

BIKE-FIT

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Can adjusting bike set-up really solve long-term problems and get sidelined cyclists back in the saddle? *Michelle Arthurs-Brennan* speaks to four riders miraculously fixed by a bike-fit

A bike-fit can diagnose and treat many cycling-related injuries

Bike-fitting has come a long way since the days when a veteran racer would squint in your direction, slam your stem and send you on your way. These days, when injury rears its ugly, frustrating head, bike-fitting experts with a deep understanding of the human body seek to find solutions using techniques far more advanced than mirror, plumb line and advisory angles. “The difficult thing in a bike-fit is understanding the human body — that’s where the real skill is,” says Lee Prescott of Warwickshire-based Velo Atelier. “You’ve got these organic, asymmetric bodies that you are trying to mate to a perfectly symmetrical engineered piece of machinery.”

A fitter must make allowances for individual physical quirks, whether natural or the result of injury.

“Understanding how that person’s body moves, you can see whether the bike is forcing them to move in an unnatural way, and what you can do about that,” says Prescott, who has worked with Paralympians. “If an injury is approached intelligently and sympathetically, there’s nearly always some sort of answer to get you to your goal.”

For some problems, adjustments to the bike put a band-aid on the problem, allowing the rider to go away and continue with rehab, typically working on strength or flexibility to help them hold their optimal position.

“I can move the bike around to make a rider safe and comfortable and increase their performance. But quite often the thing holding them back is a physical problem, and at that point we’ll recommend a physio, osteopath or exercises to help them,” Prescott says.

There is no reliably positive correlation between the number of magical-looking lasers and the expertise of the bike-fit wizard using them. Some fitting systems calculate the ideal position for a rider based on an algorithm, but a true expert takes notes, then applies assessment of the individual, their history, condition and goals.

“Data is great,” says Phil Burt, former chief physio at British Cycling, “but it’s not the data that makes you knowledgeable, it’s the analysis of it.”

Burt recently set up his own bike-fitting clinic, Phil Burt Innovation, where he aims to bring his knowledge to the masses. At his studio within the Manchester Health and Performance Centre, he has access to a wealth of cutting-edge equipment — but emphasises the vital importance of getting the basics right too.

Burt believes in the “three pillars of bike fit”, where fit can be tailored towards comfort and sustainability, performance, or aerodynamics.

“It’s important to spend time discovering what people’s goals are at the beginning of a bike-fit,” he says. “The world I lived in was about getting an Olympic gold... but someone might say to me, ‘Get rid of my knee pain and I’ll be really happy,’ so we skew everything towards that.”

FIXING A THREE-YEAR ACHE

Maurice Brennan broke his collarbone riding a mountain bike in his early 20s, and went on to compete in road races and time trialling, before knee pain almost ended his love of cycling altogether. Now 34, he is seeking a long-term solution from specialist Phil Burt.

“After a number of years of cycling



Saddle adjustment and exercises healed Brennan’s tendinopathy

“The bike-fit has been the missing link to my problem”

fairly heavily, progressing from cross-country mountain bike racing to road racing and time trials, my right knee became a consistent weak point, always needing a little management and tender loving care,” he says.

“A light winter followed by a Majorcan training camp was the straw that broke the camel’s back, with tendonitis flaring up badly in the quadriceps muscles. For years I struggled to fully rid myself of the problem. During this time, I saw several specialists, all with varying incorrect diagnoses, until a surgeon aided by an MRI scan identified the issue and prescribed a platelet-rich plasma (PRP) injection. Though this seemed to help, I could still feel something wasn’t right while pedalling.

“I was losing faith in the medical industry’s ability to fix the problem, and resigned myself to it. Seeing Phil

[Burt] was a relief — having already seen my medical history, he noted that I hadn’t been prescribed any exercises to fix the underlying issue. With his vast experience both as a physiotherapist and bike-fitter, Phil was able to alter my bike-fit to provide a platform for treating the condition, and prescribe the exercises to fix it.

“Since my session in Manchester, I have found my residual knee pain reducing, and it’s much easier to apply force while riding seated. A three-year-old condition will never right itself overnight, but with the new fit, the Specialized shoes he recommended and having incorporated the suggested exercises into my routine, I can feel a real improvement in the way I’m pedalling and no longer have to hold back on hills for fear of the after-effects. The

Marketing manager **Chris Hall**, 28, went into July’s National 24-hour time trial not knowing what to expect. After seeking help from bike-fitter Tim Allen (soigneur.co.uk) for chronic lower-leg pain, he took three weeks off and gambled on a last-minute entry.

“I’m a problem child,” he says. “I used to play rugby, and I dislocated my knees

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Phil Burt says...

“Maurice came to me having been diagnosed with tendinopathy, but he hadn’t been properly treated. The issue may have arisen from an old collarbone break, which had left him with a dropped right shoulder, manifesting itself as a twist at the pelvis.

“First we adjusted the bike to make sure that it wasn’t exacerbating the problem. Maurice’s saddle was too low and too far back for optimal knee biomechanics, so I adjusted this and also tilted the nose down. I also advised Specialized S-Works shoes with a two-plus insole — the combination of which in my experience decreases the loading on the knee.

“Having established the optimal position to ride, the real work began: we needed to turn around his tendinopathy with off-bike rehab. I prescribed isometric holds, foam rolling, and eccentric exercises — body weight squats and knee extensions. Isometrics make him fire his quads better in a very safe way, foam rolling makes sure the lateral fascial plane is allowing his knee to move in the way he wants it to, and the eccentrics basically put the stimulus in there — research shows they turn bad tendons into good healthy tendons.”

FROM HOBBLING TO NATIONAL TT CHAMPS TOP 10

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District off-road, quite spontaneously. When I came back, I had pain in my knees, in my shins, and in the soles of my feet. Everything hurt. I checked in for a fit with Tim Allen a week before the event, and he added metatarsal pads to my shoes. I took three pairs, because I always get burning foot

TIM ALLEN’S TOP TIPS

- 1 When choosing a fitter, their experience is the most important consideration. Ask questions before making a booking; make sure you understand each other to ensure you’re confident in their expertise.
- 2 Bike-fitting is a journey, not a one-off event. You should consider a refit if your body or riding changes significantly, or if you change equipment.
- 3 Enjoy the experience of having your bike professionally fitted — from the process to smashing out the miles afterwards; there’s nothing more satisfying in cycling than riding a bike with which you’re totally in tune.



Metatarsal pads fixed Hall’s knee, shin and foot pain

pain and I expected to need to change them a lot. Making changes so close to the event wasn't ideal, but I'd not have been able to do it without the intervention, so I didn't have another option.

"I went into the event just wanting to finish, but the result was incredible. I actually felt stronger as the race went on. I finished eighth, which was pretty nuts. I didn't need to change my shoes once. Getting off a time trial bike after 24 hours and feeling OK is an achievement in itself — to actually be comfortable was extraordinary. I couldn't have done it without Tim's help."

Tim Allen says ...

"Chris came to me with three pairs of shoes, asking me to set them all up 'about the same'. But I could see that the shoes were not the problem. As Chris was loading his feet, the metatarsals were collapsing and spreading the toes, creating pressure on the side of the foot, and also possibly causing him to compensate, collapsing off to one side, and causing an irritation of the nerve.

"It's likely that the problems Chris was having in the lead-up to the time trial were related to his previous knee trauma. The metatarsal pad is a small squishy pad that sits in the middle of the insole and stops the collapse, which stops the foot spreading. We also slightly adjusted his saddle, and changed the elbow pads that he used, allowing him to settle into the time trial position, keeping his upper body locked in and stable."

FROM HIP
OP STOP TO
CAN-DO
CANNES

Solicitor **Sara Ecclestone**, 50, is a former runner who underwent a hip operation last summer, whereupon she switched to cycling. Suffering pain and swelling after the operation, Sara checked in for a bike-fit with Lee Prescott (veloatelier.co.uk) — and in May 2018 rode 670 miles from Paris to Cannes.

"I used to cycle as part of my running training, but not seriously," she says. "After the operation, I was advised that the high-impact nature of running was not ideal for my body, so I started to get more into cycling.

"Lee made a lot of changes in my bike-fit as I recovered from the operation. You get a lot of swelling after the procedure, and often a leg-length discrepancy as your muscles get used to moving differently. Lee helped me to monitor it over time, and to gradually adjust the set-up through recovery.

"First it was all about comfort, but as I've got stronger, it's been more about performance and how to get the most from the bike. You can't run two situations in parallel [hypothetical and actual], so you don't really know, but I genuinely don't think I would have made the progression I have without the bike-fits and adjustment over time.

"We rode from Paris to Nice in May; it was up to 86 miles a day, and being in pain would have ruined the whole experience. Becoming a cyclist has been a big adjustment, but if I'm totally honest, I think I'm actually a better cyclist than I was a runner."

Lee Prescott says...

"When I first saw Sara, she was struggling to ride her bike in any sort of comfort, even for short distances. To try and alleviate her discomfort, she had lowered her saddle and was using flat bars to give a more upright position. On closer inspection, I found that she was under-extending the leg, and much of her discomfort was due to the upright position not allowing her pelvis to stabilise on the saddle.

"Initially I altered her saddle height and lowered the bars, to help her rotate her

LEE PRESCOTT'S
TOP TIPS

- 1 Don't neglect the importance of your shoe set-up. Stand on your insoles to check your shoes are the right size and your insoles actually contact your arch evenly and offer some support.
- 2 Get the right bar width to help prevent shoulder, neck and hand pain. The bars should be shoulder-width apart, so your arms run parallel, with straight wrists.
- 3 Your fitter's experience matters just as much as their equipment. "I had a Retul bike-fit," doesn't in itself mean very much. If in doubt, go to the International Bike Fit Institute website: ibfi-certification.com

pelvis forward, distributing her weight more evenly across her pubic rami [base of pelvis]. This helped her pelvis to stabilise and provide a good base for her glutes to work against. It also made it easier for her core to engage, supporting her weight, taking effort away from the arms and shoulders. These initial steps got Sara out and about on her bike

in more comfort.

"Initially, Sara's left leg was around 10mm shorter than her right — mostly as a result of tightness caused by the procedure. I could have added a shim to one side, but as she was in recovery, I erred away from 'locking in'. We worked on pedalling dynamics and basically re-taught her muscles to pedal symmetrically. Her discrepancy is now slowly reducing and I would like to think that if she keeps up her rehab, it will soon be greatly reduced."



SOOTHING
WITH A STEM
AND SADDLE

Susanne Koch has been on two wheels all her life, enjoying mountain biking, commuting and touring, but on switching to road cycling she found herself struggling with lower back pain. The 46-year-old operations manager checked herself in with physio Nichola Roberts (velophysio.co.uk).

"I only started road cycling this year," she says. "I fitted a shorter stem because I felt too stretched on the bike and experienced some discomfort in my elbows. The lower back pain started on a 177km ride in the Lake District, the longest ride I'd ever done. After that, it appeared even on shorter rides.

"I checked in at Velo Physio on a friend's recommendation. I had the RideLondon-Surrey 100 sportive coming up and wanted to make sure that I would be comfortable riding it without pain and with the best power outcome too. We changed the stem back to a 90mm, raised the seat height a little, and exchanged the saddle for one with a cut-out. I'm really happy with the saddle swap; it meant that I didn't experience discomfort when stretching out more and going into a 'proper' riding position.

"We also swapped my 40cm handlebars with a 38cm bar to give me better stability, as my shoulders were not wide enough for the original set-up. My bike now feels so different, and so much more comfortable. The lower back pain has gone, and I can ride for hours without any discomfort. I



"Susanne had above-average flexibility, but her core strength needed work"

did not have any back pain at all during RideLondon and even enjoyed it despite riding in the rain and wind."

Nichola Roberts says...

"Susanne was struggling with lower back pain after 30-40km of riding. She had been back to the bike shop twice and they had tried shortening the stem. However, I found that due to the saddle, which did not

suit her, her pelvis was in a poor position on the bike. This was affecting her spinal position, causing her to be sitting more upright, then having to bend through the upper back and extend her elbows in order to reach the handlebars.

"The position of the pelvis also affects core and glute activation, which in turn help to support the back when cycling. Without adequate support and poor pelvic position, back pain can ensue. When we altered the pelvic position on the saddle, her spinal position greatly improved. However, the saddle became very uncomfortable and she was unable to maintain the position.

"I recommended an alternative saddle, and a return to the original stem. Having made these changes, she returned, adopting a good position. Susanne had above-average flexibility, but her core strength needed working on. I suggested some core exercises to help maintain her new position."

NICHOLA ROBERTS'S
TOP TIPS

- 1 Adapt to the new position over time: allow at least three weeks — with recommended exercises completed — before an event to let the body adapt.
- 2 When travelling with your bike, take a careful note of your measurements or mark your bike, and ensure the position is correct. If using a hire bike, carefully match measurements and where possible take your own saddle.
- 3 If you notice a niggle while riding, avoid making an adjustment yourself. Seek professional advice to get to the root cause of the problem, be it the body or the bike, before it becomes an injury and a bigger issue to solve.