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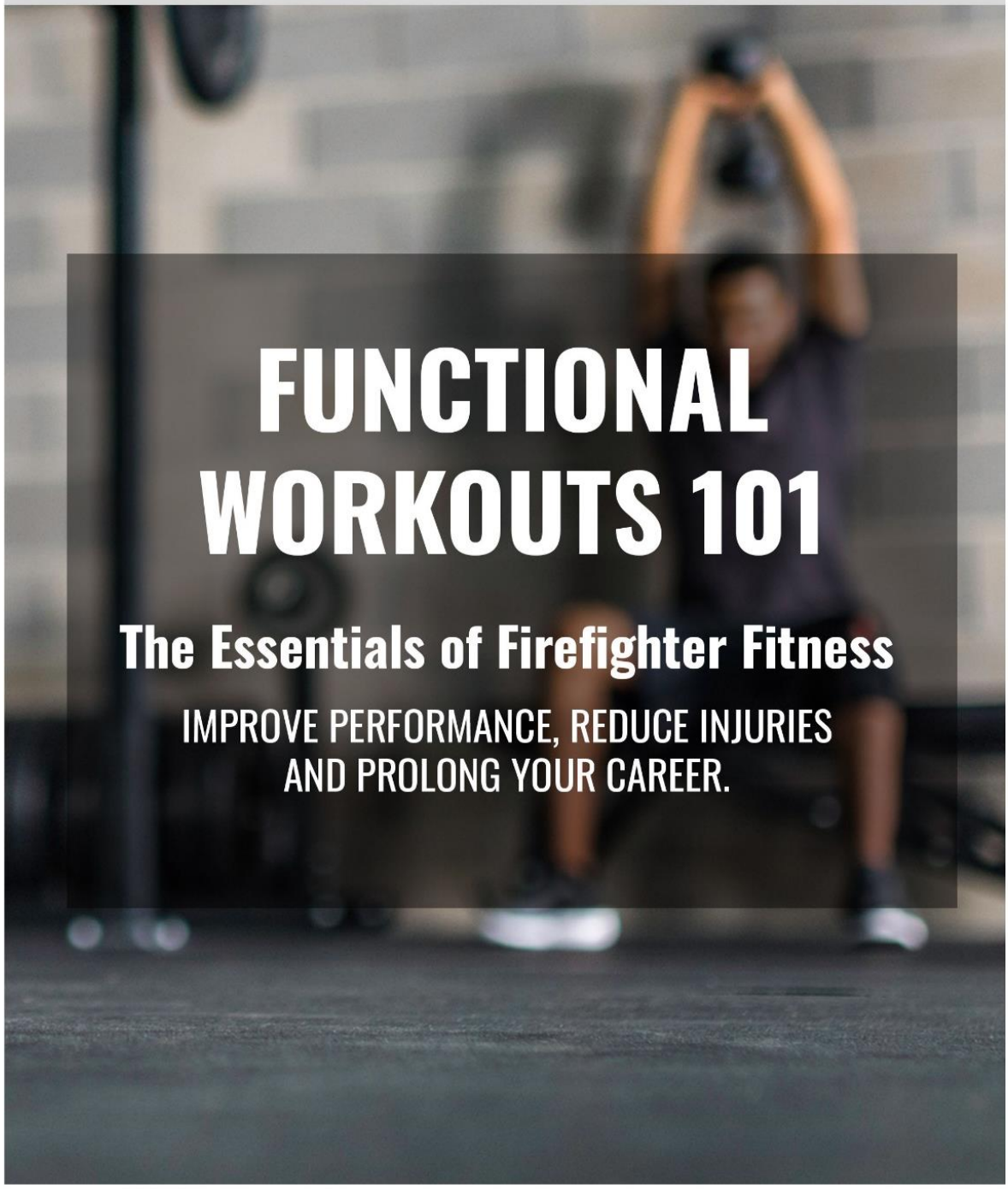
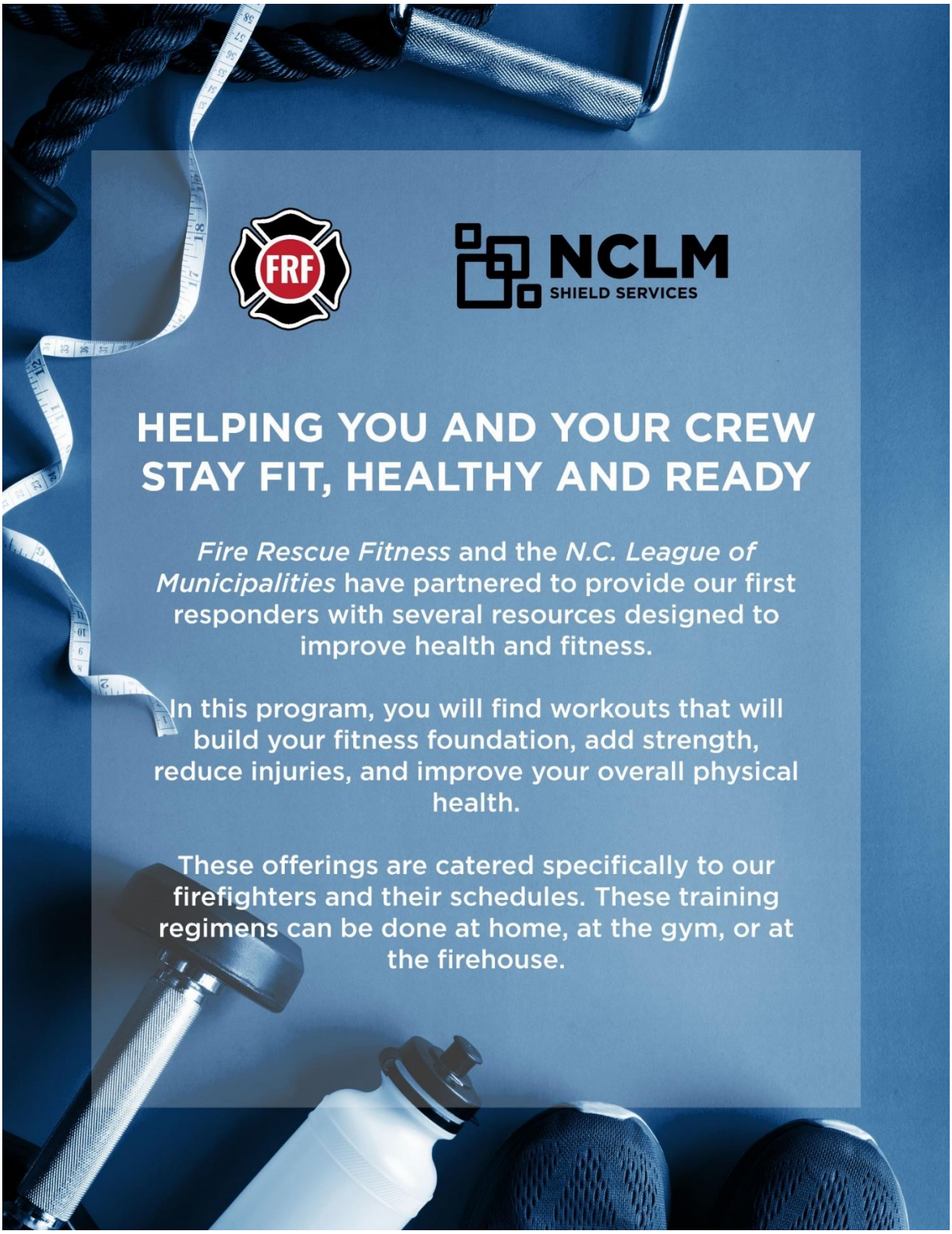


# FUNCTIONAL WORKOUTS 101

## The Essentials of Firefighter Fitness

IMPROVE PERFORMANCE, REDUCE INJURIES
AND PROLONG YOUR CAREER.


FRF
NCLM
SHIELD SERVICES
HELPING YOU AND YOUR CREW STAY FIT, HEALTHY AND READY
*Fire Rescue Fitness* and the *N.C. League of Municipalities* have partnered to provide our first responders with several resources designed to improve health and fitness.
In this program, you will find workouts that will build your fitness foundation, add strength, reduce injuries, and improve your overall physical health.
These offerings are catered specifically to our firefighters and their schedules. These training regimens can be done at home, at the gym, or at the firehouse.

***Disclaimer:***

The information in this manual is meant to supplement, not replace, proper exercise training. All recommendations in this book are not medical guidelines but are for educational purposes only. Be aware that all forms of exercise and stretching pose some inherent risk. The authors advise readers to take full responsibility for their safety and know their own limitations. Before practicing the exercises, activities, and stretches in this book, please be sure that your equipment is well-maintained and do not take risks beyond your level of experience, aptitude, skill and fitness. The exercises and dietary programs in this book are not intended as a substitute for any exercise routine or treatment or dietary regimen that may have been prescribed by your physician or physical therapist. **As with any exercise program you should consult with your doctor before you begin.**

If you are taking any medications, you must talk to your physician before starting any exercise program. If you experience any light headedness, dizziness, or shortness of breath while exercising, stop the movement and consult a physician. You must have a complete physical examination if you are sedentary, if you have high cholesterol, high blood pressure, or diabetes, if you are overweight, or if you are over 30 years old. Please discuss all nutritional and physical changes with your physician or a registered dietician. If your physician recommends that you don't use this Fire Rescue Fitness Program, please follow your doctor's orders.


**To All Firefighters, EMTs and Paramedics,**

**The time is now to make a positive change in our industry. Eat right, exercise and set an example for your department and your community. These FRF Workout Programs are over 20 years in the making, I know they will help you obtain a higher level of fitness and GET you "FRF" (Fire Rescue Fit).**

**Stay Safe and "Train like a life depends on it."**

**-Aaron Zamzow**

# Time to Get FRF

# Functional Firefighter Workouts 101

***Movement starts from the very center of the body, the core area of the torso.*** The torso is a structural center of movement and life. The way we maintain that core and its alignment and function directly correlate to the health of our body and our careers. Everything is interrelated, the better you can channel energy through your body, the more efficiently you move, and the less wear and tear there will be. All movement starts from your core. Figure your core as nature's weight belt, it originates from the lower spine, wraps around and attaches to the ribs.

Our fire academies teach us the skills and knowledge we need to survive on the fire ground. What most academies lack however is teaching recruits the necessities of stay fit and healthy throughout a career in the fire service. The information in this manual is essential for every firefighter may very well be the most practical and valuable asset for any fire department. In fact, I believe this information when applied can improve the performance, reduce chances of injury, and prolong the career of any (and every) firefighter.

Fire Rescue Fitness has developed programming for your department members that follow the best practices for firefighter functional fitness. You have access to 40-day workout programs that will help you understand and apply the following knowledge, there are links to these workouts at end of this manual. These workouts are effective because they include these components:

- Active (Dynamic) Warm-ups: A routine that replaces traditional pre-exercise stretching. This component also helps the body generate force and makes it springy, much like a pogo stick. The warm-up will increase blood flow to your joints and muscles and get you ready for an effective workout.

- Prehab: The prehab section takes a proactive approach to preventing injuries. These exercises will improve hip, core, and shoulder strength and focus on core stability. Perform these exercises correctly and you will gain strength in the smaller, support muscle groups and prolong your career as a Fire Rescue Athlete.
- Strength Training: This new approach to resistance training is based on movements that challenge the body to increase power, stability, mobility and cardiovascular fitness. These exercises not only challenge your muscles, but your heart, and your will. Watch your form, as you get tired you want to make sure you don't lose it.
- Cardio Interval Training: A departure from traditional cardio work, creating a call for bursts of effort. This component challenges the heart, as well as boosts metabolism and mimics the high intensity of work performed on the fire ground.
- Afterburners: Following most FRF workouts you will notice "afterburners "or "interval overhauls" that are a combination of exercises that challenge the total body, allows you to work on firefighter skills and simulates work on the fire ground! You will discover these overhauls can more realistically simulate the exhaustions felt on the fire ground and rescue scene. They will help you burn more calories and improve your cardiovascular recovery on (and off) the fire/ rescue scene.
- Stretch and Recovery Routines: Flexibility is one of the most important fitness components and the most often skipped. FRF programs strategically integrate 4-minute stretch and recovery sessions at the end of each workout to help you improve mobility and recovery. These quick and efficient routines will really help take your fitness to the next level.

So, let us take a deeper look at each component and how they fit together to create these unique and effective workouts.

## The Active (Dynamic) Warm-up

There is a value in the traditional stretch and hold, or static stretching, if executed properly, but only when done after a workout. After all, a warm rubber band stretches a lot farther than a cold one. Each one of the resistance training workouts will start with a short cardiovascular exercise followed by specific active stretching movements. In the past, you may have skipped this part, but I assure you these exercises will help strengthen and even tone your body. In fact, if you were to incorporate just one element of this program into your current workout routine, I'd want it to be these warm-ups. Nothing else provides so much value in so little time. The warm-ups prepare the body for movement, boosts heart rate, increases blood flow to the muscles, and increases core temperature. These movements also improve the function of your nervous system. Think of this component as taking a few minutes to warm-up a car that has been sitting outside in cold temperatures all night. You can also think of it as a pilot's checklist before they attempt to put an airplane in flight. They must go through every step of the checklist before the plane is ready to take off. The main goal of this component is to improve the long-term mobility and flexibility of your muscles. By doing these exercises, you will be able to increase your strength, and muscle mass, which is important to burn more fat.

How do you do the movement? Rather than have you hold your stretches, as in traditional stretching, you move your body into position just for a few seconds and then go back to your starting position. These (dynamic) warm-ups wake up your muscles and not just for your workout, they remain flexible for the rest of the day. Here's why that's important... let's say you're walking on a winter

day, and your foot slips on the ice. How well your body reacts to that slip on the ice depends on your muscle efficiency and balance. These warm-ups, switch on your body's small muscles, which helps with balance and your muscle efficiency. They prepare your body for random, quick movements by fine-tuning its nerves and feedback mechanisms. Generally, we will do 5 to 10 repetitions of each of the warm-up exercises; not only will it feel like part of your workout, at first it might feel like a workout itself. Don't worry: your body will quickly condition itself to the exercises, and when you're done, you'll feel warmed up, rather than worn down. You'll also be better prepared for not only your workout but for whatever challenges your daily activities bring.

## What is Prehab?

Prehab is the proactive approach to protecting yourself from injury. FRF workouts incorporate prehab movements (with the dynamic warm-up and core exercises) that will specifically strengthen the body to optimize mobility, stability, balance and joint function. Prehab exercises specifically strengthen your most vulnerable areas that get stressed in everyday movement especially those on the fire ground: your hips, back, knees and shoulders. These exercises will also improve posture and alignment, allowing your joints and body to move more efficiently. You'll also build up your most injury-prone areas before you're struck with chronic aches and pain that may, in the worst cases, require surgery and shorten your fire rescue career. These exercises will help you move more efficiently on and off the fireground.

## Core Training

Core training brings about a proactive approach to protecting your body and joints (especially your back) from injury. It is essential that you do NOT skip this portion of the workout, which is why I designed it toward the beginning. A

recent survey of the Miami Dade County Fire Rescue Department recently reported that 55% of their members reported current low-back pain. In addition, 86% of members reported a past medical history of low-back pain. Lower-back problems are often associated with an imbalance of strength and flexibility of the lower back and abdominal muscles. Many physicians feel that the major cause of low-back pain and low-back injuries is simply physical deconditioning. More specifically, low endurance in the large muscle groups, particularly the back extensors and abdominals.

Core strength consists of hip, shoulder, and trunk stability. It is the foundation of efficient movement and vital to optimizing performance and health. During your FRF Workout Program, you will perform the core routine after the warm-ups on resistance training days three times a week. Aside from the exercises involving a stability ball, and some additional resistance (a plate or dumbbell), these exercises require limited equipment. Core training brings about a proactive approach to protecting your body and joints (especially your back) from injury. Core strength consists of hip, shoulder, and trunk stability. It is the foundation of efficient movement and vital to optimizing performance and health. You will perform the core routine after the warm-ups on resistance training days three times a week. You can also incorporate some core exercises on your cardio interval workout days. Most of these core exercises require very minimal space or equipment.

Core exercises will challenge every muscle group in your body, some through movements and others through static holds. All core exercises in the FRF workouts are performed in a circuit or integrated into the strength training. The reps and sets of circuits vary depending on your level of fitness. <u>Do not skip these exercises!</u> Not only will they improve your overall body strength, they will also help your waistline and most importantly your career!

## Strength Training

If you want to get stronger, leaner and better at your job, then you must strength train efficiently. You must wonder why people go about their workouts the way they do. I think we all resort back to working out the way we were taught in high school or college or maybe we got a routine from a magazine. Regardless, to get better at something, especially in the appearance and performance of your body, you must make some sort of measurable progress. And yet, people (maybe this is you) rarely challenge themselves when they work with weights. They lift the same weight for the same number of repetitions, year in year out, never attempting to get stronger. Their bodies may make some changes for a short time but then they stop challenging themselves to lift heavier weights, and their bodies stop changing. They may have even back-slid a bit, working out less often because of the boredom and the monotonous program.

So, this brings us to the one thing that irritates the crap out of me. In every gym and firehouse there are guys (and girls) who stand around lifting separate muscle groups and resting, resting, resting. Look, most of the people in the gym (or firehouse) are trying to either get stronger or get leaner or both. Believe me, that lifting arms one day, legs (which most people skip) the next, and back the other, is not going to get you anywhere. You need to challenge your body, your heart, your personal will, and be efficient in the gym just like you do during a fire call. You need to train efficiently using motions that will make you a better fire rescue athlete.

The exercises in the FRF workouts are specifically chosen to challenge both your major muscles and your smaller stabilizing muscles. This way you recruit more muscles, improve your coordination, and burn more calories while you're at it. You'll certainly increase the strength of your muscles and improve your

balance, flexibility, and joint stability. Contrast that to the average muscle building routines that you've done and that most of the people in your gym or firehouse do; they look at their bodies as separate compartments as in training chest and triceps one day back and biceps the next, then legs and sparingly throw in some abs.

The exercises in this program will include some familiar exercises, like dumbbell chest presses, but will also include exercises that will really improve total body strength. Like a squat, press, one arm row, pull-up, etc. There is a substitution list available at the end of the program (and included in the Gym Companion) if you lack some of the equipment needed.

To gain a better knowledge of the strength training workouts, let's look at the variables utilized for each exercise.

## Rest

Rest is the amount of time taken between exercises or sets of an exercise. Each FRF program will give you specific rest guidelines for each workout. These rest intervals are short and challenging- to burn fat, build muscle and work on recovery! Get a stopwatch (or use your phone) and abide by the rest guidelines. I see so many people resting too much. Get going and stay going but remember, form is the ultimate factor, if you cannot keep your form, stop and rest or reduce your resistance.

## Tempo

Tempo is the pace at which you execute an exercise. Most of the FRF workouts use a moderate 2-0-2 pace (unless the exercise calls for jumping or plyometrics). Here is an easy way to remember the 2-0-2 tempo. Use a cadence of 2 seconds (say to yourself, "Get Fire Rescue Fit") as you lower your weight, then repeat ("Get Fire Rescue Fit") as you raise it back up. It's important to use

this moderate pace, it allows for more muscle development and insures control of the weight. If an exercise calls for power, like slamming or jumping, then lift the weight (bodyweight) as explosively as possible but still maintain control. It is especially important to remember that with any movement if you start to lose form, you're done, stop and rest.

## Reps

Reps are the number of times you repeat a given exercise or movement in a set. The rep ranges progressively change with each exercise and workout. The FRF Workout Programs usually give a safety range of reps for each exercise that will be explained in the next section. For some exercises, however there is only one suggested number of reps, choose a resistance that is obtainable yet very challenging for that number of reps.

## Sets

Sets are the completion of the prescribed number or reps for a given exercise. If you have an exercise that is performed on each side, like a single arm row, perform the given number of reps on each side of your body, that's one set. Like the reps, sometimes you will notice two numbers in the set's column, such as 1-3. This is the safety range of sets or circuits, depending on your current level of fitness. Beginners should begin the program by performing the lower number of sets of the exercise. As you progress from workout to workout, you can increase the number of sets (or circuits) that you feel you can tolerate. You'll know to increase the number of sets or circuits when you begin your next workout and are not sore or tired. Intermediate and advanced exercisers should start with the middle to higher number of prescribed sets or circuits.

## Intensity (Resistance)

Intensity is generally recorded as a percentage of your one-rep max (the maximum amount of weight that you could lift for an exercise). To simplify this concept, I use a safety rep range for each exercise. You'll notice two numbers prescribed in the rep's area. You should choose a resistance that you know you can perform, with good form, within that range. For example, the squat to press exercise may call for 8-12 reps. I know I can safely perform 40 pounds for 10 reps. I start my first set with 40 and complete 11, rest for the prescribed amount of time and can only do 9 on my second set. If the exercise called for a third set, I would stay with the 40 pounders and push to get the 8 reps. The rest intervals make it very challenging to keep your resistance the same for every set, that's part of the challenge. If you can't complete the number of reps in the given safety range, you should decrease your weight (intensity). Conversely, if you can perform the top number of reps with good form, move your weight up.

You should always feel as if you can do better than the previous workout either with the number of reps, resistance (weight), or the number of sets (provided you are following the prescribed rest interval). That is the point; to get stronger and more fit you must push yourself to new limits. I suggest that you use the "bonus" logs and keep track from workout to workout; that way you can constantly monitor your progress.

## Challenge Workouts

One of the unique features of the FRF Workout Programs are challenge workouts. These workouts are very efficient and great at assessing and measuring progress. The exercises of these workouts can easily be modified to be performed at home or in the firehouse. The goal of these workouts is to perform the warm-up, then complete the suggested number of reps for each exercise.

You can do them all at once or rest and switch between them. Personally, I like to perform them when I am traveling or looking for a good workout at the station.

## Incorporating Fireground Movements

Another unique aspect of the FRF Workout Program is that it incorporates functional fireground movement patterns into the workout. We already touched on the various components of each workout, like the active warm-up and core training, which do help improve performance. But, I have not addressed how to incorporate actual "functional" fireground movements into the workout. Before I explain how to incorporate them, I want to explain what they are and why. As firefighters, we do all sorts of different movements on the fireground. We carry, climb, crawl, sledge, drag, push, pull, swing and climb a lot of stairs. All of which is also done with over 100 pounds of gear. To improve on these movements, we need to find ways to incorporate them into our workouts. Below you will see there are 7 different movements with exercises that "mimic" their motion and cardiovascular demand.

- Carry- Routinely fire rescue athletes need to lift and carry heavy equipment and patients to and from the rescue and fire scene. Farmers carry either with one or two arms along with variations of the high-chest and suitcase carry, are great exercises to challenge grip strength and improve fireground performance.
- Crawls- When in hot environments we tend to crawl whether it is for search or advancing a hoseline. Bear crawls and dumbbell crawls are great exercises to improve this fireground motion.
- Climbing (stairs)- Its seems that in every major fire incident there are stairs or ladders involved. There are some great machines on the market that can simulate climbing ladders and stairs (Jacobs Ladder and Step mills).

Unfortunately, these machines are expensive and can take up a lot of valuable space in a firehouse (or gym). The easiest way to mimic climbing is to use one or two flights of stairs and routinely climb them. You can increase the challenge by wearing a SCBA or carrying weight. You can also crawl up and down the stairs, this motion can "closely' mimic climbing up and down ladders without the expensive or time-consuming equipment.

- Drags/ Pulls- Whether it is a hoseline or a victim, drags and pulls are essential fireground movements. There are some very easy and affordable ways to incorporate this motion into your workout. One way is to use old large diameter hoselines or dummies and drag them around. Another way is to tie webbing around a large tractor tire or use a sledge to hook the edge (be careful to not slip) then drag the tire with your legs or pull the webbing with your arms. There are several ways to incorporate drags and pulling motions, be creative and careful.
- Pushing- In most cases the pushing movement is used in stabilizing flowing hoselines, forcing doors and/ or removing victims or patients from the scene. This motion (as all these motions) requires a great amount of functional core stability to work in unison with the muscles of the upper and lower body. It does not matter how much you can bench or squat if your core cannot support the strength and transfer it to work. Weak core muscle usually can lead to injury in pushing motions. There are some great equipment options on the market that can help incorporate the pushing motion into your workout. One that I have used is the Power Sled. This is a great and affordable piece of equipment that can be used to push or pull. Another option is to use webbing and an old tractor tire or even push a plate weight on carpet. There are many creative options.

- Sledges- This is probably the most fun fireground movement. Sledges and the sledging motion (overhead and to the side) is used to force through doors, vent and axe through roofing and/or extricate victims from motor vehicle crashes. Here is where the large tire or tractor tire can be a useful piece of equipment. You can use a sledge to strike the tire from different directions. If you don't have a tire or room to sledge you can also use medicine balls and rubber tubing to simulate these same overhead and side sledging motions. Use caution whenever using a heavy tire or sledge and make sure you are properly warmed-up before performing this type of movement.
- Fireground Cardio Demand (FCD) Movements- What the heck are these? Before I explain these movements, I want to back-up and explain something. I think the hardest thing we as fire rescue athletes have to do is hump heavy, charged 2.5-inch hoseline upstairs, while on-air, in a heated environment. If you have ever had to do this, you understand the feeling. I truly believe this could be the hardest event in sports! The cardiovascular demand that this single event places on the body is tremendous and is very difficult to simulate. I do believe that the closer we can get to simulating it, the better trained we will be for the event itself. This is where the fireground cardio demand movements come into the equation. These are specific movements that may not directly simulate a functional fireground movement like advancing hoseline but can simulate the cardiovascular demands required. Some great examples of these FCD movements are burpees (insert moan), mountain climbers, jumping rope, battling hoselines, thrusters, sprints, hill running, punching (on a bag only), any full body movement that can get your heartrate close to its maximum.

Did I miss any movements? The one thing that is in common with all these movements is that they all require good functional core strength. So, now that I have covered what and why of fireground movements, lets figure out just how we can incorporate them into your workouts.

## Afterburners and Interval Overhauls

I believe that interval training is very applicable to what we do on the fire ground. What are intervals? In their simplest form, they're short bursts of high intensity exercise separated by periods of lower intensity effort. I will touch on "why" intervals are a great option in the Cardio Training section below. For now, understand that another unique component to the FRF Workouts are what I call afterburners and/or interval overhauls. They are interval options performed at the end of the strength workouts. These interval options are a combination of the fireground movement exercises described above that challenges your total body, allows you to work on firefighter skills, and can simulate the work intensity of the fire ground. And... they can really "jack-up" your metabolism too! You can do them in gear, in the firehouse, or in the gym, or even do them at home. You also don't need a lot of equipment, the only required piece is a good interval timer (which you can get for free as an app on your phone or tablet). You can change the times based on the exercises you choose and your level of fitness. These intervals can more realistically simulate the exhaustions felt on the fire ground and rescue scene.

Each workout lists "afterburner" options. There are 5-different options for you to choose from (unless noted otherwise, some workouts strategically offer one). The exercises that you choose for these intervals is also up to you. This is the best time to incorporate the fireground movement exercises listed above. I will give you some suggestions, but you are free to change the exercises based on

available equipment and personal preference. There are thousands of options for these afterburners (which I blog about often). If you create your own, I would like to know about it so please email me your ideas. Here are the afterburner and interval overhaul options that you will be performing at the end of your strength workouts.

**The 5 -minute Sprint Challenge-**

All you need for this cardio interval is a stopwatch and 20 to 40 yards of open space or some stairs. The goal of this interval is to gas you out and force your body to recover quickly. Here's what you do: Measure out 20 to 40 yards, the longer the distance the more difficult the workout, mark the distance with a cone or water bottle (any object will do). Personally, I measure out about 30-35 yards (or the distance of the Firehouse truck bay). Start the stop watch and sprint down to the object (or upstairs to the object), touch it and sprint back. Look at the time and rest until the stop watch reads 30 seconds, then sprint again. Repeat this every 30 seconds for 5 minutes. You should sprint/ stairs 2x per minute and 10 times total. The faster you run, the more rest you get (if it takes your 9 seconds to sprint down and back then you get 21 seconds to rest). Repeat a total of 10 times (5 minutes total).

You can make this more challenging by doubling the total time to 10 minutes (20 sprints), increasing the distance or adding a weighted vest. Enjoy this one, it sure gassed me.

**The 5 minutes of Hell Interval Challenge** (click here for video overview) –

I like to use this interval challenge at the end of workouts or bootcamp classes. It really improves your body's ability to recover while continuing to work at a high intensity, just like it is on the fire ground. All you need for this interval workout is a wall and a timer.

Set the interval timer for 10, 30 second intervals (no rest). You will move from one exercise to the next without rest……just keep moving. The five exercises for the interval are mountain climbers, burpees, side to side shuffles, crawling and the wall sit (or the plank). As mentioned above, you can change these exercises to meet your personal preferences and equipment available.

Start the interval timer and perform the first exercise (mountain climbers) as fast as you can for 30 seconds. After the first 30 seconds, switch to burpees for the next 30 seconds; continue to switch exercises every 30 seconds. After you perform the wall sit (or plank) repeat the whole circuit again a second time. You do not get to rest between exercises; just go from one to the next every 30 seconds until the 5 minutes is up.

You can make this interval more challenging by adding more difficult exercises (squat jumps, sledge hammers, body drags) or by adding more time for the intervals (change from 30 to 45 seconds) or by wearing a weighted vest.

**Mile and a half Challenge Run-**

This is a great option for those that are training for an adventure race or fun run. This can be performed on a treadmill or on a mapped 1.5-mile course or track. You can easily map a course by using Google maps or mapmyrun.com, both websites use satellite technology and are very accurate. This challenge can be used not only as a workout but as an assessment tool to measure aerobic capacity—your body's ability to deliver oxygen to your working muscles. Before you start this challenge, you should perform some active warm-up exercises or a 5-minute brisk walk/jog. After the warm-up, start the timer and run the 1.5-mile course as fast as possible. Be sure to record your time, you can check how you compare with the population average on the exrx.net website (or click here). Try to break the 12-minute mark.

**The 5 -minute burpee challenge-**

All you need for this cardio interval is a stopwatch or interval timer. The goal with this afterburner is to perform 8-10 burpees each minute on the minute for 5 minutes. Start the timer, perform 8-10 burpees, when the timer hits 1-minute repeat… keep going until 5 minutes is complete. The goal is to get to 50 of them in 5-minutes. If you are just starting, try 8 per minute. If you do not like burpees, you can substitute out for another exercise. Enjoy this one, it burns up the calories.

**10-minute Interval Overhaul (Fireground Movements)-**

This is one of my favorite "afterburners". You can literally choose any exercises for this. Personally, if I am at the firehouse I will try to do this part in gear with a more fireground movement focus. This is simply a 10-station circuit. You will perform 5 different exercises 2 times each. If you are just starting out or are tired from the workout you can set the intervals for 30 seconds of work and 30 seconds of rest (10 minutes total). Here is an example of one I just did at the firehouse:

For this afterburner, you need a sledge (the heavier, the harder), an old tire, some old fire- hose, steps (or something to step-up on) and an interval timer set to 30 seconds of work and 30 seconds of rest for 10 intervals (10 minutes total time).

You should set-up 5 different stations (which you will repeat 2x each). You can do them in any order: sledges on the tire (overhead and side), run steps (you can carry equipment or weights to make it more challenging), crawls (like you are searching for a victim), battling hose-lines (see picture), and a core exercise (we like to add a plank).

You can add any fire ground exercises you wish like those described above…be creative.

**Run and Fun**

Here is a great option to do outside or at the firehouse. For this overhaul you will need an interval timer, a sledge (and a tire), a mat and some area to run. Set the interval to a 30 second work, 30 second rest (if you're a beginner) or 40 second work, 20 second rest (if you're more advanced) for 10 rounds (10 minutes total). You will rotate between 3 exercises for 3 rounds each and for the final round you will hold a prone plank. The first exercise is to run sprints back and forth. Rest, and then perform sledge slams on a tire (or other surface that can take the impact). Rest, and then perform as many mountain climbers as you can. Repeat this mini-interval circuit 2 more times. After you complete the last exercise hold the plank for the last interval. Fun...right?

**Crawling Around**

Ok, here is another one like the previous two but with some different exercises. Once again you will need an interval timer, a jump rope, and a medicine ball. Set the interval to a 30 second work, 30 second rest (if you're a beginner) or 40 second work, 20 second rest (if you're more advanced) for 10 rounds (10 minutes total). You will rotate between 3 exercises for 3 rounds each and for the final round you will do as many mountain climbers as you can. The first exercise is to jump rope as fast as you can. Rest, and then crawl on your hands and feet forward and/or sideways for the 30 or 40 seconds. Rest, and then perform overhead medicine ball slams into the ground for the 30 or 40 seconds. Repeat this mini-interval circuit 2 more times (total of 3). After you complete the

last exercise hit the floor and do as many mountain climbers as you can for the last 30 or 40 seconds.

**Terrible Treadmill 10**

This is a challenging treadmill interval, once again if you're just getting started with interval training you want to decrease the speed and start the incline at 5%.

Running uphill at a high incline forces you to drive with your legs and explode off your feet- all skills that will help your ability to propel your body in fire ground motions.

Here's how it works: Set the treadmill at a 10 % incline (less if you are a beginner). Sprint as fast as you can for 30 seconds, and then rest for 30 seconds. That's 1 round; do 10 rounds total. Your goal is to maintain your fastest speed for all 10 sprints. (Be careful: Hold the rails when getting on and off the treadmill.)

**4-minute Tabata Finisher -**

Have you heard of Tabata? This is an unusual style workout floating around a lot of gyms and firehouses lately. I wanted to explain what it is and how we, as fire rescue athletes, can incorporate it into an effective workout.

"Tabata" is the name of a particular type of workout that provides increased fat burning and oxygen efficiency in a short period of time. Instead of hours upon hours of exercise, Tabata can be completed in just **4**-minute cycles.

Tabata training was developed by a Japanese researcher named Dr. Izumi Tabata who was working with Olympic speed skaters. In his study, he found that a control group using his training method of 20 seconds work, 10 seconds rest, for eight intervals, saw greater VO2 Max improvement than the other group that trained with 60-minute sessions. The real question that you want to know is: "How can this apply to fire rescue athletes instead of Olympic speed skaters?"

We know that there are few activities more physically demanding than fighting a

working fire or carrying a patient down and around stairs. In many cases fire rescue athletes are asked to work at near maximal heart rate and strength under very extreme and stressful conditions. This is the reason why high intensity training like Tabata should be included as part of our fitness program.

So, what is the Tabata protocol? A Tabata workout is an interval training cycle of 20 seconds at maximum effort, followed by 10 seconds of rest. The cycle is repeated without pause 8 times for a total of four minutes. Try to use this protocol at the end of a strength workout as a substitute to the 10-minute Interval Overhaul.


4-minute Tabata Afterburner (example)-- Choose 2 different exercises and switch between them every 20 seconds with 10 seconds of rest between. If you want to focus on more cardio recovery you can perform mountain climbers and burpees or row machine and treadmill. You can also use fireground movements and switch between them like sledges, drags, stairs or battling hoselines. Here is an example:

- 20 seconds mountain climbers
- 10 seconds rest

- 20 seconds burpees
- 10 second's rest

Repeat 3x (for a total of 4 rounds)

Fireground Tabata Overhaul Option

- 20 seconds sledgehammers (on tire or other)
- 10 second's rest
- 20 seconds stairs or dummy drags/ farmers carry
- 10 second's rest

Repeat 3x (for a total of 4 rounds)

**The original Tabata protocol was done on a bicycle and performed at a very high intensity. Try to perform the 20 second work intervals with as high intensity as you possibly can.

## Cardio Training

The purpose of any firefighter's cardiovascular program should be to help them work more efficiently under the stresses encountered every day on the job, be it on the fire or rescue ground. FRF Workout programs incorporate three different types of cardio workouts. These workouts are to be performed between strength workout days and allow you to incorporate your favorite activities and even train for fun events.

### A Note on Intervals

You've read a little about intervals and why they are a great option for fire rescue athletes but let's dig a little deeper to explain how they truly help improve performance. Intervals raise our maximal oxygen uptake (VO2 max), which, simply put, is the greatest amount of oxygen our bodies can use during maximum aerobic effort. Firefighters who can work longer before they reach their VO2 max will be able to accomplish more on the fireground. Intervals also help the body

to more efficiently flush muscles of lactic acid. We develop a build-up of lactic acid and hydrogen ions that are associated with the burning sensation we feel in our muscles when under heavy physical stress. It has been shown that trained individuals will clear this acid faster than those who aren't trained and will therefore feel less pain when undergoing physical exertion. The bottom line: We want to build a cardiovascular training program that enables us to work longer and harder with less physical pain when it really counts.

Keep in mind, cardio interval training does not *only include* high intensity training. Running a PR for a 5K is great, but not an interval workout. You need those lower intensity periods as well, not just sustained effort. Without the recuperation of the low periods, you will never have the ability to make the tough parts as high intensity as they need to be and... It's those high intensity periods that bring the results.

As you read the workouts below, you may notice I don't talk about strict percentages like 80% maximum heart rate or at RPE (rate of perceived exertion). It's not that I am opposed to using heart rate or RPE as a guide; it's just that sometimes we get wrapped up at looking at our certain percentages and we forget how to truly listen to our bodies and "push it." A quick note on RPE, I like to use the 1 to 10 scale which basically says that at a 1 effort you are lying in bed watching TV and at a level of 10 you are working so hard you're ready to hurl (like the effort required to advance 2 ½ inch hoseline).

**Crew/ Fireground Interval Workouts**

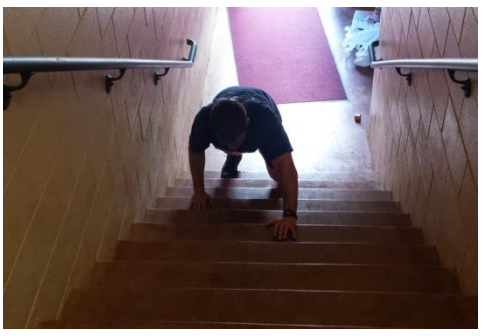
Let's face it, working on your cardiovascular conditioning can be very boring. Personally, I suffer from workout ADD, I constantly like to change things up to keep me interested in the workouts. The Crew/ Fireground Interval workout day is a great way to incorporate different exercises to keep you interested and can be fun (yep, working out can be fun). We already touched on

intervals, for this workout you have a couple of options. You can set-up 6 different exercises and perform them 4 rounds, or 8 exercises for 3 rounds. The exercises you choose will be based on what equipment you have available and personal preference. When beginning these intervals, I would recommend starting with 30 seconds of work and 30 seconds of rest for each set. As your fitness levels progress you can decrease the rest and increase the work times.

The Crew/ Fireground Interval workout is a perfect option for the firehouse to do with (or without) your crew. Working out on-shift is a major concern, you want to make sure you keep your body in good "fit for duty" condition but also want to make sure you have enough "left in the tank" to respond and perform in an actual response. Over the last couple of years, I have toyed with various workouts on shift; high intensity, heavy lifting, stretching only, and even some yoga. I have found that these crew interval workouts are not only very effective but a great way to incorporate fire ground movements and good for camaraderie.

As you read through the workouts you will see that I list how to create these workouts for yourself. Here is an example of a workout that I did with my crew. I like to set the interval timer for 35 seconds of work with 25 seconds of rest. If you are just beginning intervals you may want to set the timer for 30 seconds of work with 30 seconds of rest. For this workout, we choose to perform 6 exercises for 4 circuits (total of 24 minutes). These exercises can be anything you want (fire ground related). Here are some examples:

1. Aerodyne (if you don't have an aerodyne you can use row machine or battling hose lines)
2. Weighted Jump Rope
3. Stair Crawling (bear crawl up the stairs then run back down)
4. Sledges on a tire (overhead and side sledges)



5. Core Exercise (plank, bird-dog)
6. Mountain Climbers (or burpees)

We performed an active warm-up and foam rolled to prep for the workout and finished with one of the 4-minute stretch routines. The total workout time was a little over just 30 minutes (quick and easy). This is just an example, you can choose different exercises and change the times.

**Event Training (5K or 10-mile Bike)**

When you look at the training calendar you will notice a day that reads "Event Training." Over the last couple of years there have been some very popular adventure races, 9/11 Stairclimb events and charitable fun run events. A common question I get is "how can I train for these events and still follow the FRF Workout Programs?" If you are training for one of these great events (which I encourage you to do) this is the day when you should do it. For instance, if I am training for a 9/11 Stairclimb event, I would use the Event Training day to run steps or use the stepmill. If you were training for a 5k or an adventure race, this is the day for you to work on some distance or hill running.

If you are not planning or training for a specific event you can use the "Event Training" day to jog, bike, or to perform a crew interval workout instead. A 3.1-mile race (5K) or a Stairclimb event is a perfect fitness motivator for the fire rescue athlete. Regardless of your level of fitness, these events are a great way to stay motivated and improve your sense of health and well-being. If you are training for some type of event, here are some things you need to take into consideration.

- Take Your Time -Depending on your training base, this 8-week program should be just enough time to have you running for the full 3.1 miles or climbing the required stairs. If you are just beginning to

run, start with a walk/run program. Add a little distance or more stairs with each workout. Select a starting distance that you are comfortable with. Perhaps it is 1.0 to 1.5 miles. Increase the distance (and duration) by approximately 10 to 15% each week.

- Be Smart and Safe- Be sure to have proper running shoes that suit your individual needs and be aware of the surface on which you are running. If you are participating in a stairclimb event, get shoes that support your foot properly and gradually ease into working out in your gear.

**Recovery or Recreation Day (Cardio, stretch, foam roll) –**

Recreational cardio is exactly what it says. This is a type of cardio you can do like playing basketball or softball or going for a jog with your children or a fun bike ride. On this day, I want you to do anything that will get your blood flowing and your body moving. I also want you to work in some light stretching and foam rolling. Now, if you are coming off a long and tiring shift or workout and feel like you need a day to just rest and recover, this is the day to do that. I like to think of this day as a mental and physical recovery day to keep your body and mind on the right track.

# YES
# I'M GUILTY!
# I JUST KILLED MY
# WORKOUT!

## Recovery

People tend to measure how effectively they've worked out by how sore they are the following days. Let me ask you: How good is a workout that leaves you so sore that you cannot work out for the next 3 days? As mentioned in the beginning of the book, one of the original essential components of a fire rescue workout is a strategic plan. An essential part of that plan must address not only how-to workout but how to recover. Over the 20+ years of training clients and athletes I've learned two very important lessons about recovery. These lessons will help you see and feel the best results.

Lesson #1. Recovery is Essential for Progress. I know that many firefighters, EMTs and paramedics like to challenge themselves during a workout, but it's the ability to recover afterwards that leads to a greater result. Did you know… your body changes after a workout, when your body rests – not during? Making the time to rest between strength workouts (or after a tough shift) is when your body begins the repair and recovery process. This is when the body increases lean muscle, making you stronger, and in the long run leaner. Recovery can be accelerated by choosing a good post-workout shake (see the included SOGs to

Eating Lean in the Firehouse) and taking the time to stretch and foam roll major muscle groups. Skipping recovery will not only diminish fitness results but will also lead to burn out and over-training injuries. **As a fire rescue athlete, you must take time to recover.**

Lesson #2. More is NOT Better – Better is Better. The workouts that I create (like those in this workout program) are short and effective because they take less than 50 minutes. Now, because they are less than an hour (or less than 35-minutes on cardio days), some fire rescue athletes are skeptical that they will be effective and will sometimes try to add exercises or even double up on workouts. Remember, intensity, is the key to making good fitness gains. Doing more sometimes will only delay or prevent results. Trying to do more will diminish the intensity – hence, diminish results. My advice to you is to remember that the best results are achieved when you get your body to work FOR you rather than always having to work against your body. Besides, your workouts should leave you feeling ENERGIZED, not exhausted. At first you may challenge that last statement, but as you get into FRF shape I believe you will understand what I mean.

**Foam Rolling for Better Fitness and Recovery** (Click here for a video overview)

You will notice that there are a few places where foam rolling is listed as an exercise. First, you should foam roll for a couple of minutes after the active warm-ups to help prepare your muscles for the workout. The second place you should do some foam rolling is at the very end of your workouts in conjunction with the 4-minute stretch routines. I know what you may be thinking: "What exactly is a foam roller and why should I be doing this?"

A foam roller is a compact tube of foam that can be used as an inexpensive self-massager that can help heal aching and damaged muscles. The idea behind the foam roller is that you roll your body weight along the foam roller, massaging

through restrictions (adhesions) that may occur in your muscles (especially those of the back). This causes the nerves in your muscles to relax and loosen which allows blood to flow more freely through them, accelerating the healing and repairing process. The exercise physiology geeks (peer fitness trainers) refer to this concept as "Self-Myofascial Release". You will probably love and hate the foam roller. I encourage you to try it more than a week before formulating an opinion on its effectiveness. Just like a massage, there will be some discomfort when you hit the right spot. Over time, the foam roller will get easier. Your muscles will be healthier and have less adhesions (knots) making your body and back feel better.

**Foam Roller Basics:** Use the roller to search for tender areas or trigger points and to roll these areas to decrease density and over-activity of the muscle. The best areas to roll depend on each person. Start with rolling your glutes, quads, low back, hamstrings and calves then slowly move to other parts of your body. There are some great foam rolling positions and instructions included in the "Workout" resource with pictures and video links. I find that foam rolling helps reduce stress, gets the blood flowing, and re-aligns my body. Personally, I use the foam roller anytime my muscles (especially my back) feel tight and sore. Try to get in the habit of foam rolling at the beginning of your shifts, in addition to the FRF Workout Programs. I guarantee it will help insure you are "Fit for Duty."

Stretching along with foam rolling (recovery) helps get the blood flowing, drives nutrients into your muscles (which is why it's so important to eat right), and accelerates the recovery process. All the FRF Workout Programs suggest that you take the last few minutes and complete one of the 4-minute stretch routines and foam roll. The stretching and foam rolling will really accelerate the recovery process and at the same time increase your muscular flexibility.

**4-minute Stretch Routines**

From my research I have found that stretching is the most often "skipped" part of an athlete's workout. For one, it's done at the end of the workout when you just want to be finished. And, for two, it can be boring. To combat these "excuses" this FRF Workout Program incorporates simple and efficient 4-minute stretch routines. These routines should be performed in conjunction with some foam rolling. All you need for these is a small area, an interval timer or watch and a mat or some padding (optional).

The routines are divided into 12, 20-second stretches done in succession for a total of 4-minutes. So, you are only holding 12 different positions for 20 seconds each. I like to use the interval timer to keep me honest (I tend to stop early) and on-track. Each routine is slightly different, using different stretches and emphasis. Here are some of the basics to remember when performing these routines:

- Maintain good posture throughout the stretch. Always try to keep your head and shoulders in proper alignment.
- Never "pain" through a stretch. You want to find a point in the stretch that is "slightly" uncomfortable but never painful. If you start to experience pain in any movement…STOP.
- Do not hold your breath. Breathe nice and easy and try to relax your body and muscles as you stretch.

That is, it. Theses routines will move you from one exercise to the next, so keep up. Here is an example of one of the routines. Start by setting your timer to 12, 20 second intervals. Here is an example of these routines. Perform 6 stretches

then repeat them for 2 rounds. Here is the routine (there are pictures in the Workouts section):

1. Downward Dog
2. Right kickstand stretch
3. Left kickstand stretch
4. Childs Pose
5. Right X-over
6. Left X-over

Repeat a second time for a total of 4-minutes. If these exercises do not look familiar, don't worry. The different exercises and routines are listed in the "workouts" section below. The main point is that the FRF Workout Programs gives you an easy way to work on your flexibility and recovery.

**The Art of Napping**

Since we are discussing recovery I want to talk a little about napping. Some fire houses still rely on the "safety nap" to prepare them for a long night of calls. Contrary to some beliefs, napping can be beneficial. Some of the busiest, most successful, and notable leaders in history have benefited from short fifteen to twenty-minute midafternoon naps. You should try to find a small window every day for a small powernap, especially after a long and hard shift. Naps reduce stress, enhance memory, improve stamina, boost creativity, preserve youth, and can even increase your sex drive. And, of course, they make you feel good.

Try to find a way to get horizontal with your feet up for twenty to thirty minutes every day. Power naps believe it or not, are a skill that will take some time to develop. If getting horizontal isn't realistic, consider getting a quick nap on a recliner or even on the truck. Try to manage, wherever you can, to get a quick re-charge. Sometimes, it may be difficult to disassociate from the demands

of previous calls or station duties. Try to relax, be patient, and if nothing else, spending this time with your eyes closed, body relaxed, and mind quiet will result in a higher level of performance and energy later. Think of this as an opportunity to do a quick recharge of your brain and body, allowing you to leave the power nap with greater focus and greater energy to continue to thrive throughout the day.

A power nap is a nap that's long enough to get you through the day, but not so long that it makes you groggy or unable to sleep at night. For a nap that will power you up, follow these simple rules.

- The first consideration is psychological: Recognize that you're not being lazy; napping will make you more productive and more alert after you wake up.
- Be consistent, keep a regular nap schedule. Prime napping time falls in the middle of the day, between 1 p.m. and 3 p.m.; human circadian rhythms make late afternoons a more likely time to fall into deep (slow-wave) sleep, which can leave you feeling groggy.
- Make it quick. Set your cell phone alarm for 30 minutes or less if you don't want to wake up groggy. Twenty minutes is really the sweet spot for nap length if you want to wake up feeling alert, cheerful, and productive. Unlike at night, when the goal is longer stretches of continuous sleep that will give you the restorative benefits of deep REM sleep, keeping naps to lighter, non-REM sleep will help ensure that you wake up bright-eyed. If you've got even more time, great. But, go big or go home: 30- to 60-minute naps are likely to leave you feeling worse, while a 90-minute nap gives you enough time for a complete, creativity-building sleep cycle.
- Go dark. Nap in a dark room or wear an eye mask. Blocking out light helps you fall asleep faster.

- Stay warm. Body temperature drops when you fall asleep. Raise the room temperature or use a blanket. Stash a blanket nearby to put over you because your body temperature drops while you snooze.

After your 20 or 30 minutes are up, get right back to whatever you were doing before the nap. Get some sunlight on your face, take a brisk walk, jump in place, or go wash the rig to let your body know that nap time is over. You may think that taking caffeine may seem counterintuitive to napping. But, caffeine won't hit you for at least 20 to 30 minutes. So, take some caffeine, get a good 20 minutes of napping, then you'll wake up and get an additional boost from the caffeine.

I believe that napping can help relieve stress and help to manage the sleep deprivation you can suffer as a fire rescue athlete. You can reset the system and get a burst of alertness and increased motor performance from these "consistent" power naps. So, in conjunction with the stretching and foam rolling, a good power nap can help your body recharge and improve performance.

This is an introduction and overview of the programming FRF has developed for you and your department. Now for the fun part! Click the link below to select and sign-up for the best program for you. There is a program for those just working to build their fitness foundation and another option for those looking to add to theirs. Click the link, fill-in the information and you will be emailed directions on accessing the program.

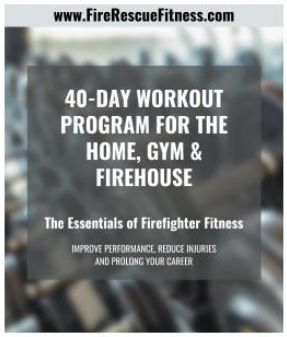
## Essentials of Firefighter Fitness - Functional Fitness 101 Manual


Your fitness journey begins here. This 40-page manual will teach you the essential fitness components that you need to be integrated into your workouts and how to apply them in an actual program.

It is time to start training like a fire rescue athlete. This manual explains the best practices for improving performance, reducing injury, and prolonging your career as a firefighter, EMT, or medic.

SIGN UP NOW

## Essentials of Firefighter Fitness Workout Program




The Essentials of Firefighter Fitness 40-day program will improve every aspect of your physical fitness. The workouts are designed to improve mobility and performance and can be performed in the gym, at home, and/or the firehouse. Discover how you can add strength, burn calories, and incorporate more fireground movements into your workouts.

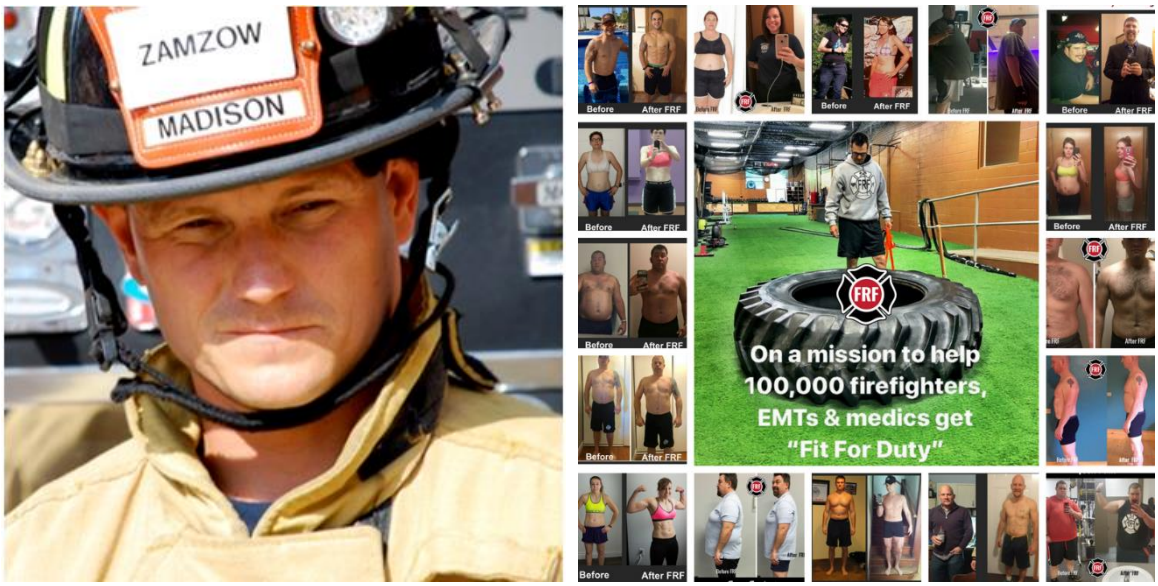
Click the link below to get a PDF download of the program that includes directions and access to the FRF/TrainHeroic workout app (see page 4 of the workout manual).

SIGN UP NOW

It is time to GET Fire Rescue Fit. Feel Free to reach out with any questions (zam@firerescuefitness.com). I am here to help.

Zac

## About the Author




Aaron Zamzow has over 15 years of firefighting experience as an on-call paid firefighter in Golden Valley, Minnesota and is currently a career Firefighter/ EMT and Training Officer in Madison, Wisconsin. He is the owner of Fire Rescue Fitness, a company that creates workout programs and fitness articles that focus on getting Fire Rescue Athletes "fit for duty." Aaron holds a Bachelor of Science degree in health and wellness, is a NSCA-Certified Strength and Conditioning Specialist, a NASM-Certified Personal Trainer, an IAFF/IAFC Peer Fitness Trainer and a Precision Nutrition level 1 coach. He has also, worked in the fitness industry for over 25 years and has experience working with the general population as well as athletes from the NBA, NFL, and NHL. He is the author of The Ultimate Fire Rescue Athlete Workout and other fitness programs catered toward Fire Rescue Athletes and has recently been published in Firehouse, Fire Rescue Magazine, Firefighter Nation and in numerous other fire publications (Lexipol, Target Solutions, Size-up Magazine). He has appeared on numerous podcasts and television programs and presents to Fire Departments all over the country. He is on a mission to help 100,000 firefighters EMTs and medics get “fit for duty.”