The Serious Triathletes' eBook

How To Train Smart, Recover Quicker, Get Lean and Race Faster Than Ever…

By Phil Mosley

Triathlon Plus Magazine Coaching Editor
Ironman Certified Coach
Founder of MyProCoach.net
Author of the Serious Triathlete Blog

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Introduction

This PDF eBook can be read in little over an hour. It's a collection of some of the most important coaching tips I've ever given to my athletes at My Pro Coach. These essential nuggets of advice will help you take control of your training, body weight, race strategy, recovery, nutrition, race selection and ultimately your triathlon performances from now on.

This is not a complete guide to triathlon training. It's simply a selection of the most relevant, targeted and popular features I've written over the last decade. It's a quick read, rather than a bible, as I figure your life is full enough already. So go ahead, read the book and try to apply it without short-cuts.

About The Author

The advice in this book comes from lessons I've learned the hard way and time spent with great people. I've enjoyed 20 years racing triathlons,12 years as a coach and seven as the Coaching Editor of Triathlon Plus Magazine in the UK. In my role at Triathlon Plus I've been lucky enough to interview many world-leading experts. From world class pro triathletes such as Spencer Smith, Karen Smyers, Jordan Rapp and Alistair Brownlee through to scientists such as Professor Tim Noakes (author of Lore of Running) and Dr Kevin Currell (Head of Performance Nutrition, English Institute of Sport). The more time I spend with these experts the more I learn about the art and science of triathlon performance.

Training Plans

Before you get stuck in to this eBook, there are a series of accompanying triathlon training plans for every triathlon distance, experience level and duration. They are a good idea if you're a self-coached athlete - you're twice as likely to achieve your goals with a plan. They are all served via the excellent "Training Peaks" software platform, so you can get a training plan, track your training, and analyse your workout data - all in one.

My training plans include Training Zones, detailed workouts, swim drills and full instructions. You can also drag and drop your workouts to suit your own availability. Prices range from $25 (£17) through to $60 (£45).

Phil Mosley Triathlon & Duathlon Training Plans

Or copy and paste this address into your internet browser:
https://home.trainingpeaks.com/products/trainingplans/lookupname.aspx?lookup=MyProCoach

Kind Regards
Phil Mosley

Founder of My Pro Coach
Coaching Editor of Triathlon Plus Magazine

The Two Quotes You Should Always Remember

Before you start reading the book, I want you to read these two quotes. They help to underpin my coaching philosophy.

"Always do the minimum amount of training necessary to get the results you want. Anything else is overtraining."
- Joe Friel (author of Triathletes' Training Bible)

"There are no shortcuts. Be patient and look long-term. It's a foolish idea that if you do a little more, faster, then you'll get better than the rest. It ignores the fact that you must train at your optimal level, not your maximum level. Consistency is the secret to improvement and success. You have to keep training when others lose interest."
- Robert de Castella (Marathon World Champion).

Chapter 1:
Secrets of Racing Weight For Triathletes

Introduction

What's the difference between a good triathlete and a great one? Often, it's little more than their body fat ratio. This is a far more significant factor than people realise. The recommended body fat levels for high performance in men are 5-10% and 10-15% for women.

There are several performance benefits to low body fat and the biggest one is body weight. If you reduce your body weight you'll expend less energy hauling your ass around a triathlon - simple.

In fact, two of the biggest measures of performance in triathlon are:
1) Power to weight ratio
2) Running economy.

And guess what? Your body weight forms a **big** part of both of those calculations.

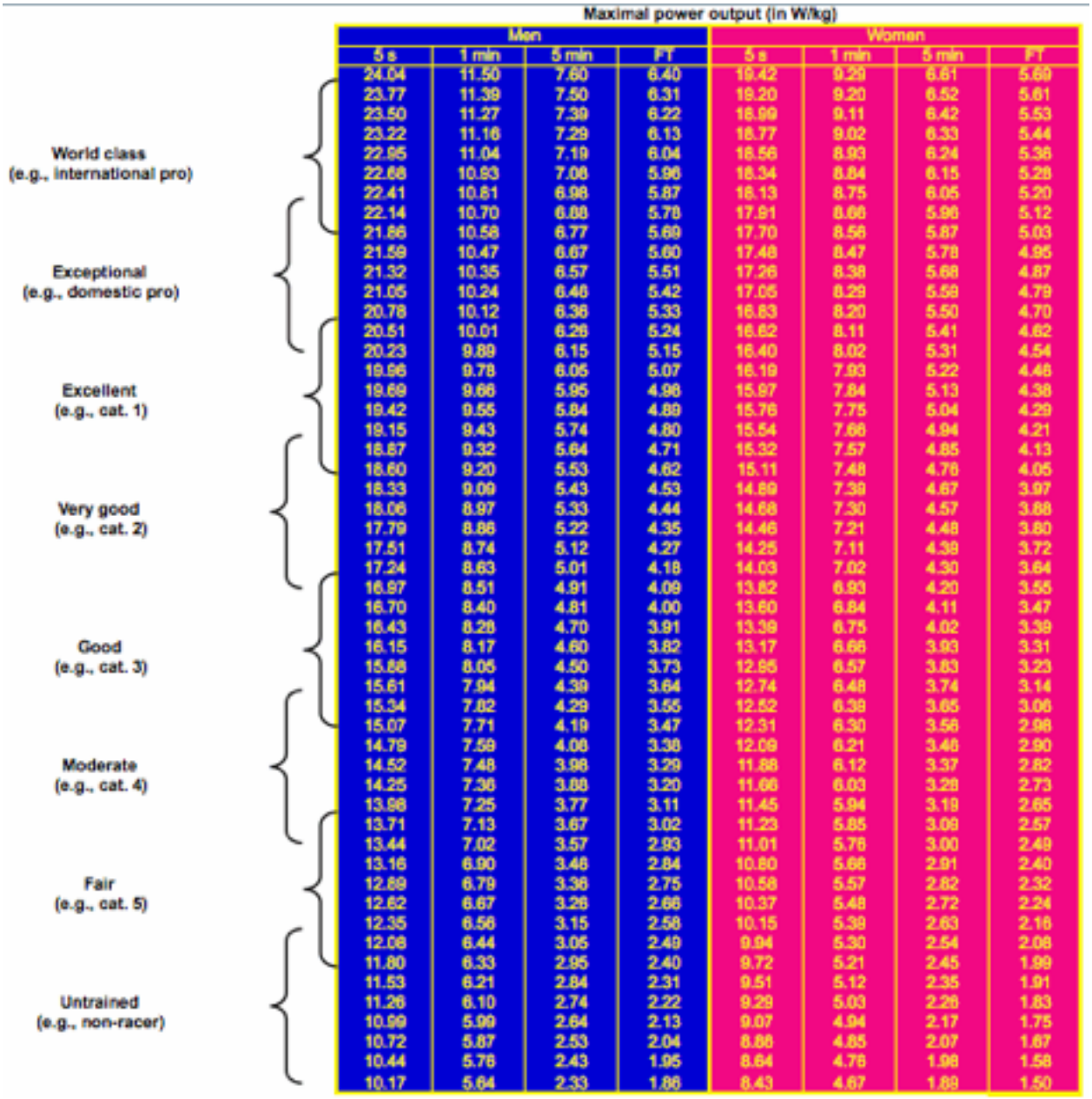
Cycling and Race Weight

Below you can see a chart compiled by legendary cycling scientist Andrew Coggan, which shows a population of cyclists from beginner to pro and their cycling power to weight ratios. It gives you an idea of how changes in your weight or power output effect your cycling ability. This also highlights why professional cyclists need to be so skinny.

In the table there's a column called "FT" which refers to your Functional Threshold (i.e your maximal 1-hour power in watts), divided by your weight in KG. Let's say for arguments sake that your FT is 250 watts and you weigh 70kg right now. Therefore your FT power to weight ratio would be 3.57 w/kg.

Let's play around with this and say you lost 2kg and you now weigh 68kg. That means your power to weight ratio goes up to 3.67w/kg. This would lift you 3 places in the table below, without you having to improve your cycle power output. Not bad eh?

Cycling Power to Weight Ratio Table:



	Maximal power output (in W/kg)							
	Men				Women			
	5 s	1 min	5 min	FT	5 s	1 min	5 min	FT
World class (e.g., international pro)	24.04	11.50	7.60	6.40	19.42	9.29	6.61	5.69
	23.77	11.39	7.50	6.31	19.20	9.20	6.52	5.61
	23.50	11.27	7.39	6.22	18.99	9.11	6.42	5.53
	23.22	11.16	7.29	6.13	18.77	9.02	6.33	5.44
	22.95	11.04	7.19	6.04	18.56	8.93	6.24	5.36
	22.68	10.93	7.08	5.96	18.34	8.84	6.15	5.28
Exceptional (e.g., domestic pro)	22.41	10.81	6.98	5.87	18.13	8.75	6.05	5.20
	22.14	10.70	6.88	5.78	17.91	8.66	5.96	5.12
	21.86	10.58	6.77	5.69	17.70	8.56	5.87	5.03
	21.59	10.47	6.67	5.60	17.48	8.47	5.78	4.95
	21.32	10.35	6.57	5.51	17.26	8.38	5.68	4.87
	21.05	10.24	6.46	5.42	17.05	8.29	5.59	4.79
	20.78	10.12	6.36	5.33	16.83	8.20	5.50	4.70
Excellent (e.g., cat. 1)	20.51	10.01	6.26	5.24	16.62	8.11	5.41	4.62
	20.23	9.89	6.15	5.15	16.40	8.02	5.31	4.54
	19.96	9.78	6.05	5.07	16.19	7.93	5.22	4.46
	19.69	9.66	5.95	4.98	15.97	7.84	5.13	4.38
	19.42	9.55	5.84	4.89	15.76	7.75	5.04	4.29
	19.15	9.43	5.74	4.80	15.54	7.66	4.94	4.21
	18.87	9.32	5.64	4.71	15.32	7.57	4.85	4.13
Very good (e.g., cat. 2)	18.60	9.20	5.53	4.62	15.11	7.48	4.76	4.05
	18.33	9.09	5.43	4.53	14.89	7.39	4.67	3.97
	18.06	8.97	5.33	4.44	14.68	7.30	4.57	3.88
	17.79	8.86	5.22	4.35	14.46	7.21	4.48	3.80
	17.51	8.74	5.12	4.27	14.25	7.11	4.39	3.72
	17.24	8.63	5.01	4.18	14.03	7.02	4.30	3.64
Good (e.g., cat. 3)	16.97	8.51	4.91	4.09	13.82	6.93	4.20	3.55
	16.70	8.40	4.81	4.00	13.60	6.84	4.11	3.47
	16.43	8.28	4.70	3.91	13.39	6.75	4.02	3.39
	16.15	8.17	4.60	3.82	13.17	6.66	3.93	3.31
	15.88	8.05	4.50	3.73	12.95	6.57	3.83	3.23
	15.61	7.94	4.39	3.64	12.74	6.48	3.74	3.14
Moderate (e.g., cat. 4)	15.34	7.82	4.29	3.55	12.52	6.38	3.65	3.06
	15.07	7.71	4.19	3.47	12.31	6.30	3.56	2.98
	14.79	7.59	4.08	3.38	12.09	6.21	3.46	2.90
	14.52	7.48	3.98	3.29	11.88	6.12	3.37	2.82
	14.25	7.36	3.88	3.20	11.66	6.03	3.28	2.73
	13.98	7.25	3.77	3.11	11.45	5.94	3.19	2.65
Fair (e.g., cat. 5)	13.71	7.13	3.67	3.02	11.23	5.85	3.09	2.57
	13.44	7.02	3.57	2.93	11.01	5.76	3.00	2.49
	13.16	6.90	3.48	2.84	10.80	5.66	2.91	2.40
	12.89	6.79	3.36	2.75	10.58	5.57	2.82	2.32
	12.62	6.67	3.26	2.66	10.37	5.48	2.72	2.24
	12.35	6.56	3.15	2.58	10.15	5.38	2.63	2.16
Untrained (e.g., non-racer)	12.08	6.44	3.05	2.49	9.94	5.30	2.54	2.08
	11.80	6.33	2.95	2.40	9.72	5.21	2.45	1.99
	11.53	6.21	2.84	2.31	9.51	5.12	2.35	1.91
	11.26	6.10	2.74	2.22	9.29	5.03	2.26	1.83
	10.99	5.99	2.64	2.13	9.07	4.94	2.17	1.75
	10.72	5.87	2.53	2.04	8.86	4.85	2.07	1.67
	10.44	5.76	2.43	1.95	8.64	4.76	1.98	1.58
	10.17	5.64	2.33	1.86	8.43	4.67	1.89	1.50

Running and Race Weight

Now you've seen what a difference weight makes to cycling, you should also check out this link to a running weight loss calculator. It gives you an idea of how changes in weight might effect your running ability. You can enter your best recent times for various distances (for example 5km or 10km) and it'll show your predicted times at various body weights. It's a real eye opener.

Running Weight Effect Calculator

Performance Benefits at Race Weight

While we're at it, there are a couple of other performance benefits of low body fat for triathlon too:

1. Thermal regulation - with low body fat you won't waste so much energy trying to stay cool during a triathlon.
2. Aerodynamics - the smaller you are, the less drag you create. Losing a millimetre of fat all over your body is like upgrading to an aero-helmet.

So it's safe to say that you'll perform better at triathlon if your body fat is between 5-10% for men and 10-15% for women. That's easier said than done though.

How to Lose Weight But Not Muscle

The trick is to lose fat and maintain muscle. Research suggests that you can achieve this by reducing your carbohydrate intake slightly, while maintaining your protein intake. One way to do this is to cut out alcohol and sugary foods. The other trick is to lose weight slowly, with a daily deficit of no more than 500 calories. At this rate it would take you a week to lose one pound (or half a kilo) but you should still maintain your existing muscle. One way to monitor this is by using a smart phone App such as MyFitnessPal or MyNetDiary, which allows you to easily track calories consumed and expended.

Of course it's important to eat healthily too, not just focus on losing weight. Achieving an optimal diet for triathlon is a book in itself. I am not an expert in this field so I recommend the services of triathlon dietician such as Sally Pinnegar, who designs healthy meal plans around your training schedule. I've referred several coaching clients to her and they've got slimmer and healthier as a result. By the way I don't get a commission from Sally, it's just an honest recommendation.

Last bit of advice - hitting your race weight is something I recommend you do for your big races, but not necessarily all year round.

Chapter 2:
How To Get Your Race Nutrition Right

If you're not getting your race nutrition 100% right, you're effectively leaving free speed on the table. Think about it this way. Even if you've eaten a good breakfast a few hours before your race, you still only have enough fuel to last you for 70 to 90 minutes of racing. What happens after that? Your glycogen stores run empty and you start slowing down. From that point onwards you'll feel like you're cycling and running through treacle. It's not a good way to race.

Getting your nutrition right is even more critical for longer races. If you're planning on doing an Olympic distance, half-Ironman or Ironman triathlon you will need to consume carbohydrate regularly throughout the race if you want to perform well. Thankfully it's not quite so vital in a sprint-distance triathlon, as you should just about have enough stored energy to get you across the finish line without falling apart.

Here, I explain the basics of triathlon nutrition and tell you how much to consume on race day, as well as giving you a few hints and tips that'll empower you to make your own nutritional decisions in the future. Get this right and it'll lead to faster and more consistent triathlon performances.

How Much Fuel Do You Need For A Triathlon?

As mentioned above, fat is your "go slow" endurance fuel, whereas carbohydrate is your "go fast" fuel. So for long events such as an Ironman, your body will use more fuel from fat, compared to during a shorter triathlon, whereas for shorter and more intense triathlons, your body burns a much higher ratio of carbohydrate. That doesn't mean you burn more total carbohydrate in shorter races, it just means you'll burn more carbohydrate per hour of racing. Either way, it's vitally important to top up your energy along the way. Let's look at the various race distances, how long they take and how much fuel you'll burn:

Sprint triathlon:

- Race Distance: Swim 750m. Cycle 20km. Run 5km
- Total Race Time: 60 to 100 minutes
- Fuel Ratio**:** Carbohydrate 92%, Fat 8%
- Total Calories Burned: 800 to 1200

Olympic Distance Triathlon:
• Race Distance: Swim 1.5km. Cycle 40km. Run 10km
• Total Race Time: 2 to 3.5 hours
• Fuel Ratio: Carbohydrate 85%, Fat 15%
• Total Calories Burned: 1500 to 2500

Half Ironman triathlon:
• Race Distance: Swim 1.9km. Cycle 90km. Run 21.1km
• Total Race Time: 4 to 7 hours
• Fuel Ratio: Carbohydrate 73%, Fat 27%
• Total Calories Burned: 3000 to 5000

Full Ironman triathlon:
• Race Distance: Swim 3.8km. Cycle 180km. Run 42.2.km
• Total Race Time: 8 to 17 hours
• Fuel Ratio: Carbohydrate 65%, Fat 35%
• Total Calories Burned: 6000 to 11000

The Hardest Thing About Triathlon Nutrition

You can see from the above information that you'll burn your way through lots of calories during a triathlon. You might be thinking: "Fine, I'll just chuck loads of gels and bars down me" but it's not that easy. The truth is that you probably won't feel like it. Energy drinks and gels are not very appetising at the best of times, let alone before or during a race. So while people often have the best intentions, many still consume too little and under-perform as a result. To make life more complicated, the harder you race, the less food and drink your gut can actually cope with. Why? Because your body diverts oxygen-carrying blood to your working muscles and heart, rather than sending it to the gut to help digest food. Forcing down energy products during a race can often make you feel bloated and sick.

To help you cope with eating and drinking while racing, we recommend setting a countdown alarm to sound every 10 minutes, as a reminder to sip gels and drinks in regular small amounts. Little and often is your best policy.

Pacing is important too, as going too hard will reduce your gut's capacity to cope. Your race pace should always be based on the results of field tests and other races you've done before. Don't be overoptimistic like most people. Base your race pace on what you can actually do, rather than what you hope you might do in an ideal world. You'll race better as a result. We cover this in more detail later on in this book.

What To Consume When You Race

Sprint triathlon:

- ***The Night Before:*** A carbohydrate-based meal, with only small amounts of meat, fat and non-fibrous veg. For example. baked potato wedges (no skins), poached egg and tomato ketchup. Fruit yoghurt for dessert. Consume your normal plate-size, don't try and eat extra.
- ***Race Morning:*** Four hours before your race, eat a simple carbohydrate breakfast such as three slices of toast or a medium-large bowl of cornflakes and skimmed milk.
- ***During The Race:*** Sip an energy drink on the bike, small amounts every 10-minutes.

Olympic distance triathlon:

- ***The Night Before:*** A carbohydrate meal such as pasta and tomato sauce.
- ***Race Morning:*** Eat a carbohydrate breakfast such as three to four slices of toast or a large bowl of cornflakes and skimmed milk, three to four hours before you race. Sip an energy gel and water 15-minutes before you race.
- ***During The Race:*** Consume 20g of carbohydrate every 30 minutes, via energy gels or energy drinks - your preference.

Half Ironman triathlon:

- ***The Night Before:*** A simple carbohydrate meal, with no or very little meat, fat and non-fibrous veg. Example, a homemade pizza with tomato sauce and pesto. Consume your normal plate-size. Drink 500ml of energy drink in the evening.
- ***Race Morning:*** Four slices of toast with honey. 500ml of energy drink too.
- ***During The Race:*** Consume 30g of carbohydrate every 30 minutes, via energy gels, energy chews or energy drinks.

Full Ironman triathlon:

- ***The Night Before:*** Eat mainly carbohydrate throughout the day, avoiding much meat, veg and fat. Example, a big plate of pasta and pesto sauce with a few small chicken pieces. Eat your normal amounts but take 500ml of energy drink after every meal.
- ***Race Morning:*** Eat a carbohydrate breakfast such as 4 to 5 slices of toast with honey or a large bowl of porridge and skimmed milk, four hours before you race. Consume 500-750ml of energy drink. Sip an energy gel and water 15-minutes before you race.
- ***During The Race:*** *Consume 30-45g of carbohydrate every 30-minutes, via energy gels, energy chews, energy bars and energy drinks.*

5 Race Day Nutrition Tips

1. Gels in a Bottle

To save mess and time, work out how many packets of energy gel you'll need and then pour them into a bike bottle ready to consume during your race. Add an extra gel, as some will get stuck to the side, plus a little water to help it pour easier.

2. Give it the Snip

If you're planning to use energy bars or energy chews during your race, make sure you partly open them on race-morning, so you don't waste time trying to tear open packets while you're cycling and running.

3. Swill the Gel
If you're desperate for energy, but don't feel like swallowing any more energy products, try swilling some energy gel around your mouth. There are carbohydrate sensors in the mouth that stimulate the brain into working harder. Research has shown that using a carbohydrate mouth rinse can increase 40 km cycling time trial time by over a minute.

4. Mix Your Sugars
Research has shown that a mixture of glucose and fructose drinks during exercise can improve performance by 8 per cent when compared to a glucose drink alone. When choosing gels or sports drinks, look for products that mix glucose or maltodextrin with fructose.

5. Start Drinking Early
The timing of fluid and fuel intake on the bike leg of an Olympic distance race can affect run performance. A recent study compared drinking at 8, 16, 24 and 32 km into the bike with drinking at 10, 20, 30 and 40 km. When the subjects started drinking early they ran the 10 km three per cent faster than when they started drinking later on the bike.

Chapter 3:
The Secret To Triathlon Hydration

A little dehydration is normal and fine during a triathlon or while training, but when you start getting really dehydrated it can have several knock on effects. Dizziness, nausea and an inability to eat are three of the most common symptoms and they will all slow you down a lot.

It's hard to know exactly how much to drink because we all sweat at different rates, so hydration is a personal thing. You might be reading this blog and thinking: "What's the big deal, I'll just swig my bike bottle when I'm thirsty." That's fair enough, but it's actually very difficult to listen to your thirst when you're in the middle of a triathlon. The chances are you'll perform better if you're mindful of your personal sweat rate. I'm not saying you have to replace every last drop that you sweat, but having some idea of your own sweat rate will certainly help. The best way to do that is by conducting a sweat test.

Three Reasons to Get Your Hydration Right

1. Studies have shown that dehydration has negative effects on athletic performance and predisposes you to heat-stress.

2. Dehydration slows your rate of gastric emptying (the speed at which your gut processes stuff) and puts you at greater risk of gastrointestinal distress (a bad tummy).

3. Hyponatremia. This is where the sodium (salt) levels in your blood become too low. This can be caused by either losing too much sodium through sweat or by drinking so much that the existing sodium in your blood becomes too diluted. Mild hyponatremia can cause bloating, dizziness and sickness.

A personalised hydration strategy is important because:
- We all sweat at different rates during a race and therefore need to drink different amounts in order to rehydrate
- Every race presents different environmental and physical demands which lead to different sweat rates

How To Use Your Sweat Test Results

Once you know your own sweat rate (using the instructions below), you can use it as a guide to how much you should drink on race day. For example, if you sweat 500ml per hour in your test, that's roughly how much you should aim to replace through drinking (little and often) during your race. In reality you'll struggle to absorb as much fluid as you sweat out, so if you sweat 500ml you may only be able to replace 400ml during a race or workout. Therefore you should practice your hydration strategy in training to get an idea of how much fluid you can handle versus your hourly sweat rate.

How Test Your Own Sweat Rate

A sweat test involves weighing yourself, exercising, then weighing yourself again to see how much weight you lost. This helps you understand how much fluid you lose, as well as how much you may need to drink to replace it. By **replicating race conditions** during the test you can estimate your sweat rate for upcoming target events. This involves wearing race day kit, testing in typical race weather conditions and training at race pace during the test.

Before we show you how to conduct your own sweat test, it's important to understand that the maximal sweat rate of the human body is greater than its ability to re-hydrate. In other words, during tough workouts you'll sweat more than you can ever hope to replace at that time. So sometimes you'll be dehydrated during exercise, no matter how much you drink. You just have to accept that you can't replace every drop of sweat. So the amount you drink should normally be a little less than the amount you lose through sweat.

7 Steps To Testing Your Sweat Rate

1. Have a good pee, then weigh yourself wearing little or no clothing in order to get the most accurate reading. It is best if no solid food is consumed during the test and that you are hydrated beforehand.

2. After you've weighed yourself, exercise for one hour at your target race-day intensity, while keeping track of the amount of water you drink.

3. After exercising, towel yourself dry and step onto the scales again, in exactly what you wore at the initial weigh-in.

4. Your weight before and after exercise as well as the amount of fluid that you drank during exercise will be used to determine your sweat rate. Remember that 500mL of water = 500grams.

5. Subtract the post-exercise weight from the pre-exercise weight in kilograms. The difference should be what you lost through sweat in grams of fluid loss.

6. Then add to that number the amount of millilitres of fluid that were consumed during the exercise. This will determine how much sweat was lost during exercise.

7. Divide the sweat loss by the duration of the exercise to determine total fluid loss per hour.

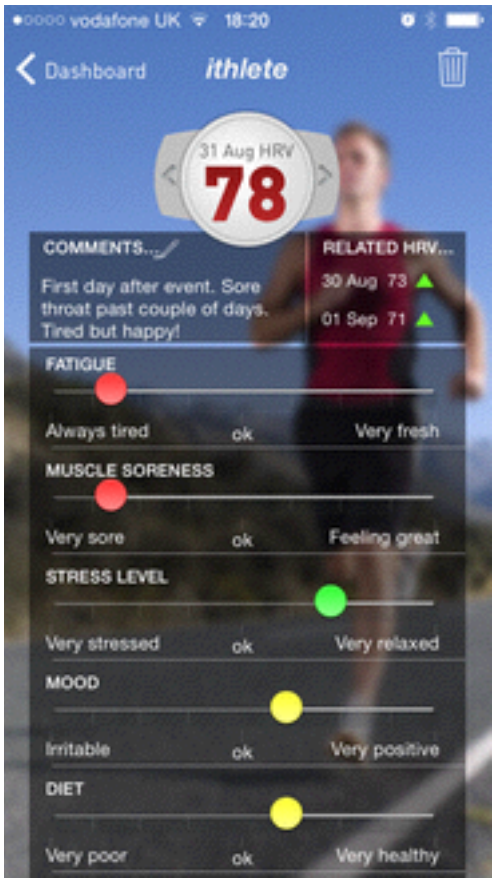
Sweat Rate Calculator

A. Body Weight pre-exercise
_____ [kg]
B. Body Weight post exercise
_____ [kg] (A-B)
C. Change in Body Weight
_____ [grams]
D. Volume of fluid consumed
_____ [mL]
E. Sweat Loss
_____ [mL] (C+D)
F. Exercise time
_____ [mins or hrs]
G. Sweat Rate
_____ [mL/min or mL/hr] (E/F)

The final figure (G) is your sweat rate, or the amount of fluid that you lose through sweat (usually expressed as litres per hour). This should help you determine the amount of fluid you should be drinking during and after your workouts.

Chapter 4:
Are You Too Tired To Train?

Have you ever noticed how training feels easy on some days and nigh on impossible on others? Don't panic, its normal and there are all sorts of reasons. Often it's due to the after-effects of a hard workout or the accumulation of fatigue over several days. It can also be caused by everyday life-stress such as work problems, emotional trauma and lack of sleep. Other days, it simply happens for no discernible reason whatsoever.



These daily ups and downs are all part and parcel of being a triathlete - you train hard, you take some recovery time and hopefully your body adapts. That's how you get faster. The tricky part is knowing when to train and when to rest. For a motivated individual, convincing yourself to take a day off can be tough. Are you really tired or just being lazy? Getting it wrong consistently can lead to staleness, injury and even illness.

Thankfully a fairly recent concept called Heart Rate Variability (HRV) can help make these choices clearer.

What is Heart Rate Variability (HRV)?

HRV is measured as the time gap between your heart beats, which varies as you breathe in and out. Research evidence links high HRV to good health and a high level of fitness, while decreased HRV is linked to stress, fatigue and even burnout. Studies also show that HRV is much lower in overtrained athletes compared to healthy ones.

Daily measurement of HRV can help you gauge your own levels of psychological and physiological stress. It can also indicate the impact of your hydration levels and even the effects of performance anxiety and nervousness. Generally speaking the more relaxed and free from fatigue your body is, the more variable the time-gap between your heartbeats.

How to Measure Your HRV

It may all sound a bit complex, but thankfully there are an increasing number of smart phone apps that can measure HRV in a simple way. The most established is iThlete (£6.99, myithlete.com) which was released in 2009. Using a smart phone and a Bluetooth heart-rate belt or finger-pulse sensor, it asks you to perform a one-minute test every morning before getting up. You simply sit in bed and follow directions to breathe in and out.

The iThlete app then gives you a score out of 100, with higher scores indicating lower levels of stress and fatigue. It also gives you a green, amber or red light, based on your most recent score compared to previous scores. This traffic light system helps you decide whether to train hard, easy or not all all. A green light indicates that your body is ready and raring to go. An amber light signifies a slight downturn in your fatigue levels, while a red light comes on after successive downturns in HRV - signalling it’s time for a couple of days off.

The app also allows you to manually enter metrics for sleep hours, training intensity and muscle soreness. These scores can then be viewed on a graph versus your HRV, so you can see how they contribute to your fatigue.

On the whole these smartphone apps are a great addition to your training armoury. Occasionally they give you scores that seem counterintuitive, so it's still important to listen to your body too. However, if used consistently over time they can help you find a better blend of training and recovery. For sixty seconds per day it seems like a worthwhile investment of time.

Chapter 5:
How To Taper The Smart Way

There aren't many things that can give you a significant fitness boost in just a week, but tapering is one of them.

Tapering is the art of reducing your training before a key race so that you're physically and mentally ready to perform at your best. It's a rare chance for your body and mind to recover from your usual day-to-day training and reach a higher level. It sounds fantastic, but in reality tapering is hard to get right. There is no single "correct method" and it depends on several factors such as your natural ability, training background and race duration. A scientific review paper published by the International Triathlon Union (ITU) conveys a similar message: "Lowering your training volume by about 41-60% induces positive physiological, psychological and performances adaptations in highly trained triathletes, but performance benefits could be attained with somewhat smaller or bigger volumes." It doesn't narrow it down much but at least it suggests there are several ways to achieve a positive result. In this feature we'll break the art of tapering into it's constituent parts before giving you a sample taper week to try for yourself.

How Long Should You Taper?

According to the ITU review paper, the optimal length of a race-taper varies widely from four to 28 days in length. According to Ironman Master Coach, Lance Watson from lifesportcoaching.com it depends largely on your type: "Some athletes rest really well into events and race fast when fresh. These tend to be athletes who have more natural speed and rely on well rested muscles to go fast. In this case, I like to rest these athletes for the 7 to 9 days into a key event, with low volume while touching lightly on pace work. Others tighten up and are sluggish if they do not remain activate enough. These are the "diesel engine" athletes who rely on high cardiovascular fitness and can perform aerobically at a higher percentage of their lactic threshold. In this case, I will rest this athlete in 7 to 14 days prior to the event and then gradually build them up on race week, sharpening in the 3 to 5 days prior to the race."

How Much Should You Train When You Taper?

You should aim for a reduction in training frequency of around 20% during your taper period. This is primarily to avoid losing fitness but also to maintain your confidence and

skill. For example, if you normally train six times per week, you could cut this down to four training sessions plus the race itself.

You should reduce your training volume by anything between 41 and 60 percent during a taper period. This means carrying on with most of your usual sessions, but cutting them down in length. Research shows that it's important to maintain your usual workout intensities, rather than doing everything at an easy pace in an attempt to recover. However, none of the workouts in the final week of a taper should leave you feeling tired for several hours afterwards.

Three Types of Taper Strategy

Linear:
This involves reducing your workload by 20 percent two weeks out and then a further 20 percent in the final week before your key race.

Step:
A sudden reduction in training two weeks before your big race. And then you maintain that low load for the remainder of the taper. Research has shown this to be the least effective type.

Exponential:
This involves gradually reducing your training load two to three weeks before you race. Your training load should then progressively reduce in the final week prior to the event. For many, this taper is ideal for recovering from the final block of training and then sharpening the body and mind in time for race weekend.

3 Top Triathlon Tapering Tips

1. Be careful not to over-do your running in race-week. It's a weight bearing exercise and leads to greater muscle impact than swimming or cycling.

2. Keep a training diary. Look back at your best races and see if there's a pattern in terms of how you taper. This helps to identify the best strategy for you personally.

3. Aim for eight hours sleep per night in the final week. Triathlons start early, so it's unlikely you'll get more than five hours the night before you race.

Try This Sample Taper Week

If you're doing a Sprint or Olympic distance triathlon, try this example taper week.

Monday
Cycle 40 minutes, including 10mins at your target race pace. Afterwards, go straight into a 20 minute run of 5mins at target race pace, 15mins easy jog.

Tuesday
Swim 1500m, including 8x100 at target race pace with 15secs rests.

Wednesday
Easy 40 minute cycle, straight into an easy 20 minute jog.

Thursday
Cycle 30 minutes, including 3x2mins at target race pace with 2-minute recoveries. Go straight into a 20 minute run as (5mins at target race pace, 15mins easy jog).

Friday
Day off

Saturday
Practice open water swim. 1000m including 4x100m at race pace with race-start practices (beach or deep water) +30secs recoveries.

Sunday
Race day

Chapter 6:
Strength Training, Is It Essential?

Let's face it, finding enough time for triathlon training can be a real struggle. Even when you're doing a fairly minimal two swims, two cycles and two runs per week it still seems like a lot. The prospect of adding an additional strength session or two can seem impossible with a full-time job and a family. So what's the solution if you're strapped for time? Should you ditch strength training in favour of the swim, bike and run? Or should you head down the gym in your favourite muscle-vest and ignore the triathlon workouts? In this feature we'll take a look at the evidence to help you make the right decision. And if you do decide to go ahead with strength training we'll give you some simple suggestions to get you started.

The Science Of Strength

Research on the effects of strength training for endurance performance is mixed. Several studies report no benefit whatsoever, whereas others report significant benefits. However, a July 2014 scientific review from the Scandinavian Journal of Medicine and Science in Sports examined the results of the most recent studies and concluded: "Combining endurance training with either explosive or heavy strength training can improve running performance, while there is most compelling evidence of an additive effect on cycling performance when heavy strength training is used."

The reasons behind these potential benefits are not certain, but one of the main suggestions is that increasing your strength helps you become better equipped to use fat as a fuel during endurance exercise. Why is that? It's because the stronger your "slow twitch" muscle fibres, the greater the percentage of the workload they can handle during swimming, cycling and running. This teaches your body to spare your limited glycogen stores, thus delaying the time it takes to become fatigued.

The Limitations of Strength Training

While there is some evidence suggesting that the right kind of strength training may help you become a better athlete, there are some limitations regarding body type, age, availability and background.

- **Body Type**

Strength training for triathlon is more beneficial for naturally skinny types - known as ectomorphs. This body type is defined as thin, usually tall, fragile, lightly muscled, flat chested and delicate. For those who gain muscle quickly, there becomes a point when continuing strength training ceases to be beneficial for endurance sports due to the extra body-weight.

- **Background**

If you have an extensive background of strength training (for example, rugby players) you don't stand to gain as much by adding extra strength. You may be better focusing your time on endurance training and flexibility.

- **Age**

Research has shown that when you get into your 30's and 40's, your muscle mass starts to decline. While triathlon training has been shown to combat this to some degree, older athletes still need to focus more on resistance training in order to maintain their current strength.

- **Limited Time**

Strength training should be done in support of your swim, bike and run training, rather than instead of it. Essentially, it is the swim, bike and run workouts that will make you a better swimmer, cyclist and runner. If you are very limited for time and have a choice of a triathlon workout or a strength workout, choose the triathlon workout every time.

Five Sensible Ways To Get Strong

The great thing about strength training for triathlon is that you don't need to become Arnold Schwarzenegger or Wonder Woman in order to succeed. The idea is that you should improve your triathlon-specific strength without causing excess fatigue. Unlike body-builders, you don't need keep pushing heavy weights to the point of failure. If you do that you'll be too sore to train the following day, which is pointless. You simply need to improve your strength for 8-12 weeks and then maintain it during periods of heavy training or frequent racing. It's not a case of "the stronger you get, the faster you'll go" as there's a limit to the potential benefits.

You can make your muscles stronger in several ways, such as weights exercise-classes, TRX bands, free weights, resistance machines, running on hilly courses, cycling in a big gear or swimming with hand-paddles. Either way, the exercises you choose must closely resemble the movements of your sport. Sit-ups and bicep curls may help you look good at the beach but they will not make you a faster cyclist or runner.

Below we'll introduce some simple workouts to improve your triathlon-specific strength. For busy athletes, one session per week is enough.

1. Gym Strength

If you're a gym member and you have the time, this is an effective and simple workout that'll make you stronger for triathlon. Try and break your resistance training into phases that match your triathlon training and racing schedule, as suggested below.

- First six weeks: 12-20 reps, light resistance, 2 sets, 30 second rests between sets.
- Next eight weeks: 6 to 8 reps, heavy resistance, 2 sets, 60 seconds rests between sets.
- During busy training periods or between races: 12-20 reps, light resistance, 2 sets, 30 second rests between sets.

Warm Up:
5mins easy jog, cycle or rowing machine
Main Set:
1. Squats with barbell, dumbbells or leg press using a resistance machine
2. Single calf raise
3. Single leg extension
4. Seated hamstring curl
5. Reverse lunge in front of mirror, with good form. One set only. Stop at the first sign of fatigue or soreness. Add dumbbells once you can do 20 comfortably.
6. Front plank, 1 rep only, for as long as you can hold. Once you can do 90-seconds comfortably, try resting elbows on a swiss ball.
7. Side plank 1 rep on each side, for as long as you can hold. Once you can do 60-seconds comfortably, try resting elbow on a swiss ball.
8. Slow press ups. 2 sets of as many as you can (60secs rest). Once you can manage two sets of 30, try doing them with one leg as support.
9. Pull ups from a counterweighted pull-up machine.

Warm Down:
Static stretches: calves, hamstrings, quads, glutes, adductors, hip flexors. 20-30secs each.

2. Home Strength

If you're not a gym member or you're training away from home, try the workout below. Use a mirror where possible and do the exercises at a controlled steady pace, focussing on your form and balance.

Warm Up:
5mins easy jog, cycle or rowing machine
Main Set:
1. One leg squat in front of a mirror, with good form. One set only. Stop at the first sign of fatigue or soreness. Add dumbbells once you can do 20 comfortably.
2. Single calf raise, using a step. Nice and slow. One set only. Stop at the first sign of fatigue or soreness. Add dumbbells once you can do 20 comfortably.
3. Reverse lunge in front of mirror, with good form. One set only. Stop at the first sign of fatigue or soreness. Add dumbbells once you can do 20 comfortably.
4. Front plank, 1 rep only, for as long as you can hold. Once you can do 90-seconds comfortably, try resting elbows on a swiss ball.
5. Side plank 1 rep on each side, for as long as you can hold. Once you can do 60-seconds comfortably, try resting elbow on a swiss ball.
6. Slow press ups. 2 sets of as many as you can (60secs rest). Once you can manage two sets of 30, try doing them with one leg as support.

7. Pull ups from a bar. 2 sets of as many as you can (60secs rest).
Warm Down:
Static stretches: calves, hamstrings, quads, glutes, adductors, hip flexors. 20-30secs each.

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3. Cycle Strength

This workout will increase your cycling related leg-strength which can help you get more power out of each pedal stroke. Do this workout on your race-day bike if possible. Indoor trainers or long outdoor climbs are ideal.

Warm Up:
10 minutes easy pedalling at your normal cadence.
Main Set:
3x8 minutes in a big gear, at a low cadence of 55 to 60rpm. Aim for 7/10 intensity with 2 minute easy spin recoveries between reps.
Warm Down:
5 minutes easy pedalling at your normal cadence.

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4. Run Strength

The main set of this hill-running workout is a non-stop effort. Choose a hill that takes around 60-secs to run up. It should not be so steep that you can barely run up it, but not too easy either. You'll gain strength from the downhill bits as well as the ascents.

Warm Up:
10 to 15 minutes of easy running, feeling like 5/10 intensity.
Main Set:
15 to 20 minutes of non-stop hill ascending and descending. Go hard on the way up (should feel like 9 out of 10) and easy on the way down (feels like 5 out of 10).
Warm Down:
5 minutes of easy running, feeling like 5/10 intensity.

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5. Swim Strength

This high resistance swim workout involves several 200 meter sections with either hand paddles or with your legs wide apart. Don't attempt this workout if you're prone to shoulder injuries.

Warm Up:
100FC, 50BACK, 100FC, 50BREAST, 100FC, 50KICK with a float with 15secs rests.
Main Set:
2 x (200FC with Legs Apart (no kicking) at 7/10 intensity +20secs rest,
200FC with fists clenched at 7/10 intensity +20secs rest,
200FC with Pull Buoy and Hand Paddles at 7/10 intensity +20secs rest,
100BACK or BREAST at 5/10 intensity +10secs rest)
Warm Down:
300 as (25KICK/50FC) all easy

CHAPTER 7:
3 Reasons You Need A Power Meter

Why you need a power meter and how you can use it to race faster and more consistently

Once you've trained with a power meter, you'll never want to go back. Without one it's nigh on impossible to accurately measure your performances, strengths, weaknesses and training intensities. It's hard to appreciate all the benefits without experiencing one yourself throughout a season, but take it from us - there are lots. Thankfully they're less expensive than they used to be too - you can get a good one, such as a Stages Shimano 105, for around 400 UK pounds or US dollars. Here we'll talk you through some of the most important benefits and how to utilise them. While on the following pages we'll discuss how to use one for racing.

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1. Know Your Level

With a power meter you can see exactly how bike-fit you are at all times, regardless of variables like weather, terrain, hills, mechanical-efficiency or weight. It's there right in front of you - a simple number that shows the result of all your pain and effort. The reality of these numbers can come as a shock to some people. It's not uncommon for triathletes to buy a power meter and suddenly realise they are significantly better or worse than they thought. Sometimes a power meter can help people realise that it was their bike or their poor aerodynamics that slowed them, rather than their legs. Knowing your level at all times keeps you grounded in reality, as well as helping you pinpoint areas for rapid improvement.

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2. Test Yourself

With a power meter you can perform a simple test that pinpoints your triathlon cycling ability. It's called a CP20 test and the CP stands for Critical Power. Start off with a 15-20 minute warm up with five 20-second efforts thrown in. Now you're ready to start the test, which involves riding for 20-minutes at the highest sustainable intensity you can manage. Your cycle computer should give you your average power for the entire test. We'll discuss ways to use this figure in the next point, but on it's own it's a useful benchmark that's worth re-testing every ten weeks. This CP20 figure is an even more accurate measure of your ability when viewed alongside your weight (power to weight ratio) and your drag coefficient (power to drag ratio). You can multiply your CP20 by 95% to get a good estimation of your

Functional Threshold Power (FTP), which is approximately what you could maintain for a 1-hour time-trial. There's more information on this on page 26 & 27.

3. Set Your Power Zones

One of the beauties of a power meter is that you can train at specific intensities that mirror the demands of your upcoming races. Before you do this, you need some training zones that are based on the results of your CP20 test, as described in the point above. Multiply your CP20 result by 95% to get your FTP. Then you can use the zones in the tables below (ignore the swim bits).

- POWER, HEART RATE & RATE OF PERCEIVED EXERTION (RPE) ZONES -

Zones	RPE (1–10)	RPE (6–20)	Swim Pace/ 100 yd (mtr)	% THR Bike	% FTP Bike Power
1– Easy	1–2	10–12	Technique only	< 68% THR	< 55% FTP
2– Light Aerobic	3–4	12–14	Pace + 10 seconds	69–83% THR	56–75% FTP
3– Moderate Aerobic	5–6	14–16	Pace + 5 seconds	84–94% THR	76–90% FTP
4– Threshold	7–8	16–18	Race pace	95–105% THR	91–105% FTP
5– Above Threshold	9–10	18–20	Pace - 5 seconds	> 106% THR	> 105% FTP

Zones	Hellemans	% HRMax	%HRR	Beats below MHR	RPE (1–10)	RPE (6–20)
1– Easy	Easy	68–73%	50–60%	MHR minus > 40 beats	1–2	10–12
2– Light Aerobic	Steady	73–80%	60–70%	MHR minus 30–50 beats	3–4	12–14
3– Moderate Aerobic	Mod. Hard	80–87%	70–80%	MHR minus 20–40 beats	5–6	14–16
4– Threshold	Hard	87–93%	80–90%	MHR minus 10–30 beats	7–8	16–18
5– Above Threshold	Very Hard	93–100%	90–100%	MRH minus < 10 beats	9–10	18–20

- Zone 1. Easy

Benefits: Use this intensity as a recovery between hard efforts, or for a recovery ride after a tough race.
Sample Session: Ride 1 hour Easy.

- Zone 2. Light Aerobic

Benefits: Progressive training at this intensity can improve endurance and boost fat-utilisation. It is easy enough that you should be able to recover day-to-day from most sessions.
Sample Session: Ride 3 hours in Zone 2

- Zone 3. Moderate Aerobic

Benefits: Training at the upper end of this intensity cab help boost your lactate tolerance, but is light enough that you can recover within 24-hours.
Sample Session: 3x15mins in upper Zone 3 with 60seconds rests.

- Zone 4. Threshold

Benefits: This intensity is known as FTP (functional threshold power) and equates to your best power output for a 1-hour time trial. Training at this intensity can boost lactate tolerance and is particularly relevant to Olympic distance triathlons. You might need a couple of easy days after these workouts.
Sample Session: 10, 9, 8mins all in FTP zone, with 2-mins recoveries.

- Zone 5. Above Threshold

Benefits: When you are working in Zone 5 you produce lactic acid faster than you can transport it away. Once you go over this threshold fatigue sets in and you have to slow down. Training at this intensity can push your lactate threshold up so that you can ride at higher intensities and faster paces for longer periods or over more difficult terrain.
Sample Sessions: 40mins as (20secs in Zone 5, 40secs in Zone 5)

Chapter 8:
How to Race With A Power Meter

Riding a fast triathlon is not all about pedalling as hard as you can. You need to ride smart too.

When you race a triathlon you cannot expect to go at 100% intensity for the entire thing. Pace judgement is critical if you want to execute the best swim, bike and run possible. However, it's hard to accurately measure your intensity on the bike without a power meter.

In fact, there are three common mistakes that triathletes make here.

1.**Pacing**. Attempting to ride at a constant power output that is too high.

2.**Variability**. Riding in bursts, ranging from easy to super hard.

3.**Gearing**. Riding hard on the hills, with inappropriate gearing.

All three of these will cause extra fatigue without giving an overall benefit. Let's discuss how you can use a power meter to remedy them.

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1. Pacing

The best way to race a triathlon is to spread your energy out appropriately between the three disciplines so that you stay strong throughout. You can use a power meter to help you gauge your race pace with far more accuracy. To do this, you'll need to know your current best power output for a 20-minute time trial, known as a CP20 test (see "How To Calculate Your Race Pace" below).

Once you know your CP20 power output you can work out your Functional Threshold Power or FTP. Your FTP is an estimation of your best average power output for a 1-hour time trial. It is a common measure of cycling ability and it's really easy to estimate. Just multiply your CP20 power by 95% to get your FTP.

Once you've done that, you can use the pace guidelines below.

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2. Variability

We've talked about the importance of maintaining a suitable average power output, but it's also important to realise that that not all averages are the same. For example, let's say you did a triathlon where your power constantly fluctuated between 100 and 300 watts. This

might give you an average of 200 watts for the entire ride. Then a week later you did another triathlon where your power fluctuated less - between 175 and 225 watts. The average power would still be the same, at 200 watts.

The first example, where your bike power fluctuated a lot, would likely result in a slower run split. This is because big fluctuations in power cause more muscle fatigue and micro-trauma. Whereas in the second triathlon, where your bike power was smoother, you would probably record a similar bike split and run better afterwards.

This is sometimes known as Variability Index (VI). Essentially it's a score that reflects how much your power output fluctuates around the mean average for a given ride. Ironman winners typically ride at a VI of 1.04, fluctuating their power by only a small amount throughout the race.

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3. Gearing

In order to ride at an even pace and reduce your Variability Index, you need to make sure you have the right gearing for your races. If you don't have appropriate gears you'll end up riding too hard up the hills or riding at a very low cadence just to maintain forward motion. This will cause unnecessary fatigue and will make it harder to run afterwards.

Suggesting you have the right gearing may sound obvious but not many people get this right. There is a certain amount of bravado about the subject, for example: "I'm so tough, I only need a 23-tooth sprocket for any course". But in reality the more you can reduce your variability index and avoid churning a big gear, the less fatigue you'll experience for a given bike split. Speak to your local bike shop if you need help here.

How To Do A 20-minute Critical Power Test (CP20)

Preferably do this test on an indoor bike trainer (with power measurement). Another great way to perform this test is to take part in a 10-mile cycle time trial and take your best 20-minute power.

Warm Up:
12mins easy/steady cycling.
5mins as (10secs hard sprint, 50secs easy spinning).

MAIN SET:
20mins maximal steady state time trial. Go as hard as you can sustain for 20-minutes. Measure your power throughout - you'll need to know your average power for the entire 20-minute test.

Warm Down:
5mins easy/steady cycling.

What To Do With Your CP20 Test Results

You can do two things with your test results. Firstly you can simply use it as a measure of fitness and training progress. When I coach athletes, I set them one of these tests every 10-weeks or so. Secondly you can work out your Functional Threshold Pace (or FTP). This gives you an idea of your maximal 1-hour time trial pace, and is used to set training zones and race intensities (see below).

1. Take your average power for the 20-minute test (for example, 200 watts).

2. Multiply it by 95% to get your Functional Threshold Power (e.g. 190 watts).

How To Gauge Race Pace With A Power Meter

Here are the four main triathlon race distances - Ironman, Ironman 70.3, Olympic and Sprint. For each distance, there are guidelines below on how to pace yourself using a power meter. If you get this right, you will ride AND run at your most optimal level - rather than riding super hard and then struggling to run.

- Ironman (3.8km, 180km, 42.2km)

Power: Race at 64-80% of FTP.
About: Top pro's can maintain 80% of their FTP because they are only racing for around 8-hours. Back-markers take more like 15 to 16 hours and ride at 60-65% of FTP. Everyone else should be somewhere in between. The faster you are, the nearer to 80% you should aim for. Don't be overoptimistic here though, especially if it's your first Ironman. This blog should narrow it down for you.

- Ironman 70.3 (1.9km, 90km, 21.1km)

Power: Race at 74 to 86% of FTP
About: Pro athletes can maintain around 86% of their FTP for the duration of an Ironman 70.3 bike leg. Average age group athletes should aim for 80%, whereas novice athletes might wish to play it safe and stick nearer to 74%.

- Olympic (1500m, 40km, 10km)

Power: Race at 85-95% of FTP.
About: If you want to improve your chances of racing well at Olympic distance, you should aim for 85 to 95% of your FTP on the bike. Faster athletes should aim for nearer 95% while novices should aim for nearer 85%. This should increase your chances of riding fast and running well off the bike.

- Sprint (750m, 20km, 5km)

Power: Race at 95-100% of FTP.
About: In a sprint triathlon you can afford to ride at or just below your FTP. Your FTP equates to your best average power for a 1-hour solo time trial.

CHAPTER 9:
Three Essential Run Speed Workouts

To be a fast triathlon runner, you need to teach your body to adapt to a fast pace in training. You won't get quicker by simply jogging around at one pace all the time. Even for Ironman, you need to have good speed over all distances. The only way to achieve this is through regular, progressive speed work. There are three main types of speed workouts and it's important to get exposure to all three.

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1. Anaerobic Speed

These sessions involve short, fast efforts with relatively long rests. Training at these paces helps you to develop your ability to apply quick force to the track or road, increasing your stride length and efficiency. The volume of these sessions is relatively low - a maximum of 3km and often less. If you already have a good endurance base and you've done some longer speed workouts (see points 2 and 3 for ideas) you will find that it doesn't take many of these speed sessions to produce a rapid performance improvement. Just six to eight workouts will move you on significantly, providing you are fresh when you do them.

Run at the fastest possible consistent pace that you can maintain for the whole session:

- Session 1: 10x200m with 90secs rest between reps
- Session 2: 7x300m with 2mins rest between reps
- Session 3: 6x400m with 2mins 30secs between reps

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2. Aerobic Speed

If you want to run a faster 5km or 10km race, these are the bread and butter sessions that will help you get there. They involve fast repetitions with relatively short rests. Keep the volume of your main set to around 5km and your pace at around your best for 3km. Start with short repetitions and build the length of time you run at this pace. Here are some examples of how to progress your main sets:

- Session 1: 2x10x200m with 20secs between reps and 4mins between sets
- Session 2: 3x5x300m with 45secs between reps and 4mins between sets
- Session 3: 2x6x400m with 60secs between reps and 3mins between sets
- Session 4: 12x400m with 1minute rests

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3. Aerobic Speed Endurance

These sessions will help you to maintain a fast pace for longer, so that you can stay strong all the way to the finish-line on race day. The volume stretches to 8km and the speed towards 5km race pace. You will be required to run for over three minutes in each repetition, all at a high intensity. Examples of fast aerobic endurance sessions include:

- Session 1: 8x800m with 2mins rests
- Session 2: 6x(800m/400m) alternating 2mins rest and 1 minute rest
- Session 3: 8x1km with 2mins jog rests
- Session 4: 6x1200m with 2mins rests

How To Warm Up and Warm Down

A speed session should include a warm up of at least 10-minutes of easy running, followed by running strides to rehearse the speed of movement of the main session. These are short progressive sprints e.g. 4 x 60m build-up runs to 80% maximum intensity. Don't forget to include a warm down too - five to 10 minutes of easy jogging.

Final Run Speed Tips

- Don’t attempt all three of the different types of speed workouts above in a single week or you’ll get over-tired or injured. One speed-work session per week is fine.

- It’s better to focus on one type of session (e.g. aerobic speed) - and do it once per week for 6-8 weeks before moving onto the next type (e.g. aerobic speed endurance).

Chapter 10:
How to Master Triathlon Transitions

No matter what level you're currently at there is no excuse for being slow at triathlon transitions. The time you take between the swim, bike and run sections is down to your skill-level rather than your god-given talent. And anyone can master transitions in just a matter of weeks.

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10 Ways to Improve Your Transitions

1. Keep it Simple
The less stuff you have in transition the better. Every item and every action has a time cost.

2: Slow Down
Yes that's right, slow down. Unless you're in a draft-legal race you don't need to sprint like Usain Bolt through transition. Research shows that most triathlete's heart-rates are at their highest throughout the transitions. You might gain 5-seconds by sprinting, but you'll fatigue quicker and lose more time later on in the race. You're also more likely to make silly mistakes when you're at maximum intensity. So pace yourself and save time by being smart in transition, rather than sprinting like a fool.

3. The Set Up
Before your race you must walk around the transition area and visualise the swim-in, bike-out, bike-in and run-out areas. Rehearse each section on foot from where your bike is racked. Imagine what you'll be thinking and what it will look like when there are hundreds of bikes and people there. What visual cues can you use to help you find your place in transition? On race day it needs to feel like second nature.

4. Rehearse Movement Patterns
When you rack your bike before the race, take the opportunity to practice your movements. For example, put your helmet and glasses on and off several times, and then do the same with your running shoes or number belt. Do this at least 10 times for each element, so that the movement patterns become etched into your brain.

5. Shoes On Your Bike

If you're allowed to, keep your bike shoes attached to your pedals rather than wasting time putting them on in the transition zone. Keep them in a horizontal position by looping a thin elastic band around the heel-tab of each shoe and hooking it on a bottle cage or wheel-skewer. When you jump on your bike and pedal, the bands will simply snap. Ride with your feet on top of the shoes until you're up to speed and then slip your feet in carefully. Practice this at home before you try it in a race - it's not as hard as it sounds.

6. T1: Swim To Bike

Towards the end of the swim, mentally rehearse your first transition. As you exit the water, remove your hat and goggles as you jog towards your bike. While still jogging, unzip your wetsuit and pull your arms out. When you get to your bike, pull the rest of your wetsuit off and put your bike helmet on. Grab your bike and go. Job done.

7. T2: Bike to Run Part 1

Towards the end of the cycle section, start mentally rehearsing your next transition. With around 400 meters to go, pull your feet out of your shoes and ride with your feet on top of them. As you reach the dismount line, you can either stop and dismount. Or perform a moving dismount, where you swing one leg over your top-tube, put your feet on the ground and break into a run while pushing your bike. Tip: you need to slow right down to jogging pace before you attempt the dismount. Master this at home before you try it in a race.

8. T2: Bike to Run Part 2

After dismounting from your bike, run towards your spot in transition and do the following tasks in order:

- Rack your bike
- Put your running shoes on
- Take your helmet off
- Jog to the run-out area

The benefits of taking your helmet off last are:

a) You avoid a helmet rule violation and

b) You can align yourself towards the run-out area as you remove it.

9. Gels, Hats, Glasses, Watches

If you need to pick up other stuff in transition, such as gels or a hat, keep it simple and do it on the move. For example, pick up a fuel belt, start running and then attach it to your

waist while you run. This is far quicker than grabbing individual gels and trying to stuff them into your pockets while standing still.

10. Video It
It's amazing what you see on video sometimes. Practice your transitions at home while someone films you on a smart-phone. Or better still have someone film you at a race. Replay the video and think about how you can get faster. I guarantee you will see something you didn't realise. Feel you can't be bothered with video analysis? Videoing your transitions could save you 20-seconds at each subsequent race. How much extra swimming, cycling and running would you have to do to get that same benefit? Answer: Lots.

Chapter 11:
How To Plan Your Season

Planning your season properly is such an important job when you consider the blood, sweat and tears that go into your training. It should take careful research, thought and planning. It's not something you do on the back of an envelope. And you shouldn't be entering races on a whim just because your mate suggests it (yep, I've done this).

To help you make smarter choices, check out the five-point list below…

Five Things to Consider When Planning Your Season

1. Location
Is the event somewhere you'd like to visit even if you weren't racing? After all you're spending a lot of money to enter and travel there. You may as well go somewhere that you'll enjoy. It'll make the whole experience more positive and memorable for you and your family. Boggy field in the middle of Milton Keynes anyone?

2. Conditions
Does the race suit your strengths and weaknesses? We're all naturally better at some things than others, so to maximise your chances of success and enjoyment you should choose your races accordingly. For example, if you're great at hilly courses in hot weather, make sure you enter plenty of them. We all get a kick from doing well.

3. Excitement
If you're not sure whether or not to enter a particular race, ask yourself this: Is it an event that you'll really look forward to? If the prospect of racing doesn't get you excited, the chances are it won't motivate you to train hard either. So choose something better instead.

4. Meaningful Outcome
The more good reasons you have for doing a race, the more you'll enjoy training for them. Therefore, seek events that offer the potential for a meaningful personal outcome.

Examples include:

- Does it offer the prospect of a new personal best or an age group medal?
- Is there is an inter-club or team prize?
- Do you have friends racing who you want to compete against or race with?
- Is it a special distance (such as Ironman 70.3) that motivates you to reach the finish line?

All of these examples will add meaning to your races and help keep you motivated.

5. Minimise Race Stress
Are your races stressful in terms of travel, location, cost and accommodation? We've all been guilty of entering races and then later realising they're a complete nightmare to travel to or there's nowhere left to stay. Minimising stress is important if you want to race to your potential.

Chapter 12:
Why You Need An End Of Season Break

After a long season of racing and training, November and December are often the best months to take a break. It's the perfect opportunity to bring some balance back into your life, by investing a little more time into your friends, family and career. Getting the timing right isn't always easy though. Take too many days off and you'll spend the next six months battling to regain your previous fitness. These five tips will help you decide what to do and when to start training again.

1. Weight

We all like to indulge in a few treats at the end of the season. That chocolate bar you always avoided, the glass of wine you turned down – now you can let your hair down and enjoy them more. However, it also pays to remember that you are probably burning fewer calories through exercise right now. It's fine to gain a few pounds in the off-season but don't let the trend carry on for too long. If your weight goes up by more than around 4 or 5 pounds it's either time to start eating better or increasing your training again.

2. Family/Friends/Career

If you're someone who juggles a busy job, with a family and friends, now is the ideal time to repay some of their patience. Stop focusing on sport for a little while and do all the things you don't normally have time for. Tell people this is your "easy month" just so they know what to expect. Have a few lie-ins, make your partner breakfast in bed, take your kids to the zoo and do something good at work. Once you've done all that, you can start planning your training regime again.

3. Fitness

During an end of season break, the idea is to recover while staying fit. If you're used to training most days, you don't need to stop completely during your break. Make each session shorter than normal - half or two thirds of what you'd normally do - and do 90% of it at a nice comfortable low intensity. Once or twice per week, throw in a few bursts of higher intensity just to remind your body that you're an athlete, so it doesn't de-train too much.

4. Race Schedule

The dates of your big races in 2015 will help you decide when to go back into full training mode. Following a sensible end of season lay-off, it'll take you around 14 to 16 weeks of intelligent and progressive training before you hit any kind of peak. If you train for too many months leading into a big race, you may actually go past your peak. So try and stay reasonably fit during your end of season break and then start proper training at least 14-weeks before you want to hit form.

5. Motivation

A lack of motivation for training can be a sign of lingering fatigue. So if the idea of a long bike ride or a hard run fills you with dread, you probably need to recover for a while longer. Try doing regular light, low intensity workouts to help you tick over. Keep a score out of 10 of your daily motivation levels. When you start getting regular 8's it's time to start building up your training again.

Final Author's Note:

Thanks for reading this eBook. For ongoing triathlon training advice, please check out my regular blog The Serious Triathlete, which you can also sign up to via email.

To accompany this book, there are training plans for every triathlon distance, experience level and duration available.

All training plans are served on the "Training Peaks" software platform, so you can get a training plan, track your training, and analyse your workout data - all in one.

They include Training Zones, detailed workouts, swim drills and full instructions. You can even drag and drop workouts to suit your own availability. Prices range from $25 (£17) to $60 (£45).

Phil Mosley Triathlon & Duathlon Training Plans

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