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SCIENCE IN SPORT

MARATHON GUIDE

WELCOME

WELCOME TO YOUR MARATHON GUIDE

The marathon is a huge achievement for any runner and a true test of running endurance. It's 26.2 miles of self-discovery and self-belief. In this complete marathon guide, you have everything you need to take on the marathon.

ABOUT

This guide has been brought together with the help of elite marathon runners and leading SiS nutrition experts. Olympians, Stephanie Davis and Mohamed Reda El Aaraby, along with Director of Science in Sport Performance Solutions, Professor James Morton, share their advice on approaching and completing a marathon.

At Science in Sport, we help over 330 elite teams and athletes achieve their optimum. We are the world's leading endurance nutrition brand, combining world-class knowledge and scientific formulations to provide optimal performance solutions across the nutritional need states of energy, hydration, and recovery.

Through our world-leading research and innovation programme, we formulate evidence-based products that truly impact performance.

We push the boundaries of science and nutrition, so you can push the boundaries of endurance. Everything we do is Fuelled by Science.

KEY POINTS

Remember that this is just a guide, due to individuality and physiological ability, this plan will suit some runners better than others. Therefore, you do not have to follow it word for word. You can move sessions around and find a strategy that fits your specific needs.



Stephanie Davis



Mohamed Reda El Aaraby



Professor James Morton



In this complete marathon guide, you'll find everything you need to train for and complete a marathon. We have included our top endurance nutrition products, that will help you on your way. You can find all of these and more online at scienceinsport.com.

MARATHON TRAINING PLAN



“The key to running a great marathon is to balance good training and sufficient recovery”
- Mohamed Reda El Aaraby, Moroccan Marathon Runner

EASY RUNS

These runs are great for focusing on form and building endurance, the purpose of this pace is to help with active recovery. You should comfortably be able to maintain a conversation and should feel very relaxed.

TEMPO PACE

Tempo sessions are excellent at increasing your tolerance to fatigue. This pace is quicker than your easy runs and while you should still be able to hold a conversation you are beginning to work at this pace. These sessions get you running at more challenging paces in order to prepare yourself, mentally and physically for the marathon. Remember to include a warmup and cool down before and after a tempo effort - A 5-10 minute easy jog should suffice.

INTERVALS

This zone increases your aerobic capacity. The pace you will be running at is usually only bearable for a few minutes or repetitions. You will have time to recover and rest during each interval so you can push yourself that little bit more. They are a great way of teaching the body to tolerate running at faster speeds.

LONG RUN

The long run is your dress rehearsal for race day, as the plan progresses and you become fitter your runs will get further. All of the other elements of your training will help you maintain pace for longer without fatigue. The pace might change and it's good to vary your pace, this will make it more interesting and will help replicate how you feel on race day. This is often a good time to practice doing negative splits.

BEGINNER'S PLAN

We have put together a 16-week beginner training plan. This has been brought to you in collaboration with Runna as a rough guide. For a more personalised plan, you can visit runna.com to compose a training plan, tailored to you.

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	3km Intervals	Rest	3km Tempo	Rest	5km Easy	8km Long	Rest
2	4km Intervals	Rest	5km Tempo	Rest	4km Easy	9km Long	Rest
3	6km Intervals	Rest	5km Tempo	Rest	4km Easy	12km Long	Rest
4	3km Intervals	Rest	5km Tempo	Rest	4km Easy	7km Long	Rest
5	6km Intervals	Rest	5km Tempo	Rest	4km Easy	15km Long	Rest
6	7km Intervals	Rest	7km Tempo	Rest	7km Easy	12km Long	Rest
7	7km Intervals	Rest	7km Tempo	Rest	5km Easy	18km Long	Rest
8	5km Intervals	Rest	5km Tempo	Rest	5km Easy	10km Long	Rest

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
9	7km Intervals	Rest	10km Tempo	Rest	6km Easy	21km Long	Rest
10	7km Intervals	Rest	9km Tempo	Rest	7km Easy	12km Long	Rest
11	9km Intervals	Rest	9km Tempo	Rest	5km Easy	25km Long	Rest
12	6km Intervals	Rest	5km Tempo	Rest	5km Easy	12km Long	Rest
13	7km Intervals	Rest	8km Tempo	Rest	4km Easy	32km Long	Rest
14	7km Intervals	Rest	9km Tempo	Rest	6km Easy	18km Long	Rest
15	8km Easy	Rest	9km Intervals	Rest	4km Easy	12km Long	Rest
16	4km Easy	Rest	6km Taper Intervals	Rest	Rest	RACE DAY	Rest

INTERVAL SESSIONS

In the early stage of training, start with a ratio of 1:1 (eg. 5 mins of hard running with 5 minutes rest in between intervals).

As your fitness and your ability to recover improves, aim to reduce the rest period by 30 seconds at a time and see how you feel. In the rest period it's best to stand tall without hunching over to keep your lungs open.

Examples of marathon training interval sessions:

TOTAL DISTANCE	SET	NOTES
4km	800m warm up & down followed by: 6 sets of: 400m (RPE 9-10), 60s rest	The 400s should be done at your best effort. Try to push yourself hard. Note your RPE will naturally increase towards the end of the session.
5km	1km warm up & down followed by: 5 sets of: 400m (RPE 9-10) into, 200m (RPE 2-3) 30s rest	Once you have pushed yourself on the 400m, use the 200m to try to control your breathing, ready to go for the next set.
7km	2km warm up & down followed by: 2 sets of: [400m (RPE 8), 60s rest] x 5 120s rest	For the first 400m, aim for around 85% of your best effort. Note how long this takes and then try to match this on every interval. For the last 2-3, start trying to beat your previous times!
9km	2.5km warm up & down followed by: 5 sets of: 1km (RPE 6-7), 90s rest	These intervals should feel pretty hard and may be longer than you are used to working at this intensity for. Try to hold something back at the start and speed up when you know you'll be able to maintain that pace for the rest of the effort.

RATE OF PERCEIVED EXERTION

The “rate of perceived exertion” (RPE) scale is an excellent scale to help you gauge your effort throughout the training plan.

Using a heart rate monitor can also be an effective method of ensuring you are training at the desired intensity. A well known method is subtracting your age from 220, but this is only a rough guide and you should adjust your training based on how each run feels. If you have the technology to measure your heart rate, it is a good idea to keep an eye on how it changes over the course of your training. It is a good indicator that your fitness is improving, or if you are over-training.

ZONE	NAME	RPE	DESCRIPTION
1	Easy	1-3	Easy, recovery effort. You should feel relaxed and be able to easily hold a conversation.
2	Tempo	3-5	This should feel like you're working in a controlled rhythm. Breathing should not be laboured.
3	Threshold	5-7	Neither easy nor hard and breathing should be deep and controlled. Pace is bearable for runs between 5 and 10km.
4	Interval (V02 Max)	7-9	You will be working hard at this effort and the pace should be bearable for a few minutes.
5	Repetition/ Neuromuscular Power	9-10	Maximum or near maximum effort. This is great for building power, strength & speed. Breathing should be short and rapid. You might encounter this effort at the end of intervals, if you are pushing hard.

TIPS:

If your heart rate is higher than usual at night it may be a sign that you are overtraining or getting ill.

If your RPE feels too high for the type of session you might need to back off a little bit and focus on rest and recovery.

Pay attention to your training zones. Working too hard can lead to overtraining and lack of desired adaptations.



NUTRITION, HYDRATION, EFFORT

"I love the GO Isotonic Energy gels, I use them during races and in my training to help provide that extra energy supply that you need, they're very easy to digest and taste good"

- Samantha Harrison, England Athletics Marathon Runner

The following table will help to give you a good idea of what you should be eating and drinking at the various stages of training.

	PRE-TRAINING	DURING TRAINING	AFTER TRAINING
HYDRATION	Aim to drink 2-3 litres of water per day. Before a session (particularly longer runs or on hot days) drop one of our HYDRO Tabs into your bottle.	Work out how much you are sweating (per hour) (refer to a later page of this guide) and try not to lose more than 2-3% of your body mass through sweat loss. Include electrolytes by dropping a HYDRO Tab in your water bottle to promote hydration. Drink little and often to prevent stitches or bloating.	Make sure you replace the key electrolytes and fluids lost during the run. The best way to do this is by dropping a HYDRO Tab in your sports drinks. Refer to a later page of this guide to work out your sweat rate.
ENERGY	Your pre-run meal should be 1-3g/kg of carbohydrate. For a 70kg runner this would be 70-210g of carbohydrate 1-3 hours prerun. Include high carbohydrate foods such as cereal, toast, bagels, or a GO Energy Bake.	Aim for 60g of carbohydrate per hour from a range of sources. An hour of fuel could be something as simple as three GO Isotonic Gels.	Post-run recovery starts straight after you've finished. Kick-start the recovery process with a carbohydrate protein blend such as REGO Rapid Recovery. Follow this with a carbohydrate-based meal 2-3 hours later, including protein and plenty of vegetables.
RECOVERY	Ensure that you rest well between sessions as this is where adaptations take place. Overtraining is common in endurance athletes. Aim to get the same amount of sleep each day throughout your training period.	N/A	Alongside a balanced diet you can also take daily supplements such as our performance multivitamin gummies. Athletes will often take these as an 'insurance policy' to avoid any deficiencies and give their immune system a boost in tough training periods.

TIP: During your training, it's a good idea to vary your flavours, to keep your fuelling interesting and cater to any taste changes throughout your running. The GO Isotonic Energy Gels come in a great assortment of flavours so test out which works best for you.

NUTRITION & HYDRATION

Nutrition is vital when training for a marathon. It determines how well our bodies function, build immunity, handle stress, produce energy and recover from physical exertion. You really are what you eat.

When race-day comes around carbohydrate is the preferred fuel, and you need to practise race-day nutrition strategies in training. However, fat also has an important role to play. The percentage contribution of carbohydrate and fat to overall energy production is largely determined by exercise intensity and duration.

CARBOHYDRATE

Your high-intensity intervals and hill sessions will be carbohydrate dependent, meaning that you need carbohydrate in the working muscle to use as energy. Depending on the timing of this session, including a carbohydrate source with your meals during the day, and topping up with a snack (banana or GO Energy Bake) 60 minutes before the session is advised.

FAT STORES

Low-intensity and recovery runs can be fuelled using our own body fat stores. Before breakfast is a good time to do these runs. Having a coffee before your run can lower the perception of effort.

AVOIDING STOMACH PROBLEMS

Gastrointestinal discomfort and the overwhelming desire to urgently “go” is an incredibly frustrating and embarrassing issue for runners. It can strike for no logical reason at any stage of training - or racing.

Avoiding stomach problems relies largely on trial and error. You should always test out your race-day nutrition in training to ensure you are comfortable with what you will be consuming, and when, to minimise the risk of stomach problems on race-day.

Our performance solutions team have worked closely with elite athletes to develop products which minimise symptoms of stomach fullness and nausea. Our GO Isotonic and Beta Fuel Gels deliver easy-to-digest carbohydrates to limit gastrointestinal discomfort, often reported by runners.

CALCULATING YOUR SWEAT RATE

It is important to work out your sweat rate to ensure you are drinking enough during and after exercise according to how much you sweat.

HOW TO WORK OUT SWEAT RATE

This is an estimate so should be measured in different conditions and occasions to understand how your sweat rate varies:

1. Measure body weight before and after the training session
2. Calculate your weight loss (weight before - weight after = weight loss)
3. Measure how much you drink during the session
4. Add this to your weight loss (weight loss + fluid intake = total fluid lost)
5. Divide your total fluid lost by the number of hours of training (total fluid lost ÷ hours of training = sweat rate per hour)

**FLUID LOST X 1.5 =
HOW MUCH YOU NEED TO
DRINK TO REHYDRATE**



REST & RECOVERY

Recovery is key to marathon training and you should start thinking about it as soon as you have finished a run or a session.

You want to start by replenishing fluid levels, but also ensure you are taking on enough protein to help repair your muscles.

REGO Rapid Recovery can be used within 30 minutes of finishing a run or session to provide carbohydrates and protein to kick-start the recovery process. It may be good to have this on-hand when you finish a run so you can start drinking it immediately.

You can find a range of delicious flavours online or if you need something for on-the-go why not reach for one of our PROTEIN20 bars instead?

You must also replace 150% of fluid lost during the 2-4 hours post-run and consume a carbohydrate-based meal with protein and vegetables within 2-3 hours of finishing.

You might not feel like it but try to walk and keep moving as much as possible. A proper cool-down can help with those aches and pains the day after a hard or longer run.

DO NOT forget to rest and recover after hard training whilst fuelling your body correctly. This time allows your body to adapt and get stronger.

TIP: Epsom Salts are a really good way to help your muscles recover after a training session. They contain high levels of magnesium which helps relax muscles.

NEVER RUN ON AN INJURY

As tempting as it might be to try and ignore a muscle or tendon niggle, you are likely to make it far worse by continuing to train on it. Applying ice to the inflamed muscles or tendons, in the 48 hours after your run, can make a significant difference in helping to reduce pain and aid recovery. Get your injury seen to by a professional in order to get back on track as quickly as possible.

Don't feel guilty if you miss the odd run. Life has a habit of getting in the way of training. If you miss a week or two of training however, go back a week or so in the timetable and build your fitness levels back up again.

It's strongly recommended you get your blood pressure checked by your GP before you begin training.

Never ignore symptoms of a tight chest, dizziness or ill health - even if you are in good shape.



RACE DAY -1

"The day before, hydrate well throughout the day.
I always have a bottle with a Science in Sport
HYDRO in with my dinner the evening before!"

- Stephanie Davis, Team GB Olympian



GET PREPARED

HYDRATION

Try to consume a couple of bottles of water containing a HYDRO Tablet or GO Electrolyte throughout the day. These will ensure you are hydrated and are replenishing all electrolytes before you race.

CARB LOADING

Our body has limited carbohydrate stores to use as energy on race day. To maximise storage, carbohydrate intake can be increased in the 24-48 hours before race-day. To do this, increase the carbohydrate portion size with each meal, use carbohydrate snacks between meals, like a GO Energy Bake. Aim for 8-10 g of carbohydrate per kilo body mass per day of your carb-load.

PREPARATION

Enjoy the atmosphere of the race village, but don't get caught out on your feet all day! Try to rest where possible. The night before it's handy to get all your race kit sorted and number pinned-on so you're not rushing in the morning. Plus, it makes for the essential pre-race flay-lay picture!

CARB LOADING

The below plan provides an example of how a runner could load with 620g of carbohydrate:

FOOD (GRAMS OF CARBOHYDRATE)

BREAKFAST	100g low fibre breakfast cereal with milk (90g), 1 medium banana (20g), 300ml orange juice (26g)
MORNING SNACK	1 serving of GO Electrolyte (36g), 1 average-sized pot of low-fat fruit yoghurt (16g), 50g raisins (35g), oats and honey snack bar (27g)
LUNCH	Ham salad sandwich with butter (4 slices of white bread) (66g)
AFTERNOON SNACK	1 serving of GO Electrolyte (36g), 1 GO Energy bake (44g), 1 medium banana (20g)
DINNER	Spaghetti Bolognese - 250g white pasta, 150g tomato & basil sauce, 85g turkey mince (97g), 3 slices of garlic bread (32g)
EVENING SNACK	1 white bagel with jam (55g), 40g porridge oats with 1 tablespoon of honey (20g)

Total calories: 3570 kcal Carbohydrate: 620g Protein: 120g Fat: 70g

RACE DAY



“Fuelling during the race, is something I’ve been practising. I’m really confident that I am fuelling correctly and keeping enough glycogen in the muscles so that I don’t hit the wall during the marathon.”

-Eilish McColgan, Team GB Olympian

PRE-RACE

BREAKFAST

Have your race-day breakfast 1-3 hours before you start, whatever you have practised during training. Travel and logistics can cause distractions to your race and fuelling, so knowing what you're going to eat and planning it out is going to get you to the start line in the best shape.

HYDRATION

Drink 5-10ml of fluid per kilo body mass (around 350-700ml for a 70kg runner) in the hours before starting your race. A good option is sipping on a water bottle that includes a HYDRO Tablet or GO Electrolyte while getting ready and on your way to the event.

SNACKING

Around 20-30 minutes before the race, take an energy gel such as a GO Isotonic Energy Gel or Beta Fuel Energy Gel. This gives your body time to utilise the energy for the first few miles.

Again, only use gels if you have used them in training.

DURING THE RACE

HYDRATION

Aim not to lose more than 2-3% of your body mass via sweat loss. This usually means consuming 500 ml of fluid per hour depending on sweat rate, temperature and humidity – drink additional fluids as needed.

ENERGY

The Science in Sport Performance Solutions team advises that your energy gel strategy should be based on time not distance, i.e. a gel every X minute not every X mile. This will prevent fluctuations in race pacing from affecting your nutrition strategy. It is suggested that during endurance exercise (more than 2.5 hours) 80-120 grams of carbohydrate per hour should be consumed. This equates to 2-3 GO Isotonic Gels per hour, or 1 every 20-30 minutes.

Our Beta Fuel Energy Gels contain an optimised ratio of maltodextrin to fructose which has been shown to reduce symptoms of stomach fullness and nausea which is great for combatting any gastrointestinal issues often reported when running.

Opt for whatever you have been practising during training, always making sure you have a spare, and it can be handy giving some out to friends and family if they are watching. But don't rely on being able to see them, use this as a precaution.



STRENGTH, MOBILITY & GEAR

“Don’t wear anything new on race day. I’d recommended a dress rehearsal as part of a training session or at another (shorter) race.”

- Stephanie Davis, Team GB Olympian

WARM-UP ADVICE

Before we run, we should be looking to elevate our heart rate and increase blood flow to the muscles. To do this we should perform dynamic stretches prior to running - these are movement-based stretches rather a traditional static hold.

This will help to warm-up our muscles without over-lengthening them and increasing injury risk prior to the strenuous work ahead. We should aim to work all major muscles that will be used during the session. Spend longer on any areas of particular tightness or discomfort.

DYNAMIC STRETCHES



**LEG
SWINGS**



**DIAGONAL
TOE TAPS**



**SIDE
LUNGE**



**HEEL
KICKS**



**LUNGE
WITH TWIST**



**TOE
TOUCHES**

COOL DOWN ADVICE

On finishing our run, we should look to focus on static stretches. These are stretches which are held for around 45-60 seconds. Here we are looking to maintain or increase our range of movement whilst also starting the recovery process. Stretch each of the main muscles that take the load when we run - glutes, hamstrings, quads & calves, as well as any personal 'problem areas'.

STATIC STRETCHES



**GLUTE
STRETCH**



**CALF
STRETCH**



**QUAD
STRETCH**



**HAMSTRING AND
GROIN STRETCH**



**HAMSTRING
STRETCH**

SHOULD I GET A SPORTS MASSAGE?

Yes, during the first few months of your training it is recommended you have a sports massage every other week. When in the peak of training you can increase this to once a week.

Alternatively, a foam roller is a cost-effective method of releasing muscle tension and rolling out the aches and pains.

STRENGTH

We want to help prepare our body for the load that running brings, so strength training is a crucial part in any running training regime. We should look to strengthen all major muscle groups to create a balanced body. Try out some of the body weight movements suggested below. You can introduce weight, increase the number of reps or slow down the movements as you look to challenge yourself more when you get stronger.

STRENGTH EXERCISES



SINGLE LEG SQUAT

On one leg, slowly lower down onto a chair or bench. Repeat this on both legs. Gradually increase the number of reps as you get stronger. This will work your quads and glutes while promoting good knee stability.



STEP UP TO BENCH

Step one leg onto the bench and bring the opposite knee up powerfully into a 'running position'. Make sure to counterbalance this motion with your arms. This will help to powerfully recreate the movement of running, strengthening our quads, hip flexors and core.



BULGARIAN SPLIT SQUAT

Lunge, with your back foot resting on the bench. This will be great for your hip mobility while working into glutes and quads.



MOUNTAIN CLIMBERS

Holding a straight arm plank position, run one knee towards the chest at a time. This will help strengthen your shoulders, core, hip flexors and calves.



OVERHEAD LUNGE

A regular lunge with straight arms reaching above your head. This works the quads and glutes whilst also opening your hips and shoulders to improve running posture.

APPAREL

Here is a list of some items that every marathon runner should have in their wardrobe, and don't forget to try out your race day kit before the marathon so you feel comfortable running in it.

RUNNING BOTTOMS

- **Running Tights** - seamless, moisture-wicking, lightweight and incredibly comfortable, running tights are a great piece of kit.
- **Running Shorts** - a good pair of technical running shorts is a must, make sure they don't chafe you considering the number of miles you will be running. They should be made of a moisture-wicking and quick-drying material.

RUNNING TOPS

- **Base layer** - ideal to wear as a "second skin" in cold conditions, it helps wick moisture from the body and avoid chafing.
- **Waterproof** - you can't train for a marathon in the UK and not experience rain at some point when out training. These are often wind-proof as well and useful for all seasons.
- **Tops / T-shirt / vest** - good technical running tops will help you regulate heat and manage moisture. Choose some that are appropriate for the season, like a longer sleeve for over the winter.
- **Running bra** - Often overlooked, a good quality running bra for women is essential. A sports bra is as important, if not more so, than your shoes.

TIP: Make sure you have thought about how to carry your nutrition throughout the race! Consider picking up shorts or tights with specific storage in them.

TRAINING ESSENTIALS



ENDURANCE NUTRITION

Your race and training nutrition are essential for completing a marathon. Not only can they help you go further and faster, but they also help you avoid hitting the wall and ensure you enjoy the experience so much more.

HYDRATION PACK

A hydration pack is the best way to ensure you are drinking enough during training runs and the race itself. Ensure you find one that fits snugly to your body so it doesn't move around when you run. Hydration packs are also a good way to carry your gels.

PHONE POUCH

There are many different ways to carry your phone and it often comes down to personal preference. However, the most popular tend to be a running belt or armband with a pocket for your phone.

SMART WATCH

Running watches are a good investment to make when training for a marathon. They allow you to track your progress accurately and ensure you are training at an appropriate pace for you. Alternatively, you can use your phone to track your progress.

SHOES

Although any number of biomechanical reasons can be to blame for injuries, wearing the wrong running shoes for your “gait” is a key contributor to easily preventable injuries.

WHICH SHOE IS RIGHT FOR YOU?

No matter if your goal is to run a sub-3-hour marathon or break 5 hours, every runner should invest some time in choosing the right shoe. Your choice of running shoe can mean the difference between injury free running and regular trips to the physio.

When choosing, follow these five simple rules:

- 1** Get a well-cushioned pair - your feet go through a lot over the course of marathon training. A well-cushioned pair will protect your legs and feet and help you avoid injury.
- 2** Seek advice - if you are buying the first pair of running shoes for several years, go to a specialist running store and seek advice from an expert. This advice is free and following a “gait analysis,” you can guarantee they’ll find the most suitable shoes for you and your specific running gait.
- 3** Quality brand - different brands of running shoes offer very different products, so choose a brand which specialises in running.
- 4** Try them on, take them for a spin and if they don’t feel comfortable after a few runs they may not be right for you. Most good running shoe companies will let you refund a pair if you don’t agree with them shortly after purchasing.
- 5** No matter how good your shoes are, if you don’t have a pair of comfortable socks, you’re going to get more blisters on your longer training sessions. It’s worth investing here too.



ABOUT RUNNA

No matter what you're training for, Runna wants to be with you every step of the way.

They help all runners, from beginners to elite athletes, reach their full potential. They simplify your training, leaving you to focus purely on enjoying the running!

Runna is a free-to-download app that provides challenging yet achievable training plans for a variety of needs. They take the leg work out of training for your next race with a variety of workouts, personalised comments from coaches, pace targets and live coaching via the Garmin integration. There is also a library of resources to help you with topics like warm-up routines, injury management and advice on running form. Plus, you'll be joining the growing Runna community of like-minded athletes who share the same passion for the sport.

You can find out more about them by downloading the app or heading online to runna.com.

Sign up and use the code "SIS" for a 2-week free trial.





DISCLAIMER

The contents of this guide are to help readers prepare for marathons safely and effectively. It should not be used as a substitute for proper medical advice. If you are in any doubt about whether you are able to tolerate marathon training, always seek proper medical advice.

SiS or the author cannot be held responsible for illness arising out of the failure to seek medical advice from a doctor.