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HHP 307

17 April 2020

Final Presentation – Written Version

I decided that to better explain my training plan and philosophy, that I should put my thoughts down on paper. For this project, I set out to research what makes athletes better in the sport of running. This includes rate of workouts/mileage, strength training, injury prevention, and proper recovery.

I’m not going to lie; I believe I got slightly lucky with selecting running as my assigned sport. However, I believe it is also a good chance to showcase many of the specifics that go into proper running training plans, and what some non-runners might miss if they were to develop a training plan for the sport. Most students understand the various distances of long-distance running, ranging anywhere from the 5k (3.1 miles) up to the marathon (26.2 miles). Or races on both paved surfaces and roads or on trails and golf courses. Students can also interpret the proper running form for maximum efficiency. But beyond that, there’s still more that we must cover.

As I’ll discuss later, a running training plan consists of running, as well as lifting weights, injury prevention techniques, and core strength exercises. However, not each athlete is the same. There are multiple variables that go into an athlete’s specific training plan for running. However, a general guideline is that for a running-oriented training program, an athlete will do a running workout 4-6 times per week, and lift weights at least 1-2 days per week. Along with this, every day of training is accompanied by the injury prevention and core strength exercises that I mentioned earlier. These I’ll go into more detail later on, but that’s the general run-down of what we’ll be working with here.

Each running workout ideally includes three different types of workouts, some more than others. For long distance running, it’s critical that athletes focus on building endurance. One way to do that is by running longer distances. Another way is by a “tempo” run, where an athlete will hold a faster pace – however not race pace – for a determined length of time (depending on the athlete’s fitness). Along with this, there’ll be some speed workouts thrown in every so often, just to work on getting the legs moving faster in the running motion. For this, we will do some workouts on the track, as well as “fartlek” runs. A fartlek run has athletes jump from faster to slower paces for ranges going anywhere from 30 seconds to 2 minutes in length. Lastly, we can’t forget about our easy/recovery runs. These runs will take up most of our training cycle, as we want our legs to be fully recovered before either our next workout or before our big race.

I mentioned the accompanying exercises to go with each training day. Each day will have several of the following: MYRTL Injury Prevention, Weightlifting, IT Band Routines, Core Strength. Each of these exercise routines will be done in moderation to each other. Again, this will all be determined based on the athlete’s prior athletic history. Very experienced runners will be given a core workout every time they finish a run.

Now comes the part where I had to figure out how to best schedule workouts for different types of athletes. Different athletes have different factors that they carry with them going into any training cycle. As a coach, you wouldn’t want to get a first-time runner a track workout running 5:00/mile pace for 400 meters at a time. You also can’t give a college cross country runner a 10-minute recovery run, as that won’t give them the proper benefits of the workout. Not every training plan works for everyone. For running, I took a strategy of coming up with a specifically tailored training plan for any type of athlete, but that also doesn’t require me (or any coach) to physically write out the training plan.

This is where computers are once again my best friend. Using programming, I developed an algorithm that will consider each variable that I previously mentioned and will produce the training plan, all in a user-friendly format. Based on what the athlete types into the program, the algorithm will decide which workout an athlete will be given for a particular day, while still following my training philosophy I mentioned earlier.

Some things to keep in mind is that long distance running is not like training for other sports. Most sports (such as football, track & field – specifically throwing, and other “big man” sports) utilize different strategies for working out. Specifically, in the weight room these “big man” sports are much more likely to train to achieve power, strength, hypertrophy, and/or overloading. For long distance running, these types of workouts are not only detrimental, but can become serious risks of injury. A long-distance runner doesn’t need the strength of a football lineman, because running as a sport does not demand that same amount of strength. Also, different running workouts are made for runners who choose to run different types of events. The best cross-sport example of this is of swimmers specializing in a specific stroke or event discipline, or football players in specific units. A 5k-specialist in running will not want to run a marathon workout, such as 4x4-kilometer repeats.

The result of all this information is the easy-to-use program that I developed. When the “Build My Program” button is pressed, the algorithm gets to work saving each variable and creates the training plan in a document format that can be opened and viewed. On each day, there may or may not be an accompanying weightlifting workout (depending on the day).

At the bottom of the document will be more exercise routines that the athlete can do for a specific day. IT Band routines, including resistance bands, pistol squats, and hip hikes (among others). Core strength routines, including planks, bicycles, V-ups, etc. And finally, the MYRTL routine, which is a running-oriented injury prevention routine that consists of clams, leg lifts, donkey whips, donkey kicks, legs swings, and hurdle trail leg movements (to simplify). All of these when done in moderation will work to keep the athlete healthy and ready to run every single day during the training block.

The athlete will follow the training plan (excluding room for a few minor hiccups) all the way through to race day. After race day, it’s recommended that the athlete take at least 10-14 days off from a big, major race. Assuming the athlete is taking classes on a college campus, the athlete should still go walk/bike to class or whatever s/he prefers. If the athlete needs attention from an athletic trainer, the athlete should still be going to the trainer for treatment. This way after the 10-14 recovery days are done, the athlete can get right back to training for the next big race.

Attached with this repository is the training plan that I developed for the marathon race distance, using my personal information. The training plan attached should serve as the “high end” or more difficult output of this training algorithm. Again, not every training plan is the same for everyone. I hope that this paper explained this in detail. The executable can be run again to develop different training plans for different types of athletes.