



purplepatch

FUNCTIONAL STRENGTH



WELCOME TO FUNCTIONAL STRENGTH

THIS GUIDE PROVIDES THE FOUNDATIONAL EDUCATION ON OUR PHILOSOPHY OF INTEGRATING FUNCTIONAL STRENGTH INTO YOUR TRAINING.

INCLUDED IN THIS GUIDE IS:

- ▶ **Functional Strength in endurance sports: What it is and why do it.**
- ▶ **Functional Strength: Elements of a successful program.**
- ▶ **Functional Strength: Dispelling the myths, rumors and misconceptions**
- ▶ **Functional Strength: Training Program recommendation's**

IMPORTANT INFO

Please read this important information before continuing.

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UNDERSTANDING FUNCTIONAL STRENGTH

INTRODUCTION - 10,000 FOOT VIEW

Functional strength is a very popular topic these days, in fact its rare to look at a magazine or website targeted at endurance athletes (Runners World, Bicycling, Triathlete, Lava, etc) without seeing content that falls under the banner of “core” exercises. Many of these publications have regular articles on the topic, yet the confusion persists in the endurance sports world. This guide will provide the background information necessary to understand what we at *purplepatch* mean by functional strength, what a smart functional strength program look like, and provide some specific guidance on actions you can take.

A functional strength program is not simply heading off to the gym to lift heavy weights, joining a Pilates class once or twice a week, or doing 100’s of crunches to get a strong abdomen. The *purplepatch* definition of a **functional strength program** is resistance training to target *mobility, stability, and strength* to improve the movements necessary for your specific sport. It is critical to keep these three components in mind: Mobility, Stability, and Strength, as you will need all three for optimal performance gains.

The benefits of a properly designed functional strength program truly can unlock your potential to improve as an athlete and include:

- ▶ **improved movement synchronization and coordination improved**
- ▶ **biomechanics and form**
- ▶ **improved athleticism**
- ▶ **injury prevention**

That list should wow you - improvement in those four area's will have a dramatic impact on your performance as an endurance athlete. In case that list is too abstract or technical, let me break down the benefits for you in different terms:

- ▶ **Improved muscle recruitment throughout the entire range of motion of the movement - all your muscles working together in balance, instead of stronger muscles compensating for weaker ones**
- ▶ **Ability to generate a given power output with less effort - Improved resiliency, ability to hold a certain pace for a longer period**
- ▶ **Allow you to move more efficiently - swim, bike and run more smoothly**
- ▶ **Allow you to increase your power production- faster top end performance**
- ▶ **Staying healthy, unlocks the holy grail of endurance sports: being able to train consistently over many months, without having to take time off for injury recovery**

THE FUNCTIONAL STRENGTH SEASON:

purplepatch is driven by athlete evolution. We want you to become a more complete athlete this season and improve over many seasons to come. This ethos is present in our endurance training plans, as well as our view of functional strength. We always want to keep the big picture in mind and empower you to progress not only towards your key events this year, but your vision of athlete you want to become.

In the previous section we discussed, the purpose of a functional strength program. Now we aim to explain the elements and progression of a proper program:

A season-long functional strength program should be focused on improving:

Mobility

Foundational strength

Stability, coordination and synchronized movement

Power production

Injury prevention and enhanced recovery

You cannot achieve all of this by simply repeating the same type of program each week throughout the entire season of training and racing. Your program should evolve, and mirror the phase of preparation or racing you expect over the course of a season. That is, you should have a vision for what you want to achieve this season, as well as how you want to develop over many seasons to come. Balancing those long-term goals, with the immediate goal of getting ready to perform your best for your “A” race, means the types of exercises and the purpose of each workout will change and evolve as the season unfolds. I like to think of three progressive phases for functional strength over the course of a season.

PHASE ONE: FOUNDATIONAL STRENGTH & STABILITY

Lay a foundation of strength and stability to improve your ability to handle an increasing training load, and to prepare the body for stress with power-production and multi-directional exercises

PHASE TWO: SYNCHRONIZATION & POWER

Shifting focus towards sport-specific functional movements and more complex exercises. You should maximize strength gains, as well as improve power production here.

PHASE THREE: RACE SEASON PERFORMANCE

We optimize our preparedness to race, as well as shifting focus to maintaining health, joint mobility and recovery

RUMORS, OBJECTIONS, & OBSTACLES

Inside the endurance sport community, the idea continues to perpetuate that you don't need strength training to become a better athlete. In some cases, the notion has evolved (or rather devolved) that any strength training, other than that magical hour-long "core" class filled with cyclists, triathletes and swimmers at the local gym every Wednesday morning, may actually be detrimental to performance. This is flawed thinking and we hope we are small part of changing this dated approach.

THE SCIENCE

We don't want you to perform strength work to get stronger simply for the sake of being stronger. We want you to improve your performance, avoid injuries, and enjoy your race day experience more by making it easier.

Lifting heavy weights requires force production. $F = ma$. The body adapts in doing this by:

- ▶ **Increasing neural recruitment (how well your brain talks to the muscles).**
- ▶ **Recruiting more muscle fibers into the usable mix (more muscle fibers = more strength/ more endurance)**
- ▶ **Morphing your muscle fibers into more efficient types of muscle (Type IIax)**
- ▶ **Increasing your tolerance for anaerobic exercise (lactate threshold)**

- ▶ **A whole host of other metabolic, hormonal, and general physiological changes in the body**

All of those things above are directly linked to improved athletic performance - even in endurance sports.

YOU DON'T HAVE TO GET BIG TO GET STRONG

Most endurance athletes worry that lifting weights will make them too bulky. In reality, muscle mass (size) gains are the predictable result of a specifically designed program. In fact, many endurance athletes who are strength training, usually under their own guidance, are actually doing much of their work in that very range that would cause muscle gain; moderate weight, high reps, several sets etc.

Most of you really don't need to worry about the bulk factor anyway. You likely don't have the genetic drive to build a whole lot of muscle mass in the first place (if you easily bulked up you likely wouldn't have chosen this sport), have enough excess of the necessary nutrients needed to build muscle tissues (dietary protein), or will be lifting regularly enough.

YOU DON'T HAVE TO GET STRONG TO IMPROVE

The mindset you should have is "form over load". Yes, we want you to get stronger and we also want you to improve. The basic principle of a well designed functional strength program is improving the movements of the body for sport specific benefit. Years of the same forward motion training (running, biking) or a lifestyle with a lot of sitting (desk jobs) have compromised your body's ability to move well. As children, we all had the ability to perform basic movements, and rather easily at that. This ability has deteriorated over the years. We need to correct some of the imbalances we've accrued over the years and improve the way we move while we are in the process of getting stronger. This is a major benefit of a progressive program, so you can take time out and really focus on mobility at the appropriate time relative to the goals of the season. This

hold true for a focus on power generation at the appropriate time or focus on maintenance at the appropriate time of the season too.

Your functional strength program should be challenging to trigger the adaptations mentioned in the Science segment and as you evolve, adding more weight, or doing more reps as you get stronger, always keep in mind, the exercise should be through the designated range of motion. Just performing the exercise with very light or no resistance will help reconnect your body and neuromuscular pathways to proper basic movements. For many athletes, just doing the proper form is surprisingly challenging after years of poor form or no strength program at all. We want you to challenge yourself, so if you can increase the resistance or load while maintaining proper technique, please do so. But remember, it is more important to use the proper technique and utilize the designated range of motion than it is to get strong in a limited range, and, as we said at the beginning, focus on “form over load.”

NOTE: The purplepatch functional strength programs come with full video tutorials, so you can what the properly performed exercises look like.

THE “RIGHT” AMOUNT

I train 20+ hours/week. How can I not be strong enough already?

You are strong. Strong heart. Strong lungs. And your legs can go forever. Unfortunately, just like everything else in life, the human body works on a bell curve.

Unfortunately, long duration aerobic training tends to ride on the excess side of the curve with respect to muscle tissue. Huge aerobic training loads, tend to break down muscle tissue, not build it. So yes, you may be strong enough to swim 2.4 miles, bike 112, and run 26.2 miles for now; but keep training and it won't last forever.

Functional Strength needs to be integrated into your training progression, balance out, compliment and support the heavy endurance training you are doing.

WHY ISN'T EVERYONE DOING IT ?

If it's clear-cut and simple, why isn't everyone in endurance sport doing it? To be honest, we don't really know.

OVERCOMING OBSTACLES

It seems that strength training is the “New Years Resolution” of endurance sports. At the start of every season, it makes the short list on most everyone's “How to Improve Plan”, but for most endurance athletes, three weeks into the season, it's already long forgotten. This is likely due to too many competing factors: training time, home, work, you have to sleep sometime. Beyond this, there is confusion on what exactly you should be doing for effective functional strength.

I have seen three main factors that lead athletes to neglect functional strength:

- ▶ Confusion on what to add into a program.
- ▶ Logistics and time availability
- ▶ Tired of repeating the same 5 exercises found in magazine

A smart functional strength program will progress over the entire season, changing focus as the season unfolds, complimenting and supporting your endurance training and race preparation. It will also provide variation in conjunction with changing specificity and purpose to the workouts at different times of the year.