## How scientific rigour helped Team GB's saddle-sore cyclists on their medal trail

After backroom staff found that pain in the nether regions was a serious issue, a ban on bikini waxing and adjustments to saddle angles made a big difference

## Helen Pidd in Rio de Janeiro

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How do you tell a gold medal winning cyclist she needs to stop getting bikini waxes? "It was a tricky one to broach," admits Phil Burt, British Cycling's long-time physiotherapist. "But we knew that we had to try to persuade the girls to stop shaving and waxing if we were going to sort out the saddle pain we knew all of them were suffering with. At one point we were saying: 'Should we be buying the girls beard-trimmers?'"

The realisation that the modern obsession with intimate hair removal was almost certainly exacerbating saddle problems among the world's most successful female cyclists was just one discovery in British Cycling's latest quest to be the best.

After London 2012, when Team GB won seven of the nine gold medals available in the velodrome, some wondered how the squad could improve further. A 10-year obsession with marginal gains - incremental improvements brought about by tiny tweaks that added up to serious competitive gains - appeared to have left few stones unturned. The squad already had the best bikes, the best kit, the most aerodynamic helmets. So what next?

Halfway through the following Olympic cycle, Burt, along with the team doctor, Richard Freeman, came across their next marginal gain: solving women's saddle pain.

An increasing number of female riders, professional and amateur, were resorting to surgery to correct vulval disfigurement. It was well known that one other national squad was regularly prescribing its riders Emla cream, a local anaesthetic, to soothe chronic pain.

Plus Victoria Pendleton had struggled so much to find the right saddle in the run-up to 2012 that British Cycling's so-called "secret squirrel club" of techies designed her a bespoke model, made out of the same silicone used in breast implants.

Together with colleagues, Burt did a survey. It was completed by 18 of the female riders and one man ("Men suffer just as much with this stuff but they just won't admit it," reckons Burt). All of the women said that saddle problems were affecting not just their training but their competition. They'd been suffering in silence. "With a male doctor, physio and predominately male coaching staff, they didn't feel comfortable in mentioning it. It was clear something had to be done," said Burt in the run-up to Rio.

British Cycling put together a conference of experts to deal with the problem. There were tribologists, who specialise in analysing friction; reconstructive surgeons, who were experts

in dealing with pressure sores; and Prof Jane Sterling, a top consultant in vulval health from Cambridge University.

This niche symposium made some useful discoveries. Top of the list was the realisation that if riders were allowed to tilt the nose of their saddles downwards, much of the pressure on their delicate soft tissue would be alleviated.

In one of its "just because" rulings, the UCI, cycling's global governing body, had decreed that saddles were only allowed a tilt of less than 2.5 degrees, with a 0.5 degree margin of error. "We presented our findings to the UCI and they have since increased the angle of tilt to nine degrees with a tolerance of one degree. This has had a major impact on rider health, for both men and women, across the sport," said Burt.

Then there was the knotty problem of pubic hair removal. "The world-class expert advice from a professor at Cambridge was that waxing and shaving didn't help our fight against saddle issues," says Burt.

Pubic hair helps with the transport and evaporation of sweat away from the skin. It also provides some friction protection. Hair removal methods such as shaving, depilatory creams or epilation create damage to the outer layer of the skin known as the epidermis and increase the risk of ingrowing hairs and hair follicle infections.

The women were strongly advised to stop shaving, waxing and depilating. They were also issued with Doublebase gel, a cheap over-the-counter moisturiser containing liquid paraffin, to treat any tender spots and to apply ahead of rides instead of chamois cream. In addition they were given Dermol 500, an antibacterial shower gel that can be used as a soap substitute.

Another big problem, Burt and chums discovered, was that the kit the girls were given just didn't fit them properly. One design was supposed to fit all, despite a wide variation in not just thigh circumference but also undercarriage arrangements. "Some of the girls were complaining that their shorts were rucking up, particularly the sprinters, who slam into the saddle at high speed," says Burt, who once wrote a book on the importance of bike fit.

Posters were put up in the changing rooms at the velodrome in Manchester, where the GB squad do their training, to remind the cyclists how best to keep their nethers in good order. The effect was immediate. "The podium squad haven't had a saddle sore for six months," said Burt shortly before the Games began. With the women so far winning gold in the team pursuit and silver in the keirin, the project appears to have paid dividends.

One of the squad's stars told Burt recently that she is no longer suffering, in silence or otherwise: "She says it's totally changed her life."

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