Whenever the question of functional strength is discussed in conjunction with endurance sports it seems to evoke opinions as strong as political fundamentalism, with people devoutly defending their turf without the ability to even listen to the thoughts of others. I find that much of this is due to the fact that people think of different things when it comes to mixing strength and endurance sports. The word strength tends to create visions of heavy weight lifting and testosterone-filled men in a gym. Believers in strength training often tout injury prevention benefits and how it can improve both power and pace. Conversely the doubters of strength training claim the route to speed is by simply running, biking and swimming. They are both wrong. Massive loading of major muscle groups, as is done in classical strength training, is nothing but detrimental to endurance performance or your chances of remaining injury-free. Not many classical strength exercises relate to functional movement or assist in improved power or pace production. This said, to simply turn your back on all forms of strengthening is far too simplistic of a response and defies everything we know of sports performance across the range of sports humans follow. To improve your performance you don’t need to hit the heavy workouts at the gym, but you should incorporate specific functional strength that is related to and supports movements that you do in swimming, biking and running.

**Functional Strength Defined**

At purplepatch we place equal philosophical importance to nutrition, functional strength and integrated recovery as we do to the endurance training that directly correlates to your sport. Eating well, being consistent in specific strength and resting plenty will do little to make you a better athlete, but placing high value and attention to these will facilitate the maximal gains from your specific training. Sounds simple but so many fail to consider their training through this lens which often results in fatigue, injury or a lower return on their training efforts. This month we will explore the benefits and needs of functional strength.
force continual neuromuscular balancing/recruitment. The aim is to make you into an athlete with fantastic control throughout movements and a balanced muscular profile who can generate optimal ballistic output in the three specific components of triathlon.

It is important to realise that simply implementing a functional strength programme is not going to prevent injury, yet disciples of strength in endurance sports use injury prevention as the primary reason for its value. Injuries can and will occur to all levels and a proper functional strength programme can only ever be part of the preventative programme. An athlete gets injured for many reasons, but this is usually based on too much training load or the intensity being high in relation to current fitness, inadequate integrated recovery or even poor nutrition. I don’t view functional strength as necessary for injury prevention, but a tool to aid improved biomechanics, control, movement and ultimately, overall performance. Let us investigate the different applications it has to you, the triathlete:

**Synchronising Movement**

Can functional strength improve your technique and biomechanics? Not directly but it can clear the path for you to evolve and increase form through better neuromuscular programming and control of movement. Watch any less experienced runner, swimmer or cyclist and you will often notice the inability to truly control movements. The skill specific components of each sport require sports-specific learning to that sport (in other words, do more of that sport!), but for most triathletes there is also an underlying lack of motor-control of movement. Much of a proper functional strength programme is related to teaching the athlete how to control their movements and fire muscles in coordination. By isolating specific components of movement and forcing the athlete to control their movement and actions, we are simply maximising the potential of muscle that is already there. By taking them out of the mindset of, lets say, running, we can mimic the action of a component and force them to learn motor-control. This always has positive benefits to their actual running over the long term.

**Maximise Your Power Potential**

Simply swimming, biking or running more will never really maximise potential to produce more power or achieve a faster pace. While endurance sport never demands maximal power or pace, you do want to have the highest range power potential possible. Unfortunately, common bio-mechanical or technical limitations that inevitably occur in all our natural style can inhibit power potential. It is critical to consistently seek to improve form or style to improve power specifically during sport-specific activity, but including functional strength in your programme can teach you how to generate power more effectively and efficiently. You may well have heard of the kinetic chain, or how the musculoskeletal system acts as a chain from the top of the body to the bottom. A great example of the kinetic chain in action would be the potential that a painful knee could be due to tightness that originates in the lower back and hips.

Poor technique or the ability to string together correct movement inhibits many people’s ability to translate the potential benefits of this chain into movements while swimming, biking and running. Exercises that don’t simply focus on the major muscle group, but rather to real...
movements used in our sports, can teach you to generate power (or more ballistic movement) through both the prime movers of the exercise. An example of this could be as the quads and glutes in the push phase of running, and also from the core/central muscle groups.

This is a pertinent timer to make a point on the concept of educate and execute. In endurance sport supporting exercises such as functional strength or technique drills are most effective when they are followed by the most specific activity of all; the exercise itself. Following functional movement or exercises with specific activity is a real key to enforce the link between synthetic, but valuable, strength and your swimming, cycling and running.

The Supporting Cast

Much of triathlon is performed in the linear plane, but when fatigue sets in the first thing you will notice is the athletes inability to control the slight lateral (and other plane) movements. More inexperienced athletes often struggle from the outset, and these can be seen with overly poor or inefficient form. As fitness and experience increases these issues seem to self-correct, but even the fitter athletes often succumb to fatigue, and if no strength training has been done in the supporting muscles, biomechanics will decline. Hips and shoulder will rock side to side, and as efficiency drops the metabolic cost rises, causing fatigue to set in even quicker. Once this pattern of fatigue sets in it is extremely hard to reverse.

Simply performing more swimming, biking and running in the hope of delaying fatigue, is important, but not the solution. Adding and recruiting non-sport specific muscles can help maintain form as fatigue sets in. A key component to endurance performance is maintaining form and by working on the ‘support crew’ of stabilising muscles you are more able to maintain biomechanics for longer. Any slowing down should occur due to fitness or pacing issues, which is much easier to get right, than the inability to hold form.

Mobility

Not all of the functional strength exercises that we include will specifically aid mobility, but it is a major focus of our programmes. An improvement in mobility will allow you to ‘get into positions’ that relate to improved biomechanics and form, but it is close to impossible to improve mobility by simply doing the actual sport. The clearest example of this is running, in which the mobility of the hips is a clear barrier to many people improving running performance, as well as a root cause of many injuries. While so many have hamstring problems, few realise a common cause is restricted movement in the hips, hence an over-reliance on the hamstring. No amount of work on the hamstring will solve the issue if the mobility of the hips is ignored.

The surest method to improve mobility is to isolate the movements related to joint mobility and specifically work on it. In considering hip mobility and running, improvements over time allow natural improvements in form and biomechanics. It is this progression that adds up to performance gains with a lower risk of injury. Does functional strength lead to less injury? Potentially yes, but not for the reasons that many devout enthusiasts claim.
How To Integrate Functional Strength

A bonus for an effective functional strength programme is that you don’t need a gym membership to integrate it into your training. Nearly every athlete I have met can gain a tremendous amount from a series of exercises that utilise bodyweight as the load, in order to improve control of movement. There are also plenty of great tools that are portable and easy to use, yet highly effective, and the best of these that we use at purplepatch is the TRX Suspension Trainer. The simple reason for this is its portability, low cost and it is suitable for the widest range of athlete ability. The range allows for constant progression of exercises, and the unstable environment of many exercises makes it an exceptional tool. It is not the answer, but a great central tool, and I also like to have athletes include bodyweight movements, such as lateral hops, and neuromuscular speed and footwork. A final addition would be the use of medicine balls for ballistic power and tubing/bands for swim-specific strength.

It’s worth noting that the value of a functional strength programme comes with steady and consistent work and not one that pushes the barriers of fatigue. Exercises shouldn’t be massively challenging. You should be able to execute them with perfect form, to the point before fatigue, in a consistent pattern.

Feel free to include functional strength throughout the year but it should never dominate your training calendar. Time-crunched athletes would benefit from a couple of focused 20 minute sessions each week, whereas those with more time might include up to three sessions of 30–45 minutes. While a key pillar of your performance it does not have to dominate your weekly schedule. Keeping it simple and consistent will provide the real rewards.

Look At The Bigger Picture

Most would argue to get better at triathlon you simply need to swim, bike and run more. While I understand the thought that went into this rather simplistic philosophy, and would agree that this is a critical component to improved performance, it is not quite as simple as that. The argument for functional strength is quite conclusive, but it is even more effective if you consider it as a part of a comprehensive programme. Considered in isolation it will not directly make you a better athlete, or reduce injury, but as a part of a complete programme, you will evolve as a total athlete. Functional strength provides a wonderful platform of strength and synchronisation that will support your endurance training, facilitate gains in power and improved form, and become part of your comprehensive approach to optimal performance.

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