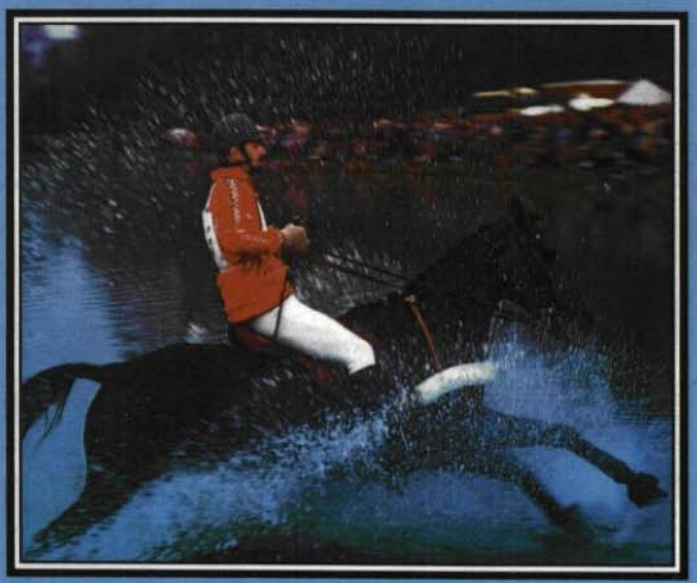
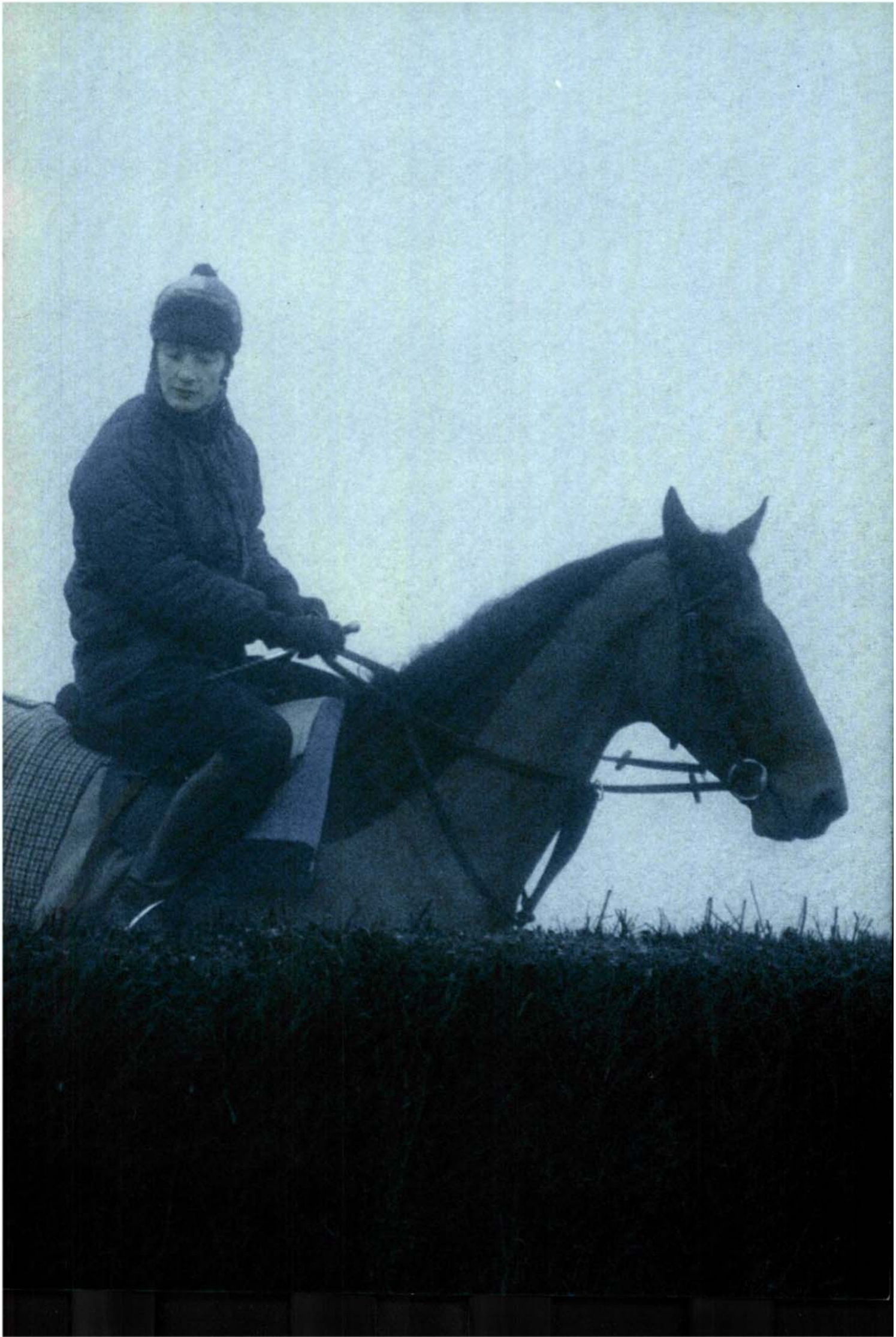
READY TO RIDE



WINNING FITNESS

Foreword by HRH The Princess Royal

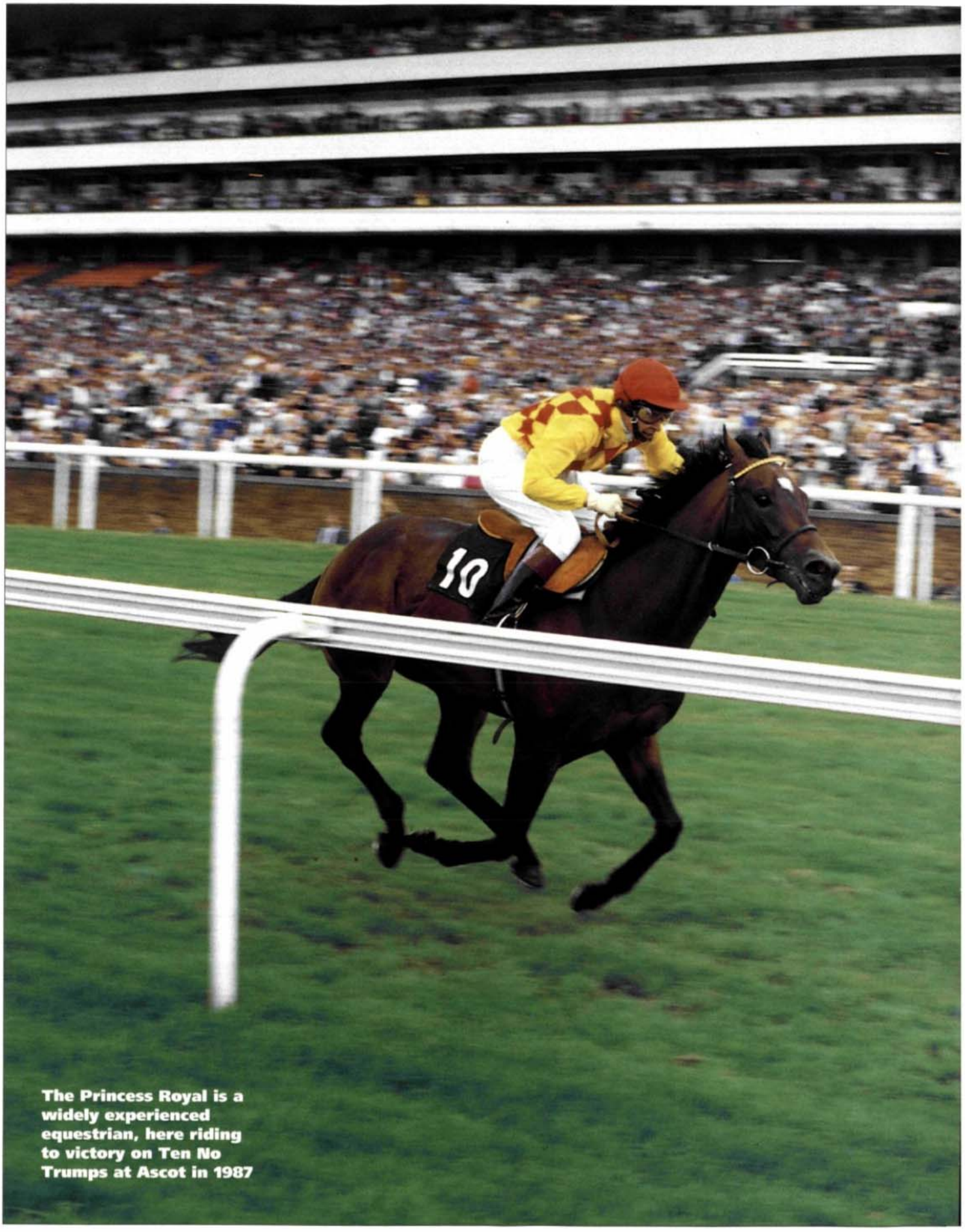


READY TO RIDE

WINNING FITNESS

EDITED BY JOHN LOVESEY

PUBLISHED BY SPORTING TYPES



The Princess Royal is a widely experienced equestrian, here riding to victory on Ten No Trumps at Ascot in 1987

Foreword

by

HRH The Princess Royal

The Injured Jockeys Fund and the Jockey Club Accident Fund are to be congratulated for supporting and encouraging Winning Fitness – the year-long programme of research into the exercise and nutritional methods of the riding world on which this book is based, 10 years too late . . . for me! The organisers of the Winning Fitness programme – who had the cooperation of the British Olympic Medical Centre as well as several sporting Guinea Pigs – deserve special praise for tilting so boldly at some of racing's most time-honoured myths. I was particularly glad to see that they did not even flinch from examining the British racing world's traditional attitude to women!

As an eventer, fitness and riding weight were not considered a problem, and the more horses you rode the fitter you were supposed to be. It was not until I started race riding as an amateur in 1985 that a lot more science needed to be applied and there was not a lot of it about. My own attempts to get fit – (much more necessary than for a three-day event) – and to lose weight (the horse had to carry a minimum of 11st 11lb at a three-day event) were a mixture of information picked up from numerous sporting and nutrition contacts – few of whom had anything to do with riders or horses.

Even if you find some of this book's conclusions hard to accept I honestly believe that the information it contains on fitness and nutrition will still richly repay your study. No single competitor may wish – or be able – to follow all its precepts but I very much doubt if there is a rider anywhere, in any sphere – eventing, point-to-point, race riding over fences or on the flat – who will not benefit in some respect.

Ready to Ride can show riders, young (and not so young) how best to bring into play skills which, at least partly because of unfitness, may never have been properly realised. Even more to the point, it demonstrates how increased fitness can help prevent injuries – and accelerate recovery when they occur.

This book, in fact, should provide a refreshing new starting point for everyone involved in the world of riding, and be required reading for any aspiring young jockey or middle-aged lady amateur!

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Contents

Introduction

THE man bringing change to the lives of jockeys and, by example, riders in all equestrian sports, is Dr Michael Turner. Turner became the chief medical adviser to the Jockey Club in 1992 and brought to the role not merely a formidable reputation but a revolutionary zeal. He said, in essence, that the jockeys, and not just horses, merited attention being paid to their fitness and nutrition.

Exceptionally bright, Turner talked with the rapidity of a Patrick Moore. He clearly was not a companionable man in the style of a Dr Finlay, nor did he suffer fools gladly, but he could be exceedingly funny. When he took up his Jockey Club post he was the director of medical services for the British Olympic Association. Nonetheless, he was not at first received in racing with entirely open arms. In the early days, as he eagerly got down to work, he said: "Some people behave as if I am Attila the Hun."

Like all outsiders new to the sport, he discovered its sometimes unwittingly self-imposed isolation from other activities had built barriers against new knowledge. Typically, the most common question put to him at first tended to concern how much he knew about racing. "What they really wanted to know was whether I was steeped in the mythology." But this was something he had experienced before and Turner told the doubters that his area of expertise was not the horse. "I'm interested in the human athlete," Turner told all those who would listen. "That's what the jockey is."

Before his arrival in racing Turner had been building his knowledge of the human athlete for some 20 years. He became interested when asked by a friend who had become manager of the British ski team if he would join him as team doctor. The son of a Triple Oxford Blue, Turner was not an outstanding sportsman himself, although he did shoot for London University at Bisley. Originally he wanted to be an orthopaedic surgeon but for a variety of reasons, including the unsettling life of a hospital registrar, he wound up, somewhat circuitously in occupational health, and sport. Chief medical adviser to the British Ski Federation since 1973, he had become over a period of time not just the skiers' doctor but their friend.

While minister for sport in the Thatcher government, Colin Moynihan discovered the high regard in which Turner was held by athletes. In pursuing a ministerial examination of the level of medical support in British sport Moynihan discovered: "What distinguished Mike from so many other medics I met was his commitment to the individual. He was not prepared to be there in a reactive capacity to deal just with injuries. He got to know all the sportsmen and women under his aegis. He talked them through preparation for their sport, attending to the whole process of medical care necessary to build a champion. I think that is what makes him genuinely so good."

In racing, as in his initial experience in skiing years earlier, Turner discovered everything was far from working like clockwork. But if people brought up the name of Lester Piggott as a way of suggesting his ideas were not necessary to build better jockeys, Turner's response was: "Lester Piggott and Ian Botham are like Everest and the Grand Canyon, natural phenomena that cannot be duplicated. But the Taj Mahal and the Great Wall of China are major feats of man. Awesome athletes can also be built, brick by brick. Jockeys need be no different."

To understand his thinking you needed to tune in to two terms: sports medicine and sports science. The former concerns itself with injuries and their treatment, the latter with aspects like nutrition, physiology, biomechanics and psychology. Turner was the first to admit that educating jockeys in the mysteries of sports science was not going to be an overnight process. "You cannot suddenly," he said, "bring in new ideas for people who have had minimal exposure to them and don't see the relevance. But things will change."

Things started to change, notably, in the first case, with a project named Winning Fitness. This was conceived in a conversation between Michael Turner and myself shortly after his appointment. I had been sports editor of *The Sunday Times* for 14 years and, during that time, had been involved with several fitness-related studies and projects. The meeting of minds was instantaneous. What would emerge, we asked ourselves over a cup of tea, if we assessed the fitness of a group of jockeys, encouraged

them into better diets and provided them with a regimen of exercises? If we could prove, at very least, that improvements were possible then the implications for all equestrian sports would clearly be far-reaching. All we needed was the cooperation of some jockeys, the facilities of the British Olympic Medical Centre, a coach and a nutritionist.

Behold, it came to pass!

The first trump card was the group of jockeys who made it all possible, and to whom up-and-coming youngsters in equestrian sports should be for ever grateful. They reaped rewards but not before they had endured not only the pains of physical examination and new experiences but sometimes the leg-pulling of their peers.

The second trump card was Leopold Faulmann, director of physiological services at the British Olympic Medical Centre. An Austrian, he once played soccer as a centre forward at junior level for Wacker, an Austrian first division club. Studies had taken him away from playing and an English wife brought him to England. He developed his specialist knowledge in physiology at Birmingham University, King's College in London, and what is now the National Sports Medicine Institute.

What strikes anyone who meets Faulmann is his enthusiasm. It never wanes even though the BOMC handles hundreds of visits a year. Through its portals pass not just Olympic sportsmen but, nowadays, moto-cross riders, rugby players and paralympic athletes. Yet, giving Faulmann the chance to study jockeys he made seem tantamount to handing a young boy a giant Lego set.

The third trump card was John Anderson, one of Britain's most famous track and field coaches. Anderson was born in Glasgow's Gorbals. A schoolboy boxing champion (today totally opposed to boxing), he played football for Scotland at schoolboy level, and was also a gymnast. Anderson first came to prominence as one of four larger-than-life, charismatic national coaches of the old Amateur Athletic Association in England, the others being Tom McNab, Wilf Paish and Ron Pickering. Anderson tends to talk in meaningful soundbites, driving ideas home by repetition. He coached Dave Moorcroft, who broke the 5,000 metres world record in 1982, and many other athletes including Liz McColgan, David Jenkins and David Bedford.

Just as the jockeys had every reason to be impressed by Anderson, he said he equally had every reason to be impressed by them. What first struck Anderson was the jockeys' level of commitment. "It takes a very special person," he said, "to focus their attention in such a singular way. It is a life of weight watching, and activity from early morning till late at night. I can't think of any other sport where that is the case. "

What perhaps most earned Anderson's admiration was the courage required of jockeys, and the coolness they displayed in handling the inherent risks of the sport. He focused on this dimension of bravery in a typical soundbite: "A jockey is a big heart in a small frame."

There were two aspects Anderson himself considered paramount in the project. The first, the fact that by not having found the time to work on their fitness, the jockeys' ability to sustain skill was affected by fatigue. The second, when they did have an accident, if jockeys were well trained they would be more resistant to injury than if they were less well trained. Moreover, if they sustained an injury it would be less likely to be severe, and they would be less likely to take so long to recover.

It was patently obvious to Anderson, however, that any of the traditional methods of getting fitter could not be applied to jockeys. Instead he put together exercise "packages", comparing them to books or videos of varying length that could be taken from a shelf whenever there was time. The two packages in this book fulfill Anderson's analogy: they can be taken from a shelf whenever there is time.

Anderson was the first to admit any fitness training had to have a good base, and that base had to be sound nutrition. That led us to the fourth trump card, Lisa Langford, the nutritionist with the project. She herself had been an Olympic athlete in walking and, at the time of the project, was a senior dietitian at Nottingham City hospital; Lisa went on to study medicine. Individual advice to the jockeys on diets was provided by Langford and she was responsible for the menus published in this book.

While not a massive scientific project, what Winning Fitness proved was that if there is a will there is a way: that a rider can improve his or her fitness and nutrition if they wish. This book documents the project that demonstrated this by adapting several of the articles that reported its progress in *Racing Post* during 1993. In the nature of newspaper articles covering a single subject over a long period of time, there was necessarily some repetition employed to hammer home points. Our conclusion that there was a real value in this for the rider, as witness its successful employment by John Anderson, has been recognised to some extent in this publication. It is hoped that any equestrian rider who wishes may learn and benefit from it.

J. L.
August 1994

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Text: Marcus Armytage and John Lovesey.
Photography: Gerry Cranham. **Graphics:** Neil Randon.

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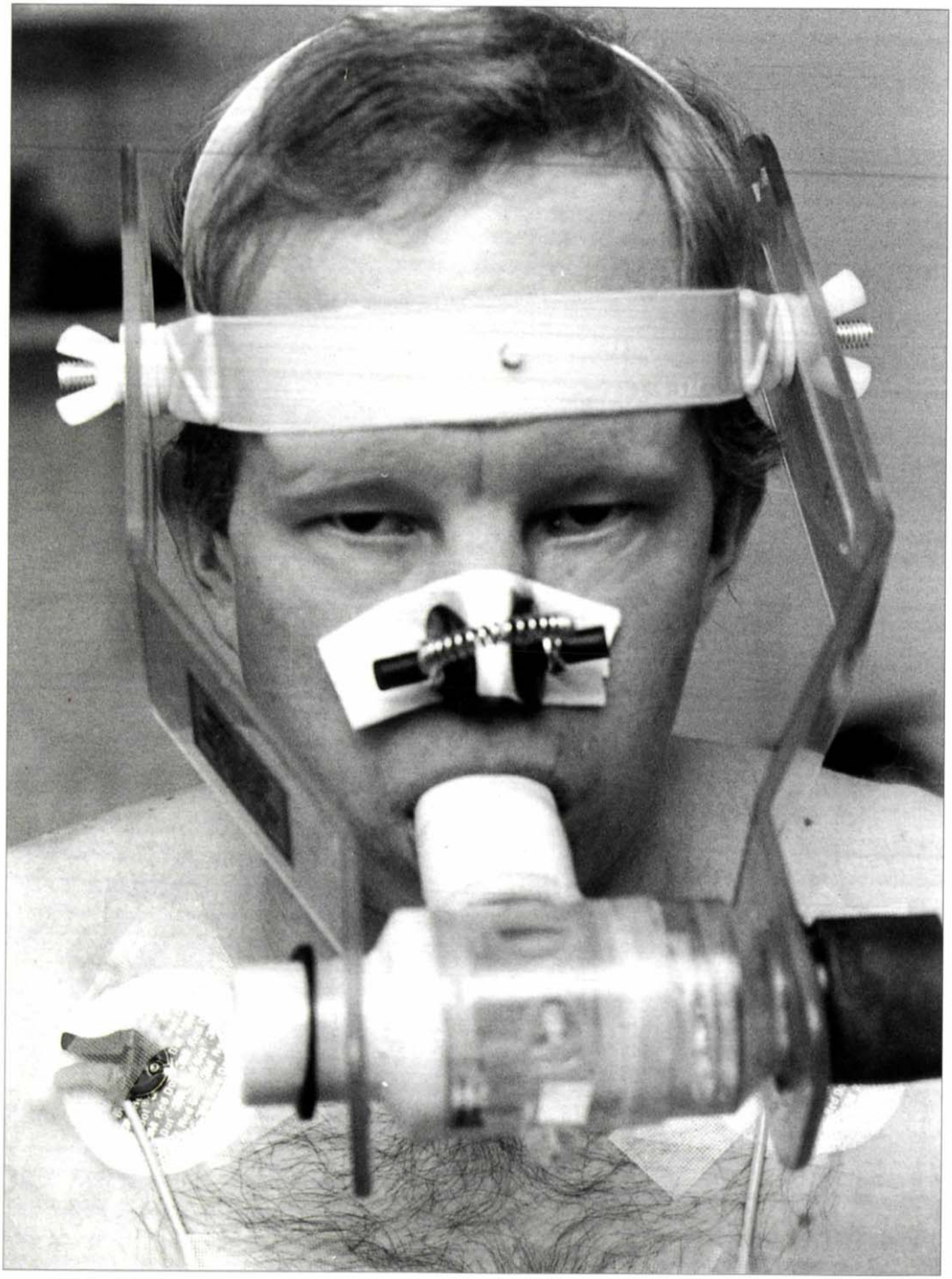


THE BEGINNING

In the air: change akin to revolt

In an initial examination we assessed the fitness of our group of volunteer jockeys

Measuring a jockey's endurance does not present the subject of such examination with any easy options, as Nicky Carlisle discovered when he went to the British Olympic Medical Centre

THERE was a seam of wisdom in racing that suggested jockeys were the fittest of athletes because they rode so much. In fact the Winning Fitness project proved that jockeys were not the fittest of athletes by a long chalk. What distinguished them was the frequency with which they competed. It made them the most extraordinary group of athletes in all sport. Not even English footballers or cricketers could compare, and it was this fact that gave rise to what is an unfortunate myth. By riding so frequently jockeys certainly enhanced their skill as riders but not their fitness.

The myth about fitness did a grave disservice, encouraging forms of behaviour among jockeys that were mistakenly even admired. Both the resort to saunas and bizarre eating habits were frequently projected as if they were virtues, suffering to be applauded. Yet, such behaviour was at best foolhardy and at worst extremely dangerous, doing perhaps irreversible damage to the body's essential organs.

Different categories of fitness are, in fact, required for different sports and riding horses is no exception. There is a world of difference, for example, between the fitness requirements of a sprint runner and a marathon runner, or even an attacker and defender in football. Some performers need more power and some more endurance. So comparisons are indeed odious not only between sports but individuals.

Skill is forged out of natural talent and then honed with practice and coaching. But fitness is much more difficult to identify and quantify. Eminent minds enlisted by the World Health Organisation wrestled with the conundrum for years. Broadly speaking it can be measured in terms of muscular strength, flexibility, the percentage of body fat and cardiovascular endurance.

Perhaps the component of fitness easiest to understand is endurance, the key to the efficient use of heart and lungs. Together these form the body's engine, responsible for delivering oxygen via the blood to the muscles. The more efficient the engine becomes as a result of training the better the body is likely to endure. It is for this reason that most people gauge their fitness, apart from how they feel overall, on how rapidly they become breathless when performing physical tasks. The longer they can go on the more cardiovascular fitness they have and the greater their endurance.

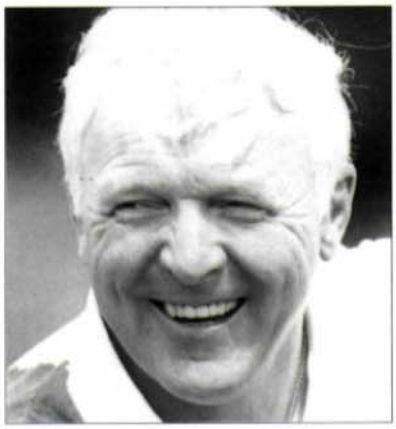
The pervasive belief about jockeys meant, however, that scant attention had been paid to them in such terms. It was true that the jockey was only part of the equation, the other part being the horse, but in attending primarily to the horse the jockey had been grossly short-changed. It was as if he or she were a disposable element, as simple to replace as racing plates.

This was the background to the Winning Fitness project that involved the British Olympic Medical Centre; Leopold Faulmann, its director of physiological services;

PROJECT TEAM

DOCTOR
Michael Turner

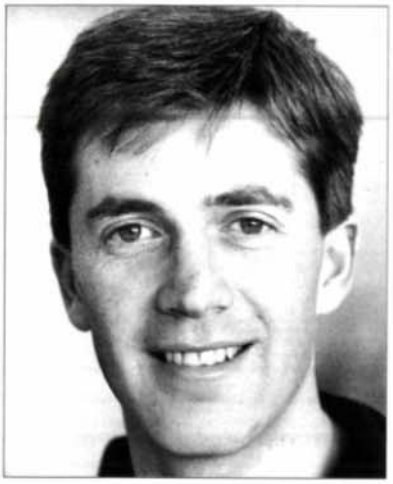
PHYSIOLOGIST
Leopold Faulmann



COACH
John Anderson

NUTRITIONIST
Lisa Langford

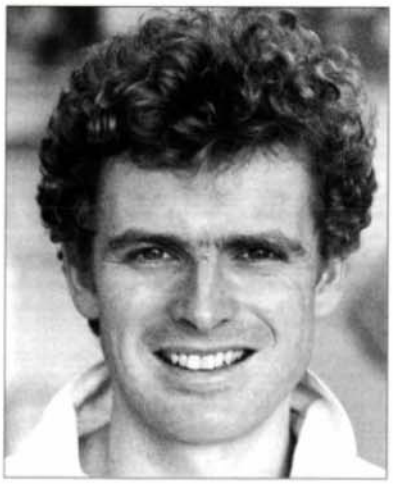
Twelve jockeys who took the Olympian



CARL LLEWELLYN
Jump jockey, Age: 27, Height: 5ft 8in, Optimum Weight: 9st 7lb

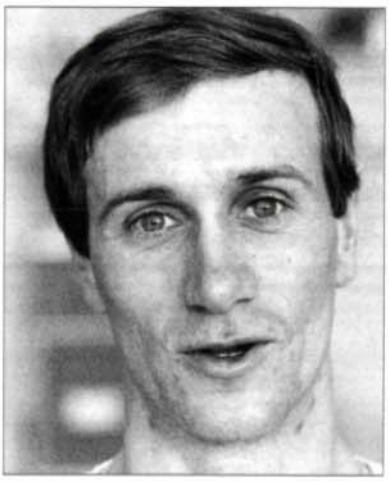
DALE GIBSON
Flat jockey, Age: 24, Height: 5ft 8in, Optimum Weight: 7st 8lb

ANTHONY TORY
Jump jockey, Age: 26, Height: 5ft 10in, Optimum Weight: 9st 10lb



MARCUS ARMYTAGE
Jump jockey, Age: 28, Height: 5ft 10in, Optimum Weight: 10st 3lb

ALEX GREAVES
Flat jockey, Age: 24, Height: 5ft 1in, Optimum Weight: 8st 1lb



DERRICK MORRIS
Jump jockey, Age: 29, Height: 5ft 6in, Optimum Weight: 9st 9lb

John Anderson, a former national athletics coach; and Lisa Langford, a nutritionist and former Olympic walker.

An ambitious project of this nature had never been attempted before, so when no fewer than 12 jockeys visited the British Olympic Medical Centre in Harrow, it was a unique experience. They were following in the footsteps of some of the Britain's greatest Olympians, including runner Steve Ovett, javelin thrower Tessa Sanderson and rowing's spectacular Searle brothers: similar tests, similar expertise, and similar sympathetic, painstaking care.

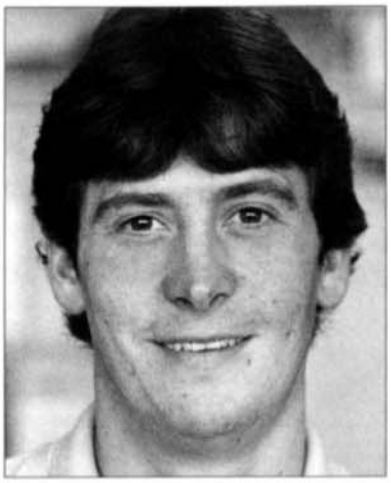
For the next few months, the riders were not only to be monitored but to have medical, nutritional and physical conditioning advice and help on tap. That the riders could benefit was not in doubt. A recent but dissimilar piece of research work in America involving 706 active jockeys had produced the information that they had among them suffered 1,700 injuries in their careers. At the core of this revelation was this pertinent fact: those jockeys who relied most on losing weight by such measures as skipping meals reported the greatest number of injuries.

As in Britain, not eating was shown to be the least of it. American jockeys were sweating off weight, using diuretics and laxatives, and also inducing vomiting, the latter technique carrying with it echoes of anorexia or bulimia.

It did not take an Einstein to come to the conclusion that all too often the unacknowledged objective of the jockey was to make the weight requirement. Getting on the horse was perhaps not just the battle won but the end of it. Energy that might have helped steer the horse to victory may well have evaporated within a lifestyle that is merciless.

Among all the athletes seen at the British Olympic Medical Centre, the experts concluded that jockeys lead the most extraordinary lives of all. Theirs was a life of long, demanding days, often two race meetings daily in the summer, interminable miles of driving and snatched meals, if any at all. It made jockeys the biggest challenge ever

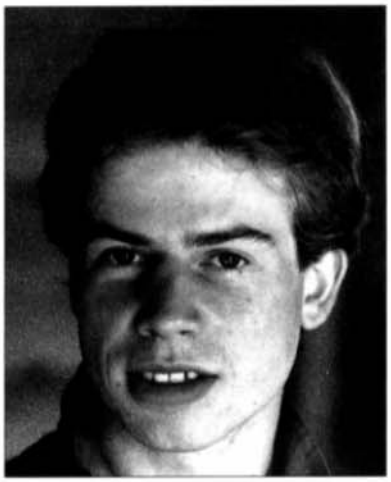
road to an enlightened version of fitness



MICHAEL TEBBUTT
Flat jockey, Age: 27, Height: 5ft 9in,
Optimum Weight: 8st 3lb

GEE ARMYTAGE
Jump jockey, Age: 27, Height: 5ft 2in,
Optimum Weight: 8st 0lb

NICKY CARLISLE
Flat jockey, Age: 33, Height: 5ft 1in,
Optimum Weight: 7st 6lb



JAMIE OSBORNE
Jump jockey, Age: 25, Height: 5ft 8in,
Optimum Weight: 9st 9lb

STEVE DAWSON
Flat jockey, Age: 29, Height: 5ft 1in,
Optimum Weight: 7st 7lb

LORNA VINCENT
Jump jockey, Age: 33, Height: 5ft 1in,
Optimum Weight: 8st 4-7lb

(Ages at time of first tests)

faced by the group of experts gathered together for the project.

Horseracing is a sport, it should be said, in which the ethos insists riders don't whinge. And, after listening to the jockeys matter-of-factly recount the details of their lives, John Anderson, who had coached scores of international athletes, could only exclaim in undisguised admiration: "They're as tough as old boots."

Anderson and the nutritionist were a crucial key to changing the riders' lives for the better. They knew they had to produce solutions that took account of the extraordinary demands of a rare lifestyle: providing balanced nutrition that ensured the jockeys maintained their optimum weight; and a fitness regimen that could be squeezed into odd moments.

If successful, what could be the result? Certainly more energy to divert into the actual business of riding horses and, one expected, to avoiding injury; moreover if accidents unfortunately occurred, a better chance of sustaining less severe injury and the probability of quicker recovery.

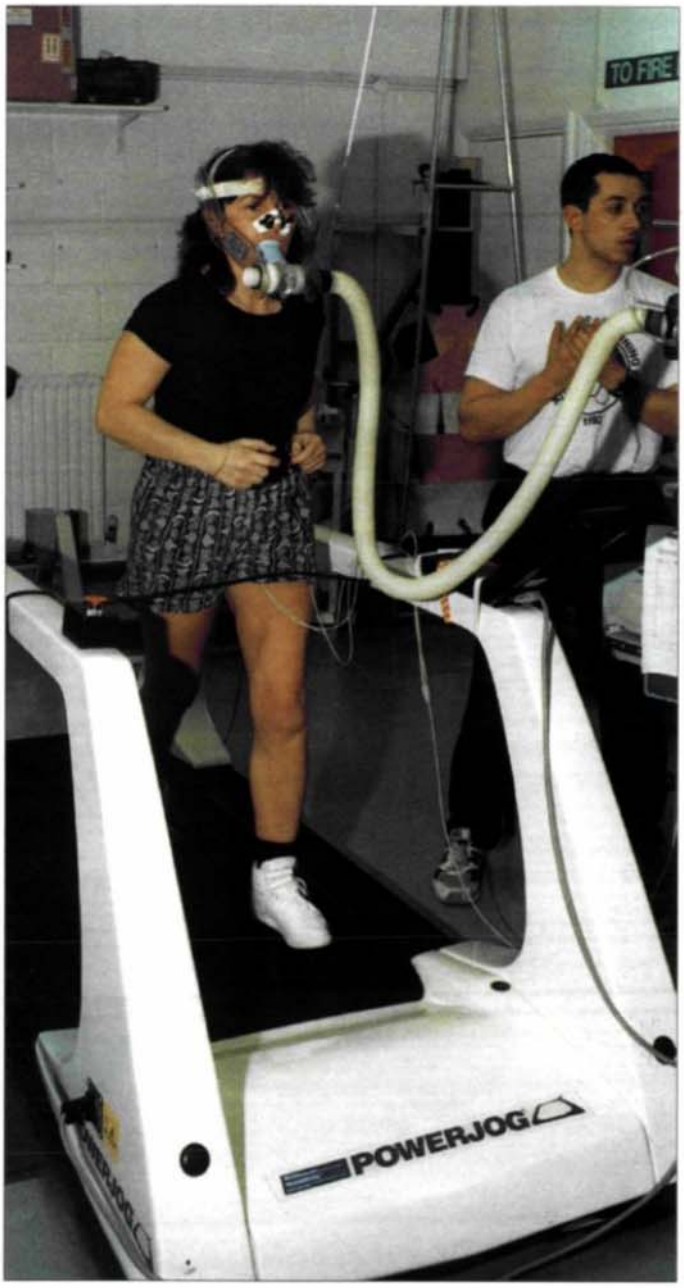
John Anderson explained: "Fatigue is always a factor in the breakdown of a skill. Any skill is affected by fatigue. So is concentration. If you're fitter and stronger you have more in reserve to channel your skill. The tests at the British Olympic Medical Centre provide the basis from which to start."

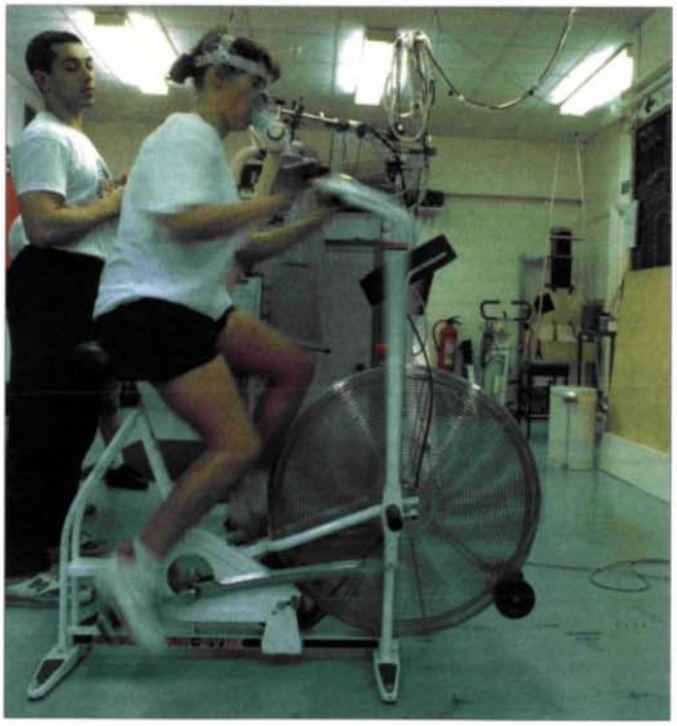
The main conclusions of those tests, where commented on in the picture captions, apply only to the male jockeys. The three female jockeys were not included in those conclusions though it would be correct to say that, accounting for the physiological differences between men and women, their results were broadly similar.

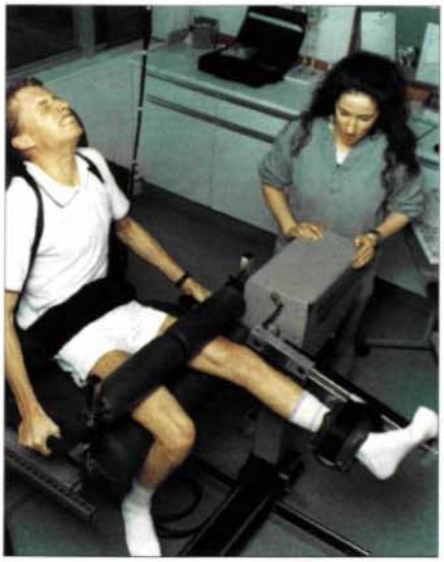
At the end of the day, nobody involved in the project was naive enough to think that fitter jockeys would necessarily win more races, though relative skill was expected to be given a freer rein. No, the important point was this: if the jockeys in the project learned how to be healthier and fitter while 'making the weight' that would be reward enough. Maybe the message would spread.

ENDURANCE

This is the 15-minute test that pushes athletes to the limit. Its intention is to establish the peak rate at which somebody can take in and use oxygen. Running on a treadmill or working arms and legs on a stationary bicycle, subjects have their heart rate recorded and their breathing monitored in order to establish what is known scientifically as VO_2 max (V=volume, O_2=oxygen). This is done by increasing the workload in stages, making the task progressively tougher. The resulting VO_2 max figure expresses the maximum oxygen uptake in volume per unit of an individual's weight over a period of a minute. Sedentary individuals, for example, might produce VO_2 max figures of around 30 millilitres of oxygen per kilogram over a minute while athletes in training may record 60ml/kg/min, and cross-country skiers have been measured up to more than 90ml/kg/min. Alex Greaves (below) opted for the bike, while Lorna Vincent (right) chose the treadmill. Each performed, as did the other jockeys, to standards that, to varying degrees, were equal to what one might expect from a group of club track and field athletes. Since they are not expected to run they had plenty to be pleased about.







LEG STRENGTH

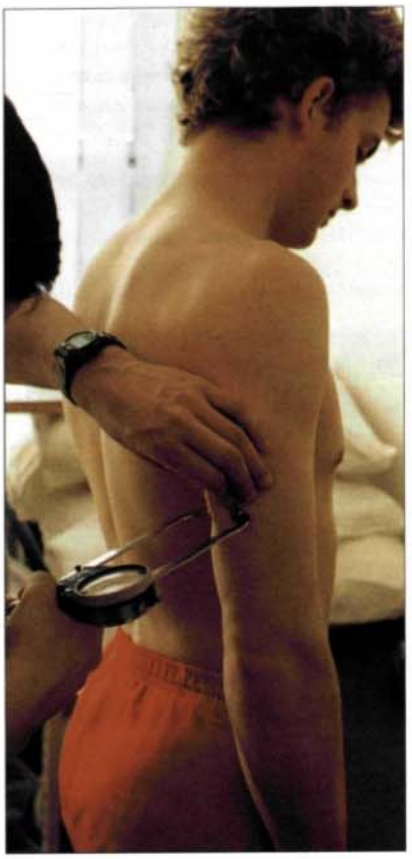
The torture chair par excellence? Certainly Dale Gibson's grimace (left) is common to all who sit down and test the relative strength of each leg in (a) a dynamic test in which the muscles contract and shorten while movement occurs, and (b) a static test in which the muscles contract without producing movement.

POWER

This is a challenge at which an Olympic oarsman like Steve Redgrave has excelled. Adapted for jockeys, it was a brutally demanding, upper-body test designed to discover how much explosive power they could generate quickly – and sustain. Turning the bar in a circular motion against 4 per cent of his bodyweight, Derrick Morris gave it his all.

BLOOD TEST

Of particular concern in the thorough examination of competitors, like Carl Llewellyn below, was routine blood screening. This included a check on haemoglobin, the iron-containing molecule that carries oxygen to all parts of the body. Adequate nutrition is essential to maintain the iron balance and thus prevent anaemia (low haemoglobin).

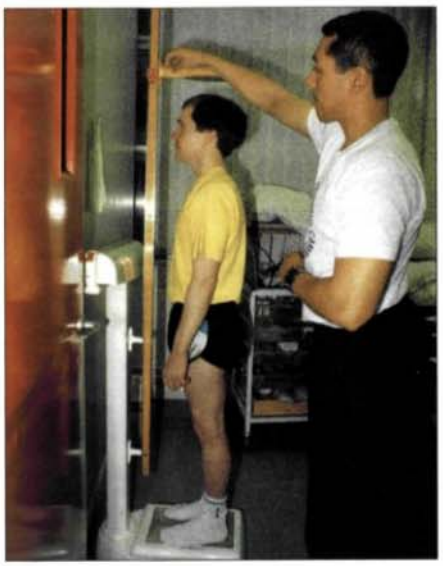


SKINFOLD

Fitness and fatness do not go together but the ratio of weight to height can provide a distorted guide. It is rather the percentage of body fat that is the crucial measure. This can be simply established by pinching certain areas of the body and adding up the total millimetres of subcutaneous fat between the fingers. In the picture Marcus Armytage is having the back of the arm measured. Other pinch points are the hips, front of the arm and upper back. It was no surprise that the jockeys as a group had little body fat on them. "They are in a category where most elite athletes would like to be. They are excellent in that respect."

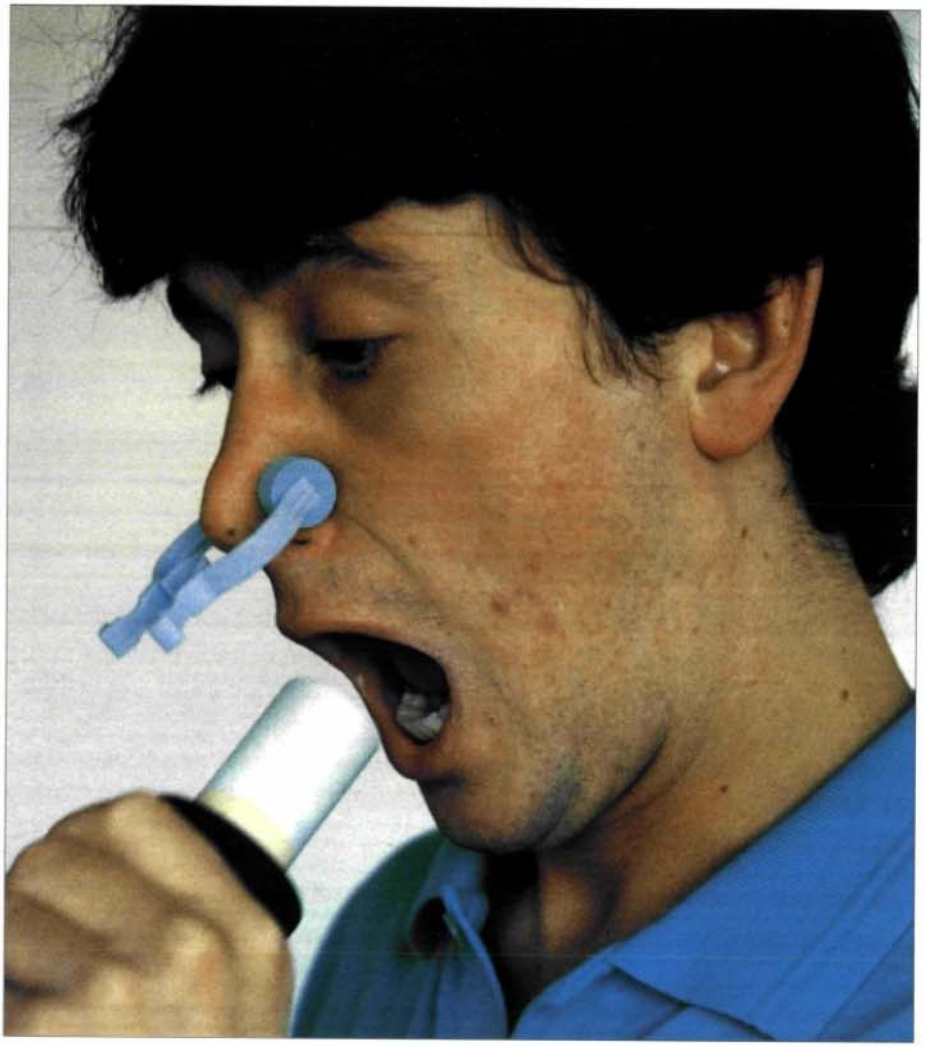
HEIGHT

Having his height measured, Steve Dawson turned out to be a smidgen over 5ft but in sport he is by no means unusual. Top gymnasts, many boxers and judo players, for instance, can also be small. The tallest Flat jockey in the group measured 5ft 9in, while the tallest jump jockey was an inch more. But it was, of course, in weight that the biggest contrast was clocked, the male jump jockeys' average weight was well over 20lb more than the Flat jockeys' mean, a gap likely to widen in the summer when Flat jockeys would expect to be at their trimmest and fittest.

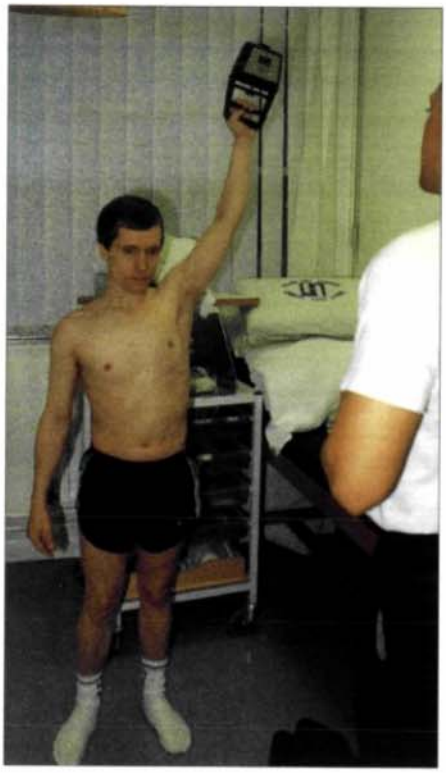


FLEXIBILITY

Anthony Tory stretched to it. Good flexibility is necessary to perform various physical movements and activities with ease and without risk of injury. Any strength training programme should not only make the muscles stronger but also increase flexibility. If it does not a competitor is limited in how much force he can generate. The maximum any jockey stretched beyond the toes was 24cm, a considerable achievement.



LUNG FUNCTION
Michael Tebbutt (left) looked prepared to put to use all that practice at blowing up balloons at Christmas. But most of the riders were likely to improve their FEV1 (forced expiratory volume), the proportion of total lung capacity expelled in one second. This test is a useful baseline measurement of lung function and as familiarity with it grows so can somebody's personal FEV1. One world-famous former international athlete remains a laboratory legend for his extraordinary peak expiratory flow: it amounted to twice the normal rate among his peers.



GRIP TEST
This test, being taken by Steve Dawson (right), provides a general measure of strength and varies with age, sex and body size. It was a jump jockey who, unsurprisingly, recorded the strongest grip, one of 58kg. For the same reason – size – the peak grip reading for the Flat jockeys was lower than the minimum reading for the jump jockeys.

'An hour on the rack? It'd be a relief now!'

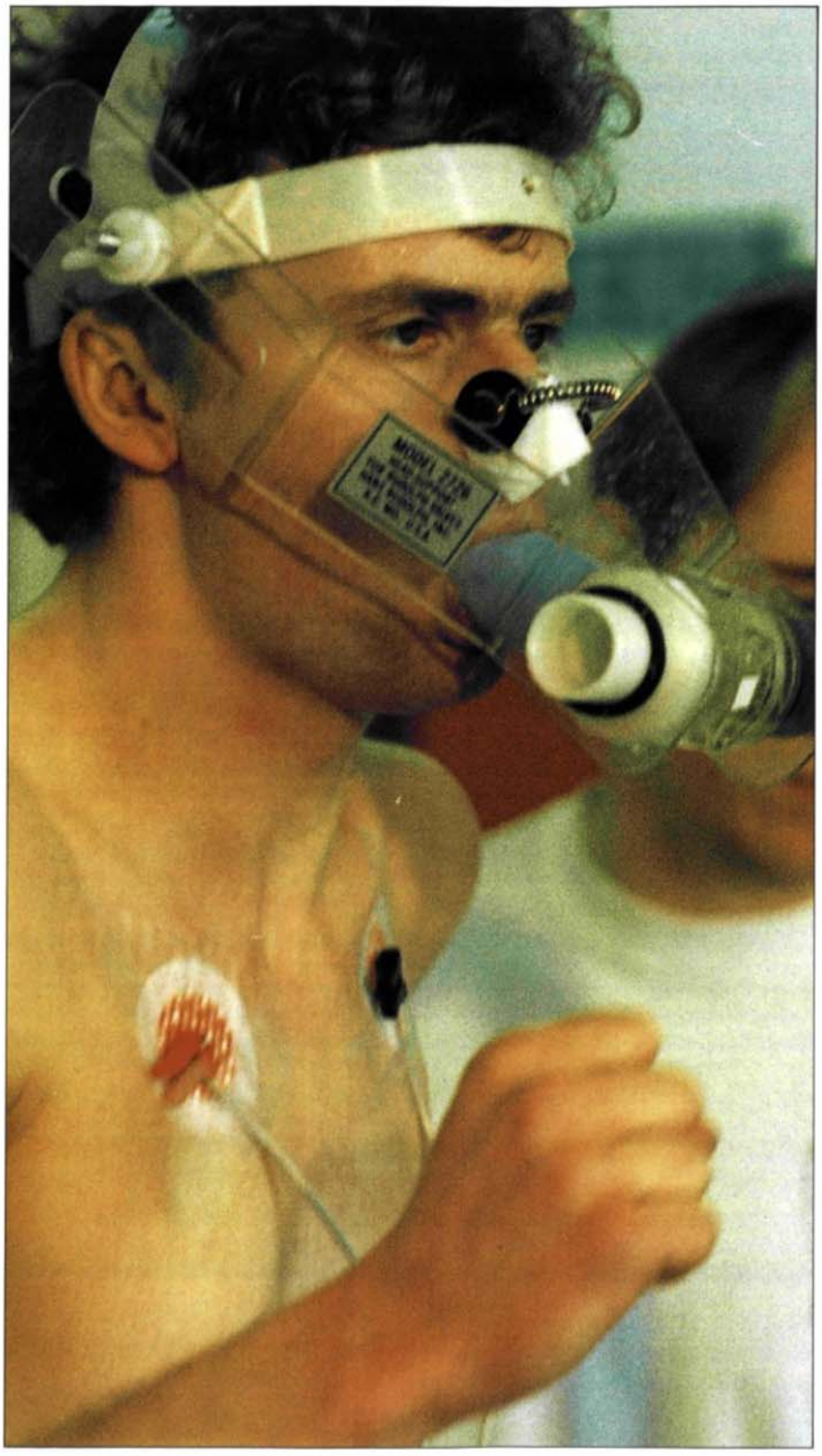
Marcus Armytage describes his first experience at the BOMC

SO you think the treadmill looks hard work? For the British Olympic Medical Centre's treadmill you dressed up like a jogger whose route would take in a bout of boxing and an underwater swim.

You were wired up to enough electrical kit to jump-start Frankenstein's monster after a frost. You blew into a clear but shopping-sized plastic bag and got nowhere progressively faster. However one sheet of number-crunched figures, the corresponding graphs, a few other tests, and a chat with a man called Leo and in one afternoon we learned more about riders' fitness than had ever been known before.

When you run the treadmill it becomes the dribbling, sweaty road to nowhere and fast lane to hell combined. The operators gave the right encouragement, so much so that for some unearthly reason you were persuaded and inspired to run until, as they requested, you dropped.

Yet the fact was the results of a group of



Marcus Armytage was inspired to run on the treadmill till he dropped

jockeys running for 15 minutes on a conveyor belt may go some way to revolutionising the way riders get and stay fit. No longer, we hoped, would it be bicycles with the seat painfully removed or crash diets consisting of laxative chocolate and pee pills, begged and borrowed, from elderly females burdened with 'water' problems. No longer would we need to accept that age-old theory, a particular Catch 22 for amateurs, that the only way to get race fit is to race ride.

The treadmill, though it used to be such a harmless sounding apparatus, was a little monotonous as a form of exercise perhaps, the sort of thing a bored hamster does voluntarily within the confines of its glass tank for want of a better occupation. But now the very thought of it conjured up visions of mediaeval torture chambers, where an hour on the rack would be a physical relief after a session on this.

By necessity I had to do some running to keep fit. This however was to be no fun run up the lane, no stopping here for a passing car and no waiting there for one of the dogs which had buggered off. Nor was it to be constant. The pace quickened on the minute and the gradient got steeper at the flick of a switch.

What's more you'd assume running on a treadmill was as easy done as said, no different from getting on an escalator. But, like recruits learning to march, the harder you concentrate the harder it becomes.

My initial fears of the day's activity were centred upon the blood test. Would it, I sought to find out, show how much alcohol I'd had to drink the previous night? Alcohol levels are not tested but then, despite being able to skin a rabbit or patch up a bleeding horse without flinching, the sight of large quantities (a filling test tube) of my own blood usually renders me unconscious.

That out of the way, the leg test sought to measure leg strength at different angles while the upper half of your body was strapped, every which way, into something not dissimilar to a dentist's chair or a pilot's ejection seat. The right results rely on a maximum effort every time to ensure accuracy. Pushing against immovable bars in the leg test I found the inspiration to push until it hurt, not lacking but hard to summon up.

The backward rowing test to simulate riding a finish, designed to test our explosive power, proved the longest 30 seconds of the day. The last 10 seconds of the half minute test and my arms were on autopilot, carried only by the momentum generated by the first 20 seconds.

I had a feeling though that the best of the British Olympic Medical Centre was yet to come. The most interesting half hour of my day was spent chatting to the nutritionist. She was confident she would have me doing nearly 10 stone and feeling good about it.

Afterwards I started recording my every meal, snack, cup of coffee and daily weight for them. When they'd counted the calories in my Sunday roasts and crèmes brûleés and so forth they would then be in a position to advise.

We may have felt like guinea pigs for a day but if they could get me doing 10 stone without a trip to the sauna then, I concluded, they would deserve one of the medals for which they train other people. I don't know what they said to Carl Llewellyn but after he went to the BOMC he started eating bananas between rides.

FIRST REPORT

An appropriate moment to study the results of Marcus Armytage

Asking questions and seeking answers

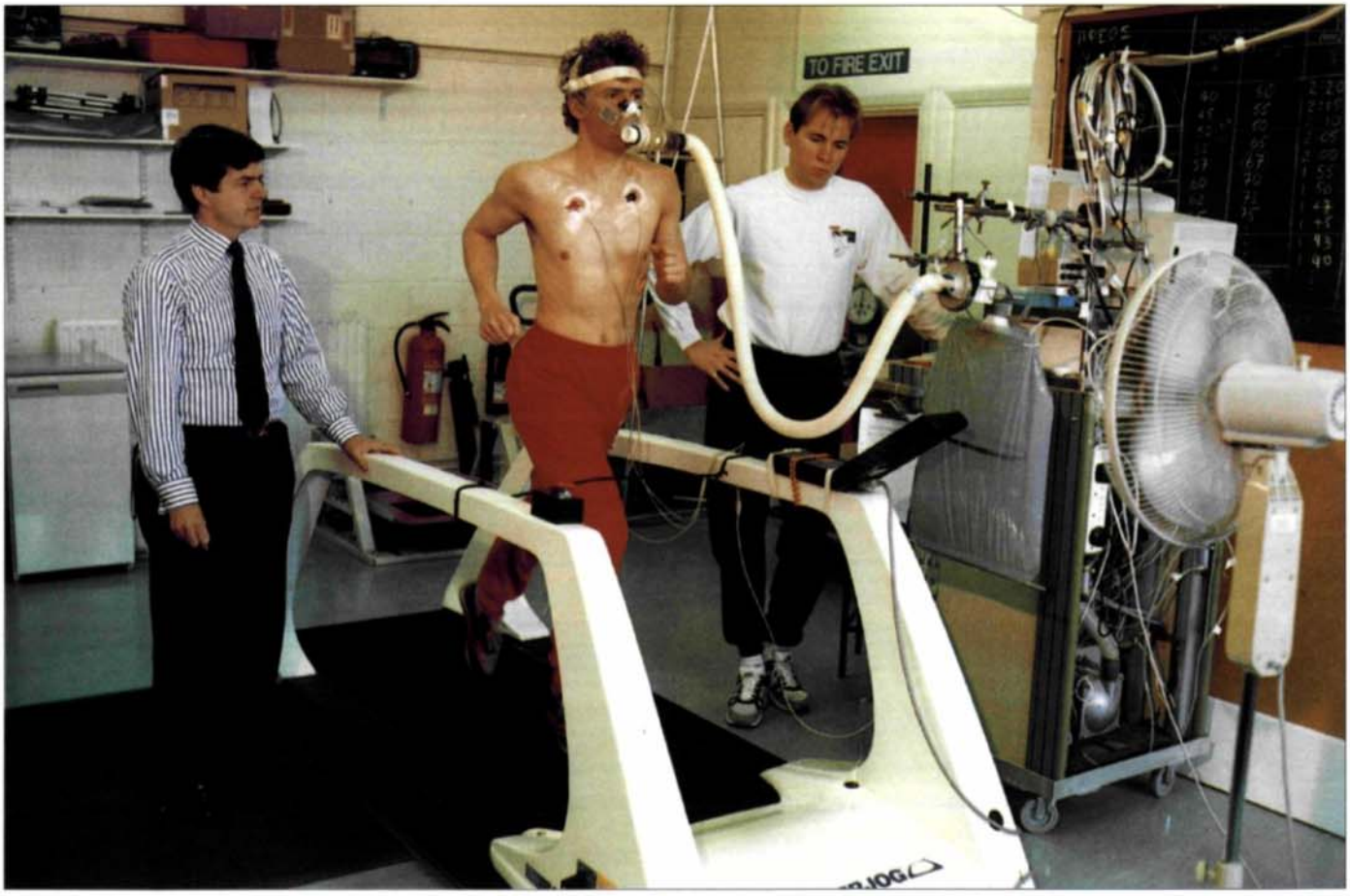
MARCUS Armytage wanted to be 10st 3lb, his optimum riding weight. At the British Olympic Medical Centre at the beginning of 1993 he turned the scales at 10st 7lb. He had little subcutaneous fat on his body so how could he achieve that 4lb weight loss without resort to the jockeys' tried and trusted methods, ranging from the sauna to laxatives and simply not eating, with all the consequent penalties?

Leopold Faulmann, the director of physiological services at the BOMC was used to living with such problems. Like all exercise physiologists, doctors, nutritionists and coaches in modern sport he wrestled continually with them.

How do you feed, for example, a Tour de France cyclist some 6,000 to 7,000 calories daily, the equivalent of as much food as many people will eat in a week but without which the cyclist won't finish? What do you do when faced with the evidence, now emerging, that a mere one per cent reduction in body weight from fluid loss can adversely affect endurance performance? The questions go on and on.

Modern sport, highly competitive, skilled modern sport, where standards rise yearly and victories and defeats are sometimes measured in tiny fractions of time and distance, requires solutions. Moreover, answers expressive of a genuine concern for the competitors and a real requirement that the competitors are not abused; that they don't take drugs and that they are not, in perhaps some horrible way, damaged physically.

Racing had been a backwater in this sense but now jockeys, at last, were getting their chance to tap into the knowledge that had amassed in recent years, knowledge that had been learned from so many sports and was now shared between sports. They were tapping in for all riders with the thought that the lessons learned could form yet another specialist pool from which all could benefit: by discovering there are better ways to 'make the weight' by becoming fitter and thus, as a consequence, less likely to suffer injury and more likely to recover



At the BOMC Marcus Armytage, watched by Dr Michael Turner (left), tackled the VO_2 max test

quickly from injury when it unfortunately occurred.

Leopold Faulmann was used to dealing with Olympic athletes of all types. He believed Marcus's ambition for his weight was "quite achievable", and in a modern fashion. The questions revolved round how it would be done, and ensuring it was done in a way that was both ethical and would enable Marcus to race at his best.

Marcus had not ridden much in December and January and did not consider himself to be 100 per cent when first tested. But he aimed to be so by Cheltenham and Liverpool. Nonetheless, he was already superfit by many normal standards. You can judge this from the graphs and results of his tests at the time. The results may seem technical to the newcomer to exercise physiology but it was one of the project's objectives to improve understanding.

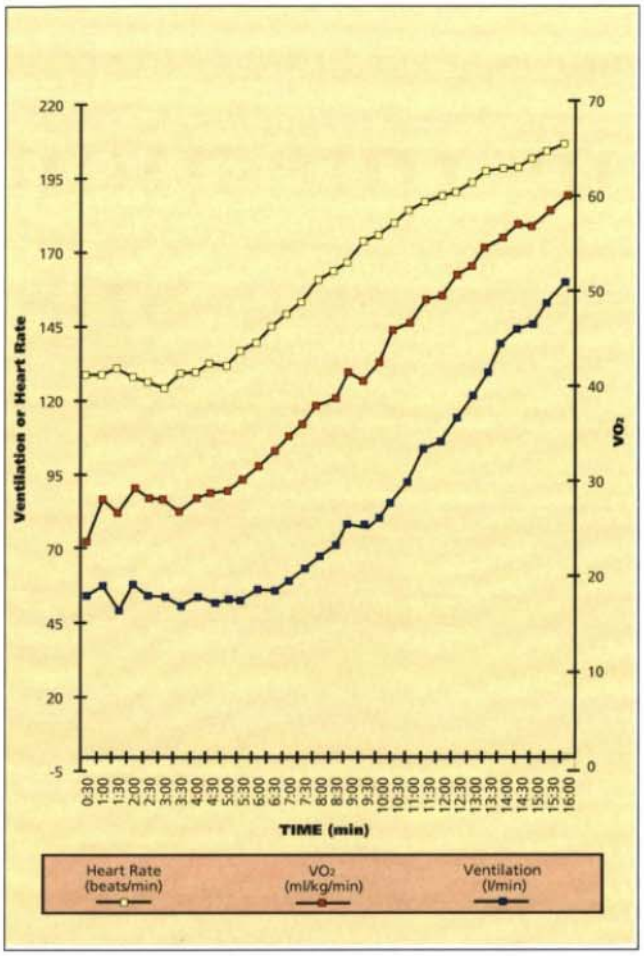
Among Marcus's best achievements numbered his strong hand grip (58 kilograms), and though it would not match the level found among judo players and wrestlers, it was the strongest among all the jockeys tested. His cardiovascular fitness, as witness his result on the treadmill, where he was "inspired" to run till he dropped, was within the range of an endurance athlete. His heart rate went up to 205 beats a minute during this test.

In the demanding power test, the one Marcus described as "backward rowing", he put out enough energy, measured in watts, to keep three or four rooms in a moderate-sized house lit up – for 30 seconds! Cyclists can produce such explosions of power for seemingly ages, but just as nobody expected Marcus to be a wrestler or judo player, neither was he expected to be a competitive cyclist.

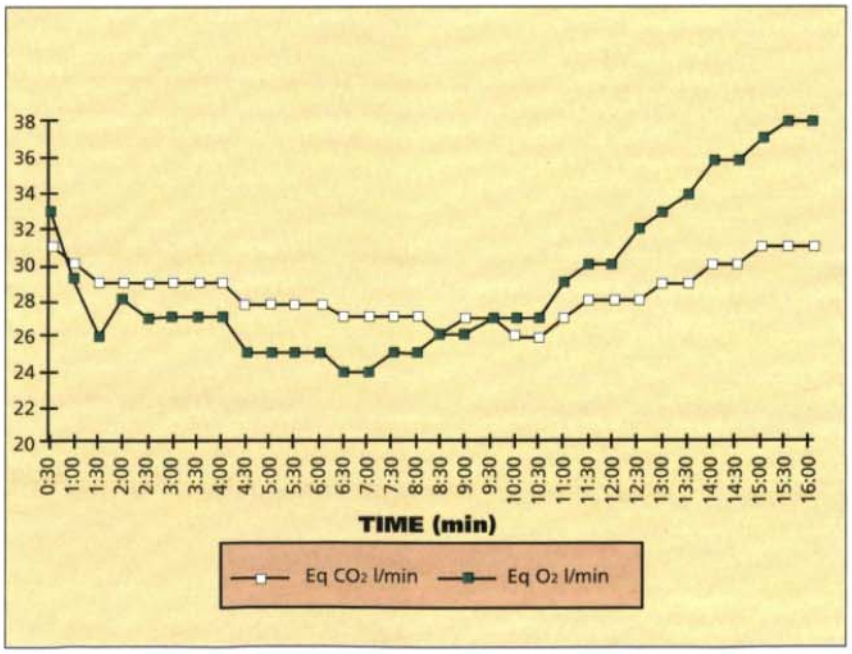
Marcus's blood test was normal and if there were imperfections, Marcus could take comfort from knowing that he was not alone. His forced expiratory volume measured in the lung function test was not huge but, as we previously explained, this usually improves with practice. The leg strength tests revealed that his hamstrings (see flexion readings in the results on page 23) were not that well developed, but the same tests had recently revealed a similar state of affairs among some brawny hammer throwers. Indeed, it was pointed out, if Marcus was not in the unnerving and painful habit of tearing his hamstrings (and he was not), there was no cause for concern, which was exactly what was concluded about the hammer throwers.

Leopold Faulmann, not a man to dispense praise easily, particularly when so much of the raw material he worked with was of Olympic medal quality potential, concluded: "Overall, Marcus is in good shape."

The physiologist then turned to the problem of Marcus's desired weight loss. Said Faulmann: "Because Marcus does not have a lot of subcutaneous fat on him, if he wanted to lose weight by losing fat through exer-



VO_2max
Captured in this graph is the story of the endurance test that established the maximum rate at which Marcus Armytage took in and used oxygen. The scale on the left indicates both litres of air over each minute and heart rate. The scale on the right is for oxygen uptake, VO_2 max being the scientific term for the highest figure achieved. In Marcus's case 59.9 was recorded and is listed in the test results on page 23.



TRAINING APPLICATION

This graph is derived from the VO_2 max endurance test, and one can see that the easy, aerobic phase fell between 0-8min, the middle, transitional phase between 8.30-10.30min, and the hard, anaerobic phase, between 11-16min. To improve overall fitness Marcus needed to train at heart rates which corresponded to these different levels.

cise, we would be talking about a lot of long, slow distance running."

But losing fat is the body's last resort because it requires more oxygen to convert it into energy than the body's more usual store: glycogen, derived from carbohydrate, and laid down in the liver and muscles. Glycogen is broken down into glucose when energy is needed.

It is not until all the glycogen is used up that the body turns to burning fat. Marathon runners understand the effect of glycogen depletion from bitter experience. When they 'hit the wall' around the 20-mile mark it is because they have depleted their glycogen stores. The body then has no alternative. It starts using fat, but because this particular action requires more oxygen the runner slows down dramatically.

So when Faulmann talked about burning fat he was talking about 60 to 100 miles of running a week, and he was the first to admit that this was not practical for a rider who didn't have to run middle distances. He said: "This is where the nutritionist enters, to produce, gradually, over a period of time, an optimum food intake while at the same time reducing the amount eaten. With Marcus we're not talking about a huge change."

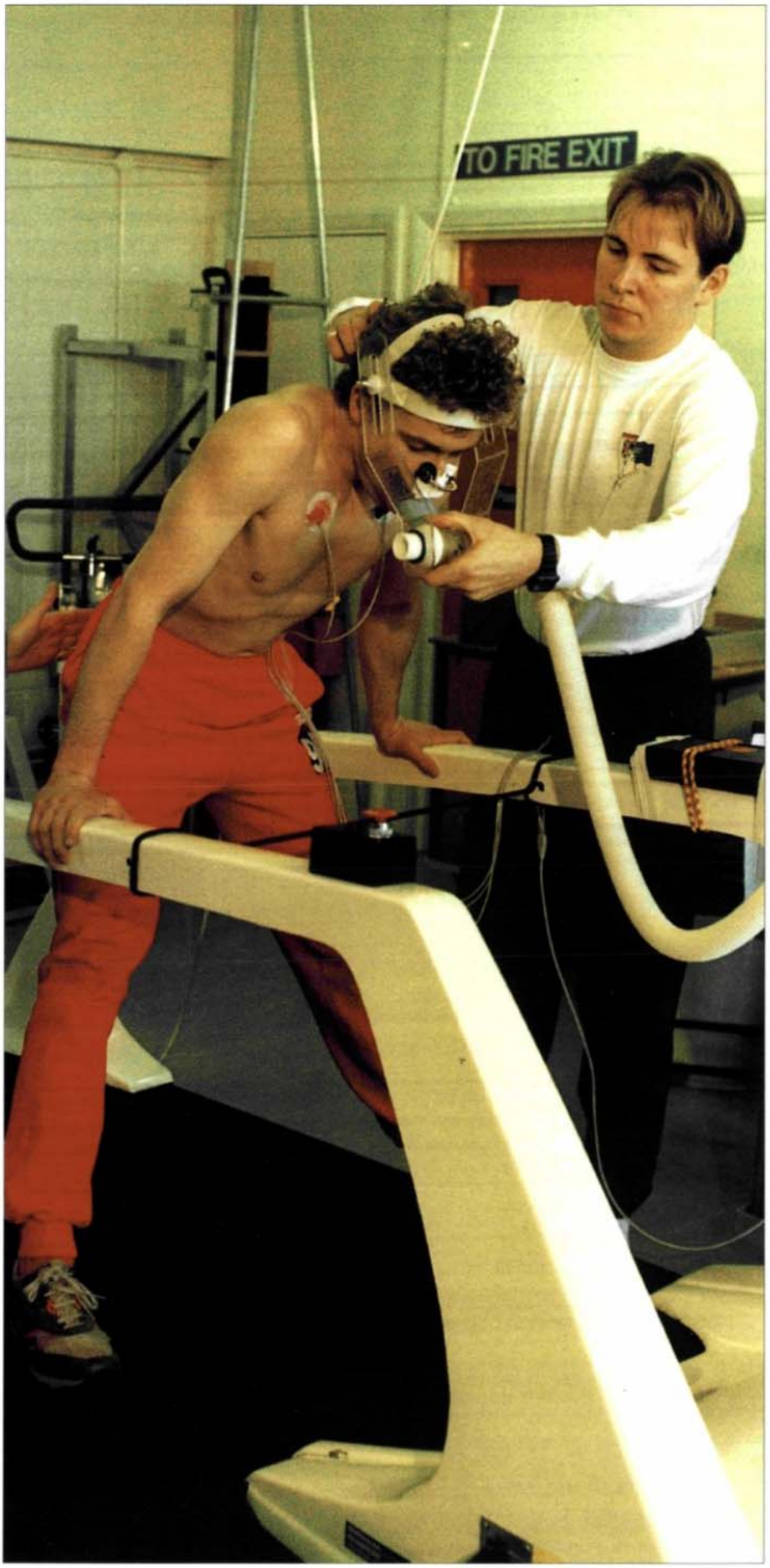
The problem of Marcus's weight was a simple illustration of a sports equation where you have to balance factors to produce the desired result. Some of sport's other problems, like the food intake of a Tour de France cyclist, are vastly more complex. And some jockeys, unlike Marcus, were going to be really no different in this respect.

"In sport you have to differentiate," said Leopold Faulmann, "between the health aspects and the sport aspects. It's where the equation becomes more interesting. To be honest, with Marcus's VO_2 max I feel the endurance element is adequate and this does allow Marcus to focus on other areas."

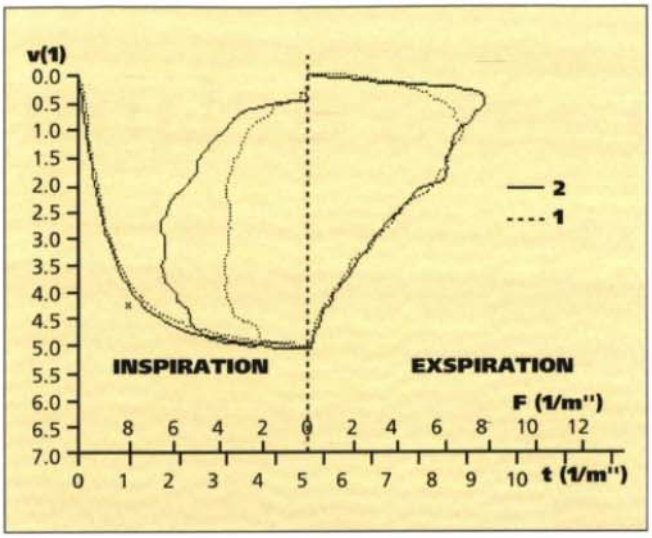
The question of endurance work, however, would not immediately float away. Leopold Faulmann, a man dedicated to helping competitors, still felt compelled to look at the problem in different lights: "But if Marcus did more endurance work, would it improve his performance . . . particularly when we can achieve the reduction in body fat by a different route?"

Over the coming weeks and months, some of the answers were going to be forthcoming. Marcus had written to Faulmann to forewarn him "that it will be a different me in three months' time".

"That," said Faulmann "is a typical athlete." The challenge had been picked up. He chuckled, in anticipation. But nobody pretended it was going to be easy, least of all Marcus and the other riders.

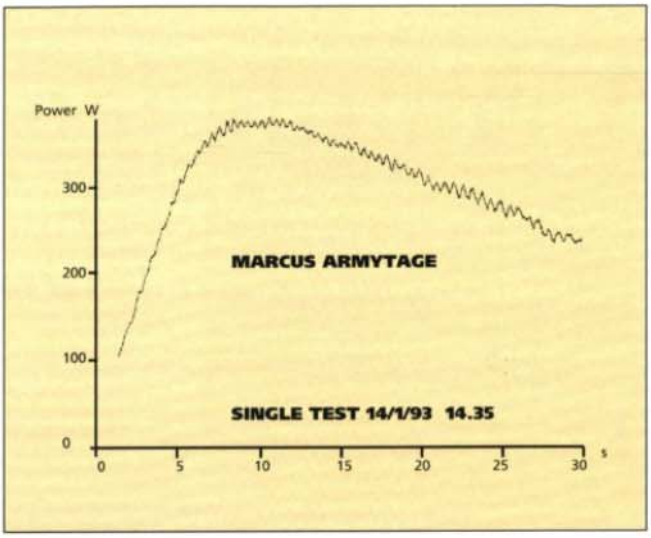


Marcus Armytage, at the end of his session on the treadmill, was exhaustion personified



FORCED VITAL CAPACITY

The lung function test produced this image of two attempts by Marcus Armytage, with expiration depicted on the right, inspiration on the left. In the results below, the 'predicted' figures are for a normal comparable population group. Though Marcus's explosive volume was "a little bit down" the ratio between that and forced vital capacity was 77.2 per cent. It was thus "perfectly okay".



POWER TEST

Significant praise was earned by Marcus for his performance in the arm power test, a brutally demanding examination of the ability to produce explosive power and sustain it over a period of 30 seconds. The story was in the resultant image. "Marcus produced a more or less perfect profile." It is the type of performance that could crucially count in a race finish.

MARCUS ARMYTAGE'S TEST RESULTS AT THE BRITISH OLYMPIC MEDICAL CENTRE

Date of Visit.....14/1/93
Age..... 28

Anthropometry

Height 5ft 10in
Weight 10st 7lb
Skinfolds.....25.2mm

Aerobic Test

VO_2 max (1/min).....4.08
VO_2 max (ml/min/kg) 59.9
Ventilation max (1/min) 155.4
Heart rate max.....205

Sit and Reach Test

8.0 cm

Hand Grip

Left 55.0
Right.....58.0

Lung Function Test

		Predicted
Forced vital capacity (1), FVC	5.09	5.07
Forced expired vol after 1 sec (1), FEV1	3.93	4.27
FEV1/FV*100 (%)	77.2	84.1
Peak expiratory flow (1/min)	7.78	9.75

Isokinetic Strength Test

Leg	Speed (deg/s)	Pk torque (Nm)	Ratio Q/H	Av torque (Nm)
Extension-left	60	203		195
Extension-right	60	230		216
Flexion-left	60	100	49	98
Flexion-right	60	121	53	118
Extension-left	180	171		167
Extension-right	180	165		159
Flexion-left	180	83	49	79
Flexion-right	180	84	51	80
Extension-left	240	146		141
Extension-right	240	149		145
Flexion-left	240	83	57	81
Flexion-right	240	72	48	71

Anaerobic Test

Arm Test

Peak power (watts) 378.5
Average power (watts)..... 313.0
Min power (watts) 235.3

Isometric Strength Test Left Leg

Angle at peak torque (Degrees)	Peak torque (Nm) Quads
90	290
75	284
60	246

Isometric Strength Test Right Leg

Angle at peak torque (Degrees)	Peak torque (Nm) Quads
90	292
75	298
60	238

EXERCISES 1

A simple leap into action

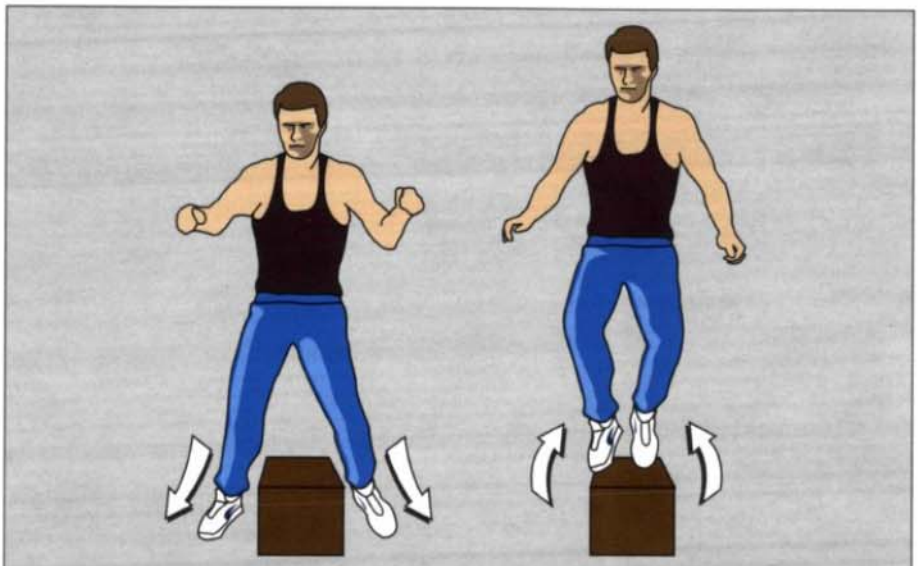
The first stage of an exercise programme needed only the most rudimentary equipment and a minimal amount of time

THE very nature of track and field, with its wide range of challenges, means that even while some coaches specialise within the multidiscipline sport, all athletics coaches worthy of the name have a vast range of knowledge on which to draw.

They are, in effect, perhaps the ultimate professors of human movement and the differing muscle groups that are called into play in a variety of activities. And, since anything is likely to benefit from study, it would be a grossly foolish, perhaps even wicked, person who claimed that nothing was capable of improvement among horse riders when subjected to the examination of a man like John Anderson.

Apart from being renowned as an Olympic track and field coach, John Anderson had given valuable assistance to competitors in other sports, including skiing and football. When he was asked to help jockeys Anderson spent uncounted hours studying film of them riding, and at the British Olympic Medical Centre talked extensively to each of the jockeys in the project when they visited for their first tests.

So, just as the jockeys were learning from Anderson, so he was absorbing information from them. In due course Anderson unveiled an initial exercise programme



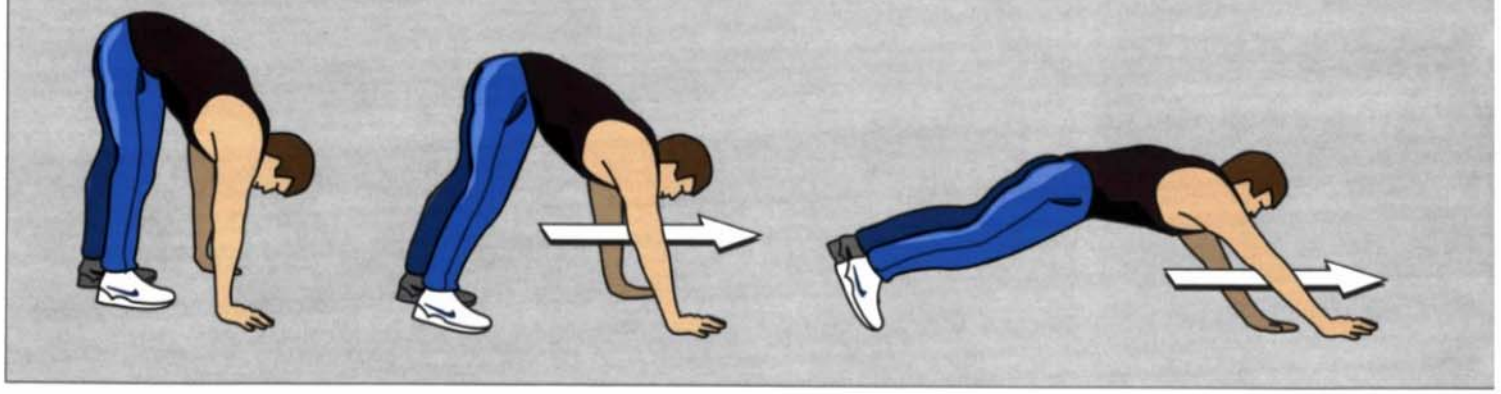
1. SPRING HOPS

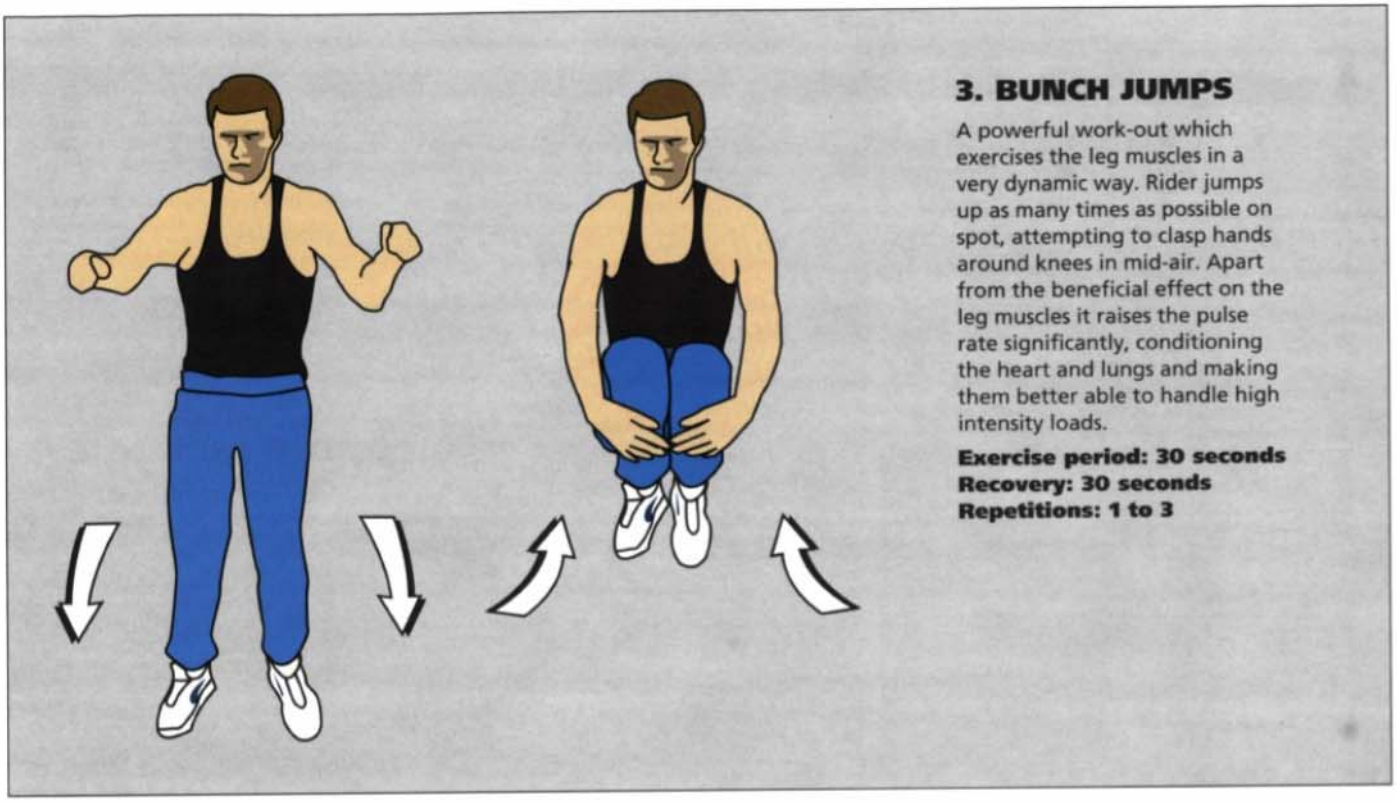
Jumping non-stop on and off a box approximately 18 inches high. Jumps are done from a position of feet astride box. Exercise is designed primarily to strengthen the large muscles on the front of the thighs (the quadriceps); the muscles on the back of the thigh (the hamstrings); the muscles that form the buttock (the gluteals); and the calf muscles.

Exercise period: 30 seconds. Recovery: 30 seconds.
Repetitions: 1 to 3

2. CATERPILLAR WALK

Done over a distance of 25 metres, the initial distance jockeys were asked to attempt. Keeping legs permanently straight, rider bends forward to take the weight of body on arms and shoulders. Rider advances by moving the hands forward and then, while ensuring the weight remains primarily on the upper part of the body, brings feet up behind the hands, keeping stiff-legged. As soon as the feet get close the hands move forward again alternately while feet remain stationary.





3. BUNCH JUMPS

A powerful work-out which exercises the leg muscles in a very dynamic way. Rider jumps up as many times as possible on spot, attempting to clasp hands around knees in mid-air. Apart from the beneficial effect on the leg muscles it raises the pulse rate significantly, conditioning the heart and lungs and making them better able to handle high intensity loads.

Exercise period: 30 seconds
Recovery: 30 seconds
Repetitions: 1 to 3

Faced with the busy lifestyle of jockeys, Anderson knew he had to take a radical approach. He could not, for example, suggest an hour of running or swimming or cycling. Instead, he came up with the idea of exercise packages, covering time spans of approximately 10, 20 or 30 minutes. He compared them to books or videos on a shelf that the riders could select from, whenever time was available.

Anderson had to mould his ideas in a particular way. At the time he said: "If you look at what jockeys do, they are not load-bearing, they are being carried. So though they need a good endurance capacity, firstly to ride the races, and second to provide them with enough energy to pursue their lifestyle, they don't need the endurance base you would expect to find in a marathon runner, or even a middle distance runner. It is not that kind of endurance; it's specific endurance.

"Then I realised that much of the time they are actually riding they can be doing anaerobic (high intensity, short duration) work. Because of that the packages had to take account of some aerobic work but have a high anaerobic content.

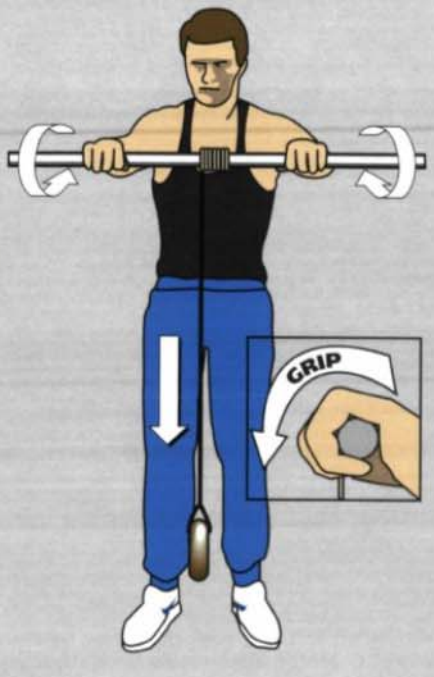
"But, again, there would be no point in getting them to run 150 metres, because it would have no relevance to riding. So what I'm trying to do is to look at the riding movements, identify which muscle groups and energy systems are being used and design specific packages."

John Anderson took some trouble to stress that his exercises were not designed for the general public. They were specifically meant for riders. Those tempted to try them should first read the warning in the panel overleaf.

The exercises themselves are intended to be done in the order they are numbered, since they focus on different muscle groups. Where applicable, the duration of each exercise is provided at the end of each caption. If a rider chooses to repeat it, doing up to three repetitions, then a 30-second recovery

Exercise puts load on the arms and shoulders, by using bodyweight to provide resistance. It simultaneously produces a beneficial effect on the hamstrings.

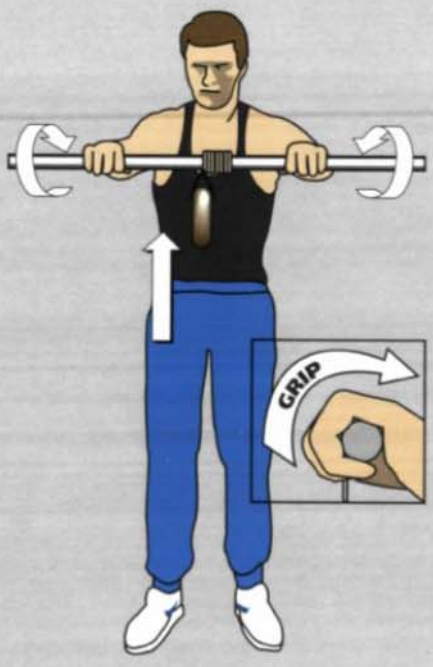
Exercise period: 1 minute
Recovery: 30 seconds
Repetitions: 1 to 3



4. WRIST ROLL

An old-fashioned favourite, easy to put together from, for example, an old cricket stump, a piece of thin rope and a preferred weight but one sufficiently heavy to ensure the exercise is strenuous. It could even be a kilo of sugar held in a plastic bag. Rider rolls up weight and unrolls it (rope should not be allowed to unwind out of control; i.e. grip should be maintained equally throughout). Arms have to be held out straight at shoulder height, providing an isometric benefit. Main effect, however, is on the muscles of the wrists and forearms, which are particularly strengthened when forced to work both concentrically and eccentrically. Rolling and unrolling counts as one complete movement and as many as possible are completed in one minute.

Exercise period: 1 minute
Recovery: 30 seconds
Repetitions: 1 to 3



period is taken between each repetition. Between each exercise a one-minute rest is taken.

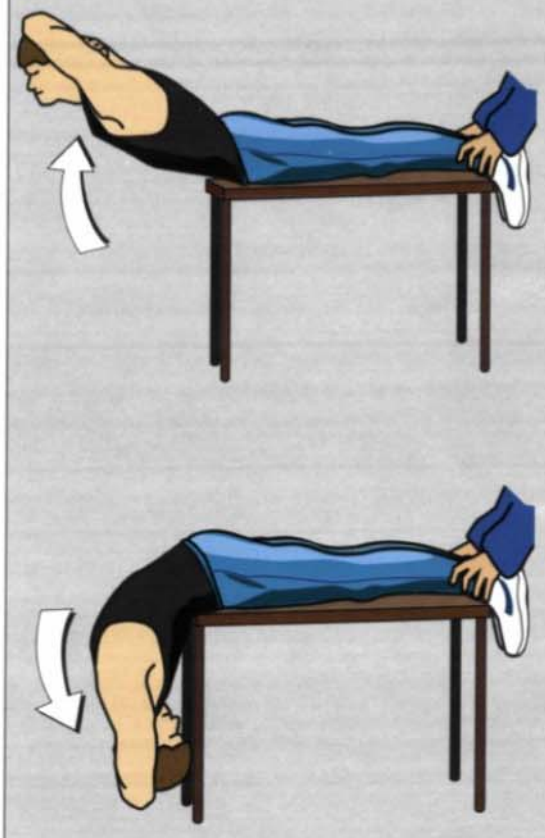
It is quite possible to do a complete programme in 10 minutes, providing there are no repetitions. The repetitions are at the discretion of the individual rider but even with a maximum number of repetitions, the first phase of the exercise programme is capable of being done within a reasonable time.

The truth is that at various times of the year some riders undertake a quite considerable amount of exercise. They play squash and swim and lift weights to varying degrees. All these activities were mentioned by jockeys in our project. Anderson was keen that they did not forsake these activities.

His crucial point was this: the exercise package was designed to be specific, dedicated to giving full rein to the rider's skill. And as Carl Llewellyn wisely said: "Anyone who can't afford to spend a minimum of 10 minutes a day looking after themselves needs to assess the way they're living."

WARNING

The exercises depicted here are intended for riders. Anybody wishing to attempt them should be sure they are medically sound. If not, the basic rule applies: before starting any exercise programme your GP should be consulted.



5. BACK RAISE

This exercise ideally requires some help in keeping the feet pinned down but when alone, ingenuity can normally find any number of ways to anchor them. On a suitable table or support, the upper trunk is suspended at right angles to the lower trunk. With only the hips supported, rider places hands behind head and raises the upper body as much as possible, getting the head up and looking as high up as possible. Then, keeping the upper body under control, it is lowered to its original position, completing one movement, as many of which should be achieved within 30 seconds. This exercise strengthens the back, and particularly the big erector spinae muscles that run down each side of the spine. For those whose back was not strong enough at first to handle this powerful exercise, John Anderson advised lying face down on the floor and raising the trunk from that position. If there is a problem beyond that, it calls for remedial exercises.

Exercise period: 30 seconds
Recovery: 30 seconds
Repetitions: 1 to 3

6. STOMACH CRUNCH

From a position lying on the back, hands behind head, legs extended, the left elbow is brought up to meet the right knee. While doing so the trunk is twisted so that the elbow goes outside the bent knee. After going back to the lying position, returned to after each such movement, the right elbow is brought up to meet the left knee. One complete movement consists of meeting both the left and right knees with the opposite elbows, and the maximum number of movements is attempted in 30 seconds. The exercise works basically on 'the big washboard' or tummy muscles.

Exercise period: 30 seconds Recovery: 30 seconds
Repetitions: 1 to 3

7. VERTICAL JUMPS

Another powerful leg-strengthening exercise, rider first of all stretches up in a standing position, touching the highest point possible to reach. That point is marked and another is made 18 inches above that. The object then is to jump up to reach the higher point with one hand. After landing, knees should be allowed to bend and then, with another strong thrust, rider jumps again, swinging the arms vigorously on each occasion. As many jumps as possible are done in one minute.

Exercise period: 1 minute
Recovery: 30 seconds
Repetitions: 1 to 3

THE SAUNA

Draining the strength

We took a look at the hazardous practice of 'making the weight'

THINK about this story. It is fictional but the facts were based on innumerable confidential conversations with jockeys.

The story concerned a freelance jump jockey but could equally, with appropriate adjustments for detail, have applied to a Flat jockey. The jockey in question was a good middle-of-the-road professional. He was noted for being easy to get on with and reliable. Trainers and owners liked him.

His life was a tough one but he would not have changed it, even though by the time he had paid all the expenses involved in travelling to courses and his mobile phone, the modern jockey's talisman, he ended up with an income he could have expected as a rising clerk in a bank.

His lifestyle was modest. He was married, and his wife worked before they had had a child. She had given up doing even part-time work because like the wives of all jockeys she could not rely on any regularity in her husband's life. One day he could be at Haydock and the next at Newton Abbot. It was therefore impossible to count on him being home at regular times to look after their child in order for her to work.

With his wife not working, accepting rides had become even more crucially related to keeping up the mortgage repayments. It was with this latter consideration particularly in mind that our jockey took the offer of a ride on which he was not particularly keen because it meant he would have to shed 4lb rapidly. He would normally sweat off 2lb in a reasonably short time, but 4lb was different. In his experience it usually took a good two hours in a sauna to manage it, and it was not something he ever relished doing. Nonetheless he had done it before. He could do it again.

So, on the morning of the relevant meeting he went into a sauna and sweated off 4lb. In fact, he slightly misjudged it. When he stepped finally on the scales he had lost rather more, another few ounces. What's more he felt weak and woozy but these are commonly experienced sensations after a long session in the sauna. By the time he presented himself in the paddock, touching his cap to the owner and trainer, he had pulled himself together and was, to all intents and purposes, the jockey people invariably respected and liked. He responded as normal, in the cheerful, clipped tones usual to jockeys, although he was grateful when the conversational formalities were over and he was able to clamber aboard.

Richard Dunwoody's record may be all the more remarkable for the degree to which he used the sauna to keep weight at bay

It was a misty day and nobody was too sure what happened on the other side of the track but he came a cropper. His mount fell at a fence. He broke a collarbone in the fall and, worse still, took a blow to the head from a horse's hoof that left him unconscious. Fortunately his skull was not fractured but he was left severely concussed and as a result could not recall what went wrong. What he did know was that he was going to face a period of not being able to race.

The horse had certainly not been set right for the jump but exactly why nobody could be certain. Excuses proliferated because that is the nature of racing's psychology. If horses could speak it would be a different matter but because they cannot, neither trainer nor jockey wants to admit that failure is down to them. One can understand. It would not be good business.

Our jockey's trainer, being a scrupulous man in his relationship with riders, avoided blaming our concussed and battered hero. He mentioned the going instead. The horse, he said, was not at home on that sort of ground. That, likely as not, he intimated, was why the mishap occurred.

What nobody suggested, because they did not know about it, was that perhaps not only some of the jockey's weight evaporated in the sauna but some of his strength. In boxing, where competitors are often faced with the same problem of 'making the weight' (but, it should be said, the opportunity to rehydrate before a fight) it is a common and perfectly valid excuse. "He lost the fight in the sauna," they are prone to say, providing the Press with the opportunity to ponder what might have happened but for this.

But if boxers and their coaches know all about the hidden trap that lies in the sauna, why was racing apparently quite so ignorant? Some jockeys clearly were not but did not talk about it openly. In any case, the business of 'making the weight' by losing fluid through sweating so permeated the ethos of the sport that the unfortunate possibility, even probability, at the core of our fictional story would normally never have even be guessed at by anyone but a jockey.

Worse still, there were those who would have said that the examples of some top jockeys, like Richard Dunwoody, who had regularly used the sauna to keep control of their weight, demonstrated that such a suggestion was not worthy of consideration. Indeed, they might sometimes even go so far as to argue that the sauna was part of the key to success.

The kindest retort to such a suggestion was to say that those who advanced it confused the original intention of the sauna as a tonic with its misuse by jockeys and others to lose weight.

In fact, examples like Richard Dunwoody were almost certainly the exceptions that proved the rule. Every sport, indeed, has past and present examples of performers whose amazing constitutions triumph despite rigours to which they are exposed, particularly in relation to sweating.

A famous case was that of the early 19th century Scotsman called Captain Robert Barclay, who among several prodigious feats once walked, at Newmarket, one mile in each of 1,000 successive hours, starting

on 1 June 1809, and ending on 12 July. Barclay's training methods included a weekly sweat, induced by first running four miles swathed in flannels, and then on his return drinking a hot 'sweating liquor'.

The liquor was made from an ounce of caraway seed, half an ounce of coriander seed, one ounce of root licorice, half an ounce of sugar mixed with two bottles of cider and boiled down by half. After swallowing the concoction, Barclay got into bed, was covered with six to eight blankets, and remained there for half an hour!

Students of racing know that equally bizarre examples of what the human body will endure have existed in abundance in their own sport.

Fred Archer used to breakfast on a tablespoon of hot castor oil and half an orange. He used to lunch on a sardine and a small glass of champagne. When his starvation diet did not work Archer used to resort to sweating in a Turkish bath and swallowing a concoction of purgatives, notably what became known as 'Archer's Mixture'.

Perhaps the best known modern example of a constitution that has successfully survived intense privation is that of Lester Piggott. In the 1970s when interviewed about his diet he explained that his breakfast was a thin slice of toast plus coffee, without milk. Lunch was a sandwich. The evening meal tended to be something like tongue and salad, finishing off with ice cream. At the time Piggott said: "I don't eat potatoes, rice, bread. I only take a pint of fluid a day."

Sensible people would acknowledge, however, that if the rules of living for jockeys were set by the standards of only Lester's life, there would be fewer jockeys.

In such circumstances one can understand the reliance of some jockeys on the sauna to lose weight. Particularly when a great many comprehend the long-term dangers of laxatives and diuretics. The first can damage the bowels, the latter can damage the kidneys. Apart from the long-term damage, both laxatives and diuretics flush minerals and electrolytes from the body. The consequent disturbance of the internal chemical balance has an effect, sometimes marked, on coordination with dangers for the rider of powerful thoroughbreds.

By contrast, it is true to say that the sauna, even when used to excess, appears to inflict no long-term damage on the body's essential components. Overuse however exhibits a foolish misunderstanding of the sauna's function.

If one wished to equate jockeys with warriors then one could certainly find subtle parallels between them and North American Apaches who used to purify themselves in sweat houses before going out to slaughter their foes. But, essentially, the sauna's greatest value to the athlete is in the field of relaxation and recovery after hard effort.

When muscles are stiff, hard and painful, a sauna, at temperatures ranging anywhere between 160 and 200 degrees Fahrenheit, can help such symptoms disappear, primarily because the increased muscle blood flow assists the deportation of acid waste products left by strenuous physical activity.

At the end of a sauna session one may not only feel cleansed but relaxed, at peace with the world. The normal Scandinavian custom is to rehydrate and rest after a sauna session in order to complete the beneficial effects. The well-informed know the sauna was never meant to be used to lose weight. That can be achieved today by better means and ones that do not affect strength. Dr Michael Turner emphasised as the project proceeded: "If you use the sauna to lose weight, what you notice is an immediate reduction in your strength."

The depletion in strength is directly related to the fluid lost in order to reduce weight. The jockey does not replace the fluid because that would simply put the weight back on but the consequences are, in physiological terms, disastrous.

Because there is less fluid in the body, and particularly the muscles, there is a more rapid increase in lactic acid levels during exercise which, in general, gives rise to the feeling of fatigue. Lactic acid builds up in the muscle when the physical effort required is anaerobic, for jockeys normally in the explosive final stages of a race. It is only when the effort returns to a lesser intensity that oxygen can make its presence felt.

Then the cycle of chemical reactions picks up again and the lactic acid is itself broken down. The end products, carbon dioxide and water, pass into the bloodstream and are shunted away quite easily.

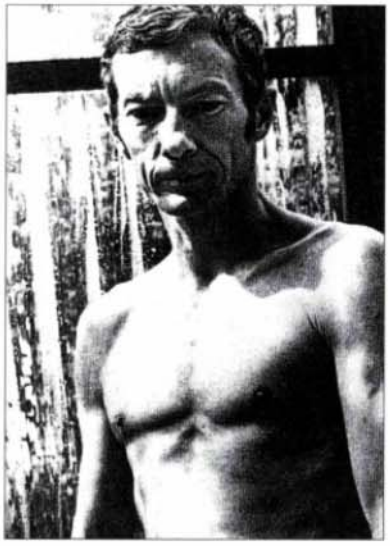
As Dr Turner again emphasised, it is these processes that are severely hampered by achieving weight loss in the sauna. "All the mechanisms by which your body copes with exercise are affected. Because you have less fluid your blood volume is diminished. There is also less tissue fluid. The result is that the body's normal mechanisms, triggered into action when you take exercise, the burning up of energy and the getting rid of waste, are slowed down."

The results sometimes hardly bear contemplating when placed against the dangers of race riding. Because so many jockeys are not so athletically fit by comparison with many other top sportsmen, draining their fluid off in the sauna, makes an even more significant difference to their strength. The situation, in other words, is further exacerbated.

Said Dr Turner: "If you take a sauna in order to be able to exercise (as jockeys do to make the weight), the sauna itself impairs your ability to perform that exercise at top level. And the more you go to the sauna the more likely you are to impair your ability to employ your skill effectively during that time."

Short of raising the weights, however, the likelihood remained that jockeys would continue to use the sauna in order to earn their living for at least a while longer. But perhaps not too much longer.

"We hope," said Dr Turner, "to encourage jockeys over a period of time to stick closer to their weight by following the right nutritional advice. In that way they should be able consistently to make the weight without having to rely, as now, on the sauna."



THE PARAGONS OF SELF-PUNISHMENT

Both Captain Barclay (left) a 19th century athlete, and Lester Piggott (right, in a photograph taken in 1974) are prime examples of individuals with constitutions that seemingly endure the rigours of the most punishing regimens, and yet still succeed. Barclay, noted particularly for his walking feats, was a devotee of a weekly sweat, induced in part by a "sweating liquor". Piggott has lived most of his life on a diet of such frugality few others could bare to contemplate it.

THE FEMALE ATHLETE

Some hidden strengths of women riders

Research suggested the distaff side could produce a champion

DESPITE strong evidence that a woman can be as good as a man at race riding, the Turf in Britain still does not at heart believe in women jockeys. If it did, we said during the year-long study, there would have been a woman already vying for one of the main jockey championships.

Our project included three women, in itself an over-generous reflection of the relative numbers of males and females in the profession, but an unfair reflection of the number of women who would like to be involved.

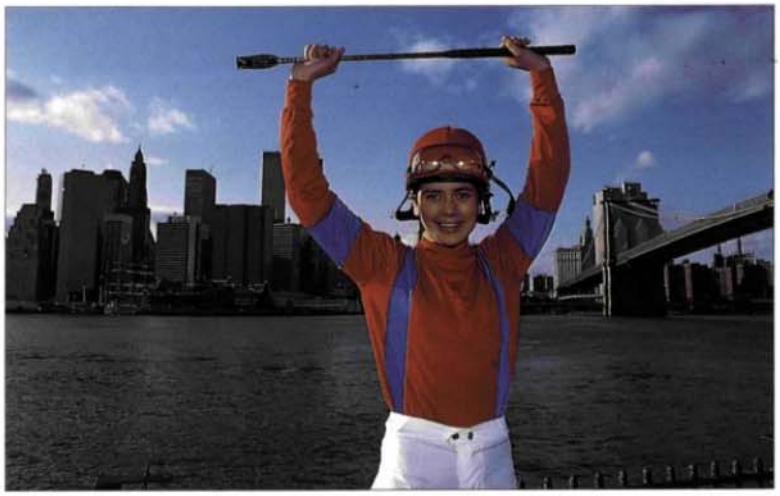
Figures culled from the files of the Jockey Club and the two racing schools in Britain tended to speak for themselves.

For instance, in December 1992 on the Flat the Jockey Club had 104 male jockeys listed as licensed but only eight females; they also had 162 apprentices on the books as compared to, significantly, 43 females. Over the jumps, at the same point in the records, there were 140 fully-fledged male jockeys and only eight females; 153 male conditionals and only seven females.

The female fallout, as witness the difference between female apprentices and fully licensed female jockeys on the Flat, was emphasised again by the fact that far fewer females then males were eventually making it from one of the British racing schools into the jockey ranks. This was occurring despite overwhelming evidence of strong female interest in making the leap.

For example, between 1984 and 1992

Alex Greaves (on grey), one of the Winning Fitness project's jockeys, and her mother riding out on the all-weather gallops at trainer David Barron's stables in North Yorkshire



inclusive, the Northern Racing School at Doncaster had no fewer than 604 young people take its courses. Of these 306 were male and 298 female and, if recent figures were anything to go by, interest among females was increasing. In 1992, for example, 10 more girls than boys were involved at Doncaster.

The records of the British Racing School at Newmarket were no less revealing. The number of girls it could take was restricted somewhat by facilities but between 1983 and 1992 inclusive 398 young females participated in its courses, compared to 608 young males.

What was particularly relevant to the female case was the percentage increase in girls being accepted for courses at Newmarket: from 39 per cent in 1983 to 45 per cent in 1992.

Given these figures one was driven to ask what was happening to all the young women turning up, year by year, eager to progress in the sport. Even allowing for some opting out in favour of marriage and children and a generous figure for those who did not have the ability, the figures posed a question that demanded an answer. Could it really be a fact that such a disproportionate number of females simply were not good enough to be jockeys?

Rory MacDonald, director of the British Racing School, put his finger on the probable answer: "There is no doubt that you'll find more male chauvinism in racing than in any other industry, apart from male bastions like coal mining." Not surprisingly, MacDonald found when he tried to place girls in jobs, after they had taken a British Racing School course, it was that "much more difficult".

Like the young females taking the racing school courses, he took heart from the scene on the other side of the Atlantic. While it was not true to say that America was without any prejudice against women, its culture had allowed a female, Julie Krone, 4ft 10½in, 100lb and more than 2,500 winners, to rise in the jockey ranks. If anything were needed to prove that women deserved to be given an equal chance in racing, she was it.

No doubt, due to Krone's success, American racing had become quite open to incursions by female jockeys. "The sport of racing and being a jockey in America," Krone said herself, "is not a gender-recognised activity. Being a girl jockey is now very common and everybody is very comfortable with it."

Indeed, two weeks before Krone said this, *The Mail on Sunday* had reported on Georgina Frost who, after two years in Henry Candy's yard, went to the USA and was befriended by Krone. In her first full year on the other side of the Atlantic, Frost

Champion material: Sweden's Susanne Berneklint (top), America's Julie Krone (middle), and Britain's Georgina Frost

had 650 races and 64 wins. When her apprenticeship ended, it was intended she start riding for Peter Ferriola, New York's top trainer.

In the USA, Canada and parts of Mexico, at the end of 1992, there were 2,791 jockeys and, of this total, 447 were female. In Sweden two women, Susanne Berneklint and Sofia Nordgren, had been champion jockeys of their country, Berneklint in 1991, with 71 wins from 357 rides, and Nordgren in 1982 with 61 wins from 232 rides.

Their records, the phenomenal total of wins notched up by Krone, and the sheer increasing volume of women hammering on the door, all tended to knock into a cocked hat any British conception of women as not tough enough to take part in race riding.

Before she became a jockey Krone did gymnastics for six years. It built the strength necessary to ride four or five different horses within an hour and half in the morning, and ride anywhere between seven to 10 races a day. When taking time off racing she had got into the habit of still working out, reflecting a lifetime's devotion to fitness. It should have surprised nobody.

History abounds with stories of women's toughness, from the great treks westwards that opened up the North American continent to feats of physical heroism in war. It seems men are willing to forego prejudice that has no basis in fact at such times. At other times, it is another story. Racing is no different, but it is fair to say that sport reflects both prejudices and advances in cultural attitudes wherever it resides.

Until recently, success and even participation in many sports, not just racing, was considered to be beyond women because of their physical make-up, or undesirable on the grounds that it would lead to a loss of femininity or even difficulties in childbirth.

These misconceptions were now being shattered as women established running, swimming and cycling records that were approaching those set by men. More than one of the women involved in the record breaking was a mother. Childbirth, it should be said, appeared to make some women even stronger athletically. The question often posed now was whether women would equal, or even overtake, male athletes.

The marathon, from which women were once barred (one woman was physically attacked by a fellow competitor in the Boston Marathon in 1967), is now thought to be well suited to the female physiology, particularly as it appears women have a more efficient heat loss mechanism. As for the concept of female fragility: it's poppycock. Study has shown that there are wider differences between the trained and untrained bodies of the same sex than between the sexes; and less between the trained man and woman than between the sedentary man and his mate.

Nonetheless, according to Dr Michael Turner, "gender is a major problem in sport". It was not as straightforward as simply separating men and women, because in sports like equestrianism it is deemed there is no particular advantage to being male. Turner cited, moreover, an interesting anomaly to bear out his point: "There is evidence in shooting that women are better than men. If men and women always competed together in shooting the women would in time dominate the sport." The reason for this resides in a woman's psychological makeup. It allows her to cope better with high levels of adrenalin and this ability to handle adrenalin surges may indeed make women ideally suited to race riding, perhaps even more so than men. There are other factors.

Women, for instance, have a wider range of joint movement, giving them more flexibility. Though men's joints are larger, the female also has a wider knee joint in proportion, giving her better stability. Her lower centre of gravity and wide hips give her better balance.

While men's muscles are larger, and make up more of the body mass, the quality of muscle fibre is the same for both sexes. Women can increase the strength of their muscles, too, through training and up to 50 per cent without increasing bulk, whereas men's muscles get bigger as they get stronger.

The metabolic rate of a female is also lower, with obvious implications in a sport where controlling weight is crucial. It means she, unlike he, burns up calories more slowly, so does not need so many.

Significantly, all a woman is likely to lack in terms of the physical requirements of jockeyship, compared to a man, is strength and particularly in the upper body. That is where the project promised to turn the key because some of the exercises were particularly designed to improve upper body strength.

"It is perceived in racing," said Dr Turner, "that women are weaker. Therefore, if you have a strong horse and you want it to be ridden hard, there is, as I understand it, a reluctance on the part of owners and trainers to put up a woman jockey when the chips are down. But there is nothing wrong with women riders. If they get a bit stronger we will totally dispel the myth that they cannot compete on equal terms.

"If a woman rider didn't know where to hold a horse back or push it, then she wouldn't get any rides. If she gets stronger, she should hopefully get more rides, more success and eventually she, or somebody like her, will become champion jockey."

It was an idea to which John Anderson, who had trained many international female athletes, was prepared to lend his fervent support. He had never found the women athletes he coached lacking in spirit, determination or the necessary strength when it came to the demands of athletics at the very top. His battle had always been against the effects of the culture British women are brought up in.

'I'm a guinea pig even if, currently a fat guinea pig. Which reminds me, I'm going to throw this packet of biscuits in the dustbin'

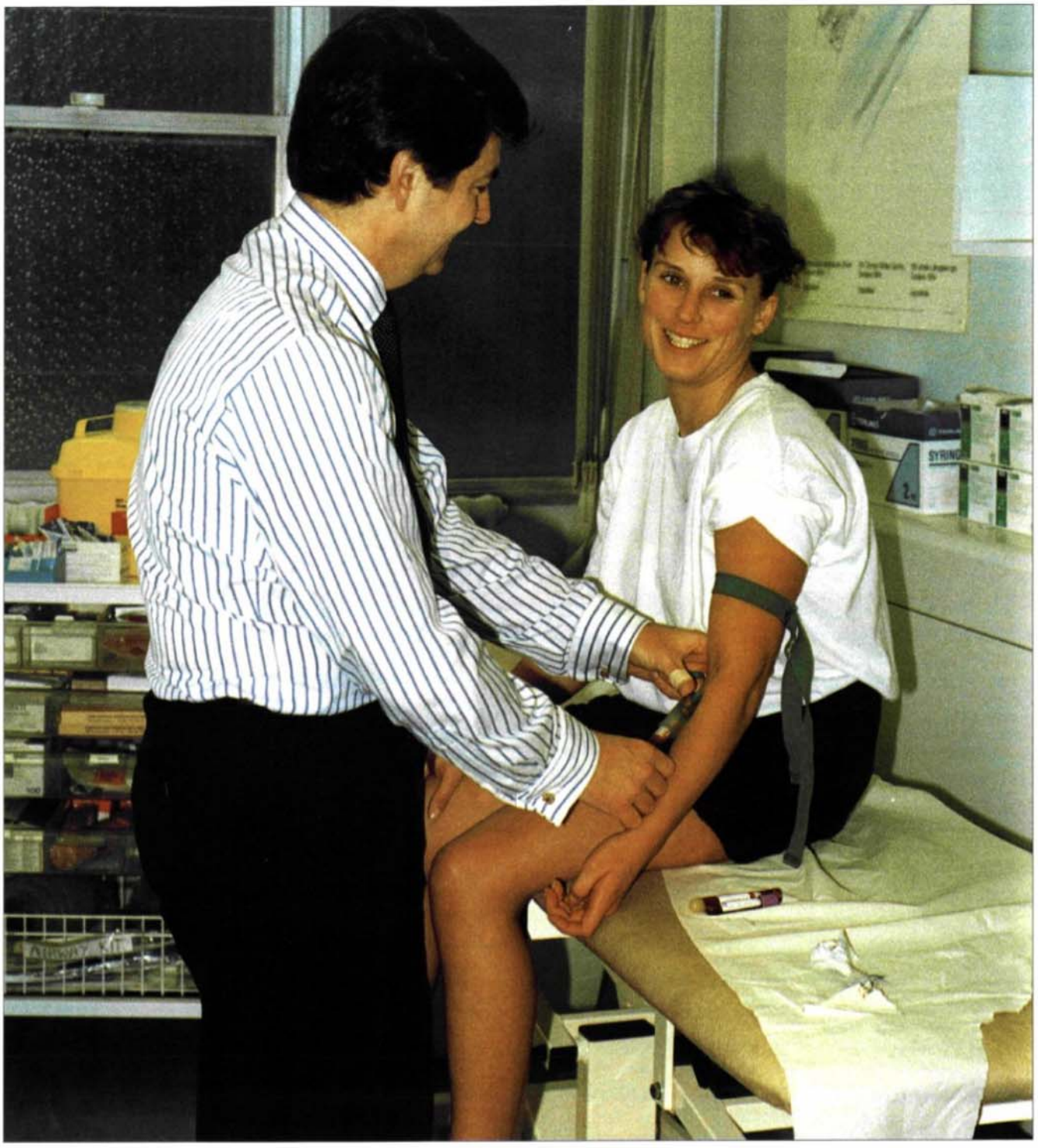
LORNA VINCENT

'Some of the things I've had to do have been daft, like posing in a hay barn with my colours on'

GEE ARMYTAGE

'I was told I was eating just enough to survive. Now I have breakfast, don't feel thumped by midday, and have an evening meal'

ALEX GREAVES



BLOOD TESTS ARE A CRUCIAL FACTOR

Dr Michael Turner believes all athletes should have their blood checked once a year and he expected jockeys to be no different. Here he is taking a blood sample from Alex Greaves at the British Olympic Medical Centre. Alex was one of three female jockeys involved in the Winning Fitness project, the others being Gee Armytage and Lorna Vincent, all of them perhaps foreunners of a greater number of female riders in racing.

Since female athletes are most likely to suffer from anaemia, he believes they should have their blood tested twice a year. Anaemia produces feelings of continuous tiredness, and if this is due to iron deficiency can be rapidly ameliorated by iron supplements.

Generally, much can be learned from a blood test, everything from the efficiency with which the liver is functioning to cholesterol levels. In addition, and importantly, having routine blood tests enables athletes to discuss with a qualified person any unusual symptoms they may otherwise ignore .

A blood test is thus another piece of the jigsaw when it comes to building overall fitness.

NUTRITION

More rice, spuds, pasta, and much less booze

"FOOD, glorious food" warble the inmates of Dotheboys Hall in Lionel Bart's version of Oliver Twist. Ironically, just as Oliver, the musical, gives such enthusiastic voice to a yearning for items delicious, top participants in sport tend to have a far more prosaic view of what they eat. At one extreme it's a matter of consuming more calories than could possibly be normal, and at the other of resisting more calories than most normal people could imagine.

Apart from sumo wrestlers, we discovered it was likely that Tour de France competitors amounted to the most notable example of conspicuous consumption. If the cyclists did not take in the calories (up to 8,000 a day in some cases) necessary to provide them with the required energy then, said one nutritionist, "they'd drop off their bikes."

This circumstance had come about with huge advances in training and fitness and knowledge about nutrition. Modern cyclists could expend energy in greater amounts and for longer periods, because now they could ingest an appropriate amount of fuel.

The techniques resorted to by Tour de France competitors and their handlers seemed amazing; they might be even viewed as shocking. Apart from sucking in liquid glucose polymers while in action, overnight halts for rest were also huge refuelling stops. The nutritionists assigned to at least one nation's competing cyclists had resorted even to nasal tube feeding. This involved putting a tube up the cyclist's nose and down into his stomach so that he could be fuelled overnight while sleeping. Even intravenous feeding had been tried but was abandoned when infection problems were encountered.

At the other extreme, competing on as little food as possible, there were clearly several examples to be found among jockeys who needed to keep their weight down or lose weight. But few riders could exist on the type of diet one female cox did for three months before a major rowing championship. She lived on bran flakes, moistened with small amounts of skimmed milk, eaten three times a day, plus a daily additional intake of only four carrots, watercress and lettuce.

We discovered it was possible to tailor diets both to lose weight and be fitter

Lisa Langford, who competed in the Barcelona Olympics, was the ideal nutritionist for the Winning Fitness project

Her extraordinary diet came to light when she wanted to lower her weight once again and went to a nutritionist for help. She could not stomach the thought of following the same regimen. She was seeking a more sensible approach. With advice, the cox was able to achieve a similar weight loss more comfortably and, importantly, without depriving herself of essential nutrients.

Her story sounded a salutary warning for riders. On the first occasion, the cox's bizarre diet would have had the effect of "shutting her body down," said Jane Griffin, consultant nutritionist to the British Olympic Association. Said Griffin "What happens is that the body says: 'Heh, I'm being starved; I will keep up my reserves.'" The result is that the metabolism slows and the opposite of what a sportsperson desires happens: performance is impaired, sometimes markedly, because just as you cannot expect to improve in any sport without improving your fitness, you cannot enhance your fitness without eating appropriately.

It was the relationship between fitness and food and performance that was at the heart of the project with jockeys. The exercises, for example, devised for the jockeys by John Anderson demanded an appropriate diet simply to sustain the energy they

required. Just as surely the exercises were intended to burn off what the jockeys might have imagined would otherwise put on unnecessary weight.

Nobody pretended that achieving this somewhat delicate balance was easy but there was a belief that the objective was worthwhile, not least because the project, in its pursuit of greater fitness, was also designed to help lessen the chances of injury occurring and improve recovery rates when accidents unfortunately happened.

The project's nutritionist, Lisa Langford, had competed in walking at the Barcelona Olympics. At the time she was a senior dietitian at Nottingham City hospital, prior to studying medicine. She certainly understood well the problems of organising a dietary schedule that dovetailed with a busy lifestyle.

After all, many competitors in Olympic sports, outside the top level, lead lives that are often no less filled than those of jockeys, though minus perhaps the constant travel. They train in the early morning, often during the day, and in the evening. Like jockeys, they have little significant time to think about the preparation of food or to eat it.

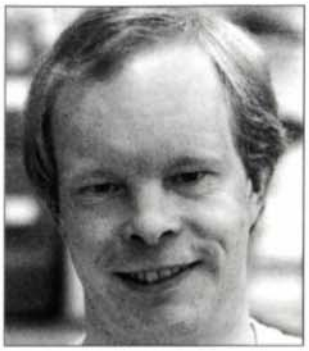
With this in mind, Langford said there were three dietary areas that she felt optimistically could be changed among our group of jockeys. There was a fourth about which she was, by contrast, somewhat pessimistic. This concerned the voluntary restriction on fluid intake, concomitant of course with the process of dehydration achieved in saunas.

The problem with dehydration, as already indicated, was the direct relationship to performance. For example, falling as little as two per cent below your normal bodyweight through dehydration produces a deleterious effect. As the process of weight loss through dehydration builds, the situation becomes increasingly worse. By the time you get to four per cent, or thereabouts, you may have lost no less than a quarter of your capacity to exercise.

An athlete in such circumstances is certainly into a dangerous area, one of heat injuries, including spasms and cramping, the effects of which can be seen notably in football matches that go into extra time, particularly on hot days. But Langford was not without hope.

Firstly, she was certain the carbohydrate intake of the project's jockeys could be increased. It was crucial that this happened because the high intensity exercises designed by John Anderson, when undertaken and however briefly, required glycogen, formed in the body from carbohydrate. "None of them has eaten enough carbohydrate," said Langford. "They need to now in order to do John Anderson's exercises."

Though glycogen, which is stored with water, can increase weight, the Anderson exercises would, as had been argued, effectively burn this off. And balancing input neatly against output would produce its reward: increased fitness and strength.



'I was at least half a stone heavier than I wanted to be when originally tested at the BOMC. And it has come off, I should think, as much through diet as through work. I'm raring to go'

NICKY CARLISLE

In a second area, Langford was confident there could be improvement. The dietary information the jockeys provided demonstrated that their low food intake generally left them deficient in certain vitamins and minerals. The solution to this was not to take huge quantities of vitamin C, as some confessed to doing, but multivitamin tablets with iron. "A lot will be corrected," said Langford "by upping their carbohydrate intake, but such tablets amount to a fairly good insurance policy."

The third area in which Langford wanted to see some change (by which she meant reduction) was the consumption of alcohol. The number of units of alcohol a man is normally recommended not to exceed per week is 21 (each unit of alcohol equating to either half a pint of lager, one pub measure of spirit, or a glass of wine). It appeared that some jockeys had been drinking 30 to 40 units weekly, a degree of drinking that Langford, a lady not without a strong sense of humour, described as "pretty good going."

The fact that alcohol is broken down or metabolised with the release of energy means that it has some theoretical value as a food. Nevertheless some authorities go so far as to say that alcohol is neither a food, thirst-quencher nor a medicine. They say "it is poison, pure and simple, which puts on weight."

Whatever the strength of the latter argument, there may be a good reason for drinking moderately in some cases, a fact acknowledged by Langford. A jockey's life is, after all, a strenuous and stressful one. "It is a case," said one jockey, "where morale is actually more important than the absolutely desperate, honed-down physical perfection." But if Langford did not advocate giving up alcohol altogether, there were a variety of reasons she put forward for preferring to see the jockeys drinking less, and certainly low alcohol drinks in preference:

1. Alcohol is a diuretic and so it further exacerbates the dehydration problem.
2. The calories provided by alcohol cannot be used for exercise but do put on weight (a pint of draught Guinness is equivalent to 200 calories and a single gin 50).
3. Alcohol seriously hinders the absorption of certain minerals and vitamins, so worsening an already existing situation.
4. The process by which the energy from alcohol is broken down in the liver can markedly affect the production of glucose, particularly if the alcohol intake is heavy.

On balance, Langford was optimistic that the jockeys would become convinced of the strength of her arguments. "When I learned that one of them was sometimes prepared to go without food for two and a half days, and then go and ride a horse, I thought 'God!' Then I realised they all have great potential to improve and become fitter athletes, because of that type of determination. And that's a nice way to look at it."

In a general sense, Langford's advice was practical. She was attempting to persuade the jockeys to eat less fats, which don't provide the necessary energy for high-intensity exercise; to eat more cereal, potatoes, rice and pasta, which do; and to drink skimmed milk. But crucially she was trying to get them to change in terms of what they were already doing.

In other words, if they were in the habit of eating convenience foods, then it was the type of convenience foods she was concerned with. If it was snacks, then the type of snacks. If it was cooked evening meals, then the form that cooking evening meals took.

A typical day's intake for a jockey, as devised by Langford, might start after the morning's riding work, with cereal and low-fat milk and, depending on weight problems, toast with a low-fat spread and low-sugar marmalade; perhaps a sandwich with a banana filling or lean meat at midday; and an evening meal in which the emphasis was on potato or rice or pasta with vegetables and a little meat or fish, followed by hot stewed fruit and custard or something like low-fat fromage frais ("Anything other than chocolate mousse," said Langford). This may sound simple but the nutritionist's task is far from that when faced with the nuances of individual requirements, which is what Langford was now coping with.

Nutrition as a science remained in its infancy compared to many, still pushing back the frontiers of knowledge. The project's jockeys could, in that sense, view themselves as pioneers in their own sport.

MENU 1

Eating without any fuss

You could make the weight, according to Lisa Langford, in the simplest of fashions

THE most frequent questions from the riders involved in the project, not surprisingly, concerned nutrition and diet. The proposal that jockeys who wished to lose weight or maintain an optimum weight, should eat more rice, pasta and potatoes had been received in the culture that is racing with, if not scepticism, certainly some surprise.

Nonetheless, it would be true to say that the jockeys involved not only reacted well to the dietary advice but benefited from it. If there was a 'feel good' factor abroad among them it was equally as much to do with this as with their use of the exercises. The exercises and diet ideally meshed together if fitness was to be totally overhauled but the dietary advice, intrinsically, was of enormous value.

We had discovered, for example, how the information the jockeys provided about their individual diets had demonstrated common errors. Without exception, none of them included enough complex carbohydrates, like rice and potatoes, in their diet. And there was a tendency to conform to normally accepted standards within the sport when it came to drinking alcohol, in that some drank too much. Drinking an excessive amount of booze leads to unhelpful effects, like dehydration, and interference with the absorption of vitamins B and C, necessary for the production of energy.

Furthermore, when some of the jockeys drank non-alcoholic drinks it was as likely as not to be Lucozade – one seemed to live on it almost entirely – a drink that raises the sugar level in the blood, makes you feel better but imparts no vitamins and minerals. In the jargon of the nutritionist's profession, all it provides is "empty calories".

Snacks were often little better: chocolate and crisps, for example, probably bought at motorway service stations during the dash to the racecourse or, in the summer, between an afternoon and evening meeting.

To help remedy this state of affairs, Lisa Langford provided a diet for a week, based on the lessons learned. It was a simple diet, that called neither for culinary skill or elaborate ingredients. Individual diets are, of course, fine tuned, but this broadly based one was intended to supply:

With snacks, 1,400-1,500 calories a day (scientifically expressed as kcal/day). This would provide enough energy to account for doing some intense exercise, such as the John Anderson package during the day and/or racing, the balance clearly dependent on exactly how much racing any individual rider was involved with.

Without snacks, 1,200kcal/day. This would occur when no intense exercise was involved, for example, or a gradual weight loss was required (i.e. loss of body fat, not fluid changes) while continuing with intense exercise.

Without snacks and alcohol, 1,000-1,100kcal/day, when a jockey found he further needed to reduce energy intake, in addition to doing some intense exercise, in order to lose weight. In the latter case, it was said that it would be preferable to increase intense exercise, if time allowed, in order to achieve the same objective.

● On pages 38 and 39 there is a more involved week-long menu, provided for this publication by Lisa Langford, and requiring some additional culinary skill and more elaborate ingredients.

Sunday

Breakfast: One bread roll (2oz or 50g) with low fat spread and jam – both thinly spread

Lunch: Two thick slices of bread with low fat spread, one thin slice of ham (1oz or 25g) – using prepacked meat will save weighing. Salad as additional filling

Dinner: Lean roast beef/chicken/turkey/pork (100g, equivalent to one side of chicken breast or two or three slices of meat off joint). Mashed or boiled potatoes (7oz or 180g, equivalent to three average potatoes) plus unlimited carrots, cauliflower, green beans, cabbage

DAILY: One multi-vitamin tablet with iron, one pint or 500ml of skimmed milk; tea or coffee using milk allowance; unlimited low calorie drinks

Snacks: Choose any two from: one medium banana; two apples; two pears; two diet yogurts; 280ml (half pint) of fruit juice; 100g (4oz or two scoops) low calorie ice cream (e.g. Too Good To Be True or Weight Watchers); 150g (6oz or a cupful) stewed fruit; 150g custard (made with additional skimmed milk); five teaspoons of sugar; two crispbreads with Marmite or jam; one can of Lucozade sport; one small packet of Twiglets; 25g (1oz or one tablespoon) dried fruit; three rich tea biscuits; one can of low calorie soup; two sachets of low calorie hot chocolate (e.g. Choc-o-Lait or Slimma Choc, etc)

WEEKLY: No more than seven units of alcohol (one unit equating to either half a pint of lager, one pub measure of spirit, or a glass of wine)

Monday

Breakfast: Porridge (50g of oats, equivalent to three tablespoons). One teaspoon of sugar

Lunch: One large bread roll (80g, equivalent to a bap) with low fat spread – filled with turkey/chicken (50g, equivalent to a slice of turkey or two slices of chicken), salad and one teaspoon of cranberry sauce

Dinner: One scrambled egg with baked beans (200g, equivalent to small tin) and two grilled tomatoes. One slice of thick bread, toasted, plus low fat spread

Lisa Langford said:
"Sunday's dinner, unlike Monday's, is like a normal Sunday one but without loads of fat and more potatoes and less meat. It is important the gravy is not made with the meat juices because of their fat content. Had I not been involved with jockeys before, there is no way I would have suggested people would be able to train on such a low calorie intake. The menu, in fact, provides more than most jockeys took in, so the trick has got to be to increase it to a level where they can work harder while not putting on weight. The range of meals here can be either picked off a shelf or take little preparation."

Tuesday

Breakfast: Two thick slices of bread, toasted and spread thinly with low fat spread or Marmite

Lunch: One tin of soup (12oz or 300g), but not 'Cream of . . .' And one thick slice of bread thinly covered with low fat spread

Dinner: Spaghetti (3oz or 75g dry weight to provide half dinner plateful of spaghetti) with bolognaise sauce (5oz or125g, equivalent to one ladleful only). Use low fat mince or buy low fat ready prepared meal

Lisa Langford said:
"I am not encouraging jockeys to eat certain types of bread, though as far as healthy eating is concerned brown bread is supposed to be a little bit better than white. But while it has a few more vitamins than white, in truth there is not a great deal of difference. And as far as carbohydrate content is concerned they're equal. Moreover, athletes, people who do a lot of exercise, can have problems eating a lot of wholemeal. I have known athletes who have got diarrhoea from doing so."

Wednesday

Breakfast: Baked beans (200g, equivalent to small tin) on toast. One slice of thick bread with low fat spread

Lunch: One egg boiled/poached. One slice of thick bread/toast with low fat spread. 1 apple

Dinner: Jacket potato (6oz, equivalent to one medium potato) with skinless chicken breast (4oz or 100g). Unlimited mushrooms, onions and carrots. Plus gravy not made with meat juices

Lisa Langford said:
"I've suggested a different breakfast for each day, knowing that nobody eats a different breakfast every day. What I've provided is a variety from which to choose something that is liked. In the Wednesday menu I have included another egg, the yolk and the white. Eggs are not that high in fat; they've given fat a bad name – mistakenly. The baked beans, by the way, need not be low calorie ones, since the amount of calories involved is not huge. I am not against tea or coffee, though if any of the jockeys drank nothing else then it would not be a particularly wonderful idea."

Thursday

Breakfast: Two shredded wheat with additional skimmed milk. One teaspoon of sugar

Lunch: Banana (one medium) sandwich made from two slices of thick bread, with jam spread thinly on bread if desired

Dinner: Fish fingers (three grilled) with parsley sauce made with additional skimmed milk. Boiled potatoes (180g, equivalent to three average size ones), plus unlimited peas and green beans

Lisa Langford said:
"What I've tried to do throughout is to suggest meals that need little preparation. Some things just come out of a tin. It is, of course, possible to make a diet more interesting if you've got a lot of time to prepare but many people, jockeys particularly, haven't got that amount of time. Normally, an individual's necessary daily calorie intake is calculated at between 30 and 35 calories per kilogram of bodyweight. Because jockeys are maintaining an abnormally low bodyweight, they need fewer calories, and 1,500 calories a day to cover intense exercise would seem about right for most of them."

Friday

Breakfast: Cornflakes (40g, equivalent to one heaped cupful) with additional skimmed milk. One teaspoon of sugar

Lunch: Pot Noodle Light type of instant meal

Dinner: Jacket potato (6oz or150g) with cottage cheese (4oz or 100g, equivalent to small tub). Unlimited mixed salad

Lisa Langford said:
"The jockeys, I discovered, were taking in far less then I would have thought they need, but that seems what they tend to function on. It has totally taken me by surprise that they could take so little in. However, some of the jockeys are naturally very slim and small so they can take far more calories than some of the others, who are trying to make their body the type they want it to be. Those are the ones who seem to have very low intakes and I have attempted to aim the menu primarily at them, the ones who are having problems in maintaining their optimum riding weight."

Saturday

Breakfast: One small banana with a diet yoghurt. Two crispbreads with Marmite or jam

Lunch: One small tin of spaghetti in tomato sauce (205g). One thick slice of toast with low fat spread

Dinner: Ready prepared low fat meal, e.g. Weight Watchers or standard Lean Cuisine. For example low fat curry with additional rice (50g when raw or about 2 tablespoons) or one thick slice of bread. Or low fat chilli with additional rice or bread as above

Lisa Langford said:
"The difficulty with ready-prepared low calorie meals is that you don't feel you've had a meal, so I've added another 100 calories of carbohydrate. If riders add a multi-vitamin, basically they will be eating a more balanced diet. It provides 15 per cent protein, 63 per cent carbohydrate and 22 per cent fat. That is around the guidelines you would expect for an athlete and within the healthy guidelines for a non-athlete. When examined the jockeys were deficient in some vitamins and minerals and there is no way with such a low calorie intake you would get everything, without a vitamin supplement."

MENU 2

A jockey's à la carte

The diet for the gourmet rider

THIS second menu, provided by Lisa Langford, was designed broadly to provide calories daily as follows:

1,200kcal/day: Including 1pint/500ml of skimmed milk per day or 3/4 pint/300ml of semi-skimmed milk
1,300kcal/day: Including milk as above, plus 1 unit of alcohol
1,500kcal/day: Including milk and alcohol as above plus 2 additional snacks

SOME EXAMPLES OF SNACKS:
(Each snack or additional drink is approximately 100 calories. It is suggested that alcohol does not make up all of the choices!)

Fruit and vegetables
2 medium apples; half a melon; 1 medium banana; 20 grapes; 3 kiwi fruits; 2 oranges; 2 peaches; 2 small pears; 3 slices of fresh pineapple; 6-8 plums; 2 bowls of strawberries or raspberries; 1 medium jacket potato

Savoury snacks
1 slice of toast with low fat spread; 1 small roll; 4 crackers; 1 bowl of soup (not cream of . . .); chive dip (see recipe) with raw vegetables or with baked potato skins – counts as two choices; 1 small bowl cereal

Sweet snacks
1 meringue case with a few strawberries and diet fromage frais; 3 rich tea biscuits; 1 pot of 'low fat' custard or rice pudding; 1 packet of fruit pastilles or fruit gums; 1 slice of fruit cake (see recipe)

Drinks
2 'diet' chocolate drinks; 1/3 pint semi-skimmed milk; 1/2 pint/280ml skimmed milk; 1 glass of sherry or wine or 1/2 pint dry cider, lager or bitter; 1 whisky or brandy or gin with 'low calorie' mixer

Recipes
CHIVE DIP (SERVES 4)
Combine the following ingredients:
3-4 spring onions – chopped
2 tbs of chopped fresh chives
1 stick of celery – finely chopped
5 fl.oz/150ml natural yoghurt
8 oz/200g plain fromage frais
Garlic salt

FRUIT CAKE
1 cup of each of the following: bran cereal, dried fruit, self-raising wholemeal flour, and skimmed milk
1/2 cup brown sugar
1 egg

Method: Soak the cereal, sugar and fruit in the milk for 2-3 hours. Beat the egg before mixing it in. Next fold in the flour and combine well. Bake in a greased loaf tin for 1 1/4 hours at 160°C/ 325°F/ Gas mark 3. Cool completely before you cut it into half inch slices

Sunday

Breakfast
Grapefruit and orange segments (150g or 6oz); 1 small roll (50g or 2oz) with honey (10g or 1 rounded tsp); tea or coffee

Lunch
1 pitta bread pocket – warmed. Filling: crab meat (50g or 2oz) mixed with lemon juice, 1 tbs natural yoghurt and fresh parsley, plus 1 sliced tomato

Dinner
Chicken and mushroom lasagne (see recipe); green salad; vinaigrette dressing (see recipe)
Pudding: sliced strawberries with diet fromage frais

Recipes
CHICKEN AND MUSHROOM LASAGNE (SERVES 2)
4oz or 100g courgettes – sliced
1 clove of garlic – crushed
4 fl.oz/100ml chicken stock
Mixed herbs to taste
2 tsp plain flour
1oz or 25g mature cheddar cheese
2 tsp cornflour
3oz or 75g cooked lasagne (4 sheets)
4oz or 100g mushrooms – sliced
1 medium onion – chopped
200g or 8oz canned chopped tomatoes
1 tsp vegetable oil
2 tsp low fat cooking margarine
1/4 pint/150ml skimmed milk
3oz or 75g cooked chicken (not fried).
Salt and pepper

Method: 1. Sauté the mushrooms, onion, garlic and courgettes with the vegetable oil in a non-stick pan for 5 minutes. Add the chicken stock, tomatoes, herbs, salt and pepper and simmer for 10-15 minutes. **2.** Melt the low fat cooking margarine, then add the plain flour and skimmed milk. Heat gently while stirring until the sauce thickens. Season to taste. **3.** Add the cooked chicken to the tomato mixture and thicken using the cornflour, dissolved first in 2 tbs cold water. **4.** Preheat the oven to 190°C/ 375°F/Gas mark 5. **5.** Having spooned half the chicken mixture into an oven-proof dish, cover with two sheets of lasagne. Add the remaining chicken mixture and place the remaining sheets of lasagne on top. Next pour the white sauce on top and sprinkle with the grated cheese. **6.** Bake for 30-40 minutes

VINAIGRETTE DRESSING (SERVES 2)
Juice of half a lemon; 1 tbs vinegar; 2 tsp olive oil; 1/2 tsp mustard; salt and pepper

Method: Place all ingredients in a sealable container and shake to mix

Monday

Breakfast
2 tomatoes – grilled with herbs; 2 medium slices of toast; scraping of low fat spread; tea or coffee

Lunch
1 large pepper stuffed with: boiled rice (50g or 2oz uncooked weight); 1oz or 25g mushrooms – sliced; 2oz or 50g ham – chopped; fresh basil to taste – chopped

Method: Bake the stuffed pepper on a greased baking tray for 45 minutes at 190°C/ 375°F/ Gas mark 5

Dinner
4oz/100g salmon steak baked with lemon, vinegar and parsley; 2oz or 50g baby corn cobs; 2oz or 50g mangetout; 6oz or 150g new potatoes. Pudding: raspberry sorbet (see recipe)

Recipe
RASPBERRY SORBET (SERVES 4)
Half a pint or 280ml diluted 'sugar-free' strawberry squash
12oz or 300g raspberries – puréed (reserve a few for decoration)
1tbs gelatine dissolved in 4 tablespoons of hot water
1 egg white – whisked

Method: 1. Sieve the raspberries and mix with the squash. Add the dissolved gelatine when it has cooled for about 10 minutes and stir well. Freeze for 1 1/2-2 hours until it has a slushy consistency. **2.** Whisk the mixture, then fold in the egg white which has been whisked until stiff. **3.** Freeze for 1 hour before whisking again, then freeze until the sorbet is solid. **4.** Allow the sorbet to soften for a few minutes before serving decorated with raspberries

Tuesday

Breakfast
Porridge made from 50g or 2oz oats and an additional 1/4 pint/150ml of semi-skimmed milk. Sweeten the porridge with 1tbs sultanas or 1-2 tsp sugar

Lunch
Prawn filled jacket potato; 6oz or 150g potato – baked
Filling: mix the following ingredients:
1 tbs natural yoghurt; 2 tsp low calorie salad cream; 1 tsp tomato purée; 1oz or 25g prawns; salt and pepper; iceberg lettuce – finely chopped

Dinner
Mushroom stroganoff (see recipe); 2 savoury crispbreads; 1oz or 25g fat reduced soft cheese

Recipe
MUSHROOM STROGANOFF (SERVES 2)
1 medium parsnip – chopped
4oz or 100g asparagus – chopped
2 fl oz or 60ml dry white wine
2 tsp cornflour, 1 tsp vegetable oil
Salt and pepper
8oz or 200g button mushrooms
1 medium onion – chopped
1/2 pint or 280ml vegetable stock
3 tbs natural low fat yoghurt.
3oz or 75g rice (raw weight).

Method:
1. Sauté the onion with the vegetable oil in a non-stick pan for 5 minutes until soft. Add the other vegetables, stock and wine before boiling for 20 minutes (uncovered) or until vegetables are soft
2. Blend the cornflour with the yoghurt and add to the vegetable mixture, stirring as it thickens. Do not boil the mixture. Serve with boiled rice

Wednesday

Breakfast
2oz or 50g 'sugar-free' muesli; 1 small banana; milk from allowance

Lunch
Home-made lentil and vegetable soup (see recipe)
1 small roll – warmed

Dinner
150g or 6oz jacket potato; chilli con carne – use 'low fat' minced beef or try turkey mince; green salad; vinaigrette (see previous recipe)
Pudding: 6oz or150g fresh pineapple/kiwi fruit salad

Recipe
LENTIL AND VEGETABLE SOUP (SERVES 2)
2oz/50g lentils
1 clove garlic – crushed
1 onion – chopped
1 leek – finely chopped
1pint vegetable stock
1 carrot – grated
1 parsnip – grated
1 tsp low fat spread

Method:
1. Melt the low fat spread in a non-stick saucepan. Next add the garlic and onion and 'sweat' for 5 minutes
2 . Add all the remaining ingredients and simmer for 45-60 minutes. Season to taste

Thursday

Breakfast
1oz/25g mushrooms – sweat with 1 tsp low fat spread and 1 tsp oregano; 1 grilled tomato; 1 lean rasher back bacon – grilled; 1 medium slice toast – thinly spread with low fat spread; tea or coffee

Lunch
2oz/50g spaghetti with sauce

For sauce 'reduce' the following ingredients:
200g or 8oz canned tomatoes; 1 chopped onion; half a green pepper – de-seeded and sliced; 25g or 1oz ham – sliced; salt and pepper

Dinner
Oriental pork (see recipe); 2oz (uncooked) rice – boiled.
Pudding: baked apple cinnamon, 1 tbs low fat ice cream

Recipe
ORIENTAL PORK: (SERVES 2)
4oz or 100g lean cooked pork (grilled)
1 carrot – sliced into matchstick pieces
1 tbs lemon juice
1 tsp toasted sesame seeds
1 tbs light soy sauce
3oz or 75g mangetout – trimmed and sliced
2oz or 50g bean sprouts
1 pepper – finely sliced
2 tsp sesame oil
3-4 spring onions – finely chopped

Method: 'Stir fry' the vegetables and sliced pork in the sesame oil and lemon juice for 3-4 minutes. Toss in the soy sauce and garnish with sesame seeds. Serve with boiled rice

Friday

Breakfast
Half a grapefruit; 1 tsp sugar; 1oz/25g bran flakes or 'Special K' with 1oz/25g of sliced strawberries and milk from 'allowance'

Lunch
1 savoury muffin with low fat spread (see recipe); sliced tomatoes sprinkled with lemon juice

Dinner
Bake 3oz or 75g of turkey and 6oz or 150g potatoes in vegetable stock, a little skimmed milk and 2 tbs dry white wine; 3oz/ baby carrots; 3oz runner beans. Pudding: lemon mousse (see recipe)

Recipes
SAVOURY MUFFINS (SERVES 8)
2-3 spring onions – finely sliced
9oz or 240g wholemeal flour
3 tbs low fat cooking margarine
1 egg beaten
1 carrot – finely grated
2 tbs fresh chives or 2 tsp dried chives
1/2 tsp salt, pepper and baking powder
3oz or 75g mature cheese grated
8 tbs skimmed milk

Method:
1. Pre-heat the oven to 200°C/ 400°F/ Gas mark 6. **2.** Place the flour, baking powder and salt in a large bowl. Rub in the margarine until the mixture resembles bread crumbs. Stir in the grated carrot and cheese followed by the spring onion. Add the egg and milk to make a dough. **3.** Divide the mixture into 8 and bake in a non-stick muffin tin. Bake for 15-20 minutes until golden brown

LEMON MOUSSE (SERVES 4)
Finely grated rind and juice of 1 large lemon
5oz or 125g natural low fat yoghurt
3 egg whites – whisked until stiff
4oz or 100g lemon 'diet' fromage frais
1 tbs gelatine dissolved in 3 tbs hot water

Method:
1. Blend the yoghurt and fromage frais with the lemon juice and rind. Thoroughly mix in the dissolved warm gelatine. Fold in the egg whites with a metal spoon. **2.** Pour into 4 serving dishes and refrigerate for 2 hours. Decorate with a slice of lemon and a sprig of mint

Saturday

Breakfast
1 poached egg; 100g or 4oz canned tomatoes; 1 medium slice of toast spread with a low fat spread

Lunch
75g or 3oz French bread. Add topping: 2 sliced tomatoes, chopped onion, 1oz or 25g low fat mature Cheddar cheese or Edam; bake for 5-10 minutes at 180°C/ 350°F/ Gas mark 5. Iceberg lettuce and watercress sprinkled with lemon juice

Dinner
3oz or 75g gammon; 100g or 4oz new potatoes; 1 pineapple ring ; 3oz petits pois; parsley sauce made with skimmed milk
Pudding: 1 spicy apple and sultana scone (see recipe)

Recipe
SPICY APPLE AND SULTANA SCONES (MAKES 16)
8oz or 200g self-raising flour
1 tsp ground cinnamon
2oz or 50g low fat cooking margarine.
4oz or 100g cooking apples, peeled, cored and chopped
1 tsp baking powder
Pinch of salt
1 tbs sultanas.
1/4 pint or 150ml skimmed milk

Method:
1. Pre-heat oven to 200°C/ 400°F/ Gas mark 6. **2.** Sift the flour, baking powder and salt together. Rub in low fat cooking margarine until the mixture resembles breadcrumbs and then gradually stir in the sugar. Add milk, a little at a time, until the mixture forms a smooth dough. **3.** Knead lightly before rolling the dough out on a floured surface to a thickness of 3/4in/2cm. Cut out 16 small scones and place on a baking tray. Lightly brush them with milk, before baking for 10-12 minutes

ALCOHOL

Lessons of the Babe's secret life on the bottle

For the athlete there are significant dangers in alcoholic drink

THERE is a direct line going between alcohol and sport. This could be observed one morning during our project when Gavin Hastings, then captain of the British Lions, was interviewed on Breakfast TV. He was not on a playing field but in a New Zealand bar.

Such indiscretion was a far cry from the days when sportsmen would never be pictured in such surroundings, at least in America. There, they would not even allow themselves to be photographed drinking anything stronger than soda pop. The image kids had of sport was paramount. American papers enthusiastically connived in the deception.

Babe Ruth was the classic case. Apart from Joe DeMaggio, who earned fame outside his native country from his marriage to Marilyn Monroe, the Babe remains the best-known baseball name among non-Americans. During his lifetime, to the public at large and in particular the kids, his character was unsullied by visions of booze and fast women. Yet his spare time brimmed over with both. After his death, when the truth came to light, his baseball feats took on in hindsight even more prodigious dimensions.

His funeral, in August, 1948, occurred on a fiercely hot day, and the pallbearers included some of Ruth's old teammates. "Lord," whispered one called Joe, "I'd give my right arm for an ice-cold beer." Another, grunting under the burden of the coffin turned slightly. "Joe," he murmured, "so would the Babe."

Like W.C. Fields, Babe Ruth never tasted booze before he was six. Remarkably, he could still go out and hit home runs after a night of heavy drinking and unrepeatable (at least in a family publication) other misdemeanours.

His lifestyle caught up with him perhaps only once. The Babe collapsed on the field. A story was put out to the effect that he had eaten a dozen hot dogs and drunk two dozen bottles of soda pop. It was another lesson in living for the kids.

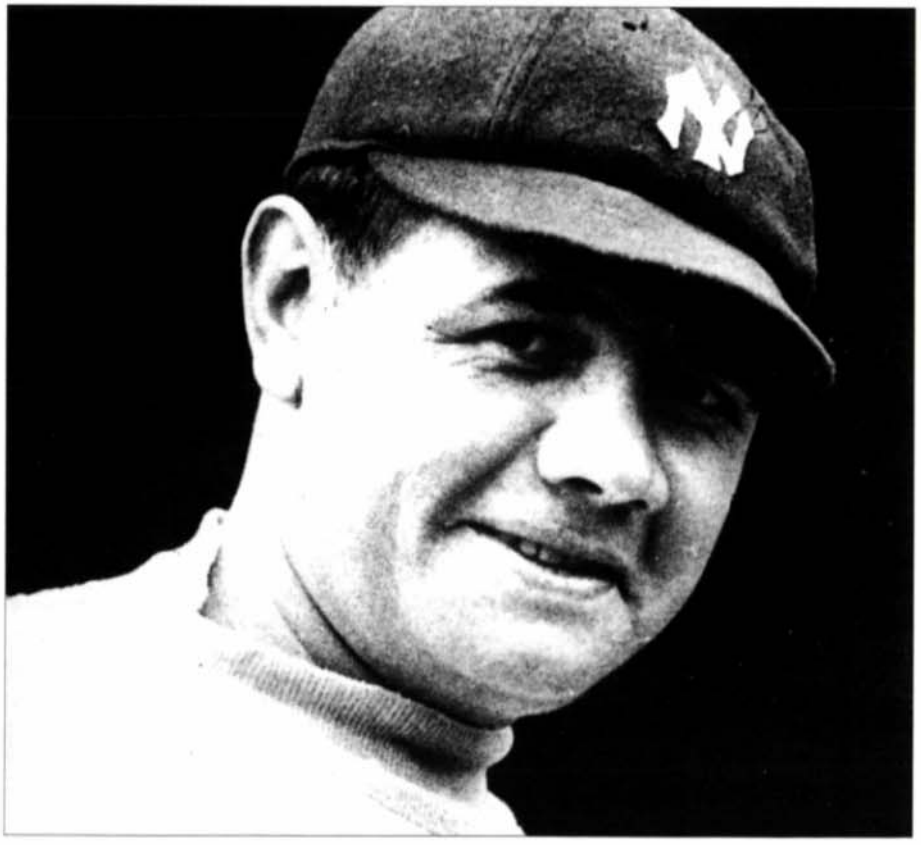
Of course, racing both in America and this country has had some drinkers of its own. The idea that smaller men, like jockeys, cannot put away their fair share of alcohol is a false one. Nonetheless there are some truths about drinking that are irrefutable.

One of them tends to irritate feminists, at least those who like to sink drinks with the lads. This is the fact that a man can consume more booze than a woman before he starts to damage himself internally. It would also be true to say that the bigger you are physically as a male (and we are not talking about courage and guts) the more again you can drink with impunity. It is probably the reason why small chaps start most of the brawls in pubs and bars. They usually challenge bigger men who are still sober enough to see the absurdity of the situation.

Sport, the skilled and highly competitive sport of this modern age, is far less likely to be forgiving to drinkers. Babe Ruth was a colossus who, even drunk or just hungover, could no doubt still have hit a pea-sized ball coming at him with the speed of a bullet. But, we're talking about mortals.

In any case, booze might have had the effect on the Babe that it is known to have had on shooters, before they were brought to book. That is, it relaxed him, and perhaps made it easier rather than more difficult to apply his miraculous skill. Drug testing today, however, would expose the Babe because alcohol, though not always a proscribed substance, is increasingly considered one and can be deemed as rendering a jockey unfit to ride.

Generally most modern athletes are exceedingly careful about what they drink and how much. They are not Babe Ruth. Alcohol remains a problem though because it is the most widely used 'drug' in sport,



Babe Ruth, baseball's hero without equal and a tippler, was protected by the American press

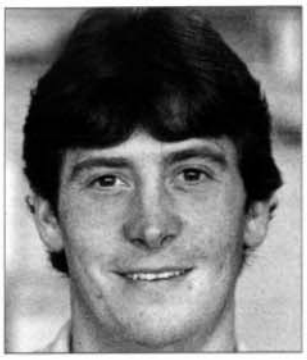
ahead of legally permissible ones like caffeine, and illegal drugs like marijuana and cocaine.

Of course, there are those in sport who may claim, like some car drivers, that they perform better 'under the influence'. Tales of drink aiding performance are legendary, almost as frequent as tales of legendary drinking. The night before he won the 1972 Olympic marathon in Munich, the USA's Frank Shorter, for example, drank two litres of beer. People prefer these stories to ones where drink is at the root of failure and, in a sport like racing, maybe injury and even death.

This is no joke. In one study encompassing 402 victims of skiing accidents, no fewer than 20 per cent of the subjects were found to be positive from alcohol. Indeed, the volume of evidence against alcohol in sports, particularly dangerous ones, is overwhelming, but not so much fun to relate as the feats of runners like Frank Shorter or baseball players like Ruth.

In order to satisfy the curiosity of scientific researchers, a whole host of participants in a wide range of activities, from mountain climbing to swimming to long jumping, and no doubt even tiddlywinks, have over the years swallowed varying amounts of alcohol and then performed for scientists in some measurable way.

The results always clearly demonstrate that alcohol does not help anybody to perform, except perhaps the aforementioned shooters. Coordination and speed of reaction are particularly affected. And, as you might expect, those who would normally abstain are more susceptible to alcohol's ravages. They come out worst of all. If this was not enough, alcohol has a high calorie count, fatal to anybody trying to control their weight, and no nutritional value of any merit.



'It had been my habit to eat chicken and chips one night, then a Chinese or Indian or McDonald's another night. Now I'm getting a friend to help sort me out. And I'm going on to low alcohol wine!'

MICHAEL TEBBUTT

One of the more recent entrants into this fascinating field of research during our project happened to be Conor P. O'Brien of the Blackrock Clinic in County Dublin. O'Brien revealed in a paper published in Sports Medicine, a publication masterminded in Mairangi Bay, New Zealand, how he brought a new twist to the subject by enlisting the cooperation of 15 senior rugby players from Trinity College, Dublin.

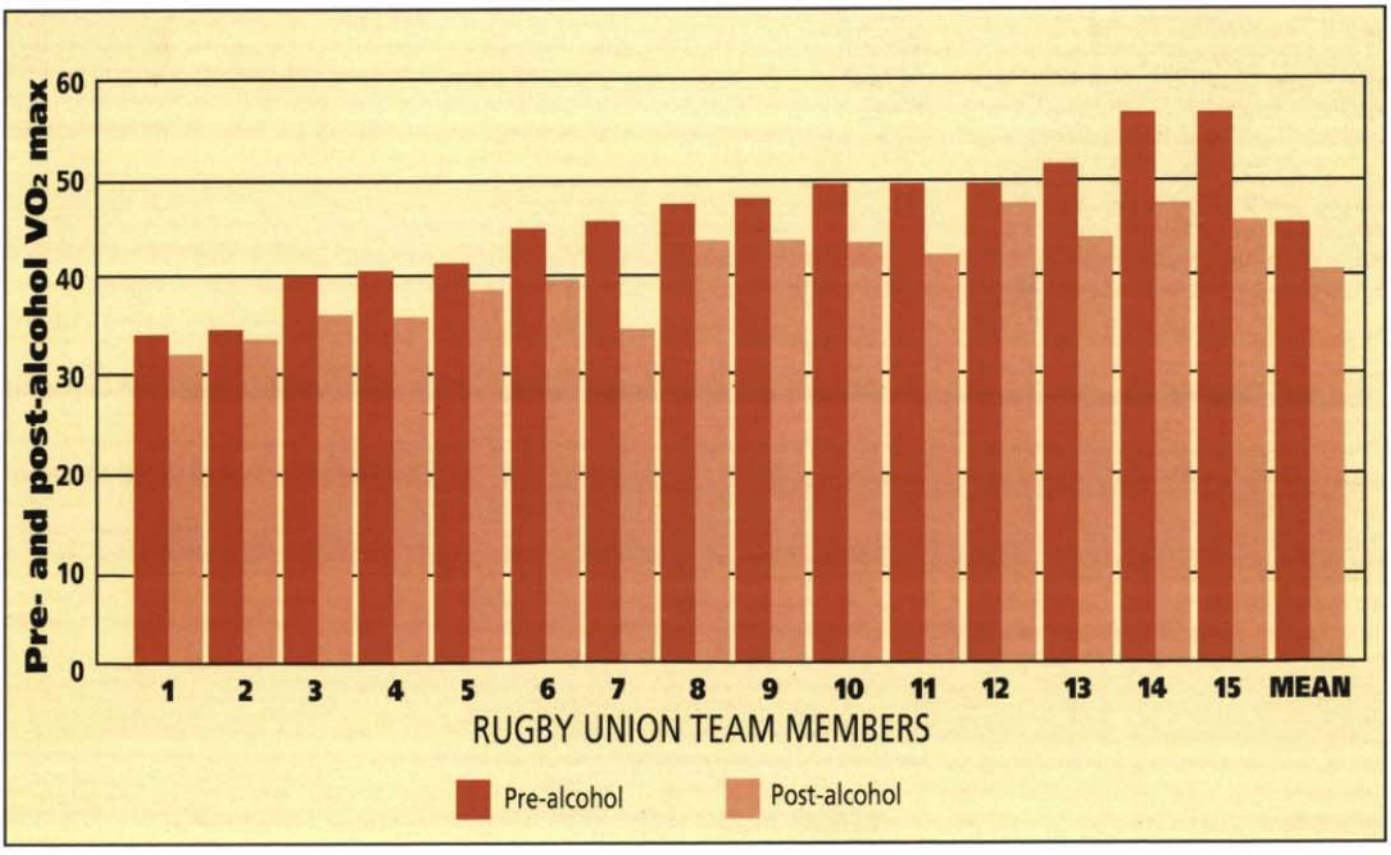
Persuading them to be involved could not have been that difficult because, after assessing their fitness scientifically one Friday evening, O'Brien gave each of his subjects £15. In effect, he told them to go off and get plastered. He wanted to assess "the hangover effect of alcohol on athletic performance."

Sixteen hours later the players dragged themselves back, were reassessed and every one of them performed worse, in fact on average 11.4 per cent worse, in the same endurance test. The bar chart below demonstrates the level to which each player performed . . . and suffered.

The research was not sensational, and the result just what most would expect, except for the eternal bar-room philosopher. O'Brien simply drove home the point for another generation.

It is one that continually needs emphasising all the while alcohol remains so closely associated with sport: If you're a performer, and particularly somebody like a jockey, involved in a risky activity, you should use alcohol with discretion and certainly not while you're competing.

It may be hammering another nail into Babe Ruth's coffin, but better his than yours.



DIETING

Beware the disaster diets

How a rider handles weight problems is crucial. Cancer and heart disease loom as the penalties for getting it wrong

IT would be true to say that contemplating the possible effects of our actions is not always pleasant. We go to a party and reach a point where we dismiss the thought of the following day. But, in the midst of the subsequent hangover and another excursion through every cure known to man, including 'the hair of the dog', we resolve never to make the same mistake again. Until the next time.

The project tried to avoid heavily doom laden prophecy. It was, after all, primarily devoted to improving the fitness and health of riders and hence performance and we hoped, as a result, to reducing the incidence of injury. Accordingly we had avoided talking about some possible serious consequences of lifestyles that encompass not eating, eating inadequately or in a bizarre fashion, and also drinking heavily. But there are aspects of eating and drinking that were too serious to ignore forever.

Many people, not just jockeys, are affected. It was therefore appropriate that Lisa Langford, our project's nutritionist, who had been an Olympic athlete, worked in a National Health Service hospital. It allowed her to see the problems riders face with their weight against a broad perspective of knowledge and research. It also meant that she had witnessed at first hand the results of dissolute lives and the victims of diet fads and irresponsible advice.

Spurious dieting establishments and slimming salons are where people who want to lose weight often start but it is not where the casualties end up. It is the hospital. If this sounds overly dramatic, then consider the amount of propaganda directed towards making women feel guilty if they are not sylphlike and men inadequate if they are not trim. There is so much advertising and promotion intended to direct our thoughts towards these ideals that we tend to forget the motivation behind it is profit.

The idea that it was not possible for riders also to be influenced by the profit-motivated machinations of the slimming industry appeared to fly in the face of fact. For instance, we discovered several jockeys had tried and were adherents to what is known as the Hay diet. Like uncounted millions of the public they equally could be the victims of fashion and misinformation.

'I think the project is initially going to help me, but what we should be looking forward to is the way it may benefit youngsters coming in'

DERRICK MORRIS

The problem was perhaps best illustrated, said Lisa Langford, by the fad among some people for high protein diets. According to her "the only evidence produced that this works is with the very overweight. But even such people, while shedding weight, also lose muscle mass." An absurd situation. On existing evidence, as Langford said, "you've got one hell of analogy if somebody wants to draw a comparison between such people and jockeys. Jockeys are active people. That's a completely different ball game to overweight inactive men and women."

Essentially, what she was counselling riders to avoid was starving themselves or availing themselves of diets, that like starving, can have deleterious effects over a long period of time. It is the old hangover story, the moral of which is that there's always a penalty to be paid if you go to extremes.

The problem with starvation might seem obvious but it is amazing how people, and particularly ambitious, tough people like jockeys, will delude themselves. But cut down on your food intake drastically and some odd, unexpected things start to happen. What occurs might be compared to a steadily spreading fatigue factor through the hull of a glass fibre yacht. It will finally let you down in a storm.

Starving the body means losing lean body mass simply because you need protein and glucose to survive. Both can be derived from your lean body mass. Glucose, in particular, is required by certain cells in the body and the brain cannot function without it. The domino effect impinges then on the metabolic rate, the rate at which you use up energy and that is in turn related to lean body mass. Every time somebody starves, therefore, the lean body mass and the basic metabolic rate are reduced.

"Long term," said Langford, "it's a vicious circle. The percentage composition of your body changes, so there is more fat and less protein. And that's the wrong way round when it comes to keeping your metabolic rate up."

Even more seriously, if taken to extremes, starvation-style diets, some of which have been marketed commercially, can result in loss of muscle mass from essential organs, like the heart. It is the reason why people suffering from anorexia can die of heart failure.

"It matters what weight you lose," said Langford. "When a jockey is sitting on a horse he may not be too worried whether it's water or fat. But when you lose muscle, that is important, even if only in the short term, as you lose muscle strength. But in the long term you can reduce your metabolic rate and so maintaining optimum weight is more difficult. Moreover, when you start to eat normally again you can put on excessive weight, and take on with that the problems associated with obesity, such as heart disease."

Jockeys were no different in this sense from the rest of the population that was concerned about weight, or at least that part which kept going on minimal diets only to find weight piled on alarmingly whenever anything significant was eaten. But that was only a fraction of the problems that could accumulate from not eating properly.

It was ironic that it was now generally accepted that the nation was never better nourished than during wartime food rationing. There was no junk food then and

THE GIMMICK DIET MAY BE A REAL ADVANCE ON THE DAFT DIET

Before the Winning Fitness project had begun Peter Scudamore had spoken about a new diet he had taken up and spoken of it with great enthusiasm. Scudamore had in fact switched to what is known as the Hay diet. Devised in the 1930s by Dr William Hay, the basic principal is that it does not mix starch with protein. The key to its success with Scudamore resided probably in what he said at the time: "I do feel good on it and no longer drained through dieting stupidly."

The Hay diet may certainly appear to work, said Jane Griffin, consultant nutritionist to the British Olympic Association, if the previous diet has been bizarre. In that sense what she called "a gimmick diet" had apparently succeeded for Scudamore. But his satisfaction did not make it any less a gimmick diet, in this case one that went back decades. It fell into the same category of popularity as the more recent F-Plan and Hip and Thigh diets and others, all of which had at one time or another figured in the bestseller book list as preferences made popular by fashion and publicity.

The alternative for jockeys was a diet without razzmatazz, but worked out by a nutritionist, tailored to specific requirements, and intended to provide something as near as possible to a well-balanced intake.

processed food was minimal. Yet the human body had not changed and an active sportsperson, anybody in fact, still needed well balanced nourishment.

Yet more people than ever existed on inadequate diets and particularly ones that did not provide the right balance of what Lisa Langford called micro-nutrients, the vitamins and minerals, "Increasingly," Langford said, "their diets contain a reduced level of antioxidant, which mops up free radicals."

Stick with it at this point, we said. It's important. 'Free radicals' are highly reactive things that charge around your body and, if not kept in check, attack DNA. "Because DNA," said Langford, "controls how cells divide, being attacked can change this process and cause cancers."

What's more, this unnerving situation could be exacerbated by smoking, because it can also cause an increase in 'free radicals'.

Because the study of nutrition was a relatively new science, in which the frontiers were still being pushed back, exactly why an adequate diet was so important to the process of protecting oneself against 'free radicals' was somewhat mysterious. But what was known, and had been for generations, was that fruit and vegetables are associated with the avoidance of cancer. Thus the old adage about an apple a day keeping the doctor away had a real basis in fact.

Okay so far? Now we arrived at a really tricky little number, which Lisa Langford was somewhat embarrassed to mention again for fear of being seen as a kill-joy, and that was the subject of alcohol. Not adverse to a glass of wine herself she was worried enough about the intake among some jockeys to put embarrassment aside. Such intakes, if continually indulged in, she said, could result in liver disease.

We told our project's participants to dispense with the detail and just take her word for it that to depart from this mortal coil as a result of liver disease is a horrible way to go. Alcohol, particularly when mixed with smoking, can also cause cancer of the mouth, throat and oesophagus.

That over, we got back to food. If you did have a diet heavily weighted towards junk food, items like crisps, hamburgers and fried chicken, or one in which there was a heavy reliance on meat, eggs and dairy products, then you were increasing the likelihood of heart disease in terms of cholesterol. How come?

"If you are having a high meat intake, then the total of fat won't be low but, more than that, what is vitally important is the balance of fat in your diet is wrong," said Langford.

"What is important in avoiding heart disease, is not simply your total fat intake but how much saturated fat you have got as a proportion of unsaturated fat.

"Eating largely saturated fats is harmful in terms of furring up arteries and problems like arteriosclerosis and heart disease."

As Lisa Langford pointed out, though people in Mediterranean countries did not have a really low fat diet, they didn't have the same incidence of heart disease as experienced in Britain. This is ascribed to their use of olive oil (which is unsaturated) in their diet.

All in all, that was a positive, optimistic thought to finish on and for riders to dwell upon.

AN ADVOCATE

Ray showed how to join in the fight for fitness

From the start of Winning Fitness several other jockeys quickly expressed a strong interest. One, Ray Cochrane, turned words into energetic action

IN the morning, head slightly down, chin tucked in, the hood of his training jacket draped over his head like a monk's cowl, Ray Cochrane could have been a fighter facing up to the rigours of his daily training routine.

Stretching exercises were followed by skipping, in turn succeeded by sit-ups and an exhausting production line of physical exercises. It went on for half an hour. It made you sweat just to watch, and then Cochrane finished off with a one-mile jog with his pet dog.

Cochrane not only looked like a fighter, the rhythms of his speech reminded you of the noise of a speedball in a boxers' gym. The sentences arrived in the rapid ratatat-tat of the Ulsterman's brogue and were often signed off with explosive emphasis.

Look at Cochrane and you could imagine him making a mark among the featherweights, in whose division he would be able to put on some weight and still be sparsely covered. You felt he was certainly nimble enough, mentally as well as physically, to box. Though Cochrane had never been a boxer in the literal sense, he was undoubtedly a fighter.

It is an oft-repeated story in racing of how two serious accidents determined the passage of Cochrane's career. The first, in which he broke his pelvis, put weight on him, and turned him into a jumps rider. The second, in which he fractured his skull, somehow persuaded his body to shed weight. Ever since his career had been firmly on the Flat.

This was not to say he had avoided a continuous struggle to keep weight at bay in his rise to a respected position among the top jockeys. He had done it partly by wasting and, famously, by running.

There was a well-known photograph of him out on a training run in the Cambridgeshire countryside. You glanced at it and then stared again because he was not wearing lightweight training shoes but, of all things, Wellington boots. It was the sort of torture that contestants in judo inflicted upon themselves.

The theory went that the more brutally you punished yourself, the more inured you became to pain in combat. Judo players were the high priests of this temple of thought.

Of course, racing is not quite like that but more similar to motor racing. The jockey and driver depend, respectively, on horse and car. In both there is thus a complex equation that equals victory.

Moreover it is far harder to define the equation in racing because there are larger imponderables among equine athletes. Racing enthusiasts say that this makes their sport cerebral, more so even than cricket. Whether this is so, you end up with a basic sum of which the component parts consist broadly of breeding, form, training, the horse, and the jockey.

Ray Cochrane was of the school of thought that believes the jockey, however large or small their part in the equation, had clear duties within it. Among them was a requirement to be as fit as possible.

So the project was something that Cochrane did not merely endorse. He incorporated most of the exercises designed by John Anderson into his routine, and he also started following the general dietary advice of the project's nutritionist, Lisa Langford.

To be honest, fitness had been a lifelong concern, even passion, of Cochrane. He undoubtedly inherited the interest from his father, who used to teach physical education within the Boys Brigade.

At the age of 12, Cochrane ran in an 18-mile marathon, and had continued to run in long-distance races, usually around 10 miles. He liked exercise and the rewards that it brought, quite aside from what he saw as the demands of his profession.

Along the way, Cochrane had learned some painful lessons. This had happened largely because young jockeys in the past had not been advised at all or, often worse, ill-advised. Trying to lose weight in saunas had resulted in Cochrane passing out more than once in the past. "Regular," is what Cochrane said somewhat sombrely, looking back.

Even worse he had suffered from using laxatives and diuretics and could provide an account of an experience that should serve sufficient warning to anybody.

"I took two of these pee pills one day," he said, "and ended up in hospital for five days. I didn't drink anything and went from 8st 4lb to 7st 6lb in four hours . . . It's still going on, through ignorance. The jocks all know, and that's why they say: 'Okay, you can do the weight, but can you ride the horse?'"

The problem was that jockeys, the human element in the racing equation, had been largely overlooked in training terms. They had been isolated from the mainstream of research that had produced fitness and dietary regimes for the human participants in other sports.

Cochrane knew this was so. In his own experience he had had to fight largely alone, devising his own exercises and his diet. In former times he had even weighed daily every solitary item of food he had eaten to chart the effect.

He was naturally sensitive when it came to criticism of his fellow professionals. Cochrane respected them for who they were and preferred to paint figurative pictures.

A typical busy morning work-out for Ray Cochrane: stretching and limbering-up exercises followed by everything from skipping, spring hops, vertical jumps to wrist rolling, all accomplished with a production-line efficiency that left the observer feeling weary but the jockey refreshed

But he admitted jockeys were sometimes their own worst enemies, part of the problem.

"They are very stubborn people and a lot of them honestly don't know what they're doing. They'd rather get up and eat sausage, egg and bacon, or have 10 gin and tonics in the evening, and then go and sit in the sauna for a couple of hours, rather than eat something light, do some exercise, and keep their weight under control that way."

The strength of Cochrane's feelings are evident in the changes he had made to what was already a radical lifestyle by many of his colleagues' standards. He used to eat only one meal a day, in the evening. As a result, he would often feel tired by mid-afternoon and found he needed a lot more rest than he did with his fresh programme.

Now he had a couple of Ryvitas or something similar in the morning with tea, two ounces of brown rice with some fish in the afternoon after he had ridden, and an evening meal of fish or meat with vegetables.

The most revolutionary change had occurred in Cochrane's drinking. "I was possibly having two beers a day on the way home from racing and maybe four glasses of wine in the evening. I have knocked that on the head and only have a drink at the weekend.

"As a result, I am sleeping a lot better – I used to be waking up four times a night – and have become a hell of a lot more cheerful."

It was interesting for the outside observer to note, also, that a drawer in the kitchen containing sweets and normally locked, could now be safely left with the key in when he was around.

In any case, Cochrane had found that his exercise sessions, with the addition of John Anderson's routines, had become vigorous enough to take off a pound at a time. It had allowed him to cut back the jogging, which had in the past made him feel quite exhausted enough sometimes to take all of three days "to catch up". Instead he had incorporated brisk walks of three miles into his week, whenever he was not riding, and which he enjoyed with an obvious buoyant relish.

Cochrane said he felt even fitter as a result of the path he now trod. He was still looking for a bit more energy but was confident that this would come by tinkering with the balance between diet and exercise. His experience had shown nothing was easy and he had grown to accept, in the field of fitness, patience was truly a virtue.

He was talking before going off to race at Newmarket's Craven meeting. Before leaving, Cochrane turned, as if to throw a feint, and remarked: "You know the older jockeys are very set in their ways but I think the younger ones, particularly lads that are big like myself, actually need someone to tell them what to do. I wish somebody had told me 10 years ago."

THE AMBITION

Getting set to scale the peak

We found a rider convinced the project offered a way to climb yet further

THE jockey in the picture (opposite page) has weals on his shoulders as a result of exerting force while strapped into a chair where his leg strength was tested. He had just driven himself on a stationary bicycle to complete and utter exhaustion. He was going to rest for 30 minutes and then push himself once more, this time to yet another form of standstill in a brutal, 30-second examination of the power he could produce with his upper body. Why? Who was this man?

The man was Jamie Osborne, then 25, and what he aimed to do was improve as a jockey. You might say that the more than 100 jumps winners Jamie had ridden that season was proof enough that he was good already. But Jamie rejected the thought. He had for some time looked enviously at the Winning Fitness project as a way of helping himself even further up the jockeys' table.

So, when the chance came to join the team, it would be true to say that, had the door been closed when he arrived for testing at the British Olympic Medical Centre, Jamie would have broken through a window to get in.

This is strange because Jamie had, by this point in his career, taken on, like a lot of jump jockeys, that cool, fighter pilot style – on the outside. But he also came from Yorkshire, the home of Hutton, Boycott and Harvey Smith. As the nation knows, sporting ambition lies keep in the soul of any offspring of that county.

Stranger still, however, Jamie said he was not a natural sportsman. "I was one of those guys at school who was useless at sport," he said. "I was always the one who hid in the loos when there was running to do. I was always the last to be picked for the rugby team. If I went back to school now and told them I'm a professional sportsman, it would be an absolute joke."

So how come that Jamie had got so far in racing? One clue was in the background of his father, who had a passion for the hunting field, and his mother, who had a passion for showjumping. So, a connection with horses, yes, but racing, no. His parents did not want Jamie to go into the sport; instead they wanted him to go on to university after A levels. But, he was permitted a year to try his hand at jump racing and, Yorkshire grit to the fore, he had made it.

Since his first winner, on Fair Bavard, in 1985, he had progressed steadily. He had won the Hennessy Cognac Gold Cup on Arctic Call in 1990, and had a clutch of other big races as scalps.

He also had the dubious distinction of having been struck across the face by Jenny Pitman, who was subsequently fined £200; and head-butted by another jockey who also had to stump up the same amount. "I must have the sort of face people like to hit," Jamie had been recorded as saying. In fact, Jamie's was a pleasant, pastoral physiognomy, alive with a clear sense of humour. It was probably his sense of the zany and ability to laugh in the face of adversity that sometimes had provoked those less in control of themselves.

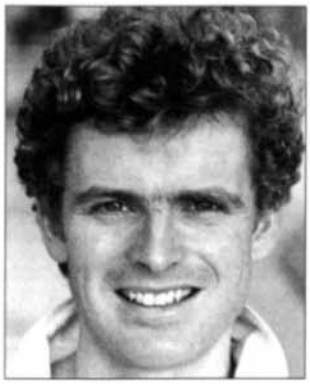
At the British Olympic Medical Centre he could say to Leopold Faulmann, the director of physiological services, "Be gentle with me," knowing that the friendly subtlety would be acknowledged. It apparently was not always appreciated elsewhere.

Jamie was also bluntly honest. He did not, he admitted, even know where his hamstrings were located until Faulmann told him. In answer to Faulmann's question, "Are you satisfied with the fitness you've got?", the answer was a straight "No". In answer to Faulmann's question, "Are you satisfied with the level of fitness you've maintained throughout the season?" the answer was also "No."

In fact, Jamie believed, because his desire

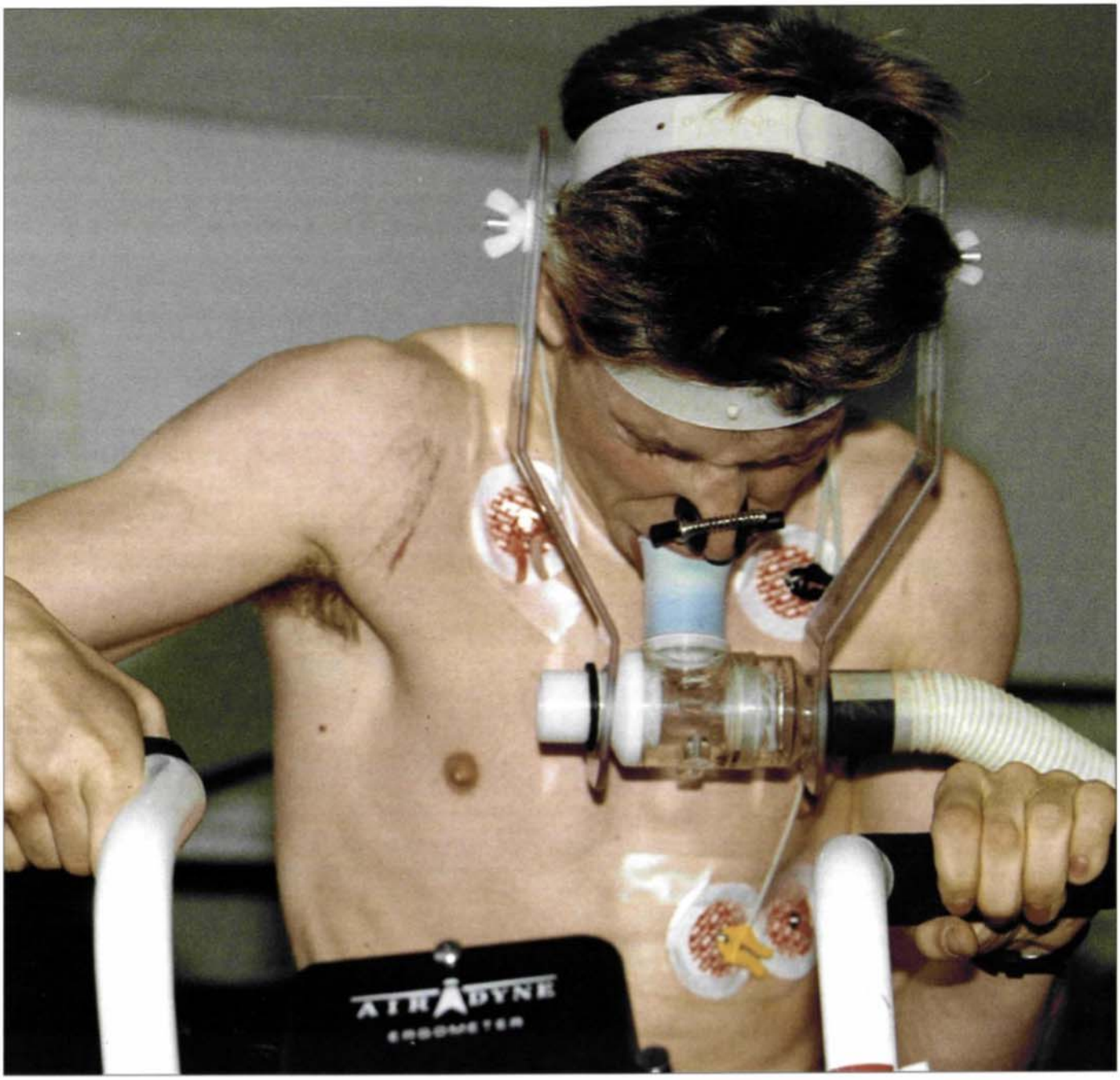
'The exercises are a great benefit. I find that 10 minutes a day is sufficient, partly because racing is a strenuous, short-lived activity. It's not like being a long distance runner, where it's all stamina. I have also kept up my squash, swimming and cycling'

DALE GIBSON



'I think you're always going to be pushed to get busy professionals to take extra exercise. But I do think that any amateur who is taking it seriously, and wants to compete on equal terms, should have such a project thrust down their throat'

MARCUS ARMYTAGE



The route to the top is never easy as Jamie Osborne discovered when undergoing an endurance test at the British Olympic Medical Centre

to climb to a higher plateau of performance was so strong, that he had modified his riding style in many respects to account for what he – and only he – called his lack of fitness.

It should immediately be said that Jamie emerged in the tests an extremely fit individual. What he was talking about was the fine tuning that applies to top athletes. Of course, without testing all the top jump jockeys it would have been difficult to conclude where he ranked, but it was obvious he was well up the fitness stakes. He had no trouble maintaining his weight, with next to no resort to the sauna, and he was riding some 500 races a season. The difference was that Jamie, like other jockeys in the project, and more than a handful outside, was telling himself he could get even better through exercise and increased fitness.

Standards in all sports rise this way, when the competitor, with the necessary stimulus, decides that his or her grasp can extend still further up the mountain of achievement. Jamie had decided it was his turn. He was going to repair the puncture on his bike, start doing the John Anderson exercises and he was considering buying a heart-rate monitor for wearing during exercise.

Basically, Faulmann told him, Jamie needed to build on his fitness base so that he could work for a longer period of time at a higher percentage of the maximum effort of which he was capable. In race riding terms this meant that the point at which his co-ordination was likely to deteriorate, as any rider's must in time, would be further delayed. Apart from the implications for winning races it would mean he would be also riding more safely and thus fulfilling the underlying motivation of the project.

Jamie finished the tests "knackered". The regime, designed to examine Olympic athletes, does not brook compromise. Nonetheless, Jamie recovered quickly and went off to play some tennis with friends. No doubt, his resolve strengthened still further, he struck himself fiercely over the head every time he missed a shot. Who said, we thought, this guy isn't a good sport?

ASSESSMENT

VG to Excellent in the mid-term project report

With our programme well into its second half we re-tested some of the participants at the British Olympic Medical Centre

IT was time for a little mid-term reporting. And had we got news! Top of the class when it came to improvement was Carl Llewellyn. He had been chided gently for appearing to do nothing more than eat bananas as his contribution to the project. But he had indeed been exercising to some effect, as tests revealed.

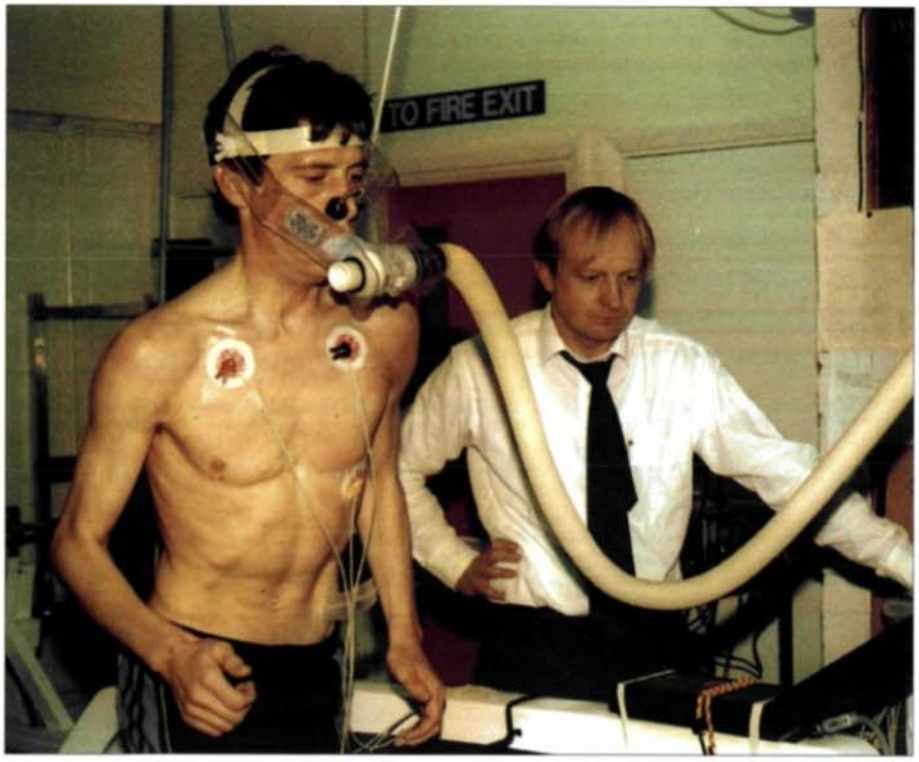
As in any group, there was bound to a bit of backsliding here and there, but given that jockeys basically live lonely lives in a sporting sense, dependent on themselves for motivation most of the time, our group so far had done remarkably well.

Two had had to drop out, at least for a while, for personal reasons, but they had been replaced. The rest had persevered to a remarkable degree. Of the original riders, seven underwent interim re-testing, prior to a final examination towards the end of the year. And it was their results that displayed heartening news

The tests showed that none of them, from Marcus Armytage to Alex Greaves, had gone backwards, and all had measurably advanced in some way. But to say that there were no downs would not be true. That would not be human. Jockeys, like other people, get colds, suffer from flu, and have off-days.

On both the occasions that Michael Tebbutt had attended the BOMC, he had had a cold, and that certainly did not help in lung function tests. Derrick Morris, was recovering from flu on his second visit. Nicky Carlisle "choked" as he put it, on the treadmill at the interim assessment. And Steve Dawson may have been suffering from hay fever or asthma when he was tested for the second time.

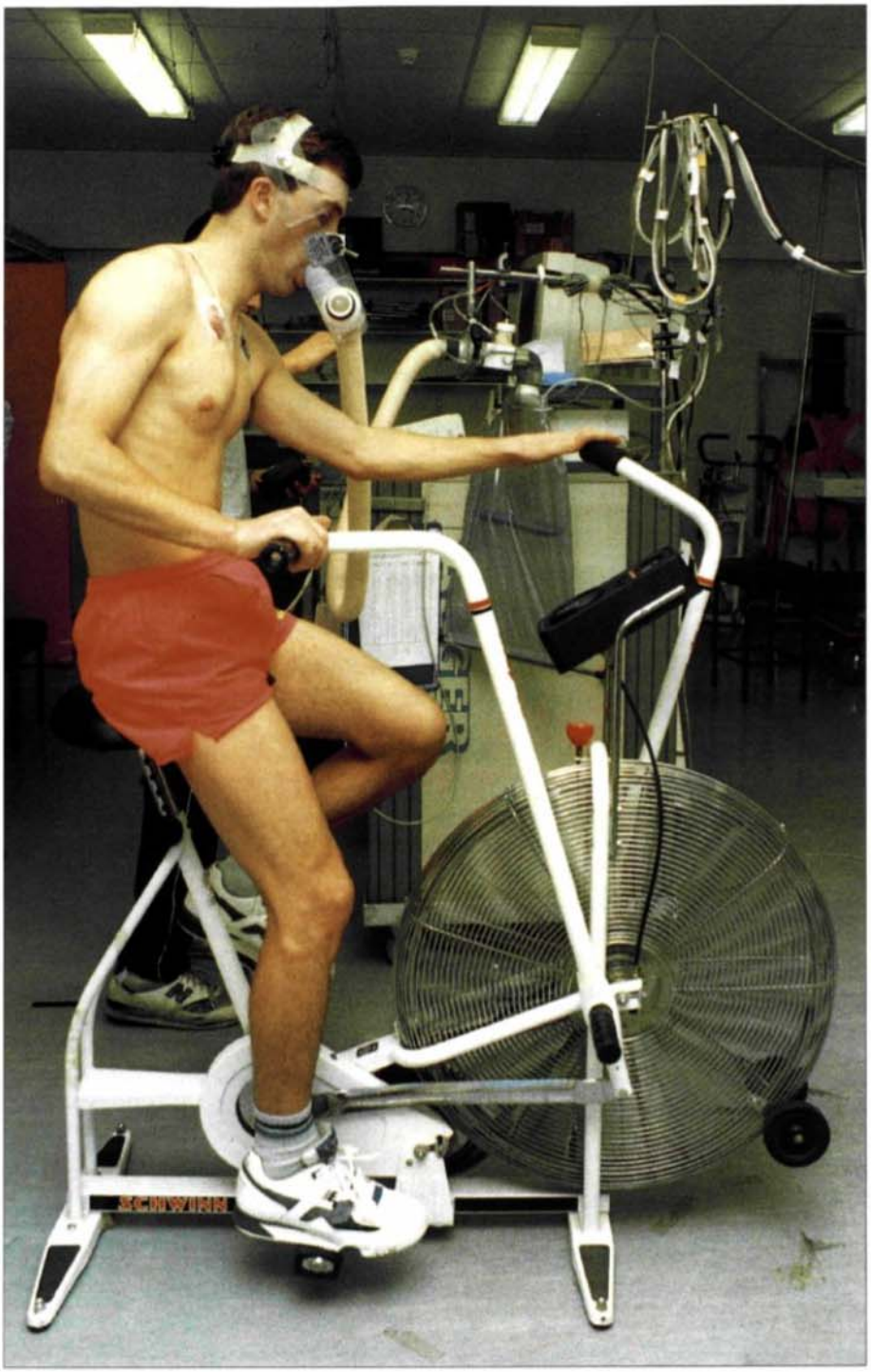
But overall, whether or not the jockeys had gained or lost weight, everybody had lowered the level of their body fat. In fact, said Leopold Faulmann, director of physiological services at the BOMC, Tebbutt's loss "was almost unreal", down to fewer than 20mm from 28mm, "something everybody prays for, I think". A reduction of body fat when the weight remains constant basically means more muscle.



Michael Tebbutt had achieved a body fat loss "everybody prays for"

What was interesting was how this body-fat loss appeared to have been achieved. "From talking to them," said Faulmann, "most of it was achieved by the adoption of a far more sensible diet." And it appeared that if nothing more than the adoption of better eating among jockeys emerged from the project, then the undertaking would have been worthwhile. However, there was more to it than that in areas less ponderable, at least until later.

"For most of the jockeys," said Faulmann, "the exercises they were introduced to were not necessarily going to produce enormous changes." They were designed by John Anderson to work on muscle groups related specifically to riding, rather than to produce good results in the BOMC tests.



Carl Llewellyn had shot to a VO_2 max of 56.3 in the endurance test

However, a second set of exercises, John Anderson had introduced (see overleaf), if taken up, were likely to result in more marked changes partly because they included some running. These exercises were calculated, for example, to encourage an increase in endurance, measurable on the treadmill or the stationary bicycle.

"What I have tried to get across to the jockeys," said Faulmann, "is that they have to decide what is important in terms of fitness for them. It would be wrong to expect a very high endurance from them, only a reasonable endurance, and with the exercises John Anderson had prescribed first you wouldn't necessarily expect to see a huge improvement."

Much confusion arose, Faulmann said, in people's minds about fitness, firstly in relation to the general public and second in relation to the athletic population, including riders. The confusion was exacerbated by the different degrees of fitness and endurance required for different athletic events, in track and field the most obvious contrast being between sprinters and marathon runners. "In terms of endurance," Faulmann said, "I would say jockeys are closer to the shorter track distance."

Faulmann found grist for his mill talking to the jockeys. One told him that he felt at the end of the endurance test the way he sometimes felt at the end of a race. "If that is the case," said Faulmann, "then that would indicate they are close to an 800m runner, because that means actually fighting fatigue."

Most of the jockeys, though, felt the endurance test to be harder than a race. "If that is the case," said Faulmann, "then you are talking about them working at 60 to 80 per cent of their maximum. In that case they should be looking for only a reasonable endurance capacity."

The cases of Armytage and Morris were pertinent here. Both had become measurably stronger during the project to date but their endurance test results, given as a figure for VO_2 max, were always first class, in the area of 60ml/min/kg. Such an endurance capacity Faulmann pointed out, is better than some sprinters who represent Britain in international competition and "there is no need to improve it further, only to maintain it."

Llewellyn's improvement in the leg strength tests had Faulmann positively beaming with delight, but for the layperson it was in the endurance test that the jump jockey provided the most obvious evidence of his progress. In this he had shot from a previous VO_2 max of 48.3 to 56.3ml/min/kg.

How did this transformation come about? Llewellyn was quick to adopt the dietary advice but seemed a slow starter in the exercise area. But then he decided that if he was involved he might as well "get the full benefit". Now, having got going he was clearly reaping the reward.

For a scientist like Faulmann, the imprecise information on exactly what the project's jockeys were doing, however, was one of the difficulties it faced. "Ideally," he said, "we need to get a better handle on how much training the jockeys do. We really need a training diary for each."

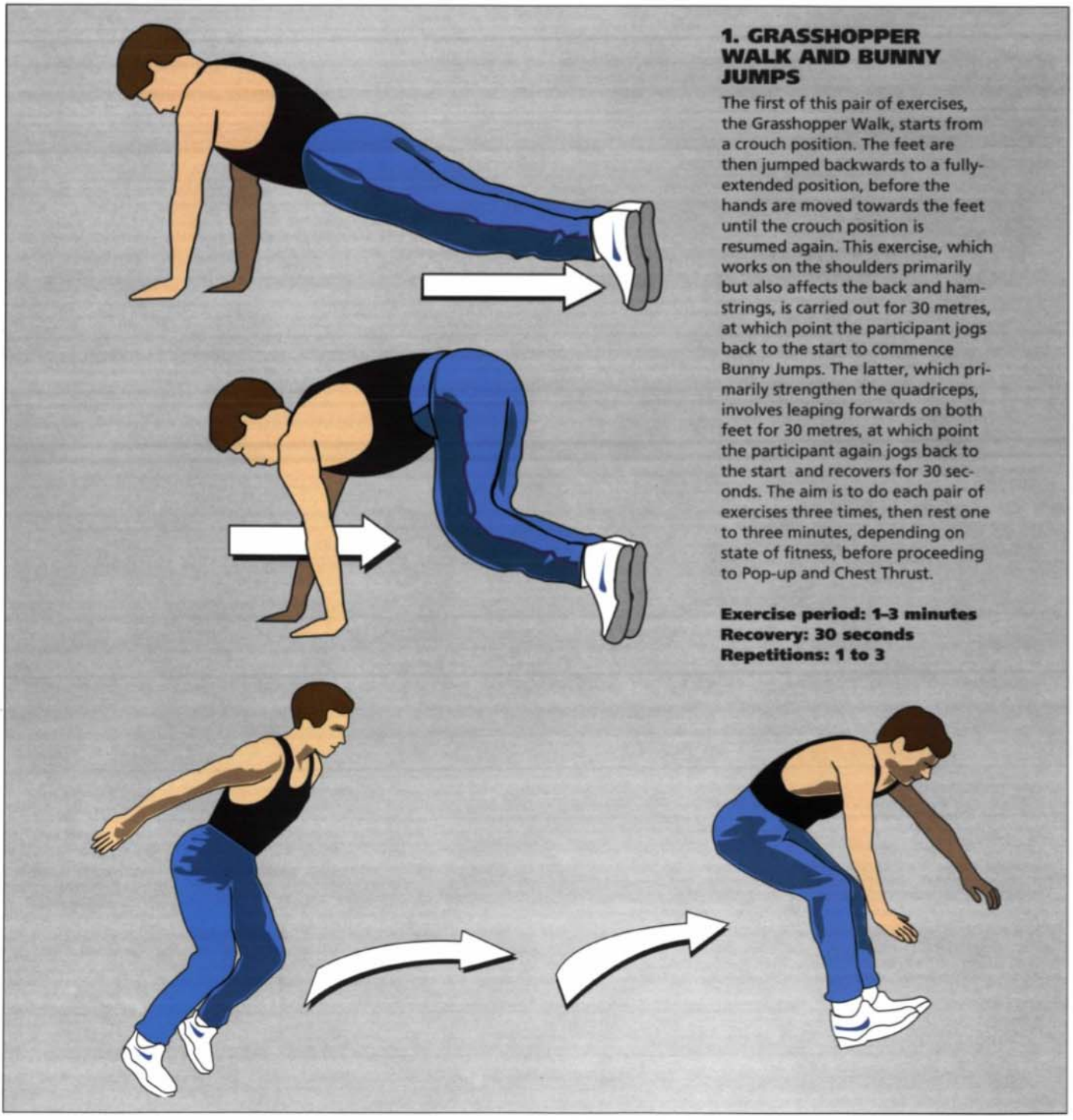
The jockeys, however, were not unique in the problems they presented to such a man, one who, in trying to understand them, was attempting extremely hard to help them. Unlike say track and field athletes who are accustomed to such help, jockeys were not. But when they started to avail themselves, the project demonstrated there could be measurable improvement. That at least had been shown by the interim results.

As with jockeys, so with skaters, Faulmann pointed out. The same problem exists on the British ice. "You have trainers who teach the kids how to skate and coach them in techniques, but they have very little understanding of fitness and strength exercising. Indeed, some don't believe in it. They believe you can build everything you need, simply on the ice." Now, where had we heard something similar to that before?

EXERCISES 2

A bonus tonic arrives with a medicine ball

A second phase of exercises was devised by John Anderson



1. GRASSHOPPER WALK AND BUNNY JUMPS

The first of this pair of exercises, the Grasshopper Walk, starts from a crouch position. The feet are then jumped backwards to a fully-extended position, before the hands are moved towards the feet until the crouch position is resumed again. This exercise, which works on the shoulders primarily but also affects the back and hamstrings, is carried out for 30 metres, at which point the participant jogs back to the start to commence Bunny Jumps. The latter, which primarily strengthen the quadriceps, involves leaping forwards on both feet for 30 metres, at which point the participant again jogs back to the start and recovers for 30 seconds. The aim is to do each pair of exercises three times, then rest one to three minutes, depending on state of fitness, before proceeding to Pop-up and Chest Thrust.

Exercise period: 1–3 minutes
Recovery: 30 seconds
Repetitions: 1 to 3

ONE of Olympic coach John Anderson's strong suits was the fact that he had been around a long time. It was his longevity, from a boyhood in the Gorbals of Glasgow to his position today as one of Britain's most eminent coaching gurus, that gave him a memory bank from which he could pull out the most unlikely items.

One day it was part of an old broomstick, a length of thin rope and a weight from which you could manufacture a useful piece of equipment for strengthening the wrists and forearms, the next it was a box for doing Spring Hops.

So you naturally, wondered what Anderson would pull out of his memory bank next. Indian clubs, perhaps? Dumbbells, maybe? No, it was that old favourite, the medicine ball, beloved of boxers' training establishments, school gyms and old-fashioned militaristic gentlemen who used to speak briskly, stand ramrod-straight and bear the title of PT teacher.

Although Anderson was just old enough, we understood, to have once been a PT teacher himself, it should be said that his campaign to help jockeys discover improved fitness was not designed to take them with him in a journey down memory lane. Indeed, when riders had time to go to a modern gym, he was most strongly in favour of that over any other form of strength-enhancing exercise.

No, Anderson was concerned that they could exercise anywhere, at any time. It could be the back garden or the racecourse car park, anywhere where there was a bit of space. So the first group of exercises, devised by Anderson, while requiring the maximum commitment demanded only the minimum of equipment, nothing that could not be carried in the boot of a car.

At the time, we said that there would be a second package of exercises, to be used by those jockeys who wished to go on and do more. And these featured a medicine ball.

Medicine balls could also be carried quite conveniently in a car. They could be bought in different weights, usually ranging from one to nine kilos, the correct weight demanding a bit of effort to throw around. For a male rider this would normally mean starting with one around six to eight kilos.

"What I have tried to do with this second phase of exercises is provide an extension of the first stage," said Anderson. "The first stage remains as effective and valuable as it did at the beginning of the year. Those exercises are constants which can continue to be used to good effect. They are intended to produce a better tone in muscle groups that are specifically related to riding and, where necessary, to improve the strength level in those groups."

In the second phase Anderson had only adjusted the focus. The exercises were intended again to use the muscle groups particularly relevant to jockeys but, with the introduction of some running, there was a greater emphasis on exercising the heart and lungs, i.e. the cardiovascular system. The total effect would be not only to help riders burn off fat but to improve general fitness still further.

"I think there is a case for simulating some of the high intensity work that jockeys experience, particularly towards the end of a race," said Anderson. "So there is an emphasis on high-intensity exercise with short repetitions and brief recoveries."

The exercises were not designed, he emphasised, to produce a comprehensive all-round muscle development in the average person. "They are focused on the needs of a jockey as we interpret them."

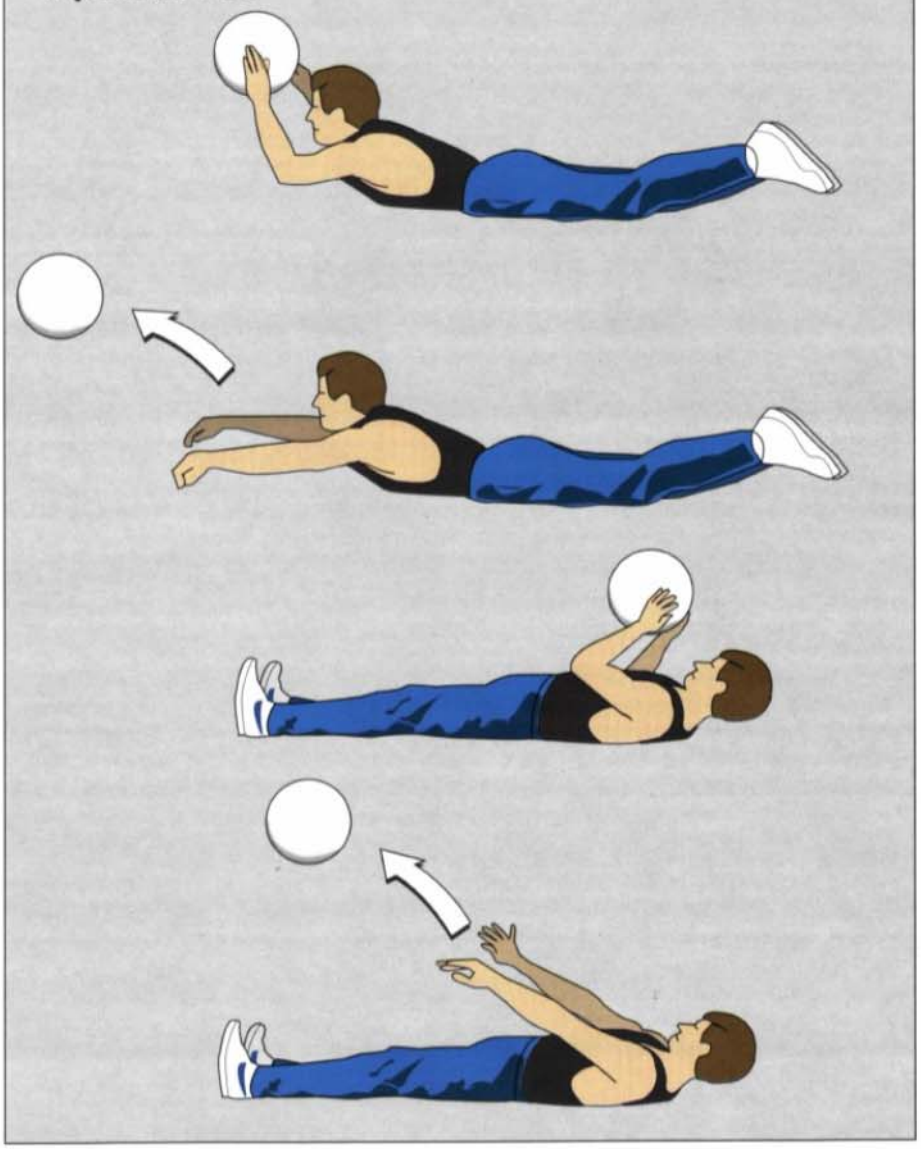
As a result they quite deliberately concentrated on similar groups of muscles most of the time. "That's not an accident," said Anderson. "That's intentional."

The new exercises were tried first by Derrick Morris. What did he think of them? Well, let's put it this way: he was off to buy a medicine ball shortly afterwards.

2. POP-UP AND CHEST THRUST

Lying on the front for the Pop-up, the participant propels a medicine ball through the air, if possible towards the chest height of a companion, or as high as possible against a wall. Such exercises are always done ideally with somebody else. The Pop-up, essentially a back exercise, should be undertaken in the order of 20 times before following with the Chest Thrust. In the latter, basically a chest exercise but one with an effect also on the abdominal muscles, the participant lies on the back and thrusts the ball away and up either to a companion or against a wall. This is also done some 20 times, and the two exercises are practised alternately. The aim is to carry out each exercise some 20 times a set, alternating each with the other and each pair of exercises three times.

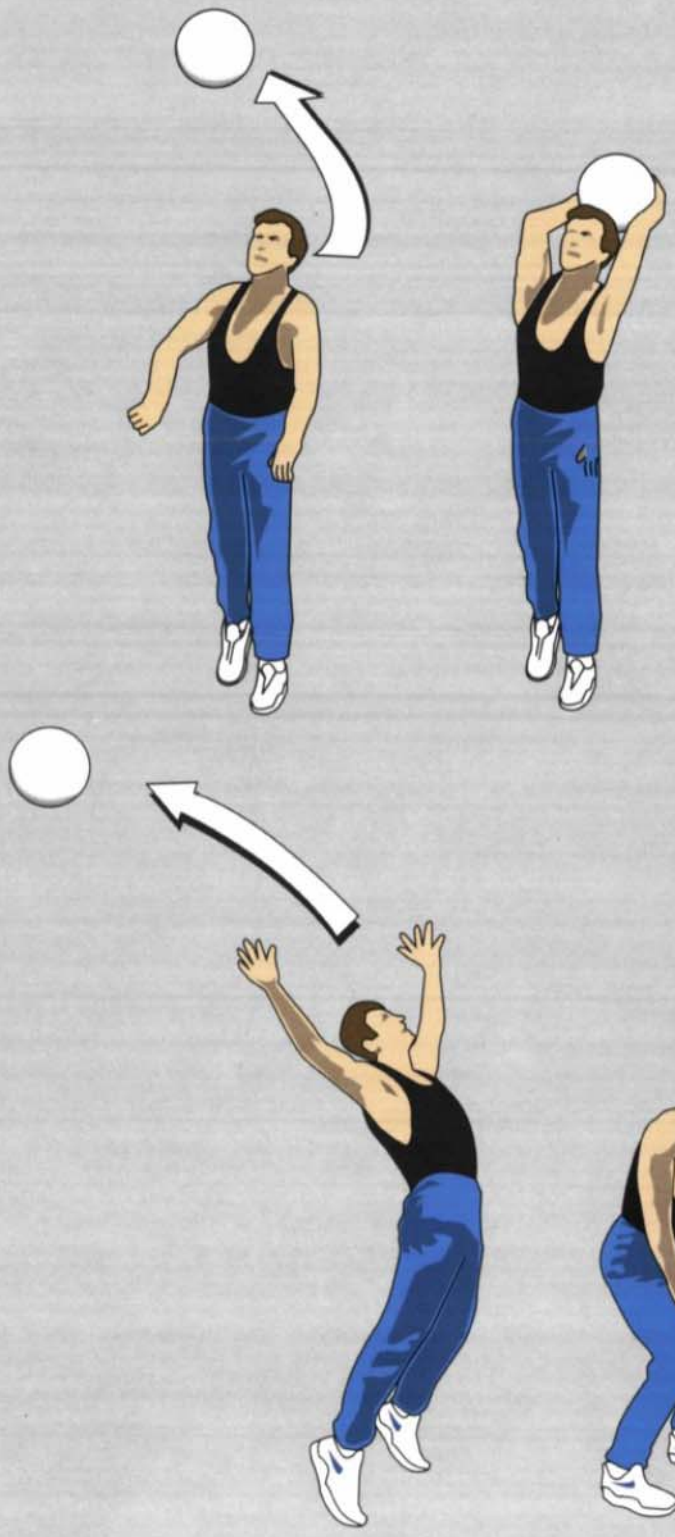
Exercise period: 1–3 minutes. Recovery: 30 seconds.
Repetitions: 1 to 3



3 THROW-IN AND INTO ORBIT

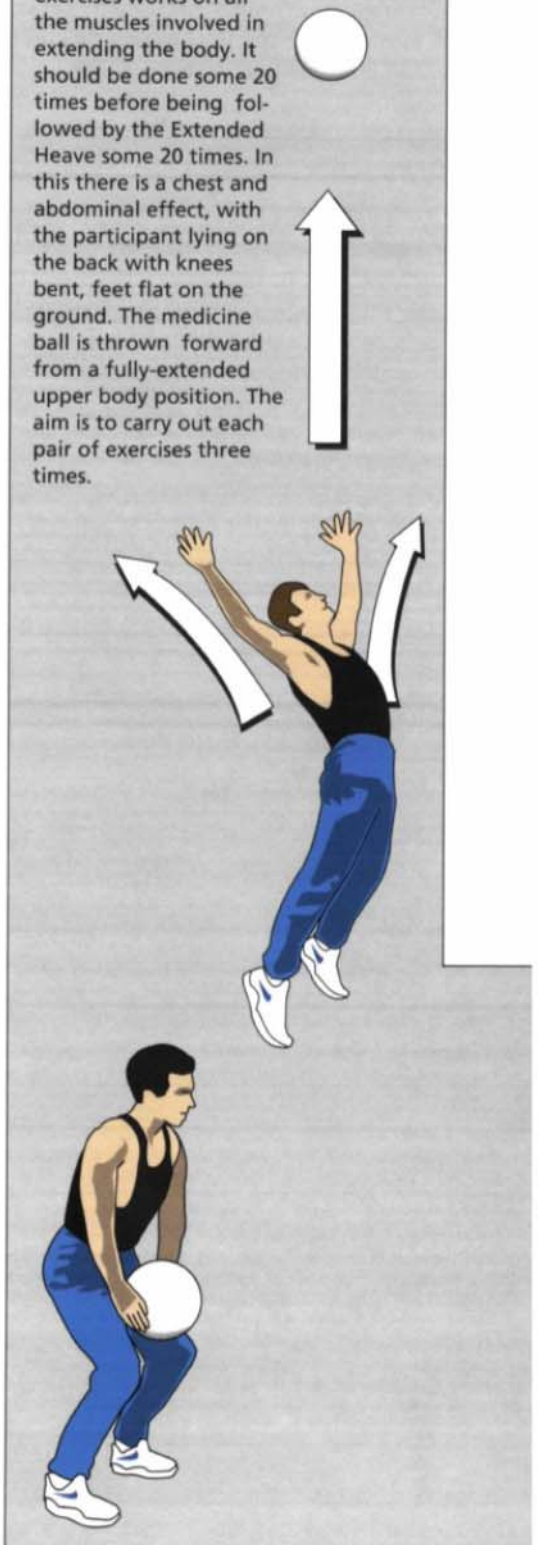
The Throw-in is like a football throw-in, in which the participant attempts to throw the medicine ball as far as possible to a companion or, failing that, against a wall. It works on the abdominal, back and shoulder muscles. Done in the order of 20 times, it is followed by Into Orbit, another back strengthener, where the aim is to throw the medicine ball backwards over the head as far as possible, some 20 times. Again, the two exercises alternate, and a brief recovery occurs between each pair.

Exercise period: 1–3 minutes. Recovery: 30 seconds.
Repetitions: 1 to 3.



4. ROCKET LAUNCH AND EXTENDED HEAVE

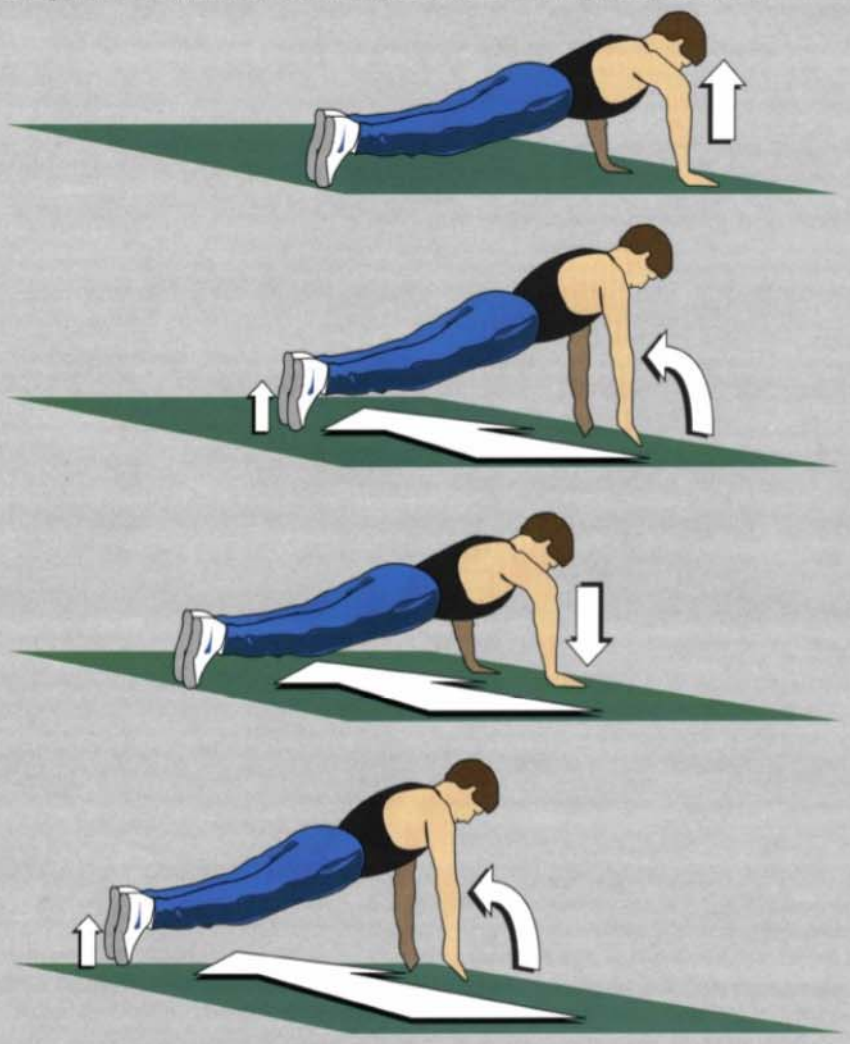
From between the legs the medicine ball is thrown in the Rocket Launch as high as possible, finishing with a full extension of the body. The first of this pair of exercises works on all the muscles involved in extending the body. It should be done some 20 times before being followed by the Extended Heave some 20 times. In this there is a chest and abdominal effect, with the participant lying on the back with knees bent, feet flat on the ground. The medicine ball is thrown forward from a fully-extended upper body position. The aim is to carry out each pair of exercises three times.



5. GRASSHOPPER HOPS

The participant jumps sideways for 10 metres pushing off with the toes and hands. This is a powerful shoulder exercise, with beneficial effects also for the back. The aim is to hop in this fashion three times in each direction over 10 metres, with a brief recovery between each pair.

Exercise period 1–2 minutes. Recovery: 30 seconds. Repetitions: 1 to 3



6. SHUTTLE RUN AND STEADY RUN

Anderson also recommended two types of running, to be combined with the exercise session:

Firstly, a Shuttle Run, backward and forward four times over 30 or 40 metres. This was to be done as fast as possible, with a rest of two or three minutes between each set of four. Three sets of four repetitions were recommended for each session.

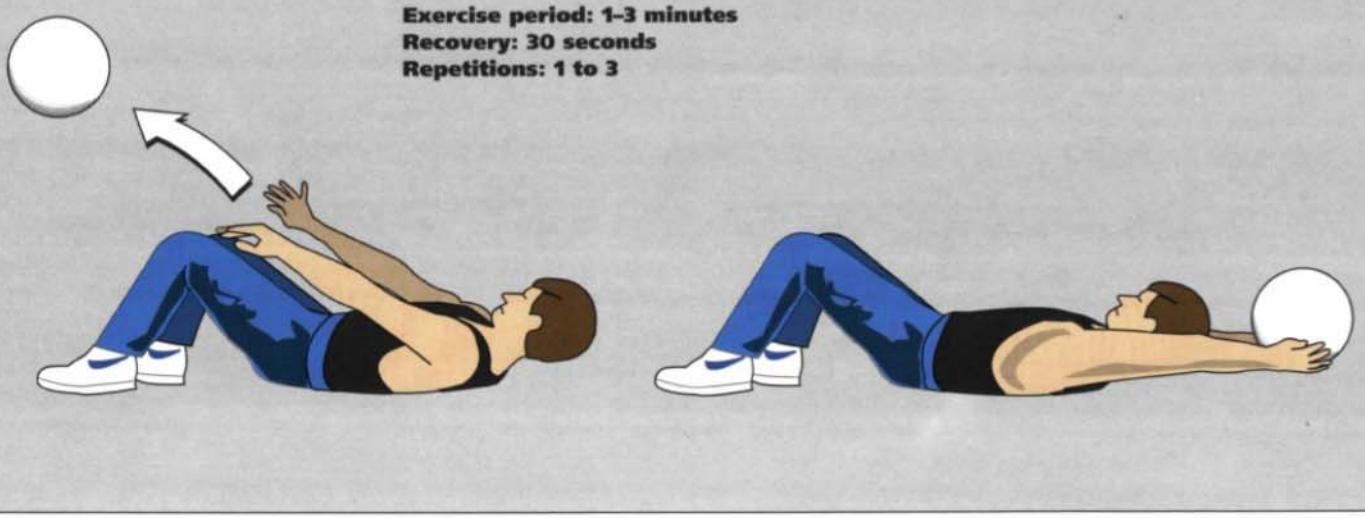
Second, a Steady Run of one to three miles.

Target: A very fit rider could start the non-running exercise session with a Steady Run and finish with the Shuttle Run. If only the Steady Run was undertaken then that could be done before or after. If only the Shuttle Run, then that should always be done following the exercises.

WARNING

The exercises here are intended for riders. Anybody wishing to attempt them should be sure they are medically sound. If not, the basic rule applies: before starting an exercise programme your GP should be consulted.

Exercise period: 1–3 minutes
Recovery: 30 seconds
Repetitions: 1 to 3



TESTIMONY

Polishing up Boots' act

We went to see Steve Dawson, one of the project's most enthusiastic participants

IF Steve 'Boots' Dawson had passed the appropriate exams the chances are that he would have been earning a living as a carpenter in Lancashire. He failed the written paper on joinery and only just scraped through the practical making "a poxy chess board".

The son of market gardeners – specialising in tomatoes and lettuce – the pot-plant-sized Dawson had never sat on a horse by the age of 15. It was only when his careers officer, at a loss to suggest anything else, joked that he was, at least, the right size to be a jockey, that the thought ever entered his mind. "I didn't know which end kicked and which end bit," recalled racing's answer to Arthur Askey.

He spent weekends working for John Wilson at Sollom, near Preston, skived off school to go racing during the week and was put on the stable pony and taught to ride by Wilson's daughter, Geraldine Rees. At the apprentice school, then Goodwood, Johnny Gilbert told him if he wanted to succeed he would have to leave home and travel south. Travel south he did and so began in 1980 an apprenticeship with Nick Vigors and a partnership which lasted until Vigors retired.

He acquired his nickname 'Boots' when he was at Wilson's. "Geraldine gave me some boots which were four sizes too big – they scraped along the ground and made fairly nasty squelching sounds. Only my wife Denise and my mother call me Steve."

Since then, one felt, Dawson's wonderful sense of humour had seen him through the ups and downs of a lightweight jockey's bread and water. He rode his first winner, Queen Kate, at Windsor in his first season for Vigors back in 1980, won the Cesarewitch on Tom Sharp for Walter Wharton in 1984, was the first jockey to win on the sprinter Perion and regularly was kicking home between 10 and 20 winners a season. He had experienced working holidays in Florida with Angel Penna, in California with John Russell, and in Sydney with Neville Begg. In 1985 he smashed his leg when his mount came down and crashed into a concrete post at Brighton. It required three months in plaster "from toe to ball", and five months in all out of the saddle.

He was riding work principally for John Hills and Henry Candy. With the latter's dry sense of humour they made a notable double act. After he had ridden work one day for Candy, the trainer is reputed to have congratulated him on a previous day's success. "Well done, Boots, a 33-1 winner'll keep the punters happy."

"Aye," Dawson replied without hesitation, "they've moved from't tent to't mobile 'ome."

As he was brought up on tomatoes and lettuce, you might imagine he would be something of a specialist on healthy diets. "I never want to see another tomato in my life," he said. "If we were bad lads we would be sent out to pick up tomatoes off the greenhouse floor. It was worse than mucking out six horses on deep litter after they'd all had a physic the night before."

After enthusiastically volunteering as a guinea pig for the project he found his new diet the greatest benefit. "This season I weigh 7st 9lb wearing nothing but a smile. I can ride at that weight easily enough. Last year I was nearer 7st 12lb, that's 3lb difference although I was a bit worried when I went to the British Olympic Medical Centre. I was half a stone heavier after a belated honeymoon in Florida and on the skin pinch test they said they could find no fat on me and that I didn't have half a stone to lose."

He continued: "Not only am I lighter but I now look forward to three meals a day, beginning with my All-Bran and black coffee, which does you the world of good mentally. If I have to go to the sauna, it flies off. Denise loves cooking, so it makes my supper interesting."

He had his own theory on the psychology of diet. "Spoil yourself at weekends and it pays dividends," he said. "We had spicy Mexican tacos on Saturday night. My, it weren't half good were it. Then you feel as if you've been naughty and enter back into the diet on Monday with renewed relish."

Fitness had never been much of a problem for Dawson, who had found the already limited chances of a lightweight limited still further with the new band rating of handicaps that raised the lowest weight.

He had played squash every night during the winter, three times a week during the summer. You couldn't help feeling that

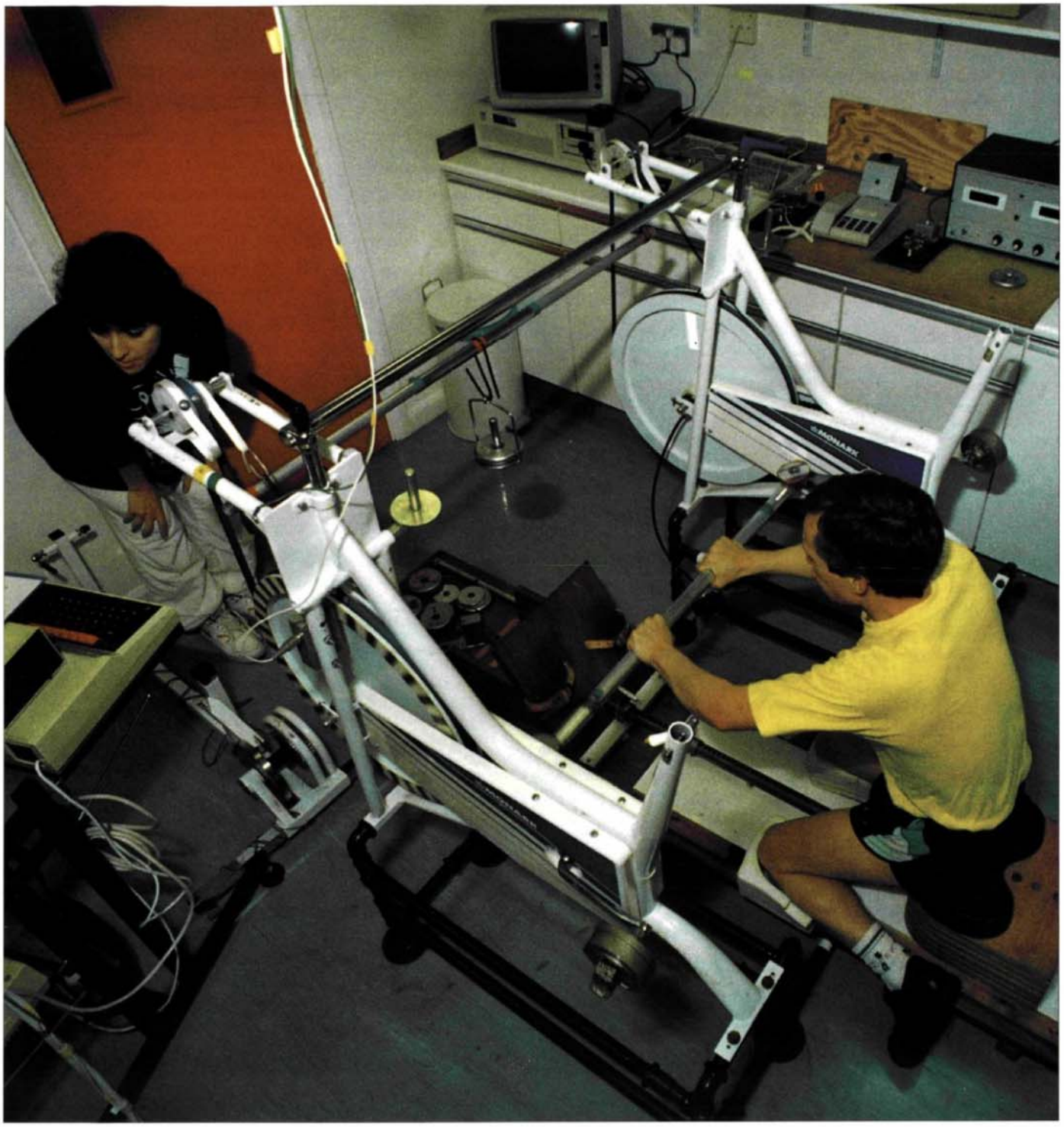
'I do some exercises up and down my living room and I've worn out a pair of slippers already'

'Every morning I have a real big bowl of bran flakes with semi-skimmed milk; that keeps you regular'

'The combination of exercises with my squash has made me more alert. I'm as fit as a butcher's dog'

'I've told people that we are being taught and shown things by experts who have the benefit of experience in other sports. My missus is loving it'

STEVE DAWSON



Steve Dawson faces up to the power test, designed to discover how much explosive power can be generated

Denise's job at the Meadowview Squash Centre in Hungerford where he played may had something to do with it. On the Wednesday when we interviewed him he had played before going evening racing. He predicted convincing victories over Tony McGlone and Tony Clark, if they would play him. On Tuesday he he had been £6 better off after playing a 'fiercely competitive' 18 holes of golf at Shrivenham with McGlone, Roger Perham and Golly Stroud. At 5ft 2in he was the proud swinger of ladies' sized clubs.

He regularly, almost daily, was now using John Anderson's exercises and was more supple for it. "I like the crab walk," he said. (We were not quite sure how he did it because we always thought it was called the caterpillar walk.) "It stretches the backs of your legs and not only has it benefited me for riding, but also squash. I varied a couple of the exercises, I do step-ups rather than stride jumps and use hand grips instead of the wrist roll. I cut out the back raises because I thought I'd hurt myself and the high jumps because they're disheartening!

"I was much fitter for it at the start of the season. Some of the other jockeys take the mickey but most have shown interest. Ray Cochrane's so into it he ought to be there with Frank Bruno. I think we have a new convert in Chris Rutter too.

"It's something new and it's bound to take a while to catch on. It must be good advice for young apprentices though – I only wish I'd been given the same advice then. Those who assume you can only get race-fit by race-riding I'd advise to think again."

PASTA POWER

Lambourn's action man

One of the project's success stories was Jamie Osborne, eating and exercising well

JAMIE Osborne was at the stove acting the goat, pretending to be Keith Floyd. But contrary to the TV chef's image he was jovially trying to imitate, Jamie had turned a corner in his life. He was now deep into a regimen designed to make him fitter than he had ever been.

We recalled that Jamie was a late but enthusiastic starter in the Winning Fitness stakes, a young man who instilled further heart into the project when he enlisted, believing he could get better by building on his fitness. That's what he was doing now, at his kitchen stove and in what he called his "gym".

The gym, a large shed outside his stone-faced cottage, was just across the road from Jenny Pitman's yard in Lambourn. Some people might think it was more like a torture chamber. Even Jamie, who said "I've been a weed all my life," might once have thought so.

In one corner was an Equicizer, a mock horse that bounced into action, reciprocating via springs and pulleys, any energy you pushed into it. "It gives you the feeling of a horse galloping; it's quite realistic," said Jamie. In another corner was an exercise bike complete with a pulse meter. A strip of carpet provided a base for floor exercises.

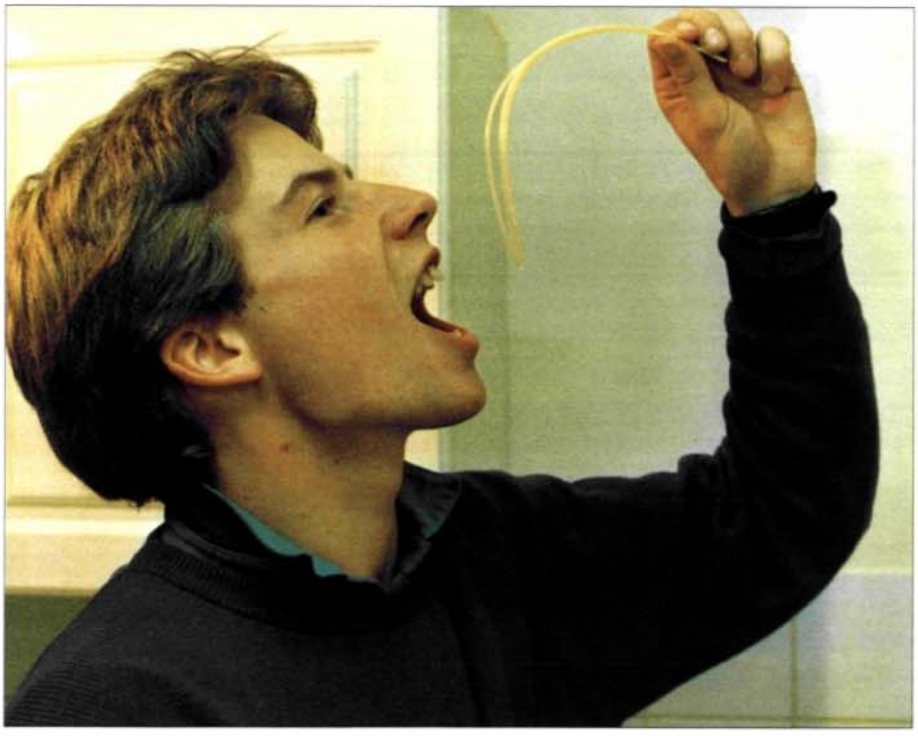
Attached to a wall was printed material on the first exercises devised by John Anderson for jockeys, exercises that not just the riders in the project had adopted but several others, including Ray Cochrane. Like most of the jockeys, Jamie had found the back raise the most difficult and did it on the floor rather than suspended over the edge of a table.

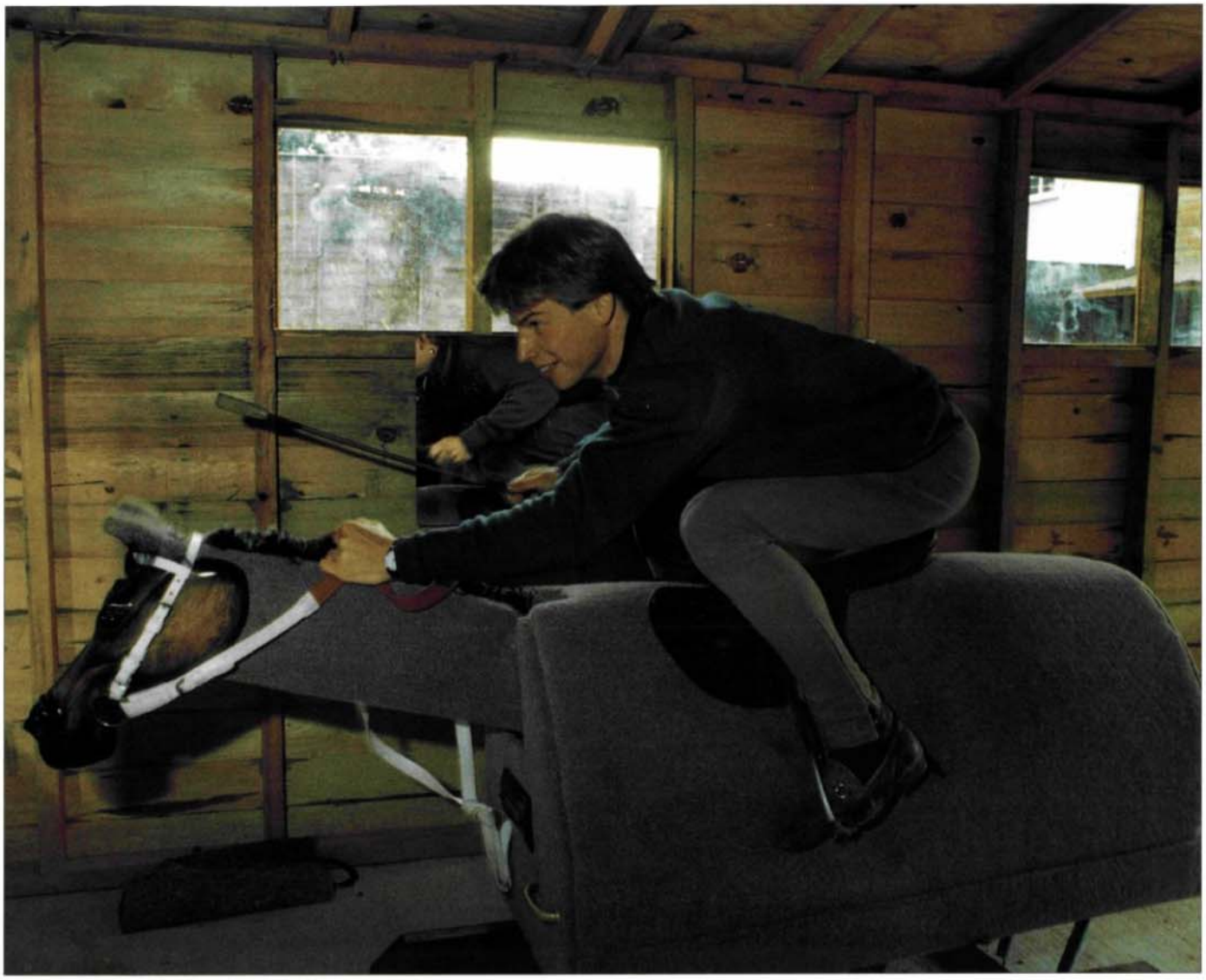
A novel feature for such a rudimentary gym was provided by two mirrors, one in front of the Equicizer and one to the side. Using the mirrors Jamie could "do little Frankie Dettori impressions," check his riding style, iron out any "humpy back" and generally cater to the vanity rooted deep in the soul of all sportsmen. It was in another mirror that Jamie had noticed the programme he now pursued was gradually giving his muscle structure more definition.

On the Equicizer he practised a somewhat painful exercise for the quadriceps. "For me," he said, "these are the most important muscles." To help build and strengthen them he was riding shorter on the Equicizer than he did on a real horse, and the exercise entailed holding himself motionless off the saddle for long periods at a time. At first he could only manage a minute but now he could do up to seven minutes. It brought sweat to his brow but had helped create thighs more like those of a weightlifter than a jockey.

The Equicizer, incidentally, had a value for Jamie beyond physical exercise in that he was also practising on it a whip action that met the terms of new legislation, and he intended doing so to a point where it became second nature. "If anything," he said, "that was the thing that finally made me decide to buy it. It cost me twelve hundred pounds but if I'm going to get a six-

Jamie Osborne could manage spaghetti and bonhomie at his stove with the best





On his Equicizer Jamie Osborne checked his riding style and did "little Frankie Dettori impressions"

day whip ban, it could cost me more than that in the middle of the season."

Motivation, moreover, had been helped by the Equicizer. "You may think you're fit but it is much harder work than being on a real horse. So when you get on there, you think 'Hell'. You feel something at the end of it. It gives you a measure and persuades you to do the rest of the work."

His gym routine usually lasted about half an hour, including a repetition session on the Equicizer, in which he interspersed 30 second bursts of intense activity with rests. He did the Anderson exercises and a session on the bike where he pushed his pulse rate up to about 150 a minute.

Jamie could not help grinning at the change in his life. He still liked to convey the feeling he was something of a Cavalier, but the Roundhead was now there in stronger evidence. For instance, there was the money that Jamie had spent. Surveying his gym, the shed that cost "two grand" to put up, and calculating his total outlay at some £4,000, was enough to drive Jamie into physical action because, he claimed, to be "naturally quite a tight person."

But back to our picture of Jamie cooking spaghetti. He "hit the pasta," he said, from the first day of his connection with the project. "Basically, I now eat it every day. It has become my main meal and thanks to Marks and Spencer, I don't get bored with it." Every week he was raiding M&S in Newbury, stocking up with different varieties, including "the light ones".

Said Jamie: "Basically, I'm not a very talented chef. I live here on my own so nine times out of 10 suppers usually go in the microwave." Fortunately his tastes are simple. "I love baked beans but the most I'll have for breakfast is usually coffee and a piece of toast with a thin layer of butter and a little honey. I find that as long as I'm busy I don't want to eat that much." He had found that the additional exercise he was now doing had increased his appetite but then that was to be expected. The exercise would burn off the additional intake.

At the time, September, Jamie was around 10st. When racing every day he needed to be around 9st 9lb. "It is nothing really," he said, "compared to what a lot of people have to lose and I like to do it without having to sweat." Again the exercises would take care of that. As Jamie revealed, on a hot, sunny day he had made the windows of his gym steam up.

In the past, said Jamie, he found August and September difficult months during which he admitted he only used to make token efforts at achieving fitness. "It was not the ideal way and very unprofessional," he said. "This year, I already feel a lot better, more able to give a horse a strong ride than I have been able to do in the past at this time.

"From the first I asked others how they got fit and the majority said: 'I ride myself fit.' And this was the norm. Now, I think we're probably all changing a bit. Some people may be embarrassed to admit that. But I think the real embarrassment comes from admitting to yourself that probably in the past you haven't been as fit as possibly you could be."

A JOCKEY'S TALE

Lad from the Northeast gave seal of approval

Willpower, exercise and diet bring benefits to Michael Tebbutt

AS one of the tallest members of the Flat's weighing room, Michael Tebbutt fell inconveniently between two stools, too light to ride over jumps, yet without considerable attention to diet, too heavy to ride on the Flat. It was one thing for the top bracket Swinburns, Reids and Edderys to have high minimum weights but for a 27-year-old whose best season so far had netted 23 winners, it reduced limited opportunities still further.

Nevertheless Tebbutt had made the most of those restricted chances in the season of the project. At the point we interviewed him, in September, he had partnered 16 winners and Lap of Luxury had provided him with his first Listed success when winning the Amazing Joseph Dream Mile at Sandown.

But for a fortnight off after injuring ankle ligaments in a Folkestone fall he would have been heading for his top season. It was still a target but he appreciated that the winners would become more elusive before the end of the year with fewer meetings on a daily basis.

After William Jarvis who loyally used him as often as circumstances allowed – when horses had enough weight and were not owned by the very big owners – his services in the saddle were being sought after by a wider spectrum of trainers than at any stage of his career.

Tebbutt, a likeable, enthusiastic, matey sort of fellow, had a good sense of humour and an often comical turn of phrase to stand him in good stead. He referred to himself in the first person plural using 'we' instead of 'I'. He had to be entertaining in the paddock, good value. He was also a grafter though that was not blatantly obvious when you talked to him.

What was at once clear was that he enjoyed racing and that despite an often unequal struggle, he was more than happy with his lot. His popularity was as much to do with his character as his ability. As a subject for the Winning Fitness project his weight predicament had also made him an ideal guinea pig.

Racing though is all a far cry from his upbringing in Chester-Le-Street in the Northeast, the accent of which he still retained. His father was a biology teacher, his "Mam" a full-time housewife with three sons to care for. As careers go the three boys had what can only be described as contrasting jobs. His elder brother was a sergeant in the REME, specialising in gun fitting, while his younger brother was driving double-deckers round Tyneside.

'I'm going to give it the shot of the year and, hopefully, it will set me up for life'

MICHAEL TEBBUTT

'I'm convinced enough to think that Quincy, my fat Norfolk terrier, ought to join the project as well'

ALEX GREAVES

Tebbutt was nine when he decided he wanted to be a jockey. "I was just watching racing on television one day and I thought 'We'll have a crack at that,'" he remembered. If only everyone found career selection so easy. He asked for a pony and his father duly obliged for a birthday.

"We knew nothing," he recalled. "We bought an arab and took it show jumping! A cousin nearby had a couple of horses so we had a stable to put it in. It was quite strong and I used to ride it in a Pelham bit. If we ever jumped a clear in the first round we would put an ordinary snaffle on it for the jump-off and we never got beat. It went flat out, it was just a case of steering it in the early stages."

At school, St Leonard's in Durham, Tebbutt the academic was not distinguished (woodwork was one of the few subjects in which he attained a qualification), but he enjoyed sport, playing for the school soccer team and running for their athletics team.

He left the moment he was allowed to at 16 and, weighing 7st 2lb in clothes, he went straight to Chris Thornton's Spigot Lodge near Middleham. It was there that his future was shaped by Thornton, stable jockey Jimmy Bleasdale and head lad Paddy Ryan, a hard but fair man.

"I owe everything to them really," he said. "I arrived very wet behind the ears but in my five years there learned everything. At the time Chris had 85 horses – mind you 60 of them were by Warpath – and he was able to give me every chance.

"At the time he was cleaning up in bumpers and my first nine winners were in National Hunt flat races. But the other half of bumpers is riding over jumps and aged 17 or 18 I was just too weak and too small. If it were now I'd do it but at the time I wasn't keen; it was all happening a bit fast."

In 1988 Spigot Lodge had fewer horses and with Bleasdale firmly ensconced as stable jockey Tebbutt thought it time to make a

Tebbutt won his first Listed race on Lap Of Luxury (second from left) in the Amazing Joseph Dream Mile

move and arrived in Newmarket. A friend from Spigot now worked for the Piggotts and he rode work there for some time with Lester and Bryn Crossley before another ex-Spigot lad suggested he move to William Jarvis's Phantom House.

"I could put on five or six pounds," he said at the suggestion of trying the winter game now. "But I'd still have two skinny arms and two skinny legs. We get by on the Flat perfectly well. We don't have to try to kill ourselves every day," he added.

For the moment his injured ankle was preventing him from continuing John Anderson's exercises or for that matter any exercise other than riding, swimming or playing golf. When his mount slipped and came down on a bend he lost a handful of teeth as well as damaging his ankle ligaments. Though he was back riding his ankles were still not yet quite a pair.

Two winters before Tebbutt had suffered a compound fracture of his lowest vertebra when a friend ran him over on a jet ski in the Bahamas. That injury precluded him doing the most serious of Anderson's back exercises. "I do a lot of running anyway," said Tebbutt, a regular footballer and squash player. "Often in sweat gear. I was definitely fitter earlier on as a result though. The most helpful exercise was the caterpillar walk.

"Some people have complained that finding time has been a problem but I don't really think that is true. What is hard is to keep up the motivation and energy to do it once you're fit."

On Lisa Langford's recommendation Tebbutt had switched to Gold from butter, incorporated much more pasta in his meals and hadn't eaten anything out of a frying pan since he joined the project. "When I told them I wanted my optimum weight to be 8st 3lb stripped some of our mates laughed," he said, "but I've been it more often than not."

As the project began to wind up Tebbutt was clear in his own mind that it had been successful. "It definitely works," he said.

"You've got to have some willpower but if you're prepared to do it, it can work for those who need it. I was definitely a lot fitter at Doncaster at the start of the season. It probably helped when I had two weeks off through injury. From the lung point of view I lost very little.

"But I think the real embarrassment comes from admitting to yourself that probably in the past you haven't been as fit as possibly you could be."

THE REWARDS

The transformed jockeys who were ready to ride

At year's end it seemed life might never be quite the same again

WHEN the Winning Fitness project started the first question asked was: How fit is a jockey?

After first examining those jockeys who nobly volunteered to be tested at the British Olympic Medical Centre, the truth as we now know emerged. The best of them were shown to be no fitter than a moderate middle distance athletics club runner.

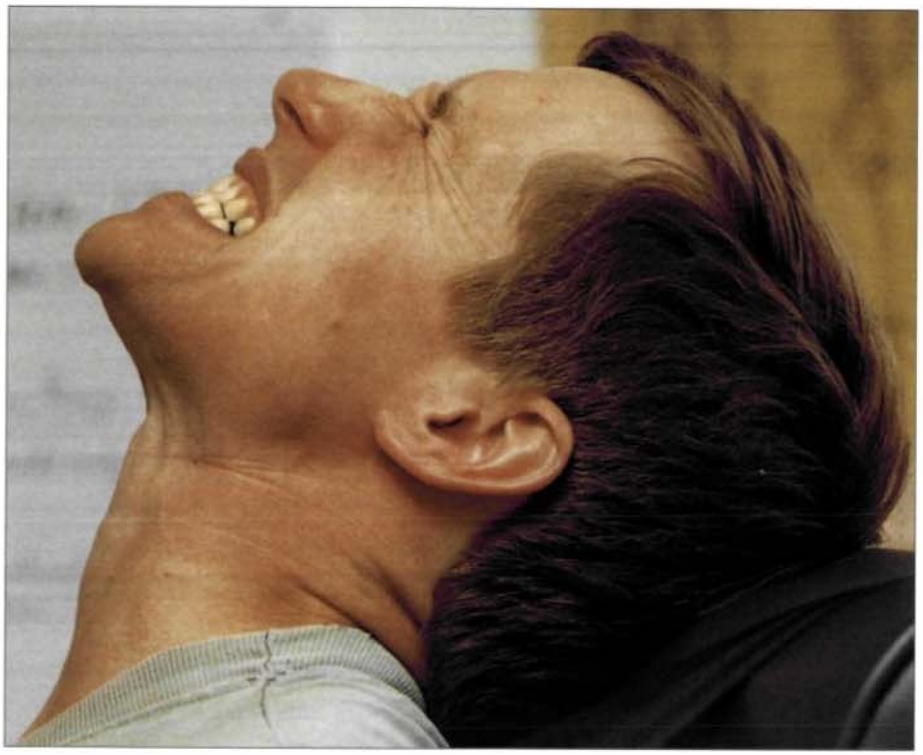
Over the following 12 months at the British Olympic Medical Centre the jockeys were tested more than once in order to monitor progress from beginning to end. Turner pointed out that "the jockeys interested in changing will have to make a really big individual effort. They don't have coaches or a lifestyle where their training is controlled. Each is self-employed so each has to take up the cudgel for himself, or herself."

Alex Greaves was typical. "Living on my own, I often couldn't be bothered to eat at all," she said. "I was told I was eating just enough to survive." She began to think about what she was eating, stopped picking and followed the guidelines. "As a result," she said, "I am controlling my weight better. That's good, because I hate saunas. They make you feel terrible."

Carl Llewellyn was also typical. He changed his diet drastically: "Loads more carbohydrate and lots less fat. I've found this not only does not affect your weight, it is better for your weight."

And Michael Tebbutt was another example. During the year he told us at one point: "Recently I rode eight lots of work. Normally at this time of year, I would feel quite tired after riding eight in a row, but when I got off, I obviously knew it but there wasn't that physical penalty. I can now see that if you're fitter you can take your chance when it comes your way. If you get a chance and make your mark, off you go."

So it went on and by the end of the year we certainly had some fitter jockeys. Steve Dawson was already a fit jockey when he enlisted in the project but, as we have seen, the introduction of specific exercises, including what he called "the crab walk", enhanced his condition still further. Gee Armytage found the project helped in her recovery from serious injury incurred in Australia. Indeed, all of the jockeys benefited in some fashion. Though it would be invidious to dwell too much on individual test results, particularly since that would go outside the broad agreement arrived at with the participants, we can report that those who persevered with new suggested nutritional and exercise regimens improved measurably in terms of fitness and strength. Dale Gibson, for example, lifted his VO_2 max figure from 58 to 64ml/min/kg. He also quite remarkably improved his ability to generate explosive power. Crucially, all the jockeys who attempted, even partially, to adhere to the advice they were given found it easier to maintain their optimum riding weight.



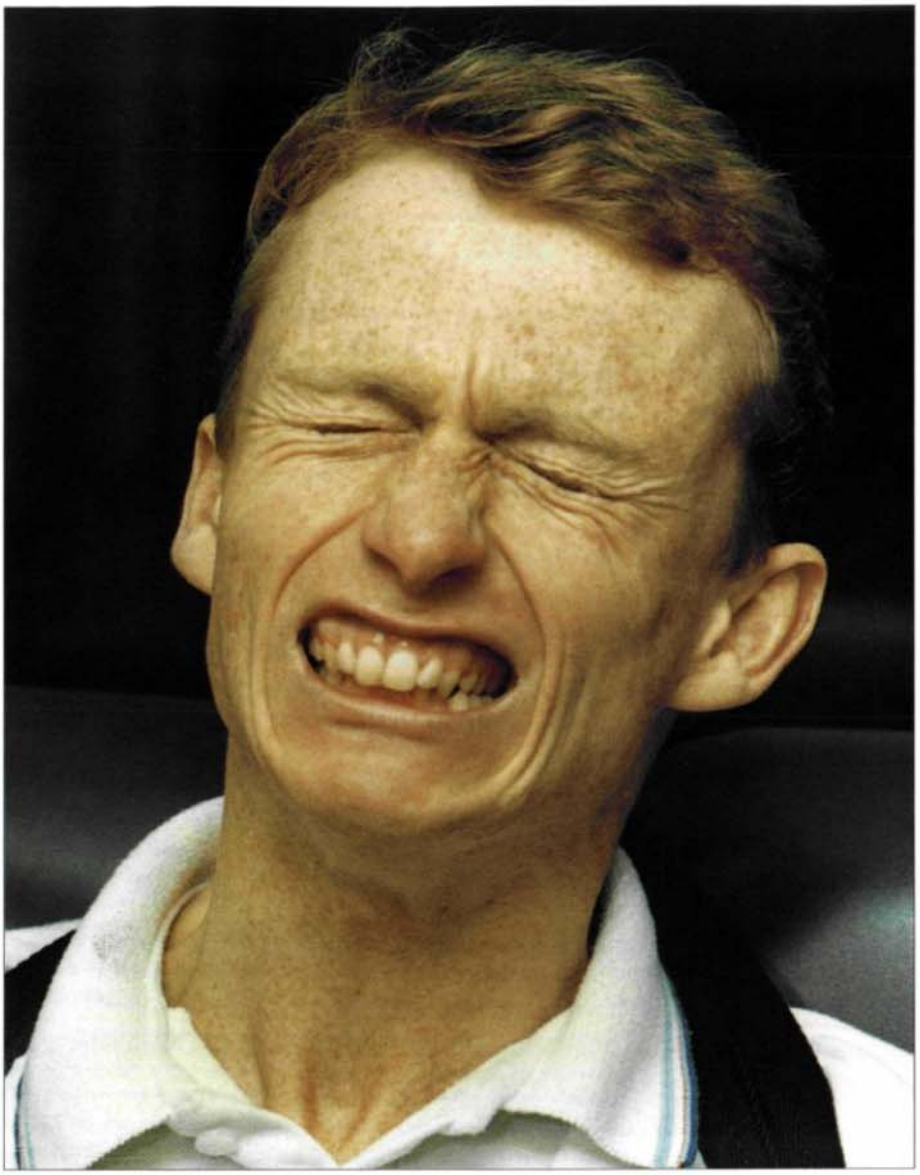
Steve Dawson grimaced his way to an even more enhanced condition

John Anderson, who devised the exercises, and Lisa Langford, the project's nutritionist, were important keys to this success. They produced solutions that took account of the extraordinary demands of a rare lifestyle: providing a balanced nutrition that ensured the jockeys maintained their optimum weight, and an exercise programme that could be squeezed into odd moments.

While it was true to say that the sauna, even when used to excess, appeared to inflict no long-term damage, excessive use was shown to exhibit a foolish misunderstanding of the sauna's function.

It was these concerns that made the dietary advice so important to the jockeys. Jockeys in Britain had previously been renowned for eating little or certainly for living on food that fell far short of a well balanced diet. Lisa Langford's simple daily menus, though low in calories, provided the right balance.

This may sound simple, but putting the message across was not, and there remained at the end of the project still some mountains to move. For a scientist like the British Olympic Medical Centre's Leopold Faulmann, the imprecise information – for instance on what the project's jockeys had



Dale Gibson grimaced his way from a VO_2 max of 58 to 64

done exactly in the way of training – was still a headache.

One of the pleasing aspects, however, about the project, said Leopold Faulmann, was that the experience gained could be of value to all equestrian sports. The truth of this emerged when Faulmann spoke about the Winning Fitness project at a weekend conference organised by the British Horse Society for riders in three-day eventing and show jumping. There was not simply an astonishingly good reaction but upwards of 200 riders were suddenly intensely interested in aspects of the project, particularly the exercises.

It thus seemed a strange twist of fate could occur: other equestrian sports benefiting most from the efforts of the jockeys who took part in the Winning Fitness project. That, we were pleased to observe, was not likely with Dr Michael Turner as chief medical adviser to the Jockey Club. With John Anderson, he started putting over the message during the year of the project to conditionals and apprentices at the British Racing School and Northern Racing School. A hotline jockeys could ring for nutritional advice was also put in place as a direct result of the Winning Fitness project.

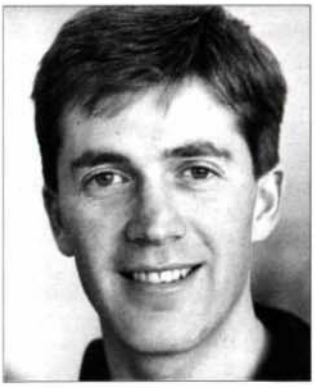
That there had been a sea change, brought about in part by the project, was finally evident in what Peter Scudamore wrote in the *Daily Mail*. You will recall he had been an adherent of the Hay diet. Scudamore said: "If I had my time riding over again I would like to have had a better education, not only on my diet but also on my fitness level."

If the highly respected former champion jockey could come to this conclusion in an era when the necessary knowledge had long been available, then we were driven to ask, with due humility, why significant backing could not be given to reforming the life of all jockeys.

This book is part of that revolution. It is now taking place.

TEN LESSONS

- **The sauna should be used sparingly, if at all**
- **Diet should contain more rice, pasta, potatoes, bread**
- **Switch should be made to low fat products and skimmed milk**
- **Alcohol should be restricted**
- **In addition to riding out and race-riding, exercises are necessary to maintain optimum weight and build fitness**
- **Exercises should be specific (related to riding action)**
- **Exercises should be of short duration to fit in with riders' lifestyle**
- **Increased fitness levels improve performance**
- **Fitter riders likely to suffer fewer injuries**
- **If injured, the fitter rider more likely to recover quickly**



'Before I broke a collarbone I was as light as I've been for years. And I believe a healthier diet certainly helped in my quick recovery'

CARL LLEWELLYN

VALUABLE RICE

The fairy tale treatment

In our final interview, two legendary ladies had some salutary stories to pass on

MARY and Rabbit. Sounds like a fairy tale. But the pair are not characters in a children's story but stanchions of the equestrian scene – legends in fact. When it comes to helping jockeys – in Mary's case, horses also – and a whole host of other riders recover from injury and fix those physical quirks that affect athletes, Mary and Rabbit are the bee's knees.

Mary Bromiley has been a physiotherapist some three decades and her daughter, known as Rabbit since she was two, has followed in her mother's footsteps as a sports therapist. It's a symbiotic relationship: talk to one and you talk to the other and vice versa. Mary and Dr Michael Turner dreamed up the idea of a 'flying physio service', and Rabbit was particularly responsible for establishing the pilot scheme, a troubleshooting service on wheels, prepared to set up camp wherever jockeys were riding to treat them on the spot.

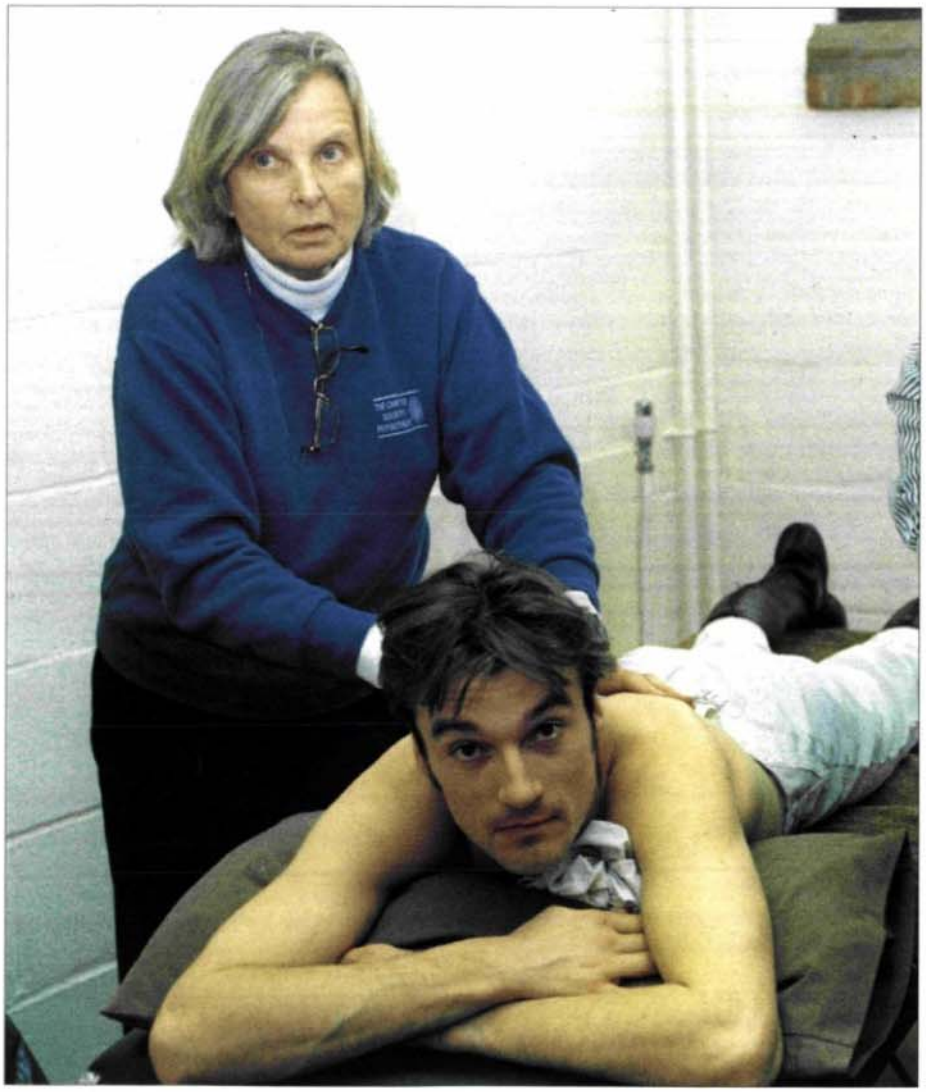
But though they believe, like all good professionals, that nothing can substitute for expert professional care they also believe emergency treatment should be properly understood by all riders. Such knowledge can help contain damage, not to mention speed up recovery.

Anyone should be able to establish in the mind the basic tenets of treatment by remembering the acronym RICE. R stands for Rest, I for Ice, C for Compression, E for Elevation.

What this amounts to is the application of ice, not directly to the skin but wrapped in a wet towel, and if a limb is involved raising it. The purpose is to reduce the swelling in the damaged area.

There are, however, rules to be observed. For example, icing should never be done for more than 15 minutes and only every two hours. It should be commenced, furthermore, as soon as possible, so if a rider bruises in a fall and is still able to continue riding, the affected part should be iced if possible before the following ride. The two hour break is necessary because the area of injury has to return to its normal temperature before ice is reapplied.

The time limit of 15 minutes furthermore needs to be observed prudently. For example, a thigh, with its large muscle mass may certainly need 15 minutes of icing, while something like a thumb, with no large muscle mass, will need only five. "It's important to establish a range between these two," advised Rabbit.



Mary Bromiley, with jockey Simon Earle, has become a legend

Compression needs to be tackled with equal common sense. Get it too tight and you stop the circulation! The result can be more damage rather than alleviation and a better term would be "light support". Compress suggests squeezing and "the last thing you want to do is squeeze" an injury. They suggest that if there is any chance of getting hold of Tubigrip, the elasticised tube-like support you will certainly find in stock at hospitals, it's just the ticket. Providing, that is, it's the correct size! A good alternative is an elasticised bandage of some kind, crepe bandage being the best.

Rest, "obviously", is important, even in

the get-up-and-go-world of equestrian sport in which the Bromileys operate. While resting, elevation is again advised if "it's humanly possible". That means raising any battered limb whenever convenient by propping it up so it's higher than the heart. This will help to reduce the swelling.

Mild pain killers (available from a chemist) can be used every four hours but if they do not work a doctor should be consulted. Also to be recommended is a homeopathic medicine called Arnica, a treatment derived from a variety of northern temperate or arctic plants and used in the Alps for centuries to reduce bruising. Today, most jockeys carry Arnica in their bags.

Okay, so far? You're home, you have taken your Arnica, your limb is elevated, you're icing, resting a bit, but beware. Any form of injury should be seen by a professional as soon as possible.

Here's why: Mary and Rabbit have seen riders who have been rolled on at events who came to them three days later, having wrapped themselves in some form of "horse medication" (sic), when it has been discovered they have actually broken their pelvis. One rider, a busy lady, with a yard, husband and children to cope with, only discovered she had smashed her pelvis in a previous three-day eventing season upon the eve of the next season, which she then had to forego.

"It's as bad as that," said Rabbit. The recitation of such cases sounds like the scenario for a horror film. "We've had people come to us with broken ankles, broken wrists, broken thumbs, 10 days after they've done it because they haven't bothered to have somebody check them out."

This penchant for not seeking professional treatment early runs deep in riding, from the top down. "I don't know what it is about riders," said Mary, "but they try to hide their injuries. We don't see it in any other activity, motorbike riders, car people, the athletes. They all go to somebody who is trained to tell them what is wrong."

Racing is particularly different, probably because in part its riders persist in their own folklore. "A great deal of the problems with jockeys occur because they'll say: 'I've hurt my shoulder.' Everyone in the weighing room has hurt a shoulder at some stage and so someone will say to them: 'Oh, I did this' or 'The physio told me to do this.' Then someone three lines down says: 'No, no, I did the same thing and I did so and so.' But what they haven't got is a diagnosis. There are a hundred and one things you can damage in a shoulder, all causing pain in the same place and, until you have a diagnosis, you could be doing the wrong thing."

The pressures on a jockey to get back are, of course, enormous. It's why the motivation of jockeys to return is so strong. Said Mary: "We cannot say, if you break your collarbone, you will be riding in 10 days. Some jockeys get back in three days, some in three weeks. By contrast I have never got an eventer back in under six weeks."

Rabbit Bromiley, with jockey Richard Dunwoody, is Mary's daughter and building her own legend

Remember, said Rabbit: "At no point, if we get somebody riding within four to 10 days after a broken collarbone, is it actually fixed. What we are saying is that they have the strength to ride again and what we do is to help the body strengthen the surrounding structures."

Basically a broken bone takes 12 to 16 weeks to heal completely; to be as strong as it was before fracturing. Smaller bones heal very quickly and "good" consolidation occurs in four to six weeks. A fractured collarbone in around 28 days and a fractured femur in 12 to 16 weeks.

Note, said Rabbit, that "a fracture and a break are the same thing. There are six or seven various types of break that can occur and depending on what type of break has occurred, and its exact position on the bone, the actual healing process will vary. Therefore because someone has broken one particular bone doesn't mean that they will have exactly the same treatment as someone who has broken that same bone but in a different way. Everybody needs to understand that."

On to Mary: "Among injuries, clearly broken bones are the worst, followed by dislocation, followed by ligament strains and after those come muscle injuries. The bone is the worst; it involves many other tissues as well. A dislocation involves both ligaments and muscles and so you've also got those involved. When you come to a ligament, you've got ligaments and muscles and when you come to a muscle you've just hurt the muscle."

Nobody recovers at the same rate because nobody has the same metabolic rate, the same pain threshold, the same diet, or the same response to injury. That alone means an injured rider needs to be monitored by an expert to check they are not doing too much too soon. "There are certain riders," says Rabbit, "who push themselves back into exercise and you have to slow them down lest they start to aggravate an injury. There are others who don't push themselves at all, and have to be encouraged to do so."

Detraining, the loss of the super fitness that competing athletes like to possess, can also occur very rapidly after injury. "It means," said Mary, "if you have a broken collarbone you should still get on to the static bicycle and keep bicycling."

Therefore, whatever happened once upon a time, things are very different now and doing the right thing means riders discover that early controlled movement is nowadays normally recommended.

"In the old days, if you dislocated your shoulder, you had it strapped to your side for six weeks," said Mary. "Now we start moving dislocated shoulders within 12 hours of the dislocation trauma being reduced," said Rabbit.

The last word from Mary and Rabbit? "Remember, if the body is functioning correctly, it will repair itself." That, essentially, was much of what the Winning Fitness project was all about.

Index

The pictures that introduce this book

Front endpaper: In the early morning mist Carl Llewellyn (left) and Richard Dunwoody ride out for trainer David Nicholson

Foreword illustration: The Princess Royal riding Ten No Trumps to victory in the Dresden Diamond Stakes at Ascot in 1987

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Useful Addresses

The Jockey Club, *42 Portman Square, London, W1H 0EN. Telephone: 071 486 4921.*
The British Horse Society, *British Equestrian Centre, Stoneleigh Park, Kenilworth, Warwickshire, CV8 2LR. Telephone: 0203 696697*
The Pony Club, *British Equestrian Centre, Stoneleigh Park, Kenilworth, Warwickshire, CV8 2LR. Telephone: 0203 696697*

Back endpaper: Derrick Morris combined the Anderson exercises and running with regular swimming at his local pool

Motif: This has been derived from a section of an Athenian black-figured vase (left) of the sixth century B.C., depicting the harnessing of a two horse chariot

READY TO RIDE

WINNING FITNESS

Ready to Ride is an informative account of a year-long project involving a group of jockeys. The riders volunteered to be tested at the British Olympic Medical Centre and then followed prescribed exercise and nutritional programmes. The object was to show how properly tailored regimens could help human athletes in equestrian sports maintain their optimum riding weight and considerably advance their fitness. Though not a large scientific project, the improvements gained by those riders who persevered demonstrated that many of the myths surrounding jockeys were nothing more than that – myths. This book contains all the relevant information on the project's progress and results, with detail that is sometimes amusing and occasionally moving. The exercises, devised by one of Britain's leading coaches, are explained and depicted. Together with nutritional advice, they make the book essential reading for any budding or currently competing rider. One of the project's most enthusiastic supporters, Ray Cochrane, gave his endorsement early on: "The younger ones need someone to tell them what to do. I wish somebody had told me 10 years ago."

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