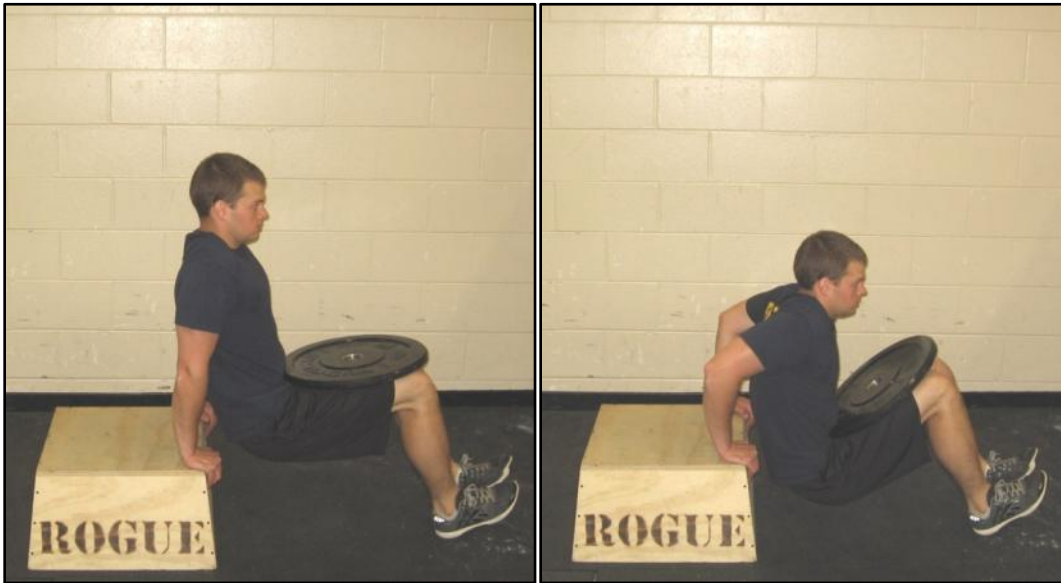
A. Preparation:

- i. Begin with the feet shoulder-width apart and the dumbbells/kettlebells by the shoulders in the rack position, palms facing each other.
- ii. Maintain proper posture throughout the exercise with the shoulder blades retracted and depressed and the core engaged.

B. Movement:

- i. Perform a shoulder press to full elbow extension above the head, keeping the shoulders stacked on the hips and the core engaged.
- ii. Return slowly to the starting position. You can also alternate the arms or do 1 arm at a time.
- iii. Repeat for the recommended number of repetitions.

Weighted Dip



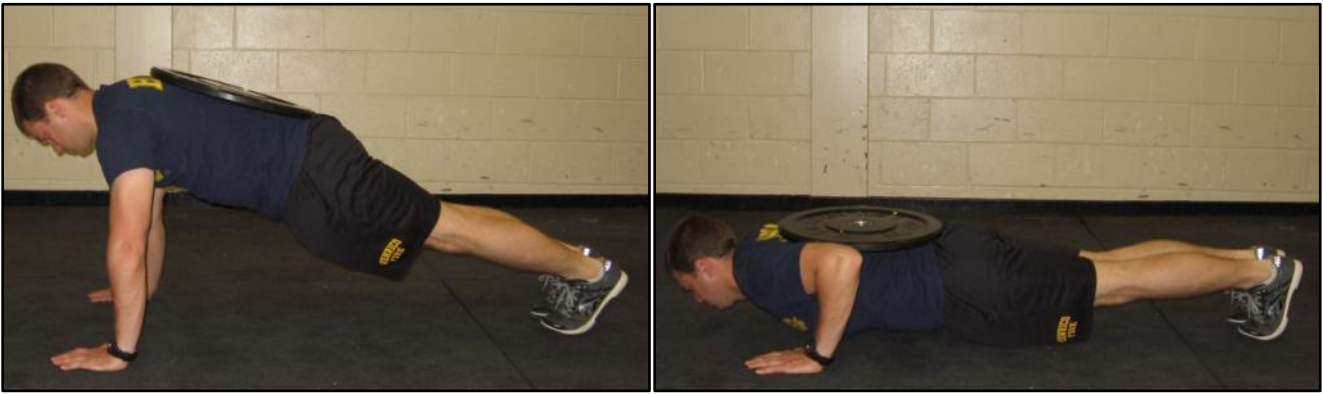
A. Preparation:

- i. Sit on a bench. Place a weight on the thighs for added resistance.
- ii. Begin with the hands next to or slightly under the hips.
- iii. Lift up onto the hands and bring the hips forward.

B. Movement:

- i. Bend the elbows (no lower than 90 degrees) and lower the hips down, keeping the hips very close to the bench. Keep the shoulders down.
- ii. Push back up without locking the elbows and repeat.
- iii. To make it easier, move the feet in. To make it harder, walk the feet out or elevate them on another bench or chair.
- iv. Repeat for the recommended number of repetitions.

Weighted Push-up



A. Preparation:

- i. In a prone position, place the hands at a width that will allow the forearms to be perpendicular to the floor when the elbows are flexed at 90°.
- ii. Carefully place a plate on the upper back for added resistance.
- iii. Come into a plank position with the elbows extended; make sure the entire body is in a neutral position.

B. Movement:

- i. Begin by flexing at the elbows. While maintaining a neutral spine, lower the body to the floor.
- ii. Push the body back to the starting position without postural compensation.
- iii. Repeat for the recommended number of repetitions.

Shoulder-to-Shoulder Press



A. Preparation:

- i. Using both hands, hold the kettlebell by its base slightly above the right shoulder.
- ii. Stand shoulder-width apart with core engaged.

B. Movement:

- i. Lift the kettlebell directly over the head, fully extending the arms.
- ii. Lower the arms so that the kettlebell is now slightly above the left shoulder.
- iii. Repeat back to other shoulder.
- iv. Repeat for the recommended number of repetitions.

Pull-up

(Variations: mixed grip, underhand, overhand, kipping, butterfly, weighted)



A. Preparation

- i. Place the hands on the pull-up bar with the palms facing forward.
- ii. The grip width should be at least shoulder width apart with entire body hanging straight down.

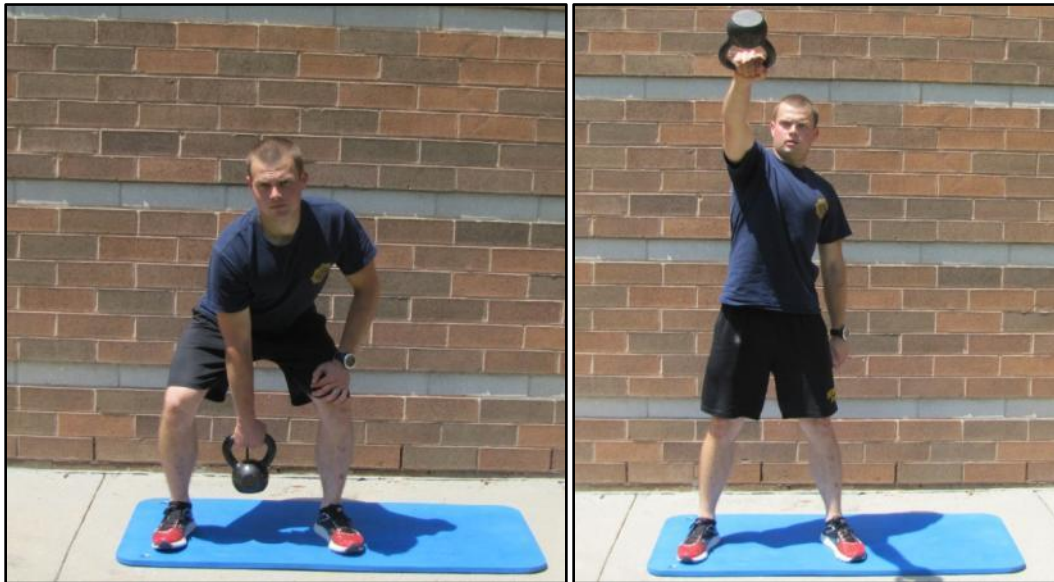
B. Movement:

- i. Draw the belly button inward toward the spine.
- ii. Maintaining optimal spinal alignment, in a controlled manner, pull the body upward. The shoulder blades should move downward and the will arms follow.
- iii. Only move for as far as you can maintain core stability. Return to the starting position.
- iv. The return motion must be controlled involving shoulder girdle upward rotation and elevation. Note: The return motion should be stopped just before the muscles relax.
- v. Do not allow head to “jet” forward.
- vi. Relax the arms as much as possible, placing the emphasis on the back muscles.
- vii. Do not round the back!
- viii. Common mistakes to avoid:
 - Raising the legs to help begin the pulling-up motion
 - Rotating the shoulders forward
 - Hunching up the shoulders by the ears (indicating possible weakness in lower-mid shoulder girdle musculature)
 - Arching low back and rocking body
- ix. Repeat for the recommended number of repetitions.

H.I.R.T. - SEGMENT 3 LOWER BODY/COMBO

EXERCISE DESCRIPTIONS

Kettlebell Swing (1-arm)



Kettlebell Swing (2-arm)



A. Preparation:

- i. Begin from a lowered squat position with hand either on one or both hands on the KB positioned between the legs.
- ii. Pull the KB back toward the thighs by rocking the bodyweight onto the heels.

B. Movement:

- i. Powerfully extend the lower body, driving through the hips to accelerate the bottom of the KB up and away. Be sure to keep the spine neutral.
- ii. As the KB ascends, counterbalance the forward pull of the KB by shifting the bodyweight back.
- iii. As the KB descends along the same pathway, absorb the KB force with the entire body by not allowing it to pull the chest down. Keep the momentum of the KB.
- iv. Repeat for the recommended number of repetitions.

Offset Squat Dumbbell Variation



Kettlebell Variation



A. Preparation:

- i. Begin with the feet about shoulder-width apart and slightly turn toes out.
- ii. Hold a single weight in the racked position on one side of the body.
- iii. Stand upright with an engaged core, not allowing the weight to pull you to one side.
- iv. Keep the head up looking slightly above parallel.

B. Movement:

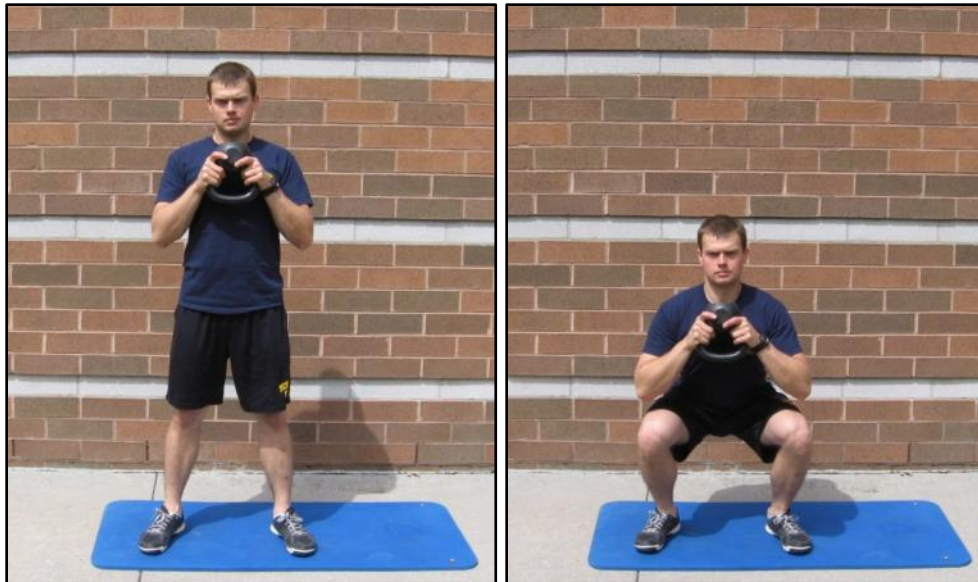
- i. Keep the midsection very tight.
- ii. Send the butt back and down.
- iii. The knees should track over the mid-line of the foot.
- iv. Keep as much pressure on the heels as possible.
- v. Stop when the fold of the hip is below the knee— breaking parallel with the thigh.
- vi. Squeeze the glutes and hamstrings and rise without leaning forward or shifting balance.
- vii. Be sure to switch the weight to the other side in between sets to work both sides of the body.
- viii. Repeat for the recommended number of repetitions.

Goblet Squats

Dumbbell Variation



Kettlebell Variation



A. Preparation:

- i. Begin with the feet about shoulder-width apart and slightly turn toes out.
- ii. Hold a single weight under the chin with the elbows forming a triangular shape.
- iii. Stand upright with an engaged core, not allowing the weight to pull you forward.
- iv. Keep the head up looking slightly above parallel.

B. Movement:

- i. Keep the midsection very tight.
- ii. Send the butt back and down.
- iii. The knees should track over the mid-line of the foot.
- iv. Keep as much pressure on the heels as possible.
- v. Stop when the fold of the hip is below the knee— breaking parallel with the thigh.
- vi. Squeeze the glutes and hamstrings and rise without leaning forward or shifting balance.
- vii. Repeat for the recommended number of repetitions.

Stiff-Legged Deadlift

Dumbbell Variation



Kettlebell Variation



A. Preparation:

- i. Stand tall, retract scapulas and draw in navel toward the spine while squeezing glutes.
- ii. Maintain proper position to ensure that the hip, knee and toes are tracking in line.
- iii. The core must remain activated throughout the entire movement.
- iv. Do not allow flexion of the lower lumbar (rounding of the low back).

B. Movement:

- i. Keep the arms straight at all times.
- ii. Lower the weights down as deep as neutral spine angles can be maintained.
- iii. Maintain proper posture throughout the exercise with the shoulder blades retracted and depressed.
- iv. Ensure no compensations of the knees, ankles or hips.
- v. Return to the starting position, pushing through the glutes (to keep pressure off the lower back) and keeping the head and chest up, this will ensure that pressure is not placed solely on the lower back.
- vi. Inhale on the way down and exhale on the way up.
- vii. Repeat for the recommended number of repetitions.

KB Deadlift



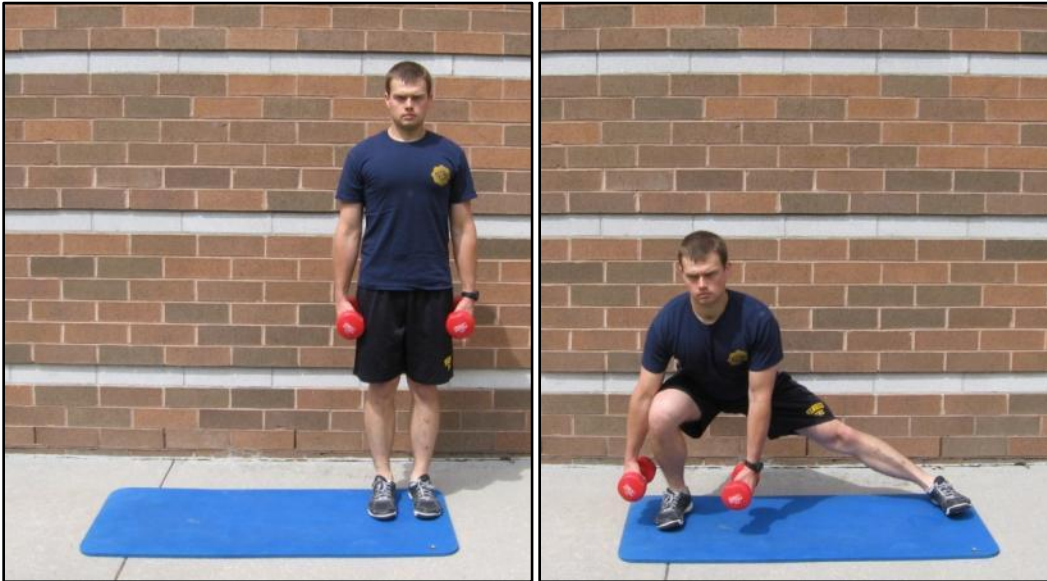
A. Preparation:

- i. Stand with the feet between hip- and shoulder-width apart with the weight balanced in heels.
- ii. Keep the lower back arched with the lower lumbar curve locked in.
- iii. The shoulders should be slightly in front of the weight.
- iv. Place the kettlebells outside of the knees with the arms straight and palms facing each other.

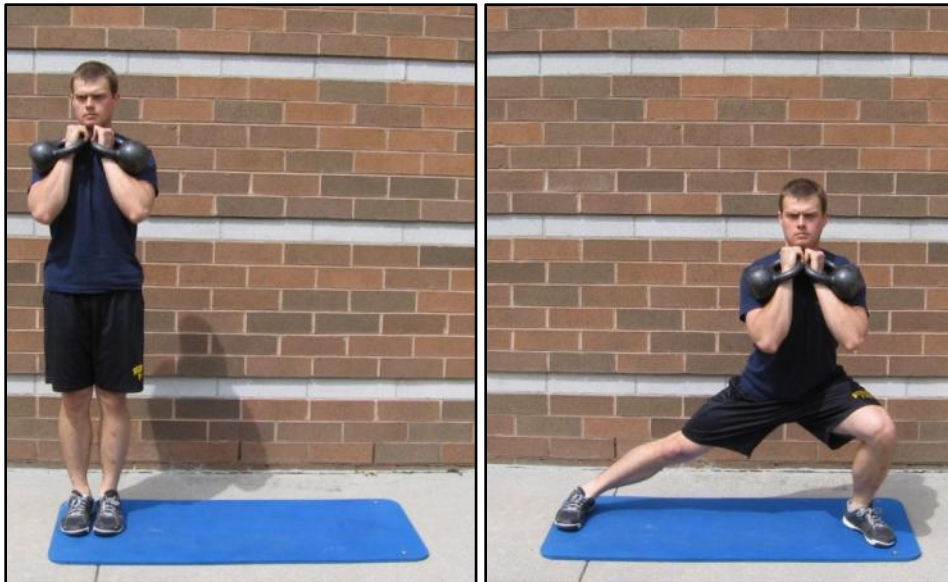
B. Movement:

- i. Drive through the heels and extend the legs with the shoulders and hip rising at the same rate.
- ii. Be sure to maintain the low back arch.
- iii. Once the weight passes the knees, open the hips all the way up.
- iv. Keep the head neutral and looking forward. Come to a full extension at the hips so you are standing straight up.
- v. When returning back to the floor, push the hips back and shoulders slightly forward; delay the knee bend.
- vi. Return back to the starting position with the weights on the floor.
- vii. Repeat for the recommended number of repetitions.

Side Lunge Dumbbell Variation



Kettlebell Variation



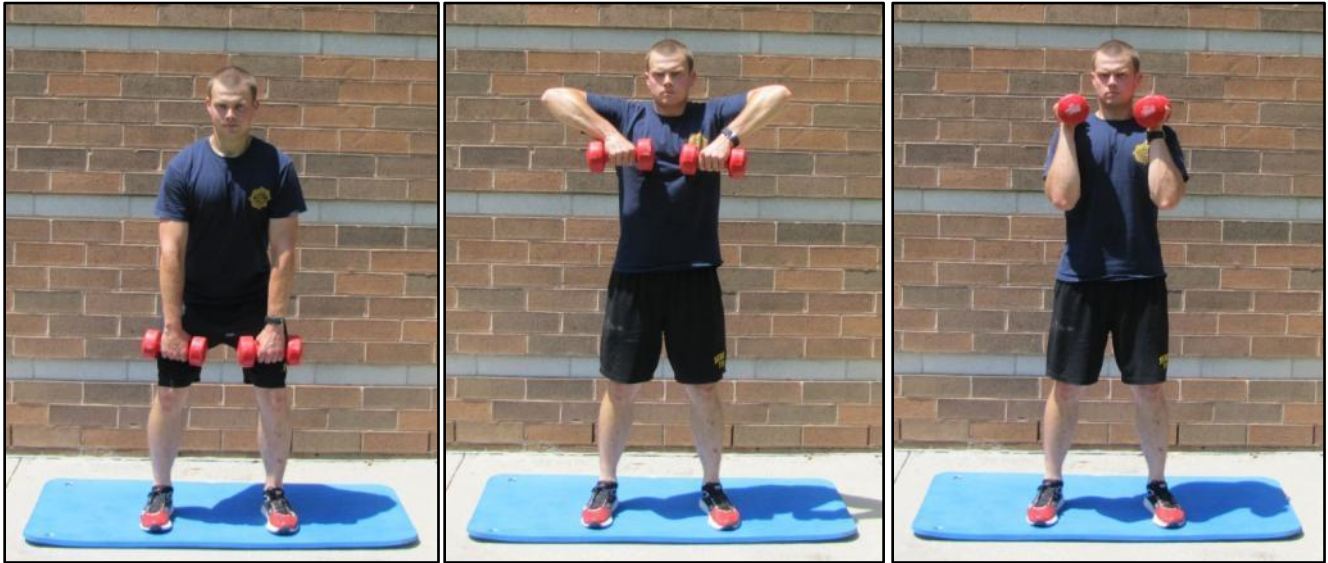
A. Preparation:

- i. Stand with the feet facing straight ahead about shoulder-width apart.
- ii. The hands are either by the shoulders in the starting position of an overhead press or by the sides of the thighs.
- iii. Be sure the spine is neutral with the core engaged.

B. Movement:

- i. Lunge laterally into the right leg with the foot slightly angled out.
- ii. Allow the hips to drift back and slightly flex at the hip joint.
- iii. Keep the right knee in alignment over the right ankle and reach the dumbbells down to either side of the lead foot while descending, maintaining integrity of the spine.
- iv. Keep the trailing leg straight.
- v. Ascend from the lunge and return to the starting position.
- vi. Repeat the entire movement for the opposite leg and continuously alternate sides.
- vii. Repeat for the recommended number of repetitions.

Hang Clean Dumbbell Variation



Kettlebell Variation



A. Preparation:

- i. Begin from an athletic stance with hands on the dumbbell or kettlebell in front of the thighs.
- ii. Be sure the spine is neutral with the core engaged.

B. Movement:

- i. Powerfully extend the lower body to accelerate the weight up.
- ii. Catch the weight in the racked position as shown.
- iii. Return to the starting position through the same pattern of movement and speed in the opposite direction, controlling the momentum and then using it to initiate the next repetition so as to develop a rhythmic timing.
- iv. Repeat for the recommended number of repetitions.

Snatch (1-arm) Dumbbell Variation



Kettlebell Variation



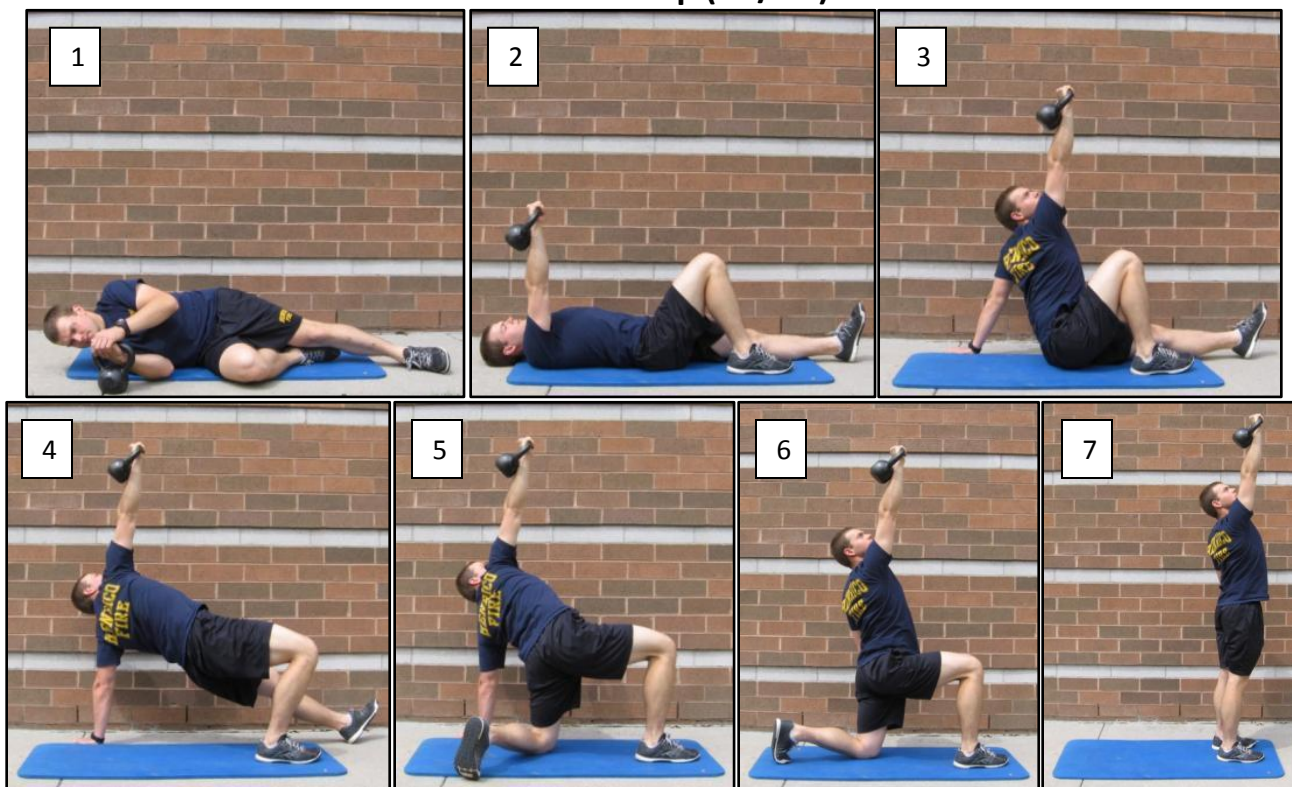
A. Preparation:

- i. Stand with the feet shoulder-width apart and hold a kettlebell/dumbbell in one hand with the palm facing the body. The weight should be between the legs.
- ii. Be sure to keep the weight in the heels, core engaged and the spine neutral.

B. Movement:

- i. Bend the knees and flex at the hips as if you are performing a kettlebell swing.
- ii. Once the weight has swung between the legs, pull it up explosively.
- iii. Driving with the hips, pull the weight up until the arm is fully extended and you're holding the weight above the head.
- iv. The final part of the movement is when the kettlebell rotates over the wrist and rests on the forearm.
- v. When lowering the weight, stay in control; don't allow the weight to pull you down.
- vi. Repeat the repetitions on the other side of the body.
- vii. Repeat for the recommended number of repetitions.

Turkish Getup (KB/DB)



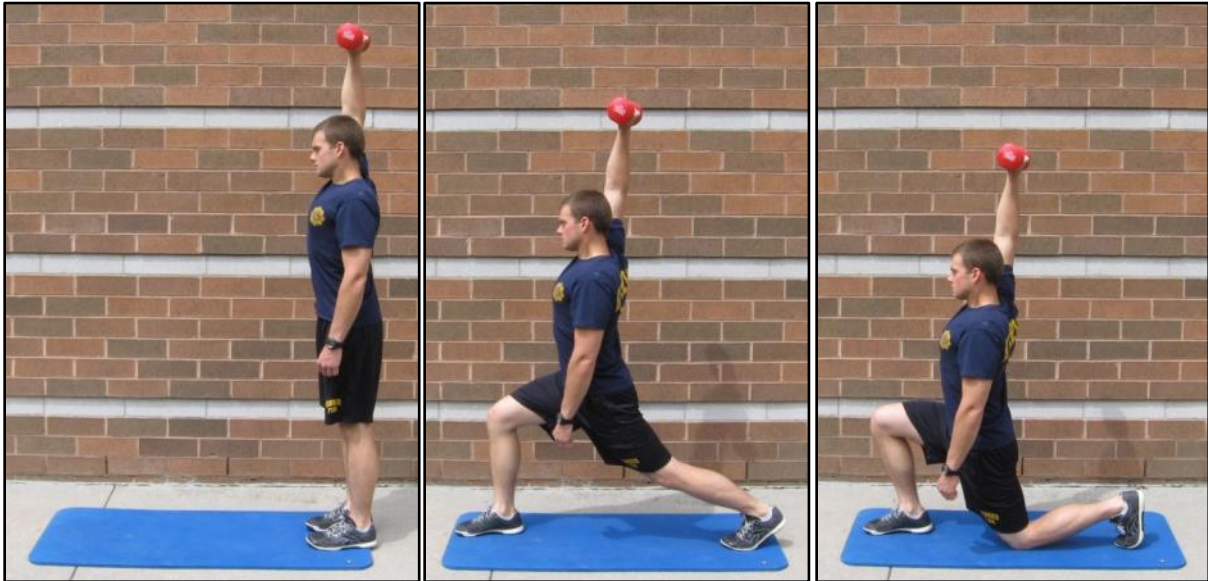
A. Preparation:

- i. To begin, roll onto the right side toward the kettlebell and grab the kettlebell with two bent arms. (1)
- ii. Roll onto the back lying face-up, firmly gripping onto the kettlebell and press the weight up with right hand. (2)
- iii. Make sure the arms are fully extended vertical from the floor and elbows are locked, from this point onward, unless directed, the kettlebell will be held in this position.
- iv. Bend the right knee and plant the foot firmly onto the floor. (2)
- v. Keep the eyes on the kettlebell the entire movement to ensure stability.

B. Movement:

- i. Lift the right shoulder off from the floor, sort of like doing a twisting ab crunch.
- ii. Twist until you have to support the weight onto the left elbow (which will be firmly on the floor.)
- iii. Pop off from the left elbow onto the hand, the hand should be slightly behind but out wide. (3)
- iv. Raise the butt and extend left leg off the floor. (4) With the weight balanced on the left hand and right leg, begin to pass the left leg underneath you, knee and toes on the floor, ending up in a lunge position. (5 & 6)
- v. Stand up, hold the position, and then reverse the process to sit back down. (7)
- vi. Be sure to keep the kettlebell pressed up overhead with elbows locked out.
- vii. Repeat for the recommended number of repetitions.

Overhead Lunge 1-arm Dumbbell Variation



Kettlebell Variation



A. Preparation:

- i. Stand upright with the feet shoulder-width apart.
- ii. Stand in proper alignment and press the weight directly overhead with the elbow locked out.

A. Movement:

- i. From optimal postural alignment, draw the lower abdomen inward toward the spine.
- ii. While maintaining optimal spinal alignment, step forward about 3-feet and descend slowly by bending at the hips, knees and ankles.
- iii. During the descent, maintain weight distribution between the front heel and mid-foot.
- iv. Do not allow the feet to cave inward or shift outward.
- v. Perform downward reps slowly and concentrate on the descent and the alignment of the body.
- vi. Only descend down as far as you can without compensating form.
- vii. Keep upper torso erect and do not lean forward. Be sure to keep the weight pressed up.
- viii. Push through the front heel and stand back up to the starting position. Alternate sides.
- ix. Repeat for the recommended number of repetitions.

H.I.R.T. - SEGMENT 3

CARDIO EXERCISE DESCRIPTIONS

Mountain Climber Sprawl



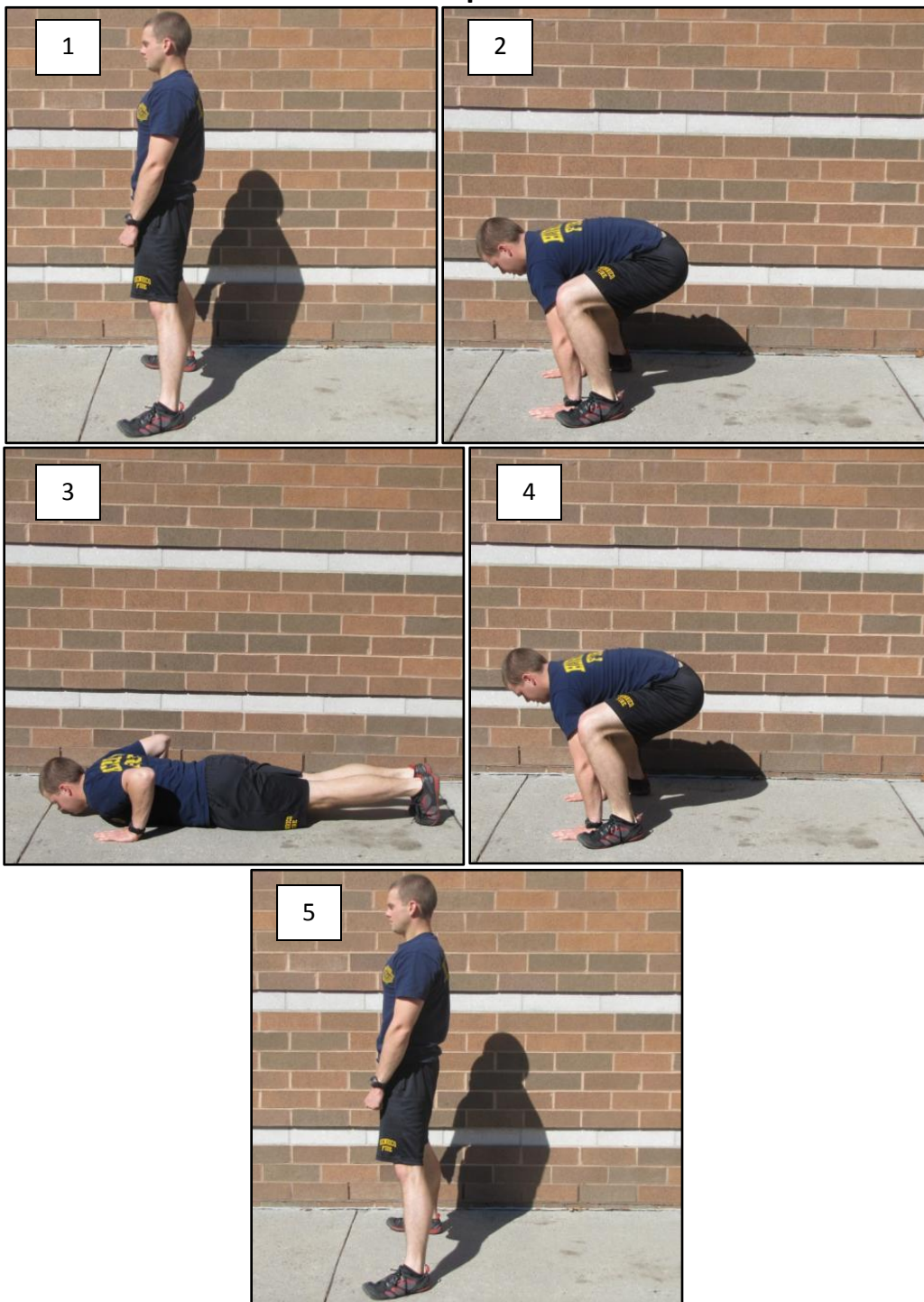
A. Preparation:

- i. Stand with the feet shoulder-width apart and spine in proper alignment.

B. Movement:

- i. Descend toward the floor like performing a squat, but instead place the hands on the floor to the inside of the feet.
- ii. With the core engaged extend one leg back and straighten it out.
- iii. Jump that same leg back in and jump the other leg back extending it fully.
- iv. Bring the extended leg back to the outside of the hand.
- v. Stand up and return to the starting position.
- vi. Repeat for the recommended number of repetitions.

Burpee



A. Preparation:

- i. Stand with the feet shoulder-width apart and the spine in proper alignment.

B. Movement:

- i. Quickly drop the chest to knees, place the hands outside of the feet. Extend to a push-up position by kicking the legs out into full extension.
- ii. Drop the chest to the floor, as to perform a push-up.
- iii. Quickly hop feet back under the body and go right into the squat position again.
- iv. Jump to a standing position. Perform repetitions as quickly and controlled.
- v. Repeat for the recommended number of repetitions.

Mountain Climbers



A. Preparation:

- i. Get into the push-up position with the hands directly under the shoulders.
- ii. The feet should be hip-to-shoulder width apart.
- iii. Before the movement begins, optimal postural alignment and core engagement is mandatory.

B. Movement:

- i. While maintaining core engagement, flex the hip and drive one knee toward the chest bringing the toes off the floor momentarily.
- ii. Tap the toe before extending the leg back out.
- iii. As you extend the leg back out, simultaneously begin to move the other leg so that both legs are moving at the same time.
- iv. Be sure the hips do not rise above shoulder-height during the movement.
- v. Repeat for the recommended number of repetitions.

Sledgehammer-To-Tire Hit



A. Preparation:

- i. This exercise is performed with a sledgehammer and a tire.
- ii. Grip the sledgehammer with one hand about 4 inches away from the head and the other at the bottom of the handle.

B. Movement:

- i. Pull the sledgehammer above the head, as if you're holding it upright.
- ii. Forcefully swing it down to make contact with the tire.
- iii. You may prefer to switch the grip area of the top hand during the swing. You can slide the hand down the shaft of the hammer to end up near the bottom hand when the hammer strikes the tire.
- iv. After hitting the tire, return to the original position and pre-hit grip.
- v. Repeat for the recommended number of repetitions.

Sledgehammers

This directly translates into work performance. Its benefits include grip strength, core strength, power, work capacity, speed and agility.

Bear Crawl



A. Preparation:

- i. Get on both hands and knees.
- ii. Lift the knees off the floor so they are hovering just above the floor.

B. Movement:

- i. Keeping the knees only an inch from the floor, crawl forward.
- ii. Keep both knees inside the elbows, and prevent the hips from swaying side to side.
- iii. Crawl for the specified distance.

Tire Flip



A. Preparation:

- i. Place a tire on the floor in front of you.
- ii. Stand with a wider-than-deadlift stance with the feet angled out and the body close to the tire.
- iii. Place the hands under the tire to prepare to lift.
- iv. Keep the lower back arched with the lower lumbar curve locked in.

B. Movement:

- i. Drive through the heels and extend the legs with the shoulders and hip rising at the same rate.
- ii. Be sure to maintain the low back arch.
- iii. As you lift the tire and extend the hips so the hips open up, be sure to keep the body close to the tire. When you are fully extended at the hip you should be close to the tire.
- iv. Once you are extended at the hips, simultaneously step one leg forward and push the tire forward so you are driving the force through the tire.
- v. Push the tire down like a chest press.
- vi. Repeat for the recommended number of repetitions.

Battle Ropes



Battle ropes increase total body strength and conditioning. More importantly they are awkward, which can translate to work performance duties.

1. Preparation:

- Be sure to wrap/tie the battle rope to a secured hook or sled to ensure safety when using the rope.
- To effectively use the rope, it is important to remember to keep the core engaged and the body rigid so the rope does not pull you around, but rather you stay in control of the rope.

2. Movements:

A. Alternating Up/Down Waves

- i. Stand in an athletic stance. Tightly grip the rope and in an alternating motion, pull the rope up and push down fast, creating small waves.

B. Double Up/Down Waves

- i. Stand in an athletic stance. Tightly grip the rope, and pull up and push down simultaneously, creating small and fast waves.

C. Side-to-Side Waves

- i. Stand in an athletic stance. Tightly grip the rope, and pull both sides of the rope outward (like you are ripping them apart), and then rapidly pull them back together creating small, fast side-to-side waves.

D. Outward Circle Waves

- i. Stand in an athletic stance. Tightly grip the rope, and simultaneously create small outward circles so that the hands are going in opposite directions. The left is counter-clockwise and the right is clockwise.

E. Inward Circle Waves

- i. Stand in an athletic stance. Tightly grip the rope, and simultaneously create small inward circles so that the hands are going in opposite directions. The left is clockwise and the right is counter-clockwise.

F. Jumping Jack Waves/Star Jumps

- i. Stand in an athletic stance. Tightly grip the rope, and perform a jumping jack so that the rope is pulled up to shoulder height and the feet open. Then jump the feet together while simultaneously pulling the rope down in a slam manner to the floor.

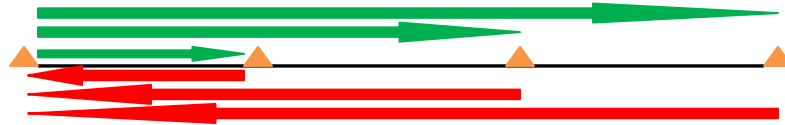
G. Rope Slams

- i. Stand in an athletic stance. Tightly grip the rope, and powerfully pull the rope up and push down so the rope creates big waves and strikes the floor with much force.

200m, 300m, or 400m Run

Mark out 200, 300 or 400 meters. Use this distance for the run during the cardio portion of the workout.

Suicide Run



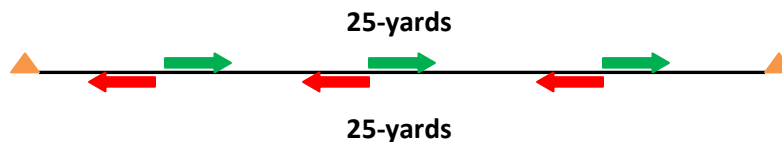
A. Preparation:

- i. Setup four cones so they are spaced out 5 to 10 yards between each other (totaling 15 to 30 yards between start and finish).
- ii. Stand at the first cone in a sprint stance.

B. Movement:

- i. Run as fast as you can to the first cone, turn around back to the start cone.
- ii. Quickly tag the cone and run to the second cone.
- iii. Turn around back to the start cone.
- iv. Finally run back to the last cone as fast as you can then quickly turn around and sprint through the first cone.
- v. This should be completed as fast as possible.

100-yd Shuttle Run (4x25 yds)



A. Preparation:

- i. Setup two cones 25 yards apart.
- ii. Stand at the first cone in a sprint stance.

B. Movement:

- i. Run as fast as you can to the 25-yard cone.
- ii. Quickly turn around back to the start cone.
- iii. Repeat one more time, so you cover a total distance of 100 yards.
- iv. This should be completed as fast as possible.

Long & Slow Cardio vs. High-Intensity Intervals

Both are beneficial in improving cardiovascular endurance. In fact, you should have a mixture throughout the week if you are doing cardio more than 3x/week. Intervals are great for speed training, agility, increased mitochondria size, and increased metabolic rate. Try adding long and slow sessions in between the high-intensity days for a healthy balance.

CORE & ABS SEGMENT 4

This will be completed after completion of segment 3. You will choose only 3 of the exercises to work on during the core portion of the workout.

A. Choose 3 of the following to complete:

CORE EXERCISES:
BUTTERFLY SIT-UP
V-UP
PRONE SUPERMAN
BICYCLE CRUNCH
PLANK WALK
FLUTTER KICKS
ROCKING HOLLOW ROCKS
SCUBA SITUPS
LEG RAISE
PLANK (USE VARIATIONS)
SUPERMAN PLANK (ON HANDS)
WINDSHIELD WIPERS
RUSSIAN TWIST
SIDE PLANK (USE VARIATIONS)
BREAKDANCE PLANK
HANGING KNEE RAISE/KNEES-TO-ELBOW

B. Choose the rep scheme:

CHOOSE ONE OF THE FOLLOWING TO USE FOR THE CORE WORKOUT:

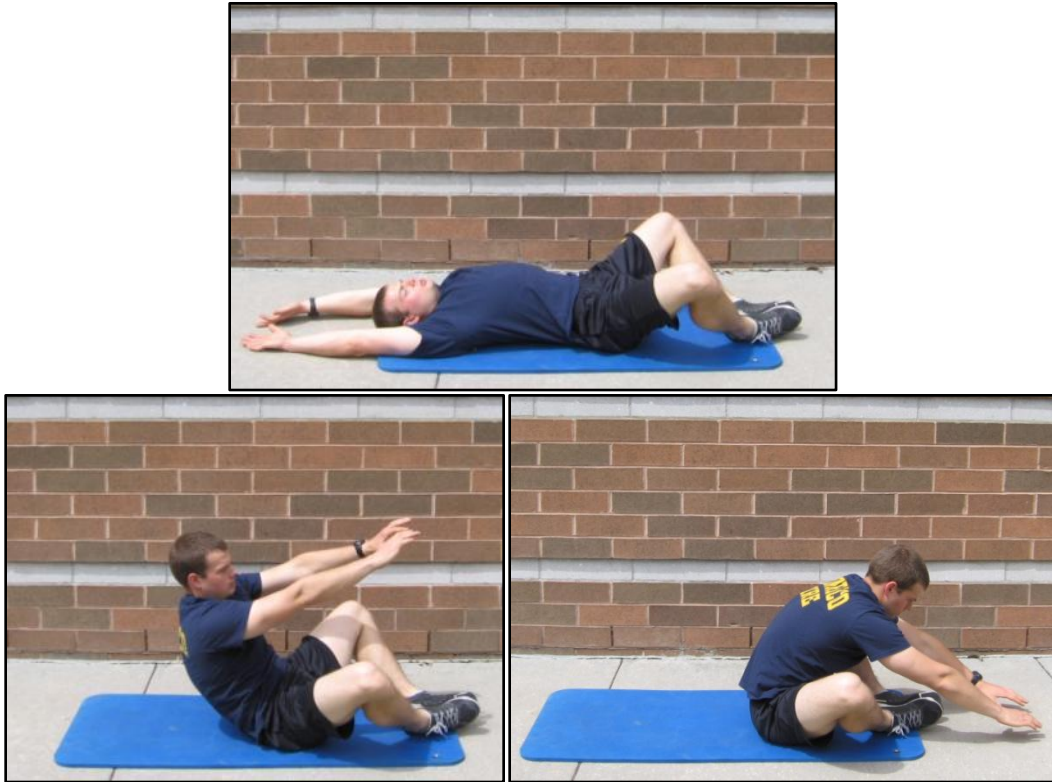
- A. TABATA PROTOCOL- CYCLE THROUGH THE EXERCISES USING 20 SECONDS OF WORK, 10 SECONDS REST FOR 6 TO 9 MINUTES.
- B. DOUBLE TABATA PROTOCOL- CYCLE THROUGH THE EXERCISES USING 40 SECONDS OF WORK, 20 SECONDS OF REST FOR 6 TO 9 MINUTES.
- C. 2 ROUNDS- 25 REPS EACH
- D. 3 ROUNDS- CYCLE THROUGH EACH FOR 1 MINUTE, 0-15 SECONDS OF REST BETWEEN EACH.
- E. 2 MINUTES OF EACH
- F. 1 ROUND- 50 REPS EACH
- G. 3 ROUNDS- CYCLE THROUGH EACH FOR 30 SECONDS, 0-15 SECONDS OF REST BETWEEN EACH.

C. Rest 1-2 minutes. Move on to Segment 5.

CORE & ABS

SEGMENT 4 EXERCISE DESCRIPTIONS

Butterfly Sit-up



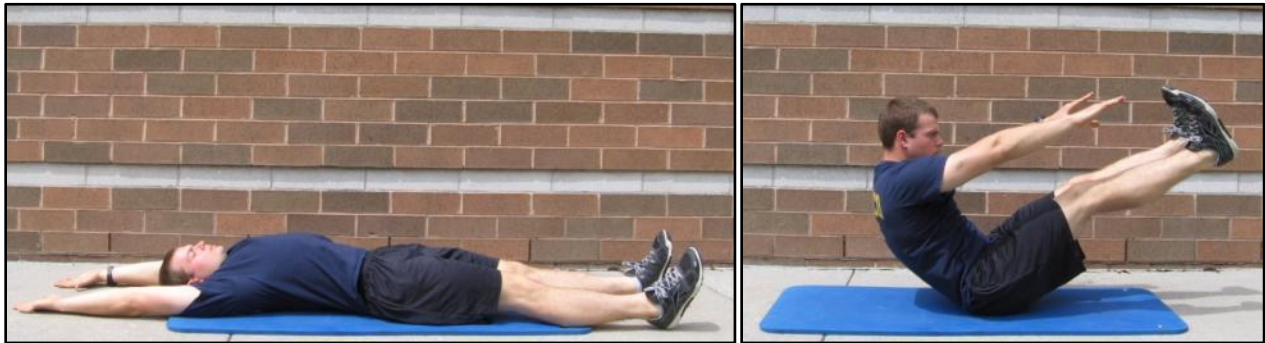
A. Preparation:

- i. Lie on the floor face-up with the arms overhead and the soles of the feet together so the legs are open like the butterfly stretch.
- ii. Before movement begins, be sure to properly engage the core and rotate the pelvis so the back is flat against the mat.

B. Movement:

- i. Powerfully throw the weight of the body and arms forward so you come up from the lying position to the seated position.
- ii. Touch the floor or the feet.
- iii. Keep the abs tight and return back to the starting position so the shoulder blades touch the floor.
- iv. Repeat for the recommended number of repetitions.

V-Up



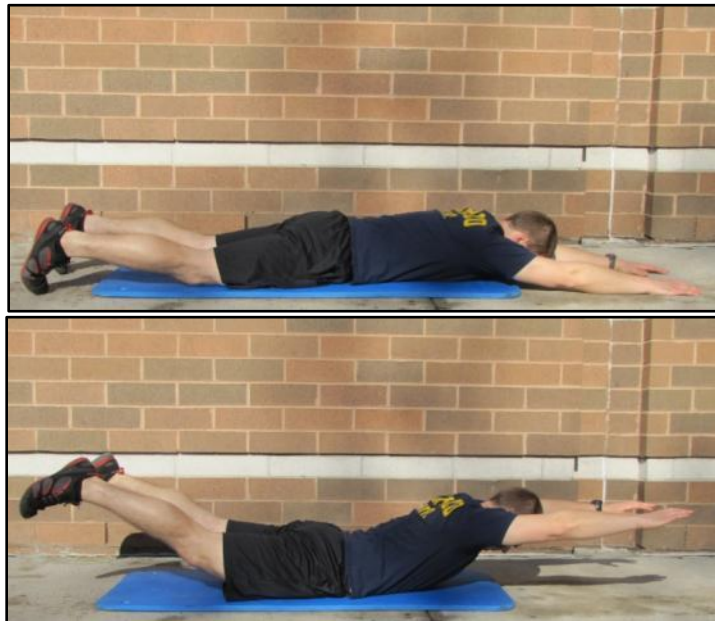
A. Preparation:

- i. Lie on the floor face-up.
- ii. Stretch the arms out straight behind the head.

B. Movement:

- i. Simultaneously flex at the hips and curl the abs to raise the legs and torso off the floor.
- ii. Bring the hands to meet the feet.
- iii. Ensure the arms and legs remain straight throughout the movement.
- iv. Pause at the mid-point and then return back to the starting position.
- v. Repeat for the recommended number of repetitions.

Superman



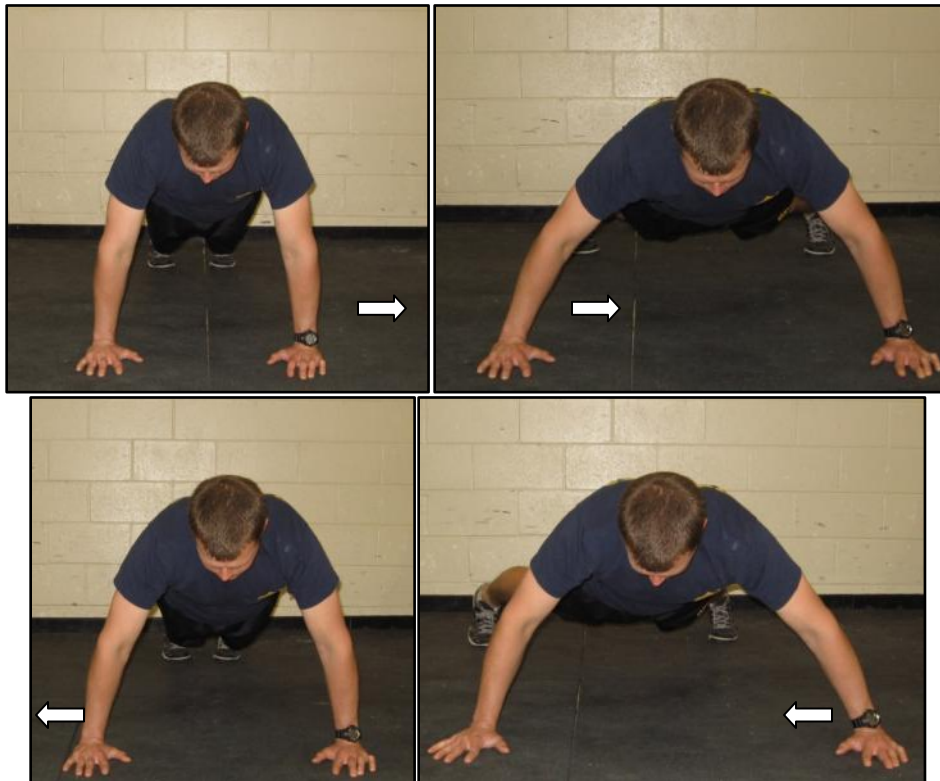
See the Level 1 Program for review on the preparation and movement directions, p. 38.

Bicycle Crunch



See the Level 1 Program for review on the preparation and movement directions, p. 51.

Plank Walk



A. Preparation:

- i. Assume the plank position on the hands, just like the push-up position.
- ii. Be sure the back is straight and core engaged.

B. Movement:

- i. Simultaneously move the left hand and left leg out away from the body so the legs and arms are open.
- ii. Quickly follow the right hand and right leg to close, so you are back to the starting position.
- iii. Repeat to the other direction and continue to go left 1 step, right 1 step.
- iv. Repeat for the recommended number of repetitions.

Flutter Kicks



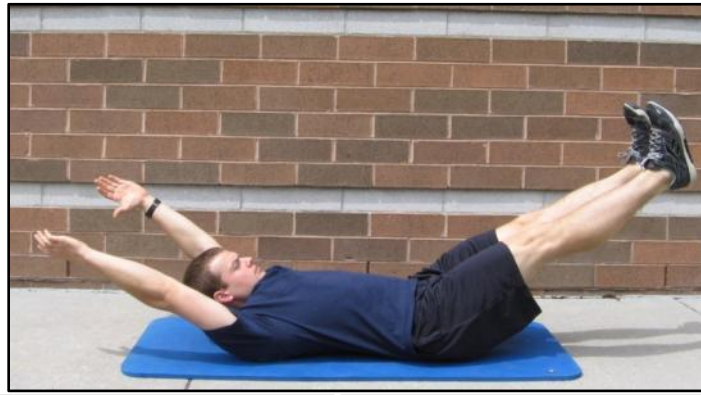
A. Preparation:

- i. Lie on the floor face-up with legs extended straight.
- ii. Place the hands under the upper glutes/low back area for pressure control and to keep the low back from rounding. (this may not be needed)
- iii. Properly engage the core and rotate the pelvis so the pressure is placed into the floor or the hands so the back is flat.

B. Movement:

- i. Lift both legs 6 to 12 inches off the floor, and keep the legs straight.
- ii. Begin to flex at the hips with small quick kicks.
- iii. Alternate the legs so one is moving up and the other is moving down simultaneously.
- iv. Be sure to keep the core engaged and to not allow the back to excessively arch.
- v. Repeat for the recommended number of repetitions.

Rocking Hollow Rocks



A. Preparation:

- i. Lie on the floor face-up with the legs out straight and arms overhead.
- ii. Properly engage the core and rotate the pelvis so the pressure is placed into the floor so the back is flat.

B. Movement:

- i. Lift the arms, head and legs slightly off the floor. This is the hollow position
- ii. Assume this hollow position throughout the entire movement, but while rocking.
- iii. Using momentum, rock forward so the heels touch the floor.
- iv. Then rock backward so the back touches the floor again and touch the floor with the hands. That is one rep.
- v. Be sure to keep the core engaged and to not allow the back to excessively arch.
- vi. If there is too much pressure in the lower back during the movement, slightly close the hollow position so the arms and legs are closer to each other, rather than being further apart.
- vii. Repeat for the recommended number of repetitions.

Scuba Situps



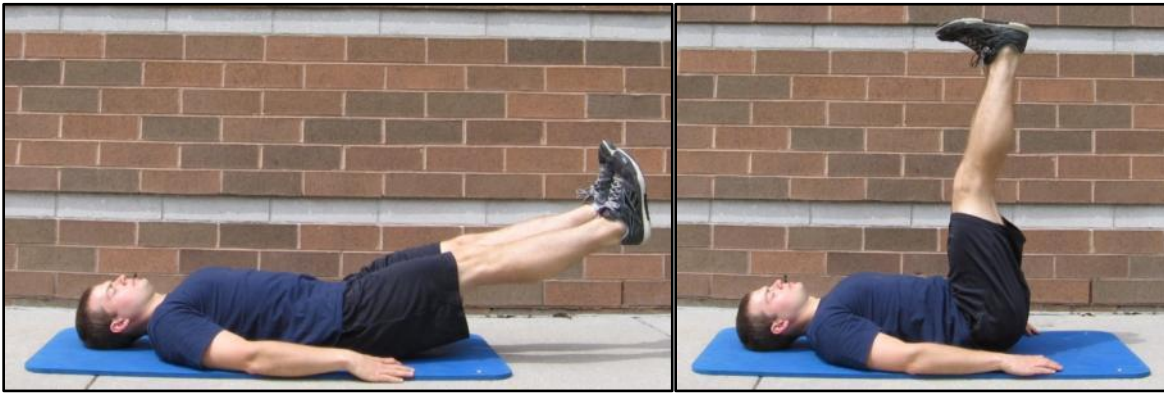
A. Preparation:

- i. Lie on the floor face-up with the legs bent with the feet flat on the floor and the arms by the sides of the body.
- ii. Properly engage the core and rotate the pelvis so the pressure is placed into the floor so the back is flat.

B. Movement:

- i. Simultaneously flex at the hips and curl the abs to raise the knees and torso off the floor.
- ii. As you sit up bring the knees to the chest where you can balance on the glutes.
- iii. Pause at the mid-point and then return back to the starting position, keeping the core engaged.
- iv. Do not lie back flat on the floor.
- v. Return to where the shoulder blades touch the floor and the legs are kicked straight out.
- vi. Repeat for the recommended number of repetitions.

Leg Raise



A. Preparation:

- i. Lie on the floor face-up with the legs straight and arms by the sides of the body.
- ii. Properly engage the core and rotate the pelvis so the pressure is placed into the floor so the back is flat.

B. Movement:

- i. Keeping the legs straight, flex at the hips so you lift the legs to make a 90-degree angle, and the legs are perpendicular to the floor.
- ii. Pause at the midpoint and then return back to the starting position, keeping the core engaged as you lower the legs.
- iii. If pressure in the lower back is felt, place the hands under the lower back or upper glutes for pressure control.
- iv. Repeat for the recommended number of repetitions.

Plank Hold Variations

Use any variation found in the Level 1 program, pp. 29, 43, 52, and 54.

Superman Plank (on hands)

See the Level 1 Program for review on the preparation and movement directions, pp. 41 and 55.

Windshield Wipers



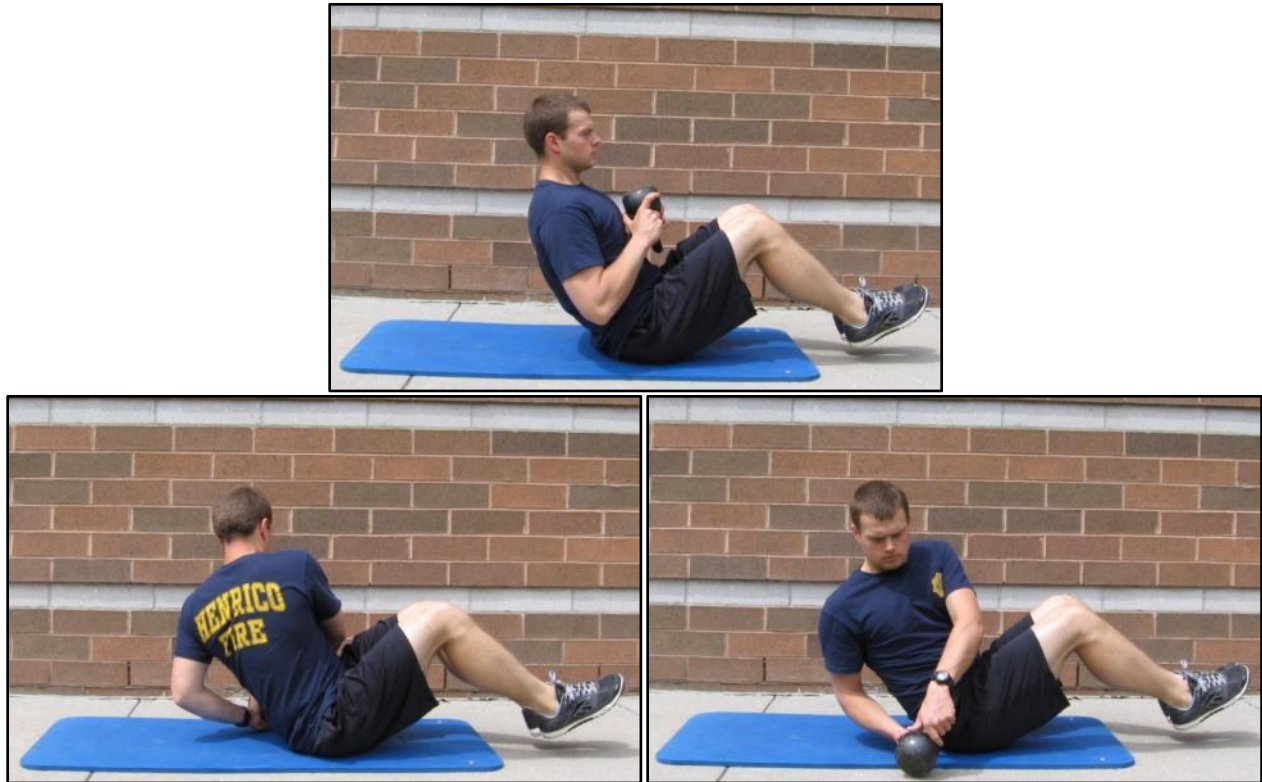
A. Preparation:

- i. Lie on the floor face-up with the legs straight and arms by the sides of the body.
- ii. Properly engage the core and rotate the pelvis so the pressure is placed into the floor so the back is flat.

B. Movement:

- i. Extend the legs straight together in the air, at a 90-degree angle.
- i. While making sure to keep the legs together shoulders down, and core stabilized, lower the feet and legs to the floor by slowly lowering both legs to the right side.
- ii. Return legs to original upright position (perpendicular to the body).
- iii. Rotate torso (while together) to the opposite, left, side.
- iv. Repeat for the recommended number of repetitions.

Russian Twist



A. Preparation:

- i. Begin in a seated position with a KB in the hands and knees bent.
- ii. Properly engage the core and anteriorly rotate the pelvis so the pressure is placed into the floor so the back is flat.
- iii. Sit up until there is a 90° angle at the hip (the torso will be around 45° to the floor)
- iv. Hold the weight close to the chest.
- v. Lift the feet off the floor.

B. Movement:

- i. Keep the lower body still and move the weight to one side of the body.
- ii. Twist with the abs and back until the right shoulder is pointing forwards (or as far as you can go).
- iii. Turn back to the other direction with the weight.
- iv. Repeat for the recommended number of repetitions.

Side Plank Variations

Use any variation found in the Level 1 program, pp. 28, 40, 54, and 58.

Breakdance Plank



A. Preparation:

- i. Begin in the push-up position with hands directly under the shoulders.
- ii. The feet should be shoulder-width apart for better support.
- iii. Before the movement begins, optimal postural alignment is mandatory.

B. Movement:

- i. Draw the lower abdomen inward toward the spine.
- ii. Lift the right foot off of the floor and kick it under the body so it goes to the opposite side of the body.
- iii. There should be a slight twist of the hips and torso as you kick through.
- iv. Return the foot back and quickly repeat on the other side.
- v. This is a rapid movement with no rest between alternating sides.
- vi. Repeat for the recommended number of repetitions.

Hanging Knee Raise/knees-to-elbow



A. Preparation:

- i. Hang from a pull-up bar with palms facing forward and arms just outside shoulder-width apart.
- ii. Pull the lower abdomen in and rotate the pelvis posteriorly so the core is engaged and the back is flat.

B. Movement:

- i. Using momentum, explosively pull the knees upwards toward the chest.
- ii. Continue the movement upwards so the body slightly tilts back while the knees come toward the elbows.
- iii. Return the legs back in a controlled manner to the starting position. Maintain an engaged core so you can eliminate any swinging or pausing.
- iv. Repeat for the recommended number of repetitions.

FLEXIBILITY & COOL-DOWN

SEGMENT 5

This section will be completed after segment 4. This is intended to help bring the heart rate down and to stretch out all major muscle groups. Complete most, if not all, of these stretches. Refer back to Level 1 for review of the stretches, pp. 61-69.

FLEXIBILITY & COOL-DOWN OVERVIEW				
EXERCISE	SETS	REPS	TIME	REST
STANDING HAMSTRING REACH	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SEATED GLUTE-KNEE TO CHEST	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SEATED ERECTOR SPINAE	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SEATED GROIN	1-2	N/A	15-30 SECONDS	0-15 SECONDS
KNEELING HIP FLEXOR	1-2	N/A	15-30 SECONDS	0-15 SECONDS
UPWARD DOG	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SIDE BEND- TFL	1-2	N/A	15-30 SECONDS	0-15 SECONDS
IRON CROSS	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SUPINE SHOULDER ROTATION	1-2	N/A	15-30 SECONDS	0-15 SECONDS
SUPINE 3-PT. ELBOW DROP	1-2	N/A	15-30 SECONDS EACH	0-15 SECONDS
ANY OTHER STRETCH THE TRAINER DEEMS NECESSARY	1-2	N/A	15-30 SECONDS EACH	0-15 SECONDS

*See the Level 1 Flexibility section for review of the movements, pp. 61-69.

APPENDIX

The following sheets are for copying or for reference.

PROGRAM OVERVIEW

Firefighter 6-month Program Layout

- **Comprehensive Fitness Assessment #1**

- **Level 1 Program = Total Program Length = 3 months**
 - **WPE > 8:44**
 - **Development of core strength and stability**
 - **Addition of exercises to an existing regimen**
 - **Tier 1 = 4 weeks**
 - **Tier 2 = 4 weeks**
 - **Tier 3 = 4 weeks**

- **Comprehensive Fitness Assessment #2**

- **Level 2 Program – Total Program Length = 3 months**
 - **WPE less than 8:44**
 - **Completion of Level 1 Program**
 - **Current fitness level is intermediate-to-advanced**

- **Comprehensive Fitness Assessment #3**

Needed Equipment:

- **Mat**
- **Pair of dumbbells**
- **Pair of kettlebells**
- **Battle rope**
- **Sledgehammer**
- **Medium-to-large tire**
- **Agility cones**
- **Pull-up bar**
- **Barbell plate (10-45#)**

Level 1 Tier 1 Quick Reference Workout Card

Dynamic Warm-up: Segment 1

LEVEL 1 DYNAMIC WARM-UP OVERVIEW				
EXERCISE	SETS	REPS	TIME	REST (S)
LIGHT CARDIO/DYNAMIC MOBILITY	1	N/A	5 MIN	N/A
CAT	1	5-8	N/A	15-30
LATERAL TILT	1	5-8 EACH SIDE	N/A	15-30
TABLETOP SPINAL ROTATION W/ FLEXION & EXTENSION	1	5-8 EACH SIDE	N/A	15-30
SUPINE TRUNK ROTATION	1	5-8 EACH SIDE	N/A	15-30

Additional time and/or movements may be added during warm-up if needed. See level 2 warm-up for more.

Tier 1: Segment 2

BODYWEIGHT RESISTANCE WORKOUT OVERVIEW				
EXERCISE	SETS	REPS	TIME EQUIVALENCY (S)	REST (S)
AIR SQUAT	1-2	12-15	45	UP TO 60
AB CRUNCH REVERSE	1-2	12-15	45	UP TO 60
COBRA	1-2	12-15	45	UP TO 60
PUSH-UP	1-2	12-15	45	UP TO 60
BRIDGE	1-2	12-15	45	UP TO 60
SIDE PLANK	1-2	12-15 RAISES EACH SIDE WITH A 3 SEC. HOLD	45	UP TO 60
PRONE 1- LEG/OPPOSITE ARM EXTENSION	1-2	12-15 EACH SIDE	45	UP TO 60
AB DRAW-IN LEG SLIDE	1-2	12-15 EACH	45	UP TO 60
TOE TOUCH CRUNCH	1-2	20 REPS	45	UP TO 60
PLANK HOLD	1-2	MAX HOLD	MAX	UP TO 60

CHOOSE ONE OF THE FOLLOWING TO USE FOR THE BODYWEIGHT WORKOUT:

- E. 5 MINI-BLOCK COUPLETS- CHOOSE TWO EXERCISES AND PERFORM THE RECOMMENDED REPETITIONS FOR EACH BACK-TO-BACK WITH MINIMAL REST BETWEEN THEM. REST UP TO 60 SECONDS BETWEEN EACH COUPLET. DO 1-2 SETS OF EACH COUPLET.
- F. FULL CIRCUIT. COMPLETE ALL 10 EXERCISES IN SUCCESSION WITH MINIMAL REST BETWEEN EACH. REST UP TO 2-MINUTES BETWEEN ROUNDS (UP TO 2 ROUNDS).
- G. PERFORM AS MANY QUALITY REPS AS POSSIBLE FOR 45 SECONDS FOR EACH EXERCISE. REST UP TO 60 SECONDS BETWEEN EACH EXERCISE. DO 1-2 SETS OF EACH EXERCISE.
- H. COMBINATION OF SEGMENT 2 BODYWEIGHT TRAINING AND SEGMENT 3 CARDIO.
 - PERFORM ONE ROUND OF THE EXERCISES. THEN COMPLETE HALF THE TIME OF SEGMENT 3. THEN REPEAT TO FINISH.
 - CHOOSE SCHEME A. ADD A 200-METER RUN/JOG BETWEEN EACH COMPLETED COUPLET FOR A TOTAL OF FIVE 200M RUNS.

Tier 1: Segment 3 (if D was used for Segment 2 this segment can be skipped)

Treadmill Walk	
Time	Pace (mph)
00:00 – 05:00	2.7 (Warm up walk)
05:00 – 06:00	3.0
06:00 – 08:00	3.4
08:00 – 09:00	3.8
09:00 – 11:00	4.0
11:00 – 12:00	4.2
12:00 – 13:00	3.8
13:00 – 14:00	4.2
14:00 – 15:00	3.5
15:00 – 16:00	4.2
16:00 – 17:00	4.4
17:00 – 18:00	3.8
18:00 – 19:00	4.4
19:00 – 20:00	4.2
20:00 – 22:00	3.8
22:00 – 25:00	3.0 (Cool down walk)

Flexibility & Cool-down: Segment 4

EXERCISE	SETS	HOLD TIME (S)	REST (S)	USE ANY VARIATIONS LISTED FROM THE MANUAL
STANDING HAMSTRING REACH	1-2	15-30	0-15	
SEATED GLUTE- KNEE TO CHEST	1-2	15-30	0-15	
SEATED ERECTOR SPINAE	1-2	15-30	0-15	
SEATED GROIN	1-2	15-30	0-15	
KNEELING HIP FLEXOR	1-2	15-30	0-15	
UPWARD DOG	1-2	15-30	0-15	
SIDE BEND- TFL	1-2	15-30	0-15	
IRON CROSS	1-2	15-30	0-15	
SUPINE SHOULDER ROTATION	1-2	15-30	0-15	
SUPINE 3-PT. ELBOW DROP	1-2	15-30	0-15	
ANY OTHER STRETCH THE TRAINER DEEMS NECESSARY	1-2	15-30	0-15	

Level 1 Tier 2 Quick Reference Workout Card

Dynamic Warm-up: Segment 1

LEVEL 1 DYNAMIC WARM-UP OVERVIEW				
EXERCISE	SETS	REPS	TIME	REST (S)
LIGHT CARDIO/DYNAMIC MOBILITY	1	N/A	5 MIN	N/A
CAT	1	5-8	N/A	15-30
LATERAL TILT	1	5-8 EACH SIDE	N/A	15-30
TABLETOP SPINAL ROTATION W/ FLEXION & EXTENSION	1	5-8 EACH SIDE	N/A	15-30
SUPINE TRUNK ROTATION	1	5-8 EACH SIDE	N/A	15-30

Additional time and/or movements may be added during warm-up if needed. See level 2 warm-up for more.

Tier 2: Segment 2

BODYWEIGHT RESISTANCE WORKOUT OVERVIEW				
EXERCISE	SETS	REPS	TIME EQUIVALENCY (S)	REST (S)
AIR SQUAT	2	15-20	45	UP TO 45
OBLIQUE CRUNCH STRAIGHT LEG RAISE	2	12-15	45	UP TO 45
SUPERMAN	2	12-15	45	UP TO 45
PLANK-TO-PUSH-UP	2	12-15	45	UP TO 45
1-LEG BRIDGE	2	12-15	30-45 EA	UP TO 45
SIDE PLANK HOLD	2	1 EA	20-30 EA	UP TO 45
SUPERMAN PLANK: ALTERNATING	2	3-5 LIFTS EA	45	UP TO 45
AB DRAW-IN DOUBLE-LEG SLIDE	2	12-15	45	UP TO 45
BODY ROW	2	12-15	30-45	UP TO 45
PLANK HOLD: 1-LEG	2	1-2 EA	30 EA	UP TO 45

CHOOSE ONE OF THE FOLLOWING TO USE FOR THE BODYWEIGHT WORKOUT:

- E. 5 MINI-BLOCK COUPLETS- CHOOSE TWO EXERCISES AND PERFORM THE RECOMMENDED REPETITIONS FOR EACH BACK-TO-BACK WITH MINIMAL REST BETWEEN THEM. REST UP TO 60 SECONDS BETWEEN EACH COUPLET. DO 2 SETS OF EACH COUPLET.
- F. FULL CIRCUIT. COMPLETE ALL 10 EXERCISES IN SUCCESSION WITH MINIMAL REST BETWEEN EACH. REST UP TO 2-MINUTES BETWEEN ROUNDS (2 ROUNDS).
- G. PERFORM AS MANY QUALITY REPS AS POSSIBLE FOR 45 SECONDS FOR EACH EXERCISE. REST UP TO 60 SECONDS BETWEEN EACH EXERCISE. DO 2 SETS OF EACH EXERCISE.
- H. COMBINATION OF SEGMENT 2 BODYWEIGHT TRAINING AND SEGMENT 3 CARDIO.
 -PERFORM ONE ROUND OF THE EXERCISES. THEN COMPLETE HALF THE TIME OF SEGMENT 3. THEN REPEAT TO FINISH.
 -CHOOSE SCHEME A. ADD A 200-METER RUN/JOG BETWEEN EACH COMPLETED COUPLET FOR A TOTAL OF FIVE 200M RUNS.

Tier 2: Segment 3 (if D was used for Segment 2 this segment can be skipped)

Treadmill Walk/Jog	
Time	Pace (mph)
00:00 – 05:00	3.0 (Warm up walk)
05:00 – 07:00	3.5
07:00 – 09:00	5.0
09:00 – 11:00	3.8
11:00 – 13:00	5.5
13:00 - 15:00	4.0
15:00 – 17:00	5.0
17:00 – 19:00	3.5
19:00 – 21:00	6.0
21:00 – 23:00	4.5
23:00 – 25:00	5.5
25:00 – 27:00	4.0
27:00 – 30:00	3.0 (Cool down walk)

Flexibility & Cool-down: Segment 4

EXERCISE	SETS	HOLD TIME (S)	REST (S)	USE ANY VARIATIONS LISTED FROM THE MANUAL
STANDING HAMSTRING REACH	1-2	15-30	0-15	
SEATED GLUTE- KNEE TO CHEST	1-2	15-30	0-15	
SEATED ERECTOR SPINAE	1-2	15-30	0-15	
SEATED GROIN	1-2	15-30	0-15	
KNEELING HIP FLEXOR	1-2	15-30	0-15	
UPWARD DOG	1-2	15-30	0-15	
SIDE BEND- TFL	1-2	15-30	0-15	
IRON CROSS	1-2	15-30	0-15	
SUPINE SHOULDER ROTATION	1-2	15-30	0-15	
SUPINE 3-PT. ELBOW DROP	1-2	15-30	0-15	
ANY OTHER STRETCH THE TRAINER DEEMS NECESSARY	1-2	15-30	0-15	

Level 1 Tier 3 Quick Reference Workout Card

Dynamic Warm-up: Segment 1

LEVEL 1 DYNAMIC WARM-UP OVERVIEW				
EXERCISE	SETS	REPS	TIME	REST (S)
LIGHT CARDIO/DYNAMIC MOBILITY	1	N/A	5 MIN	N/A
CAT	1	5-8	N/A	15-30
LATERAL TILT	1	5-8 EACH SIDE	N/A	15-30
TABLETOP SPINAL ROTATION W/ FLEXION & EXTENSION	1	5-8 EACH SIDE	N/A	15-30
SUPINE TRUNK ROTATION	1	5-8 EACH SIDE	N/A	15-30

Additional time and/or movements may be added during warm-up if needed. See level 2 warm-up for more.

Tier 3 Segment 2

BODYWEIGHT RESISTANCE WORKOUT OVERVIEW				
EXERCISE	SETS	REPS	TIME EQUIVALENCY (S)	REST (S)
PRISONER AIR SQUAT	2-3	15-20	45	15-30
BICYCLE CRUNCH	2-3	15-20 EA	45	15-30
PLANK: KNEE TO OPPOSITE ELBOW	2-3	12-15 EA	45	15-30
HAND-RELEASE PUSH-UP	2-3	15-20	45	15-30
ALTERNATING 1-LEG BRIDGE	2-3	12-15 EA	45	15-30
ALTERNATING T-PLANK	2-3	8-12 EA	30-45 W/ A HOLD	15-30
SUPERMAN PLANK: ALTERNATING 1- ARM/LEG WITH 3 SEC. HOLD	2-3	8-12 EA	45 W/ A HOLD	15-30
SPLIT SQUAT	2-3	12-15 EA	30 EA	15-30
BODY ROW 1-LEG	2-3	12-15	30-45	15-30
SIDE PLANK WITH LEG RAISE	2-3	1 HOLD EA	HOLD FOR 20-30 EA	15-30

CHOOSE ONE OF THE FOLLOWING TO USE FOR THE BODYWEIGHT WORKOUT:

- E. 5 MINI-BLOCK COUPLETS- CHOOSE TWO EXERCISES AND PERFORM THE RECOMMENDED REPETITIONS FOR EACH BACK-TO-BACK WITH MINIMAL REST BETWEEN THEM. REST UP TO 60 SECONDS BETWEEN EACH COUPLET. DO 2-3 SETS OF EACH COUPLET.
- F. FULL CIRCUIT. COMPLETE ALL 10 EXERCISES IN SUCCESSION WITH MINIMAL REST BETWEEN EACH. REST UP TO 2-MINUTES BETWEEN ROUNDS (2-3 ROUNDS).
- G. PERFORM AS MANY QUALITY REPS AS POSSIBLE FOR 45 SECONDS FOR EACH EXERCISE. REST UP TO 60 SECONDS BETWEEN EACH EXERCISE. DO 2-3 SETS OF EACH EXERCISE.
- H. COMBINATION OF SEGMENT 2 BODYWEIGHT TRAINING AND SEGMENT 3 CARDIO.
 -PERFORM ONE ROUND OF THE EXERCISES. THEN COMPLETE HALF OR ONE-THIRD OF THE TIME OF SEGMENT 3. THEN REPEAT 1-2 MORE TIMES TO FINISH.
 -CHOOSE SCHEME A. ADD A 200-METER RUN/JOG BETWEEN EACH COMPLETED COUPLET FOR A TOTAL OF FIVE 200M RUNS.

Tier 3 Segment 3 (if D was used for Segment 2 this segment can be skipped)

Treadmill Jog	
Time	Pace (mph)
00:00 – 05:00	4.0 (Warm up jog)
05:00 – 10:00	5.5
10:00 – 12:00	6.0
12:00 – 15:00	5.5
15:00 – 17:00	6.5
17:00 – 20:00	7.0
20:00 – 22:00	6.0
22:00 – 25:00	6.5
25:00 – 27:00	5.5
27:00 – 30:00	5.0
30:00 – 35:00	3.0 (Cool down walk)

Flexibility & Cool-down: Segment 4

EXERCISE	SETS	HOLD TIME (S)	REST (S)	USE ANY VARIATIONS LISTED FROM THE MANUAL
STANDING HAMSTRING REACH	1-2	15-30	0-15	
SEATED GLUTE- KNEE TO CHEST	1-2	15-30	0-15	
SEATED ERECTOR SPINAE	1-2	15-30	0-15	
SEATED GROIN	1-2	15-30	0-15	
KNEELING HIP FLEXOR	1-2	15-30	0-15	
UPWARD DOG	1-2	15-30	0-15	
SIDE BEND- TFL	1-2	15-30	0-15	
IRON CROSS	1-2	15-30	0-15	
SUPINE SHOULDER ROTATION	1-2	15-30	0-15	
SUPINE 3-PT. ELBOW DROP	1-2	15-30	0-15	
ANY OTHER STRETCH THE TRAINER DEEMS NECESSARY	1-2	15-30	0-15	

Level 2 Quick Reference Workout Card

Segment 1: Dynamic Warm-Up

DRILLS	SETS	REPS	DISTANCE	DRILLS	SETS	REPS	DISTANCE
3-5 MINUTE JOG	1			FRANKENSTEINS	1	10 EA OR	25 YDS
TRUNK TWISTS	1	10 EA		HIGH KNEES	1	15 EA OR	25 YDS
KNEE HUGS	1	10 EA		JUMPING JACKS	1	25	
BUTT KICKS	1	15 EA OR	25 YDS	GROINERS	1	5 EA	
CHERRY PICKERS- 3 COUNT	1	10		IRON CROSS SWINGS	1	10 EA	
INCH WORMS	1	10 OR	10 YDS	AIR SQUATS	1	10	
ARM SWINGS & ARM CIRCLES	1	10 EA		PUSH-UPS	1	10	
INSIDE HEEL TAPS	1	10 EA		LUNGES WITH BACK EXTENSION	1	5 EA	
SCORPIONS	1	10 EA		SHOULDER ROTATIONS	1	12 EA	
BOOT-STRAPPERS	1	10		SHOULDER FLOOR SLIDES	1	12	
WINDMILLS	1	10 EA		ANY OTHER MOVEMENT THE TRAINER DEEMS NECESSARY			

Segment 2: Bodyweight Mini-Block Circuit

PICK 1 UPPER	PICK 1 LOWER
PUSH-UP	AIR SQUAT
SPIDER PUSH-UP	FORWARD LUNGE
PLANK-TO-PUSH-UP	REVERSE LUNGE
BODY ROW	SQUAT JUMP
PULL-UP	JUMPING LUNGE
PIKE PUSH-UP	SURRENDER
T- PUSH-UP	ICE SKATER
CHIN-UP	LOW SPRAWL
ANY OTHER VARIATION	ANY OTHER VARIATION

CHOOSE ONE OF THE FOLLOWING TO USE FOR THE BODYWEIGHT WORKOUT:
K. PYRAMID: BEGIN AT ONE REP OF EACH AND INCREASE BY ONE REP EACH ROUND. REPEAT AS MANY ROUNDS AS POSSIBLE FOR 5 MINUTES (1-EACH, 2-EACH, 3-EACH, & SO FORTH).
L. 3 ROUNDS: RD. 1= 5 REPS EACH; RD. 2= 10 REPS EACH; RD. 3= 15 REPS EACH
M. 3 ROUNDS: RD. 1= 10 REPS EACH; RD. 2= 15 REPS EACH; RD. 3= 20 REPS EACH
N. 3 ROUNDS: RD. 1= 20 REPS EACH; RD.2= 15 REPS EACH; RD. 3= 10 REPS EACH
O. 5-7 REPS EACH. AS MANY ROUNDS AS POSSIBLE IN 3-5 MINUTES.
P. 5 ROUNDS: 8 REPS EACH
Q. 5 MINUTES: 30 SECONDS UPPER, 30 SECONDS LOWER. (TOTALS 5 SETS OF BOTH)
R. 1 ROUND: 40 REPS EACH (COMPLETE THE 40 REPS ANYWAY)
S. ATHLETE'S CHOICE. CREATE ANY SCHEME THAT CAN BE COMPLETED IN LESS THAN 7 MINUTES.

Segment 3: High-Intensity Interval Resistance Training

PICK 1 UPPER	A. KETTLEBELL OR DUMBBELL	PICK 1 LOWER/COMBINATION	A. KETTLEBELL OR DUMBBELL	PICK 1 CARDIO
PLANK ROW		KB SWING		11. MOUNTAIN CLIMBER SPRAWLS
PUSH PRESS	OFFSET SQUAT	12. BURPEES		
ALTERNATING FLOOR/BENCH PRESS	GOBLET SQUAT	13. MOUNTAIN CLIMBERS		
UPRIGHT ROW	STIFF-LEGGED DEADLIFT	14. SLEDGEHAMMER-TO-TIRE HIT		
BENT-OVER ROW	DEADLIFT	15. BEAR CRAWL 50 YARDS		
SHOULDER PRESS	SIDE LUNGE	16. TIRE FLIPS: 5-10 FLIPS (DEPENDS ON SIZE)		
WEIGHTED DIP	CLEAN	17. BATTLE ROPE VARIATIONS		
WEIGHTED PUSH-UP	SNATCH/FLOOR-TO-OVERHEAD	18. 200M, 300M OR 400M RUN		
SHOULDER-TO-SHOULDER KB PRESS	TURKISH GETUP	19. SUICIDE- 5 TO 10 YDS BETWEEN EACH CONE		
PULL-UP	OVERHEAD LUNGE	20. 100-YD SHUTTLE (4X25YDS)		

CHOOSE ONE OF THE FOLLOWING TO USE FOR THE HIRT WORKOUT:
A. PERFORM 10 REPS OF THE UPPER AND LOWER BODY EXERCISE FOLLOWED BY 1 MINUTE OF CARDIO #1, 2, 3, 4, 5, 7, 9. PERFORM AS MANY ROUNDS AS POSSIBLE IN 12-20 MINUTES. (CHOOSE THE TIME)
B. 3-5 ROUNDS- 10-12 REPS OF THE UPPER AND LOWER BODY EXERCISE FOLLOWED BY CARDIO #8, 9, OR 10.
C. TABATA PROTOCOL- 20 SECONDS OF AS MANY REPS AS POSSIBLE OF THE UPPER BODY. REST 10 SEC. 20 SECONDS OF AS MANY REPS AS POSSIBLE OF THE LOWER BODY. REST 10 SEC. 20 SECONDS OF AS MANY REPS AS POSSIBLE OF THE CARDIO # 1, 2, 3, 4, 5, 6, 7 OR 9. CONTINUE TO CYCLE WITH THE SAME CHOICES FOR A TOTAL OF 9 MINUTES STRAIGHT.
D. DO 45 SECONDS OF EACH SECTION. REST 1 MINUTE. REPEAT 3-5 ROUNDS.
E. DOUBLE TABATA PROTOCOL- 40 SECONDS OF WORK OF THE UPPER BODY. REST 20 SEC. 40 SECONDS OF WORK OF THE LOWER BODY. REST 20 SEC. 40 SECONDS OF WORK OF THE CARDIO #1-7, 9 & 10. COMPLETE 4-6 ROUNDS.
F. 3-5 ROUNDS- 8-12 REPS OF UPPER, LOWER AND 5 REPS OF TIRE FLIPS.
G. PYRAMID- START AT 1 REP AND ASCEND BY 1 REP EVERY ROUND UP TO 10 FOR THE UPPER AND LOWER BODY EXERCISE. USE CARDIO #4, 6, 7, 8, 9 OR 10.
H. 15 MINUTES AS MANY ROUNDS AS POSSIBLE OF 10 REPS OF UPPER AND LOWER BODY AND 20 REPS OF CARDIO #1, 2, 4, OR 7.
I. 20 MINUTES, AS MANY ROUNDS AS POSSIBLE OF 6 REPS OF UPPER, LOWER, AND CARDIO #6 OR 8.
J. ATHLETE'S CHOICE. CHOOSE ANY TWO EXERCISES AND 1 CARDIO AND CREATE YOUR OWN SCHEME. TIME CAP IS 20 MINUTES.

Segment 4: Core & Abs

CHOOSE 3
CORE EXERCISES:
BUTTERFLY SIT-UP
V-UP
PRONE SUPERMAN
BICYCLE CRUNCH
PLANK WALK
FLUTTER KICKS
ROCKING HOLLOW ROCKS
SCUBA SITUPS
LEG RAISE
PLANK (USE VARIATIONS)
SUPERMAN PLANK (ON HANDS)
WINDSHIELD WIPERS
RUSSIAN TWIST
SIDE PLANK (USE VARIATIONS)
BREAKDANCE PLANK
HANGING KNEE RAISE/KNEES-TO-ELBOW

CHOOSE ONE OF THE FOLLOWING TO USE FOR THE CORE WORKOUT:
H. TABATA PROTOCOL- CYCLE THROUGH THE EXERCISES USING 20 SECONDS OF WORK, 10 SECONDS REST FOR 6 TO 9 MINUTES.
I. DOUBLE TABATA PROTOCOL- CYCLE THROUGH THE EXERCISES USING 40 SECONDS OF WORK, 20 SECONDS OF REST FOR 6 TO 9 MINUTES.
J. 2 ROUNDS- 25 REPS EACH
K. 3 ROUNDS- CYCLE THROUGH EACH FOR 1 MINUTE, 0-15 SECONDS OF REST BETWEEN EACH.
L. 2 MINUTES OF EACH
M. 1 ROUND- 50 REPS EACH

Segment 5: Flexibility & Cool-down

EXERCISE	SETS	HOLD TIME (S)	REST (S)	USE ANY VARIATIONS LISTED FROM THE MANUAL
STANDING HAMSTRING REACH	1-2	15-30	0-15	
SEATED GLUTE- KNEE TO CHEST	1-2	15-30	0-15	
SEATED ERECTOR SPINAE	1-2	15-30	0-15	
SEATED GROIN	1-2	15-30	0-15	
KNEELING HIP FLEXOR	1-2	15-30	0-15	
UPWARD DOG	1-2	15-30	0-15	
SIDE BEND- TFL	1-2	15-30	0-15	
IRON CROSS	1-2	15-30	0-15	
SUPINE SHOULDER ROTATION	1-2	15-30	0-15	
SUPINE 3-PT. ELBOW DROP	1-2	15-30	0-15	
ANY OTHER STRETCH THE TRAINER DEEMS NECESSARY	1-2	15-30	0-15	

WORKOUT LOG

EXERCISES	LEVEL/ TIER/ SEGMENT	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
		SCHEME SETS REPS	SCHEME SETS REPS	SCHEME SETS REPS	SCHEME SETS REPS	SCHEME SETS REPS	SCHEME SETS REPS	SCHEME SETS REPS
1. 2. 3.								
1. 2. 3.								
1. 2. 3.								
1. 2. 3.								
1. 2. 3.								
1. 2. 3.								
1. 2. 3.								

PERCENTILES FOR YMCA SIT-AND-REACH TEST (INCHES)

PERCENTILE	AGE											
	18-25		26-35		36-45		46-55		56-65		>65	
GENDER	M	F	M	F	M	F	M	F	M	F	M	F
90	22	24	21	23	21	22	19	21	17	20	17	20
80	20	22	19	21	19	21	17	20	15	19	15	18
70	19	21	17	20	17	19	15	18	13	17	13	17
60	18	20	17	20	16	18	14	17	13	16	12	17
50	17	19	15	19	15	17	13	16	11	15	10	15
40	15	18	14	17	13	16	11	14	09	14	09	14
30	14	17	13	16	13	15	10	14	09	13	08	13
20	13	16	11	15	11	14	09	12	07	11	07	11
10	11	14	09	13	07	12	06	10	05	09	04	09

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PERCENTILE VALUES FOR 1.5-MILE TEST

PERCENTILE	AGE											
	20-29		30-39		40-49		50-59		60-69		70-79	
GENDER	M	F	M	F	M	F	M	F	M	F	M	F
99	08:22	09:23	08:49	09:52	09:02	10:09	09:31	11:34	10:09	12:25	10:27	12:25
95	09:10	10:20	09:31	11:08	09:47	11:35	10:27	13:16	11:20	14:28	12:25	14:33
90	09:34	10:59	09:52	11:43	10:09	12:25	11:09	13:58	12:10	15:32	13:25	16:06
85	09:52	11:34	10:14	12:23	10:44	13:14	11:45	14:33	12:53	16:22	13:57	16:57
80	10:08	11:56	10:38	12:53	11:09	13:38	12:08	15:14	13:25	16:46	14:52	18:05
75	10:34	12:07	10:59	13:08	11:32	13:58	12:37	15:47	13:58	17:34	15:38	18:39
70	10:49	12:51	11:09	13:41	11:52	14:33	12:53	16:26	14:33	18:05	16:22	19:24
65	11:09	13:01	11:34	13:58	11:58	15:03	13:25	16:46	14:55	18:39	16:46	20:02
60	11:27	13:25	11:49	14:33	12:25	15:17	13:53	17:19	15:20	18:52	17:37	20:54
55	11:34	13:58	11:58	14:33	12:53	15:56	13:58	17:38	15:53	19:29	18:05	21:45
50	11:58	14:15	12:25	15:14	13:05	16:13	14:33	18:05	16:19	20:08	18:39	22:22
45	12:11	14:33	12:44	15:35	13:25	16:46	14:35	18:39	16:46	20:38	19:19	22:54
40	12:29	15:05	12:53	15:56	13:50	17:11	15:14	19:10	17:19	20:55	19:43	23:47
35	12:53	15:32	13:25	16:43	14:10	17:38	15:53	19:43	17:49	22:03	20:28	24:54
30	13:08	15:56	13:48	16:46	14:33	18:26	16:16	20:17	18:39	22:34	21:28	25:49
25	13:25	16:43	14:10	17:38	15:00	18:39	16:46	20:55	19:10	23:20	22:22	26:15
20	13:58	17:11	14:33	18:18	15:32	19:43	17:30	21:57	20:13	23:55	23:55	27:17
15	14:33	17:53	15:14	19:01	16:09	20:49	18:22	22:53	21:34	25:02	25:49	27:55
10	15:14	18:39	15:56	20:13	17:04	21:52	19:24	23:55	23:27	26:32	27:55	30:34
5	16:46	21:05	17:30	21:57	18:39	23:27	21:40	26:15	25:58	29:06	30:34	33:32
1	20:55	25:17	20:55	25:10	22:22	27:55	27:08	30:34	31:59	33:05	33:30	37:26

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PERCENTILE VALUES FOR 12-MINUTE RUN (MILES)

PERCENTILE	AGE											
	20-29		30-39		40-49		50-59		60-69		70-79	
	M	F	M	F	M	F	M	F	M	F	M	F
99	2.02	1.84	1.94	1.77	1.90	1.74	1.82	1.57	1.74	1.49	1.69	1.49
95	1.88	1.71	1.82	1.62	1.79	1.57	1.69	1.42	1.60	1.34	1.49	1.33
90	1.81	1.63	1.77	1.56	1.73	1.49	1.61	1.37	1.51	1.27	1.41	1.25
85	1.77	1.57	1.72	1.50	1.66	1.43	1.55	1.33	1.45	1.23	1.37	1.20
80	1.73	1.54	1.67	1.45	1.61	1.40	1.52	1.29	1.41	1.21	1.32	1.15
75	1.68	1.52	1.63	1.43	1.58	1.37	1.47	1.26	1.37	1.18	1.27	1.13
70	1.65	1.46	1.61	1.39	1.54	1.33	1.45	1.23	1.33	1.15	1.23	1.10
65	1.61	1.44	1.57	1.37	1.53	1.30	1.41	1.21	1.31	1.13	1.21	1.08
60	1.58	1.41	1.55	1.33	1.49	1.29	1.38	1.19	1.29	1.12	1.17	1.05
55	1.57	1.37	1.53	1.33	1.45	1.25	1.37	1.17	1.26	1.10	1.15	1.04
50	1.53	1.35	1.49	1.29	1.44	1.24	1.33	1.15	1.23	1.08	1.13	1.01
45	1.51	1.33	1.46	1.27	1.41	1.21	1.33	1.13	1.21	1.06	1.11	1.00
40	1.49	1.30	1.45	1.25	1.38	1.19	1.29	1.11	1.19	1.05	1.09	0.98
35	1.45	1.27	1.41	1.21	1.36	1.17	1.26	1.09	1.17	1.02	1.07	0.95
30	1.43	1.25	1.38	1.21	1.33	1.14	1.24	1.07	1.13	1.01	1.04	0.93
25	1.41	1.22	1.36	1.17	1.31	1.13	1.21	1.05	1.11	0.99	1.01	0.92
20	1.37	1.19	1.33	1.15	1.28	1.09	1.18	1.02	1.08	0.97	0.97	0.90
15	1.33	1.16	1.29	1.12	1.24	1.06	1.14	1.00	1.03	0.95	0.93	0.89
10	1.29	1.13	1.25	1.08	1.20	1.03	1.10	0.97	0.99	0.92	0.89	0.85
5	1.21	1.05	1.18	1.02	1.13	0.98	1.03	0.92	0.93	0.87	0.85	0.81
1	1.05	0.94	1.05	0.94	1.01	0.89	0.90	0.85	0.83	0.82	0.81	0.77

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ROCKPORT ONE-MILE WALKING TEST

GUIDELINES

The following test assesses the VO₂ max value for cardiovascular fitness (VO₂ max is also known as the maximal rate of oxygen consumption):

1. Walk as fast as possible for one mile. (For full validity, a heart rate of at least 120 beats per minute must be attained.)
2. Collect two pieces of information:
 - A. Time by stopwatch: _____ (minutes and seconds)
Convert to decimal minutes
Decimal minutes (t) = [mins + (seconds/60)] = _____
 - B. The heart rate taken for 10 seconds after crossing the one-mile mark. Multiply this by 6 to find beats per minute:
Minute heart rate: _____
3. The following regression equation is recommended by the ACSM. This will allow the calculation of the relative value in ml/kg/min (milliliters of oxygen per kilogram of body mass per minute):
VO₂ Max = 132.853 - (.3877 x Age) - (.0769 x Wt) - (3.2649 x T) - (.1565 x HR) + (6.315 x Gender)
Wt = weight in pounds
Age = present age
Gender: male = 1, female = 0
T = Time in decimal minutes (Example: 15 minutes and 45 seconds = 15.75)
Units = ml/kg/min

PERCENTILE VALUES MAX VO₂ (ML/KG/MIN) ROCKPORT ONE-MILE WALK TEST

PERCENTILE	AGE											
	20-29		30-39		40-49		50-59		60-69		70-79	
	M	F	M	F	M	F	M	F	M	F	M	F
99	61.2	55.0	58.3	52.5	57.0	51.1	54.3	45.3	51.1	42.4	49.7	42.4
95	56.2	50.2	54.3	46.9	52.9	45.2	49.7	39.9	46.1	36.9	42.4	36.7
90	54.0	47.5	52.5	44.7	51.1	42.4	46.8	38.1	43.2	34.6	39.5	33.5
85	52.5	45.3	50.7	42.5	48.5	40.0	44.6	36.7	41.0	33.0	38.1	32.0
80	51.1	44.0	47.5	41.0	46.8	38.9	43.3	35.2	39.5	32.3	36.0	30.2
75	49.2	43.4	47.5	40.3	45.4	38.1	41.8	34.1	38.1	31.0	34.4	29.4
70	48.2	41.1	46.8	38.8	44.2	36.7	41.0	32.9	36.7	30.2	33.0	28.4
65	46.8	40.6	45.3	38.1	43.9	35.6	39.5	32.3	35.9	29.4	32.3	27.6
60	45.7	39.5	44.4	36.7	42.4	35.1	38.3	31.4	35.0	29.1	30.9	26.6
55	45.3	38.1	43.9	36.7	41.0	33.8	38.1	30.9	33.9	28.3	30.2	26.0
50	43.9	37.4	42.4	35.2	40.4	33.3	36.7	30.2	33.1	27.5	29.4	25.1
45	43.1	36.7	41.4	34.5	39.5	32.3	36.6	29.4	32.3	26.9	28.5	24.6
40	42.2	35.5	41.0	33.8	38.4	31.6	35.2	28.7	31.4	26.6	28.0	23.8
35	41.0	34.6	39.5	32.4	37.6	30.9	33.9	28.0	30.6	25.4	27.1	22.9
30	40.3	33.8	38.5	32.3	36.7	29.7	33.2	27.3	29.4	24.9	26.0	22.2
25	39.5	32.4	37.6	30.9	35.7	29.4	32.3	26.6	28.7	24.2	25.1	21.9
20	38.1	31.6	36.7	29.9	34.6	28.0	31.1	25.5	27.4	23.7	23.7	21.2
15	36.7	30.5	35.2	28.9	33.4	26.7	29.8	24.6	25.9	22.8	22.2	20.8
10	35.2	29.4	33.8	27.4	31.8	25.6	28.4	23.7	24.1	21.7	20.8	19.3
5	32.3	26.4	31.1	25.5	29.4	24.1	25.8	21.9	22.1	20.1	19.3	17.9
1	26.6	22.6	26.6	22.7	25.1	20.8	21.3	19.3	18.6	18.1	17.9	16.4

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FITNESS CATEGORIES FOR PUSH-UPS (REPETITIONS IN ONE-MINUTE)

CATEGORY	AGE									
	20-29		30-39		40-49		50-59		60-69	
GENDER	M	F	M	F	M	F	M	F	M	F
EXCELLENT	36	30	30	27	25	24	21	21	18	17
VERY GOOD	35	29	29	26	24	23	20	20	17	16
	29	21	22	20	17	15	13	11	11	12
GOOD	28	20	21	19	16	14	12	10	10	11
	22	15	17	13	13	11	10	07	08	05
FAIR	21	14	16	12	12	10	09	06	07	04
	17	10	12	08	10	05	07	02	05	02
NEEDS IMPROVEMENT	16	09	11	07	09	04	06	01	04	01

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YMCA PERCENTILES FOR SIT-UPS (REPETITIONS IN ONE-MINUTE)

PERCENTILE	AGE											
	18-25		26-35		36-45		46-55		56-65		>65	
GENDER	M	F	M	F	M	F	M	F	M	F	M	F
90	77	68	62	54	60	54	61	48	56	44	50	34
80	66	61	56	46	52	44	53	40	49	38	40	32
70	57	57	52	41	45	38	51	36	46	32	35	29
60	52	51	44	37	43	35	44	33	41	27	31	26
50	46	44	38	34	36	31	39	31	36	24	27	23
40	41	38	36	32	32	28	33	28	32	22	24	20
30	37	34	33	28	29	23	29	25	28	18	22	16
20	33	32	30	24	25	20	24	21	24	12	19	11
10	27	25	21	20	21	16	16	13	20	08	12	09

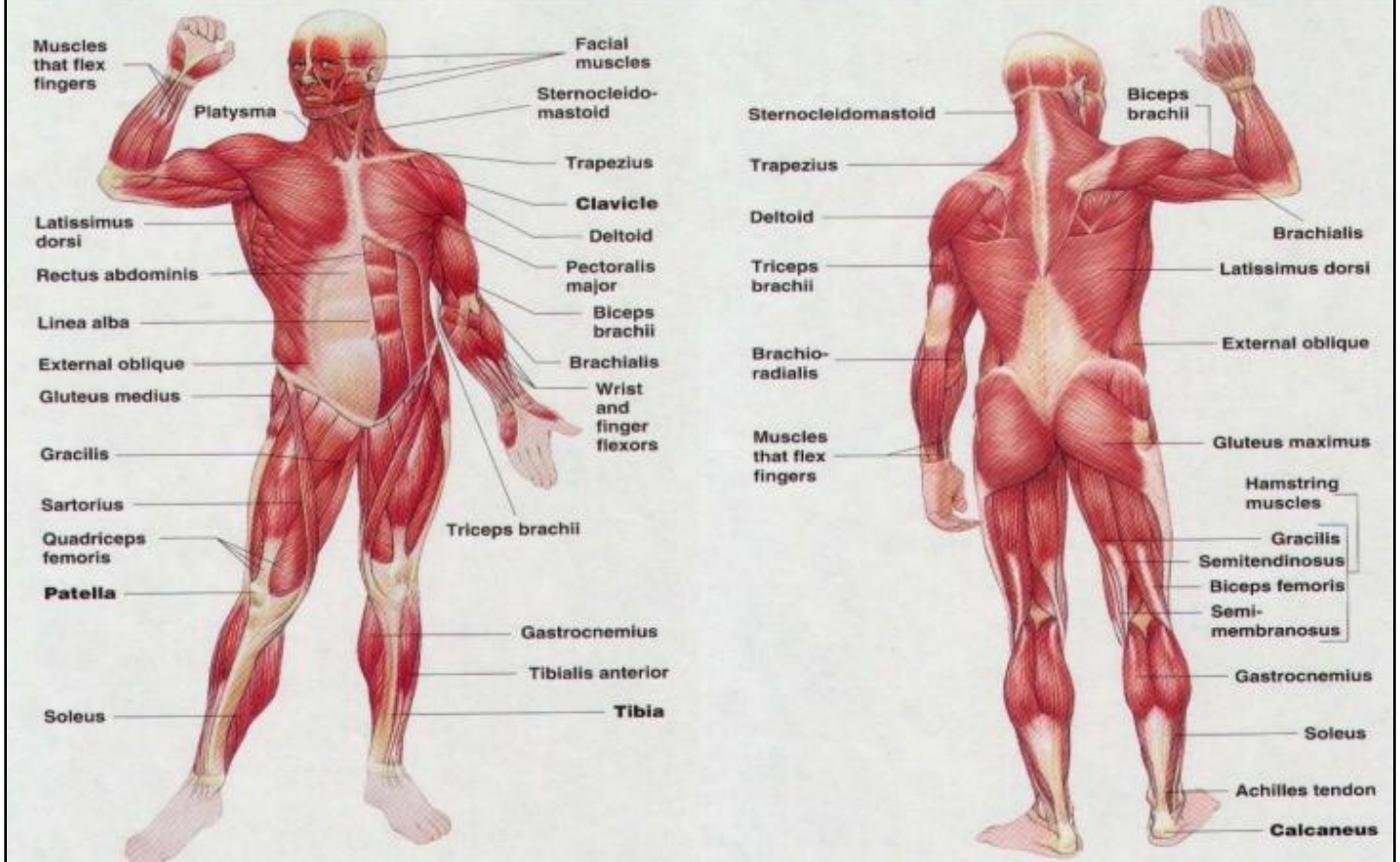
*National Strength and Conditioning Association- Essentials of Personal Training

HEART RATE TRAINING ZONES

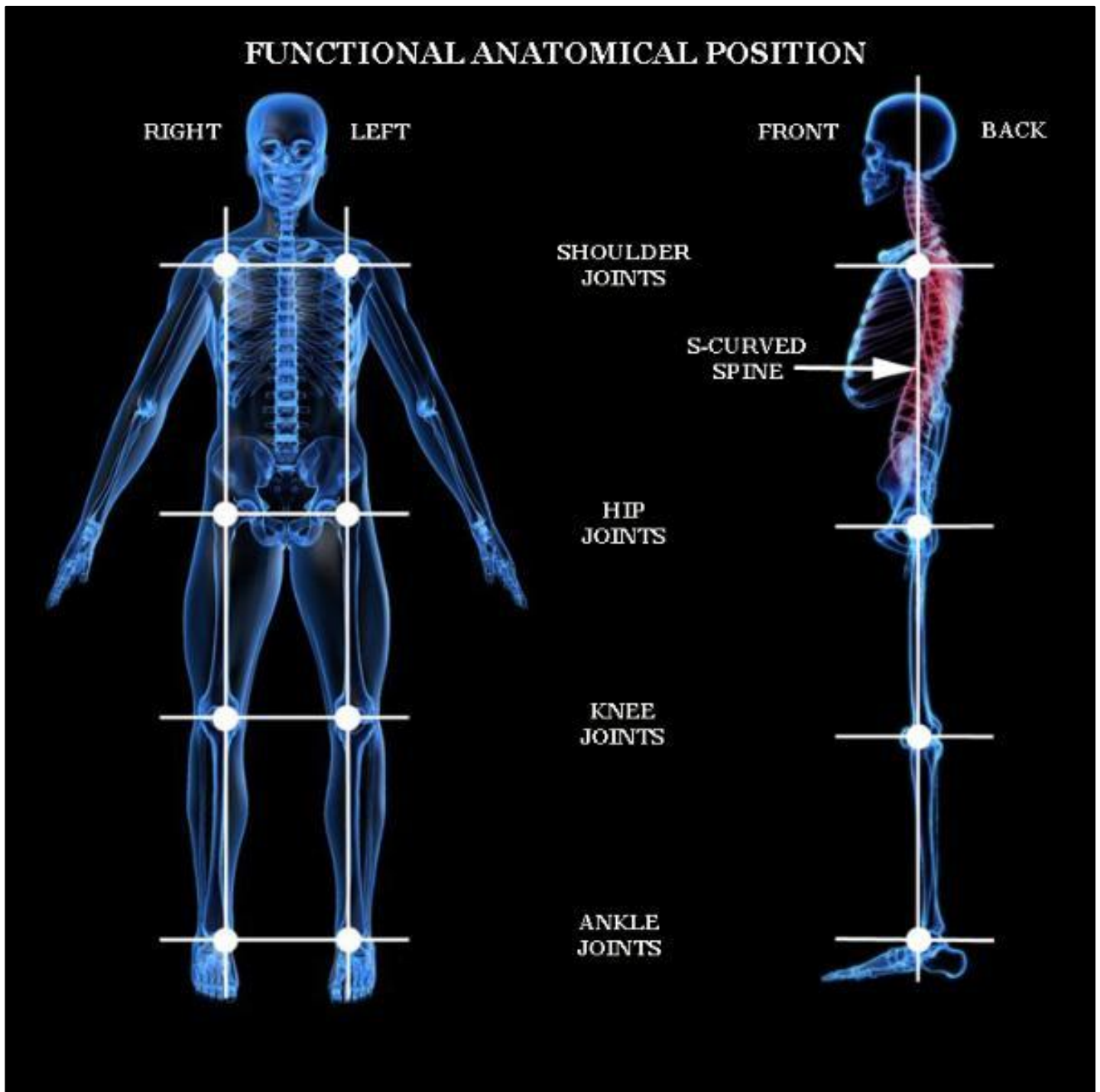
AGE	LOW-TO-MODERATE 60-70%	MODERATE-TO-HIGH 70-80%	HIGH 80-90%
	BEATS/MIN		
TO 19	121 - 141	141 - 161	161 - 181
20 - 24	119 - 139	139 - 158	158 - 178
25 - 29	116 - 135	135 - 154	154 - 174
30 - 34	113 - 132	132 - 150	150 - 169
35 - 39	110 - 128	128 - 148	146 - 165
40 - 44	107 - 125	125 - 142	142 - 160
45 - 49	104 - 121	121 - 138	136 - 156
50 - 54	101 - 118	118 - 134	134 - 151
55 - 59	98 - 114	114 - 130	130 - 147
60 - 64	96 - 111	111 - 126	126 - 142
65 - 69	92 - 107	107 - 122	122 - 138
70 - 74	89 - 104	104 - 118	118 - 133
75 - 79	86 - 100	100 - 114	114 - 129
80 - 84	83 - 97	97 - 110	110 - 124
85+	81 - 95	96 - 108	108 - 122

MAJOR MUSCLES OF THE BODY

The Muscular System

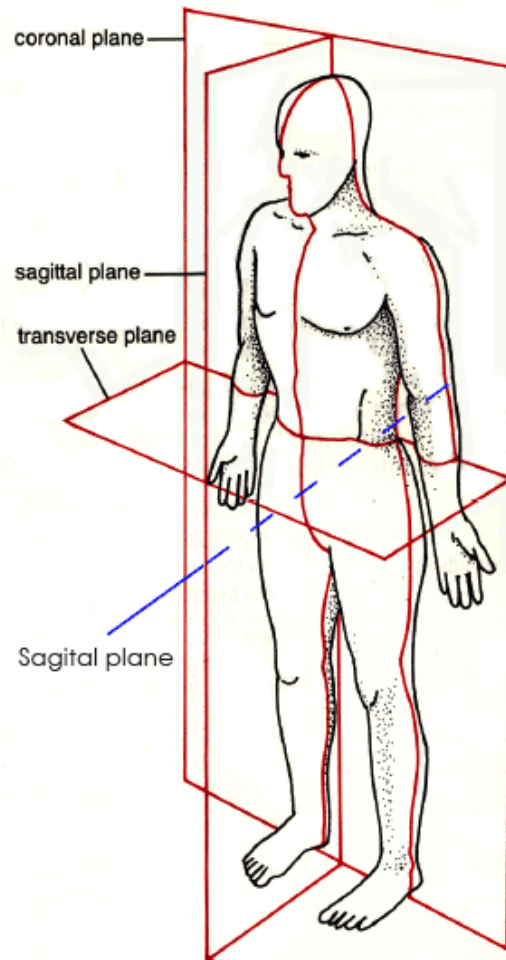


MAJOR JOINTS OF THE BODY



Bodytrippin.com

ANATOMICAL PLANES OF THE BODY



Anatomical planes of the body

'Brukner and Kahn, 2005'

From: Reid, Paula
Sent: Tuesday, July 01, 2014 8:38 AM
To: McDowell, Tony
Cc: Simulcik, Becky; Stovall, Elizabeth; Gaskins, Joshua
Subject: RE: Kudos - Department of Human Resources

Chief,

Thank you SO much for taking the time to acknowledge the partnership that has developed between the Department of Human Resources and the Division of Fire, particularly as it relates to fitness and wellness efforts. As you know, most successes are the result of the valuable contributions of our employees. That is certainly the case in this situation. Each of our respective staff has worked together to ensure the success of this initiative. I am very proud of both Liz and Joshua! Thanks for acknowledging their hard work. They are true example of employees who "get it", and I am grateful. We all look forward to continuing this partnership and we are proud to be a part of such an effort that will have tremendous impact on the Division of Fire for years to come. Thank you for your vision and for allowing us to play a role in it.

Paula



County of Henrico, Virginia

Paula G. Reid, PHR

Director of Human Resources

Parham & Hungary Spring Roads | PO Box 90775 | Henrico, VA 23273-0775
Phone: 804.501.7202 | Fax: 804.501.7180
Email: rei21@henrico.us | Website: <http://www.henrico.us/hr/>

From: McDowell, Tony
Sent: Tuesday, July 01, 2014 8:23 AM
To: Vithoukias, John
Cc: Reid, Paula
Subject: Kudos - Department of Human Resources

Mr. Manager,

I wanted to let you know about a very successful collaborative effort that has been undertaken by Human Resources / Fitness & Wellness staff to support the needs of the Division of Fire.

Over the course of the past several months, Liz Stovall and Josh Gaskins have been working with Division of Fire staff to create a specially tailored Firefighter Physical Fitness training program. The program was designed based on the outcomes and results of the Work Performance Evaluation (WPE) that all Henrico firefighters completed last fall. It addresses physical fitness training for all firefighters, regardless of their current fitness level. The step-wise approach is designed to help personnel improve their overall job-related fitness and health. This is especially important when considering that heart attacks account for the majority of line of duty death for firefighters in the United States. The risk of sudden cardiac death while engaged in structural firefighting is increased as much as 100% over routine physical activities.

Liz and Josh created the program (from scratch) and delivered a two-day long "train the trainer" program for the Division personnel who will be delivering this training to the fire stations. To accompany the program, they created a comprehensive manual that firefighters can use to guide and measure their participation.

Liz, Josh, and the entire H.R. team have gone to incredible lengths to study the problem, listen to firefighters, and to develop a very professional program that meets our unique needs. The effort they put into the product reflects a sense of pride, ownership, and determination for success. In the process they demonstrated a great example of the "the Henrico County way."

Sincerely,

Tony

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Abstract

Supporting employee wellness through a wide variety of programs is a critical element of Henrico County culture. A high level of physical fitness is essential for all firefighters given the unique risks faced by Henrico County firefighters in the course of providing emergency services to the citizens. In order to support the culture of physical fitness among the County's firefighters, the Division of Fire and the Department of Human Resources' Fitness and Wellness Division collaborated to create a structured, fire station-based, fitness program. The Firefighter Fitness Manual provides a modular fitness program designed to improve overall firefighter fitness levels and to reduce the risk of injury through a specific focus on core strength. The Firefighter Fitness Manual is based on a six-month, progressive program that is adaptable to any fitness level. Firefighter Peer Fitness Trainers receive extensive training on program delivery and are available to all firefighters for group or individualized program support. The Firefighter Fitness Manual is available in all fire stations and through the Division of Fire's on-line training platform. The program is updated as needed and is used regularly by Division of Fire staff.

The Problem or Need for the Program

Henrico County is committed to fostering a culture of fitness and wellness for all employees. This commitment is especially critical in the public safety sphere. A high level of physical fitness is key to consistent mission success in the emergency setting, reduces the risk of injury, and helps to build the psychological resilience that is necessary for firefighters facing a career of responding to critical, often dangerous emergencies. In 2013, the Division of Fire initiated an annual Work Performance Evaluation (WPE) to ensure that all firefighters could demonstrate the ability to perform a set of essential job functions. Although initial WPE results were very good, a post-WPE analysis identified several barriers to improving firefighter physical fitness including: the decentralized nature of fire station locations; a wide variation in fitness levels among firefighters, even among those who were successful in the WPE; a lack of knowledge regarding physical fitness program best-practices; and historically inconsistent physical fitness programming. It became clear that a modular program that required little or no equipment, was designed for firefighters of all fitness levels and that could be led by the immediate supervisor in the fire station, would provide a cost-effective solution.

Description of the Program

The Division of Fire conducted a Work Performance Evaluation (WPE) in 2013. After a review and analysis of the results, several barriers to improving firefighter physical fitness were identified. These included the decentralized nature of fire station locations, a wide variation in fitness levels among firefighters, a lack of knowledge regarding physical fitness program best-practices, and historically inconsistent physical fitness programming. With the goal of finding a cost-effective means to overcome these barriers, Division of Fire personnel met with staff from the Department of Human Resources Fitness and Wellness Division to collaborate on a solution. Together, the cost-effective idea to produce a Firefighter Fitness Manual was born.

Division of Fire personnel and Fitness and Wellness staff created a draft outline of a proposed fitness manual. Once the outline was reviewed and approved, a member of the Fitness and Wellness staff developed a 6-month, 2-level progressive fitness program that allowed for individually tailored workouts within a set of structured parameters. The program is designed to improve current fitness levels and is designed to be completed at any fire station or similar environment using a minimal amount of equipment.

Prior to beginning the program, the firefighter performs a self-administered comprehensive fitness assessment. The fitness assessment provides an individualized benchmark to gauge the effectiveness of the program for each specific firefighter. The assessment includes a core assessment plank hold test, the YMCA sit-and-reach test, a cardiovascular endurance assessment, a muscular endurance test and fitness data such as resting heart rate, blood pressure, weight, waist-to-hip ratio and muscular strength.

Firefighter Fitness Program Level 1 is designed to be used for the first three months of the program. Level 1 focuses entirely on bodyweight exercises and is progressive, with three tiers that advance every 4-6 weeks based on improvements in core strength, stability and cardiovascular endurance. Level 1 focuses on developing core strength and stability, preventing back injury, improving muscular and cardiovascular endurance, improving flexibility and enhancing overall performance. The program is designed in three, 4-week tiers and each tier consists of four segments: dynamic warm-up, bodyweight resistance training, cardiovascular training and cool-down and flexibility. Intensity and difficulty of the movement's progresses as you move through the tiers so fitness and performance improve and do not plateau. Level 1 only requires a venue for running (treadmill/track/loop or elliptical machine) and the body. No weights or other traditional exercise equipment are required.

Firefighter Fitness Program Level 2 is designed to be used for the second three months after successful completion of Level 1. Firefighters with higher initial fitness assessment scores may start the program at Level 2. Level 2 is a high-intensity interval resistance training program with a metabolic conditioning regimen. It is designed to be performed three times per week or every other day and allows the user to build their own workout by choosing from a menu of exercises. There are five segments in each Level 2 regimen: dynamic warm-up, bodyweight mini-block circuit, high intensity resistance training, core and abdominals and cool-down and stretching. Level 2 requires a minimal amount of low-cost, low-tech equipment, such as dumbbells, kettlebells, a tire, a sledghehammer, agility cones, a battle rope, a pull-up bar or a barbell plate weight, depending on which movements are chosen for a particular workout.

The Firefighter Fitness Manual was completed in June 2014 and was made available at all 20 fire stations and in Fire Administration. The manual was also placed on the internal online, web-based training platform that is utilized by all Division of Fire members. Guidelines based on the WPE completion time of completion were provided to fire personnel. For example, firefighter's with WPE completion time greater than the 8:44 benchmark were recommended to start at Level 1, moving on to Level 2 only after demonstrating significant progress on the physical fitness assessment. Firefighters who completed the WPE under the 8:44 benchmark were advised to start at Level 2. The online manual is updated as needed and many firefighters and administrative staff in the Division of Fire use the manual regularly as a guide in their workouts. The manual also includes several reference guides to be used as a rapid planning tool for building a customized workout based on fitness level, and available time and equipment.

To ensure the manual was sound and easy-to-use, Fire Administration staff participated in the program using the manual and were led by the fitness trainer for one hour workouts, three-times per week from July 2014 through November 2014. In addition, the fitness trainer trained 19 Division of Fire Peer Fitness Trainers on the Firefighter Fitness Manual. Based on feedback and observations, small changes were made to the program and manual as needed.

The Firefighter Fitness Manual is more than 160 pages of exercise descriptions, pictures and tables. A firefighter, who is also a certified fitness trainer, posed for all of the pictures to ensure familiarity for the firefighters using the manual and also as a means to guarantee that accurate representation of proper exercise form is represented. There are more than 275 photographs of the exercises and 130 different exercise descriptions. In addition, many extra tips, facts and motivations are contained throughout the manual as well as an appendix that includes quick reference workout cards for every level and tier that can be easily printed to have on hand when working out. It provides myriad ways to create a unique workout. Please refer to the attached copy of the manual.

Responding to the Economic Downturn

Despite the recent upturn in the economy, the era of tight budgets in local government continues. At the same time, the demand for the delivery of high quality emergency services continues to grow. The prevention of, preparation for, and response to high risk incidents involving critical life safety issues will always remain a key job component of public safety agencies regardless of the fiscal environment in the community. This combination of high service demand along with the described budget challenges requires organizations to develop creative, cost-effective solutions. Specifically, a high level of physical fitness is an essential foundational element for all firefighters, regardless of economic circumstances. Having unfit fire personnel can increase costs if injuries and accidents occur and can lead to decreased mission readiness and ultimately unacceptable outcomes. The County of Henrico sought to identify a low-cost way to improve and maintain firefighter physical fitness. Through collaboration with the Division of Fire and the Fitness and Wellness Division of the Department of Human Resources, an in-house solution was found utilizing the expertise of current staff, resulting in the production of an excellent product at a very low cost. The Firefighter Fitness Manual will provide fitness guidance and direction for many years at little cost.

Use of Technology

The firefighter fitness manual was designed and formatted in Microsoft Word and saved in the Adobe PDF format. Pictures for the manual were taken with a digital camera and were cropped, re-sized and formatted in Microsoft Picture Manager. In addition, images obtained from the Internet were used for the appendix. Several web sites were used for reference in developing the exercise descriptions in the manual.

Email was used extensively in setting up meetings and scheduling picture sessions and training sessions. The manual is available to all fire personnel on the Division of Fire's Target Solutions Intranet page. Any

edits to the manual are done in Word, and the manual is re-saved as a PDF and uploaded to the Web without delay so that the latest version is available.

The Cost of the Program

Current staff conceived of, designed, and implemented the manual utilizing existing resources, such as digital photography and the Internet as supplemental tools. Although staff time is extremely valuable, it is a cost the County would incur with or without this project. The only tangible cost for the project was the cost of printing several hard copies of the manual for training and staff. The County's internal Print Shop was utilized for this, further keeping even this small cost in-house.

Results/Success of the Program

The Firefighter Fitness Manual, along with the Division of Fire Peer Fitness Trainers, will no doubt improve the Division of Fire's ability to field an effective firefighting force, while minimizing the cost to the taxpayer, for years to come. Physical fitness is a strong component of the Fire Chief's overall vision for the County's Division of Fire and the Firefighter Fitness Manual is a key tool in helping to achieve that vision. Over 320 workouts were completed by fire staff in the first 4 months that the manual was available and it continues to be used today. It is available to all Division of Fire personnel, and the Fitness and Wellness Division of Human Resources utilizes this manual for any firefighter who is referred for physical training assistance. The fitness trainer has personally exposed over 70 Henrico County firefighters to the manual and he trained 25 firefighters on how to use/teach the program as well. The number of firefighters who passed the WPE in 2014 (compared to 2013) increased from 87% to over 95%. The Fire Chief, Anthony McDowell, has personally thanked staff involved in this project, noting its positive impact on the Division of Fire (please see attachment of email string begun by the Fire Chief to the County Manager). In addition, Assistant Fire Chief Andrew Baxter told the fitness trainer that this Manual has saved the Division of Fire and the County thousands of dollars. The Firefighter Fitness Manual has already netted significant positive results and will continue to do so for years to come.

Worthiness of an Award

It is widely recognized that physical fitness is a critical element for successful operations in the public safety setting. The Firefighter Fitness Manual is a low-cost, easily-replicated solution that supports the development and continuous improvement of firefighter physical fitness. Creating the manual in-house allows it to adapt to the culture of the organization developing it and controls cost. Any organization can tap into the resources available: online information and internal personnel who can replicate this type of tool to best meet their needs. The Firefighter Fitness Manual is an innovative program that addresses an imperative county government need in a low-cost manner. It is an innovative solution that will ultimately benefit Henrico County residents for years to come.