



**FUNCTION
AND
STRENGTH**

TRAIN WITH A PURPOSE!

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Why Choose Function and Strength?

Let Our Experience Lead You To Reach Your Potential...

Sports performance businesses are becoming more and more popular. Some areas are saturated with many options. The major concern with these facilities is our youth are being trained as adults. This is troublesome because young athletes should be training with a different set of rules compared to a mature adult. Unfortunately, this philosophy isn't recognized by many of these sports performance companies. The results of these unhealthy practices can be disastrous to the long-term development of young athletes and cause negative attitudes that last a lifetime.

Why choose Function and Strength?

You can count on Function and Strength when it comes to the experience, expertise, and methodology to train athletes of all ages and abilities. We take pride in making sure our athletes leave every session feeling better than when they arrived.

Understanding the development of developing athletes is what separates Function and Strength from all the rest. We understand the uniqueness of a maturing youngster, physically, emotionally, and mentally. **We always consider and address the stage of development of the athlete. This alone makes an immense difference in how the athlete should be trained.** Simply scaling down adult programs is an unhealthy practice and should not be used to develop young athletes.

Meet Our Staff



Jason Fearheller, BS, CSCS

When Jason began his training career, he had an interest in speed training. Over the past decade that interest has turned into a passion. As a former collegiate athlete Jason understands the value speed can have in all sports. Every athlete can benefit from improved speed and power and that is how he trains his athletes.

Over the years Jason has attended numerous seminars and certifications including Certified Speed and Agility Coach, and Multi-Directional Speed Instructor, and USA Weightlifting Sports Performance Coach. These courses along with a continued drive to improve allow Jason to provide a scientific and intuitive approach to helping athletes reach their potential.

Along with training Jason has lectured on strength and conditioning as an adjunct professor at Immaculata University. Jason has also contributed articles on speed training as well as taught the course, Functional Speed Training for the Fitness Professional and Healthcare Provider.



Ryan Heickert, MS, ATC

Ryan enjoys training individuals and teams of all levels. He specializes in providing all clients with function and strength that is key for an overall healthy lifestyle. Ryan feels, "It does not matter if you are an elite level athlete or retiree", training is needed for everyone."

Ryan began his career in Ontario, Canada where he specialized in sports performance with NHL, MLL, and NCAA athletes. Since he has been in the USA, Ryan has trained Olympians and everyone from corporate America employees, stay-at-home-parents, weekend warriors, and adolescents' and has helped them reach their goals in body composition, fitness, and sports performance.

Ryan played his junior hockey in the OPJHL for 4 years. He was a 3-year captain and leading scorer for the Oshawa Legionaries, Ontario. Ryan was then traded to the Wexford Raiders in his final year. As a collegiate athlete and Neumann Knight, he helped lead the team to an ECAC West Championship and NCAA DIII National Championship in 2009. Ryan's accolades include being a team captain, ECAC West All academic team 05-09, Team Defensive Player of the year 2005, Team Coaches Award 2009 and played in 100 college career games. For the 2009-2010 seasons, Ryan was an assistant coach for Neumann University.

Ryan has trained athletes of all levels and past strength and conditioning clients include athletes from the NHL, AHL, NLL, various NCAA sports and European leagues.



Marty Tomes, BS, ISMA

Marty Tomes is a strength coach for Function and Strength. He holds a Bachelor of Science degree in Sport and Coaching Management from The Ohio State University. While at Ohio State he was a four year varsity swimmer and placed top 10 all four years in the Big 10 championships. He then qualified and swam in the U.S. Olympic Trials in 2008. In addition, Marty enjoys participating in adventure races and triathlons. He recently placed 1st in the last two Civilian Military Combine competitions. He has been coaching and training since 2006. He has trained national age group champions, PIAA state champions, and NCAA champions. Marty loves what he does because he has a passion to work with people and help them fulfil their goals towards a healthier lifestyle.



Chuck Kuklinski, BS, CSCS

As a former college football walk-on, Coach Chuck knows the type of hard work it takes for one to achieve their goals. After attending Central Bucks High School West in Doylestown, he tried out for the West Chester University football team in 2012, where he earned the starting long-snapping job as a freshman. Playing for 4 years at the college level, he was able to secure the 2nd most starts in WCU history, while also being celebrated as the Unsung Hero, an award voted upon his teammates. Coach Chuck graduated in 2017 with his B.S. in exercise science and is a certified strength and conditioning specialist. Starting his sports performance and personal training career at Power Train Sports, he has valuable experience working with all populations such as, professional athletes, high school and college athletes, adolescents, and adults ages 21-74 years old.

What you, as a Parent, Should know about Our Training Approach “Long-Term Development Program”

One of the most important concepts to understand is athletic development is a journey. It is a properly progressed and deep-rooted program that considers all the stages of development an athlete goes through. Just like a child goes through school one grade at a time, athletic development should also be done in a step by step process. How can they possibly learn, in a month or two, what research has shown takes up to 10 years of proper development to reach high level athletic performance? When athletes are pushed too quickly and too hard at a young age we see them drop out of sports entirely due to burn out, injury, early peaking, and complete lack of interest because they had it shoved down their throats before they could emotionally, mentally, and physically handle it.

We are not here to fool you into thinking we can change your athlete into a super star. We are here to provide your child a chance to be the best they can be with a long term developmental program. And we will educate you on the reasons why long-term programs are more beneficial than short-term or six week programs and why the long term program will produce long term success.

Why is Speed Training so Important?

Function and Strength specializes in improving game speed of athletes. Speed is the one component of athletics players and coaches are always looking to improve. Training solely in the weight room is not going to make improvements in speed nearly as much as partaking in a well thought out speed and change of direction program along with some resistance training. Throughout our years of coaching we've created a speed program to help our athletes gain speed as quickly as possible.

Speed Training for Athletes

Speed is an acquired skill. It's often not thought of this way but just like practicing a shot in basketball or fielding a baseball, the ability to move well on the field or court is a skill. Field sports athletes are constantly stopping, starting, cutting, and changing direction. Although field sport athletes need to develop top end speed, they don't spend as much time sprinting in a straight line without having to change direction or slow down at some point. It's for this reason the ability to accelerate and decelerate rapidly and powerfully plays a more important role for field sport athletes. Let's look at a basketball player for example. If he can't stop, start, and accelerate quickly he can easily become exposed on defense and will have a hard time creating space against defenders on offense. It's for this reason we take pride in our ability to break down and teach these movements to athletes in a way they can understand and carry over to the game.

Don't Allow Speed Training to Turn into Conditioning

The mistake most coaches and athletes make when it comes to speed development is not allowing an ample rest in between speed drills. This will compromise the quality of the speed work you are trying to do and will turn the session into conditioning. If truly want your athletes to get faster you need to focus on the quality of work you are doing. **Don't mistake effort for quality training!** If you are doing a bunch of intervals at :30 work/:30 rest you may be super tired and exhausted. Although your effort is high, you will not be running close to your top end speed (the fastest speed you can do for :01). Although you will be getting in good shape, this alone will not improve your speed. High quality training means allowing time for your energy systems to fully recover. Periods of rest that are too short will not lead to speed improvement. Taking your time and not rushing from one drill to the other will pay big dividends in speed development over time.

Mission

Function and Strength Fitness offers a comprehensive approach to training for anyone looking to take their training to the next level. Whether you are an athlete looking for sports performance training, or an adult looking for a healthier lifestyle our coaches will create a plan that will allow you to achieve your goals. Our proven training programs will get you in the best shape of your life to help you reach your goals no matter what they are.

Philosophy

Our training philosophy can best be described as training with a purpose. Every drill and exercise is done with a specific reason to progress our athletes to reach their full potential. Since no two athletes are exactly alike we believe in giving every athlete exactly what they need. Our training programs are designed with an evidence based approach through research and years of practical application. We always calculate risk vs reward when it comes to exercises and choose the best stimulus to get the desired result with safety in mind.

Function and Strength Programs

Sports Performance

How fast can you run? How high can you jump? What is your reactive strength index (RSI)? How fast are you moving the barbell? How much eccentric and concentric force can you produce? How quickly does your heart rate drop after a maximum effort conditioning interval? Improving these numbers correlates to improved speed, strength, power, and conditioning.

In order to get the most out of your training you should have answers to all of these questions. We utilize technology and devices including timing systems, a kBox, Open Barbell, curved treadmills, G Flight, and heart rate monitors to track all of these numbers to get the most out of your training. If you aren't tracking numbers you are just guessing whether or not you are getting better as an athlete. Are you doing workouts to get better or are you training? Training implies following a program to reach a specific goal and that's what you should be doing to reach your potential. Our program is based off the statement, "TRAIN WITH A PURPOSE." **Every one of our athletes is different, and that's why every athlete is given their own individual program. Giving cookie cutter workouts will not get athletes to reach their potential. Every single drill and exercise that is prescribed to each athlete is done to elicit a specific training response that will improve their performance.** This includes everything from the drills during the warm up, the type of speed training they are doing, the strength program they are following, and also the type of conditioning protocol they are following.

We understand many athletes already participate in a school based strength training program. In this case, it is our intention to supplement what is being done at the athlete's school and to focus on other areas of physical development.

We break down our training sessions in to 3 main components:

Speed training: Speed is the most sought-after component in all sports which is why we spend a large portion of everything training session teaching athletes how to move faster and more efficiently when starting, stopping, changing direction, cutting, and reaching max velocity. Just like any other sports skill like throwing a baseball or shooting a basketball, speed can be taught. It's this expertise that sets us apart from other sports performance facilities. Our speed training program improves acceleration, deceleration, max speed, and change of direction ability.

Power and Strength training: Our strength training is done with a specific purpose of helping the athlete get faster. Athletes need to be explosive in order to be successful in most sports. We will modify sets, reps, and the speed of the movement to create a powerful, strong, and explosive athlete.

Conditioning: Conditioning for most sports is focused on developing the repeat sprint ability of an athlete. You don't want to be the athlete who makes a good play, but is gassed the rest of the game. Using a specific protocol our athletes develop a strong aerobic and anaerobic capacity to allow them to not get tired and make plays at the end of the game.

Athlete Assessment

Athletes will undergo a comprehensive fitness evaluation once they sign up for sports performance. Here's a list of the things we take into account when evaluating our athletes and writing their program.

- **Running Form**-Used to evaluate the athlete's gait, posture and limb control.
- **Acceleration Ability**-Takes a look strength relative to body weight and how the athlete can overcome resistance from a static or slow-moving position.
- **Deceleration Ability**- Extremely important for reducing the potential for lower leg injuries. This is a primary focus when doing our speed training.
- **Change of Direction Ability**- Reveals how well the athlete can control their positioning to create efficient deceleration and acceleration mechanics.
- **Lower Body Power**- Tested by looking at how high the athlete can jump as well as measuring the reactive strength index (RSI) of the athlete
- **Upper Body Power**-Tested by measuring the maximum distance of a medicine ball chest pass.
- **Relative Upper Body Strength**- Assessed doing a maximum set of push ups and chin ups. We value how well the athlete can move their own bodyweight which is why we test these exercises.
- **Anaerobic and Aerobic Conditioning**-Developing both of these energy systems is critical for maximizing conditioning. Multiple tests will be conducted to find which energy system(s) need to be improved.
- **Core endurance**-Postural control is a key to moving powerful and efficient. A weak core will lead to less efficient movements.
- **Grip Strength**- Grip strength is a good indicator of overall body strength.

Team Training

Function & Strength is the place to train for you or your team to get to the next level. Begin to train at the level you play and see your teams drive increase. When training in a competitive state of mind, your team will learn how to push themselves to that next level. They will find confidence in this and learn to win together and through each other will create a bond that leads to championships. The Strength Coach dedicated to your team will determine proper training volumes, restoration and recovery around heavy competition schedules and teach your team how to live the athlete lifestyle. Your program will consist of speed and agility, power, strength, and sport specific conditioning. As with all training at Function & Strength, programming and exercise selection will be completely tailored to the physical demands and limitations of your team- you are only as strong as the weakest link. Don't let that link be strength and conditioning.

Team Testing

Do you know what shape your team is in? There is only one way to find out. Test them! At Function and Strength (FXS) we offer team testing using state of the art technology. FXS's certified coaches will take your team through a series of tests to determine power, speed, and condition. We offer three tiers of testing; each one a little more complex than the next. Once your team has been tested FXS will compile all the results into a shareable spreadsheet to the coaches. The spreadsheet will outline the teams' strength/weaknesses and ways in which to improve so that the athletes are reaching their highest potential.

Personal Training

If you have never tried working out, a personal trainer is the ultimate fitness coach. Your trainer will introduce you to a simple, effective routine and progressively build a solid foundation, which will give you the confidence and knowledge to succeed.

Already in decent shape, but feel stuck or feel you have plateaued? An FxS personal trainer is the perfect solution to kick-start both your motivation and your workout routine as well.

What's Included:

- Increase Accountability
- Individualized Program Design
- Increase Strength
- Better Balance and Mobility
- Enhance Work, Recreation, and Sport Performance
- Our Personal Training is for one to two individuals. We offer that a second person can join a session at no extra cost.

Quality Training vs Quantity Training

Within Function and Strength 90 min workouts our athletes will gain valuable experience learning movement skills, improving strength, power, and overall athleticism. The old way of thinking is if you don't work hard all the time, you didn't improve anything. This is a very narrow view.

Athletes need to learn skills with proper application of technique during low fatigue states in order for motor programming and cognitive learning to take place. If I'm trying to get an athlete to focus on their deceleration technique so they don't increase risk of injury by putting themselves in a poor position, I need them to be fresh when they do this. Workouts should not be based on how much sweat an athlete loses, but by how much they have learned. That being said, an athlete will work hard to get in shape and become stronger and faster, but there is a time and place for that.

Over Training

Over training is probably one of the most overlooked and biggest reason for injuries, burnout, loss of interest in sport, sickness, poor performance, lower grades in school, lack of social behavior, and much more. We assume kids can go on forever without breaks. This is thought of as the "more is better" syndrome. It does not work that way.

Over the past decade we are seeing more and more travel teams which require year-round participation. Kids are traveling more, eating less healthy, getting less sleep, playing more, and recovering much less. The point is, we've seen the incidence of injuries continue to rise every year despite knowing more about exercise, nutrition, and recovery. The conclusion is, kids are over played and under trained to take on these demands.

Function and Strength is built on the concept of developing athletes first, and as a result, they can become better at playing their specific sport. To accomplish this concept, we focus on recovery and an extremely important element of our program.

Recovery

What do we mean by recovery? Recovery means the ability to continue making gains in your program without plateaus, or mental and physical burnout. This is done by combining a number of factors. We educate our athletes on how much sleep and nutrition play an important role in preparing athletes for the next workout. The other part of the equation is a well thought out program for our athletes. Since our athletes get individual programs we take into account outside activities and practices so our athletes aren't getting overworked. We also encourage our athletes to take advantage of our RDR (Restore, Destress, and Recover) room. The RDR room is equipped with an infrared sauna, compression sleeves for extremities, foot and calf massager. All of these items will speed up athlete recovery and get them ready for the next workout.

Policies and Procedures

It is our goal to bring you the best service possible. For this to occur, we have policies and procedures that must be followed.

Our Expectation

- Athletes are expected to arrive on time and be picked up on time for each and every training session.
- Athletes must come prepared with the appropriate workout attire:
 - Athletic shorts or pants, and shirts
 - **Please wear court sneakers.** This type of shoe allows for greater lateral stability when performing our speed work. The last thing we want to see is an athlete roll an ankle due to improper footwear.

Behavior

- We are looking for athletes with great attitudes, a willingness to learn, and who will put forth a good effort
- Horseplay will not be permitted. Athletes attending a training session need to be able to focus and not be distracted by unruly participants.
 - Athletes who are disruptive to the group will be given a warning, and addressed individually. **If the behavior persists the athlete will be asked to leave the training session.**

Appointments

- We ask all training sessions to be scheduled ahead of time.
- We recommend scheduling your training sessions on alternating days.
- We recommend training 3-4 days a week for offseason athletes and 1-2 days a week for in season athletes.
- Schedule your training sessions with your coach prior to the end of the workout, email info@functionandstrength.com or call 610-272-2420.

Equipment Usage

- In order for us to offer a safe training environment, we ask all athletes to work responsibly with all equipment. Dropping, throwing, or playing with equipment would be risking the safety of you and others.
- To prevent lost or damaged equipment, athletes will be expected to return all equipment to its original place. It will also help to keep a clean workout environment.
- Using equipment when not authorized to use will decrease the safety in the gym and increase the potential for injury.

Cancellations

- We will always respect your time and will do everything to maximize it when you are training with us. We ask you to be considerate of our time. Please be on time when picking your child up from training. We often have training sessions offsite after our sports performance class so we need to leave the gym shortly after the training session ends.
- Athletes who sign up for 3x/week training are essentially given 12 training days for the month. We encourage athletes to stick to a schedule but if you miss a session one week you can make it up the following week. Make up sessions will not carry over month to month.

Payment and Billing Cycles

Effective January 1, 2020 and are subject to change.

Function and Strength Sports Performance Training is based on the long-term development of the athlete. We guide athletes through their development with proper progressions.

We have the following options for enrolling in our Sports Performance Program:

Three Month Enrollment

We recommend this enrollment for athletes looking to make significant improvements in their speed, power, and strength development. For higher level athletes we recommend training 3 to 4 times a week to make the most progress. Committing to three months of training will get the athlete prepared for their upcoming season. For In season athletes committing to three months of training 1-2x/week will ensure the gains made in speed, power, and strength will not be lost during the season due to detraining.

***A credit card must be on file unless the 3 months are paid in full. Payment can be made by cash, check, or credit card.

Offseason Option: 90 min

***THESE SESSIONS OFFER THE BEST VALUE**

*3x/week \$260/month (\$21.67/training session)

*4x/week \$280/month (\$17.50/training session)

2x/week \$210/month (\$26.25/training session)

In season Option: 60 min

2x/week \$150/month (\$18.75/training session)

Don't lose the progress you've made by not participating in an in season strength training program.

Our athletes work very hard in the offseason to develop speed and strength. Unfortunately, the majority of athletes will lose this strength over the course of their sports season. **Every week an athlete goes without participating in a strength program will lead to a decrease of strength and power.** It's for this reason it's imperative our athletes continue to train 1-2x a week during the season. Typically, we want our athletes to peak at the end of their season and that can only be done through continued training.

One Month Enrollment

We recommend this enrollment for athletes looking to try out our program on a trial basis. Because of the length of the learning process, we do not recommend this option for athletes serious about long term improvement.

***A credit card must be on file for all one month enrollments. Payment can be made by cash, check, or credit card.

Offseason Option: 90 min

3x/week \$280 (\$23.33/training session)

4x/week \$300 (\$18.75/training session)

2x/week \$230 (\$28.75/training session)

Inseason Option: 60 min

2x/week \$160 (\$20/training session)

Drop In:

90 min Sports Performance \$30

60 min Sports Performance \$25

Private Coaching:

Personal training sessions are for athletes looking for 1 on 1 coaching. Appointments are based on trainer availability. We recommend all athletes do 60 min personal training sessions.

60 min Personal Training \$90

60 min Personal Training 10 pack of sessions \$850 (\$85/training session)

Team Training:

We offer team training for clubs or teams looking to get an edge on the competition. Rates are based off of groups of 10-20.

60 min Team Training \$125/hr

*For clubs or teams looking for year round training please call 610-272-2420 or email info@functionandstrength.com to get a quote on pricing.

Team Testing:

Is your team lacking speed, power, strength, or endurance? The only way to know for sure is with team testing. We offer three different testing options to match the needs of your team.

Bronze \$100

Test Include:

- Grip Strength
- Vertical Jump
 - With pause (to test force)
 - Counter movement (to test explosiveness)
- MB Chest Pass
- 60 Yard Shuttle

Test Time: 45-60 min

(time based off 10-15 athletes)

Silver \$150

Test Includes:

Bronze Package Plus 2 tests from below:

- 10 yd Sprint
- Flying 10 yd Sprint
- Pushup
- Pullups*
- 150 yd Shuttle Run

Test Time: 60-75min

(time based off 10-15 athletes)

Gold \$200

Test Include:

Silver Package Plus:

- Aerobic Endurance Test*

**This test is run at FXS or a facility with proper equipment*

Test Time: 90-120 min or 2 x 60 min sessions

(time based off 10-15 athletes)

Practice is NOT enough: Why Sports Performance Training Sets Athletes Apart

Ryan Heickert, MS, ATC at Function & Strength

“We’re talking about practice. Not a game! Not a game! Not a game! We’re talking about practice.” - Allen Iverson, in his famous press conference

Yes, we are in fact talking about practice. We’re talking about how practice is not sufficient enough for athletes to excel and win out on the field, in the rink, or on the court. The difference between winning and losing comes down to milliseconds of speed, inches of space, and ounces of strength. Your motivation will keep you going at the end of the game, but can your conditioning keep up?

In practice, you can sharpen your shot, keen your knowledge, and practice plays. But practice doesn’t account for gaining separation to get your shot off, expanding your explosiveness, or sturdy-ing your strength. Sports performance training is what separates the great from the good.

We believe in 7 Principles for Sports Performance: Speed, Explosive Power, Strength, Conditioning, Flexibility, Injury Reduction, and Nutrition Education.

Speed Separates You from the Competition

Speed is much more than being fast or quick, or increasing top-speed for a 40-yard dash. Speed training entails agility factors like acceleration, deceleration, footwork, and linear and lateral movements. Whether it’s chasing down a fast-break or not getting chased down on a fast-break, reacting faster while playing defense, or stealing a base before the catcher throws you out, increasing speed gives athletes an edge.

Explosive Power Pushes Away the Competition

Explosive power is about exerting an immense amount of force in a tiny amount of time and space. If speed is what separates athletes during a sprint down the line, explosion is what gives them a head-start off the starting line. It transforms the deceleration and linear and lateral movements taught and perfected in speed training into jukes and cuts. Exercise that pack power into explosive movements include jump-centered ones like depth jumps and types of reactive jumps that are focused on low ground contact time., and olympic lifts like hang power cleans. These movements are mission-critical at the starting line -- like when players jump for the ball in basketball, linemen push each other off the line in football, starts and stops in hockey, and all field athletes making a quick transition.

Strength Stops the Competition in Their Tracks

Strength can be defined as “capacity for exertion or endurance”, “power of resisting attack”, or “degree of potency of effect or of concentration”. Strength can compensate for what an athlete lacks in size, or bolster the force behind sizeable athletes. It can make throws and passes faster and tackles and checks

more impactful. It compliments speed by allowing athletes to separate and control their opponent in close confines. Strength training provides the powerful force behind explosive movements in order to make them truly effective.

Conditioning Creates Champions

Imagine your team is winning at the end of the game, or you're in the last lap of a group relay. Your speed, strength, explosion, and countless hours of practice have collectively contributed to you and your team getting you to this point. Then, you get tired. The other team blows by you because you're playing defense tired. You get caught on a fast-break or break-away because you're heaving for air. Conditioning ensures that athletes perform at their peak, at all times. Especially when it matters most.

Flexibility Forges Healthy Movements

Flexibility plays a major role in many factors of sports performance: strength, speed, agility, endurance, and injury prevention. Flexibility improves athletes' range of motion, which impacts explosive movements and agile cuts and jukes. Flexibility maintains muscle health and assists in body recovery, which keeps the body in prime condition. When athletes keep their body in prime condition, they can perform at their best -- just like Lebron James hasn't missed a beat in his 15 seasons as a professional athlete. Flexibility also affords athletes to play the entire season by offering more control over their balance and preventing muscular injuries.

Injury Reduction Ramps Up Your Value

If you're injured, you can't play. You can't play the sport you love. You can't compete for your teammates. You can't score a scholarship, make a travel team, or get scouted for the pros. Injuries can pose a greater threat to athletes than the competition itself. Sports performance training reduces athletes' chances of getting injured, so they can perform at their best and play on the field, not sit on the bench.

Nutrition Education Enhances Athlete Performance

Food isn't just something we eat -- it's the very thing that fuels our bodies. Nutrition education helps athletes power their bodies with the right fuel. Sound nutrition doesn't just provide fuel, however; sound nutrition improves athletic performance by reducing fatigue, reducing injury risk, and restoring the body to ensure proper recovery.

Using Sprinting and Plyometric Training to Improve Repeated Sprint Ability

By Jason Fearheller

The number one goal I hear from any athlete is “I want to get faster.” This is said for good reason. It’s easy to see how improving speed can improve performance in a sport. There are a lot of ways to improve speed for performance but for the purposes of this article we’ll look at top end speed and repeated sprint ability (RSA). Unfortunately most sport coaches and strength coaches do not emphasize true max speed training or RSA within their practices and training. Conditioning is often done at submax speeds for long durations and short rest. Although this will help condition the athletes it’s not the most effective way to prepare them for their sport. The best way to prepare an athlete is by improving their RSA.

RSA is “the capacity to repeatedly produce maximal or near-maximal sprint efforts with brief recovery intervals” (Lockie et. al 1362). Most sports involve shorts bursts of max effort followed by a period of time when the athlete is moving slower. Think of a soccer player sprinting down the sideline for a ball and then shooting it on goal. They needed top end speed when chasing down the ball, but once they shot the ball on goal they will get a period of time when they don’t need to sprint and can just watch and react to the play.

The methods for improving RSA may be different than you think. “What is interesting is that a player’s aerobic capacity may not contribute to RSA as much as other physiological factors. More power-based actions, such as jumping, and sprinting, may relate more to RSA” (Lockie et. al 1363). Sport is based off of speed and power so those two components need to be the basis of training for all athletes. A great endurance capacity is not going to help you if you lack the top speed needed to beat a defender or make a play. That being said, if an athlete has no aerobic base of conditioning they will be too deconditioned to repeatedly utilize their speed effectively.

Sprinting to improve maximum top end speed should not be mistaken for running hard with a maximum effort. Even if the athlete is trying their hardest a maximum effort isn't going to improve the speed of the athlete if the athlete is already fatigued or the distance they are running is too far. Top speed is developed using shorter distances of 30-60m for field sport athletes with significant periods of rest between sprints. Once top end speed is developed then it's time to improve the sprinting capacity of the athlete. This is where repeated efforts of 30m with brief rest periods will help develop the RSA of the athlete.

In a study done testing the RSA of soccer players, “...the field tests that showed the strongest relationships to RSA were the Vertical Jump and Standing Broad Jump, and 0-10m and 0-30m sprint performance” (Lockie et. al 1367) . The power developed through jumping and 10m sprints develops the acceleration of the athlete while the 30m sprints improved top speed. This combination of plyometrics and speed work along with an aerobic base of conditioning is best for improving RSA.

All sport coaches and strength coaches need to understand the demands of the sport and how targeting improvement of RSA through purposefully designed practices and training sessions can help the athlete and team succeed. Training to improve RSA through maximum sprint speed is misunderstood or overlooked and it's time more athletes and coaches should make it focus of their program.

References:

Lockie, Moreno, Orjalo, Stage, Liu, Birmingham-Babautu, Hurley, Torne, Beiley, Risso, Davis, Lazar, Stokes, Giuliano. "Repeated-Sprint Ability in Division I Collegiate Male Soccer Players: Positional Differences and Relationships With Performance Tests." *Journal of Strength and Conditioning Research* 33(5) (2019): 1362-1370.



Release of Liability/Informed Consent

1. In consideration of being allowed to participate in the personal fitness training activities and programs of Function & Strength, LLC and to use its facilities, equipment, and services, in addition to the payment of any fee or charge, I do hereby forever waive, release, and discharge Function & Strength, LLC or its employees or contractors and its officers, agents, employees, representatives, executors and all others acting on their behalf from any and all claims or liabilities for injuries of damages to my person and/or property, including those caused by the negligent act or omission of any activities, programs or services of Function & Strength, LLC or its employees or contractors or the use of any equipment at various sites, including home, provided by and or recommended by Function & Strength, LLC or its employees or contractors. (Please initial: _____)

2. I have been informed of, understand and am aware that strength, flexibility and aerobic exercise, including the use of equipment, is a potentially hazardous activity. I also have been informed of, understand and am aware that fitness activities involve a risk of injury, including a remote risk of death or serious disability, and that I am voluntarily participating in these activities and using equipment and machinery with full knowledge, understanding and appreciation of the dangers involved. I hereby agree to expressly assume and accept any and all risks of injury or death. (Please initial :_____)

3. I do hereby further declare myself to be physically sound and suffering from no condition, impairment, disease, infirmity or other illness that would prevent my participation in these activities or use of equipment or machinery. I do hereby acknowledge that I have been informed of the need for a physician's approval for my participation in the exercise activities, programs and use of exercise equipment. I also acknowledge that it has been recommended that I have a yearly or more frequent physical examination and consultation with my physician as to physical activity, exercise and use exercise equipment. I acknowledge that either I have had a physical examination and have been given my physicians permission to participate or I have decided to participate in the exercise activities, programs and use of equipment without the approval of my physician and do hereby assume all responsibility for my participation in said activities, program and use of equipment. (Please initial :_____)

4. I understand that Function & Strength, LLC providing and maintaining and exercise/fitness program for me does not constitute an acknowledgment, representation of indication of physiological well-being or a medical opinion relating thereto. (Please initial :_____)

5. I hereby grant permission to Function & Strength representatives, to take and use: photographs and/or digital images of (myself / my child) for use in news releases and/or educational materials as follows: social media, electronic publications, or Web sites. I agree that (my / my child's) name and identity: may be revealed in descriptive text or commentary in connection with the image(s). I authorize the use of these images without compensation to me. All negatives, prints, digital reproductions and shall be the property Function & Strength. (Please initial :_____)

Date: _____ Email Address _____

Participant Name (Please Print) _____ Phone _____

Signature (Parent or Guardian if under18) _____

FUNCTION AND STRENGTH

Initial Consultation Form

Date _____

Name _____ DOB _____ Age _____

Address _____ City _____ Zip _____

Home phone _____

Work phone _____

Email _____

(Please circle answers)

Work activity level: Sedentary Mildly Active Active Very Active

Work-related stress: Low Moderate High

Regular Hours: Yes No

Have you suffered from or been diagnosed with any of the following (please circle if “yes”):

High blood pressure

Pulmonary disease

Cancer

Seizures

Allergies

Hernia

Joint condition/injury

Ankle edema

High cholesterol

Breathing difficulties

Vascular disease

Recent illness

Diabetes

Tremors

Back/neck pain

Soft tissue injury

Unusual fatigue

High HDL cholesterol

Do you have a family history of your father or other male first-degree relative suffering an MI or sudden death before

age 55? Yes No

Do you smoke? Yes No

Has your doctor ever said you have a heart condition and that you should only do physical activity recommended by your doctor? Yes No

Do you feel pain in your chest when you do physical activity? Yes No

In the past month, have you had chest pain when you were not doing physical activity? Yes No
Do you lose your balance because of dizziness or do you ever lose consciousness? Yes No

Do you have a bone or joint problem that could be made worse by a change in your physical activity? Yes No

Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition? Yes No

Do you know of any other reason why you should not do physical activity? Yes No

Have you ever exercised before? Yes No

Are you taking any medications? Yes No

Please list, if yes: _____

If my health should change so that I could answer "yes" to any of the above questions, I, _____, am responsible for informing my health/fitness professional.

Date _____

Family Physician _____
Physician's phone _____

In case of an emergency, please call _____
Relationship _____ Phone _____