

## **The importance of Strength for Preventing injuries in Runners**

**Ben Dearman, KDR Fitness, Enfield NH.**

According to some research studies as many as 80% of runners (recreational/professional, short/long distance) will be injured each year. That is a statistic that pretty much guarantees an injury to any runner. The injury could be as tame as knee pain or as intense as plantar fasciitis. There is always the “bulletproof” runner that never gets injured, but at an 80% injury rate, even Super Man will get injured at some point. The injuries are many and most of the assumed causes are the same...too much running, increasing distance too quickly, or not giving yourself enough rest in between runs, etc. Almost every injury that happens to runners is somehow associated with running and the treatment recommendation is almost always the same regardless of the source (physical therapist, doctor, chiropractor, etc.): stop running. That is like telling a bird to stop flying or a monkey to stop climbing. So how do you injury proof yourself without stopping what you love to do?

The idea of strength training as a means of preventing injury is not new to the training community but is relatively new to the running crowd. Most runners associate strength training with adding size or “bulking”. As a runner adding weight of any kind is the LAST thing you want to do... unless it’s a jet pack. Jet packs are cool. But most races do not allow jet packs. Unless it’s a jet pack race, then it’s all gravy. Strength training is about building strength without the addition of size. Most importantly strength training is about enabling the body to produce and control more force without adding extra mass.

### **Where and How Do Most Injuries Occur in Runners?**

Injuries are classified as either acute or chronic. An acute injury is caused by a pronounced, typically explosive, one repetition action. An ACL tear or shoulder dislocation are good examples of an acute injury. Chronic injuries are caused by subtler repetitive traumas, shin splints or plantar fasciitis, for example. From a strength perspective acute injuries occur when a greater amount of force is generated than the body can immediately handle, i.e. 100 lbs of force generated one time at a joint/muscle where the muscles that control that joint can only handle 90 lbs. A chronic injury occurs when repeated bouts of maximal or sub-maximal force happen at a joint or muscle, i.e. 90 lbs of force at a joint/muscle that can handle 100 lbs of force. So whether the goal is to eliminate acute or chronic injuries, the end result is the same: If the muscles can handle more force, fewer injuries happen. And the only way muscles handle more force is by getting them stronger.

Typically injuries in runners happen to one (or sometimes all) of five areas; feet, shins, knees, hips and/or lower back. I have helped runners that suffer from shoulder pain and neck pain when they run but those are rarities, not the norm. The most common injuries are plantar fasciitis, shin splints, patella femoral pain (knee pain or “runners knee”), bursitis/tendonitis in the hip socket/SI joint and back pain typically associated with the erector muscles. It is possible for all of the above injuries to be treated by strengthening the glutes and hamstrings properly. That’s not to say that doing squats, deadlifts and leg presses will cure your problems. The exercises must be functional to running. They must address the need of running, i.e. a sport that is truly 100% unilateral.

## What is Functional Strength Training for Running?

You must strength train...intelligently, functionally and quickly. Intelligent functional strength training is looking at the nature of the sport, running, and figuring out what the needs are. Running is a pure unilateral sport... you push off one leg onto the other and your arms move in opposite directions.



How many runners do you see on two legs? That's not running, that's walking.

Because of the unilateral nature of the sport dynamic core stabilization (the ability of the core to stabilize the torso under motion) is incredibly important in injury prevention as well as enhancing performance. In fact the latest research shows that the core is meant to function in a prevention manner, i.e. the core is meant to control and limit motion. Look at a picture of any runner with their belly exposed and you will see a large cork screw motion at their midsection. The abdominals are functioning to help slow rotation down and reverse it back the other way. See above left. As the right arm drives backwards it pushes the right shoulder away from the front of the left hips...voila! The core as a limiter of motion.

Functional training is a buzz word that gets thrown around a lot when talking about injury prevention or strength training. Functional training is designed to make you better at a particular function. Functional training is not balance training...unless you are a gymnast. It is common to see runners train on unstable surfaces such as bosu balls, stability balls, wobble boards, etc. I have never

seen anyone run on a stability ball. If you are on a wobbly surface, then you're probably not training intelligently for running. The reason why runners use unstable surface training usually stems from the notion of "I don't want to bulk up" or "I need to work my stabilizers more". You will not bulk up by focusing on getting stronger. (Unless you eat Big Macs and large pizzas, in which case bulking up is probably the least of your worries. You might want to get your diet in check.) In order for strength to be developed you must have a solid foundation from which to interact with and lift off of. A stability ball is not solid. The ground (that which you interact with on a run) is solid, so you should make a habit of using it during your training for running. Yes, the stabilizers need to be strong, but the prime movers are what really move the body. You can't stabilize anything if you don't move it! Or to put it another way; in order for you to stabilize a joint, you must first MOVE that joint.



Not functional for running. Maybe functional for...squatting on a stability ball.

Strength training for running also needs to be quick. The weight training workout should last no longer than sixty minutes, with an ideal time of completion around 45 minutes. The purpose for strength training is to make you stronger and hence more resistant to injury. Runners are not weight lifters. There is no reason to train like one. A typical workout would be organized to include soft tissue work, followed by stretching and core work, then the resistance training part. Energy should be saved for the sport, i.e. running. Too much time in the weight room will yield poor results on the road.

### **The Myth of Bulking**

Before I wrap this article up I want to address a huge myth. Here it is: If you lift weights you will get bigger. In all athletics the fastest person wins, regardless of the sport. Running is no different. More strength at the same weight means more force production into the ground which in turn means more force to propel you forward. As I stated above, the only way to get bigger with strength training is by consuming lots of calories. A very easy way to figure out base level of calories is to take your weight times 15, so if you weigh 200 lbs you would need approximately 3000 calories a day just to maintain your weight. STOP!!! Before I start getting hate mail (“There is no way I can eat that many calories!” or “I eat way less than that and I have stayed at my current weight for years!” ) you need to consider the purpose of this article, i.e. strength training and injury prevention for runners, not diet recommendations. If you think that nutrition boils down to weight times X to figure out caloric needs...you are very wrong. This is just a guideline!

### **Stop Making Me Read this Gibberish and Give Me the Exercises!**

Ok. Perform these five exercises every other day at least 6 hours after your run. Why 6 hours? Because the purpose of these exercises are to prevent injury...so if you do them before you run the muscles we are trying to strengthen will be fatigued, leading to potentially more injuries. And, if you do them immediately after, your body will be too fatigued you won't get any benefit out of them.

1. Pull ups/chin ups or any kind of Up – I could write a whole book on the importance of pull ups for health and injury prevention at the shoulder and another book on how strong lats help us run faster and further. Do them. Lots of them. If you can't do them because you're overweight...and you're running to lose the weight, you maybe shouldn't be running. If you can't do them because you're weak, start with negatives. Jump up, grab the bar and pull yourself up to your chest, now slowly lower yourself down. Perform 6 sets of 3 reps.

2. Single leg reaches - stand on one leg, with the opposite hand reach across your body and forward to a point approximately 12-16 inches in front of your stance foot. Come back to a standing position. That is one rep. Perform 3 sets of 12 reps. See picture for clarification. Notice the lack of a stability ball. Smart training. This is a great exercise to help prevent knee pain as well as ankle sprains.



3. Inverted or BW Row – same principle as the pull up. Important. Here is something to think about: You balance your tires to even out the wear. Do you ever balance out your exercises/movements? Think how many times you push something away from you or hold your arms in front of your body (every time you talk on the phone, type on the computer, drive, etc.). Now how many times do you pull something to you? Not a lot. Your body needs to be balanced out just like your car. See picture. Perform as many as you can in 35 seconds.



4. Front plank/side plank – remember your core’s main job is to help stabilize the spine and to slow down/prevent movement. Planks are a great exercise to help train your core to do what it’s supposed to do and it’s incredibly simple! Perform 2 sets of 30 seconds of each, working your way up to 60 seconds. Stop when you start to shake.



5. Split Squat – This is a great exercise that is often done wrong. Make sure your hips are squared! While standing, place your hands on your hips, notice how your hips are even with each other. Now take a step forward in a split position, notice how your hips have pivoted? If they didn't, great! If they did, that's ok too...it just means you're tight. Focus on keeping your hips straight as if you were in a standing position. Go up and down without moving your feet. Perform 3 sets of 12 reps on each side.



Ok that's it. Remember; perform these exercises ideally on off days or at least 6 hours after your work out.

80% of runners get injured every season. That is 8 out of 10! Perform the above exercises and your chances of becoming injured are drastically reduced. Or, if you are a serious runner and want to take it to the next level join our Running Performance Classes.

**Running season is already here. Why go through another season of nagging injuries and poor performance when as little as 80 minutes a week can drastically reduce your chances of injuries AND drop your times.**

The classes are 40 minutes in length with a combination of stretching, strengthening, mobility and conditioning. Running specific classes are held on Tuesday and Thursday at 6:45 PM and 6:00 AM at KDR Fitness in Enfield NH. General Metabolic Conditioning Classes are held MWF at 6:45 PM and Saturday at 8 AM. Space is very limited. The cost of the class is 129.00 a month for unlimited classes. Email [kdrfitnesssystems@hotmail.com](mailto:kdrfitnesssystems@hotmail.com) or call 632-1229 to sign up.