Expert advice

Q&A

YOUR TECHNICAL, LEGAL, HEALTH, AND POLICY QUESTIONS ANSWERED. **THIS ISSUE:** CANTILEVER BRAKES, BETA-BLOCKERS, HELMETS, AND MORE

MEET THE EXPERTS

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{Legal}

? Question of the month

Low-profile cantilever braking can be improved with a Power Hanger – available from sjscycles.co.uk

Technical

BETTER CANTI BRAKING

Q My 1999 Dawes Galaxy has Shimano Deore M65T cantilever brakes. Originally the brake blocks were the replaceable insert type but these are no longer available, so I have been using either Shimano M65T brake shoes (rubber and holder all in one) or similar from Clarks. Touring heavily laden, I find these cantilever brakes really short on stopping power, particularly in the wet. Any advice on how I can improve the braking? I'm touring Norway soon and am a bit worried about those big descents!
Rob Foster

A Cantilever brakes correctly set up should be as powerful as any solo cyclist will need; they are still fitted to many tandems. Looking at the picture you sent (not shown here), there is one very quick and easy improvement you can make.

As a general rule, 'low-profile' cantilevers such as yours are more powerful the flatter the straddle wire. At the very least, the angle between the wire and the brake arm should be around 90 degrees. On your bike, the brake blocks are as close to the arms as their posts allow. Slacken the brake cable and slide the posts inward through their clamps to place the blocks further from the arms. This will move the arms away from the rim and flatten the angle of the straddle wire. There's an indicator notch on the straddle wire button to show when the angle is correct. You will need to fit a new inner wire, but the immediate result will be greatly improved braking power.

Another option is to fit a device known as a Power Hanger – **bit.ly/sjs-powerhanger** – which, while tricky to set up, is an effective way to enhance cantilever brake performance. Alternatively, we've got a round-up of cantilever brakes next issue, if you want to upgrade. You could also consider fitting linear-pull V-brakes, although you will need to make sure your brake levers are compatible.
Richard Hallett

Health

HEART RATE TOO LOW?

Q I'm struggling to get my heart rate into the target zones when I'm training. I take Propranolol 40mg twice a day prophylactic to reduce migraine. I understand it slows heart rate; my max HR has reduced and resting HR is 15-20 less than prior to taking medication. Will I ever be able to get into my zones again? I was able to reach them a few years ago when I wasn't on beta blockers.
Helen Shaw

Beta blockers slow the heart rate, so previous HR targets may be unattainable

Main photo: courtesy St John St Cycles

Shifting performance suffers if your front derailleur doesn't match the chainrings

A Beta-blockers (e.g. Propranolol, Bisoprolol) are a group of drugs that are used to treat several heart problems, including angina, irregular heart rhythms and heart failure. They also treat high blood pressure and a range of other conditions, including prevention of migraine. One of the effects of a beta-blocker is to slow the heart rate. The extent to which it does this varies depending on the drug and dosage used and also on the individual taking it.

Although your heart rate will still increase with exercise when you are taking a beta-blocker, you should not expect to be able to achieve the same maximum heart rate during exercise that you did before. Despite this, you will still be getting a good cardiovascular workout – albeit at a lower heart rate. It is therefore probably better not to worry about a target heart rate but keep it simple: exercise hard but without overdoing it. Aim to feel physically tired without pushing yourself to the point of exhaustion.

Since many side-effects of beta-blockers are dose-specific, if your migraines are well-controlled on your current dose of Propranolol, you could talk to your GP about reducing the dose gradually until you are on the minimum which controls your headaches effectively.

Matt Brooks

Technical

UPGRADE DERAILED

Q The front mech of my 2007 Trek Pilot 1.0, a Shimano FD-2203 triple, is getting a bit tired, with a lot of play in the main pivot. I can't find a like-for-like replacement. I am using a 52-42-30 chainset with an 8-speed cassette. All the triple front mechs I have found are now suited to a maximum 50t chainring and, apparently, narrower chains. Will the Shimano Claris FD-2403 triple front mech (max 50t) work with 52t or should I drop the size of my chainset either by complete replacement or changing the chainrings?

Neil Hodkinson

A The problem with currently available road triple mechs is not so much the size of the outer chainring as the difference between it and the middle ring. The Claris front mech is designed to work with a 50-39-30 combination. The inner plate is contoured to match the 39t middle ring when the mech is correctly positioned over the 50t outer. If you use it with a 52-42 combo, the surface shaping for the 39t middle ring will be in the wrong place. The mech should still shift, but will do so with much less ease and precision than on the correct chainring combo.

Furthermore, its maximum capacity is 20t, so on a 52t outer the cage will not be best placed for your 30t inner ring either. The good news is that examples of the FD-2203 do turn up on eBay from time to time if you are prepared to wait.

Richard Hallett

Technical

TYRE SIZE CONFUSION

Q Recently, I tried to swap tyres from my day-to-day road bike to a veteran bike I use only occasionally. It led me into a tyre sizing minefield. I checked your website (bit.ly/cyclinguk-tyresizes), which told me that ISO 25-630 was a smaller diameter than 32-622. But when I tried to put a tyre from one bike, with an ISO stamp of 32-622, onto a wheel where the existing tyre was marked 25-630, it was too small. Am I missing something?

Pat Ryan

A The website states clearly that 'overall diameter approximately equals the bead diameter plus twice the [tyre cross] section'. Therefore, a 25-630 (630mm + 50mm = 680mm) tyre has a smaller overall diameter than a 32-622 (622mm + 64mm = 686mm) tyre. The site also states: 'the three-digit number after the dash… is the bead diameter at which the tyre fits onto the rim'. As 622mm is smaller than 630mm, a 622mm

The ISO number (in brackets) gives tyre section & rim diameter

Photo: jaimilee090 (Flickr Creative Commons)

In the Netherlands, only a small minority of cyclists wear helmets

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tyre cannot fit a 630mm rim (nor vice versa). Essentially, wheel diameter is twice the tyre cross-section plus the rim diameter. If you know the two latter, you can work out the former.

Richard Hallett

Legal
CONTRIBUTORY NEGLIGENCE?

Q In an ongoing case, a Cycling UK member sustained a brain injury when he was involved in a collision with a motorist who failed to give way at a roundabout. The insurance company admit negligence on behalf of their insured driver. They are, however, arguing that the injured cyclist was partly responsible for his injuries due to not wearing a cycle helmet. Paul Kitson explains why Slater + Gordon are resisting the contributory negligence claim.

A While Rule 59 of The Highway Code states that cyclists 'should wear a cycle helmet which conforms to current regulations, is the correct size and securely fastened', this is not a legal obligation. It is advisory.

Insurers have long sought to argue in cases involving head/brain injury that it is appropriate to reduce an injured person's damages when they fail to wear a cycle helmet. They argue that there are parallels to be drawn with seatbelts. In Froom v Butcher (1975), Lord Denning MR held that, if a negligent defendant can prove that the wearing of a seatbelt would have avoided the injuries altogether, then the finding of contributory negligence should be 25% and, if the injuries would have been less severe, a 15% reduction of damages would be appropriate. Lord Denning delivered this judgement before it was compulsory to wear a seatbelt.

There is no clear judicial authority on whether or not it is appropriate to make a finding of contributory negligence against a helmetless cyclist. The only High Court authority is the case of Smith v Finch (2009). In 2005, Robert Smith was riding his bicycle in Brightlingsea, Essex when he was involved in a collision with a motorcycle ridden by Michael Finch. Mr Smith sustained serious head injuries and had no recollection of the events. He was not wearing a cycle helmet. The defendants argued that he was partly responsible for his injuries.

In his judgement, Mr Justice Griffith Williams held that Froom v Butcher should apply to the wearing of helmets by cyclists, and that, subject to issues of causation, any injury sustained may be the cyclist's own fault. However, the trial judge did not make a finding of contributory negligence on the part of Mr Smith because the defendants failed to prove, on the balance of probabilities, that any of the injuries may have been reduced or prevented by the wearing of a helmet.

Cycle helmets manufactured in accordance with EU regulations are designed to provide protection at impact speeds of about 12mph or less. The trial judge preferred the opinion of the claimant's engineer, Dr Chinn, who opined that the impact speed was in excess of 12mph and therefore the wearing of a helmet would not have made a difference. Accordingly, there was no finding of contributory negligence against Mr Smith.

In cases involving serious injuries or fatalities, it is often difficult for defendants to prove that the wearing of a helmet would have prevented or reduced the severity of the injuries sustained. This is why there is scant judicial guidance on the appropriateness to make findings of contributory negligence against a helmetless cyclist.

I am of the opinion that it is wrong to put any blame on a cyclist for not wearing a helmet. In most European countries, a motorist who injures a cyclist must prove they were not at fault. It is not possible in mainland Europe to argue that a helmetless cyclist was partly at fault for their injuries.

In relation to the injured Cycling UK member referred to in the question, we will resist the arguments being put forward by the defendants both in relation to the general legal principle and in relation to 'causation'. We are adducing evidence to prove that, even if he was wearing a helmet, it is likely it would not have prevented the injuries sustained.

For Cycling UK's policy on helmets, see **cyclinguk.org/helmets**.

Paul Kitson

Whatever your opinion on helmets, legally they haven't been treated like seatbelts

Contact the experts

Email your technical, health, legal or policy questions to **cyclinguk@jppublishing.co.uk** or write to **Cycle Q&A, PO Box 313, Scarborough, YO12 6WZ**. We regret that Cycle magazine cannot answer unpublished queries. But don't forget that Cycling UK operates a free-to-members advice line for personal injury claims, tel: **0844 736 8452.**