

TRI HARDER

A-Z OF TRIATHLON FOR IMPROVERS

BY MAX BOWER

YMCA

HEALTH AND FITNESS GUIDES

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Introduction

Since triathlon first won status as an Olympic sport at Sydney in the year 2000, it has seen an explosion in mass participation all around the world. Over that period (and before), hundreds of thousands of people have taken part in events, enjoying the challenging yet accessible nature of the sport, with all the opportunities for fitness, friendship and achievement that it offers. If you are part of that global phenomenon, this handy guide to triathlon for improvers is designed to help you move forward in your triathlon journey, with tips for fitness, performance, added enjoyment and more.

Ask yourself what you want to achieve...

As with most areas of sporting endeavour, the common key to success comes through the implementation of the three Ps: plan, practise and prepare.

This is true whether you are an amateur athlete contemplating your first Olympic distance triathlon to raise funds for a charity, or one of the Brownlee brothers preparing to battle it out for Olympic gold.

Setting goals for what you would like to achieve is therefore crucial and achievable goals are almost always SMART; that is:

- Specific
- Measurable
- Achievable
- Relevant
- Time-framed

If this all sounds a bit serious, it doesn't have to be. Compare and contrast these two goals:

Gemma's goal

Gemma is keen to improve at triathlon and wishes to take part in the Milton Keynes Olympic distance triathlon in July. She would like to complete it in under three hours. She finished the same event last year in three hours and 15 minutes but with little swim training and very slow transitions, which she recognises she needs to practise. She has eight months to prepare, from December until July.

This can be defined as a SMART set of goals, as follows:

Specific – she has chosen the exact event in which she will take part

Measurable – she has given herself a time target which is absolutely quantifiable

Achievable – given her previous experience and results, the above look like realistic aspirations

Relevant – the goal relates directly to her ambition, which is to improve at triathlon

Time-framed – she has given herself a target which is on a given date, and a good period of time over which to prepare herself.

Now, contrast Gemma's goal with that of Jim...

Jim's goal

In April, Jim decides that he would like to try a triathlon at some point over the summer with some friends. He has not swum or run since he was at school, 10 years ago, but cycles at the weekends if the weather is nice. He doesn't mind how quickly he gets round, but would like to beat his best mate, Geoff. At the same time, he would like to lose some weight and get fit.

This fails the SMART test on a number of counts:

Specific – there is no actual event, distance or time defined.

Measurable – there are no specifics to measure achievement against, e.g. in terms of how quickly he is likely to need to go to beat Geoff, how much weight he would like to lose, or how he would define 'getting fit'.

Achievable – there is little information available as to whether he's likely to get through a triathlon (even if he had decided on the event/distance), so it is hard to assess his chances.

Relevant – Jim seems to have a mixture of reasons for doing the event (competition with his friend, losing weight) which may or may not be satisfied by completing a triathlon. Without more specifics, it is hard to pin down the relevance.

Time-framed – there is no particular target date to aim for, so no time frame to build a realistic plan around. This is compounded by the lack of knowledge of Jim's current fitness levels.

Jim's goal could easily be made SMART by the addition of some detail, and a more honest approach to what he would like to achieve. For example, he needs seriously to consider testing his current fitness by trying some swims and runs at likely triathlon distances. This will allow him to pick a suitable event, which will define the amount of time over which he has to prepare. This will, in turn, make it possible to establish some targets for how quickly he would like to complete the event, or whether he would just like to complete it without any time pressure, e.g. by putting a number on how much weight he would like to lose instead. All of these things make it much more likely that he will achieve successful outcomes.

Key learning point

Be clear in your mind as to what you would like to achieve. That way, you will know when you have reached your goals. If you don't reach them, you can ask yourself why and what you can do to alter the plan or the goals for next time.

Brick training

One of the most fundamental mistakes that many newcomers and experienced triathletes make in their training is the failure to combine the different demands of the disciplines (swim/bike/run) into single training sessions.

Brick training is based on the idea of combining training approaches in quick succession (most commonly bike and run) to replicate the requirements of multi-sport events. The key to successful training for any sport is specificity, i.e. making the training accurately reflect what needs to be achieved when performing. In the context of triathlon, brick training is the most effective way to achieve this.

A simple brick session could look like this:

Run 10 minutes – Cycle 10 minutes – Run 10 minutes

So, why is this such an effective way to train? Simply because it prepares the body for the physical and psychological demands of rapidly changing from one sport to the next in quick succession, which is quite unlike when they are done separately.

Participants in triathlons commonly report that their legs feel like jelly when they make the transition from the bike to the run sections of a tri. This is because the body is going from a supported seated position to an upright position, and because different muscles (including postural muscles) are being used in completely different ways. This requires some muscles to cool down and get rid of lactic acid while others effectively have to warm up.

By taking part in regular brick training, the body can be prepared for this effect both in a physical and psychological sense.

Brick training sessions can be constructed with a number of different goals in mind:

Endurance

This will involve longer distances, preparing you for the actual distances involved in your event. For example, if you are taking part in an Olympic distance, it will be useful to build up towards bike/run bricks of up to 40km/10km. Although it might be logistically difficult, it is worth trying to organise some swim/bike bricks that mimic the distances involved as well.

Speed

Brick sessions can usefully combine training for speed with training for different disciplines. For example, a run/bike/run brick session in the gym consisting of 10 minute bricks could also involve intervals aimed at building running and cycling speed (see **E** for Endurance training versus speed training). So, within each 10 minute brick, one minute anaerobic intervals could be alternated with one minute recovery. This kind of approach is fantastically time efficient, as it prepares the body for transitions at the same time as building speed in both disciplines.

Transitions

Brick training can involve elements of transition training in order to build the motor skills involved in transition. For example, a gym run/bike/run session could involve changing from running shoes to cycling shoes when moving from treadmill to bike and vice versa, or putting on and taking off a cycling helmet. An outdoor brick session can be made realistic with the bike 'racked' and your equipment laid out as for the real thing.

Terrain

Triathlons vary widely in the terrain that they cross, most notably in terms of whether they are hilly or flat. Brick training sessions can be devised to prepare your body for this. Many triathlon organisers will publish a profile of the course on their website, which will show heights above sea level at various points along it, and possibly gradients. This allows you to insert some hill intervals into your brick sessions (more likely endurance-style bricks) which replicate those found on the real course. Shorter hill intervals (1/2/3 minutes climbing followed by recovery) can also be used to build general 'hill fitness'. Treadmills are good for this, as the intervals (and progress) can be controlled and monitored, although outdoor intervals with relevant inclines are also recommended.

Key learning point

Bricks are the most specific training for triathlon that there is; make them a fundamental building block of your training regime!

Circuit training

A complete training programme for triathlon should involve more than just swimming, cycling, running and transition. This is because the body needs to be functionally strong in order to cope with the demands of endurance sport (see also I for Injury avoidance). Circuit training, whether in a group session or individually, can be an excellent way to strengthen muscles, bones and the connective tissues that are vital for avoiding injury. Circuit training is also fantastic as an out of season activity to build base fitness while staying out of the freezing weather.

An example circuit could look as follows. Many of the exercises will be familiar, but their particular relevance for triathlon is shown in the second column.

Exercise	Discipline and relevance
Single leg squats, 10 repetitions each leg	Cycling – builds leg endurance and evens up leg strength
Medicine ball slam	Swimming – builds endurance of latissimus dorsi (major back muscles), important for freestyle
Lunge with upper body rotation	Cycling – builds leg endurance; Swimming – builds oblique abdominal endurance
Plank	Cycling – builds shoulder stability; Swimming, cycling and running – builds core stability
Run/sprint intervals	Running – builds speed and sprint finish
Lying prone to standing up to lying prone	Transitions – improves ability to change body orientation
Triceps dip	Swimming – builds endurance of triceps, important for freestyle; Cycling – triceps endurance relevant for supporting upper body on the bars
Shuttle runs	Running – builds endurance and improves power for direction changes
Forward lunge combined with undoing/tying shoelaces	Transitions – motor skills for changing shoes; Cycling – builds leg endurance

The above exercises can be done individually or in a group; outdoors or in a hall, or even in a gym. The key is to think laterally about training – many gym and exercise classes have content that is beneficial for the triathlete. Sprinkling in some sessions such as studio resistance, circuits and studio cycling are a great way to vary your training in ways that will also improve your sporting performance.

Key learning point

Vary your training; it will improve your overall fitness, triathlon performance and ability to avoid injury.

Distances

Let's take a moment to recap the main distances over which triathlons are run, and then discuss reasons for trying out more than one distance. It is worth bearing in mind that these distances can be somewhat fluid, and that different events will have subtle differences in the lengths of each leg.

Event	Swim	Bike	Run
Super Sprint	400m	10km	2.5km
Sprint	750m	20km	5km
Olympic	1.5km	40km	10km
Half Ironman™	1.2 miles	56 miles	13 miles
Ironman™	2.4 miles	112 miles	26 miles

Many participants aspire to cover an Olympic distance triathlon, and may make that their only event for the year. If this is the case for you, it is well worth considering a shorter distance (Super Sprint/Sprint) event earlier in the season, because:

1. It is an excellent way of benchmarking your progress against the plans you have made for the year (see **P** for **P**eriodisation and **Y** for **Y**ear plan).
2. Real world brick/transition training gives maximum specificity of training for the physical and motor skills required for your main event. In this respect, it *will* make you faster when it comes to your main target.
3. It allows you to test out your current equipment, and make any changes required to your kit.
4. It allows you to test your transition plans, and tweak as necessary for greater efficiency.

Many people decide to progress from Olympic distance to the ultra-distance events such as Ironman™, amongst others. The key issues here are the amount of extra time required to train for these levels of endurance (see **E** for **E**ndurance training versus speed training), and the extra wear and tear inflicted on the body by that volume of repeated swimming, cycling and particularly running.

Where these kinds of events are being considered, it is crucial to consider injury avoidance strategies. It is also worth noting that many endurance athletes such as marathon runners end up in triathlon for the very reason that they wish to cut down on the sheer volume of single discipline training involved!

Key learning point

Consider mixing up the events you take part in, both to benchmark your progress, and to give you variety and additional challenges.

Endurance training versus speed training

Do you train for endurance, or do you train for speed? If you're not sure, you should be. The sport of triathlon demands that you train for endurance and speed to ensure you cover your distance, and in a quicker time.

Put simply, endurance is your ability to keep going over a long period of time, and speed is your ability to cover ground quickly. More precisely, we can define the ability to maintain speed over a period of time as speed endurance.

Many recreational athletes involved in endurance sport (running, cycling, triathlon) make the mistake of exhaustively 'getting the miles in' at the expense of spending time building their speed.

Interval training

The key to improving speed is interval training. A simple example would be:

1. Find your sustainable running speed on a treadmill, similar to the pace that you would use for a long jog/run outdoors
2. When fully warmed up, pick up the speed by an increment of, say, 1km/h for one minute
3. At the end of the minute, bring the speed back down to the previous pace, and recover

Ideally, the intervals should mean you get a bit out of breath, but not to the extent that you are too exhausted to carry on training. By getting out of breath, you are crossing your anaerobic threshold, the level at which your aerobic system has to ask for help from your anaerobic system. By repeatedly crossing this threshold, you will encourage your body to up its threshold, thus raising the speed at which you can comfortably run. Over the weeks, you should be able to raise the base speed at which you run, and hence raise the speed of the intervals, without raising your perceived exertion.

This type of training can just as easily be used for cycling or swimming, and is ideal for the gym where speed can be closely controlled and monitored. It also makes those boring gym sessions far more interesting!

Clearly, it is also important to make sure that you have the endurance to travel the distances that you will need to cover in your event. This is particularly the case if you are planning to step up a distance, and especially if that is up to an ultra-distance format.

Put simply, your programme of training (see **P** for **Periodisation**) will ensure a build-up of endurance during the base and preparation phases, up to the distances necessary. For example, in the case of Olympic distance, there will be a build up to the full distances of 1.5km swimming, 40km running and 10km running. There should also be brick sessions (see **B** for **Brick training**) where endurance for more than one discipline is combined – the ability to cover a 40km bike ride in isolation does not mean that the endurance to cover a 10km run afterwards is available. For distances up to Olympic, the preparation and competition phase may well contain some reasonably accurate simulations across all three disciplines combined.

For ultra-distance events, this will be less feasible, due to time constraints and because of the stresses placed on the body by the sheer volume of swimming, cycling and, most notably, running. In these cases, endurance should be built up to the point where it is reasonable to assume that, on the day, the extra distance can be covered.

Key learning point

Endurance and speed/speed endurance are key aspects of fitness; make sure you cover both in your programme of training.

Formats

The multi-sport market is currently undergoing a massive expansion, with the number of triathlon events increasing and a proliferation of alternative formats also emerging. So why not diversify your experience and training by trying out some different multi-sport formats? This can help to keep your interest up, vary your training methods, and give you other events to take part in when triathlon is out of season. Listed below are a few ideas and what they offer:

Aquathlon

Swim and run. Excellent for competitive swim practice combined with a simple transition. Less equipment and transition complexity to worry about.

Adventure events

There is now a huge variety of outdoor adventure-style events, many based on obstacle/assault course activities. As well as being a lot of fun, these can be an excellent way of introducing an element of cross-training into your overall programme.

Duathlon

These involve varying combinations of running and cycling, often run/bike/run, but in multiple guises. As there is no swimming involved they tend to run over a much wider season than triathlons, so are excellent for expanding your spread of events over the year. They are also great for transition practice, benchmarking your progress in running and cycling, and are fun in their own right.

Gym-based triathlons

These usually involve a combination of row/bike/run on gym equipment, typically over short distances of, for example, 1,500m/5km/2.5km. There are numerous benefits to these events:

- Excellent training for triathlon – a classic brick training approach (see **B** for **Brick** training)
- Good out of season training
- Gives gym training a focus, and a ‘point’
- A good way of meeting others who are interested in multi-sport events

Rowing is a fantastic whole body endurance exercise with huge cross-training benefits for the triathlon disciplines.

Some gyms organise events with a more traditional pool swim/bike/run approach, but stop the clock for the swim/cycle transition to comply with basic health and safety policies. They will allow a window of usually five minutes for getting changed, starting the clock again when on the bike. Clearly, these events have enormous benefits for those training for the real thing, particularly for those who struggle to organise brick training involving swim and bike.

If your local gym doesn't do any of the above, why not suggest to them that they give such events a try?

Off-road events

Similar to duathlon, there are now a variety of events that combine off-road trail running and cycling/mountain biking. Trail running and mountain biking are hugely popular in their own right and offer the opportunity to enjoy the technical demands of these sports at the same time as gaining the benefits of multi-sport training.

Open water swimming events

Many open water swimming events now take place annually on rivers, lakes and the sea around the country. They are a great chance to practise swimming in a group using a wetsuit, without the added pressure and logistical issues of a full triathlon. For this reason, they can be an excellent way of training for what is often the least trained-for discipline in triathlon.

Quadrathlon

Quadrathlon is a combination of kayak/swim/bike/run. For those for whom swim/bike/run is simply not complex enough, this could be an excellent type of event to try! The governing body is British Quadrathlon – see www.britishquadrathlon.org.uk.

Key learning point

Try out something new every once in a while; it will give you the opportunity to freshen up your training programme and focus on new or existing skills that you would like to develop.

Gear selection (or how to cycle faster for less effort...)

How often do you consider your cadence (pedalling speed) when thinking about your cycle training? If the answer is never, maybe it's about time to start giving it some attention. In the world of road cycling, the trend over recent decades has seen a move away from slower cadences (pushing higher gears) towards higher cadences (using 'easier', lower gears). This is particularly true when it comes to climbing; modern thinking tends to emphasise trying to keep a consistent cadence when going uphill, rather than slowing the cadence and labouring against a higher gear. This can apply equally on flat terrain. High-level cyclists will tend to spin their cranks at around 100–120 revolutions per minute (rpm).

Changing this thinking involves a change in mental approach. When people feel like they are working hard, they naturally assume that it must mean they are achieving more. If you tell people that they can achieve more for less, they will be suspicious. However, the reason that it feels hard pedalling slowly is that the muscles are not necessarily operating at optimum efficiency, thereby generating lactic acid and causing breathlessness.

As a general rule, if you are regularly pedalling at cadences of substantially less than 100rpm, you may benefit from speeding up your pedalling speed. You can measure your cadence by counting the number of times that one of your pedals rotates over the space of a minute, or over 15 seconds and multiplying the result by 4.

Try this:

Next time you are climbing a hill that you are familiar with, ascend it in your usual gear, and time it. Make a note of your rate of perceived exertion (how hard you were working) on a scale of 1-10. Then, repeat the climb, but in a lower gear with a higher cadence. Try to climb at a similar road speed – you can monitor this on a cycle computer if you have one. If you found that you kept up a similar speed, but with a lower rate of exertion, you have now found a more efficient cadence at which to pedal.

Alternatively, pedal along a flat distance with a low cadence in a high gear. Monitor your perceived exertion for a given speed. Play around with the gears and the cadences. You may well find that a cadence of 100rpm, or even above that, lowers your perceived exertion rate.

If you do not find that the above experiments work for you, you may need to gradually practise increasing your cadence by working with intervals to increase your legs' ability to turn at pace. It is worth persevering with this, as higher cadences are more efficient.

As well as increasing cadence, it is worth trying to smooth out the pedal stroke as you practise. This simply means trying to engage actively with the whole pedal circle as you turn the cranks, rather than just stomping downwards. This will enable you to generate a faster, smoother, more efficient technique. This is easier when using cleated shoes and clip-in pedals, but is also possible when using old-style toe-clips.

Key learning point

Experiment with your cadence, and speed it up in increments if it is much below 100rpm.

Help from experts

Don't be too proud to ask for advice when it's needed. Triathlon is a technical sport, with each of the four disciplines (including transitions) requiring a great deal of skill for good performance.

Swimming in particular is a highly complex activity, and most people can benefit from the advice of a good swimming coach to make improvements to their stroke. This is particularly true of those who have learned to swim on 'instinct' and have never taken the time to break down their technique. A couple of sessions with a coach could reap enormous dividends in terms of swimming efficiency and confidence in the water. Many leisure centres will have swimming coaches who can help you.

Running and cycling also involve technical skills that can help to improve performance and injury avoidance. Coaches can often be found through running, cycling and triathlon clubs.

Key learning point

Don't be afraid to ask for help; small changes to technique can make a big difference to performance.

Injury avoidance

There's no getting around the fact that endurance sports tend to be associated with overuse injuries through the volume of repetitive training involved, which puts a lot of stress on the body, particularly the skeletal system.

There are two main points to help keep injury at bay when taking part in endurance sport: technique and cross-training.

Technique

Swimming, cycling and running over long distances involve thousands upon thousands of repetitions of movement through joints such as the knees, ankles, hips and shoulders.

In terms of general technique, it is of vital importance that good posture is maintained, particularly during cycling and running. Poor posture is endemic in modern society, largely due to our predominantly sedentary lifestyles and ways of sitting while at work – common symptoms include having the head and shoulders carried forwards and the arms rotated inwards so that the palms face back. If postural problems are carried through into sports technique (take a look at cyclists for common examples of the above issues, especially when working hard), short-term injuries and long-term chronic problems are made far more likely.

Put simply; try to stand tall, open the chest, keep the palms facing into the sides of the body and carry this through into your running and cycling techniques. It is also worth taking part in good quality exercise sessions – such as Pilates and Alexander Technique – that are designed to address postural issues and strengthen postural muscles.

In terms of specific technique, there are countless problems that can occur through joint alignment issues when swimming, cycling and running at high volumes. This is a vast topic that cannot be addressed here but if you start to experience problems, it is vital to seek relevant support from sports coaches and physiotherapists, as well as good practitioners of Pilates or Alexander Technique with experience in sport (see **H** for **Help** from experts).

Cross-training

It is important to take a holistic approach to fitness, as this will help you to avoid injury. A good programme of weight training will help to strengthen muscles, tendons and other connective tissues around joints, which prevents stresses from being placed on the ligaments that limit range of movement, and cartilage that protects the end faces of the bones. A weight-training programme using a whole body approach, particularly if used early in the season (see **O** for **Off** season), will help to build joint stability around the body.

A specific example of a weight-training exercise that is very useful for those who cycle and run extensively is for the vastus medialis (VMO), the teardrop-shaped part of the thigh muscle that borders the inside of the knee. This muscle only fully contracts on full extension (straightening) of the knee, so tends to be weak in relation to the rest of the thigh with cyclists and runners, as these

disciplines do not involve full extension. This can cause knee alignment issues, which may become apparent during both cycling and running. Resistance training exercises, where the knee is fully extended (but not hyperextended) will counter this. Examples include dumbbell/barbell squats and lunges, squat machines and leg extension machines.

Other approaches such as circuit training, suspension training and studio resistance will have relevant benefits to promote joint stability.

Key learning point

Broaden your training; it will help you develop a more rounded approach to fitness which will help you to avoid injury.

Juggling training and 'real' life

Taking into account the demands of preparing for all four disciplines, the sheer volume and time needed to train can seem daunting. For example, a programme in which swimming, cycling and running each feature twice a week, with an additional transition session, will see you tackling seven separate sessions. For many people with busy lives, this is simply not feasible.

To help make the best decisions about how to spend limited time, it is useful to think creatively about how to make the most out of your sessions. In **B** for **B**rick training we explored the concept of combining training approaches into one session for reasons of specificity of training; that is, it is the most relevant physical and psychological training that you can do for triathlon. In the context of a busy life, however, it is also the most time efficient way of cramming in the necessary training.

For example, if you have two hours on Saturday morning in which you usually go for a cycle training session, why not set up a transition at home (or anywhere secure) and cycle for, say, 90 minutes followed directly by a 30 minute run? This means you have completed a cycle, run and transition training session all in one go, which is much more efficient than just cycling and leaving the running for another session.

Similarly, if you use a gym, you can fit brick sessions, rather than single discipline training, into your time, ticking off more than one discipline at a time.

Alternatively, think laterally about ways of travelling around that could mimic a brick approach – could you cycle to the gym and then get straight onto the treadmill? Go for a swim at the leisure centre then cycle home? Cycle at the gym and run to work?

As seen in **E** for **E**ndurance training versus speed training, short, high-intensity interval training is just as important as longer, lower intensity sessions. With this in mind, it's always worth going out for a quick swim, cycle or run and (after a warm up), adding in some intervals. Don't think that because you only have 20-30 minutes to spare, it's not worth putting in a quick session!

Key learning point

Think creatively about how to fit sessions into your routine; and think bricks!

Kit

The amount of gear now available to triathletes is mind-boggling, and the opportunities to spend enormous quantities of money on triathlon-related kit is almost limitless. If you do not have an endless budget, but want to make a few additions to your armoury, here are a few tips for buying gear that makes a difference:

Cycle-specific shoes with cleats/pedals

If you haven't tried these yet, you really should. They enable you to transfer power far more efficiently to the pedals, by smoothing out your pedal circle. Once used to them, you'll wonder how you ever lived without them. For those of a nervous disposition, choose a brand that allows the spring release mechanism to be adjusted, so that the feet can be unclipped easily during the learning period. If you are a member of a gym, it is also worth noting that many gym bikes and studio cycling bikes have pedals that are compatible with Shimano SPD Mountain Bike style cleats. This means that you can train in the gym with your cycle-specific shoes on, and put together more realistic transitions in brick training sessions.

Elastic laces for running shoes

Very cheap, and very useful. Saves messing around in T2 trying to do your laces up.

Race belt

Inexpensive, and saves having to find someone to safety pin your numbers on front and back.

Tri suit

Put it on at the beginning, and then forget about it. It will dry out quickly after the swim (assuming it isn't raining), has a thin pad to make the cycle more comfortable, has pockets on the back to store a couple of energy gels, and is light enough to run in comfortably. Job done.

A good bicycle

Let's be honest, not many of us need an excuse to buy ourselves a nice shiny bike, but this is one instance in which the outlay of as much money as you can comfortably afford really does make a difference. The secret is to buy the best frame you can afford, with entry level running gear (gears/brakes) fitted if necessary. The frame is with you for years, but the running gear can be upgraded when it wears out.

Of increasing popularity to triathletes is the 'sportif' style of bike. Basically, these have been designed to be fast on the road, but with a degree of comfort built into the geometry and construction of the frame. This makes them more suitable for all-round use such as training rides and competitions, as you will ultimately be quicker on the ride (and the run after) if you are happy in the saddle. Try a few different makes before deciding which suits you best.

A good tip for picking up gear at a discount is to buy it at the end of the season, when retailers tend to be clearing out the year's unsold stock. You can often find this stock at shows such as the Triathlon Show at Sandown Park, and on websites such as Chain Reaction Cycles, Wiggle and TRI UK.

Key learning point

It's not about the bike (or any other kit), but a few choice items can make your training and triathlons more comfortable and fun.

Lifestyle

In the fitness industry, the concept of sticking to an exercise programme is known as adherence. Unfortunately, the record of people's adherence to exercise programmes, as with other types of lifestyle changes such as diet, is generally poor. However, there are factors that dramatically increase adherence, and these are relevant to sporting programmes for the recreational athlete.

One of the most important tips is to make the activity a central part of your overall lifestyle as opposed to seeing it as something that gets tacked on at the end of the day. A successful way of achieving this can be either to involve friends/family/your partner in the activity, or to join social groups that take part in it. If you can do both, even better! Studies have shown that having a support network to help establish habits can make a huge difference. If you think about it, this stands to reason: you're much more likely to get out of bed to go for a run if you have to meet your friend or club-mates at the end of the road.

Over the last few years, the popularity of cycling clubs in particular has exploded. If you need motivation to get you out for a training ride at the weekend, this could be the way to do it. You may well meet other people who are training for triathlons or other similar events, so you can share training tips and other sessions such as runs and circuits.

Running and triathlon clubs also operate in many areas – check the websites of Triathlon England, Wales and Scotland for more information.

Key learning point

Look for ways to build fitness and sport into your family, work and social life, and you will be far more likely to stick with it.

Milestones

When planning your year's activities (see **Y** for **Year** plan) it is good practise to set out a series of milestones along the way to monitor your progress against your goals (see **P** for **Periodisation**). For example, if your goal is to complete a Half Ironman™ in August, scheduling in an Olympic distance event midway through the season to check your progress is a good idea. Similarly, if you are working towards time goals, it is a good idea to schedule tests of your speed over appropriate distances during the preparation period.

In this way, when milestones are achieved, you know that you are on your way to meeting your targets. If there is a problem, conversely, it gives you warning that you may need to adapt your plans, or even your ultimate goals.

Key learning point

Every journey should be broken down into a series of steps; milestones help you to measure out and recognise those steps.

Nutrition

While this may not be an appropriate place for a wider discussion of diet and nutrition, it is useful to touch on approaches to making sure that you have sufficient energy in the tank for your chosen event. Simply speaking, the body stores a certain quantity of energy and if that is likely to run out over the course of an event, it must be sufficiently replenished or performance will be seriously affected.

First things first: whatever the event, it is important to eat well in the lead up to it, most importantly by eating a good meal with plenty of slow-release carbohydrates (pasta, rice, pulses) the evening before. This will ensure that the muscles and liver are fully replenished with stored energy in time for the next morning.

The table below shows some broad guidelines for how long a variety of triathlons could be expected to take for a recreational participant:

Event	Likely time range for recreational participants to complete
Super Sprint	Less than an hour
Sprint	1 hour to 1 hour 30 minutes
Olympic	2 hours 15 minutes to 3 hours 15 minutes
Half Ironman™	6 hours plus
Ironman™	12 hours plus

Broadly speaking, the body will carry enough glycogen (stored energy) to allow for up to an hour of intense exercise. So, using the table above, you can see that most participants will probably be able to get through a Super Sprint without any need for nutrition on the go, assuming they have followed a sensible eating policy in the day(s) before it.

A Sprint may cross over into territory where some additional energy may be needed. For small amounts of easily accessible calories, energy gels, energy bars or energy powders dissolved in water are probably the most simple to use. Jelly type sweets are a low-cost alternative.

For the Olympic distance, some ingestion of energy along the route will certainly be required. Again, this will probably take the form of energy bars and gels, or powders in water. For both of the above, it makes most sense to plan to take on board energy during the cycle ride, as this is the easiest place to store the products, and is the discipline least disrupted by unwrapping and eating.

An obvious advantage to powdered energy products is that liquids can be stored in a bottle/cage on the bike, and that this addresses both energy requirements and the need for rehydration.

On longer events, it is a good idea to mix up products with a more instant effect (gels, powders), with those that release it more slowly (cereal bars, fig rolls etc.).

The key point here is to try different product types and brands as part of your training over the months in the lead up to the event, as different people find different products palatable and

digestible. Many people struggle with gels to start off with, finding them unpleasant in the stomach – they do take some getting used to!

When it comes to ultra-length distance events that take place over many hours, all of the above will be relevant, but most events will put on more substantial levels of energy replenishment in the transition areas. In the context of running a marathon after a 112 mile bike ride, a couple of minutes spent eating some pasta is a small time price to pay to top up long-term energy supplies! The longer the distance of the event, the more important it is to find out exactly what is on offer from the organisers so that your strategy can be planned around it.

Key learning point

Test out different ways of keeping yourself topped up with energy early on in your training programme; this will help you to find the approach that works best for you.

Off season

Although the temptation to kick back and relax may be strong during the cold, dark days of winter, it can in fact be very important season in terms of building a solid platform of fitness for the next year's events. This part of the year can be used for base phase training (see **P** for **Periodisation**). It might be boring in the gym, or cold outside, but it is essential to maintain or improve your aerobic base during this time by doing some longer distance sessions at intensities well inside of your anaerobic threshold (where you get out of breath). These are the sessions that build your VO2 max (your ability to produce energy aerobically), which you will build on with higher intensity training as spring arrives.

It is also a great time of year to try other forms of training (see **I** for **Injury** avoidance and **C** for **Circuit** training), such as circuits, Pilates, weights, yoga, studio cycling, studio resistance and suspension training to cover other areas of fitness (muscular strength, core stability, flexibility). A more holistic approach at this stage will make you much more injury resistant come the summer.

Key learning point

Off season is where the seeds for a good following year are sown.

Periodisation

Behind the technical title, this is simply the process of planning a route from A to B in a series of logical steps. In our case, A is likely to represent the act of signing up for a triathlon, and B is completing the event successfully. Although it should be based on the established principles of training for fitness and sporting success, it is as much an art as a science, being highly individual, and something of a case of trial and error.

Professional athletes will use periodised programmes to plan their time down to the very last hour and minute of the day. While we are not likely to reach that level of detail as recreational athletes, there are useful lessons to be learned from the process of planning and periodising .

As seen above in **A** for **Ask** yourself what you want to achieve, any process of planning has to be underpinned by setting SMART goals so that the efficacy of the programme can be measured and monitored along the way.

Essentially, periodisation is the setting of long-, medium- and short-term goals, and planning activities to achieve those goals.

Long-term goals

For triathletes, this is likely to involve choosing a main event for the year, and particular ambitions for it. For example, you may wish to take part in the Windsor Triathlon, completing it in a time of less than 2 hours and 40 minutes.

Medium-term goals

Broad, long-term goals can be broken down into a series of mid-range goals, which can be defined as phases of training. For example, in the lead up to an event at the end of June:

Training phase	Duration	Content
Base phase	16 weeks – November to February	Low intensity endurance training. Cross-training (weights, core/Pilates, circuits). Plan and practice transitions.
Preparation phase	12 weeks – March to May	Moderate intensity endurance training, incorporating brick training. Higher intensity speed endurance training. Cross-training (weights, core/Pilates, studio cycle classes). Transition training.
Competition phase	4 weeks – June	Moderate to high intensity endurance training, incorporating brick training. High intensity speed endurance training. Taper training down in last week before competition to allow body to recover and avoid injury.

Sleamaker (1989) suggested that any periodised programme should contain six elements (with triathlon-related examples in brackets):

1. Events and competitions (Olympic distance triathlon in June)
2. Performance goals (complete in less than 2 hours 40 minutes)
3. Physical preparation (build endurance and speed endurance, and ability to withstand transitions)
4. Psychological preparation (identify areas that cause anxiety and rehearse, e.g. swim to bike transition)
5. Technical preparation (work on smoothing out cycle pedal stroke and increasing run cadence)
6. Tests and standards (use 10km run and 40km cycle time trials as performance indicators at regular intervals)

Key learning point

Make a plan, and keep the goals SMART.

Question your approach constantly

This book contains lots of ideas concerning training for triathlon. You will have plenty of your own, as will friends and competitors. Magazines, websites and internet forums will have yet more. In short, there are virtually limitless ways you can consider to improve your experience of triathlon in terms of fitness, training equipment and events.

Key learning point

Keep an open mind, and be ready to try new things rather than getting stuck in the rut of training the same way, week after week, year after year.

Run faster (for less effort)

As with cycling technique (see **G** for **G**ear selection), there are ways of improving running efficiency that may at first appear counter-intuitive. With cycling, it is the fact that cycling in a harder gear is often actually slower than using an easier gear. With running, a similar effect is seen when shortening stride length. Although most people would assume that lengthening your stride makes you faster, it is in fact usually slower for a given rate of effort.

An often quoted strides per minute (spm) rate for high-level runners is 180spm to 200spm. This may not be achievable by beginner/improver runners, but it is well worth measuring your stride per minute count, and increasing it in increments of 5%, in intervals if necessary, as a way of increasing spm towards that figure. Why? The following are good reasons for increasing cadence:

- It reduces over-stride – the amount that the foot comes forward of the knee when the foot strikes. In turn, this reduces the amount of time that the foot is in contact with the ground, and hence the braking forces that slow the body down each time the foot is placed.
- It moderates heavy heel striking, which again reduces the braking forces that decelerate the runner. Less deceleration means less energy has to be expended to accelerate the body up to speed again. Less impact force through the heel should also help to moderate injury risk by reducing the shock forces travelling up through the legs and into the spine.
- It encourages a more natural running style emphasising landing on the mid-foot, which is designed to absorb landing forces, rather than landing purely on the heel.
- Muscles working through shorter ranges at higher speeds appear to operate more efficiently, giving equal speed for lower perceived exertion, or higher speed for the same perceived exertion.

As stated above, adaptations to running style should be made slowly and gradually rather than changing everything at once. Graduated increases in cadence and shortening of stride will allow your motor skills, muscles and tendons to adapt to the changes in style.

Key learning point

Test out your strides per minute rate, and gradually increase it to increase your running efficiency.

Strategy

There are many ways to approach the different disciplines in triathlon to maximise performance and minimise discomfort – here are a few key concepts:

Swim

- Don't get involved in the worst of the 'washing machine' unless you are a strong and confident swimmer
- If you are fast, get out to the middle and the front for clear water
- If you are medium speed, stay out wide to start with and move into the middle as the bunch spreads out
- If you are slow, let the fast and medium speed people go and slot into the draft behind them
- Warm up! Spend the first 2-3 minutes getting up to speed, rather than taking off too fast and overdoing it. This is particularly true if you haven't had the chance to have a water-based warm up before the start

Bike

- Drink water and eat food while on the bike – this will set you up to complete the bike and the run
- Reduce the gears and increase the cadence as you come into the last kilometre or two – this will help your legs get up to speed for the run

Run

- Emphasise high cadence/short strides for the first few minutes as you come up to speed

Key learning point

Each discipline requires its own mini warm up and cool down for the best overall result; don't go 100% from start to finish.

T ransitions

The importance of planning, practising and preparing for quick transitions cannot be overstated. Trimming a minute from a disorganised transition is far easier than taking it from a 10km run.

Planning

To carry out a quick transition, you should have a planned order of what you need to do. It may help to write this out for both transitions so that you can memorise it. An example for T1 might be:

1. Leave water and start running
2. Reach back and undo wetsuit zip
3. Remove arms from wetsuit while running
4. Remove legs from wetsuit over last few strides towards bike racking point
5. Remove goggles and swimming cap
6. Put on cycle helmet and sunglasses (it is good practice to do this early on, well in advance of removing the bike from the rack, in order to avoid infringing the rules relating to use of helmets when in charge of the bike)
7. Put on cycle shoes
8. Remove bike from rack and make for the exit

An example for T2 might be:

1. Stop the bike before the line
2. Dismount and run into transition
3. Rack bike (do not be tempted to take your helmet off before doing this!)
4. Remove cycling shoes and put on running shoes
5. Remove helmet
6. Make for the exit

You will notice that many participants replace 4 above with taking their feet out of their cycling shoes in the last few meters before the stop line, allowing them to run in their bare feet. This both saves time having to take them off in transition, and means avoiding running on awkward cleats (which includes most road biased clip-in systems). If you would like to try this method out it will definitely need practising!

The importance here is that you know exactly what you are going to do in advance without having to think too much about it.

Practising

Although the above checklists of tasks may not seem all that complicated, the need to perform them at speed – in conjunction with being full of adrenaline while fatigued – makes them tricky to achieve with efficiency. This is where practice comes in. Although it might not seem like ‘real’ training, there is no substitute for making your own to-do lists similar to the above, and practising them. The more realistic you can make them, the more effective they will be. For example, if you can set up a practice T2 at your house, it is an excellent idea to go for a good ride at race intensity before coming back to your transition and going through it, before finishing off with a run. This closely replicates race conditions, and is the best possible practice. Setting up a realistic T1 might be more logistically

tricky, but if you can find a pool or some open water where you can simulate it, you will reap the rewards on the day.

Preparing

Through planning and practising as above, you will be going a long way towards readying yourself for transitions. Your other preparations should be as follows:

1. Make your decisions about which equipment you will be using as early as possible in the process, and stick with it. The more you can use the specific equipment that you will be using on the day, the better.
2. Find out as much as you can about the transitions in your event. Most of the triathlon websites will give a reasonable level of detail as to how their transitions will be organised (possibly with maps), allowing you to build up a mental picture of how it will work. This will allow you to set up relevant practice sessions that mimic the real thing as closely as possible, and start to imagine your way through the to-do checklists.
3. When you arrive at your event, take some time to have a good look around the transition area in order to picture how it will look when you are entering T1, leaving T1, entering T2 and leaving T2. Take note of any obvious features/landmarks to guide you around it. This will give you a big head start when it comes to recognising where you are in the hurly-burly of the race.

Key learning point

Plan, practise and prepare; it's the easiest way to cut time off your overall triathlon results.

Use your strengths, work on your weaknesses

Do you spend most of your time training for your best discipline? If so, you are not alone; it is perfectly natural to want to do what comes easiest. It is also clearly beneficial to make the most of your strengths so that you can extract the maximum benefit from them on the course.

However, it is also worth thinking about focusing some effort on improving your weaker disciplines, as you have more room for improvement, and so potentially more to gain. This is likely to break down into two areas, technique and training.

Technique

It is often the case that dislike or discomfort with one of the disciplines is associated with difficulties in technique. An obvious example of this is with swimming, where poor technique can lead to discomfort in the water, which can lead to unwillingness to train. In these cases, there is a clear case for seeking technical help (see **H** for **Help** from experts). For example, a session or two with a swimming coach can bring about big benefits in technique, which can kindle a new willingness to train and improve.

Training

There's no getting around this – you might just need to spend more time training on your weaker disciplines. However, by mixing this training with your favourite discipline (see **B** for **Brick** training and **J** for **Juggling** training and 'real' life), you can make the experience much more palatable, and improve your chances of sticking with it.

Key learning point

Keep making incremental gains to your best disciplines, but don't ignore the big gains you can make in your weaker ones.

Variety

As we all know, this is the spice of life. Although triathlon can help avoid the physical and psychological burnout sometimes associated with training for a single discipline sport (such as distance running), it is important to vary your training approaches on a regular basis to keep yourself fresh. This will have crossover benefits in terms of developing a more holistic fitness, and avoiding injury (see **C** for **Circuit** training, **I** for **Injury** avoidance, and **W** for **Weights**).

Key learning point

Don't get tunnel vision; there's more to training than swim/bike/run.

Weights

Traditionally, endurance athletes avoided the weights, fearing that they will make them bulky and subsequently slow them down. A more enlightened approach recognises that there are huge benefits to using weight training as part of a rounded programme.

Put simply, sets of high repetition/low weight exercises (for example, two sets of 15 repetitions) improve muscular endurance, which has transferable benefits for both the upper and lower body in triathlon. Examples would be endurance for swimming, and ability to make short work of climbs while cycling and running.

Sets of low repetition/high weight exercises (for example, two sets of five repetitions) improve muscular strength, which is hugely useful to the endurance athlete in terms of avoiding injury, as strong muscles (and tendons/other connective tissues) help to stabilise joints, reducing stress on cartilage and ligaments.

Resistance training need not take long – a few exercises can cover the whole body:

Exercise	Muscles used	Body weight adaptation
Bench press	Chest, shoulders, triceps	Press up (full, $\frac{3}{4}$, box position)
Pull down	Back, shoulders, biceps	Pull up against a bar, unsupported or resting some body weight through the feet
Dumbbell lunge	Gluteals, quadriceps and hamstrings	Body weight lunge
Dumbbell triceps press	Triceps	Triceps dip from a bench
Dumbbell biceps curl	Biceps	No body weight option – an exercise tube/band is a great substitute and a handy tool for lots of other exercises

The key, whether working for strength or endurance benefits, is to make sure that the weight is sufficient enough to ensure that the last few repetitions are a proper challenge to complete, while maintaining good form. A good gym instructor or personal trainer should be able to take you through a simple routine to ensure good technique, whether in or out of the gym.

Key learning point

Don't fear the weights room; it will improve your performance, your overall fitness, and your ability to resist injury.

X-factor

What makes one athlete more successful than the next, when they spend comparable amounts of time and effort on training? According to an ingenious approach used by Sir David Brailsford (General Manager of Team Sky and Performance Director of British Cycling for the London Olympics), it's all about making tiny improvements across a large number of factors rather than making one big change.

An intriguing example of this came in an interview he gave relating to how he had prepared Team Sky for Bradley Wiggins's winning effort at the Tour de France in 2012. He revealed that he had brought in a hygienist to give the entire team advice on how to wash their hands correctly after going to the loo and before eating a meal. Why? So that each member of the team would be far less likely to have their immune system compromised in any way by minor bacterial infections. As a result, if a 1% improvement could be made in the team's health, it might just give them an edge. Add up all the countless 'edges' thrown up by similar attention to detail across the board, and it adds up to a significant advantage.

What is the message for us as recreational athletes? Focus on making a lot of little improvements in many areas – this is far more achievable than aiming to take a huge chunk of time out of one single aspect of performance.

Key learning point

Making a number of minor small-step improvements is much easier to achieve than making one big leap.

Year plan

This is the fun bit, where you get to sit down with a glass of beer or wine in the middle of winter, and come up with a plan for the coming year's activities. There is a serious side to it, too, as the way you put together the plan may have a big impact on whether you reach the goals you have set yourself.

Essentially, the results of your year plan should come from a combination of factors looked at in this book, most notably **A** for **A**sk yourself what you want to achieve, and **P** for **P**eriodisation,

Key learning point

Have fun making your plans, and keep the goals SMART.

Zzzz...

And finally, when you've had another hard day of training and working, remember that sleep is the time when your body recovers, enabling it to come back stronger for your next session.

Key learning point

Treat yourself to a nice early night, and come back fresh for more tomorrow!

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