

THE TOTAL BEGINNER'S GUIDE TO RUNNING

LOSE WEIGHT, GET FIT
AND
STAY INJURY FREE

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The Total Beginner's Guide To Running

Lose Weight , Get Fit
And Stay Injury Free

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The running program within The Total Beginner's Guide To Running or any other exercise program may result in injury . Consult your Doctor before beginning this or any other workout plan .

If you begin to feel dizzy or lightheaded while doing any of the exercises in this Ebook, consult your Doctor.

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If medical advice or other expert assistance is required, the services of a certified physician or professional should be sought .

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Introduction

Whether you're a newbie interested in taking up running for the first time, or a recreational runner looking to take your training to the next level, this eBook will help you meet your goal .

So, why run? It's quite obvious to me. Running is one of the most efficient and cost-effective ways for getting fit, and the benefits are broad reaching .

Running not only helps shed weight, build endurance, prevent high blood pressure and other health issues associated with a sedentary lifestyle, it has likewise been proven to improve bone mass and lifespan, as well as mental and emotional well-being .

I can go on and on about what running has to offer when it comes to fitness and health, but I've already devoted a solid chapter to the subject. That being said, it can be daunting when first setting out on the running path, which is where this eBook comes in .

I designed this eBook to answer the practical questions you might have about getting started, then taking it to the next level.

Here, I have compiled all of the essential advice that you need to know to start running safely and efficiently, providing you with pages after pages of comprehensive and practical guidelines on a wide range of running related topics.

I look at everything from running benefits and proper gear to what to eat, as well as how to get started training, the best ways to prevent injury, etc.

This eBook is divided into specific sections to help you find what you're looking for without much second-guessing. Once you've started running, you'll be able to come back to this it and review specific sections for advice, motivation, and reinforcement. Think of this Ebook as your all-in-one training resource – and running companion.

So, what are you waiting for? Start reading, lace up your shoes and enter the world of running.
Once you get the bug, there is going back.

Good luck!

Chapter I : Why Run ?

The Science-Backed Benefits Of Pounding The Pavement

You already know that running is important; otherwise, you'd have spent your money on chocolate bars and pretzels instead of this eBook. But when you take up this sport, it's always helpful to remind yourself why.


So, why do you want to take up running? Simple question. Hundreds of possible answers. The reasons run the gamut: lose weight, to relieve stress, to eat more without gaining weight to challenge oneself, to stay young, to simply get into a better shape, etc.

In other words, running will help you improve yourself on the inside and the outside. This chapter covers some of the most common and well documented physiological and mental benefits of running. Let's take a look at what's awaiting you.

Run Away From Cancer

Cancer. The curse of the modern age. The deadly disease that claims the lives of millions worldwide. The most common cancers are breast cancer, lung and bronchus cancer, colon and rectum cancer and prostate cancer. Getting diagnosed with one of these affections is tantamount to a death sentence.

Here is the good news. Regular exercise reduces the risks of many types of cancer, including some of the aforementioned, according to a review of 170 epidemiological studies published in the Journal of Nutrition. If you're not convinced yet, check the following study this research out of the Research conducted by the Public Health Sciences Division.



The researchers revealed that consistent, moderate-to-intense aerobic exercise could reduce markers of increased colon cancer risk in men. In the experiment, men who engage in regular cardio exercise of over one hour per day, six days a week, drastically reduced the cellular propagation patterns in the colon linked to polyps and-over time-cancer .

Another evidence-based meta-analysis of **67** articles, published in the Canadian Medical Association Journal, examined lifestyle factors that influence breast cancer recurrence rates. These include weight management, exercise, nutrition habits smoking, etc..

In the end, exercise and weight management were revealed to be the most crucial lifestyle choices for reducing cancer recurrence rates.

Improve Your Cardiovascular Health

Running is beneficial for your blood pressure, says the American Heart Association. In fact, **150**-minute of brisk physical exercise per week is enough to keep blood pressure in the healthy range same organization revealed on their website.

Other studies have come to similar conclusions. One example is a report published in Circulation found that aerobic exercises such as running, swimming and cycling have an enormous positive impact on blood pressure and hypertension in afflicted patients.

Another study conducted at The Lawrence Berkley National Laboratory, Life Science Division in Berkley, found that running lowers risks of high blood pressure, diabetes, and high cholesterol-the main risk factors for cardiovascular issues.



Runners Suffer From Fewer Disabilities And Live Longer

Running slows the aging clock, research conducted at the Stanford University School of Medicine has revealed. The researchers tracked **538** runners and **423** healthy non-runners for a **21**-year period. All the participants were over **50** and were asked to take a health and disability assessment each year. The test measured the ability to perform mundane tasks like walking, opening a milk carton getting out of a chair, cutting meat, etc.

The conclusion? Older runners suffered from fewer disabilities led a longer active life and were as half as likely as non-runners to die prematurely. In fact, by the end of the experiment, **85** percent of runners group were still kicking, whereas that number dwindled to only **66** percent in the other group.

Another long-term prospective study of over **370** members of a running club aged **50** or older and **249** control subjects has added more substance to the fact that running could help prevent disability and early mortality in elderly individuals.

Helps you Lose Weight

The main reason I took up running, and still the biggest impetus driving many to hit the pavement, is to lose weight. In fact, whenever I ask my friends or blog readers about their motivation for running, **8** out of **10** expresses a desire to attain, or keep, a healthy weight.

At about **100** calories per mile, running is a fantastic calorie burner. In effect, a **200**-pound person can burn more than **900** calories in an hour. Science backs this up. Subjects who logged in **30** or more miles a week gained fewer pounds than those who ran less than ten miles, according to a Medicine & Science in Sports & Exercise study of over **100,000** runners.

Just keep in mind that how much you shed depends, mainly, on bodyweight, training intensity, terrain, and other factors. So no suit fits all.

Also, research shows that running increases the "afterburn". This is what's known as excess post oxygen consumption (EPOC) the number of calories you burn after a workout. In other words, this means that your body's metabolism can continue to burn more calories even at complete rest.

But here is the little caveat. Weight loss is a numbers' game—meaning you will only shed pounds if you burn more calories than you take in. You need to back your exercise regime with the right diet otherwise, attaining a healthy body weight will always be out of your reach.

Running & Bone Strength

Osteoporosis is a serious public health problem that affects **200** million people worldwide, with roughly **40** million in the United States alone, according to the National Institute of Health. Meaning "porous bones" , this condition features weak and easily broken bones, especially in the hips, spine, wrists, and shoulders. The crippling disease occurs when the body loses too much bone density, makes too little it, or both.

In a study published in the European Journal of Applied Physiology a team of researchers examined bone density of **122** marathon runners, as well as **81** half-marathon and **10K** race athletes. Then after undergoing an ultrasonography assessment of the right and left calcaneus; the researchers compared the athletes' bones with those of **75** sedentary individuals.

The runners' group had a much healthier bone density than the sedentary group. Not only that, but the scans also showed that the half marathon and marathon runners had better bone density than shorter distance athletes.

Further, research conducted at the University of Missouri reported that running is better for building strong bones than traditional resistance training.

Is Running Bad for Your Knees ?

Whether you're a complete beginner trying to get in shape for your first 5K or an elite marathoner who regularly cranks out 40 to 60 miles a week, chances are you've heard that running can cause permanent knee damage.

In fact, the "*running causes arthritis*" is one of the most entrenched myths about the sport, especially among non-runners.

I understand the logic behind the myth. Every time your foot strikes the ground, you land with a force of about two to three times your body weight. Therefore, this high impact might wear away at the knees. Yet, science has got another story to tell. Recent research shows that pounding the pavement is unlikely to lead to the onset of arthritis, ironically and precisely because of the nature of the sport.

Here is a quick overview of some of the studies that have debunked the "Running is bad for your knees" myth:

First, let's start with a study published in *Knee Surgery, Sports Traumatology*. A group five men and five women in their 40's (with an average BMI of 25.9), went on a supervised six-month marathon training plan, training for an average of 20 miles a week. Then, by the end of the experiment, they completed the race.

To measure running's impact on knee cartilage, the participants had the joint examined both before and after the event. More specifically the researchers looked at the volume and thickness of cartilage at different places in the knees while using highly sensitive 3D MRI analysis.

The conclusion? No real damage was picked up by the sensors. In fact, the examined knees remained unchanged by training for and completing the whole 26.2-mile race.

Running is also safer on your joints than walking, according to a

This research looked at the number of hip replacements in **74,752** runners and **14,625** walkers over a period of **5.7** years and revealed that that running does not increase the risks of joint related problems. In fact, runners needed fewer hip replacement surgeries and had healthier joints than the walkers.

And this is not the whole story. Running can also help reduce inflammation in the knee joint, according to a small-scale study out of the Brigham Young University. The counterintuitive conclusion was reached after examining the knee joint fluid of several healthy male and female runners between the ages of **18** and **35**, both before and after a **30**-minute run.

More specifically, the researchers looked at two markers for inflammation by measuring the synovial fluid for two proteins called **GM-CFS** and **IL-15**. These indicate the presence of harmful inflammation and could signal changes related to the onset of arthritis. At the end of the experiment, the researchers found that the levels of both proteins decreased in concentration in the subjects after the session, suggesting a reduction in overall inflammation in the joint.

In layman's terms, the evidence is yet to emerge to prove that running increases the risks of osteoarthritis, even among those participating in long distance running. This might surprise the lot of you, but the science is quite strong.

Improves Your Mental Life

Exercise, especially running, has shown to change the very structure and function of the brain, leading to long-term increases in both cerebral power and longevity. What follows are nothing but the tip of the iceberg when it comes to the many benefits that regular exercise improves your mental life.

For starters, running may help guard you against Alzheimer and other brain-related troubles. That's According to a study published in *Psychonomic Bulletin & Review*.

In another study published in *Perceptual and Motor Skills*, subjects performed **20** percent better on standard memory tests after completing a short treadmill session than they did before working out. The subjects' ability to solve complex problems also increased by **20** percent.

Feeling stressed? Running can help. Stress has severe adverse effects on, emotional state, behavior, and body. Common dire consequences include intense headaches, chest pain, muscle tension, anger issues, weight gain, sleep problems, etc.

Fortunately, cardio exercise can reduce stress, anxiety, and depression. That's the conclusion of a study published in the *Journal of Neuroscience*, titled "Physical Exercise Prevents Stress Induced Activation of Granule Neurons and Enhances Local Inhibitory Mechanism in the Dentate Gyrus." Long title; simple conclusion.

So, why is exercise so helpful? Running, and other forms of cardio workouts, give Endorphins a jolt. These are the so-called happiness hormones that are secreted by the brain's hypothalamus and pituitary gland that help lower stress and improve mood. The more endorphins released by the brain, the more significant the effect. These are also structurally similar to their medically engineered counterpart, morphine.

But is there any proof? Well, that's what a group of German researchers from the fields of Nuclear Medicine, Neurology, and Anesthesia at the Technische Universität München (TUM) sought to answer. More specifically, ten subjects' brains were scanned both before and after a two-hour long distance run using a Positron Emission Tomography (PET)—and it was revealed that their prefrontal and limbic regions (a set of brain structures located on both sides of the thalamus) secreted high amounts of endorphins.

Another study published in *Medicine & Science in Sport & Exercise* reported that runners have high levels of tryptophan, a brain biochemical essential for the production of mood-elevating neurotransmitters known as serotonin. People with low serotonin levels often experience anxiety, insomnia, depression and the urge to overeat.

Classic antidepressant medication work by keeping the levels of these neurotransmitters higher and longer in the system. And here is the kicker. According to the research, running might be just as effective, or even more so, than SSRI drugs in treating depression.

Running also makes you smarter and sharp-minded since it triggers the growth of new nerve cells, neurogenesis—and blood vessels angiogenesis, which combines to increase brain tissue volume according to research conducted at the University of Maryland.

Furthermore, exercise may also lead to nerve function regeneration—an essential ingredient in optimal cerebral functioning, according to a report coming out of the University of Georgia. The researchers found an increase in the volume of the hippocampus—the brain region associated with learning and memory—in those who exercised regularly when compared to sedentary peers.

This might not sound like a big deal until you realize, once again that this region of the brain isn't known for increasing in size at any point in adulthood. As a matter of fact, we begin to lose brain tissue as early as our late 20's.

Last but not least, Sleep quality is another thing that's improved with regular aerobic exercise. As you already know, sleep disorders affect millions of adults. In fact, surveys report that about 50 percent of people aged 50 and older complain of symptoms of chronic insomnia and other serious sleep issues.

Here is the good news. A study out of the Journal of Adolescent Health revealed that those who followed a regular morning running routine showed improvement in objective sleep.

A further study reported in the journal Mental Health and Physical Activity found that people reported sleeping better and feeling more energized during the day when getting at least 160 minutes of moderate to vigorous exercise during the week.

Chapter II :

Assessing Your Fitness & Health

So, have I sold you on the benefits of running for your fitness and health? I hope I did. Otherwise, I'm not doing my job here.

The question now is, how do you get started?

Since running is such a convenient and straightforward sport, most beginners simply grab a pair of trainers and brave the outdoors. But often than not, and as we are going to see in this chapter, that's not the smartest thing to do.

Here's the truth. Whether you're taking up exercise for the first time or are already quite active, it is essential to determine your level of health and fitness before you begin running. In fact, before you take your first few steps on the running path, you have **FIRST** to get clear on how healthy and fit you are.

This is especially the case if you are out of shape, overweight or haven't exercised in a long time. Otherwise, you'll be setting yourself for a painful setback.

Note :

Keep in mind that these assessments are only as helpful as your input is honest and accurate. If you overestimate your abilities overlook critical factors, or you're not as objective as possible you'd only be defeating the purpose of this whole chapter. Actually you might be putting yourself at the risk of injury, overtraining, or a serious health setback if you start running a level that's too high. And you don't want that.

The Importance of A Health & Fitness Assessment

Completing a health and fitness assessment before starting a running routine is crucial for three main reasons.

First, having a clear snapshot of your fitness ensures that your running program is suitable for you. It's also an excellent way to gauge your improvement over the many coming weeks, months even years.

Furthermore, such assessment will screen for known diseases and medical issues in your history and family members history, which can help uncover risks for potential dangers and problems.

With all that being said, and before we delve into the assessment itself, let's first examine the differences between health and fitness.

Health Vs. Fitness – What's The Difference

The terms "fitness" and "health" are typically used interchangeably but, in reality, these stand for different things, and are, in fact, separate states of physical being. For instance, you could be very healthy but not fit; or in phenomenal shape, but not so healthy.

Although we share the same biological makeup as *Homo sapiens* the little variations in genetic structure, muscle tissue, lifestyle environment, can influence your fitness and health profile.

So, what is fitness? What is health?

Health is the general term used to describe the overall well-being status of a person. In essence, it entails being free from diseases or illness. But that's not the whole story. According to the World Health Organization, health is not merely the absence of ailments but is a state of complete physical, mental, and social well-being. I couldn't agree more.

Conventional science has produced a number of different factors to gauge health. These include insulin levels, blood pressure cholesterol levels, oxygen intake, hormonal metrics, cardiovascular fitness, basic mobility, skin health, etc.

Some of the best ways to improve health consist of physical activity (or fitness), balanced nutrition, stress management, reduction pollution, proper sleep, etc.

On the other hand, fitness refers to one's aptitude to perform a particular physical movement, be it running, weight lifting, jumping etc. This ability is typically measured by the level of agility, speed strength, explosive power, mobility or cardiovascular conditioning. Physical activity is the primary way to increase fitness.

Sure, lifestyle choices, such as diet, are also important. But it boils down to the volume and quality of exercise that determines your fitness level.

Research shows that increasing one's fitness can lead to a health boost in so many ways: improved cardiovascular function, reduced cancer risk, stronger immunity, etc. So, fitness influences health but, it does not define it. In other words, think of fitness as a measure of physical aptitude rather than a statement on health and well-being.

Part I – Assessing Health

Now that you have some grasp over the subtle disparities between health and fitness let's look at the assessment itself. The first part looks at the many factors used to judge overall health. Try to answer the following questions as honestly and accurately as possible to provide a clear snapshot of your current health profile.

- Do you smoke?
- Do you have diabetes?
- Is your total cholesterol to HDL cholesterol ratio greater than 5 to 1?
- Do you have a history of high blood pressure?
- Do you have a history of cardiovascular problems?
- Have you had chest pain while performing physical activity?
- Do you have a family history of chronic diseases before the age of 50?
- Do you have any chronic injury?
- Do you eat a lot of junk food?

- Do you have any joint, bone, or any other health issue that limits your mobility when performing physical activity ?
- Are you (clinically) obese ?
- Do you take any medication on a regular basis ?
- Are you under a lot of stress ?
- Have you had recent surgery ?
- Do you have a supporting family? Friends ?
- Are you currently pregnant? Or have given birth within last six months ?

If your answer is yes to more than one question, then you need to reconsider **SERIOUSLY** starting a running program. Rather, consult your doctor for options on how to safely proceed before taking up any type of exercise regimen.

A certified professional is the only one who can indeed determine whether running puts you in any danger. If running is not an option then stick to low-impact, low-intensity exercises, such as walking or yoga.

Part II – Assessing Fitness

The second part tests your current fitness ability on different levels. These assessments can help give you an accurate reflection of your fitness, providing you with a quick way to estimate your level of cardio fitness, muscular strength, endurance, mobility and flexibility. The score on each test can provide with a measure a starting point, from which you'd start charting out your progress (or lack thereof) as you strive to become a well-rounded runner and athlete.

Your Cardio Conditioning – The Two-Mile Run

Warm up for ten minutes, then run a two-miler distance (the equivalent of eight laps on a **400**-meter track) as fast as you can. Then record your timing.

The Results

- **20** minutes or longer: Slow
- **15** to **20** minutes: Ordinary
- **12** to **15** minutes: Good
- **10** minutes or less: Excellent

Your Anaerobic Power – The 200-meter Sprint

Start with a **10**-minute warm-up, then perform a series of strides increasing speed and intensity with each round. Next, once you're warmed up, set a stopwatch, then sprint for **200** meters at an all-out effort.

The Results

- Longer than **50** seconds: Slow
- **40** to **50** seconds: Ordinary
- **25** to **40** seconds: Good
- Less than **25** seconds: Excellent.

Your Upper Body Strength – The Push-up

Perform as many push-ups as possible with good form: core engaged, back straight and legs extended making sure to lower your body until the upper arms are parallel to the ground.

The Results

- **15** or fewer: Weak
- **15** to **30**: Ordinary
- **30** to **45**: Good
- **45** or more: Excellent

Your Lower Body Strength – Bodyweight Squat

While keeping the feet shoulder-width apart and knees tracking over the toes, perform as many air squats as possible in one minute. Keep proper form the entire time. Lower your body until your thighs are parallel to the ground, then pushing back through the heels to the starting position.

The Results

- **20** or fewer: Weak
- **21** to **35**: Ordinary
- **36** to **50**: Good
- **50** or more: Excellent

Body Composition – The waist-to-hip ratio

Get a tape and measure your waist and hip at the narrowest point—the distance around the widest part of the hips and butt. Next, divide the waist circumference by the hip circumference to get the score.

The Results

- For men
 - **0.96** or higher: Poor
 - **0.90** to **0.96**: Ordinary
 - **0.83** to **0.89**: Good
 - **0.82** or less: Excellent
- For women
 - **0.86** or higher: Poor
 - **0.80** to **0.86**: Ordinary
 - **0.73** to **0.79**: Good
 - **0.72** or less: Excellent

Part III – Introduction To VO2 Max

Another, more sophisticated, way to determine your current fitness ability and where you might take up a running program is to measure your maximal oxygen uptake, or VO2 max. But, before we get into the test, let's first review the concept of VO2 max and its impact on running, athletic performance, and enjoying a healthy life.

Also known as "maximal oxygen consumption" "peak oxygen intake" or "maximal oxygen uptake," VO2 max is the metric that best describes personal cardiorespiratory and aerobic fitness level. In essence, it refers to the maximum amount (or volume) of oxygen you can use during intense exercise within a specific amount of time.

The Importance of VO2 Max

VO2 max is the gold standard for determining aerobic fitness. The VO2 Max has been one of the primary methods to gauge fitness potential since the late 60's.

Determining your current VO2 max beforehand has a lot to offer. First, it enables to take up an exercise program at the most suitable level. Further, it's also an ideal tool for monitoring your fitness program (or lack thereof) for both the medium and long-term.

Here is a table, taken from TopEndSports, that shows normative data for VO2 max in different population groups.

Maximal oxygen uptake norms for men (ml/kg/min)

Rating \ Age	18-25	26-35	36-45	46-55	56-65	65+
Excellent	> 60	> 56	> 51	> 45	> 41	> 37
Good	52-60	49-56	43-51	39-45	36-41	33-37
Above Average	47-51	43-48	39-42	36-38	32-35	29-32
Average	42-46	40-42	35-38	32-35	30-31	26-28
Below Average	37-41	35-39	31-34	29-31	26-29	22-25
Poor	30-36	30-34	26-30	25-28	22-25	20-21
Very Poor	> 30	> 30	> 26	> 25	< 22	< 20

Maximal oxygen uptake norms for women (ml/kg/min)

Rating \ Age	18-25	26-35	36-45	46-55	56-65	65+
Excellent	> 56	> 52	> 45	> 40	> 37	> 32
Good	47-56	45-52	38-45	34-40	32-37	28-32
Above Average	42-46	39-44	34-37	31-33	28-31	25-27
Average	38-41	35-38	31-33	28-30	25-27	22-24
Below Average	33-37	31-34	27-30	25-27	22-24	19-21
Poor	28-32	26-30	22-26	20-24	18-21	17-18
Very Poor	> 28	> 26	> 22	> 20	< 18	< 17

How to Measure VO2 Max

VO2 max is assessed through various methods. These tests can be direct or indirect. Direct testing is often used in research and is considered, so far, the most accurate. The analysis is performed in a laboratory setting. During the trial, the athlete performs all-out-effort exercise, typically on a bicycle or treadmill, while breathing into an oxygen mask that measures the amount and gas concentrations of inspired and expired air.

The method has a downside: it requires access to expensive laboratory equipment that might be out of reach for most people.

Here is the good news. If you don't have an in-house laboratory equipped for VO2 max testing, you'd still practically **ESTIMATE** (not measure) your VO2 max using indirect means. One of these methods involves running at the fastest pace you can sustain for six to seven laps on a track (roughly **2600** to **2800** meters long). That's what's known as the Cooper Method.

The Cooper Method Demystified

This VO2 max testing formula was developed by Dr. Kenneth Cooper, a leading authority on aerobic fitness and exercise science, and the guy often held as the "inventor" of aerobics. After thorough research, Dr. Cooper noticed a high correlation between the distance an individual could run or walk and their Vo2 max. Out of this correlation, the Cooper test was born.

The Cooper Method tests your ability to use oxygen to power it while running. The result is based on the distance you're able to cover, your age and your sex. The primary goal of this test to go as hard and as far as possible during the test. This approach requires little equipment, and it offers an approximate (yet very reliable) reading of VO2 Max. That's why it's widely used by coaches and recreational trainees alike.

It's Not Perfect

Just keep in mind that the Cooper Method is not the most accurate in the world. Nothing beats direct testing under a controlled lab setting under the guidance of a professional physician.

How to Conduct the test

For an accurate estimation, take the test on a flat surface or track at a stadium. Begin with a proper warm-up for **10** minutes. Brisk walk for **5** minutes, then do a set of dynamic stretches to get your body ready. Next, start the stopwatch, then run as hard as you can in **12** minutes.

Last up, record the distance you've covered to the nearest **10** meters. (Use the track, roughly **400m/437** yards per lap, to work out your overall distance). Then compare and contrast your results.

Scoring

The Cooper Test method comes with its own norm tables for general guidelines for reading the results of the Cooper Test. Here is the simple formula :

$$\text{VO2 Max} = (\text{Distance covered in meters during 12 minutes} - 504.9) / 44.73$$

Example :

Mike warms up for **10** minutes and then times himself for **12** minutes aiming to cover as much distance as possible. At the end of the test, Mike wound up running **2.2** miles (about **9** laps around a standard track).

Since **2.2** miles equals **3600** meters, he can estimate his **VO2** by doing a simple calculation :

$$\text{VO2 Max} = 3600 - 04.9 / 44.73 = 69.19 \text{ ml/kg/m}$$

Age	Excellent	Above Average	Average	Below Average	Poor
Males 20's	> 2800m	2400 2800m	2200 2399m	1600 2199m	> 1600m
Females 20's	> 2700m	2200 2700m	1800 2199m	1500 1799m	> 1500m
Males 30's	> 2700m	2300 2700m	1900 2299m	1500 1999m	> 1500m
Females 30's	> 2500m	2000 2500m	1700 1999m	1400 1699m	> 1400m
Males 40's	> 2500m	2100 2500m	1700 2099m	1400 1699m	> 1400m
Females 40's	> 2300m	1900 2300m	1500 1899m	1200 1499m	> 1200m
Males 50's & Older	> 2400m	2000 2400m	1600 1999m	1300 1599m	> 1300m
Females 50's & Older	> 2200m	1700 2200m	1400 1699m	1100 1399m	> 1100m

Chapter III :

A Runner Goes To The Market

Here is what I love the most about running: You don't need to invest in a lot of gear to get started. Running is such a simple endeavor. All you need is a few essentials, and off you go. This chapter will help you determine what running gear is **100** percent essential whether you want to start running before work or training for your very first marathon.

The Essentials – What do you Really Need?

The answer depends on your personal preferences, training level fitness goals, budget, technology threshold, fashion sense, etc. But, in general, an essential running kit includes proper running shoes T-shirt, shorts, and sports bra for female runners. If you got these items, then you already have **90** percent of the must-have gear.

So, let's get the ball rolling .

Part I – The Most Important Gear : The Shoes

Our feet are one of the most complex parts of our bodies. Each foot is made up of **26** bones, **32** joints, hundreds of nerve endings, and four layers of muscle that fit between the sole and the top of the foot. Also, feet come in all shapes and sizes.

And here is the little kicker: If you want to perform well, you'd need the right footwear. You'll need real running shoes, build for running and preferably used only for running. Why? Opting for proper running shoes can keep you training year after year on uncomplaining knees. These help protect your lower half from running's impact.

On the other hand, go for the wrong shoes, and you'll be setting yourself up for debilitated joints, muscle soreness, and even injury. In fact, you might end nursing painful plantar fasciitis or aching knees instead of enjoying a run. For these reasons, I urge you to invest your time and money looking for the most appropriate pair. So don't even think of trying to save a few bucks on proper shoes; a visit to the podiatrist will cost a lot more than a pair of high-quality trainers.

But here is the challenging part. Buying the right shoes is no easy feat. With the host of price points, shoe types, a dizzying range of styles and brand names, shopping for the ideal pair can be unnerving. It's definitely not an afterthought decision you'd make on a Friday evening. This is especially the case if you do a lot of running (+30 miles a week), have unique biomechanical needs, or a history of injuries.

But fret no more, the following pages will provide with the right answers and guidelines to help you find the most suitable pair. That said, before we get into the fitting and buying process, let's first breakdown the main parts that make up a shoe. Why? Knowing about basic shoe anatomy and construction helps you choose the right shoes. Also, with a little basic knowledge of running shoes you can become a more informed customer and satisfied user.

Let's look at some of the critical components of the shoe.

The Main Components Of A Running Shoe

A running shoe is made of seven main parts: the upper, the midsole the outsole, the tongue of the shoe, the heel counter, the toe box and the last. In this section, I'll walk you through each part, explaining what it is and why you should care. As we are about to see, each shoe section serves a particular function and has distinct properties.

The Upper

The upper is the portion of the shoe above the midsole that encloses the foot, keeping the shoe in place. It also protects against dirt, rocks, and the elements.

The upper is typically made from a variety of materials, including mesh for breathability, synthetic leather for durability, and knits for a smooth and chafe-free feel. Make sure the upper fits well with the shape and size of your feet when choosing a shoe. This provides more stability over the long run.

The Tongue of the Shoe

The tongue is the separate strip on the upper that protects the top of the feet from the pressure of the laces. The tongue also makes it easier to put the shoes on and take them off. A proper tongue should be of an appropriate size, so it does not rub against the top of the foot and thick enough to protect it against pressure from the laces.

The Heel Counter

On the back of the shoe, you'll find the heel counter, which is the exoskeleton of rigid materials that wrap around the heel. It's made of stiff materials that protect against the impact forces that the feet experience while running. The heel counter provides a secure heel fit, excellent cushioning, and rotational control.

The Last

The last is the three-dimensional, foot-shaped mold that determines the outline of the shoe. Think of it as the foot model over which a shoe is assembled. Lasts can be straight, curved, or semi-curved. These differences, according to theory, suggest that some lasts are best suited for a particular foot structure.

1 - Straight lasts tend to be heavier, providing more support under the arch, which might control inward collapse of the foot following a foot strike. That's why these are often recommended over-pronators—mostly runners with flat feet.

2 - Curved lasts are lighter and less supportive. Thus, they are usually recommended for supinators—typically runners with very high arches.

3 - Semi-curved last is a hybrid of the two—not quite as thick as the straight type but still offer ample support under the arch. Most running shoes are made with these, but, to err on the side of caution, make sure the last match your foot type.

The Toe Box

The toe box is the front platform of the shoes that houses the toes—the space that fits around the widest part of the toes and feet. In my experience, the toe box is the most crucial ingredient in finding a good fit.

Your trainers should fit like a glove, with no sense of cramming or constraining in the toe box. Make sure to have enough space within the toe box to allow the toes to wiggle freely, and for the feet to swell while running. Ideally, shoot for at least a half-inch of space between the big toe and the end of the shoe.

The Midsole

Moving down, you'll find the midsole, which is the thick layer of technical foam or rubber sandwiched between the upper and the outsole, sitting above the outsole and below the upper. Midsoles provide cushioning while controlling excessive foot motion (pronation or supination). Most midsoles are usually constructed from either a foam type compound commonly known as EVA, or polyurethane.

In general, **EVA**, or Ethylene vinyl acetate, is softer material due to its lightness and is the most common commercially mass-produced midsole foam. But it compresses, and breaks down quickly, losing rebound after constant impact. Moreover, polyurethane is heavier and more durable than Eva. But a few shoes have this as the midsole.

The Fitting And Buying Process – Go to A Specialty Store

The first step to finding the right shoes is to head to a local specialty running store rather than getting your shoes from a wholesale sporting goods store or online. These stores hire professional staff who understand shoe construction. They also tend to be runners themselves.

Once you are in the store, be prepared to answer the following questions :

- What are your preferred running surfaces?
- What is your foot type?
- What is your gait type?
- Do you have any history of foot pain and/or injury?
- Do you have any history of knee pain and/or injury?
- Have you gotten injured in the last year?
- Are your feet slim or wider than normal?
- What brand, or type of shoe, have worked for you in the past?
- Are you a forefoot striker or a heel striker?
- Do you run on trails on the pavement?
- Do you do any sort speedwork, faster running?
- What is your average weekly mileage?
- Are you looking for conventional or minimalist shoes?

Not All Feet Are Created Equal

Most people's right and left feet are of slightly different shapes and sizes, with one foot—usually the dominant side—being larger than the other. Plus, foot size changes over time and one model can be significantly different from another. Therefore, have both of your feet measured for length and width at least twice a year, or whenever you are buying a new pair.

Shop in the Evening

The feet swell up to half an inch over the course of the day. This also mimics the swelling that happens when running. Consequently shoes should properly fit your feet when they are at their largest. That's why you should go shopping for a new pair towards the end of the day.

Test A Few Pairs

After picking a few pairs, test them out to make sure they're a good fit. Most specialty running stores have an in-house treadmill on which you can test out a candidate pair. If this option is not available, then ask the salesperson/manager if it's all possible to take a lap around the store or the block.

As a rule of thumb, your running shoes should feel comfortable right away. There should be no "breaking in" period.

Buy Quality

Sure, the most expensive pair in the store is not inherently the best, but, at least, don't skimp. You can always go for a low-priced pair, but often than not, these are made of cheaper, non-durable materials, which offers little to no protection. Conversely a mid-range shoe—**80 to 120\$**—will provide you with excellent cushioning and stability properties.

How to Find a Cheap Pair Without Skimping

My best advice is to go for last year's version of a mid or top-range shoe. The differences won't be that significant, but you'll, at least get a top-shelf pair for a fraction of the price.

Or check ShoeKicker.com. This website crawls through the internet and analyzes prices of more than **10,000** running shoes based on brand, model, and size. All you need to do is type your own preferences, size, and the name (or brand) of the shoe you're looking for, and voila !!

Part II – The Clothing

Although they're the most critical, shoes are not the only gear that will make your running comfortable and more enjoyable.

Practicality and comfort are the primary qualities you should look for when choosing running clothing. The goal is to enjoy running and to be totally unaware and unconcerned of what you're wearing—that's when you know your clothes are working for you.

The right running clothes can make the difference between an enjoyable run and complete misery. These may increase your motivation, improve your training performance, show your fashion sense, and give you a little confidence boost. If you're running in extremely hot or cold weather, turn to pages **188-190** to find out more about what to wear in such conditions .

Get The Right Fabrics

Let me start with the golden rule of workout attire—never, under any circumstance, wear cotton while running. Cotton is comfortable when it's dry, but once it gets wet, it stays wet, turning heavy and scratchy. This can chafe the skin and can result in painful blisters. What's more, cotton does not adequately regulate body temperature. You'll overheat in the summer and freeze in the winter.

What you should do instead is to make sure your running clothes including your socks, SHOULD be made of high-performance technical fabrics. These fabrics wick moisture away from your body in the same way a candle absorbs liquid; then the moisture gets transferred to the outer surface, where it evaporates. High-tech fabrics can help you regulate your body heat—even in weather extremes by retaining heat during winter training and dissipating it during hot summer days.

For more icing on the cake, high-performance clothing dries faster a good thing regardless of the temperature. The best fabrics are usually made from high-performance synthetic materials such as polyester, Coolmax nylon or Lycra.

The Clothing Items You Need

Here are the essential running clothes you need to have in your wardrobe.

Shirt

Shirt choice depends on the weather. Accordingly, you'd need shirts for different seasons and in a variety of weights and fabrics. These include light shirts, sleeved shirts, thick turtleneck, etc. As a rule of thumb, a running shirt ought to fit nicely and loosely, so it doesn't bother you while exercising. To regulate body temperature get a shirt with a mesh panel covering high heat areas such as the back, underarms, and sides.

Expect to pay: **20\$ to 50\$**

Leg Attire

You'll need leg attire that moves as you move while protecting you from the elements. The two options I recommend are running shorts and running tights. These can be used for both road and trail running.

The Shorts

Running shorts are an integral part of your workout wardrobe. These should provide you enough support, comfort, and practicality as well as a non-restrictive feel, offering a maximum range of motion. Also, for excellent internal support, consider getting shorts with an inner brief.

Expect to pay: **20\$ to 50\$**

The Tights

Running tights come in a variety of different lengths, from knickers to 2/4-length to full-length. These, in general, are made from synthetic stretchy fabrics, such as Supplex or Polyester, providing a flexible and stretchy fit. Tights work well for the overweight beginner as they often protect against chafing and painful irritation in the inner thighs.

Expect to pay: **20\$ to 70\$**

Sports Bras

Listen up, ladies, a proper, high-impact, sports bra is non-negotiable for running. Running's bouncing motion is not only uncomfortable but can also stretch the ligament around the breast. Any permanent stretching of these supporting ligaments can cause the breast to droop. Nevertheless, a proper sports bra can drastically reduce that unwanted movement—by up to **50** to **60** percent according to experts.

Expect to pay: **20\$** to **50\$**

Running Socks

Good running socks should be made of high-performance materials typically synthetic blends made from acrylic, polyester, Coolmax, or Teflon. Secondly, the socks ought to fit well, especially under the arch of the foot and around the heel. Avoid socks that slide off your feet or bunch up inside of your shoes. These will only irritate you while running, causing horrid blisters.

Expect to pay: **10\$** to **30\$**

Adding it All Up

So how much you should invest in your running wardrobe?

Well, as I have already stated, there is no right or wrong answer. Really. The amount of gear you end up with is a matter of personal preference. It's all up to you. It's mostly contingent on how fully committed, how stylishly you want to be outfitted, your technology threshold, and your budget.

The fact is that you might already have in your current workout wardrobe, and own clothing, that you can run in. But, irrespective of these factors, let functionality, fit, and comfort be your guiding line.

Chapter IV :

Taking Your First Few Steps

You're motivated, you've passed the Fitness & Health assessment with flying colors, and you're well-equipped (hopefully), but how do you start running if this your first try at a serious program or if you're trying again after a lengthy break? That's the exact subject of this chapter.

Without further ado, here's what you need to do to become a runner.

Start Small

Starting small is the cardinal rule of running success. That's it. A lot of beginners make the mistake of starting too fast, too hard, then they get injured or burned out (sometimes both), within a few weeks. So, during your first few months (yes, months!) of training take it easy. Begin from the beginning. Start from where you are, not from where you wish to be.

Get Walking

Fit people, especially runners, are not born overnight. It takes long months of training to get comfortable with regular exercise , especially a high impact sport, like running.

But, if you are out of shape and/or overweight, then taking up any high-intensity, high-impact from the get-go might not be the best idea. If that's the case, then start with walking. In fact, you should not get into serious training until you can briskly walk, with ease, for an hour or so.

“Walk” is not a bad four-letter word. And it’s not a sign of submission nor softness. Au contraire, my friend. Walking is, hands down, one of the most convenient and enjoyable forms of exercise. It can help you get in shape, shed weight, improve stamina, reduce stress, and boost your health and well-being. All you need is a pair of walking shoes, comfortable clothing, and off you go.

Walking is also a suitable alternative to intense, high-impact aerobic exercise. It’s the next best thing—especially if your current conditioning does not allow for high-impact, high-intensity training. Even regular runners can benefit from walking since it’s ideal as a warm-up and cool-down.

The Perfect Session

Start with a **5**-minute warm-up, followed by **20** to **30** minutes of brisk walking, then ending your session with a **5**-minute slow-paced walk to bring your heart rate down. Aim to walk for at least four to five days a week. As long as you’re staying within your fitness level, you are good to go.

If you’re really out of shape and have been sedentary for a lengthy period, first work up to **20** to **30** minutes a day of walking several times a week. Then build on that.

Find The Right Pace

Walk at a brisk, but gentle pace, opting for a smooth stride. Start gently, then pick up the pace till you are walking briskly—covering **3** to **4** miles per one hour. Your pace should challenge your breathing but still be able to carry on a conversation without gasping for air. If it’s getting hard to catch your breath or maintain a conversation while walking, then slow it down, or stop altogether.

How to Progress ?

During the first week, walk for **20** to **30** minutes a session. Next increase it to **30** to **35** minutes the second week. Then keep adding two to three minutes to your walks until you’re doing it for at least an hour with little trouble.

Watch your Form

Regardless of walking pace, keep good posture throughout the session. Here is how to build proper brisk walking form.

1 - Walk upright with feet hip-width apart, landing gently on your heels and coming evenly off your toes, so your feet don't collapse inward or outward.

2 - Keep your head held up high, eyes gazing forward, chin parallel to the ground.

3 - Keep your elbows bent while swinging your arms back and forth in a continuous manner.

4 - Keep your shoulders relaxed and loose. Roll them down away from your ears to prevent tension.

5 - Engage your core and pull your navel towards your spine to help you stay tall throughout the session.

The Walk/Run Method

The following Run/Walk program in this chapter assumes that you can already comfortably walk for an hour four to five times a week. This base of walking exercise ensures that your cardiovascular and musculatory systems are ready for additional stress.

So, what is it all about?

The run/walk method is a training program designed by the famous running guru Jeff Galloway as a way to help beginners take up running without risking discomfort, injury, or burnouts. The method involves following an explicit training strategy that mixes low intensity running intervals with walking breaks. Doing so helps you manage fatigue, improve fitness, build stamina—without risking injury or burnout.

The Ratios

Contrary to popular belief, the walk/run method does not preach taking walk breaks only when tired. Au contraire, it's about taking brief walk break even when you feel like you can still keep going strong. If you wait until you are completely drained, you might go over the red line. That results in premature fatigue and may increase the risks of overtraining.

Here are three walk-to-running ratios to try out. Choose whatever works for you. Just be sure to stay within your fitness level the entire time.

1 - The Beginner : Run for **15 to 30** seconds. Then walk for one to two minutes .

2 - The Intermediate : Run for two to five minutes. Then walk for one to two minutes .

3 - The Experienced : Run for eight to ten minutes. Then walk for **30-second** to one full minute .

Enter the Talk Test

As a beginner, you gotta keep your breathing under control. In general you should be able to maintain a conversation with your training buddy without gasping for breath on every step you take.

If you could carry on a conversation while training, then you're not overly challenging your cardiovascular system. But, if you are huffing and puffing your way through the conversation, then you're running too hard. In other words, if you cannot recite the Pledge of Allegiance without much trouble, then you're doing it wrong.

The Ideal Session

Pick a distance, a 2-mile loop around your neighborhood for instance. Next, after a 5-minute walk as a warm-up, do an easy run/walk routine: jog slowly for one minute, then walk for two to three minutes for recovery. Repeat the cycle for 5 to 7 times. End the session with a proper cool-down. Exercise in this manner three to five times a week.

Each week, extend the length of time spent jogging and reduce the amount of time spent walking until you're able to jog for 30 minutes at a conversational pace and without much huffing and puffing. Once you reach that point, and only then, you can add distance and intensity.

How Long Does it Take

So, how long will it take to become a runner?

I hate to sound like a broken record, but everyone is different. There is no right or wrong answer because every individual is unique. So, the answer depends on you. That said, here are some of the factors that count.

- Your current shape—or how fit were you before you take up running.
- Your age. The younger you are, the quicker you can get in shape.
- Your current body weight. If you're overweight, then it's going to take you longer than someone with a healthy weight.

Training Basics – The R.P.E Demystified

Your overall health and well-being should be your main priority as a beginner runner, and being able to gauge your exertion is a great way to ensure you train at the right intensity. Doing so can tell whether you're exercising too hard or not challenging yourself enough. Do too much, and you risk injury and/or burnout. Do too little, and your fitness level will plateau, even decline.

The rest of this chapter gives a brief overview of one reliable method of measuring training intensity known as the Rating of Perceived Exertion (R.P.E).

Also known as the "Borg CR10 scale", or the "Modified RPE scale", is a method of rating perceived exertion. This is, most often, the method that exercise physiologists and personal trainers use to measure the level of effort during exercise.

RPE is a rating scale ranging from 1 to 10. The numbers correspond to descriptive statements that rate the intensity of physical exercise based on an array of sensations of physical stresses. These include increased respiration, increased heart rate, sweating, muscle fatigue, and discomfort. So, for instance, a rating of 1 means you're barely putting in any effort, whereas a 9 is near maximal exertion.

The RPE rating system requires no equipment. As long as you're willing to listen to your body, you're good to go. The scale is especially handy if you don't own a heart rate monitor and/or don't want to stop in the middle of your run to check your pulse.

Just don't take this the wrong way. For first-timers, the RPE complex rating system can be quite overwhelming. But, with a little bit of practice and perseverance, one can learn how to use it with ease. And this is worth the effort, especially once you start taking your running routine more seriously.

Different People Different Strokes

Now that you have a thorough grasp (hopefully) of the scale let's discuss how to put it into practice. Here is the key: If you are serious about making the most out of this rating system, you need start using it—even if you have never done it before.

Build the habit of rating each workout on a 1 to 10 scale both during and right after the session. Then, keep tabs on your RPE for your workouts in your training diary.

Just keep in mind that this scale is different for everyone. So, for instance, super-vigorous activity could be jogging at **4.5 MPH** for one person or faster running at **9 MPH** for another. So it's up to you to figure out the most appropriate ratings.

The RPE Ratings Explained

1 - Very easy. No exertion. You're lounging on the couch, doing nothing physically demanding.

2 - Fairly light exertion. This is how you ought to feel when warming up and cooling down, or stretching. You can converse with no effort.

3 - Light exertion. You are moving, but it's slow and easy like strolling. You can converse with almost no effort.

4 - Moderately easy. Your breathing and heart rate is a little faster. You're feeling a little warmer. And you're starting to work up a sweat. But you can still maintain a conversation while exercising without much effort.

5 - Moderate to somewhat hard exertion. Your heart is pumping faster. You are breathing harder. You're feeling warmer. You can still talk, but it is getting tougher.

6 - Hard exertion. You are breathing hard now. But you can still sip from your water bottle. You can only say a few words at a time.

7 - Hard to somewhat intense exertion. You are breathing really hard, and are wondering how you can keep on going like this.

8 - Very hard. You are breathing hard and nearing your maximal limit. You can no longer say a few words without gasping for air.

9 - Super hard. You feel like your lungs are about to explode. You cannot keep this intensity for more than one minute. Conversing is impossible.

10 - Ultimate exertion. This is your absolute limit. You cannot keep this pace for more than **10 seconds**. Speaking is out of the question.

Chapter V :

Warming up and Cooling Down

Whether you are just starting out running or training for your 11th marathon, a proper routine of warming up and cooling down will ensure you get the most from each run and are ready for the next day's training.

In this chapter, I delve a little deeper into basic training principles. I'll talk about the importance of warming up and cooling down for your runs, as well as how to do them the right way. I'll also touch upon the need for stretching for runners and share with you my favorite stretches.

So, are you excited ?

Then here we go...

Enter the Warm-up

A warm-up is any low-impact, low-intensity exercise performed before exercise. A proper warm-up sets the tone for the rest of your run. It helps improve athletic performance and prevent premature fatigue. Skipping it causes otherwise preventable issues, like muscle pulls, ankle sprains, tendon tweaks, etc.

The reasons warming up rocks run the gamut. First, a proper warm-up prepares the body for the high-intensity, high-impact by gradually increasing heart rate, boosting blood flow to the muscles tendons, and ligaments.

Secondly, warming up also causes your blood vessels to widen allowing for better oxygen delivery to the muscles.

This ensures adequate delivery of oxygen and nutrients for performing repetitive contractions. Also, this also will help you open up your joints and get them well lubricated, especially those within your ankles, feet, hips, and spine.

Furthermore, warming up also improves joint range of motion. This reduces the risk of soft tissues—mainly to the muscles, tendons and ligaments—injuries.

Specific warm-up Directions & Tips

If you are serious about performing your best, then you need to start doing both general and specific warm-up exercises. That's what's known as a dynamic warm-up routine. A proper sequence should take you up to **10** minutes. That comprises **5** minutes of light aerobic movement followed by **5** minutes of dynamic exercises.

The length of the warm-up depends on your fitness level, workout intensity, temperature, the amount of clothing worn, and your personal preferences. But as a rule of thumb, the more vigorous the exercise, the longer the warm-up. This means that you should spend a long time warming up for intense running workouts, such as sprints, and hill reps.

The Exact Warm-up Breakdown

What follows is the exact strategy I follow whenever I'm getting ready for a run. A proper warm-up includes two distinct phases:

1 - Start with a low-to moderate physical activity, such as brisk walking, jogging on the spot, or low-intensity running. In general brisk walking should be the default setting.

2 - Do a dynamic stretching routine—a type of stretching in which you're moving as you stretch. The ideal routine consists of a series of functional exercises designed to increase total body temperature improve range of motion, and reduce functional limitations.

Dynamic Stretching Vs. Static Stretching

Dynamic stretching is so different from static stretching—the type of stretching that most people are familiar with. The latter involves holding a stretch for an extended period. Research shows that performing this form of stretching before exercise can hinder performance and might lead to injury.

The Dynamic Stretching Routine

Go straight through all 7 without resting between each movement.

Toy Soldier

This exercise increases body temperature and heart rate, preparing your whole body for the task ahead. It's also vital for warming up the quadriceps, hamstrings, and glutes—key running muscles.

Proper Form

While keeping your back flat, knees straight, and core engaged step forward, and kick your right leg straight out in front of your body up to waist level, flexing your toes the entire time. Extend your left arm at the same time as if you are reaching out to touch your right foot. Release and change sides.

Do **12** reps on each leg.

Side Step/Shuffle

This is a lateral move that warms up the calves, hamstrings, quadriceps, glutes and hips flexors—key running muscles. Further when performed as fast as possible, the drill helps you increase agility and coordination, essential for improving running speed.

Proper Form

Begin by standing as tall as you can with legs straight and arms hanging by your sides. Next, step to the side by performing quick side shuffles for **10** to **15** meters to the right. On the last shuffle, land on your right foot, pause for a moment, then shuffle back to starting position. Make sure to raise your knees as high as you can.

Side to side leg swings

This is one of my favorite warm-up moves because it targets the hip joint and hamstrings. Loose hips and hamstrings are vital for running efficiently and pain-free.

Proper Form

Hold onto a sturdy chair, or a wall, then swing your right leg to your side and then back and across your torso. Perform the move **12** to **16** times on each side.

Lateral Lunge

This drill engages the glutes and adductor muscles and fires up the cardiovascular system.

Proper Form

Assume an athletic position with back straight, feet hip-width apart. Step to your right side, then shift your weight toward your right foot, bending your right knee and pushing your hips back to lower into a lunge. Make this challenging by reaching out with your left hand and tap your right foot.

To come out of this, extend your hips and push off with your right foot and return to starting position, then switch sides. Do **12** reps on each side.

Walking Lunges

Walking lunges can increase the range of motion in your lower body. They are also necessary for improving balance and coordination.

Proper Form

Stand upright with your feet together, then step forward with your right foot, taking a long stride and lowering your left leg towards the ground. Make sure to keep your right knee over your ankles, toes pointing straight ahead. Do this in a slow and flowing motion.

Next, push off with your left foot, raise up and bring it forward to your right foot, then step forward with your left foot to complete one rep. Complete two sets of **12** lunges on each side.

Butt Kicks

Butt kicks are effective at warming the leg muscles in a running-specific way. They can also help improve running form and stride when performed regularly.

Proper Form

While keeping your core engaged and back flat, lean forward slightly so your chest is over the toes. Jog forward by bringing your heels to touch your hamstrings, with a butt-kicking motion.

Make sure to keep your elbows close to your sides and ankles dorsiflexed the entire time. Keep alternating kicking your butt with your right and left leg for at least one minute.

Exit The Cooldown

Once you're done training—brisk walking, run-walking, jogging, or running—finish your session with a proper cool down.

I don't want to sound like a nagging prune, but you must incorporate a proper cooldown immediately following your runs. That's where the rest of this chapter comes in handy.

The cool-down is the last portion of a run, and it's key for a smooth transition back to "normal life." The purpose of a cool-down is to bring your body back to resting state, or near the resting level for breathing rate, heart rate, blood pressure, and other factors.

In some individuals (especially those who are incredibly out of shape or have cardiovascular issues) stopping on the spot can lead to extreme dizziness, even a loss of consciousness. This brings me to the main benefit that cooldowns offer: preventing blood pooling.

Blood pooling – The Process

Running causes an increase in cardiac output. While running, your heart beats harder than normal to pump blood to the working muscles, especially those of the legs. This blood carries both the nutrients and oxygen required for the working muscles. Once it reaches the muscles, the oxygen and nutrients are turned into fuel. Then the force of the contracting muscles around the blood vessels pushes the blood all the way back to the heart where it's re-oxygenated and re-circulated.

But here is the problem. When stop running on the spot, your muscles no longer contract against your blood vessel, which halts the force that pushes the blood back to the heart. This causes blood pooling in the lower extremities, resulting in lightheadedness wooziness, nausea, even fainting. I'd wager that this is not something you'd love to experience, especially when you're already tired and out of your comfort zone.

This is where a proper cool-down pays off because it helps the blood transition from the lower extremities to the resting flow patterns, preventing pooling in the process.

The Cool Down Sequence

Here are three steps to proper running cooldowns :

Step One : Begin your cool-down is with low-intensity, easy jogging immediately following your workout. Think of this like exiting off the expressway, then slowly making the transition from running to low intensity jogging to easy effort walking.

Step Two : walk for a few minutes until your pulse and breathing rate a back to normal.

Step Three : Have a sip of water then invest **10 to 15** minutes in a post-run stretching routine.

Increase flexibility & Mobility – The Static Stretching Routine

A report from the Center for Diseases Control revealed a lack of evidence to neither support nor undermine the effectiveness of post-run stretching for preventing injury among recreational or competitive athletes. Nonetheless, I'm a big proponent of stretching for many reasons.

For starters, stretching on a regular basis can help build flexibility relieve tension, and prevent injury. Further, running places massive amounts of stress on your body—mainly the lower limbs and joints. Fortunately, a regular stretching routine that targets the muscles used the most while running may help counteract some of these adverse effects.

How to Stretch

Here are some helpful stretching guidelines:

- Stretch in a focused and gentle manner. Stretch slowly each of your muscles, holding the stretch for **30** to **60** seconds.
- Stretch every muscle to its greatest range of motion, but do not overextend.
- Stretch gently to the point of discomfort, but not one bit beyond the pain zone.
- Never bounce nor do any jerking motion while stretching that may cause muscle tension.
- Breathe deep to release tension or tightness in your muscles.

What to stretch ?

- Stretch your hamstrings—the muscles located on the back of your thighs.
- Stretch your quadriceps—the muscles at the front of your thighs.
- Stretch your hip muscles and the muscles around this joint—and that includes the gluteal group, the lateral rotator group, the adductor group, and the iliopsoas group.
- Stretch your calf muscles.
- Stretch your upper body and lower back, too. That includes your arms, neck, chest, and upper back muscles.

The Basic Routine

The basic stretching routine below includes nine stretches. It should take just little over **8** to **10** minutes to complete. Over the years I have found that I'm likely to stretch regularly when investing nothing but **10** minutes.

The Deep Post Run Stretch

Targeted Muscle: The Hamstrings

The hamstrings are prone to injury—especially among runners with tight hamstrings issues. This tightness can lead to pulled muscles and lower back problems as well as hinder range of motion.

Standing Single Leg Hamstring

Stand with your feet hip-distance apart. Bend your right knee and extend your left leg pointing the toes up. While holding this position lower your upper body and reach toward your left toes as far as you can. Hold the position for **30**-second then switch to the other side.

The Lying Hamstrings Stretch

Lie flat on your back with legs extended and back straight. While keeping your left leg extended on the floor, bend your right knee towards your chest. Reach for the back of your right knee and slowly straighten it up. Pull the right leg towards you while keeping both hips on the floor. Hold the stretch for **30-second**, then switch sides.

Targeted Muscle: The Calves

The calves are the most overworked muscles on the run. The bad news is, tightness in this area can set the stage for calf strains shin splints, and plantar fasciitis.

The Runners' Calf Stretch

Stand facing a wall and with your arms extended and back straight place both arms on the wall. While keeping both feet flat, take a step backward with your right leg, while keeping your heel planted to the ground and the leg extended without bending the knee.

To stretch the calf, lean forward slightly to the wall while actively pressing your back heel into the ground until you feel a good stretch in muscle. Breathe deeply and Hold the stretch for **30-second** or more then switch sides.

Targeted Muscle: The Quadriceps

Flexible quadriceps muscles are essential for a stronger knee lift and speed. Plus, runners knee can be traced to tight quads.

The Standing Quadriceps Stretch

Stand with legs hips distance width apart. Grab a chair for balance (if necessary) and stand tall while holding your right foot behind butt pointing knee to floor. Slowly move your right foot to the back and feel the stretch in your quadriceps.

Keep your thighs lined up and core engaged throughout the stretch and hold for no more than **30 seconds**. Repeat with the left leg.

Targeted Muscles: The Hip Flexors

For most runners, The hips are the weak link for many a runner. Ignoring their flexibility can set the stage for runners' knee, Iliotibial band syndrome, lower back pain, and other trouble.

The Hip Flexors Lunge Stretch

Begin in kneeling position and lunge forward with your right leg and keep the left knee hard-pressed to the floor. Extend your hips forward until you feel a stretch down the front of the left leg around the hip area. Repeat on the opposite side.

The Pigeon

One of my favorite Yoga poses for runners is the Pigeon, and here is how to do it right. This move also targets the hips flexor and the lower back.

Assume table position—on all fours. Bend your right knee and bring it forward to a comfortable position between your hands. Take your left leg and stretch it fully behind you. Exhale and bend down to the ground. Make sure you're resting your torso on your leg and head on the floor.

Targeted Muscles: The Low Back Muscles

Stretching the lower back releases stress, improves mobility, and prevents the pains and aches of the lower back.

The Lower Back Knee Crossover Stretch

Lie on your back with legs extended and back straight. Grab your right foot, knee bent. While keeping your left shoulder on the floor grab the outside of your knee with your left hand and guide it across your body and towards the ground on your left side.

Try to get your knee closer to the ground while keeping both shoulders in contact with the floor. Go back to starting position and perform the stretch on the other side.

Shavasana !

End this runners' stretch routine by Shavasana. Just lay there on your back, arms and legs spread at about **45** degrees and breathe deeply. It's good for you!

The Quick Standing Post Run Stretch

To be honest, I have never been a big fan of post-run stretching. The moment I was done running, I'd immediately jump in the shower and promise myself that I will do it next time. But everything changed for me when I added a **10**-minute standing stretching post-run routine.

The Routine

I devised a simple and straightforward "on-the-go" stretch routine for you. This routine will stretch out all of your major running muscles. Hold each stretch for **30**- to **45**-second, then slowly release it then perform the stretch on the other side. However, be careful, if your body is not warmed up, you could be risking an injury.

The standing Hamstring Stretch

Begin by standing with your right foot a few inches in front of your left, with the right toes lifted. Next, bend the left knee, lean forward from your hips and fold down on your right leg by resting both palms on your right thigh or knee for balance.

Hold the pose for **30**-seconds, then switch to the other side.

The Standing Hip Flexors & Psoas Stretch

Start off by getting into a forward lunge position, then place your hands on your lead knee. Next, lower your left knee to the ground then to stretch, press down with your hands and extend the hips forward until you start feeling a stretch in front of your thigh, groin and hip. While keeping your pelvis tucked.

Hold the stretch for **30**-seconds, then switch sides.

The Standing Calf stretch

Begin by placing both hands extended in front of you on a wall at about chest level. Next, to stretch your right calf, step lightly with your left leg close to the wall, then lean against the wall until you feel a stretch in your right calf while keeping your leg straight. Make sure to keep the heel of your right foot grounded.

Hold the stretch for **30**-second, then switch sides.

The Forward Hang

Stand with your feet hip-distance apart, and knees slightly bent. Next, on the exhale, bend at your waist and fold forward from the hips reaching for the floor. Reach as far down as you can and grab onto your shins, ankles or toes. For a deeper stretch, interlace your fingers behind your back.

Hold the stretch for one full minute and breathe deeply to release any tension in the lower back, hamstrings, and calves.

The Standing Chest Stretch

Stand tall with your feet shoulder-width apart. Next, lace your fingers together behind your back and straighten your arms. Then with your arms straight, squeeze your shoulder blades together while aiming to extend your elbows out to the sides to open and stretch your chest.

Hold the stretch for **30**- to **45**-second, then slowly release your arms to the sides.

Standing Quad Stretch

Begin by standing on your right leg with your knees touching. Next bring your left heel back, and grasp your left foot or ankle with your left hand. Next, softly pull your foot toward your butt. Hold onto a chair or a wall for balance. Make sure to keep your knees aligned and back straight and chest upright throughout the stretch.

Hold the stretch for **30**-second, then switch sides.

Standing IT Band Stretch

Stand tall, then cross your left leg behind your right and point the toes of your left foot out about **45** degrees. Next, while engaging your core, lean slightly forward and to the right side until you start feeling a stretch on the outside of your left leg. To stay on the safe side, make sure to lean against a chair or a wall.

Hold the stretch for **30**-second, then switch to the other side.

The Inner Thigh Stretch

Stand upright with your back straight, feet wider than the hips, and toes turned out. Next, slowly bend your knees, squatting straight down, while keeping your hands on your thighs, until you start feeling a stretch all over the inner thighs. Make sure to keep your shoulders relaxed and back straight throughout the stretch, and never allow your knees to move past your toes. Hold the stretch for **30**-to **45**-second, then slowly press back to starting position.

Chapter VI :

The Mechanics of Putting One Foot In Front of The Other

Humans are a running species. According to evolutionary thinking (and running gurus like Chris MacDougal), running is one of the most natural movements of the human body, and it's part of evolution and our ancestry.

Not only that, some scientists even claim that running is what made us human in the first place. (For more on this, check the Endurance Running Hypothesis Wikipedia Page for a treasure trove of information).

However, that does not mean that everyone—especially beginners—have a perfect form from the get-go. As a matter of fact I'd wager that most of you would waver to state explicitly that your running form is ideal. For this reason, it's worthwhile to dig a little deeper into basic concepts of good running form. That's the objective of this chapter.

The guidelines and tools shared within it will help you better understand your body's movement so that you can maximize your natural running efficiencies and minimize what can lead to injury.

Hopefully, by the end of this chapter, you'll have a rough a rough guideline on how to start fine-tuning your own running technique.

Just keep in mind that these are generalizations that work best for most runners, but if something feels off or awkward, don't force it.

What is Running Form

Also known as running mechanics, running technique, or style running form simply refers to how you run.

The main mechanics include running posture, foot strike, arm position, cadence, etc. Each of these mechanics affects your running comfort, efficiency, and results. Think of these as the individual functions of your body while running. From first glance, the above might seem overwhelming to put into practice while you're simultaneously trying to run.

Proper running form is the base of efficient and injury-free training. It can help you run in the most efficient, the fastest manner possible with the least risk of injury. If your running form is off, then expect all sorts of aches, pains, injuries and low performance.

Many Questions. Few Answers

Proper running mechanics brings up more than questions than answers. Here are a few :

- Should you land on the heel, the mid-foot, or forefoot?
- How to run with a slight forward lean?
- Is a long strider better than a short stride?
- Is heel strike the enemy?
- Should you breathe through the nose? The mouth? Or both?
- Should beginner runners concern themselves with proper form?
- Are proper form rules universal?
- What does current scientific research say about proper running form?
- Etc...

Anatomy of Gait

Before we get into what constitutes good form, let's first break down the specifics of the gait cycle. Why? Having a basic understanding of running biomechanics can help you better assess your technique, which, in turn, is key for improving it.

The Gait Cycle Demystified

The gait cycle describes the continuous and repetitive pattern of walking or running—how we get from point A to point B.

More specifically, it's a series of movements of the lower extremities during locomotion that starts when one foot strikes the ground and ends when the same foot hits the ground again, hence, the cycle.

The gait cycle typically the same for all of us as it can be split into two main phases. The Stance Phase—when the foot is in contact with the ground, and The Swing Phase—when the foot is not in contact with the ground. A complete gait cycle includes both a stance and swing phase.

Note :

During the walking cycle, there is a period known as a double stance in which both feet are in contact with the ground.

The Stance Phase

The first phase of the gait cycle. It begins when the heel makes contact with the ground and ends with the toe off. The stance phase equates to roughly **60** percent of the walking gait cycle, and **40** percent of running gait cycle. However, these proportions are not written in stone as they tend to change in line with walking and/or running speed.

The stance phase can be further divided into three stages. It starts with initial contact, followed by midstance, then propulsion.

Initial contact

Initial contact marks the beginning of the stance phase. Also known as foot strike, this subphase starts when your foot makes contact with the ground, whether it's a heel, midfoot, or forefoot strike, based on your running speed, running style, biomechanics etc., and ends when the forefoot is in direct contact with the ground.

Think of initial contact as the cushioning phase of the gait cycle. During this point, your foot is pronating at the subtalar joint, the knee is slightly bent, and leg is internally rotating to help reduce the force of impact.

Mid Stance

Also known as single support phase, during midstance, your foot flattens on the ground (moving from pronation into supination) to provide support as your body moves forward over the leading foot while the other foot is in swing phase.

The Toe Off/ Propulsion

As you push forward, the heel starts to lift, while the muscles on the back of the leg—mainly the Gastrocs, Soleus, and Achilles Tendon—contract, resulting in plantar flexion of the ankle, allowing for toe-off. This subphase makes up the final **35** percent of the stance phase.

The Swing phase

The swing phase refers to the time in which the foot is not in contact with the ground. Instead, it's swinging forward. The phase starts with toe off and ends just before the foot strikes the ground again, and a new gait cycle begins. And it's the longest phase of the running gait, making up the remaining **60** percent.

How to Develop Proper Form –The Guidelines You Need

Here are the guidelines you need to build proper form.

Posture

Just as you should keep proper posture while walking, standing, or sitting, maintaining an upright, relaxed upper body position while running is crucial, too. In fact, the effectiveness of your running form depends significantly on the quality of your posture.

Proper posture—both on and off the running field—helps reduce strain on the upper body, which can ward off muscle fatigue, back pain, and soreness. It also helps keep your spine in proper alignment improve training efficiency, and develop an efficient foot strike.

Good posture begins with the correct body angle.

Here are the three main traits

1 - Keep your spine straight, shoulders relaxed and back with a slight forward lean.

2 - Keep your torso straight, and avoid sticking your chest or butt out too far.

3 - Engage your core muscles. A strong core is the foundation of efficient running.

To get a tactile sense of proper posture, stand up straight against a wall. Push your butt firmly against the wall while keeping the chest up, core engaged, and back flat. That's the ideal running posture.

Here is the exact breakdown of this impressive strategy.

1 - First, lengthen your body from head to ankles, forming a straight line that runs down your body from top to bottom. Imagine there is a string attached to the top of your head and it's pulling it upward toward the sky.

2 - Next, assume a slight lean forward from the ankles upward. Never lean from the waist as doing so may compromise your running form. Just whatever you do, do not lean too far forward or too far back—that's terrible form.

3 - Do not bend backward or forward from the waist as doing so puts a lot of pressure on the hips. An excellent example of perfect forward lean is the Nordic ski jumpers.

Stay Relaxed

Running is easy when you're relaxed, whereas, tension saps energy, resulting in discomfort and fatigue. Think of running with a tensed body like driving a car with the brakes on. It forces you to work harder than you should, but only go slower.

Keeping tension in your body is the last thing you want to do as a runner. Anywhere you are clinging to tension, you are misusing vital energy that could be (and should) be used up elsewhere. Not only that, it feels good to be relaxed, and that's something you can't argue with.

Here are a few hints to help you develop a relaxed running posture:

Head

Keep your head high and centered between the shoulders, eyes on the route roughly **10 to 15** feet ahead of you, letting your gaze guide you forward. Avoid looking down at your feet as doing so creates tension in your neck and shoulders, especially in the latter portion of a run .

Arms

Efficient arm position can increase speed, improve balance, enhances your overall coordination and rhythm. Aim for a smooth back and forth, arms swing with the elbows bent at a **90-degree** angle, and kept slightly pointed away from the torso.

Shoulders

Keep your shoulders loose, not too tight and not too high. Raise them every **10 to 15** minutes, and then drop them back to their comfy, relaxed position. Hunching the shoulders creates tensions and restricts breathing—all of which can lead to inefficient form.

Elbows

Keep your elbows bent at approximately **90-degree** angle with your elbows somewhat pointed away from the torso, with the arm swinging from your shoulders in a relaxed manner. Also, swing your arms forward and back, not across your body. This also allows your shoulders and neck to relax .

Hands

Keep your hands in an unclenched fist, with the finger and thumbs lightly touching, hand cupped as though you are holding a delicate butterfly or an egg that you don't want to crush nor break. Also, swing your arms to the rear, not the front. Imagine that you're trying to elbow someone behind you instead of punching someone in front of you.

Back

The back should be kept straight the entire time. Do not slouch forward, nor let your butt stick out.

Knees

Keep your leading knee slightly bent and relaxed as you land a little in front of your center of gravity. A slight bend in the knees can also help absorb the impact of a foot strike.

Foot Strike

Here's is where we begin to get into some muddy waters when it comes to running style. Let me start from the beginning by giving you a short overview of foot strike.

A foot strike refers to how and where the foot makes contact with the ground. Think of it as your signature as a runner. It's the footprint you leave behind with every step you take.

By and large, there are only three types of a foot strike: forefoot strike (FFS), mid-foot strike (MFS), and rearfoot strike (RFS).

The bad news is that the topic of foot strike is still a sticking point in today's running world. In fact, what constitutes an appropriate foot strike is still a subject of much debate and little scientific proof.

And I reckon as a beginner, foot strike is not something you should worry about and analyze from the get-go. Just focus on what feels natural for you and take it from there. The rest is detail.

What I preach ?

While there's not enough evidence to support one method over the other, I'd suggest a mid-foot strike, especially if you are a beginner. I believe that landing this way puts the least amount of stress on the knees and ankle while helping you generate a stronger push off.

I might be wrong. But according to my (non-scientific and completely subjective) observations, the forefoot strike is most suitable for beginners.

Your foot should land slightly ahead of your center of gravity, with the leading foot facing directly forward. Next, quickly roll forward onto the toes, popping off the ground and engaging your glutes on each step. Make sure to keep the toes pointed in the direction you want to go the entire time.

Also, land as softly as possible—just like a ninja. Land as lightly as possible, spending as little time in contact with the ground. You should not be making any loud noises .

I hate to sound like a broken record, but please take this tip with a grain of salt. What I really encourage you to do is let your foot do its own thing. Don't interfere. It doesn't matter where your foot land as long as long as you're training injury-free. Hence, do not try to force your physiology to match a theory or way of moving.

Running Cadence

Also known as leg turnover, cadence is the technical term that refers to the number of steps you take per minute with both feet. Cadence is a crucial part of proper running mechanics, as it helps reduce stress on feet, knees, and ankles, improving running efficiency.

So what is the ideal cadence ?

According to experts, the sweet spot for optimal cadence is about **180** steps per minute. This is something I learned from the legendary running coach Jack Daniels. But how do you go about improving cadence ?

First of all, determine your cadence before trying to improve it. To find your cadence, count the number of strides on one foot for **30** seconds, then multiply it by four.

If the number is **180** or higher, you are in the right place. But if it's under, then work on increasing it by approximately five percent every three to four weeks until you reach your goal cadence.

Important note on cadence

Cadence varies according to pace. For instance, your speedwork or racing cadence will be much faster than your typical training cadence. Consequently, you should aim to settle on your number for both types of runs.

Using a metronome can come in handy. So, for instance, if you are aiming for **170** steps per minute, set your metronome at **85** beats per minute and swing your arms to the beat.

Deep Breathing

One of the most crucial yet underrated areas you can work to improve your running style is correct breathing technique. The problem is that many beginners breathe from their chest rather than belly while running. In fact, yet breathe correctly.

Enter Deep Breathing

Deep breathing, also known as diaphragmatic or belly breathing, is a form of respiration in which you use your entire lung capacity. The principal muscle involved is the diaphragm—a muscle group shaped like a jellyfish or a parachute. As you can see in the image, the diaphragm sits below the lungs and divides the torso into the abdominal and thoracic cavities, separating the chest from the abdomen.

During deep breathing, the diaphragm pulls down on the abdominal cavity to completely inflate the lungs, drawing in maximum air, then deflate, squeezing the air out fully.

How to take deep breaths ?

Here is how to learn deep breathing in the comfort of your own home.

Start out by lying flat on the floor, chest open, shoulder relaxed with one hand resting on your chest and the other on your belly.

Next, breathe in slowly, taking about **10** seconds for the inhale. Visualize your lungs filling up with air, feeling the air moving into the chest stomach, and abdomen.

Once your lungs are loaded with air (you might feel mild discomfort in the solar plexus, just below the breastbone), hold your breath for a count of **10**. Last up, exhale slowly for ten seconds through pursed lips while pulling your belly button to your spine to get all the air out.

Your lower hand should be moving with each breath while the upper hand remains relatively still throughout the exercise. So, every time you inhale, your abdomen should fill up like a balloon. And every time you exhale, that balloon deflates.

Changing Form

Proper running mechanics is not something you can change overnight. In fact, trying to do will do you more harm than good. I have to admit. Granted. The above form guidelines are a lot to think about, but so it a car when you first learn to drive.

Just don't fret nor feel the need to master these overnight. In fact you don't have to learn properly by next month. You have the rest of your life to practice these skills, so don't pressure yourself to learn them all at once.

Just take it one step at a time, and you'll be a happy runner.

The Checklist

To avoid information overload, here is my proper form checklist. Feel free to copy this page and take it with you when you go out running.

Take yourself through this sequence whenever you are running.

- Keep everything relaxed and smooth
- Breathe deeply. Think baby breaths.
- Land slightly underneath your center of gravity.
- Run tall with a slight forward lean from the ankles
- Strong and driven arm swing.
- Keep your feet light and quick-shoot for **80** to **85** steps on each leg per minute.
- Keep your posture straight, back flat, and core engaged.
- Adjust your hips.
- Practice perfect posture at all time—not just when you are exercising.
- Let your shoulders hang loose and relaxed
- Hold your arms close to your body, with the elbows bent at a **90-degree** angle.

Chapter VII :

What Runners Eat

Many factors affect running performance, but diet might have the biggest impact. The fact is that if you do not provide your body with the raw materials needed to rebuild, refurbish, and replenish itself following training, you'll fall short of attaining your fitness goals.

In fact, running on a crappy diet is like putting your foot down on the accelerator and suddenly finding you have no power. Opt for poor diet choices, and you'll be depriving your body of nutrients that increase bone strength, fight off against disease, ensure cellular integrity, and gives you the energy to keep exercising (and reading this eBook—not that it isn't a real page turner, of course).

That said, a proper diet will help your body to perform at its best. In fact, whether you are a decorated marathoner, or a complete beginner, your diet choices have a significant impact on running performance, recovery, and fitness levels.

In the two upcoming chapters, I present basic guidelines for healthy eating. Adopting some of the commonsense guidelines shared within these two chapters will help you get the most of your diet choices, regardless of your goal, whether it's to lose weight, increase performance, or simply improve overall health and energy levels.

Disclaimer :

Before you go any further, I'd like for the record to explicitly state that I'm not a certified nutritionist. While I went to great lengths to research the guidelines presented below, please consult a certified nutritionist. This is particularly the case if you're overweight, under medication, or have any allergies or special needs.

What is a Diet ?

For most people, the word diet conjures up images of short-term weight loss goals and countless food restrictions. If that's already you, then this chapter might help you change your perspective. Regardless of your eating habits, the term "diet" simply refers to what you eat—the foods and drinks you consume on a daily basis.

Sure, healthy eating makes for a healthy lifestyle, but the word diet has nothing to do with instilling strict dietary limitation or depriving yourself of delicious foods. Healthy eating involves consuming foods that make you feel great, increase your energy levels, and improve your overall fitness and health status.

Part I – The Main Building Blocks of A Runners Diet

To function optimally, we need a broad range of nutrients. The main ones can be broken down into three categories: Carbohydrates, proteins, and fats. These are known as macronutrients, which consist a broad range of chemical compounds that your body needs in large quantities to keep itself functioning .

Carbohydrates

Carbohydrates, or carbs for short, are the body's preferred source of energy that fuels both muscles and brain. Chemically carbohydrates are organic molecular compounds made from three elements: carbon (C), hydrogen and oxygen (H₂O).

Carbs include sugars, cellulose, starches, and a host of other compounds found in living organisms. That said, not all carbs found in different foods are the same. These molecular compounds are divided into two main categories:

- 1 - The complex carbohydrates—the polysaccharides (mostly starches and fiber)

- 2 - The simple carbohydrates—the monosaccharides and disaccharides (mostly sugars).

Both types, as we are going to see, differ in their chemical structure and the impact they have on your body.

Carbohydrates—The Main Source of Energy

Think of carbohydrates as your body's primary source of crude oil. When you consume high-carb foods, your body breaks them down and converts them into glycogen, then stores it in the muscles, liver, and bloodstream. When you start exercising, the glycogen stores are converted into energy that contracts the working muscles. The longer and/or harder you run, the more glycogen you use up.

For most people, glycogen stores are depleted after a **90-** to **120-**minute effort (think long runs). For that reason, these stores can only fuel you for up to two hours of moderate exercise. Further when you consume more carbs than you use up, the excess is turned into fat (stored energy for later use). That's why excessive carb intake is not a good thing (and one of the reasons low carb-diet are so popular).

Simple Vs. Complex

As I've mentioned earlier, not all carbohydrates are created equal. These "sugars" can be divided into two main forms: the simple and the complex. This classification depends on the carbohydrate's molecular structure, which has a drastic effect on how your body digests them.

The Simple Carbs

If you think that soda cans and chocolate bars would be in this category, you're right. Also known as the bad carbohydrates, simple carbs include all the monosaccharides—containing one sugar unit, and disaccharides—containing two sugar units. Simple carbs are tasteful and ideal for a short-term energy boost as they require no further breakdown from enzymes.

As a result, these are quickly absorbed into the bloodstream. That might sound like a good thing, but there is, as we are going to learn shortly, a huge downside to it.

The Processed Junk

In most cases, monosaccharides and disaccharides are processed, in one form or the other. In fact, these typically contain more than one processed item or at least items with a lot of artificial sugar and chemical ingredients. Hence, simple carbs are low in fiber and nutrients and offer little but calories.

Said otherwise, simple carbs are your typical junk food. Rich in calories and (bad) fats, but no essential nutrients. That's why these, as far as science says and experience dictates, are the worst offenders. Research has revealed that consuming them regularly causes a host of health problems like type II diabetes, obesity, etc.

Simple carbs include :

- Sugar
- Syrup
- Candy
- Cake
- Soda
- Beer
- Fruit juices
- White bread
- Pastries
- White pasta
- White rice

(Practically every food item you need to avoid if you're serious about reaching your fitness and health potential).

The Complex Carbs

Complex carbs, also known as polysaccharides, are starches made up of long chains of simple sugar units. These can provide slow and steady energy over a sustained period, which is a good thing if you ask me.

High in The Right Nutrients

In general, complex carbs are unprocessed (or slightly processed) and still contain a variety of essential nutrients, and fiber found naturally in the food. Moreover, complex carbs are low to moderate in calorie density. This means that you can consume filling amounts and satisfy your hunger, but not worry about throwing your calorie intake out of whack.

High-quality examples of the good carbohydrates include :

- Whole grains
- Brown rice
- Broccoli
- Lentils
- Sweet potatoes
- Pasta
- Bananas
- And other fresh and dried fruits.

Your Carbs Needs Demystified

According to the Institute of Medicine, the recommended dietary daily allowance for carbohydrate is about **130** grams per day. This is the bare minimum required to fuel your brain, central nervous system, and red blood cells.

But as a runner, you'll need, definitely, more than **130** grams per day.

In fact, your carbs needs in grams will vary according to many factors, including your training level, training intensity, fitness goals and personal physiology and preferences.

Carb Needs & Bodyweight

As a rule of thumb, consume an amount of carbs based on body weight. According to experts, the recommended daily requirement is about **2 to 4 grams per pound**. For a rough estimate, simply multiply your weight in pounds by **3.2** (or in kilogram by **7**).

Next, break the result down into the proper portions, then spread it out over the day. That might translate to roughly **80 to 100 grams** of carbs at three meals and a couple of healthy snacks.

Carbs Needs Based on Training Intensity

If you are a serious runner, determine your daily needs by assessing your training volume/intensity. Use the guidelines below to guess-timate your daily needs. These are suggestions taken from the 5th edition of the Manual for Professional. Academy of Nutrition and Di-etetics, Chicago, IL; **2012**.

- Low to moderate intensity training—**45 to 60** minutes a day. **2 to 4** grams of carbohydrates per pound (or **4 to 8** grams per kilo-gram) of body weight .

- Moderate to somewhat intense endurance exercise—**60 to 120** minutes a day. **2.5 to 5** grams of carbohydrates per pound (or **5 to 10** grams per kilogram) of body weight.

- High-intensity endurance exercise. Over three hours a day. **4 to 8** grams of carbohydrates per pound (or **8 to 16** grams per kilo-gram) of body weight.

For example, if you weigh **180** pounds and engage in relatively in-tense exercise, then you'd need something in the range of **450 to 900** grams of carbs each day.

The Exact Proportions

Experts recommend that just over a third of calories should come from starchy foods, such as bread, potatoes, pasta, and rice, and another third from vegetables and fruits. That translates to **55 to 65** percent of your daily calories stemming from carbohydrate sourc-es—preferably the complex variety.

Where To Find Them

Although carbohydrates are found in many foods, getting them from vegetables, fruits, whole grains, and low-fat dairy products is the way to go.

Good sources of carbs

- **Vegetables** : Consume a variety of different colors every day.
- **Legumes** : peas, lentils, kidney beans, etc.
- **Fruits** : strawberries, apples, bananas, etc.
- **Nuts** : walnuts, almonds, peanuts, macadamia nuts, etc.
- **Seeds** : pumpkins seeds, chia seeds.

Proteins

Proteins, in addition to carbohydrates and fats, are one of the three macronutrients your body needs to function properly. Protein is essential for the regular growth and maintenance of every cell in your body. It is, in fact, the building block of all cells and tissues.

Why you Need Proteins

Proteins are compounds are needed to produce energy, maintain primary biological processes, and sustain life. These macros are essential for building, repairing, and maintaining cells, tissues, and organs throughout your body.

Protein is also essential for other vital bodily functions, including :

- Metabolism
- Digestion
- The production of antibodies that fight infections
- Immune system integrity
- Hormonal messaging
- Etc.

The Exact Chemical Structure

Proteins are macromolecules—or large biomolecules—consisting of carbon, hydrogen, oxygen, nitrogen, and sulfur. These macromolecules are made of **22** smaller molecules called amino acids that form the basis of all organic life, with each protein having a genetically distinct amino acid sequence that defines its unique shape and function.

The Process—How Protein Gets into your System

When you consume foods that contain protein, your digestive system juices it in your stomach and intestine, then it's broken down by your liver into its building blocks amino acids. Once these compounds are absorbed, they are reconfigured and reassembled into different forms of protein that can be used by your body for things like enzymes, hormones, and neurotransmitters.

Essential Vs. Non-essential Amino Acids

Protein itself is composed of **22** types of amino acids—all of which are crucial for healthy functioning. That said, only nine of them are considered essential amino acids—the compounds that our bodies need but does not manufacture. Instead, you'll have to get them from nutritional sources.

The list of the nine amino acids we get only from diet includes : isoleucine, histidine, methionine, lysine, threonine, valine tryptophan, isoleucine, and phenylalanine. The remaining **13** amino acids are produced by our bodies. That's why they are called non-essential since you don't need to get them through dietary means.

The Complete Vs. The Incomplete

Dietary proteins are not created equal. Some sources complete whereas others are incomplete. Sources of complete proteins contain all nine of the essential amino acids. Primary sources include animal products, such as poultry meat, eggs, and fish. These provide all the vital amino acids your body needs in significant quantity.

On the other hand, incomplete sources may contain significant quantities of amino acids, but not all of the nine essential ones, or don't deliver enough supplies to meet your body's needs. Most plant-based sources, such as vegetables, beans, grains, and nuts are often deficient in one or more of the essential amino acids.

The Exact Diet Proportions

Running, and exercise, in general, breaks down muscle protein. That's one reason you need to pay attention to your protein intake. The amount of protein your body requires is shaped by many factors, including your fitness level, training intensity, age, gender training goals, personal preference, etc. But, as a general guideline getting **15 to 25** percent of your daily calorie intake is a good benchmark is shoot for.

The Runners Recommendations

Research shows that athletes require more dietary proteins than their couch-potato peers. Here are some protein intake suggestions to help guide you in the right direction :

Moderate Training

If you do light to moderation training, you'd need **0.7 to 0.9** grams of protein per pound of bodyweight.

Moderate to Intense Training

Once you rack up the miles or do any form of strength training, your protein needs follow suit.

In fact, prolonged and/or strenuous training may boost dietary proteins needs to as high as one gram of protein per pound of bodyweight (or **1.9** grams per kilogram of body weight) per day. Half-Marathon and marathon runners might need at least **1.2** grams of protein per lb. of bodyweight.

The Healthy Range

To determine your daily protein intake, multiply your weight in pounds by **0.6** (or by **1.3** your weight in kilograms). Just don't get too bogged down by the numbers. As long as you're consuming somewhere in the region of **0.6** to **0.9** gram of protein per pound of bodyweight, you won't miss the mark.

Example

Jane is a female runner weighing **150lb**. To consume enough protein to support her training, recovery and overall health, Jane would be looking to ingest about **120** to **150** grams of the macronutrient every day.

Fats

Dietary fats are the third macronutrient you need for a healthy and well-balanced runners diet. And if you usually shun the third macronutrient, then this section is perfect for you, especially if you are serious about reaching your full running potential. In this section, I give a brief overview of dietary fats as well as the best foods sources so you can meet your daily requirement of this valuable ingredient.

Fats Demystified

Dietary fats, just like carbs, are large molecules made up of three elements: carbon, hydrogen, and an oxygen atom. Yet, dietary fats contain these molecules in a much greater quantity than found in other macronutrients. Consequently, dietary fats are calorically denser than carbs and proteins, yielding a whopping nine calories per gram.

The Chemical Structure

What is usually referred to as dietary fats in the fitness and diet circles is a class of substances called lipid. These comprise all the lipids found in plant and animal tissue, which is consumed as food. More specifically, dietary fats are made up of a large group of water-insoluble organic compounds that can be further divided into triglycerides, cholesterol, and phospholipids.

The most common type of fats (the solid form) or oils (the liquid form) are a mix of triglyceride (triacylglycerol) with slight amounts of other lipids. I know it's getting boring with all these scientific terms but just bear with me. Nerding out a little bit is worth it.

Saturated Vs. Unsaturated

Based on their biochemical structure and their impact on the body dietary fats can be broken down into two broad categories: saturated and unsaturated. Saturated fats contain high amounts of hydrogen, but no double bonds, and tend to be solid at room temperature, whereas the unsaturated kind houses one or more double bond(s) between the carbon atoms.

The Many Roles Of Fats

Here are a few of the primary functions of fat :

- Transporting vitamins (mainly A, D, E, and K) throughout your body, offering better nutrient absorption
- Ensuring proper functioning and keeping structural integrity at the cellular level.
- Helping keep a stronger immunity system
- Aiding in hormone productions—mainly estrogen and testosterone
- Helping control inflammation and blood clotting
- Keeping hair and skin healthy
- A secondary source of energy as the largest reserve of stored fuel available for activity.
- Assisting in the protection and the insulation of vital internal organs in the form of adipose fat, which your stored fat

Said otherwise, your body cannot function without dietary fats.

The Bad Press

Fat has gotten a bad rap in the fitness and health circles. In fact most health-conscious folks regard it as a source of weight gain, diabetes, heart diseases, and other serious health issues.

Nonetheless, when it comes to the truth, casting all types of fats as the ultimate villain is simply wrong and misleading. Sure, too much dietary fats, just like anything else, isn't good for you. But that's no excuse to avoid it like the plague. The fact is that purging all kinds of fats from your diet is like throwing the baby out with the bathwater.

Best Sources – The Good Vs. The Bad Vs. The Ugly

The Good

Good fats are what's known as unsaturated fats. These can be further broken down into polyunsaturated fats and monounsaturated fats.

Monosaturated fats

Biochemically, monounsaturated fatty acids, also known as or MUFAs, contain a single, double bond in their fatty acid chain. The more double bonds a fatty acid contains, the more fluid it is. Mono oils are usually liquid at room temperature, but start to harden at refrigerator temperature.

Research shows that consuming these fats improve cholesterol levels, which can reduce the risks of cardiovascular disease. Plenty of peer-reviewed papers have also revealed that monounsaturated fatty acids might have a positive impact on blood sugar levels which can be particularly beneficial for warding off type II diabetes and other insulin-related complications.

Conventional sources of monounsaturated fat include olive, canola and olive oils, and avocados.

Polyunsaturated Fats

Polyunsaturated fats, or PUFAs for short, have more than one double bond in their fatty acid chain between its carbon atoms. Unlike the mono kind, polyunsaturated fatty acids tend to be liquid both at room temperature and in the refrigerator.

The most well-known polyunsaturated fatty acids today are the omega-3s and omega-6s. These are essential nutrients that your body uses to produce vital chemicals needed for optimal functioning.

Research indicates that they reduce the level of harmful cholesterol (LDL) and boost the level of the healthy kind, or what's known as HDL. Research has also linked monosaturated fats to a reduced risk of cardiovascular disease and stroke.

Common sources include corn, soybeans, sesame, safflower, many seeds and nuts, soybeans, and their oils. Good portions of these oils can also be found in eggs from flax- or fish-fed chicken.

The Bad—the Saturated Fats

The third classification of fats is saturated with hydrogen. More specifically, saturated fats are fatty acids in which all carbon atoms are bonded to hydrogen atoms.

Evidence shows that these fatty acids increase total blood cholesterol and LDL (low-density lipoprotein) cholesterol levels increasing the risks of cardiovascular issues. These block your arteries and contributes little to your overall health and well-being levels.

Saturated fats are often found in animal sources of foods, such as red meat, poultry, and full-fat dairy products.

Limit your saturated fat intake to no more than **7** percent of your total calorie intake. This might translate to less than **20** grams a day for men, and **15** grams for women. Or, better yet, replace saturated food sources with PUFAs and MUFAs.

The Ugly—The Trans Fats

Now that you have a basic understanding of the essential sources of fat, it is time to reveal the villain of the dietary fat world: trans fats. These can occur naturally in tiny amounts in some foods, such as red meats, and full-fat dairy products. But, in general, these fatty acids are man-made.

Also known as hydrogenated fats, trans fats are a chemically produced in a “food lab” when liquid vegetable oils are forced into a hydrogenation process at high pressure, making the oils more solid.

Trans fats are used for frying, or as an ingredient in processed foods, such as commercial baked goods, cake, biscuits, margarine with the aim of enhancing shelf life, flavor, and texture of packaged foods.

Avoid Them At All Costs

Trans fats are the black sheep of the dietary fats and for good reasons. These can boost unhealthy LDL (low-density lipoprotein) cholesterol levels and reduce good HDL (high-density lipoprotein) cholesterol levels. This, in turn, increases inflammation throughout your body. Also, research shows that trans fats can lead to weight gain, even calorie intake is kept under control.

Common sources of trans-fat rich foods include :

- Cookies
- Commercially baked pastries
- Pizza
- Muffins
- Doughnuts
- Crackers
- Packaged snack foods
- Fried foods (mainly fried chicken, French fries, chicken nuggets and breaded fish)
- Stick margarine
- Candy bars

Keep these fatty acids on the watch list. Avoid any food or dairy products that have the words "hydrogenated vegetable oil" "partially hydrogenated vegetable oil" , or "shortening," in their ingredient list. Also, food items labeled as "trans-fat free" usually contain less than half a gram per serving. So, it's quite misleading.

Replace foods rich in saturated and trans fats, such as whole milk butter, and baked foods, with foods rich in unsaturated fats (check the list above).

So How Much Fat Do I Need ?

Most experts recommend that as much as **15** to **25** percent of your calories to come from fats and less than **7** percent from saturated fat. Just keep in mind that the average American average intake hovers around **35** percent, according to survey. Of course, as I always say, these recommendations are not written in stone. So feel free to re-adjust them according to your own needs.

So, as a runner, if you consume **2800** calories per day, then less than **600** of these calories should be from dietary fats.

That translates to **65** to **75** grams of fat a day.

Part II – Vitamins and minerals – The Micronutrients you Need

Vitamins are not considered a source of energy while running. Yet they are essential micronutrients for optimal functioning, and a critical ingredient of a healthy, and balanced runner's diet. Unlike macronutrients, the human body only needs little amounts of micronutrients to maintain optimum health. But that does not make them less relevant.

Micronutrients assist in the production of proteins, hormones enzymes and other essential processes performed by your body as well as physical and mental functioning. Here are ten of the essential micronutrients you need along with the best food sources to get them from.

Vitamin C

Vitamin C is one of the most essential of all micronutrients. Firstly it's in charge of intercellular maintenance of capillaries, bone, and teeth. Deficiencies in Vitamin C might lead to joint pain, tissue swelling bone fragility, slow recovery, etc.

Vitamin C can also help ward off upper respiratory tract infections which can occur in long distance endurance runners. It's also an antioxidant that helps fight off the free radicals produced by your body during running, and might otherwise lead to delayed onset muscle soreness. Besides, this vitamin is the building block of collagen, the raw materials your body uses to build muscle, blood vessels, cartilage, and bone.

Best sources include bell pepper, guava, orange, kiwi, strawberries grapefruit, papaya, broccoli, cauliflower, cantaloupe, pineapple, and kale.

How much? **90** to **100** milligrams/day for men; **70** to **80** milligrams/day for women.

Vitamin D

Your body needs vitamin D to absorb calcium, making it essential for keeping your bones strong and healthy. A deficiency can increase the risks of a stress fracture, and chronic inflammation due to over-training, etc. The vitamin is also crucial for the proper regeneration of mitochondria in the muscles—crucial for providing energy for your muscles.

If you have dark-colored skin, wear protective clothing, spend a lot of time indoors, or live in a place with limited sunshine, get your levels checked with a blood test. Next, talk with a certified physician about whether you're at risk of a deficiency.

The Best Sources :

Although a well-rounded diet will provide all the other key vitamins and minerals, it is unlikely to offer you enough vitamin D. The best way to get ample amounts of this vital nutrient is to spend time outdoors. The human body produces Vitamin D when the skin is directly exposed to the sun. So, make sunshine, not food, the primary source of this valuable nutrient.

It's not known exactly how much sun exposure needed. But according to most experts, going outside for **10 to 15** minutes in the midday sun—in a tank top and shorts with no sunscreen—may provide you enough radiation to produce about **10,000** international units of the vitamin.

Dietary sources include dairy, irradiated mushrooms (grown under UV light), fatty fish, and Vitamin D fortified foods, such as milk, and orange juice.

How Much? **2000** to **3000** International Units (IU) per day for both men and women.

Vitamin A

Vitamin A is a fat-soluble nutrient that performs many crucial functions in the body, including aiding normal growth, strengthening the immune system, improving vision, etc. But, most importantly Vitamin A is an antioxidant that can protect your body's cells from the dangerous free radicals you're exposed to while running.

Best sources: Sweet potato, carrots, pumpkin, squash, green leafy vegetables, bell pepper, eggs, beef, and peaches.

How much ? **900** to **1000** micrograms daily for men and **700** to **800** micrograms daily for women.

Vitamin E

The term vitamin E include a group of eight compounds, called tocotrienols and tocopherols, with different subgroups of each which make up its structure in its natural state.

Vitamin E is another powerful, fat-soluble antioxidant that's key to keeping the body resilient, preventing cell membrane damage, and guarding the immune system against bacteria and viruses.

If you do lots of intense running, reduce the risks of becoming sick by getting plenty of this oily antioxidant. According to research published in the *Journal of Clinical Epidemiology*, adequate intake can lessen the possibility of pneumonia by **69** percent among non-smokers who exercise.

How Much? **12** to **16** mg a day for both men and women.

Best sources: Almonds, sunflower seeds, olive oil, peanut butter.

Calcium

Calcium is essential for bone density—and strong bones are crucial for any high impact exercise, especially running. According to research conducted by the American Academy of Physical Medicine and Rehabilitation, consuming an extra cup of skim milk—a calcium-rich source—per day can reduce the risks of developing a stress fracture in runners by up to **60** percent.

Your bones act as a reservoir for calcium. So, when blood supply runs low on the mineral, the latter is borrowed—or stolen—from the skeleton. To make things worse, when your diet is calcium deficient, the borrowed calcium never gets paid back, and over time, this can decrease bone strength.

Best Sources : Milk, yogurt, cheese, canned salmon, beans, dark leafy greens, and some fortified cereals.

How Much? At least **900** to **1,200** mg of calcium per day for active people.

Iron

Iron is a mineral found in cells and organs throughout the body and serves many vital functions. Iron is needed for the formation of myoglobin and hemoglobin, the oxygen-carrying compounds in muscle cells and red blood cells, improving oxygen transfer efficiency. Short-ages can cause your red blood cells count to drop, causing anemia, and leading to poor recovery, chronic fatigue, and mediocre performance.

Runners should pay particular attention to iron take because one hour of exercise could deplete **6 to 8** percent of your level of the mineral, research shows. That's why iron deficiencies are common among athletes, especially females.

Best Sources : Eggs, beef, broccoli, lentils, spinach, dates, raisins almonds, green leafy vegetables, fortified cereals.

How much? Men should shoot for **8** mg of iron a day while women need no less than **16**mg.

Potassium

Potassium, along with sodium, is one of the most important electrolytes. It aids in muscle contractions, speeds up recovery and promotes fluid balance in your body. Other functions include: supporting the metabolism of carbohydrates and proteins promoting normal muscle growth, regulating the acid-base balance in the body, controlling blood pressure, and muscle contractions .

Research shows that potassium shortages can boost the risks of heart diseases, hypertension, and high blood pressure.

Best sources: Bananas, dried fruits, winter squash, potatoes, cantaloupe, milk, spinach, and pinto beans.

How much? **4000 to 5000** milligrams a day for both men and women—if possible through diet.

Magnesium

The human body is composed of roughly **25** grams of magnesium. Half of which is stored in the skeletal muscles, and the other **50** percent can be found in muscles, soft tissues, and bodily fluids.

The mineral is essential for more than **300** chemical processes that maintain basic human function and health. These include nerve function, muscle contraction, energy production, insulin metabolism blood pressure, cardiac activity, bone health, protein synthesis etc. Yes, magnesium does it all.

Research shows that low volumes can cause chronic muscle cramps, mediocre recovery, poor performance, and other serious health trouble. As a runner, and once again, you'll lose magnesium through sweat, so be sure to get plenty of it before challenging runs.

Best sources : Leafy greens, pumpkin seeds, beans, almonds
Swiss chard, quinoa.

How much? **350** to **400** mg a day for men, and **300** to **340** mg a day for women.

Zinc

Zinc is a critical mineral that's naturally found in some foods, added to others, and also available as a dietary supplement. This mineral is an essential micronutrient that plays a huge role in the catalytic activity of roughly **100** enzymes.

The list includes protein synthesis, optimal immune function, wound healing, cell division, energy production in muscle cells, proper brain function, healthy skeleton growth, DNA synthesis, etc.

Nevertheless, significant amounts of zinc are lost in sweat and urine—especially post-exercise. Ergo, as a runner, you're most likely iron deficient, notably if your diet is lacking.

Best sources : Dark meat, poultry, wheat germ, whole grains, raw oysters, fortified breakfast cereals, and seafood

How much ? **10** to **12** milligrams a day for both men and women.

Sodium

Unlike other minerals, sodium has a specific and pleasing taste. This mineral is typically found in table salt, which is roughly **40** percent sodium. The mineral is needed for muscle contraction, regulating pH balance, nerve transmission, and proper hydration. Other functions include keeping joint flexibility, controlling blood pressure, facilitating energy metabolism, and helping maintain minerals soluble in the blood.

Runners, especially those working out for more than **90** minutes a session at a time, might have a higher need for sodium as it's primarily lost through sweat. In fact, you can lose up to **600** to **2000** ml per hour of exercise. Thus, sodium has to be replaced regularly especially when hydrating with only water on long runs. Low levels of sodium might cause heat cramps.

How Much? Research recommends getting at least **2300mg** of sodium a day—the equivalent of one teaspoon of table salt.

Part III – Hydration

Proper hydration is of paramount importance for many reasons. As a runner, staying well hydrated is essential both during the winter season and through the long hot summer. In fact, if you do any sort of exercise, drinking enough water, before, during, and after your workouts, is of non-negotiable.

Why Water Matters ?

Human beings can survive for as long as a month without food. But devoid of water, we would perish in roughly three to four days. In fact water is, right after oxygen, the second on the list of essentials for life.

Why? It's simple. The human body is about **60** to **70** percent water and every living cell in the body it needs it to keep functioning. Here are some of the primary functions of water :

- It flows through the bloodstream, carrying both nutrients and oxygen to cells, and flushing waste out of your body.
- It cushions our soft tissues and acts as a lubricant for our joints.
- It facilitates proper digestion of food to provide with energy. Without it, your digestion system will grind to a halt.
- It keeps your skin healthy by eliminating toxins.
- It regulates body temperature through sweating and respiration.
- It keeps you healthy and sane.

Dehydration – Why Do You Need to Avoid it ?

Proper hydration can improve your performance and training enjoyment. By the same token, lack of fluid can interfere with your body's ability to perform at its highest level. As the name implies, dehydration occurs when you lose too much liquid without replacing it. When this happens, your organs, cells, and tissues fail to function as they should, leading to dangerous, even life-threatening, complications.

You might feel easily winded, have muscle cramps, experience dizziness or loss of coordination, and other acute symptoms. In fact, research shows that as little as two percent dehydration could slash up to **20** percent of your aerobic capacity. Extreme cases of the condition may result in death.

Mild VS Severe

Dehydration levels can range from mild to serious, even life-threatening. Mild dehydration is typically treated at home whereas severe cases require immediate medical attention in an emergency care setting. The most common symptoms of dehydration include :

- Mild Dehydration
- Dry, cool skin
- Dry mouth
- Fatigue or sleepiness
- Constipation
- Headache
- Lightheadedness or dizziness
- Muscle cramps
- Severe Dehydration
- Extreme thirst
- Sunken eyes
- Confusion and irritability
- Rapid breathing and heart rate
- Low blood pressure
- Dark urine, or no urine at all
- Fever
- Loss of consciousness (in serious cases)

We are a Dehydrated Nation

Research shows that up to **75** percent of Americans might be not be drinking enough water, which is **60** to **70** ounces of liquid-runners included. So, how much water should you drink while running?

In general, your hydration needs depend on the following factors :

- Training intensity,
- Fitness level,
- The clothes you're wearing,
- Your sweat rate,
- your physiology, and most importantly,
- The heat and humidity in your environment.

How to Stay Well Hydrated

Fortunately, staying well hydrated is not as difficult as you might have been lead to believe. It's simple—once you start implementing some of these hydration strategies. A good general guideline is to drink half of your body weight in ounces each day. So, for instance if you weigh **170** pounds, you'd typically aim to drink **85** ounces of water per day. That might seem like a lot, but once you get yourself into the habit, you'll be able to get there.

So, what are some ways to help you reach that ?

Drink The Whole Day

The golden principle is to drink plenty of water throughout the day. Drink first thing in the morning and right before you doze off to sleep. Also, keep a full water bottle nearby, whether at your desk at work or in your car. This can serve as a reminder to keep your hydration topped up.

Start Your Runs Well Hydrated

Sip as much water as possible before a run. That might translate to **500** to **900** ml—the equivalent of two to four glasses of water—in the two to three hours before a run. Just keep in mind that if you feel thirsty, then you're already dehydrated.

Note :

Do not drink too much water before a workout as doing so can force your kidneys to flush it out, resulting in frequent trips to the bathroom. Overdrinking can also dilute your body's sodium balance and boost your risks of hyponatremia.

After Your Runs

You can lose up to half a liter for each hour of running. This can get considerably higher when exercising in warm and/or hot weather. So, immediately post-run, drink another two to three glasses within **10 to 20** minutes.

To Conclude – Here are the main guidelines :

- Drink two glasses–**500ml**–two hours before a run.
- Drink one cups–**250ml**–**10 to 15** minutes before a workout.
- Drink another cup–about **75 to 250 ml**–every **15 to 20** minutes while running.
- Drink two to three glasses–**500 to 750 ml**–in the **30** minutes post training.

Monitoring Hydration Levels

To ensure proper hydration, you'd need to watch your hydration levels. You can do this by following two different routes :
The "Pee Test" and the pre- and post-run weigh-in strategy.

Weigh Yourself

Weighing yourself both before and after a workout helps measure how much water lost through sweat, which, in turn, can help you determine fluid needs. This is a particularly good strategy for runners training in the hot summer months.

Here is how :

First, weigh yourself, without clothing, before and after each run. Next, figure out how much (fluid) weight you lost. Last up, drink with the main goal of getting your weight back up to its pre-training level.

As a rule of thumb, drink **16** ounces of water for every pound you've lost. So, for example, if you are three pounds lighter after a **90**-minute run, aim to drink **48** ounces in the hours following your workout. Just don't swig it all at once. Drink about **500ml** in the first-hour post-exercise, then keeping sipping every **10** to **15** minutes until reaching your target.

The Pee Test

The pee test is the easiest and simplest way of checking whether you are well hydrated. In fact, there is a strong correlation between urine color and hydration status, according to research conducted at the University of Connecticut.

Typically, your urine color should be light yellow—think lemonade. But once it gets too dark (think apple juice), or particularly smelly, you need to drink up. A clear, transparent, urine is a bit an excessive.

Chapter VIII :

Fueling For Your Training

Now that you understand the many components of a healthy day-to-day diet, the next step is to tailor it according to the requirements of a training schedule.

Running burns calories like nothing else, and with the right know-how, you can fuel yourself to run stronger, feel better, and enjoy it more. In fact, starting a running program may be the start of reviewing your whole approach to food and eating. As your body grows stronger and fitter, you'll want to nourish it with foods that packs in the energy you need for optimal performance and recovery.

The Simple Rule

When it comes to fueling properly for training, the main rule is simple: Eat the right things at the right times. Said otherwise, you must simply fuel your body both before and after training.

Energy intake is a crucial part of any nutrition plan, whether your goal is to improve performance, build muscle, lose weight, etc. The ideal diet is a lot like a good training regime. It delivers great results in the same way a well-rounded program gradually improves conditioning.

This chapter delves a little deeper into how to build a healthy diet that not only properly fuels your training, but it's also enjoyable to your taste buds.

The Exact Diet Breakdown

In general, the standard healthy runner's diet should be (1) high in the right carbohydrates, (2) moderate in lean protein, and (3) sufficient in healthy fats. That may translate to **50 to 60** percent of calories coming from carbohydrates, **20 to 30** from protein, and the rest from fat.

Of course, these proportions are not universal rules. They depend on many factors, including fitness level, training intensity, body weight, physiology, and personal preferences. So, feel free to re-adjust your intake as you see (and feel) fit.

Part I – The Tenets of Healthy Eating

The three basic rules for a healthy runner's diet are:

- Balance,
- Variety, and
- Moderation.

Balance

Balance is the first step toward healthy eating. Balanced eating is not your typical trendy, yo-yo or crash diet. Instead, it's how you ought to eat for life. By following a balanced diet, you ensure you're consuming all the essential nutrients your body needs to function properly.

That means finding the sweet spot between carbohydrates, proteins, fats, vitamins, fiber, and minerals. As a general rule, get the bulk of your daily calories from these main food groups :

- Fresh vegetables
- Whole grains
- Fresh fruits
- Lean proteins
- Legumes
- Healthy fats
- Nuts & seeds

Keep in mind that one food group does not provide all the nutrients you need. It does not have all the answers.

Variety

Your diet may have all the characteristics above, but it might still lack variety, which is the second pillar of healthy eating. In essence variety stands for opting for a wide range of foods from each main category every day. The more colors, the merrier.

Most nutrition experts agree that variety is one of the cornerstones of a nutritious diet. In fact, a study published in the *Journal of Nutrition* revealed that the more varied your food choices, the higher the intake of nutrients and fiber.

Moderation

Moderation involves consuming proper food amounts while meeting nutritional needs by not eating too much nor too little of any food or nutrient.

Sure, feel free to enjoy your treats, but since most guilty foods tend to be junk food, do so once in a blue moon. Never make it a daily habit. In effect, eat too many French fries, pizzas, cakes, and you'll have nobody but yourself to blame for the weight gain and the trouble that comes with.

Nutrition experts recommend getting at least :

Five servings of grains. Examples of one serving include :

- One slice of bread
- One small tortilla
- ½ cup of whole-grain cereal or cooked oatmeal
- One ounce of raw rice or pasta
- One cup of ready-to-eat cereal flakes
- ½ cup of popped popcorn.

Six servings of vegetables (Fresh, frozen, canned and dried).

Examples of one serving include

- one cup of raw leafy greens
- ½ cup of cooked peas or beans
- ½ cup of cut-up vegetables , and
- Five servings of fruits

Examples of one serving include :

- one medium-sized fruit
- ½ cup of cut-up fruit , or
- ¼ cup of dried fruit.

Get Profesional Help

In case you need additional help, consider enlisting the help of a trained sports nutritionist. They can help you better estimate your energy needs, then devise a nutrition plan to optimize your training and recovery times. But this might be over the top—especially if you are just starting out and still figuring it out as you go.

Part II – Natural Vs. Processed Foods—which one is better for you ? And Why ?

Natural Foods

For most people, hearing the words “natural foods” conjures up images of health stores and vegan lifestyles. But, in essence, the term refers to any food that has undergone minimal processing whose ingredients come from natural sources, and contains little or no artificial additive or preservatives.

And by far, consuming a natural food rich diet is the healthiest nutrition decision you can make. Eating nothing but unprocessed foods, such as vegetables, fruits, meats, whole grains, and non-homogenized dairy products, has immense health benefits.

Natural foods score high in vitamins, minerals, amino acids (the good) carbohydrates, water, fiber, fatty acids, and much more. These are all essential to optimal human nutrition.

Research shows that natural foods can help regulate blood sugar levels, reduce cholesterol, cut the risks of cardiovascular disease prevent diabetes, speed up weight loss, and help you get into the best physical and mental shape of your life.

Natural foods are also superior to their processed counterparts. For instance, whole-wheat based bread is healthier than bread made from white flour, potatoes are more nutritious than potato chips, and oranges cannot be held on the same pedestal as orange juices sold in convenience stores.

The Foods to Eat

- Fresh vegetables and fruits, such as kale, asparagus cabbage, broccoli, spinach, Brussels sprouts, cherries, pears berries, apples, and plums.

- Lean sources of meat, free-range chicken, wild fish, and grass fed beef, fresh fish/shellfish, eggs, etc.

- Omega-3 foods: eggs, sardines, wild salmon, herring.

- Whole grains, mainly quinoa, amaranth, barley, whole grain rye buckwheat, millet, and Kasha.

- Beans and legumes, especially lentils, and chickpeas.

- Nuts, such as walnuts, almonds, macadamia nuts, pistachios and pecans.

- Seeds, such as flax, Chia, sunflower and pumpkin

Processed Foods

Processed foods are any food item that has been purposefully altered in a "food lab" in some way or the other before consumption. This is done for four main purposes:

- 1 - to postpone spoilage

- 2 - to make our lifestyle easier

- 3 - to increase food lifespan, and most importantly

- 4 - to make more money for the food manufacturer

Processed foods include foods that had been canned, cooked packaged, soaked, frozen, or changed in nutritional structure whether it's through preserving, fortifying, fermenting, etc. Examples run the gamut: processed meats, snack chips, cake mixes, candy bread, sodas, crisps, frozen dinners, convenience foods, such ready meals or microwaved meals.

Here is the thing. Processed foods are everywhere. They've invaded our kitchen and, apparently, for a lot of people, are there to stay. According to my estimation, **9 out of 10** of the foods you can buy at a shop will be processed, in some form or the other.

Processed foods are the ultimate diet saboteurs. These are energy dense foods. They are, typically, high-calorie items that provide little to no nutritional value. Therefore, a processed food diet is **NOT** the best thing to fuel your body with.

I hate to break it to you, but if you consume nothing but (heavily) processed foods, then you are **CHEMICALLY** and **STRUCTURALLY** harming your body. Eat nothing but processed foods, and you'll find yourself faced with a host of weight and health issues.

Not convinced yet? Then take a look at the soaring rates of the so-called Diseases of Civilization we are facing today. Research has shown that processed food consumption is a major culprit in our nation's obesity epidemic, the rise of **Type 2** diabetes, high blood pressure, cardiovascular diseases, some cancers, and other health issues that were almost non-existent before processed items—mainly sugar and flour—entered the food supply.

Just don't get me wrong. Not all forms of processed food are harmful. In fact, some of these, when consumed in limited portions, will not throw your healthy eating into the river. For some of you out there this might sound sacrilegious but just bear with me for a moment. The fact is, processing does not inherently and innately turn food into a wretched thing.

For instance, milk and some juices can be fortified with vitamin D and calcium. Dried herbs, such as cilantro, chili, ginger, basil, parsley, and oregano, are rich in antioxidants, and other health-promoting nutrients. Canned fruit is a great alternative when fresh fruit not obtainable.

All you have to do is draw a CLEAR and BIG line between lightly processed and heavy heavily processed items. Said otherwise avoid foods with heavier processed or added ingredients.

The Bad

Here is a list heavily processed ingredients and foods to avoid (mostly simple carbs and the ugly fats)

- High-fructose corn syrup.
- Artificial sweeteners
- Artificial dyes
- Trans fats
- Fruit or vegetable juices
- Fruit canned in heavy syrup
- Food in a package, can, or box
- Food additives such as sodium nitrate, propyl, monosodium glutamate, and bromate
- Potato chips
- Processed meats, especially chicken fingers, bacon, sausage hot dogs, fish sticks, potted meats, deli meats, and Spam—the brand of canned cooked meat
- Salted and/or seasoned nuts
- Sweetened yogurts
- Ice cream bars

What About Energy Bars ?

Energy bars are an excellent energy providing tool, but they shouldn't be a substitute for eating whole and fresh foods. That's the cardinal rule. They are supplements. Not a meal replacement.

To Conclude

One of my favorite healthy eating mottos is, "If your great grandmother wouldn't recognize it as food, then it's not food".

The ideal human diet should revolve around whole and natural food not food that was manufactured in a lab. Eating junk food can only do more harm than good—especially when trying to lose weight or improve athletic performance.

Part III – The Components of Pre & Post Run Meals

The following pages discuss the importance of pre- and post-workout eating for both performance and recovery. As previously stated, proper fueling for training is all about eating the right things at the right times. In fact, doing so is just as important as the frequency and intensity of your runs. There is no way around.

So, let's see what it takes to properly fuel for your training.

Note: The strategies shared below might not work that well if your goal is to burn fat and lose weight. For weight loss eating plans while running, check my weight loss page.

The Pre-Training Diet

Pre-workout nutrition ensures that you have enough gas in the tank. As you already know, the human body is just like a car—it can't (and won't) run without the proper fuel. Moreover, research shows that adequate pre-training eating can help prevent low blood sugar along with its symptoms. These include dizziness, fatigue, indecisiveness lack of coordination, muddy thinking, and blurred vision.

How Much ?

The answer depends on your session intensity/length, fitness level, and personal (digestion) preferences.

As a rule of thumb, the bigger the meal, the longer it'll take the digestive system to break it down. That might translate to **30 to 45** minutes for a snack, **90** minutes to two hours for a small meal, and up to three to four hours for dinner size meals.

Just keep in mind that people are different. Some runners can devour a full meal as little as an hour before a run, then experience no issues while pounding the pavement. While, on the other hand others (myself included) might have a sensitive stomach and need to wait for hours before setting out.

If you train first thing in the morning, have a small, carb-rich breakfast **20 to 30** minutes before your workout. Running on an empty stomach may, but not always, burn up all of your stored fuel which can compromise your performance.

If you don't have the time (nor the stomach) for a full breakfast, then experiment with eating a small piece of fruit, a smoothie, or a hyper-tonic sports drink.

The Right Choices

Here are some of the foods and snacks I eat before my runs to help keep me energized without weighing me down.

- Banana or apple with nut butter
- Two whole eggs with peppers, low-fat cheese, and onions
- Smoothie
- Greek yogurt with berries
- Oatmeal with fruit and low-fat milk
- Oatmeal with whey protein
- Jelly toast and peanut butter
- Half a cup of brown rice with black beans
- Half a cup of oatmeal with berries and agave

- Apple with a serving of walnuts
- Sweetened potato with steamed broccoli in olive oil
- Salad with roasted chickpeas and vinegar
- Burrito with beans and brown rice
- Banana with almond butter
- Quinoa bowl with pecans and blackberries
- Multi-grain crackers with hummus
- Multi-grain bread with raw peanut butter.
- Protein shake with one scoop of protein powder and a banana.
- Dark chocolate
- Yogurt and raisins
- Energy gel or energy bar.
- Apple and peanut butter
- Whole grain bread and almond butter
- Carrots and cheese
- Veggies and hummus
- Bagel with cottage cheese
- Banana and chocolate milk
- Yogurt and almonds
- Trail mix of dried fruit and nuts
- Crackers and cottage cheese

During Training

As a rule of thumb, begin refueling within **30 to 45** minutes into your long runs. Fueling early helps keep the digestive system functioning optimally. In most cases, if you wait too much, it will be too late for your digestive system to do its job.

Generally, during endurance training, ingest **30 to 60** grams of carbs for every hour of running—that's roughly **100 to 200** calories. A gel pack is usually a good choice as they deliver **25 to 30** grams of easily digestible carbs .

That said, you don't always need expensive sports drinks and gels to fuel you on the run. In fact, most of the performance perks of engineered sports products can be found in your fridge .

Here are some options to consider :

- Peanuts
- Honey
- Animal crackers
- Peanuts butter
- Pretzel
- Dried fruits, like raisins

Post-Run Nutrition

For the post-run meal, research recommends a **3:1** to **4:1** ratio of carbs to protein. This can be adjusted to meet your personal needs and preferences. The timing needs not to be exact to the letter but, experts suggest that consuming these macronutrients within **30** to **45** minutes after exercise is optimal .

Research has revealed that postponing carbohydrate intake by longer than two hours post-exercise might reduce glycogen synthesis by up to **50** percent, compared to eating immediately after a workout .

The Best Choices

Here is a list of easily digested post-run meals and snacks to experiment with :

- Fruit and low-fat milk smoothie
- Protein shake
- Oatmeal with banana and almond butter
- Almonds and a piece of fruit
- Baked salmon and asparagus
- Low-fat chocolate milk
- Sweet potato with cottage cheese
- Whole grain bread with almond butter

- Poached eggs and whole-wheat toast
- Banana and peanut butter
- Cheese and crackers
- Whole grain cereals with banana and milk
- Greek yogurt with berries
- Protein sports bars
- Oatmeal with a banana
- Egg salad
- Apple with almond or peanut butter.
- Vegetables with hummus
- Whole grain bagel with eggs whites
- Pasta with chicken, eggplant, and broccoli
- Egg white and spinach omelet
- A handful of raisin and nuts
- Vegetable omelet
- Greek yogurt with fruits.

To Conclude

This chapter is by no means the full guide to proper fueling for runners.

In fact, the topic goes beyond the scope of this whole book. That's actually I'm planning to write about at great length in the near future. For the time being, all I'm trying to do is provide you with a starter kit to get you going on the right path.

Chapter IX :

Taking Your Training to the Next Level

If you're looking to explore your full running potential, this is the chapter for you, whether your goal is to become the fastest runner in your group to break a certain time in a **5K, 10K**, etc.

To reach full running potential (while avoiding the classic training rut trap), you'd need to opt for a well-rounded running program. That means doing a variety of running workouts of different speeds, distances, and intensities.

In this chapter, you'll learn about the seven basic running sessions. The training guidelines and sessions outlined here explain the essential building blocks of a successful and efficient running program. The information is also applicable to beginners and veterans, the young and the elderly, men and women—as long as you're willing to listen to your body and remain within your fitness skill the entire time.

The Many Benefits Of Training Variety

Many a runner like to stick to the familiar. They usually opt for the same distance at the same intensity day in day out. If you are guilty of this, you're doing your fitness a great disservice. In fact, sticking to the same speed and distance over and over again is the recipe for boredom and plateaus.

Imagine reading your favorite book or watching your favorite TV show. Now, picture doing the same thing over and over again—after a few days, the entertainment value will vanish. In fact, you'll start to dread what was once a gratifying activity.

Here is where variety comes into full view. Adding a bit of diversity to your running routine helps make your training more challenging improve motivation, and reduce injury risk .

The Full range of Workouts

Here are the building blocks of a well-rounded running program

- Recovery runs
- Tempo runs
- Interval runs
- Hill runs
- Fartlek runs
- Long runs

These workouts cover the whole range of training sessions you need to do as a runner. Each workout has a unique set of qualities that contribute to the whole of your running growth .

The Recovery Run

Recovery runs are short workouts done at a relatively easy pace. How far and/or easy you go depends mainly on your fitness level training goals, and schedule. But, as a rule of thumb, these sessions are the easiest and shortest of all runs .

It's believed that recovery runs help speed up recovery from the previous workout. Yet, no scientific evidence supports such claims. But it's something worth doing. Further, recovery runs can help build proper form, increase endurance, and build mileage .

When To Do Them

Whenever you exercise again within **24** hours of performing a high-intensity workout or a long run, your next session should be a recovery run. Keep in mind that these sessions are only a must if you run more than three times a week. If it's not the case, then make each session "quality workout" .

Sample Workout

Recovery runs can last for **3 to 5 miles** (or **25 to 40 minutes**), preferably on the smaller end of this range. A typical park loop may be enough to qualify as a recovery run. Even if you are an established endurance athlete covering **30+** miles a week, I'd still suggest no more than **3 to 4 miles**.

The Pace

Recovery runs are performed at a relatively leisurely pace. One way to measure your pace is to check whether you're capable of carrying on a conversation while running. If you can't keep a conversation going, speaking in full sentences, then you're doing it wrong. Slow down and catch your breath.

More specifically, the typical easy run pace is **90 to 120 seconds** per mile slower than your current **5K** race pace. You should feel relaxed the entire time, despite lingering fatigue from previous day's training.

The Interval Workout

Interval training involves running—or sprinting—for a set distance, repeated for a fixed number of times, at the same pace. A typical interval distance can be as short as **100 meters** and may stretch for as far as a mile.

Next, the all-out effort is followed by a period of recovery. This could be walking, jogging, or low intensity running. Research shows that interval training increases endurance burns mad calories, improves stride rate, and strengthens fast-twitch muscles.

The Pace

Make sure to run the all-out-effort portions of your workout at, at least, **92 to 98 percent** maximum effort. If you can keep a conversation going, you're going too slow. Ramp up the speed.

Sample Workout

After a thorough dynamic warm-up, perform **8 to 10 400m** repeats following each rep by a **3-minute** walk/jog recovery period .

Last up, finish the session with a **5-minute** slow jog as cool down. Do not stop running on the spot.

You can also use time instead of distance to keep track of the length of your all-out-effort. The rule is, as long as you can measure the distance, you're good to go.

The Tempo Run

Tempo runs are sustained workouts at a challenging, but controlled pace, lasting typically for **45 to 60** minutes. These sessions increase the anaerobic threshold levels, the point at which the body produces lactic acid faster than it can clear, switching from aerobic system to its anaerobic system.

Tempo workout, when done right, can produce some immense benefits. In fact, tempo runs can improve running efficiency by up to **10** percent, according to the Journal Medicine and Science in Sports & Exercise study

Sample Workout

After a **10 to 15** minutes slow jog warm-up, pick up your speed to a level you can maintain for the predetermined tempo segment whether in distance or time. Sustain the pace for **15 to 30** minutes depending on your fitness level and training goals. Last up, finish the workout with a five-minute easy jog as cool down.

The Pace

The tempo run's pace is often referred to as comfortably hard. The pace is hard enough to require pushing, but not too challenging to where one can no longer sustain the pace.

Most experts recommend sticking to **80 to 90** percent of max heart rate during tempo running. That's slightly slower than your **10K** race pace, or at least **30** seconds per mile slower than your current **5K** pace.

The Fartlek Workout

Swedish for “speed-play,” fartlek training is one of my favorite workouts in this list. It involves intermixing fast running intervals with low-to-moderate efforts while varying the distance, duration, and speed of each interval. You can also use fartlek training as a less-structured alternative to classic intervals.

Sample Workout

After a **10**-minute warm-up, pick an object in the distance, whether it’s a street corner, a stationary car, a tree, or a signpost, then run to it as fast as possible. Once you reach it, slow down, and recover by jogging/walking to the next landmark. Next, sight the next object and repeat for at least **20** to **30** minutes. Finish the workout with a decent cooldown.

The Pace

You can sprint, or run at a tempo pace to reach the object. You get to dictate how fast or slow you can go.

The Hill Workout

Hill runs are repeated short or long bursts of intense effort up a hill. It builds explosive strength and power, which can help you improve your speed and running economy. Uphill training also boost aerobic power, improve your pain tolerance, and increase your fatigue resistance and endurance.

What goes up must come down. The downhill portion targets the quads like nothing else, and increase strength and endurance in your joints and tendons.

The Pace

Ideally, your hill reps should be hard to sustain, especially near the top. To do that, focus on short strides and push as fast as you can while keeping good form.

Sample Workout

First, find a proper hill that features a stable, moderate gradient of **4** to **7** percent. It should take you up **30** to **45** seconds to run up at a challenging effort. Then, after a **10**-minute jog on a flat surface perform **8** to **10** **30**-second hill repeats at hard effort with **90**-seconds jogging recovery break. Last up, cool down for **5** minutes. Then stretch afterward.

The long Run Workout

The long runs, as the name implies, is a sustained run effort at an easy and steady pace. For some runners, long runs are the most important session of the week. These sessions build endurance improve form, and increase lung power like nothing else.

Long is a relative term. That said, most experts recommend devoting about **20** to **30** percent of weekly volume to the long run. For instance, a recreational runner running fewer than **30** miles a week might do a **10**-mile long run. On the other hand, an elite athlete logging **80** miles per week may do a **16**-mile long run.

The Pace

Long runs should be performed at roughly one minute slower than marathon pace, or around **90** to **120** seconds per mile slower than current **10K** speed. Also, keep your heart rate within **65** to **75** percent of maximum power. Whatever you do, do not exceed the fast end of that range as doing so increases the risks of injury excessive fatigue, and overtraining.

In case you don't have a current **10K** or marathon pace time or are not using a heart rate monitor, then run at a conversational pace.

Sample Workout

Run for one hour or longer at a comfortable and conversational pace. You should feel moderately fatigued at the end of your session. If you're completely exhausted, you're doing it wrong. Just as a rule of thumb, do not increase your long run length-duration distance, or both-by no more than **10** to **15** percent per week.

Putting it All Together

Hopefully, by now you have a basic understanding of the many elements that make a well-rounded running routine. Now let's put this into action and take a quick look at how a typical running schedule should look like.

Here is a weekly schedule to help you fit the basic runs into your exercise schedule.

- **Monday** : Speed Workout – **8 x 200m** with a **30-second** recovery period.
- **Tuesday** : Recovery run – **30** minutes at a conversational pace.
- **Wednesday** : Hill reps – **10 x 30-seconds** uphill's with one-minute recovery periods.
- **Thursday** : Fartlek Workout – **30** minutes of unstructured speed work.
- **Friday** : Rest
- **Saturday** : long run– **10-mile** at a relaxed pace.
- **Sunday** : Rest or Cross-train

Rome Wasn't Built In A Day, And Neither Are Great Running Programs

Please, do not misunderstand as I'm not suggesting that you have to start a well-rounded and challenging training program next week with a lot of sprints, hill work, and long runs. That's another recipe for disaster .

The main purpose of this chapter is to sell you on the importance of variety. So, add it gradually to your training program. If you like where you're heading, then add more challenging workouts once you're ready for it. The rest is just detail.

Chapter X :

Strength Training is King

When it comes to cross-training, no other form of exercise is backed by more academic literature than strength training. The performance gains have been demonstrated across a wide range of disciplines, regardless of the athletes' background.

In this chapter, I share with you an array of tools you can use to custom-design a resistance training program. I address questions such as "how do I get started with weight lifting" how much weight should I lift" and "how often should I strength train," etc.

So are you excited?

Then here we go...

The Importance of Strength Training

Strength training involves working the muscles against resistance which increases power and endurance. The resistance can be provided by a rubber band, free weights—think dumbbells, universal machines, or bodyweight exercises. The choice is yours.

Strength training has many fitness and health benefits for trainees of all ages and backgrounds. As runners, strength training is our best ally. When done right, resistance training helps improve technique, increase stride turnover, and lower injury risk.

For these reasons, resistance training is an ideal complement to a runner's road work and what I regard as the perfect cross-training exercise. Here are five reasons why you should add strength training to your workout plan.

Run Faster

Resistance training puts stress on your body, forcing it to increase its ability to withstand extra load. Over time, these stress-induced adaptations will have an enormous impact on your running speed efficiency, and endurance. Plus, stronger shoulders and arms are essential in increasing your speed and form efficiency.

Fix Muscle Imbalances

Running's one directional motion works some muscles more than others, which may lead to the onset of muscle imbalances. This places excessive pressure on ligaments and tendons, reducing stride efficiency, and increasing the risks of injury. In fact, plenty of runners' nagging issues, such as shin splints, runners knee, etc. stem from muscle imbalances, research shows. The good news is weight training can reduce, or completely fix, many of these unwanted imbalances.

Improve Running Form

Your upper body muscles—the shoulders, arms, upper back, and chest—help you maintain proper upper body form and pelvis stability. What's more, strong core muscles ensure a smooth transfer of the forces generated from the arms to the legs. This helps you run faster while expending less energy.

Build Stronger Bones

By stressing your bones, strength training can increase bone density, therefore, reducing the risks of bone-related issues. This is especially the case for us runners as stress fractures—a common overuse injury—is every runner's worst nightmare.

It Requires Little Time

You don't need to train like an elite bodybuilder or CrossFitter to reap the benefits of strength training. In fact, all you need is no more than **30-** to **45-**minute session, two to three times per week to reap the benefits of strength training as a runner.

Part I – The Main Running Muscles

But first things first, what is a running muscle? What are the main muscles used while running? To answer these questions, let's first take a quick look at basic muscle anatomy.

Muscle Anatomy – An Introduction

The human body is an amazing piece of "machinery," and muscles are a big part of what drives it. It is generally considered that there are five primary groups of muscles that are used while you run—quads, hamstrings, hip flexors, gluteals, and calf muscles. However, there are roughly **650** to **850** muscles in the body. The exact number depends on whom you are asking since most experts have different opinions on what forms a distinct muscle.

Muscles primary functions include moving limbs, maintaining posture, generating heat, and operating specific bodily functions such as digestion and blood pressure. The following section takes a more in-depth look at the structure and functions of major musculatory systems involved in everyday bodily function.

The Main Muscle Types

The human body contains three types of muscles: cardiac, smooth and skeletal. Each type serves a specific role in the body, with a particular structure and a definite function.

Cardiac Muscles

Cardiac muscles are solely found in the walls of the heart. They, in essence, contract the heart to pump blood. This type of muscle fiber is under the control of the autonomic nervous system, thus, its contractions are not under conscious control, thank God!

That said, even in the absence of nervous input, contractions can still occur due to cells known as pacemaker cells. These muscles are also highly resistant to fatigue thanks to the high concentration of mitochondria, myoglobin, and decent blood supply.

Smooth Muscles

These are found in the walls of hollow internal structures, such as the stomach, urinary bladder, bronchi, and blood vessels. Smooth muscles change shape to facilitate bodily functions, such as blood pressure, digestion, breathing, raising hairs, etc. The second type of muscle tissue is involuntary.

Skeletal Muscles

Last but not least, you also have skeletal muscles. These are made of very elastic fibers connected by tissue and named for their location—attached to the bones. The human body contains more than **640** skeletal muscles, accounting for about one-third of the human body mass.

For that reason, these are the primary muscle type in the human anatomy, used to generate movement, including running. Skeletal muscles can be made to contract or relax on conscious command.

The Most Important Muscles Used When Running

The primary running muscles include the quadriceps, hamstrings, glutes, hip flexors, and calves. With that in mind, your body also relies on secondary, or assistant, muscles to keep you going forward. These include the abdominal and the upper body muscles that provide stability throughout the gait cycle and improve speed and running economy.

The Quadriceps

As you move your leg forward, you're primarily using the quadriceps—the muscles located on the front of the thighs. The quads run from the hips and upper femur down to the patella—the kneecap. They consist of a group of four muscles that include :

- The Vastus Medialis,
- Intermedius .
- Lateralus .
- Rectus Femoris .

These four muscles work together to bend and extend your knee when walking, running, or whenever doing any type of knee bending motion.

Function

In essence, your quads help in :

- Extending the knee. They are, in fact, the primary muscles called upon in the "drive" phase.
- Bending your hips. Your rectus femoris (see picture) is responsible for flexing the hips—the motion necessary to lift your feet off the ground.
- Lifting the knee towards the chest—critical for increasing stride length and sprinting speed.
- Straightening and stabilizing your knees during running stride as the four heads of the quad are connected to the patella—the kneecap.
- Absorbing the shock of impact upon landing, then dispersing it as it passes through the rest of the body.

Downsides of Weakness

Some runners disproportionately have stronger quadriceps compared to the hamstrings. Such disparity impacts leg posture and positioning, which increases the risks injury to the lower back hips, and the knees.

The Hamstrings

As your body moves forward, the action switches from the quads to the hamstrings. These are, basically, the single large tendon found behind the knee. The hamstrings span two joints—the hips and knee and are made up of four muscle-parts.

As pictured, these consist of :

- The biceps femoris, (two parts: long head and short head).
- The Semitendinosus, and
- The Semimembranosus.

These muscles are involved in many of our daily activities, including walking, jumping, running, etc.

Function

The hamstrings play a crucial role during different phases of running gait, but most notably, they are essential for :

- Initiating knee bending as your body moves forward .
- Flexing your knees, causing your feet to move back toward your butt. This helps provide power to propel you forward .
- Assisting the extension of thighs by moving the upper leg backward .

Downsides of Weakness

Runners are notoriously known for having tight hamstrings that are weak in comparison to the quadriceps, their opposing muscle group. Further, chronic hamstring inflexibility is also widespread in runners who have desk jobs and/or spend a lot of time sitting. Such dysfunction can affect the efficiency of the kinetic chain at the hip and knee, increasing the risks of pain and injury.

Limited hamstrings mobility and strength increases the risks of :

- 1 - Hamstring tears caused by the muscle's inability to withstand the load generated by the contracting quad .
- 2 - Hindered running performance due to the diminished power from the knee extensors and hip flexors .

The Gluteals

The gluteals consist of a group of three muscles which make up the butt: The Gluteus Maximus, medius, and minimus and are located in the buttocks. The Gluteus Maximus, the muscle responsible for creating the shape of the buttocks, is the largest and strongest of three. This muscle is also in charge of hip extension and plays a vital role in spinal and pelvic stabilization .

Function

Your glutes have a number of roles in providing stability, power, and strength in the pelvis and hip region in three planes of motion.

Especially for :

- Stabilizing your hips and legs.
- Extending the hip, then straightening it beneath you. In fact, hip extension is a motion that primarily involves the glutes.
- Keeping your posture straight, and the trunk stable and upright.
- Maintaining proper knee alignment while running.

Downsides of Weakness

Because of our "sitting lifestyle," our glutes have become neutrally inhibited. Why is this bad? Such inactivity tightens and weakens the glutes, causing bad posture both on and off the running field. This also leads to excess stress on the lower back knee pain, and other serious trouble.

For example, research revealed that subjects with a history of knee pain had drastically weaker hip abductor and external rotator muscle of the affected limb.

Hip Flexors

Also known as the iliopsoas, the hip flexors are the muscles located on the front of the hip, just above the thighs. Every time you lift your leg, whether when walking, running, or doing any sort of leg lifting motion, the muscles are called up into action.

The hip flexors are made of two muscles: the iliacus and the psoas major. The psoas major is the largest of the muscles, stretching from the T-12 spinal vertebrae to the L5 spinal vertebrae where it attaches to the thigh bone. Since these muscles lie deeper than quadriceps and hamstrings, they're often neglected in strength training.

Function

The hips are key for :

- Moving the legs forward and back while working in conjunction with the hamstrings and quads.
- Stabilizing the hip joint.
- Developing good running posture and form.
- Maintaining a standing position (in conjunction with the muscles of the lower leg, core, neck, and shoulders).
- Stabilizing the pelvic region while keeping the hips level.

Downsides of Weakness

Study shows that many overuse injuries can be traced back underperforming hips. For example, a growing number of studies have linked weak hips and runner's knee. One example is this study that revealed that women with a history of runner's knee had greater hip instability in their gait.

Another research conducted at the Stanford University found that runners who are prone to knee pain had a relatively weaker hip strength when compared to injury-free runners.

The Calves

The calves are the muscles located on the back of the lower leg below your knees. They consist of :

- The large gastrocnemius (outer calf), forming the clear bulge beneath the skin .
- The smaller soleus (inner calf), which is the flat muscle lying underneath the gastrocnemius muscle.
- The two calf muscles attach to the heel via the Achilles Tendon, which inserts into the calcaneus, the heel bone.

Function

The calves are essential for :

- Providing spring in your step as they help in pushing off the ground to move forward.
 - Extending and flexing each foot as you land and push off.
 - Providing movement around the ankle joint and the phalanges.
- In fact, the calves are called upon during all forms of motion, including running .
- Maintaining balance and ankle flexion.
 - Absorbing much of the impact every time you take a step when running.

Downsides of Weakness

Weakness in this muscle group may contribute to a host of injuries such as shin splints, Achilles tendinitis, plantar fasciitis, and even hip or hamstring issues. For instance, weak calves may place undue strain on the Achilles and damage the fibers that make up the tendon, resulting in pain.

Supporting Muscles

Other muscle groups are important while running, thus, are an integral part of any well-rounded strength training program. These are essential for maintaining good form and posture while running, which can help ward off discomfort/injury and make your runs more efficient.

The Core Muscles

Most of the core muscles, including the abs, paraspinal, pelvic floor obliques, erector spinae, multifidus, and diaphragm, are vital for a runner's form, and efficiency of movement.

Although, as a runner, the muscles of the legs are the source of power, your core muscles are the critical foundation from which all movement, including foot strike, stems.

The Functions

The core plays a significant role in providing the following while running :

- Maintain balance and control joint movement.
- Improve your running efficiency by increasing energy transfer between your upper and lower body, helping your body work as one single unit.
- Keep you standing upright and avoiding an excessive forward lean that can put undue pressure on your lower back.
- Support the upper body and hip movements during running.

Downsides of Weakness

A feeble core can drastically hinder your running performance, and might even increase the risks of injury.

Upper Body Muscles

The most important upper body muscle relied upon while running include the muscles of the arms, chest, back, and shoulders .

Arms

Your arms are in charge of maintaining a rhythmic motion that's in tune with the lower body—key for efficient running. To improve arm swing, bend your arms at the elbows and swing them back and forth during the running gait cycle.

Biceps

Your biceps brachii, better known as the biceps, is key for maintaining a bent arm. Also, strong biceps help you swing your arms back and forth with more power.

Shoulders

These allow you to flex your elbows and rotate your forearms, which help swing them back and forth to enhance balance and forward propulsion.

The Back

Your back muscles work to maintain proper posture.

Part II – How To Start Strength Training

There are so many effective ways to get started with strength training. The best method is to start in accordance with your current fitness needs, training goals, schedule, and personal preferences.

Scheduling

I don't think you ought to commit a significant portion of your time to weightlifting. All you need is to invest **20 to 30** minutes, three times a week, to reap the benefits of strength training.

How Many Sessions ?

Strength train two to three times per week. Space out your strength sessions with, at least, **48** hours recovery time to let your muscles and connective tissue adapt recover from the stimulus and training load of the strength session.

The Importance of Proper Form

Perform the prescribed number of repetitions on each side while maintaining proper form throughout. This is critical. You're better off not training if you're doing it with bad form.

To err on the side of caution, work with a certified strength coach or train with a knowledgeable training buddy. Or, at the very least try learning from reputable proper form demonstration videos.

Run or Strength Train First ?

If you are a complete newcomer to weightlifting, then during the first few months, do the strength routine first instead of running. By doing so, you'll be able to focus on your technique and form instead of getting distracted by how much exhausted you are from running. This can help train with proper form, preventing injury in the process. Once you develop form, strength, and confidence, then re-arrange the order. But, as long as you're a newbie, lift first, run later. That, of course, if you choose to perform both workouts on the same day or back to back.

Typical Schedule

Here is a basic running/weight lifting schedule .

- **Monday** : Interval run
- **Tuesday** : Strength workout
- **Wednesday** : Easy run
- **Thursday** : Strength workout
- **Friday** : Long run
- **Saturday** : Strength workout
- **Sunday** : Rest

The Concept of Training Split

To schedule your workouts the right way, you need first to determine what weight training split and weekly schedule to opt for. If you are already familiar with strength training, then you know about splits and how they are used. If not, then below the 3-day full body split should be your default setting for the time being.

The Exact Weekly Breakdown

In case you have no idea what that means, here is an example of a training week :

- **Monday** : Strength Workout A
- **Tuesday** : Run
- **Wednesday** : Strength Workout B
- **Thursday** : Run
- **Friday** : Strength Workout C
- **Saturday** : Run
- **Sunday** : Rest

A word about the Exercises

The exercises shared in this chapter aren't your only option. In fact, the full range of strength exercises you can do go beyond the scope of this Ebook. For more on strength training, visit my [Cross Training page](#), which features plenty of strength routines for runners using a vast variety of equipment.

The Beginner Program

If you are just starting out, take your training slowly and make sure to alternate between weightlifting and running days. Do not strength train and run on the same day. Otherwise, you're risking overtraining. And you don't want that.

Start with two strength workouts a week for three to four weeks then add a third workout on month two. Shoot for at least **20** to **30** minutes per session, then gradually add time and intensity until you're lifting hard for **50** to **60** minutes a session.

The Bodyweight Routine

Bodyweight training call for minimal equipment—or none at all—required. Further, you can train from anywhere, anytime. As you long you have enough space, a mat (optional), you're good to go. Good bodyweight exercises for runners include glute bridges, planks, mountain climbers, bodyweight squats, sit-ups, lunges, bird dogs, push-ups burpees, etc.

For more challenge, use TRX bands, medicine balls, resistance bands, sliders disks, kettlebells, and of course, dumbbells. That said none of these options are necessary if you are just starting out. The beginner routines shared below consist of low to medium intensity bodyweight exercises, with the primary purpose of building a base of core strength and endurance on which to base more challenging exercises.

Here are three exemplary workouts

Workout A : The Upper Body Routine

Perform as many reps as possible with good form of the following exercises

- Push-ups
- Pull-ups
- Planks
- Dips
- Set-ups

Repeat three to five times

Workout B : The Lower Body Routine

Perform as many reps as possible with good form of the following exercises

- Walking lunges
- Squats
- Sumo squats
- Wall sits
- Calf raises

Repeat three to five times

Workout C : The Full Body Routine

Perform as many reps as possible with good form of the following exercises

- Military push-ups
- Mountain Climbers
- Hindu Pushups
- Burpees
- Plyo Lunges

Repeat three to five times

The Intermediate Program

The intermediary routines are aimed at runners with **3 to 12** months of strength training experience. The exercises suggested are mostly of standard and medium intensity. After a few months of bodyweight training, be sure to diversify your strength routines by relying more on equipment, such as free weights, Kettlebells, and machines.

Workout A : The upper Body Workout

Perform **8 to 12** reps of the following exercises:

- Shoulder presses
- Standing dumbbell curls
- Push-ups
- Bench presses
- Pull-ups

Complete three sets.

Workout B : The lower body Workout

Perform **8 to 12** reps of the following exercises :

- Weighted Squats
- Dumbbell swings
- Leg presses
- Weighted Calf Raises
- Weighted Lunges

Complete three sets.

Workout C : The Full Body Workout

Perform **8 to 12** reps of the following exercises :

- Deadlifts
- Tricep Dips
- Turkish get-ups
- Plyo box jumps
- Floor presses

Complete three sets.

The Gym/Equipment Option – Advanced Program

The advanced program is for those with one year, or more experience in the resistance training world. You could break your strength workouts into, for example, chest and back one day, legs and core the other day, then shoulders and arms another day. Aim to complete at least two to three sets of **8-10** reps of each exercise. Rest for **60** to **90** seconds between exercises.

The 3-Day Workout Routine

Workout I

Triceps, shoulders, and chest

Workout II

Core and legs

Workout III

Train your biceps and back.

The 4-Day Workout Routine

After at least six to nine months of strength training, here is a four-day strength workout routine to follow.

Workout I

Back and biceps

Workout II

Chest and Triceps

Workout III

Legs and core

Workout IV

Shoulders

Chapter XI :

When Runners Get Hurt

Running is one of the most accessible and popular forms of cardiovascular exercises, with millions of regular participants worldwide. In fact, surveys show that in the United States alone about **40** million people run regularly, with roughly **10** million running at least **100** days a year.

That said, for all the fitness and health benefits that can be gained from running, this sport often leads to injury. Surveys estimate that up to **50** to **70** percent of runners incur at least one serious injury in the course of one year. That translates to up to **10** to **15** million people getting hurt .

Most running injuries are blamed on overuse. They happen over time through repeated force rather than because of a single traumatic event. The majority of afflictions tend to hit the knees feet, calves, shin, and ankles. Other weight-bearing limbs, such as the thighs, hips, and the back are also prone to injury .

In this chapter, I will give a brief overview of common running injuries along with the best ways for treating and preventing them. By the end, you'll learn how to distinguish between between running injuries, how to take care of an injury, and how to prevent them for the long haul.

Note :

Before you proceed with this chapter, I'd like for the record to clearly state that it is beyond the scope of this Ebook to provide detailed information about sports injuries without knowing all the symptoms. Every injury is unique, and to err on the side of caution, you should work with a certified sports physician to determine the appropriate course of treatment and prevention.

Check the last section of this chapter for more helpful resources and books.

What is A Running Injury ?

The term "running injury," basically, refers to the kinds of injury that may be sustained during running. It's pain or damage that occurs as a consequence of training.

Injuries happen when a particular body part is placed under excessive stress that it can no longer function properly. This can force a runner to reduce their weekly training mileage or, in cases of severe pain, stop training altogether. A running injury can not only affect how you run, but may also interfere with how you walk, play, work, exercise, and do everything else in life.

The majority of running injuries are lower extremity injuries, with a predominance of the knee. Reports indicate that roughly **42** percent of all running injuries strike the knee, followed by **17** percent to the ankle and foot region, **13** percent to the lower leg, and last, but not least, **11** percent of the pelvis and hip region .

Part I – The Acute Vs. The Chronic

Running injuries can be broadly categorized into two types: acute or sudden onset, and chronic, gradually occurring onset. To ward off injury, it's vital to distinguish between these two as it would provide you with a better perspective on how to deal with them.

Acute Running Injuries

The first category is typically "traumatic." An acute injury is usually associated with a particular, traumatic, incident where you "felt it pop" at some point, whether it's due to a fall, crashing into another runner, twisting an ankle, getting hit by a car, etc.

Most acute injuries happen in the blink of an eye and can sneak up on anybody. That's why preventing them is no plain sailing. Be that as it may, one measure you can take to reduce incidents is maintaining awareness your surroundings and running surfaces especially if run on trails or near heavy traffic regions.

The Many Shades of Acute Injuries

Acute injuries can cause your ligaments to snap, muscles to tear, bones to crack, etc. The range of severity varies. They can be minor, such as a blister for instance, or more severe, such as strain, laceration (cut), or a broken bone. In general, strains and sprains are the most common type of acute injuries sustained by runners.

Strain Vs. Sprains

A strain is a tear, pull, or twist of a muscle or tendon, the cord of tissue attaching muscle to bone. Strains occur due to overextending or overstressing the tendon beyond its normal range of motion, tearing it in the process.

On the other hand, a sprain is a tear of a ligament, the band of connective tissues that attach the end of one bone to the other. These are typically caused by overstressing a wrist, knee, or most commonly among runners, the ankle.

The Main Symptoms

The main symptoms of an acute injury include :

- Sudden and severe tenderness
- Inability to place weight on the injured limb
- Visible dislocation
- Inability to move the affected joints through full range of motion.
- Visible swelling can also accompany tendon damage, and ligament damage .

Treatment

Although acute injuries are not that common among runners, when ignored, they can stop you in your tracks. Therefore, the speed of treatment is a crucial factor in determining recovery time. The sooner you treat it, the faster you bounce back.

Enter The RICE

When it comes to acute injuries, the RICE method should be your first line of defense—the most recommended approaches for treating and managing all sorts of sports injuries. The primary purpose of the method is to reduce hemorrhage, inflammation, swelling, and pain providing the right conditions for healing.

RICE is an acronym standing for :

R: Rest. At the onset of pain, reduce your running, or stop altogether, primarily if it's affecting your gait.

I: Ice. Ice the injured limb **10 to 15** minutes, two to three times per day for the first **48 to 72** hours post-injury. Never ice it for more than **20** minutes at a time.

C: Compression. Compress the injured limb to hinder any swelling and movement that could damage it further.

E: Elevation. Keep the injured limb elevated and supported on a pillow—preferably above heart level, to help reduce swelling and pain. So, for instance, if you step on a rock and twist your ankle, the first step toward recovery is to let the limb and surrounding ligaments and tissue heal. Crutches could help in case putting weight on the injured ankle resulted in pain. Next, apply an ice pack to the affected joint for **15 to 20** minutes at a time, five times a day. You can also use an elastic wrap, air casts, special boosts, or a splint to compress the injured area.

Also, if possible, keep the injured ankle, elevated on a pillow, at least above heart level. In case you don't know which approach is more appropriate, consult a certified physician or a health care provider for advice.

Severe Injury

In extreme cases, an acute injury requires immediate medical attention—particularly when accompanied by high levels of pain and inflammation. Surgery can put broken bones back in place, fix torn ligaments and tendons.

Chronic Running Injuries

Commonly known as overuse injuries, as the name suggests, these conditions are caused by overtaxing a specific part of the body while running. More specifically, overuse injuries result from prolonged repetitive micro-trauma applied to the joints, bones, tendons, etc.

These are the factors that may contribute to the development of an overuse injury :

- Doing Too much too soon wither proper recovery
- Drastic changes in training load
- Improper footwear
- Faulty biomechanics
- Structural abnormalities
- Bad form
- Etc

Chronic injuries are, by far, the most common type of injuries. However, since most of these conditions tend to be lower in pain compared to acute injuries, they don't attract immediate medical attention. But ignoring them will only do more harm than good—especially for the long haul.

Classic examples of chronic injuries include :

- Runners Knee
- Iliotibial band syndrome
- Shin splints
- Tennis elbow
- Plantar fasciitis
- Achilles tendinitis
- Stress fractures
- Carpal tunnel syndrome.

The Main Symptoms

Chronic injuries are harder to diagnose than the acute type as the cause is often unclear, or unknown. But, left untreated, chronic injuries may interfere with a runner's ability to train, work, and participate in daily activities. Symptoms of overuse include :

- Dull pain even when at rest
- Swelling and redness.
- Sharp, often debilitating, pain while running, or performing any weight-bearing movement.
- Warmth to the touch
- Impaired function of the injured limb.

Note :

Keep in mind that all these warning signs might be present but not noticeable during the early stages.

Treatment

The RICE method is quite effective at dealing with chronic injuries. Having said that, in some cases, the RICE method might not be enough and won't prevent further recurrence. Consequently, you'd need to implement a pro-active injury treatment and prevention strategy to speed up recovery and forestall future flare-ups. (Turn to the next chapter for practical things to do in order to prevent discomfort and injury when running)

Part II – Common Running Injuries

Here is a comprehensive list of the most common running injuries along with the best measures for treating and preventing them for good. As a runner, you'll, inevitably, pick up one or two injuries during training.

Prevent severe ramifications by learning more about the symptoms, reading the signs, and knowing how to proceed when disaster strikes.

Achilles Tendinitis

This is an inflammation of the Achilles tendon, the major tissue that connects the back of the heel to the two major calf muscles: the Gastrocnemius and Soleus muscles. Under repetitive stress the Achilles tendon gets inflamed and irritated, resulting in tendinopathy—micro partial tears to the tendon.

Symptoms

The main symptom is tender pain in the lower calf near the heel, or on the back of the heel—especially when you run, tip-toe walk, or in the morning upon taking the first few steps. Achilles tendinitis may also manifest as visible swelling or a knot in the tendon. The pain can be severe enough to keep you from running.

Causes

The primary cause is repetitive stress to the tendon. During a foot strike, the Achilles tendon absorbs several times bodyweight. The faster and longer you run, the more load is placed on the tendon. But other factors can make it worse. Here are a few :

- Increasing weekly training load too fast.
- Weakness in the muscles of the posterior chain, including the glutes, hamstrings, and calves.
- Tight calf muscles. Especially, the gastrocnemius muscle, which is a muscle that crosses these three joints: the subtalar, the ankle and the knee joint.

Prevent it

- Strengthen your posterior muscles. One powerful exercise according to research, is eccentric heel drops. Other exercises to try include calf raises, lunges, squats, deadlifts, and burpees.
- Stretch your calves. Lift your toes back toward your shin while keeping your heel on the ground the entire time.
- Proper form. Work on improving your foot strike and cadence efficiency and speed.
- Consider wearing orthotics or running in shoes with more support. Steer clear of flip-flops, high heels, or any footwear that may irritate the Achilles tendon.
- Run in the proper footwear and replacing them often every **400 to 500 miles**—that's about **6 months** of regular training .

Treat it

The best treatment is to reduce training volume or take a break from running. Next, do plenty of cross-training with low-impact activity for a few weeks. Think swimming, biking, and aqua jogging.

Severe conditions call for clinical treatment. Some options consist of physical therapy methods of electrical stimulation, such as high-voltage galvanic stimulation (HVGS), and ultrasound.

Runner's Knee

Also known as Patellofemoral Pain Syndrome, runner's knee is irritation of the cartilage on the underside of the kneecap, a cartilage located in the patellar tendon and connects to the quads muscle group. Runners' knee occurs when the kneecap tracks out of alignment. Over time, the cartilage wears down, resulting in crippling pain.

Symptoms

Tender and constant pain behind or around the kneecap, typically under the bottom edge of the kneecap. The pain gets notably worse when:

- Running downhill
- Descending the stairs
- After prolonged sitting
- Squatting

Causes

The leading causes of runner's knee vary from one runner to the next. Some of these include :

- Weak glute, hip, or quad muscles
- Overpronation, which is the excessive inward foot rolling during a foot strike.
- Muscle imbalances
- Too much downhill running
- Faulty biomechanics,
- Improper footwear,

Treat it

Decrease your running volume by half, avoid running on consecutive days, or take a break from the sport altogether. Next, ice the affected knee for **10 to 15** minutes post-run, or three to four times a day. Aggressive treatment options include using a knee brace and/or knee tape, or taking anti-inflammatory medications.

See your physician in case the pain gets worse. Left untreated runners knee can progress into a severe ailment that may require surgical intervention, such as fracturing or fissuring of the kneecap.

Prevent it

- Strengthen your knee's support muscles like the glutes and the quads to help keep your knee tracking correctly over the femoral groove. Try lunges, bridges, lateral side steps, wall sits squats, side-Lying leg left, and clamshells.

- Stretch your hip flexors, and keep your hamstrings flexible and loose.

- Consider shortening your stride length while landing with the knee slightly bent as doing so might reduce the load on your knee joint.

Shin Splints

Also known as medial tibial stress syndrome, this is an inflammation of the tendons and/or the muscles located around the tibia—the shinbone—resulting from small tears that occur in the muscles around the front portion of the lower leg. Research shows that shin splints are common among beginners and those returning to the sport after an extended layoff.

Symptoms

Shin splints manifest as aching, stabbing sensations felt along the inside front of the lower leg, about halfway down the shin or all along the bone. Pain is more intense during the first few miles of a run.

Causes

If you commit any of the following training errors, you'd be setting yourself up for the condition :

- Drastic changes in training volume.
- Having high arches or flat feet.
- Running in the wrong shoes.
- Running on hard and/or cambered–slightly arched–surfaces and roads.

Treat it

Cut back on your training volume. Running through pain might eventually lead to a stress fracture, and you don't want that. Ice the affected shin for **15-20** minute three times a day, and keeping them elevated at night to lessen swelling and pain.

Regular stretching, and running with neoprene sleeves might also help. Also, consider taking over-the-counter anti-inflammatory drugs, or taping the injured shin using Kinesio Tex tape or other products.

Prevent it

- Increase training volume gradually and slowly.
- Strengthen the anterior tibialis muscle on the front of your shin. Good exercises include heel walks and toe taps.
- Increase your intake of vitamin D and calcium.

Plantar Fasciitis

The plantar fascia is a thick band of tissue that covers the bones along the bottom of the foot and connects the forefoot to the heel. Inflammation in this vital tissue can cause the condition known as plantar fasciitis.

Symptoms

The most common symptom of plantar fasciitis is a tight, tender sensation at the base of the heel that can range anywhere from irritating to excruciating. The pain is worse when exercising or first thing in the morning.

Causes

Some of the main factors that contribute to the onset of injury include :

- Weakness and/or tightness in the muscles of the foot. This forces the heel to take on and withstand excessive load.
- Runners with abnormal feet—those with very high or very low arches.
- Overpronation—the excessive inward roll of the foot during a foot strike, and supination—the excessive outward roll .
- Prolonged periods of standing, typically on hard surfaces without supportive footwear.

Treat it

Step back from running, and stretch the fascia tissue at least a couple of times per week. Roll your injured limb over a frozen water bottle or a tennis ball for five minutes at a time, five times a day. You can also use a foam roller to loosen your plantar fascia.

Stability shoes and orthotics can also be effective at reducing symptoms and speeding up recovery, but they are not a permanent fix.

Prevent it

- Run in the right shoes. Make sure they fit your foot type and running gait. Stick to the **10** percent rule.
- Do foot strength exercises
- Improve your running form

Iliotibial Band Syndrome (ITBS)

An inflammation of the iliotibial band, the thick piece of connective tissue that runs from the pelvic bone all the way down to the knee. When you run, or perform any knee bending movement, the IT band rubs on the side of the femur to help the knee flex and extend. When this is carried out for an extended period of time, inflammation and irritation of the band follow.

Symptoms

ITBS manifests as intense pain around the outside of the knee and/or the hip that's felt all the way down on the leg. Pain is worse when running downhill or while using the stairs.

Causes

Any of the following puts you at risk :

- Doing too much too soon
- Weakness in the hip abductor and gluteal-butt-muscles
- Runners with leg-length discrepancies
- Overpronation
- Faulty running biomechanics

Treat it

Take a couple of days of rest and reduce your mileage by **50** percent for a couple of weeks. Opt for the RICE method as long as there is a pain. You may also choose to take NSAIDs and other off the counter anti-inflammation drugs to ease the pain.

To keep your fitness base, cross-train by opting for low-impact activities, like swimming, biking, pool running, and yoga .

Prevent it

• Add hip abductor strength exercises to your resistance training. These include side leg lifts, lateral side steps, and one-legged squats.

- Shorten your stride and increase your cadence turnover
- Stick to the **10** percent rule.
- Use the foam roller before and after your runs.

Stress Fractures

Although running is a non-contact sport, its high impact nature can "break bones" . Stress fractures are a tiny crack in a bone caused by sub-maximal cumulative stress on the bone resulted from the excessive pounding of the pavement.

The injury can affect any bone in the body, but in runners, it afflicts the main weight-bearing bones, such as the metatarsals especially the fifth metatarsal, the pinky toe, the tibia—the lower leg bone, and sometimes, but not as often, the femur—anywhere in the upper leg.

Symptoms

If you have a stress fracture, you might experience a crescendo of pain that gets worse the longer you can but subsides at rest. Tenderness and swelling around the affected bone are also common indicators of the condition. Pain ranges from mild to debilitating enough to sideline any committed runner from training for weeks sometimes months.

Causes

Stress fractures are usually blamed on the following :

- Overtraining, as in doing too much too soon.
- Running low on certain nutrients
- Running on hard surfaces
- Being a woman. Female runners are prone to stress fractures usually due to inadequate caloric intake, nutritional deficits, and low estrogen levels.

Treat it

At the onset of pain, avoid high impact exercise, and let the affected bones heal. Cross train during the recovery period. Recommended exercises include aqua jogging, cycling, anytime gravity treadmill running, or yoga. Next, use ice therapy to reduce symptoms and speed up recovery. If the pain gets worse, then you HAVE to see a certified physician.

Prevent it

- Wearing proper and supportive footwear
- Steady mileage increase
- Strength training
- Doing plenty of non-weight-bearing cross-training exercises like swimming, cycling or yoga.
- Getting plenty of calcium and vitamin D.

Patellar Tendinitis

Also known as "Jumper's knee," the injury is an inflammation of the patellar tendon, the tendon that runs from the kneecap to the top of the tibia, and assists leg extension during running and other knee-bending motion.

Symptoms

Patellar tendinitis pain is felt at the bottom of the kneecap—directly over the patellar tendon. However, the tenderness might take place anywhere along this structure. The pain is worse when doing any knee bending activity, such as kneeling, squatting, sitting, jumping or ascending stairs.

Causes

Main factors include :

- Overpronation (and other biomechanical challenges)
- Overtraining
- Too much hill training
- Running on uneven or slanted surfaces.

Treat it

Step back from your running and/or drastically reduce your weekly mileage, giving your body the time it needs to begin the healing process. Then, ice the injured area for **15 to 20** minutes three to four time per day .

Return gradually to your former running mileage once you can do it pain-free.

Prevent it

- Strengthen the muscles surrounding the knees. These include the quads, hamstring, and calves to provide more support to the patellar tendon and reduce the strain placed on the knees.
- Stretch your hamstrings and calves on a regular basis.

Part III – How to Bounce Back From Injury

Not all running injuries are created equal. For some, this process might no more than a couple of weeks. While, for others, it can extend to **3** months or longer. Be that as it may, your plan should revolve around these factors :

- 1 - Your conditioning level before getting injured .
- 2 - Your layoff off due to the injury .
- 3 - Your running background and experience .
- 4 - Your cross-training activities during the rehab phase .
- 5 - The type (and severity) of the injury .
- 6 - The quality and consistency of your treatment (and prevention) approach .

These six different elements work together to determine whether you are back to running within a couple of weeks, or, let's say, six months. For instance, if you are suffering from not-a-so-serious running injury, let's say a mildly sprained ankle, you could be back to running in a relatively short time—often no longer than ten days. On the other hand, serious injury—think Runners Knee, ITBS, and Stress Fractures—take much longer to heal.

Back in **2012** I had a severe case of Runners Knee and didn't run for at least three months. Not only was the injury severe, but I also postponed treatment, which is not ideal. However, symptoms improved once I took a proactive treatment and prevention approach. Within a couple of months, I was eventually able to take up running again, pain-free for the first time in months.

Assess Yourself

Before you head out of the door, do the following :

Check your range of motion. Compare the injured limb with the uninjured opposite side to see if you've regained your range of motion .

Check for swelling. There should be no swelling and no stiffness around the affected area. If there is still swelling in the injured area then it's too early to return to running .

Check for instability. You should experience no instability in the affected area—no locking or giving away of the affected joint.

Check your doctor. If you are under the treatment of a physician then heed their advice. They know better. Especially in cases serious injury, such a stress fracture, ligament injury or after going under the knife .

Rehab Right

Just because you are feeling set and ready to go does not mean that your body is **100** percent recovered from the injury. The fact is, the risk of re-injury is always high—especially if you don't look after yourself properly. This also could be the case if you and/or start neglecting proper rehab work.

To prevent a flare-up, keep on your preventative care. Physical therapy, or prevention work, can help root out the cause of your injury, whether it's a muscle imbalance, biomechanical issue flexibility/mobility problem. So please do **NOT** slack on physical therapy. In fact, if you slack on your PT, you'll sooner than late get injured again.

Chapter XII :

Staying Healthy for the Long Run

As stated in the previous chapter, the high impact, intense, nature of running leads to a plethora of injuries—that's why taking care of your body should be a high priority.

The following pages give you advice on the best ways to avoid hurting yourself while running as well as guidelines on how to deal with running in weather extremes and staying safe out there.

Apply them today, and you'll reduce the risks of injury, increase your comfort, and make running as smooth as possible.

Look Out For Overtraining

The first thing you need to avoid when is overtraining. The dreaded condition happens when the intensity and/or the frequency of your runs exceeds your body's ability to recover from the training load. Do that for an extended period, and you'll be on the verge of seriously hurting yourself.

Overtraining can affect you mentally, physically and emotionally—in ways you can't even imagine. According to research, roughly **60** percent of runners experience "serious" overtraining at least once in their running career. That can be a real discouraging statistic—especially if you are serious about reaching your running goals.

The main symptoms include :

- **Chronic Illness.** Overtraining interferes with the immune system which leaves you susceptible to chronic illnesses—especially upper respiratory tract infections, like the common cold, flu, coughing congestion, etc.

- **Stalled performance.** Burnout can also significantly hamper power, endurance, strength and/or speed during your workouts.

- **Elevated heart rate.** Keep tabs on your RHR each morning as soon as you wake up and start charting it out from week to week. Any increase may indicate that your body has not optimally recovered.

- **Persistent fatigue.** Overtraining increases the release of the stress hormone and the span of time it takes for your body to recover between runs.

- **Mood Swings.** Pushing the envelope too much can hamper the production of catecholamine, which has an impact on your sympathetic nervous system, leading to irritability and stress.

- **Insomnia.** Overtraining interferes with your body's circadian rhythms, which can compromise sleep quality.

- **Persistent pain and/or Injury.** Overtraining messes with your body's recovery process, which can set the stage for persistent aches and injuries.

The 10 Percent Rule

The 10PR states that you should never increase your training volume (regarding time or distance) by more than 10 percent from one week to the next. This principle is so relevant because, and I hate to sound like a broken record, most injuries are overuse conditions. They, in general, happen when you run too much too soon, or drastically increase your weekly training load.

How to Determine Rate of Increase

First, make a note of your current weekly mileage, then add 10 percent to the number. The next week, do the same. So, for example, if you run 12 miles per week, shoot for 13 or 13.5 miles next.

This might seem like slow progress, but after a couple of months you'll be running 20 miles or more a week .

Running Recovery Demystified

Balance your road miles with rest. The fact is that you don't get stronger or faster on the days you push yourself. Rather, growth comes during recovery time after the days when you train hard. Recovery time gives your body time and energy to adapt to the changes you bring to it by running.

Whether you're an avid marathoner or a recreational runner, recovery is an integral part of any workout routine and healthy lifestyle. In fact failure to address your recovery needs will only lead to catastrophe. Why?

Although during running is when stimulation for fitness growth occurs, it's during the recovery period that actual progress is made. During this period, your body goes through a number of processes to repair muscle fibers, builds new blood vessels to the damaged areas, and restore homeostasis. Devoid of recovery, none of the training-related positive adaptations will take place.

In other words, to improve performance, recovery is as important as the challenge. If you don't respect it, you can expect to improve period. So, think of rest days the same way you regard your running workouts—as a conscious physical activity key to your program and overall health. It's, by no means, avoidance or work nor a sign of laziness.

The amount of recovery you need depends on a variety of factors including your own fitness level, the intensity, and volume of your runs and your own experience. For example, a beginner runner may need more recovery between relatively easy runs than an elite marathoner who runs 60+ miles per week.

In this section, you'll find seven practical strategies you can do to ensure a quick recovery after running. The tools range from stretching to sleep, ice baths to proper sleep and so on. Just don't feel overwhelmed. You don't need to implement all of the strategies. Just do your best and forget the rest.

Active Recovery

Proper rest is not all about sitting around the house lying in bed all day, doing nothing. The best form of rest is what's known as "active recovery", which means light exercise that doesn't put too much stress on the body.

According to research, active recovery stimulates blood flow to the muscles and helps flush out lingering toxins and lactic acid, reducing muscle pain and soreness. Active recovery activities include sports that use up different muscles and joints. Ideal activities include recovery runs, easy biking, swimming, and my favorite, Yoga.

Eating For Recovery

Replace the nutrients your body has lost during exercise. According to research, your body is at its most receptive state for refilling its glycogen stores within the recovery window. That's why eating within the hour following a workout ensures that your body gets the required nutrients without any further delay.

The Two Big Players

To meet post-workout needs, as previously stated, carbohydrates and proteins are the main protagonists. Therefore, consume a balanced meal within **30 to 60** minutes of your run. If you don't have the stomach (or the time) for a full meal, then opt for a sports drink or better yet, milk-based shakes.

Shoot for at least one-half gram of carbohydrates per pound of body weight. The exact amount depends on your fitness level, training intensity, training goals, and personal preferences.

Also, do not forget about your proteins. To promote protein synthesis, consume at least **0.2g** per pound of body weight of protein within **30** minutes post-run. Some of the best sources of complete proteins include poultry, meat, fish, and eggs. For a **170**-pound runner, this would amount to **80 to 90** grams of carbohydrates and **20 to 30** grams of protein.

Sleep Tight

If you believe that training for endless hours is the best way to achieve your fitness goals, then think again. In fact, sleep is the cheapest and maybe most underrated recovery tool you have on hand.

The central reason sleep is important for recovery comes down to a particular hormone that's secreted by the pituitary gland during the non-REM deep sleep stage. That's the famous growth hormone. Also known as HGH, this hormone promotes growth, while assisting in cell regeneration, cell reproduction, and other vital bodily functions. If you're sleep deprived, your body will be unable to complete the natural phases required for muscle repair and recovery. And that can only spell disaster on your fitness and overall health status.

Further, too little sleep can increase the secretion of catabolic hormones, like cortisol, and hinder the release of anabolic hormones such as testosterone and insulin-like growth factor, according to research published in Sports Medicine. Furthermore, sleep deprivation is associated with a plethora of health issues including heart disease, obesity, impaired immune function, low productivity and mental disorders.

So, what's the ideal amount of sleep per night you need as a runner?

This is a difficult question to answer because, like many other things sleep needs vary widely by individual, depending in large part on activity level, age, environment, genetics, etc.

So, when it comes to determining how sleep you need, the best person to turn to is YOU. If you still feel tired in the morning, you probably require more sleep. Besides, people who sleep seven to eight hours a night are healthier and live longer, according to science.

Here are a few practical tips to help make sure you fall asleep faster.

- **No heavy eating.** Avoid consuming high sugar foods or alcohol watching TV before hitting the sack. Research shows that this can disrupt our sleep patterns.

- **Schedule it.** Go to sleep and get up at the same time every day even on weekends. Sticking to a rigid schedule can help regulate your body's internal clock, thus making falling asleep, and staying so, easier.

- **Make a routine.** Set up a sleep routine in which you get ready to hit the sack in the **60** minutes before you go to bed. This should consist of activities that get your body ready to sleep.

- **Get rid of technology.** Come bedtime, avoid electronics especially your Smartphone and TV. Instead, dim the lights, meditate read fiction, or even try self-hypnosis or journaling.

Ice Baths

Used by elite athletes from all fields and backgrounds, the ice bath is another tool to add to your recovery bag. According to theory ice baths help the nerves, tendons, and muscles return to their normal state while also allowing the vessels to contract and flush away waste and lactic acid buildup.

How to ice bath safely and pain-free

Instead of plunging straight into an ice bath, allow for your body temperature to acclimatize to the coolness of just the cold water then gradually add the ice into the tub. Here is a quick **4**-step way for a nice ice bath experience :

- 1 - Get yourself three to four bags of ice cubes

- 2 - Submerge your entire lower body-waist-hip height-in a half-filled tub of cold water with no ice cubes in it yet.

- 3 - Add the ice to the tub until the temperatures reach around **60** degrees F

- 4 - Stay in the bath for at least **15** minutes. And keep your mind distracted away from the unease of the experience .

Foam Roll

Foam rolling work is all about taking the traditional stretching to the next level. In fact, in some cases, foam rolling is a way efficient than stretching.

The practice can help you alleviate tightness and knots in your body that traditional stretching can't even come close to. Using this wonderful recovery tool also increases tissue repair, enhances mobility and limits soreness, according to a study published in *Medicine & Science in Sports & Exercise Journal*.

The bulk of post-run soreness happens when the muscles and fascia—the connective tissue running throughout the body—become entwined and tangled. But with a simple foam roll routine, you can roll out these troubled areas to remove those knots and tightness.

Here are the rules of efficient foam rolling :

- **Take your time.** Some areas can feel tighter than others. That's why you have to take your time and stick with it, even if some of these proved to be extremely painful. In fact, if foam rolling is painful then you are doing it right. You are undoing muscle and tissue knots after all.

- **Roll Slowly.** Roll over the muscle slowly, scanning for areas that are too tight and/or troubled. Once you find a troubled spot, don't run away from it. Instead, breathe deeply and use your arms or opposite leg to offer more support as you gently apply pressure to release the tightness.

- **Small areas.** To make the most out of these exercises, keep your focus on small areas by moving gradually rather in large repetitive movements that wrap the whole muscle, which might lead to inflammation.

- **Target'em Right.** Make sure to position the roller under the soft tissue you are aiming to loosen and/or release, and then slowly and gently roll your body weight back and forth across the roller while releasing the targeted muscle.

A Foam Rolling Routine

Try these **8** foam rolling exercises. This preventative foam rolling routine will take you only **15** to **20** minutes. Do it two to three times a week .

Glutes

Lay on the floor, then raise your legs and place them on the roller at the sacrum—the back of your pelvis. Next, to roll the glutes, slowly twist your lower body to the right, then to the left. Keep it up for **30**–second to one full minute.

IT Band & Outer Thigh

Lie on your right side (think side plank position) with the foam roller under the right leg and on the outside of your thigh just below your hip. Next, roll between the bottom of the hips and the top of the knee joint. Roll for **30** seconds to one full minute, then switch sides .

Quadriceps

Lie on your stomach with the foam roller under the front of your thighs. Next, while holding your body straight, pull with your arms to roll yourself back and forth from hip to mid-thigh—down the length of the quad. Make sure not to roll over your knee joint. For extra pressure, bend your knees. Keep rolling for one to two minutes and then proceed to the next exercise.

Calves

Sit on the floor with your right ankle crossed over your left, and place the foam roller under your left calf. Next, put your hands behind you to raise your body up and support your weight, then start rolling up and down the length of your calf, from the back of your knee to the Achilles' tendon. Make sure also to roll along the inside and outside edges of the calf. Roll for **30** to one full minute, then switch sides.

Adductors

Lie facedown with your right leg extended slightly to the side, knee bent, then place the foam roller in the groin area of the extended leg. Begin with the roller close to your groin and roll down towards your knee. Keep rolling for **30** seconds to one full minute, then switch sides .

Piriformis

Sit on the floor and place the roller in under the gluteus region—the middle of your glutes, then cross your left leg over your right quad. Next, to start rolling, lean into one buttock and use tiny movement to roll out the posterior hip, scanning for any troubled spots. Make sure to use your supporting leg to control (or increase) the pressure .

Lower Back

Sit on the floor, raise your pelvis and place the foam roller directly in the small of your lower back. Next, while using your hands for support, roll up and down the length of the lower back. Please be careful with your spine. Roll for one to two minutes, then proceed to the next exercise.

Hamstrings

Sit on a foam roller with your legs outstretched, and roller placed under your right thigh. Next, place your hands behind you for support, then slowly roll back and forth from the base of your glutes to the top of your knees, taking your time to any troubled spot. Make sure to turn your feet in and out to work different parts and angles of your hamstrings. Roll for one minute then switches sides.

Limit The Pills

Some runners rely heavily on these non-steroidal anti-inflammatory (NSAID) in cases of increased level of training, especially when training for a race and/ or pushing their bodies beyond the threshold of pain and discomfort.

Although anti-inflammatory drugs, such as Advil and Aleve, can assuage pain and swelling, relying on them heavily as a recovery tool is not optimal. According to many studies, these drugs can inhibit muscle growth, cause ulcer and a plethora of other health trouble. But in small and sporadic doses, they don't pose much health threat.

Inflammation following a run, often than not, is natural. Your body is a lot smarter than you give credit for and it knows how to proceed in order to repair itself and recuperate. So, don't get in the way.

When to use NSAID

Reach for NSAID's in cases of acute soreness and pain when you need the relief. Also, always consult your physician—someone who is preferably an active person and knows a thing or two about proper exercise recovery—before you start using them on a regular basis.

Listen to Your Body

This Ebook is full of practical training tips guaranteed to help you reach your running and fitness goals. But if I had to boil it down to one principle, listening to one's body is the way to go.

What To Listen To ?

As I have previously stated, most running injuries do not happen overnight. They don't just come out of nowhere and blindsides you. In fact, they come with warning signs, which include soreness, aches discomfort, and persistent pain. If you ignore them, you could make the injury worse.

Action Step

When experiencing severe tenderness that persists during a run consider reducing the intensity, distance, or frequency of your training. If taking a few days off is the only way to healing your pain then rest. Do not let your ego stand in your way.

If your symptoms get better, train, as usual, the next day, but keep your ears open throughout your workout for any red flags. Don't get me wrong. To improve, you'd need to regularly step out (and run) out of your comfort zone. Yet, running-induced pains are not created equal.

Productive Vs. Nonproductive Pain

In general, running-induced pain comes in two forms: productive pain and unproductive pain. The secret lies in differentiating between these two. Once you can tell which is which, you'll be on your way to success.

Productive pain is pain that stimulates your body to adapt, bring fitness growth in the process. Typically, it takes the form of the usual post-training soreness and aches. So, if you experience low-law fatigue or just mild soreness, continue with your planned run. Or, at the very least, consider modifying your schedule, or rest to accommodate your body's needs.

On the other hand, unproductive pain is just pain that leads to nowhere but injuries and burnouts. These are the warning signs of an impending injury or overtraining. For that reason, never run through this type pain as it could turn niggling discomfort into a debilitating injury.

Running In Extreme Weather

As I keep repeating through this eBook, running is an activity you can do any time of the year. Nevertheless, running, the safe and smart way, during different season requires a bit of planning and specific strategies, particularly during the extreme seasons of winter and summer.

Such weather extremes can be a challenge, but rarely the conditions so bad that you need be prevented from enjoying from your runs—especially with the help of the following pages. The following sections give you the practical and training guidelines necessary to deal with the elements and enjoy running all the year round.

Protect Yourself in The Cold

The golden rule of comfortable winter running is to always keep your body well covered with the right fabrics and layers, period.

Getting the right fabrics comes next. The best running clothing is made with advanced materials that warm easily and pull moisture away from the skin to the surface where it evaporates. In general your winter running wardrobe should include plenty of base layers breathable T-shirts, tights, long-sleeve shirts, gloves, headband or hat, and a running jacket.

Once you have the right fabrics, it's time to learn how to layer your winter gear the right way. The fabric next to your skin should be high-performance, sweat-wicking, and fits snugly. That's why many runners prefer wearing tights for the waist down that wick moisture away from the skin to the outer layers. Suitable fabrics include lightweight polypropylene or polyester.

For sub-freezing days, opt for a mid-layer that fits loosely. This helps with insulation and the transfer of moisture from the base layer away from the skin. Think wool or polyester fleece.

The outer shell, or the third layer, should be waterproof and wind-resistant to protect you against the rain, snow, and wind. When running in cold weather, the outer shell should be removed unless it's raining, very windy, or snowing. Opt for insulating fleeces such as waterproof windbreakers and jackets.

We lose up to **40** percent of body heat from our heads, research shows. To limit heat loss, wear a hat, preferably made with synthetic wicking material. In freezing and windy conditions, wear a face mask a balaclava, or a scarf for more insulation and protection.

What's more? Make sure to also protect your skin. Apply a sweat-resistant sports moisture, or lip balm to any hot spots prone to chapping or chaffing—mainly the lips, cheeks, and nose. To prevent slipping and falling, wear traction devices on your shoes if roads, sidewalks or trails have snow or ice cover.

Protect Yourself in the Heat

During summer runs, heat-induced illnesses can be a serious threat. The first and the most common condition is heat exhaustion.

This occurs when you run too hard and/or too long in scorching temperatures.

The other risk is heat stroke, which is caused by an abrupt failure of the body's thermoregulatory system. More specifically, it happens when the body can no longer cool down or lower its core temperature.

The Warning Signs

Early warning signs of heat-induced illnesses include :

- Headaches
- Dizziness
- Extreme fatigue
- Nausea
- Confusion
- Poor balance
- Lack of sweating
- Paleness or redness in the face
- Loss of consciousness in severe cases.

So, if you start feeling nauseated, dizzy, have the chills, or ceased sweating, stop running immediately. Next, get out of the sun, then cool down with a drink, preferably in an air-conditioned room. That said, when symptoms don't improve in one hour or so, go to the emergency room immediately.

Remember :

heat-induced illnesses can be a life-threatening condition, requiring prompt medical treatment. Failure to cool down the body can lead to severe organ failure, brain damage, even death.

How to Avoid Them

Unlike winter running, clothing rules for summer running are not that complicated. All you have to do is wear lightweight, breathable, and sweat-wicking clothing made with UPF fabrics. The fewer items, the better.

Stay away from dark colors (they retain heat), and wear a hat and glasses to protect your head and face from the sun. Also, consider sun-protective sleeves for bare arms .

First, run early or late in the day. To stay safe out there in the heat, you might need to reassess your running routine and timing. Try exercising earlier in the day, or later in the evening, when temperatures are at their lowest.

Also, drink plenty of water—whether you feel thirsty or not, and regardless of weather conditions. To do that, you need to build the habit of drinking water throughout the day. Here are the primary rules :

- Drink before you doze off and drink first thing in the morning and before you step out of bed.
- Drink at least **12 to 20** ounces of water two hours before a run.
- Drink at least **8** ounces of water during runs lasting for more than **60 to 90** minutes.
- Do not forget about electrolytes. Sports drinks, such as Powerade, or Gatorade, are essential to consume for runs lasting an hour or longer.

Staying Safe Out There

Running in urban areas, especially in the heart of a bustling metropolitan city, is so different from running in a stadium, the park a quiet neighborhood, or on a remote trail.

Sure, every surface has its challenges, but when it comes to the city, some of these hurdles can be treacherous. The fact is that there are potential dangers that lurk literally around every corner and intersection.

The numbers are shocking. Roughly **4,100** pedestrians die in the United States every year—that's about one death every two hours—and as a runner, you're just a pedestrian at full speed.

Here are a few safety rules and some old common sense can help keep you safe (and alive) when you hit the streets for a run. Sure the advice shared in this section is something you probably heard a thousand times (look both ways before crossing the street, for instance), but that does not make it less relevant.

Have Situational Awareness

Situational awareness is the overarching principle of safe outdoor exercise. If you abide by this rule, you'll drastically reduce the risks of getting yourself in a perilous position. Therefore, make sure to practice what I call the "**360** Awareness Circle" skill.

First, be aware of your surroundings and what lies ahead. Keep your eyes straight ahead, check your sides, and turn to check what's behind you every once in a while—especially if you feel anything out of place.

Steer clear of quiet alleys, dark parks, unpopulated areas, overgrown trails, deserted streets, and the sort. Rather, stick with busier streets, staying on the left side of the road—preferably under the streetlight—the entire time. Plus, keep your eyes open for obstacles that can trip you up. Rocks, broken concrete, gumballs, drivers, and everything in between.

Also, do not let your mind wander or zone-out during a night run. Instead of scanning your mind—that's thinking by the way—scan your surroundings. In fact, as a runner, you are exposed to a potential attack when you're not attentive to your environment.

Don't Wear a headset

Research shows that running with music can improve training performance and consistency. But it cuts you off from the noises around you. You will longer have the ability to hear oncoming cars cyclist, or, God forbid, the footsteps of a malicious person sneaking up behind you.

In fact, incidents involving pedestrians wearing headphones had increased **300** percent in less than six years, with over **70** percent of the incidents resulting in fatalities, according to a study from the University of Maryland School of Medicine and The University of Maryland Medical Center in Baltimore.

In case you LOVE your music (just like I do), then at least, run with one earbud in or with the volume low enough to be able to hear what's going on around you. Or, at least, get a pair of open ear headphones. These rely on bone conduction to create mini vibrations, sending sounds through the cheekbones, directly to your brain (your inner ear, specifically).

Cross The Right Way

Do not cross a road in between parked cars, at the front or back of buses and large vehicles, or the middle of a block, especially on high-speed roads. Instead, cross at areas specified for the pedestrian. These are typically found at road intersections. If a crosswalk is unavailable, then find the safest and most well-lit spot on the road to cross.

Also, keep an eye for turning vehicles before stepping out of the curb. In some cities, a vehicle may turn right on a red traffic light at intersections—that's something I had to learn the hard way during my last stay in Jakarta.

Make Eye contact

Make eye contact with the driver and be sure they acknowledge your right-of-way both prior to stepping before them or when moving through an intersection.

Never assume a driver sees you. Instead, act as though you are invisible while keeping, at least, a three- to the five-foot distance between you and a vehicle.

Face Traffic

When sidewalks are unavailable, run facing oncoming traffic so you can better observe oncoming vehicles. This enables you to react quicker in case things took the wrong turn. It also makes you more visible to cars, trucks, and buses.

Be wary of blind corners. When you're about to reach a blind corner or bend where visibility is poor. If you cannot see around it, neither is the driver coming the other way.

In such a case, cross to the right side of the road, and stay as far to the right as possible, unplug the music, and keep your guard up.

Carry Identification

Whenever you're exercising outdoors, whether you're running, biking, trekking, or power walking, make sure to carry some form of identification. In general, be sure to have your driver's license along with a card that lists emergency contacts, and pertinent medical information (medical conditions, blood type, allergies, etc.).

Defend Yourself

This might seem like overkill, maybe even too paranoid, but it pays well to learn a few basic self-defense moves to fend off a physical attack.

For starters, be a terrible victim by getting as loud as you can—this will at least get other people attention. Show your willingness to fight. If you display weakness, you'll only be encouraging the attacker to advance his assault. Instead, keep looking the person dead in the eye, and be as assertive as hell.

Don't ever hit the attacker in the torso—that stuff only works in the movies. Rather, play it dirty. Elbow them in the face or stomach, step hard on their instep, punch their throat, or knee their groin. Don't hold back—especially if the aggressor means real harm.

And please know when to run away. If you are outnumbered, the attacker has a weapon, or you are too scared, then just turn in the opposite direction and run away as fast as you can. You are a runner after all.

Be Prepared for Night Runs

When visibility is an issue, whether you're running early in the morning or late in the evening, wear high-visibility, brightly colored workout gear. Here are a few of the essentials:

The Right Clothing. Opt for clothes designed for the night-conscious runner. These almost always have a sort of reflective bit in them—typically plenty of neon, light-reflecting properties.

Reflectors Around Your Joints. Strap on a few reflectors around your joints, mainly your shoulders, elbows, knees, and ankles. Doing so will not only make you instantly stand out from a still object like a tree or a mailbox, but also tell the driver which direction you are going.

Headlamps. A good headlamp can cut through the darkness just like a hot knife through butter, helping you pick the safest route while putting an end to visibility issues.

Trust Your Guts

Every human being is born with a set of instincts—the by-products of million years of evolution—and most of the time, these primitive drivers know what's best for us when it comes to warding off danger. Hence if you feel something wrong with a runner, a person, a driver, a place or a setting, trust your instinct and simply run in the other direction.

In the end, you have to call the shot and trust your own gut feelings. Never underestimate them. They got you so far, and they have your back—as long as you are willing to listen, and behave accordingly.

Chapter XIII :

The Final Frontier : Designing Your Own Running Program

Training programs are super helpful. This is especially the case if you prefer to structure and/or are serious about making the most out of your running investment.

But here is the tricky part. Finding the most suitable running program is no walk in the park. Just Google the words "running training program" and you'll get over **400.000.000** different results, each one promising to be the answer to your running prayers. That's where this chapter comes in handy.

This chapter contains the technical information and training tools to help you design your own running program with ease. In, in essence, provides you with the tools you need to create your own workout program.

The Rules of Good Design

A good running program should be developed around your own running goals and preferences. So, for instance, a beginner runner who trains to lose weight will have a much different running approach than an elite athlete training for their next personal best.

Here is what a personalized running program should take into account :

- Fitness level
- Personality
- Personal preferences
- Training background and history
- Schedule
- Short term running goals
- Long-term running goals
- Ultimate fitness objective

In this chapter, I'm breaking down the essentials of running program design as well as laying out the foundation of your running success.

5 Steps To Help You To Design Your Own Running Program

Once you decide to become a runner, you are set and ready to design a running program, which is a process that consists of five rudimentary steps.

Step. 1 – Assess your Fitness and Health

The first step program is the consultation process. The right running program should conform to your fitness level, needs, and personal needs. Otherwise, you're heading in the wrong direction. For that reason, you'd have to assess your specific and particular strengths and weakness.

As I previously stated in the fitness assessment chapter, if you're over the age of **40** and have not exercised in a while, then you **SHOULD** always consult your doctor before getting started.

Step. 2 Assess Your Time/Schedule

The second step is all about assessing how much time you have on schedule that can devoted to exercise. Answer the following questions as honestly as possible.

- How many days a week do you want to run ?
- How many hours per week you're willing to exercise ?
- Which specific days of the week work the best to support it ?
- When can you start ?
- Where will you run? On a treadmill? At a stadium? Trails ?

Around the neighborhood?

Scheduling Your Workouts

Pull out your daily calendar and, based on your answers examine the weeks (and months) ahead of you. Next, plan your workouts choosing the three to five days per week in which you'll train.

Once you do that, mark it on your daily plan and schedule it like you'd an appointment. Cross train on your non-running days. Think walking, yoga, strength training, etc.

Keep in mind that consistency is the most crucial pillar in following and implementing a successful running training program.

Step. 3 Set The Right Goals

If you needed a ride to the post office, would you hop on a bus that's headed for the beach? Of course no.

The same principle applies to starting a running program. Every plan is a vehicle that takes a specific route toward a well-defined running goal. Hence, a good program should always have a well-defined goal. When you set clear goals, everything will fall into its place, and you won't be second-guessing yourself every step of the way. After all, the specific elements of your training program depend on your ultimate training purpose.

To clarify your goals, answer the following:

- What is your ultimate fitness goal?
- What do you want from running?
- What is your primary running goal?
- What are your short-term running and fitness goals?
- What are your long-term running and fitness goals?

Make your Goals Smart

As a rule of thumb, your goals must be specific, measurable, set within a time limit, challenging yet realistic. So, for instance, a SMART goal might a personal target to run a particular distance within a specific time, complete a race or an event, or anything else in between.

Step. 4 Choose The Workouts

Now that you have your fitness assessed (see chapter II), and goals set, it is time to put it all together into a practical schedule. This is the most extensive part of training design, and where things might start to get a little complicated.

Build Your Base

Aim for three to four hours of total running time per week, ideally at least three to four separate sessions. This, of course, will vary depending on your running goals and fitness level.

Do a Variety of Workout

For a well-designed running training program, incorporate in plenty of different types of runs of different distances and training paces. Variety will not only help you beat the monotony of running the same 5-mile loop over and over again but also help you reach your full running potential. (You can find out more about the importance of training variety in chapter V).

Here is the long list of running sessions that you could work into your schedule.

Running Workouts

- Easy runs
- Recovery runs
- Interval repeats
- Ladder runs
- Pyramid Runs
- Progression runs
- Tempo runs
- Fartlek runs
- Hill reps
- Strides
- Long runs
- Negative splits
- Yasso 800's

The Cross Training

Pick three days for cross training or active recovery. During your rest and CT days, keep your body moving without putting too much pressure on it. This continuous pattern of training can help you build the habit of daily exercise in your life while further improving your conditioning.

Here is a list of cross training sessions to consider :

- Strength training
- Swimming
- Spinning
- Yoga
- Rowing
- Pilates
- Foam rolling
- Etc.

Step. 5 Choose a Weekly Workout Template

To help you make sense of the above, check out these three typical weekly workout templates.

- **Monday** : moderate or high-intensity workout
- **Tuesday** : Easy Run or Cross Train
- **Wednesday** : Easy run
- **Thursday** : Moderate or high-intensity workout
- **Friday** : Easy Run or Cross Train
- **Saturday** : Long Run
- **Sunday** : Rest or Cross Train

Beginner Training Template Plan

- **Monday** : 30- to 45-minute easy effort pace
- **Tuesday** : Rest
- **Wednesday** : 10 minute warm-up + 20-minute at tempo pace
- **Thursday** : Cross train
- **Friday** : Rest
- **Saturday** : 60 minute at a conversational pace
- **Sunday** : Rest

Intermediary Training Template Plan

- Monday : 45– to 60–minute easy effort running .
- Tuesday : 45– to 60–minute of Cross training .
- Wednesday : 8 x 400m @ 85% max effort .
- Thursday : 30– to 45–minute of Cross training .
- Friday : 30– to 45–minute of Fartlek running .
- Saturday : 75– to 90–minute long run at a conversational pace.
- Sunday : Rest Day .

Advanced Training Template Plan

- Monday : 10–minute warm-up + 40 minutes at tempo pace .
- Tuesday : 60–minute of Cross training .
- Wednesday : 10 x 400m @ 85% max effort .
- Thursday : 30 minutes of easy running .
- Friday : 30 to 45 minutes of Fartlek training .
- Saturday : 90– to 120–minute long run at a conversational pace.
- Sunday : Rest or cross-train .

Remember :

these templates are not written in stone. Instead feel free to come up with different courses of action if the above does not fit your schedule. In general, surround quality workouts with easy-paced recovery sessions that are neither intense nor long.

And that's it. By following the above steps, you'll be able to craft a well-structured running program that will be gradual, organized and in tune with your fitness level and training goals.

Commit To Paper – Enter Workout Journal

Serious about turning your running vision into concrete reality? Then get a training journal, and turn your design into a real-life action plan. A running log, journal, or diary, is a record where you can keep tabs on your runs, races, injuries, diet and pretty much anything else training-related. It's, in essence, a written record of observations suggestions, experiences, and events.

Regardless of your goals, monitoring your runs in a running diary (also called a workout log or training journal) can help you get better results.

If you don't already use a training log to monitor your running, here are six good reasons to start today.

Know your Goals. A running journal is an ideal place for tracking your running goals and keeping them in sight.

Monitor Your Progress. It can help you monitor your progress as you move through your running program, which enables you to get a detailed record of your running history.

Monitor Injuries. By keeping track of aches and pains, you'd be able to pinpoint the onset of an injury, find the causes and prevent serious ramifications.

Boost Your Performance. Assessing your training diary on a regular basis can help you determine which workout and diet approaches work the best for you.

Hold You Accountable. Think of your training journal as a contract between yourself and it. A written pledge to do what it takes to get the job done—no matter what the circumstance.

Improve your motivation. With a workout log, you can look back at the end of each month and say "I accomplished that" and you might be inspired to do even more.

Choosing The Format

When picking running log format, there are many options to consider. These include notebooks, a standard bound training journal, an app, an online training log, a vlog, or just loose scraps of paper.

I suggest that you opt for what's most appealing to you. It can be as simple as a notation in a notebook or calendar. Or, if you're technically inclined, then take advantage of technical tools.

Digital tracking is designed to make it easy for you to monitor your daily workout and calorie intake, providing you with a lot of helpful resources.

As you can see, you have so many choices to pick from. So, find the method that works the best for you, and keep doing it day after day week after week, month after, etc.

The Main Running Data to Monitor

Once you choose the format, get clear on what to log—the details to write down and keep track of. A good training log can record virtually anything you find relevant to your running routine. Here are a few of the details to include :

- Prescribed run, and actual run completed
- Average pace.
- Time and date of your run
- Average running speed (using an app).
- Record aches and pains. This can help prevent injury shortly.
- For speedwork sessions, record your distance and splits.
- Your running route.
- Your pre- and post-run foods and drinks, and if possible, the night before.
- Your heart rate.
- Pre-run dynamic warm-up moves and post-run stretches.
- Running shoes. Noting your shoe purchase date, miles, and which shoes you wear in each session.
- Your short and long-term goals
- Statistics related to your cross-training exercises, especially resistance training.
- Virtually anything else or additional information you find important about your running program.

The Minimum to Keep Track of

If this is too much, then don't feel overwhelmed. At a bare minimum keep track of your distances, times, and little else. Thus, a running log entry could be as simple as "3 miles (30:41)". You don't need to be perfect from the get-go. Just get started and figure things out as you go.

