

ULTRA-DISTANCE CYCLING

AN EXPERT GUIDE TO
ENDURANCE CYCLING



SIMON JOBSON & DOMINIC IRVINE

B L O O M S B U R Y

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Simon Jobson and Dominic Irvine

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To Helene and Chlöe, my rock and my inspiration – Dominic

For Lizzie, my best friend and future wife – Simon



FOREWORD

At Team Dimension Data for Qhubeka our mission goes beyond winning bike races to creating a legacy that has inexorably changed people's lives for the good. Qhubeka is an Nguni word that means 'to carry on', 'to progress', 'to move forward'. The charity rewards work done by people in Africa with the gift of a bike. As a child, you will remember the freedom made possible by being able to ride a bike. We are using the power of an elite cycle racing team to change the world as well as to win races. Simon Jobson and Dominic Irvine reflect this altruistic approach in writing this book. Having invested five years of time and energy attempting and succeeding in breaking a 49-year-old ultra-distance cycling record that had defeated several Olympians, they have then taken the time to distil the lessons learnt and share them with the cycling community in order for others to succeed at their own ultra-distance goal.

To break a cycling record at the age of 47 meant Dominic Irvine had to challenge the accepted wisdom of the day in order to achieve what many thought impossible. As his coach, Simon Jobson left no stone unturned in his quest to help Dominic and his tandem riding partner Charlie Mitchell reach the level of performance needed to set a new cycling record. Helping ordinary people achieve extraordinary results is a core philosophy of my team's approach to cycling. It has led to several historical achievements

including Daniel Teklehaimanot becoming the first Eritrean, and indeed African, to wear the polka-dot jersey on the Tour de France. This is a stepping stone in our ambition to put an African rider on the podium in the Tour de France.

For me, success in cycling is the culmination of having the right process, the right tools and the right people. It requires athletes and indeed all members of the team to think in terms of a whole system. The chapter headings in this book provide a neat summary of all the areas involved. It's not enough to be fit enough. You also need to create a compelling vision, generate a sense of team, develop a high-performance culture with those involved and know how to translate this into value for others to secure their support and investment. It doesn't matter whether you are about to compete in your first ultra-distance race or organise a team for a world tour, the principles that underpin both are the same. This book ably covers the key points.

But perhaps the greatest skill is the ability to translate complexity into usable, practical information. In this, Simon Jobson and Dominic Irvine have excelled themselves. They have, to paraphrase Einstein (as the authors do), made things as simple as possible but no simpler. So whether you are embarking upon your first century ride or first 1,000km ride, this book is essential reading. It's something I shall be encouraging the members of our team to read.

Douglas Ryder
Team Principal, Dimension Data for Qhubeka





PREFACE

Having failed twice, the authors' thirst for knowledge in order to break the United Kingdom 'End-to-End' tandem record was insatiable. The record had stood for 49 years at 50 hours, 14 minutes and 25 seconds to cover the 1,365km from Land's End to John o'Groats. Prior to their third attempt, happy circumstance brought together coach Simon Jobson and athletes Dominic Irvine and Charlie Mitchell. Combining knowledge and experience, and tapping into a network of other experts, Dominic and Charlie, along with their support team, made one final attempt on the record. Many hours had been spent training and many more poring over research papers, articles and blogs in order to establish the things two ordinary amateur athletes and their support team needed to do to beat an extraordinary record. This record had withstood assaults by Olympians and others.

On 7 May, 2015, at 3.41 a.m., Dominic and Charlie rolled over the finishing line in a time of 45 hours, 11 minutes to set a new record, improving the existing one by over five hours. The knowledge and experience gained from breaking the record, added to the many lessons learned from participating in other ultra-

distance events, were substantial, taking much time and effort. Unfortunately, no single guide was available that made sense of what it takes to ride a long way, fast.

When consulted about how to find the treasure of a general who had been defeated, the Oracle of Delphi's advice was 'leave no stone unturned'. The mountain of knowledge is a rocky place, and while many stones to unearth insights to help the reader ride ultra-distance have been excavated, there are a great many others left to explore.

Ultra-distance is a team game and this book is no exception. Those experts who helped Dominic and Charlie break the record have also assisted with content. Rather than rewrite their wisdom, sections written in their own words have been included. The authors have also reached out to other coaches and athletes for their insights. This book seeks to assimilate the many lessons learned into a single volume to save the reader the pain of having to trawl through vast amounts of content to find the nuggets of knowledge that really will make a difference. As a result, it is the hope that this book will help you to ride a long way, fast!

*Record breakers:
Dominic Irvine and
Charlie Mitchell*







INTRODUCTION

Cycling over the sun-drenched hills of the Dolomites, anticipating the night ride ahead, is the quintessential experience of ultra-distance cycling. It's so much more than just riding a bike.

WHAT IS ULTRA-DISTANCE CYCLING?

Ultra-distance cycling competitions or events are generally defined as endurance performances of at least six hours in duration and 160km. They may be as long as several thousand kilometres and may last many days in duration. Riders can be self-supported, needing to find food and fluid and (if necessary) shelter along the way. Others need a support team, whose job it is to carry supplies and spare equipment to keep the rider going throughout the event. *Non-stop* in relation to ultra-distance does not mean riding the bike without stopping: there are times you will need to change kit, repair the bike, go to the toilet or get some food. If you do need to sleep it will be for minutes rather than hours – although in many races you will probably not sleep at all. Time off the bike is as short as possible in order to maintain momentum.

Your choice of event will depend on your preferred type of ride. Do you like lots of hills or do you prefer the flat? For example, the Race Across America (RAAM) climbs an average of 11m per km. In contrast, Ultracycling Dolomitica climbs 26.6m for every km. How long do you want to be riding: 24, 36, 48 hours or longer? In the Race Across the Alps (RATA) you could be finished in under 24 hours, whereas in the Race Across Europe you'd still be riding for another seven days at the very least. Do you wish

to do it supported or unsupported? London–Edinburgh–London (LEL) serves hot meals at the control points, whereas The Japanese Odyssey requires you to shop for whatever you want, whenever you want. Would you prefer to race as part of a team or on your own? Most events will give you a choice. Do you prefer large-scale events with the infrastructure to match, or is low-key your thing?

One of the most popular formats of ultra-distance events is the 'Race around...'. You can 'Race Around' Austria, Germany, Switzerland or Ireland, for example. You can race across continents in, for example, the Race Across America or the Race Across Europe. Then there are a whole host of races that do loops of difficult terrain, such as Ultracycling Dolomitica in the Dolomites or the Race Across the Alps in, of course, the Alps. Each year, more and more events are created.

Whatever your choice of event, make sure it is one with significant appeal. You're going to spend a long time training in order to take part, so it had better be something that you really want to do. The following examples will give you a flavour of what is available. Two are competitive (RAAM and Ultracycling Dolomitica), and two are not (The Japanese Odyssey and LEL). Two are large, organised events (LEL and RAAM), whereas The Japanese Odyssey and Ultracycling Dolomitica are small, low-key events.

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LONDON–EDINBURGH–LONDON (LEL), UK

The LEL travels to and from the capital cities of England and Scotland. The 1,433km route starts in the Essex town of Loughton, about 20km north of the centre of London, and travels up the east side of England before drifting to the north-west and then on through Southern Scotland to Edinburgh. The return route retraces the outward leg. Most of the route is on small roads. Of the 11,128m of climbing, most occurs in the north of England and Scotland. When compared to many other ultra-distance events, the amount of climbing is modest for the distance ridden.

The prevailing wind in the UK is from the south west. In theory, this means riders should not suffer from a headwind. However, the UK is renowned for very changeable weather and riders are likely to experience everything from warm sunshine to fog and heavy rain, sometimes within the same day.

Riders have up to five days to complete the route. It is a non-competitive event, so there are no winning times. The faster riders will finish in around two-and-a-half days. Established in 1989, it takes place every four years, two years after

Paris–Brest–Paris, probably the most famous *Audax/Brevet* (a non-competitive long-distance cycling event that must be completed within a given time period). It attracts hundreds of riders from around the world. Because it is not a race, there is a real mix of riders and riding styles. Some ride carrying plenty of spare kit to cover most eventualities; others go as minimalist as possible. A few ride single-speed or fixed-gear bikes.

There are 20 control points (including the start and finish) in towns along the way and in places such as schools and other institutions. At these ‘controls’ hot food is provided and, for those in need of sleep, mattresses are laid out in rows in large halls. At the busiest control points riders have to book a slot on a mattress in order to rest. Some kit can be sent ahead to two control points. While helpful, there is no guarantee that what you have sent ahead is what you will need at the time that you arrive. The controls are staffed by volunteers, many of whom are experienced cyclists, so have a great deal of empathy for the riders coming through. As a result, the event has a reputation for being very friendly and caring. It is a great introduction to ultra-distance cycling.



ULTRACYCLING DOLOMITICA, ITALY

Billing itself as the hardest race in the world, this relatively short ultra-distance race, at 600km, manages to squeeze in a staggering 16,000m of ascent in a loop through and over the Dolomites. The climbing is relentless; riders travel over 16 passes including the Campolongo, which includes a short section with a gradient in excess of 33 per cent. The race is open to solo and teams of supported riders, as well as unsupported riders. While other races may claim to be harder, there is no doubt that this is a demanding event. In 2015, only one unsupported rider managed to finish, the rest falling victim to the cold temperatures, rain and early snowfall at the top of some of the passes. In contrast, in the valleys the temperature can easily exceed 30°C.

The route is on delightfully small single-track roads that wind their way over the mountains. From a distance it's as if someone has draped a strand of spaghetti on the side of the hill. The scenery is epic, with steep-sided craggy mountains,

remote villages and high mountain pastures. While stunning during the day, these same roads become very challenging to descend at speed at night.

There are several control points throughout the race and a GPS tracker fitted to each bike to provide evidence of compliance with the route. Unsupported riders can send a bag of supplies and kit ahead to a couple of the control points, but the distances in-between mean either a heavily-laden bike or a swift trip to a shop to stock up on supplies.

The fastest supported riders complete the distance in 25–30 hours, and the unsupported riders in 36 hours. The inaugural race in 2014 comprised just a handful of riders, but its popularity increases every year. Nevertheless, it remains a low-key event; it's quite possible to ride for hours without seeing another competitor. Participation in this event, unsupported, without prior experience of alpine climbs or ultra-distance riding, would be unwise.



RACE ACROSS AMERICA (RAAM), USA

According to the RAAM website, this is ‘The World’s Toughest Bicycle Race’, a claim that is justified by the 4,800km distance and the 53,300m of ascent. Unlike most other events, participation is dependent on completing a qualifying event. The race starts in Oceanside in California and travels east to Annapolis, the capital of the state of Maryland. The terrain includes everything from mountains to vast plains, from forests to deserts. The fastest riders will sleep on average fewer than two hours a night for the eight or nine days it will take them to complete the route. In 2014, Christoph Strasser averaged 16.42mph to win. This average speed included all stops for sleep, toilet breaks and changing kit. It is staggeringly fast.

The stories from competitors in this race tell of epic battles with sleep deprivation, headwinds, soft tissue injury, pain and sickness. Unsurprisingly, given the intense mental and physical ordeal, only about 50 per cent of those who start make it through to the finish.

It’s not easy for the support crews either. They have to deal with their own fatigue, while also

supporting a rider who’ll be making increasingly little sense and may be somewhat irrational in their expectations of the team. Given that this race has been around since 1982, there must be some appeal. As is so often the case with ultra-distance rides, it’s only afterwards that the sense of achievement is sufficiently addictive to drive people to do it again and again.

THE JAPANESE ODYSSEY, JAPAN

This is a non-competitive endurance ride across central Japan, established in 2015. The time limit for completion is 14 days and the route takes in 11 mountain passes between the cities of Tokyo in the North and Osaka in the South. It is at the other extreme of ultra-distance events in that you can *only* complete it unsupported. You have to find your own supplies on the way and posting supplies ahead is forbidden. A satellite tracker is used to display your position and prove completion of the route.

The route takes in some very small single carriageway roads that wind their way over beautiful mountains. Riders can, however, choose whatever route they wish, as long as they

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pass through a few checkpoints along the way.

The Japanese Odyssey is minimalist in almost all dimensions. There are 10 ground rules that participants are expected to follow. These 174 words are less than the information on where RAAM participants are expected to park at registration. The RAAM rulebook runs to in excess of 14,000 words, necessarily given the complexity of the event, the number of people involved and the significance of the race.

THE ULTRA-DISTANCE AESTHETE

These are simply the literal descriptions of what ultra-distance cycling is. This introduction does not give any insight into what makes ultra-distance cycling a sport many find themselves drawn towards. In the authors' experience, it is so much more than the event itself. Events are merely the placeholders in the calendar that provide a motivation to train for the rest of the year. And it is the training where much pleasure is to be had. Being able to head out early in the morning for a 350km training ride that takes in kilometres of roads you may never have ridden before, through towns you have not yet visited,

is a wonderful thing. To paraphrase T.S. Eliot, it is the journey, not the arrival, that matters. It is the joy of discovering more of the world around where you live.

The weather adds to the memories. An overnight ride along the bridleways of the South Downs in the South of the UK can reward with stunning views of church steeples and the tops of tall trees poking through the mist lining the valley floors, the ridges bathed in the thin light of a spring morning. Riding through the silence of snow falling, when all the world is tucked up inside and you have the roads and tracks to yourself, can feel very special.

At night, animal life is much more visible. At dusk, watching a beautiful owl silently work up and down a field, hunting for prey, can make for a magical distraction, as can watching a Condor ride the thermals in the high Andes.

Some training sessions are short and fearsome in nature, requiring absolute focus and huge commitment to complete. In the moment, these are deeply uncomfortable. However, thinking about how such sessions will make a future event so much easier helps keep you going.

Then there are the events themselves. Most are organised by people who know the area well. As a result, the routes planned often take in the best an area has to offer; roads and tracks that, if you were planning your own route, you may well have ignored or excluded. Because you are able to ride distances most find incomprehensible, you get to see a significant amount of an area in a very short space of time. You become more than simply an athlete; you also become an aesthete, attuned to the beauty of the world around you. It's a sport that lends itself to intense moments. These can be incredibly fulfilling and even spiritual in nature. While rides can last hours, sometimes a moment can last forever, and hours of riding seem to vanish in a second. Many of the experiences seem impossible to describe to others, be it battling extreme weather over a remote mountain col, or the exquisite beauty of an unexpected view early in the morning. While they may be ineffable, they remain memories for life.

Ultra-distance cycle racing is a demanding sport. Other competitors know this and the attitude to racing seems much more congenial and supportive. Fellow competitors and their support teams are very likely to check that you're OK if they find you stopped on the side of the road. There seems to be a respect for the fact that an incident in an ultra-distance race has far greater consequences than, for example, a 100–115km sportive where you are never more than 40–50km from the start or finish.

From all of these experiences riders learn more about themselves. You'll find out how well you cope under pressure when you're tired, hungry, or in the middle of the night when you're trying to fix your broken bike. Spending a lot of time on your own provides significant opportunities for introspection about what you're doing and









why, both on the bike and in life in general. The sense of achievement when you complete a very challenging ride is palpable. The euphoria lasts for days, weeks, months, even years.

You will, however, have to get used to people telling you they 'don't have time to fit the training in', as if somehow your life is part-time and easy. Expect your close friends and family to treat your extreme riding behaviour as 'just what you do'. An epic ride, taking in hundreds of kilometres, will gradually cease to inspire awe, and instead be greeted with, 'Can you put the bins out once you've put your bike away?'

The list of tasks that needed doing before you set out will still be awaiting completion on your return. If you make the extraordinary seem ordinary, then that is how it will quickly be perceived. Expect people to fail to understand that, just because you're riding a bike doesn't mean you can't think about other things, such as that knotty work problem you've been mulling over for a while.

There is good evidence to suggest that the process of de-focusing by doing something else can help significantly with creativity and innovation. As you get more experienced and your ability to pace yourself improves, expect others to no longer wish to ride with you. Your overall pace on long rides will be too high and, second, your ability to maintain a constant effort up and downhill will contrast with the average weekend rider who attacks the hills and then collapses over the bars on the way down. All of these negatives are a small price to pay for having transformed yourself from an ordinary cyclist into an extraordinary ultra-distance endurance athlete. The sensations, experiences, memories, insights and aesthetic pleasure that come from riding your bike a long way, fast, provide rich memories that will sustain you through whatever else life brings your way.

»»The world of cycling is rich in opinion, but a little less so in research underpinning these viewpoints.»»

SIMPLE BUT NO SIMPLER

The quote, ‘Everything should be as simple as possible but not simpler’, is often attributed to Einstein, and has heavily influenced the approach of this book. There are some topics, such as the discussion on training zones, that necessitate lengthier explanation than, for example, the right choice of top tube bag in which to carry your food. The latter justifies a short paragraph and no more, while the former necessitates a significant part of a chapter. The assumption has also been made that the very fact you have bought this book means you’re an experienced cyclist. Some of the topics in the book you may already have mastered; in which case, ignore them and read those sections of more use. It also means this is not the book to read if you’re unsure whether to buy a hybrid, mountain bike or road bike.

The world of cycling is rich in opinion, but a little less so in research underpinning those viewpoints. Where the evidence is clear, conflicting, uncertain or missing, this is noted. You may wish to scan those areas with which you’re already familiar just in case you have

fallen for an opinion that has no basis in fact.

While the basic principles of cycling have remained constant, ongoing research and developments in technology are having a profound impact on the way in which riders can prepare and participate in ultra-distance events. Power meters, unheard of 30 years ago and within reach of only professional cyclists just 10 years ago, are now available to all enthusiastic amateurs. They have transformed cycle training.

While cyclists of old had to carry route cards and maps to help them navigate, the advent of the bike-mounted GPS and phone apps has enabled complex routes to be ridden with ease by simply following an arrow on a screen. The broad principles that underpin both technologies have remained constant over time – how do you get the best training bang for your buck of effort? And how will you know where to go? And so, because the specific tools that are used make any text outdated before it is even published, this book will not focus on which power meter is better than another, but on the principles behind training with power.



It will not discuss the merits of different frame materials or how the different types of carbon fibres that are used in frame construction can affect handling and comfort; instead, it talks about what is critical in your bike set-up to survive riding for, on occasion, days at a time. Your budget will dictate how best to achieve the outcome sought.

In researching this book, the authors have combined knowledge gleaned from conversations with ultra-distance cyclists, coaches and scientists with their own riding experience in order to provide an insight into the 'lived experience' of the ideas discussed. The necessity of completing training sessions that stress different energy systems is discussed, as well as that horrible sensation when the training is simply not going to plan. Should you abandon the session, or keep going at a lower intensity? This is the lived experience of training that exists in the context of a busy life involving work, training, family, friends and all the many issues that all riders have to deal with on a day-to-day basis.

MARGINAL GAINS

Made popular by British Cycling, the concept of marginal gains came from the idea that if you identified everything that makes a positive difference to cycling performance, and improved each element by 1 per cent, the overall impact would be a significant increase in performance. Within the cloud of all possible gains, some are more significant than others, and similarly, each rider's development areas will be different to others. What might be an area of marginal gain for one rider could be a substantive area of development for another. For example, while being able to hold an aerodynamic position will help you go faster, it's a waste of time if you're unable to ride the race distance in that position. Similarly, reducing body fat to a single digit percentage will undoubtedly make you lighter, but if you haven't sorted out how to eat properly in order to fuel your body for the duration of your long rides, you won't last the distance.

Becoming a better ultra-distance cyclist is at its heart both complex and simple. Most aspects of performance are inter-related. For example,



your mental state is influenced by the extent to which you are depleted of energy, which in turn affects your ability to make good decisions. Each marginal gain should be considered in relation to the other factors that impact, or are impacted by, the change you intend to make.

At the same time, it is also simple. Improving your performance can be achieved by something as simple as swapping an endurance ride for a shorter, high-intensity session. When broken down into lots of small steps the accumulated impact can be phenomenal. Unless you're a professional cyclist, the chances are there are some big pieces of the jigsaw worth getting right first, such as fitness, nutrition, comfort and the right mental approach.

IT'S MORE THAN JUST RIDING THE BIKE

While the most attention is usually given to fitness and equipment, becoming a successful ultra-distance cyclist involves so much more. The assumption is made that you are a busy person with a full-time job and, among work and family commitments, you're squeezing in some cycling and have an ambition to go further and faster. The trouble is, there are only so many hours in the day. The challenge lies in carving out time to train without destroying your personal or working life.

When you *have* managed to find some time to ride, the next thing to establish is how to get the best value from that time. While ultra-distance cycling is in itself a solitary activity, in practical terms it can often involve a substantial team of people. If you're riding with a support team, you'll need to persuade them to give up some of their annual leave to support you while you take on an ultra-distance challenge. Then there are those who support you in getting to the start line, such as a coach, nutritionist, and physiotherapist. The challenge is how to get the best from all of these people.