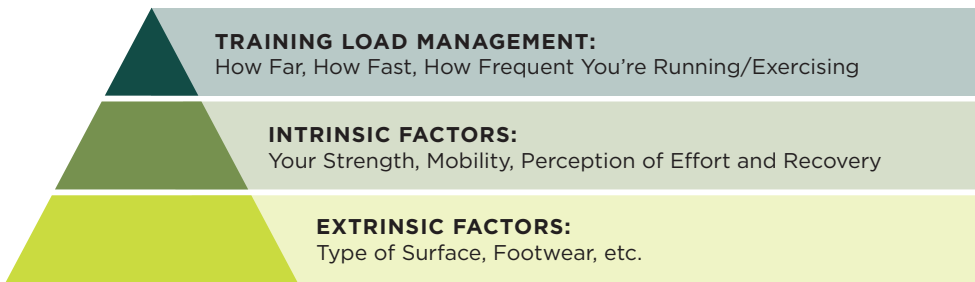


RUNNING: INJURY AND PERFORMANCE

Running is a fantastic form of exercise that 621 million people globally participate in. People run for all sorts of reasons: to stay healthy, to manage stress, to feel that endorphin rush, or to push for their personal best time in a race. Whatever the reason, there are two key questions that many runners have:

1. How can I reduce my risk of injury?
2. How do I optimize my performance?

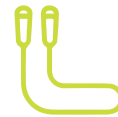
In general, we can explore these questions by looking at the following three categories:



The most influential of these factors is **training load management**. Our bodies can adapt to numerous stressors if we are careful and gradual about building up to them.

But let's get to some specifics! Here are some answers to common questions about **injury** and **performance**.

PEAK PERFORMANCE



WHAT IS THE MOST EFFICIENT WAY TO RUN?

Often, your healthcare provider will evaluate how efficiently you run, and this is often referred to as "running economy". One of the first variables your healthcare provider might look at is your cadence, the total number of steps you take per minute while running. Typically, people adopt a longer and slower stride which can be less efficient than a shorter stride. Other variables that may be evaluated are vertical movement during your run and how your foot strikes the ground. The good news is that with experience, many variables simply self-optimize or gradually shift towards the most efficient run pattern. If you want to squeeze every last second out of your 10k time, you can always check in with a healthcare provider for a running assessment.

SHOULD I DO OTHER EXERCISES TO IMPROVE MY RUNNING?

Yes! Strength training for the lower body may help improve running economy. Strength training may also play a role in injury prevention too. How to get started? You might begin with simple body weight exercises such as squats and calf raises twice per week. Ideally, you should strength train on the days you do not run, but if you do decide to do both on the same day, consider having 4 hours between the two activities.

PREVENTING INJURY



SHOULD I STRETCH BEFORE I RUN?

Surprisingly, stretching before running doesn't reduce injury risk! In contrast, research suggests training load management, recovery time, and strength training reduce injury risk. Interestingly, a certain amount of stiffness in the lower body is important and helps us run. Think of the lower body like a spring that absorbs but also releases energy – this gives us 'spring' in our step. If you're looking for a simple warm-up, keep it dynamic. If you stretch continue to do so; however, it may not play a significant role in reducing your risk of injury.

WILL I WEAR DOWN MY KNEES BY RUNNING?

No! Recreational running preserves and nourishes the joints assuming training loads are built up, consistent, and managed well over time. Further, running actually has a protective effect against the development of knee and hip osteoarthritis. Not only does running help keep your joints strong and healthy, but it also keeps your mind and the rest of your body happy and fit.

CAN I RUN IF I ALREADY HAVE OSTEOARTHRITIS?

Yes! Recent research has shown that running with osteoarthritis is NOT harmful and does NOT damage the joints further. If you have arthritis and want to start running, consult your healthcare provider prior to starting.

HOW QUICKLY CAN I INCREASE MY RUNNING DISTANCE?

First, you want to write down your goal and create a step-by-step plan to work towards it. To determine the pace of progression, you may want to consider the date you want to reach your goal. As a rule of thumb, increasing your weekly mileage by 10% is a good place to start. At shorter distances or if you are an experienced runner, you can likely increase your mileage faster.

DO I NEED HIGHLY CUSHIONED FOOTWEAR?

The most important consideration when purchasing a running shoe is to ensure it feels comfortable. In terms of cushioning, current guidelines suggest that a minimalist shoe may be best for running performance, but if you're used to a cushioned shoe stick with it. Our bodies can adapt to different types of footwear if we give them time to adjust. It is important to note that one risk of running injury is in fact transitioning too quickly to a new type of footwear. For example, if you transition from a shoe with a highly cushioned heel and arch support to a minimalist shoe, you might develop an injury.

RUNNING WITH PAIN

CAN I RUN WITH PAIN?

If you are experiencing aches and pain while running, there are a couple rules of thumb to keep in mind. First, any pain you experience should be somewhat tolerable and not cause you to limp. If it is intolerable and does not improve with each subsequent run consult with a healthcare provider. Second, any ache or pain should resolve back to baseline within 24 hours after your run. If you are ever unsure if it is safe to run, talk with a healthcare provider prior to continuing.

PAIN WITH RUNNING

This stop-light for pain with running is a great rule of thumb to follow.

