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Good time for indoor strength training & other cardio activities

When the weather gets cold and the running season winds down it is a great time to alter your training program. I often recommend, especially for hard core runners who are training intensely, to take a week or two off and give your body a chance to recover from several months of training. I look at training and racing as a mathematical equation:

$$\text{Training} + \text{Recovery} + \text{Nutrition} = \text{Performance}$$

Quite simply, if you overtrain and under recover you underperform. If you over recover or skip too many workouts and constantly make excuses not to train, you will never get in shape and you will underperform. If you tend to be in the first category and usually don't give yourself a rest, then take some time off. You might be surprised at how good you feel and how much stronger you are when you return to training. Also, remember that you are what you eat. If you do not eat well and at the proper time, then your body cannot refuel, repair and recover properly, causing you to underperform.

My biggest concern with runners is that they often do not diversify their training program. This can be very detrimental and often leads to injury. When I take an athlete's history, I look to see what other forms of exercise they do throughout the year. Too frequently, runners run and do little or nothing else. No core training, no multi-directional training, no strength training, and no other forms of cardiovascular training. Let's take a look and see why this can be harmful.

Core muscles are those muscles that help move and stabilize the spine. Why are they so important? Well, let's think about what is happening during the running stride. When a person runs, there is an alternating pattern of opposing arm and leg swing. When you stride forward with your left leg your right arm swings forward to counter the action of the leg. The core musculature helps to control these two counteracting forces. So a strong core helps to protect the spine from injury by dissipating these forces. Not only that, but certain muscles that are directly used during the running stride originate from the lumbar spine. For example, the psoas muscle attaches to your last thoracic vertebra and all of the lumbar vertebra and discs. It spans across the pelvis and attaches to what is called the lesser trochanter of the femur, or the inside of the upper thigh. This muscle helps you to bring your leg forward and flex your hip during running. If your core muscles are not strong and cannot effectively stabilize the spine, then the psoas muscle can place a substantial amount of stress on the spine and cause injury. Great examples of core exercises include planks, side planks and chops.

Why is multi-directional training so important? Think about when you were younger or if you have children. Watch how they play and exercise. Then think about running. What direction do

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you go in when you run? Forward obviously. Then think of your child playing soccer, football, field hockey, hockey, lacrosse, etc...In what direction are they moving? Multiple directions. I find that most people after high school tend to switch from multi-directional sports to unidirectional sports, i.e. walking, running, swimming, biking and machine based weight lifting. Now you end up without training laterally, diagonally and backwards. Well, people are 3 dimensional, not 2 dimensional. So when designing an effective training program you have to think 3 dimensionally. Muscles surround a joint from 360 degrees and if you do not train all of the muscles around the joint then you are potentially creating strength ratio discrepancies around the joint called muscular imbalances. A muscular imbalance is when certain muscles get significantly stronger than other muscles around the joint because one constantly focuses their training on those muscle groups. This can lead to tendonitis and eventually tendonosis (degenerative changes and microtearing of the tendon) and over the longer term, degenerative arthritis. So when you are in the gym, instead of only doing forward lunges, why not do your lunges in multiple directions, i.e. forward, diagonal, lateral and then in those same directions, but backwards performing what is called a clock or star pattern.

You can also hire a personal trainer and have them educate you on a functional training program. What is functional training? It is a training program that duplicates normal human motion. It involves multiple muscles and joints at the same time. Quite simply, think of a squat versus the leg extension machine. We squat everyday and all day long, getting in and out of chairs. What muscles and joints are involved? Too many to list! When you use a leg extension machine you are isolating the quadriceps muscle at the knee joint. This is not very functional or efficient and it doesn't even duplicate normal human biomechanics. How about joining a zumba class, yoga, or pilates. Play some indoor tennis or racquetball. Take those dancing classes you have always wanted to take. Do you see the common factor in all of these activities? Yes, they are full body, multi-directional activities. Kettle Bell training and TRX training can also be great, but a word of caution. Only do these activities, just as the other activities, with highly qualified trainers. I always tell my patients that the money they spend on a good trainer is more than made up in copays to me because of injuries resulting from improper training. Remember, not all trainers are created equal so do your research!

I also like to see runners do other forms of cardiovascular exercise. Why? Because running beats-up your body, especially those who train high mileage or intensity. Running increases compressive loads going through the lower extremity anywhere from 2 ½ times to 7 times your body weight compared to 1 1/2 times to 3 times your body weight when walking. The goal of a runner is to take 90 foot strikes per leg per minute. If you do an hour long run think about the stress going through your lower extremity. Doing other aerobic activities such as biking, swimming, cross country skiing, elliptical, and snow shoeing can be great alternatives. Not only that, but it is great to be comfortable in another cardiovascular activity, not only to decrease the wear and tear on your body, but also to allow you to train if you get injured before a big race for

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which you have been training for months. On more than one occasion, I have had runners crying in my office because they have to stop training for a period of time due to injury. If you don't have an alternative method of training, how do you expect to be able to keep up your cardiovascular fitness if you get hurt?

Hopefully this article has given you some ideas to ponder over the winter months. Diversifying your workout can be fun and exciting and most importantly, it can help prevent running injuries. Remember, train hard, but be smart during this upcoming racing season.

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