THE RUNNERS GUIDE

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HIGHETT PODIATRY

CONTENT

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STARTING OUT

CHAPTER 1

STARTING OUT

BENEFITS OF RUNNING

Running is a great way to improve both your mental and physical health. The benefits of running are extensive and backed by research, with particular focus surrounding cardiovascular health.

One study found interval aerobic training given to hypertensive patients effectively reduced high blood pressure [1]. A data analysis of 35 studies found positive effects towards body mass, body fat, resting heart rate, VO2max, triglycerides and HDL cholesterol levels [2].

(10 Benefits of Running, 2018)

BEGINNER TIPS

If suffering from co-morbidities, chronic illness or injury it is heavily suggested to consult with a health professional prior to commencing [4]. This includes, but is not limited to:

- Heart conditions
- Obesity/Bone Density issues
- Asthma
- Diabetes

Refer to the Fitness Australia Adult Pre Exercise Screening System (APESS) for more information and resources. Starting off with 30 minute walks building in intensity (over approximately 6 weeks) is a great way to start safely if concerned [4].

WHAT ELSE?

- Set Goals! this is a great way to stay motivated and is best to split into short and long term. This improves how achievable they are and satisfaction when achieved.

- Join a friendly running group or platform (eg. Strava/Facebook), learn from experienced runners who never shy away from giving a helping hand.

- Simple things that are often overlooked include having a well balanced diet (cut out junk food), getting good quality sleep and allowing time for recovery. Try not to run two days in a row!

- You may want to incorporate some simple strengthening exercises (eg. calf raises and squats) between runs to reduce risk of injury. If unsure please consult with a professional.

COUCH TO 5KM (C25K)

A popular step by step interval running program for inexperienced runners with a 5km goal in mind! You can download a phone app or track it manually, feel free to use our suggested guide below! [5]

Week	Workout 1	Workout 2	Workout 3
1	Brisk five-minute warmup walk. Then alternate 60 seconds of jogging and 90 seconds of walking for a total of 20 minutes.	Brisk five-minute warmup walk. Then alternate 60 seconds of jogging and 90 seconds of walking for a total of 20 minutes.	Brisk five-minute warmup walk. Then alternate 60 seconds of jogging and 90 seconds of walking for a total of 20 minutes.
2	Brisk five-minute warmup walk. Then alternate 90 seconds of jogging and two minutes of walking for a total of 20 minutes.	Brisk five-minute warmup walk. Then alternate 90 seconds of jogging and two minutes of walking for a total of 20 minutes.	Brisk five-minute warmup walk. Then alternate 90 seconds of jogging and two minutes of walking for a total of 20 minutes.
3	Brisk five-minute warmup walk, then do two repetitions of the following: • Jog 200 metres or 90 seconds • Walk 200 metres or 90 seconds • Jog 400 metres or 3 minutes • Walk 400 metres or three minutes	Brisk five-minute warmup walk, then do two repetitions of the following: • Jog 200 metres or 90 seconds • Walk 200 metres or 90 seconds • Jog 400 metres or 3 minutes • Walk 400 metres or three minutes	Brisk five-minute warmup walk, then do two repetitions of the following: • Jog 200 metres or 90 seconds • Walk 200 metres or 90 seconds • Jog 400 metres or 3 minutes • Walk 400 metres or three minutes
4	Brisk five-minute warmup walk, then: • Jog 400m or 3 minutes • Walk 200m or 90 seconds • Jog 800m or 5 minutes • Walk 400m or 2-1/2 minutes • Jog 400m or 3 minutes • Walk 200m or 90 seconds • Jog 800m or 5 minutes	Brisk five-minute warmup walk, then: • Jog 400m or 3 minutes • Walk 200m or 90 seconds • Jog 800m or 5 minutes • Walk 400m or 2-1/2 minutes • Jog 400m or 3 minutes • Walk 200m or 90 seconds • Jog 800m or 5 minutes	Brisk five-minute warmup walk, then: • Jog 400m or 3 minutes • Walk 200m or 90 seconds • Jog 800m or 5 minutes • Walk 400m or 2-1/2 minutes • Jog 400m or 3 minutes • Walk 200m or 90 seconds • Jog 800m or 5 minutes
5	Brisk five-minute warmup walk, then: • Jog 800m or 5 minutes • Walk 400m or 3 minutes • Jog 800m or 5 minutes • Walk 400m or 3 minutes • Jog 800m or 5 minutes	Brisk five-minute warmup walk, then: • Jog 1.2km or 8 minutes • Walk 800m or 5 minutes • Jog 1.2km or 8 minutes	Brisk five-minute warmup walk, then jog 3.2km (or 20 minutes) with no walking.
6	Brisk five-minute warmup walk, then: • Jog 800m or 5 minutes • Walk 400m or 3 minutes • Jog 1.2km or 8 minutes • Walk 400m or 3 minutes • Jog 800m or 5 minutes	Brisk five-minute warmup walk, then: • Jog 1.6km or 10 minutes • Walk 400m or 3 minutes • Jog 1.6km or 10 minutes	Brisk five-minute warmup walk, then jog 3.6km (or 25 minutes) with no walking.
7	Brisk five-minute warmup walk, then jog 4km or 25 minutes.	Brisk five-minute warmup walk, then jog 4km or 25 minutes.	Brisk five-minute warmup walk, then jog 4km or 25 minutes.
8	Brisk five-minute warmup walk, then jog 4.5km or 28 minutes.	Brisk five-minute warmup walk, then jog 4.5km or 28 minutes.	Brisk five-minute warmup walk, then jog 4.5km or 28 minutes.
9	Brisk five-minute warmup walk, then jog 5km or 30 minutes.	Brisk five-minute warmup walk, then jog 5km or 30 minutes.	The final workout! Congratulations! Brisk five-minute warmup walk, then jog 5km or 30 minutes.

("Couch to 5k - C25K Running Program", 2021)

TRAINING

CHAPTER 2

TRAINING

LOAD

WHY IS IT SO IMPORTANT?

Sudden changes in activity levels exceeding the body's ability to cope are the main driver for injury and can happen to any runner of any experience! These activity levels can be monitored in the form of load, allowing for gradual progression whilst avoiding injury.

Running load refers to the sum of forces and stressors applied to the body when running, inclusive of frequency, duration, intensity and volume.

MONITORING LOAD

10% RULE

A study conducted in 2014 looked at 817 novice runners over a 1 year period, where 202 of these runners suffered injury [6]. Results found that runners who increased by more than 30% in weekly mileage were at greater risk of injury compared to those who increased by less than 10% [6].

This rule is easily applied to any program, simply do not exceed 10% increase in load (total km's) week to week.

Calculations:

(Week 2 – Week 1) ÷ Week 1 x 100

Eg.

(22 - 24) ÷ 22 x 100 = **9.1%**

Example:

Week 1 - 22 km

Week 2 - 24 km **(+9.1%)**

Week 3 - 27 km **(+12.5%)**

Week 4 - 30km **(+11.1%)**

MONITORING LOAD

ACUTE - CHRONIC WORKLOAD RATIO (ACWR)

This ratio compares your acute workload (fatigue) to your chronic workload (fitness). A bit more complex, however this makes it more accurate in load management and determining risk of injury [7].

Example:

Week 1 - 22 km

Week 2 - 24 km

Week 3 - 27 km

Week 4 - 30km

1. Calculate a 4-week rolling average (km)

22 + 24 + 27 + 30 = 103 km

103 ÷ 4 = **25.8 km**

2. Divide current week by this 4-week average to obtain a ratio

30 ÷ 25.8 = **1.2**

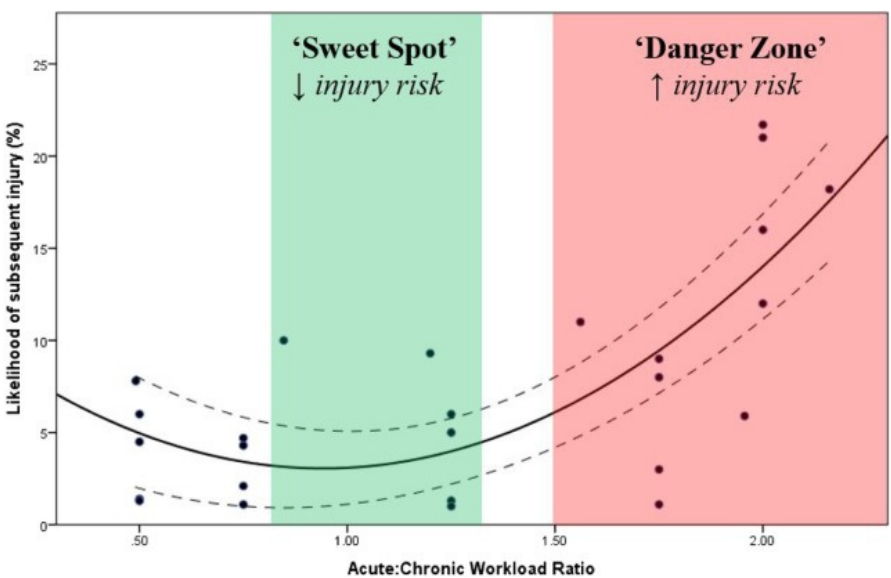
3. Ensure it is within the optimal zone

Less than 0.8 is Under-training

0.8 - 1.3 is Optimal

1.3 -1.4 is Over-reaching

1.5 or higher is Over-training



(Gabbett, 2016)

ADVANCED RUNNING

SPEEDWORK

This type of training incorporates higher intensity running to improve your overall speed, endurance and VO2max. Things to consider before starting speedwork:

- You should already be running 40km total per week consistently (over approx. 6 months)
- Should encompass 10% of your weekly mileage or one session a week when starting

TEMPO RUNS

Tempo can be split into intervals or continuous, these runs are typically described as comfortably hard.

- 20 - 30 seconds slower pace (min per km) than race pace (eg. 5km)

FARTLEK WORKOUTS

Fartlek refers to 'Speedplay' in Swedish, based around a continuous workout with sections of high intensity and recovery.

- You can time your sections to the second with guides. The Telford or Fibonacci Fartleks are good options for this.
- Otherwise you can have sections in your run where you sprint to a landmark (eg. tree), it can be very dynamic and personalised.

INTERVAL WORKOUTS

There are lots of combinations, these runs are short and fast with breaks in-between for recovery.

- 200m - 400m with short rest for 5km to 10km training
- 800m with longer rests for half to full marathon training

LONG & RECOVERY RUNS

As suggested by their names, these runs can be incorporated in your program to allow for adequate recovery and development of aerobic endurance.

LONG RUNS

This should be incorporated in any regime to allow for an increase in base aerobic stamina, regardless of the distance you're training for [8].

- A long run should be 20 - 25% of your overall weekly mileage (eg. 65km total per week would mean a long run of 12 - 16km)
- You should sit between 50 - 70% of your maximum heart rate, this should make your pace an easy and comfortable speed!

5K: 8 - 9 km for beginners; 16 - 19 km for intermediate or advanced

10K: 10 - 16 km for beginners; 19 - 22 km for intermediate or advanced

Half marathon: 19 - 20 km for beginners; 25 - 28 km for intermediate or advanced

Marathon: 29 - 25 km for beginners; 28 - 32 km for intermediate or advanced

RECOVERY RUNS

These are a slow and short run completed typically the day after a hard workout (eg. long run or speedwork). The suggested benefits are increased lactate/by-products clearance, builds fatigue resistance, improves volume and allows for improvement of form [9].

- The simplest way to check if you are running the right pace is if you are able to talk comfortably!
- 4 - 6 km is around the distance you should aim for
- Remember this still counts as a run and therefore LOAD on your body, so do not feel the need to include it weekly.

RUNNING TECHNIQUE

IMPORTANT NOTE
Your body will adjust with training and any changes in form should only be done if required, supervised and in small doses. This means taking caution when receiving advice from sources suggesting it is necessary.

CADENCE

Your running cadence is described as the total number of steps taken per minute, with higher cadence meaning more steps per minute. Your stride length directly influences this, with longer strides giving a lower cadence. Why does this matter?

- A review of 10 research studies found an increased cadence resulted in decreased centre of mass vertical excursion, ground reaction force, shock attenuation, and decreased energy absorbed at the hip, knee, and ankle joints [10].
- Another study found a 5% increase in cadence reduced plantar pressure and force at the heel and forefoot [11].

This does not mean everyone should be trying to increase their cadence! A higher cadence may help with injury prevention or management, but will also decrease performance and progression. Try playing around with it on short/recovery runs first.

STRIKE PATTERN

Strike pattern refers to where your foot makes ground contact when running, this can be split into rearfoot (heel), midfoot and forefoot (front) strike patterns.

Forefoot:

- Requires greater activation of calf muscles [12]
  - Avoid with Calf, Achilles or Forefoot injuries

Rearfoot: (Heel)

- Increases ground reaction forces [12]
  - Avoid with Knee, Shin and Hip injuries

Strike patterns can help with the rehabilitation of injured runners. But, a recent review of 53 research studies on foot strike pattern suggested due to lack of evidence, changes should not be recommended to uninjured runners [13].

RUNNING INJURIES

CHAPTER 2

RUNNING INJURIES

COMMON INJURIES

More than 80% of running injuries occur from accumulated stress that the associated structure(s) are unable to withstand, these are referred to as overuse injuries [14].

OVERUSE INJUIRES

Here are common overuse injuries of the foot, ankle and leg [14]:

- Shin Splints (MTSS)
- Hamstring Strain
- Calf Strain
- Stress Fracture
- Bursitis/Neuroma
- Ankle Pain
- Patellar Tendinopathy
- Patellofemoral Pain Syndrome
- Achilles Tendinopathy
- IT Band Syndrome
- Heel Pain
- Stress Fractures

As you can tell there are plenty of possibilities for the cause of pain! It's for this reason we suggest consulting with a health professional and not self diagnosing.

Heel Pain: This is the most common musculoskeletal injury we see in clinic, both in active runners and sedentary patients. This condition is heavily influenced by load, this includes your training/activity load and weight. Is it the same as Plantar Fasciitis?

- Simply put, No. Pain in this location can encompass a variety of complex conditions, however Plantar Fasciitis is among these and the most common.

We could make a whole other guide on the these conditions, unfortunately this is strictly on running. You can check out our fact sheets via our website, or visit us in clinic!

RISK FACTORS

These risk factors can vary greatly depending on the individual and the injury, however in a broad sense the following can lead to an increased risk of injury [15, 16]:

- Previous Injury
- Training Error
- Sex (Male)
- Older Age
- No Running Experience
- Higher BMI
- Reduced Sleep (less than 7 hours)
- Poor Diet

PREVENTION STRATEGIES

"Prevention is the best medicine", adopting this mentality of being proactive in taking care of your body and reducing risk for complications is always best compared to being reactive when injury or pain occurs.

Stretching - Does it do anything?

In short for running, no. Here are some reasons why:

- Research studies have shown stretching prior to running does not reduce risk of injury and in some cases increased it! [17]
- The Australian Ballet team has abandoned stretching all together and instead uses dynamic strength exercises to warm up [18]
- Stretching does increase flexibility, but this is not always a good thing. Joints require stability for controlled movement, if this exceeds the ligaments/tendons ability to cope then can injury occur.

This does not mean all stretching is bad! Increased range of motion may be required for some cases, but this is not a one size fits all.

Warm Up

The best thing you can do before a run is keep moving, this can be in the form of a short warm up run or dynamic exercises/drills that actively engage muscles.

Strengthening

This is by far the most beneficial thing you can do towards injury prevention. Strengthening tendons and muscles increases their ability to attenuate for load, therefore decreasing the risk of injury [17].

FOOTWEAR

The most common question we get asked, "what shoes should I be wearing?". Well unfortunately that is not a simple answer. Running footwear can be split into 3 categories:

Motion Control (Support)

These shoes are typically for those with 'flat feet' and can reduce risk of musculoskeletal injuries in runners with this foot type [19].

- Check out our Supportive Runners guide for suggestions

Neutral

These shoes are indicated for those with 'high arches' and typically provide more cushioning for protection against pressure related injuries.

- Check out our Neutral Runners guide for suggestions

High Performance

The talk of the town, these shoes are taking over the market with runners constantly striving to improve their times.

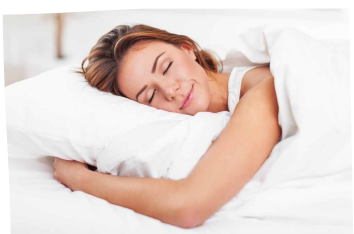
- Carbon plates; these provide greater energy conservation meaning you can go harder for longer. But, this can be harsher on the foot and is typically suggested for speedwork or race day.
- Check out our guide on Performance Runners for suggestions

LIFESTYLE

Sleep

The ideal amount of sleep is around 8 hours per night, but the quality of sleep is important [16].

- Avoid electronics in bed
- Natural light when waking up
- Consistent sleep pattern



Diet

The most simple advice for this is to cut out junk and processed food from your diet.

- Low GI and high protein foods
- Fruit post runs and veggies in meals

SUMMARY

CHAPTER 2

SUMMARY

Although 20 pages, this guide is still only grazing the surface of running and how complex it can be. The main aim of running is to continually improve whilst remaining injury free, its how you do this being the hard part.

- For beginners it is best not to over complicate things
  - Be gradual in your progression
  - Get some decent shoes
  - Take care of yourself (eat, sleep and recovery)

- With experience you can experiment to improve performance, but this introduces more risk variables
  - Speedwork and Long runs
  - Avoid changing running technique if uninjured

- Injuries are largely multi-factorial and should not be left untreated
  - How much and how soon is key
  - Strengthening is best for protection
  - Consult with a health professional if injured

Running can be quite polarising in some topics surrounding what works and what doesn't. All you can do is take in as much information as possible and make an informed decision. This guide is primarily based off current evidence with the aim of providing you, the reader, with the best possible chance to get the most out of your running.

Feel free to check out our references below and engage with us in discussion about how running is constantly evolving. Thank you for your support and good luck with the running!

Click and follow for more!

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KEEPING YOU ON YOUR FEET

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