

TECHNICAL/LEGAL/HEALTH  
YOUR QUESTIONS  
OUR ANSWERS

# Q&A

## MEET THE EXPERTS



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While the ratios of an internally geared hub are fixed, you can move the whole range up or down by changing the chainring and/or sprocket size

### [TECHNICAL] INTERNAL GEAR SIZE

**Q** I am considering buying a Genesis Fortitude Adventure. It has 29 inch wheels, a 32T chainset and 18T sprocket on a Shimano Alfine 11-speed hub gear. What is the lowest gear on this model? About 16 inches?  
**SHEILA TUCKWOOD**

**A** With internal (hub) gears, first you calculate the 'direct-drive' gear size in the usual way: Wheel (29) × Chainwheel (32) ÷ Sprocket (18) = 51.6 inches. Then, to calculate the size of any of the gears provided by a gearbox, for example in the hub, you multiply the size of direct-drive by the ratio of

whichever gear you're interested in.

The table at [ctc.org.uk/internal-gear-ratios](http://ctc.org.uk/internal-gear-ratios) has data for every hub-gear you're likely to come across. Here you'll see the bottom gear ratio of a Shimano 11-speed hub is 0.53 x 51.6 = 27 inches. (There's no point in decimal fractions unless you've measured the tyres, which on a '29er' could be anything from 27½ to 31in!) A similar sum with a ratio of 2.15 for top gear gives 111in. So that's the range: much higher than you thought and rather too high, I think, for an off-road adventure bike!

Assuming you're not too strong and heavy you'll probably get away with lowering those gears (without breaking the hub internals) by fitting

a larger sprocket. Shimano offer a 20, but that's just tinkering at the edges, or there's a 23 if you also change the chain to 1/8in. This hub appears to be the standard fitting, so Sram's biggest 24 tooth 3/32 sprocket should also fit, perhaps with some different washers to get the chainline correct. That would give a more 'adventurous' 20 to 83in range.

**CHRIS JUDEN**

### [TECHNICAL] GPS FOR TOURING

**Q** Is there a GPS system that you would recommend for touring and off-road? My dealer has mentioned the Garmin Edge 800 performance and navigation bundle but I do not really want the performance section of it. I just want to be able to plan routes and save them for future use.  
**MARGARET MCNELIS**

**A** See my review of the new Garmin Etrex this issue. It does all you want (and more) without the sporty stuff you don't want.

For maps to put on this device, I recommend those you can download for free – or a voluntary donation – from [www.velomap.org](http://www.velomap.org). These are based on Open Street Map data. Or if you're more into mountain-biking you might prefer the more sophisticated depiction of paths and tracks provided by the same author on [www](http://www).

CONTACT  
THE  
EXPERTS

Send health and legal questions to the Editor (details on p28). We regret that Cycle magazine cannot answer unpublished health and legal queries. Technical and general enquiries, however, are a CTC membership service. Contact the CTC Information Office, tel: **0844 736 8450**, [cycling@ctc.org.uk](mailto:cycling@ctc.org.uk) (general enquiries) or Chris Juden, [technical@ctc.org.uk](mailto:technical@ctc.org.uk) (technical enquiries). You can also write to: CTC, Parklands, Railton Road, Guildford, GU2 9JX. And don't forget that CTC operates a free-to-members advice line for personal injury claims, tel: 0844 736 8452.

[HEALTH]

**WARFARIN AND CYCLING**

**Q** I have had to start warfarin medication. This thins the blood, so wounds will bleed more and a head injury can be dangerous. Health officials have suggested that biking is rather risky. My life is built around cycling for utility, sociability and holidays. I wonder what views CTC may have regarding any extra risk posed by warfarin for cyclists, in particular any extra validity in wearing a helmet (I always do anyway)?

**RUTH FEINBERG**

**A** Warfarin is an anticoagulant used to prevent and treat blood clots in a range of conditions where clots have formed or are likely to form, such as deep vein thrombosis (DVT), pulmonary embolism (PE) and atrial fibrillation (irregular heart beat), and in those with mechanical heart valves.

Although I don't have any figures, the overall risk of cycling while on warfarin is likely to be significantly less than that associated with not treating the underlying medical condition for which it has been prescribed. That said, there is obviously a higher risk of bleeding if you fall off. In most instances, this will mean that you bruise more easily and have to apply extra pressure to any cuts. If you are unlucky enough to suffer major trauma, then there is a greater chance of more serious bleeding.

People who take warfarin require regular

INR blood tests to ensure the dosage is correct. The INR indicates how thin your blood is in comparison to 'normal' (i.e. somebody not taking warfarin). The desired INR depends on the condition being treated (2-3 is a typical range but a few conditions require it to be higher). It is important to attend all your INR tests as the risk of bleeding is much greater if the INR gets too far above the desired range.

My advice is to keep cycling but take a few precautions. Ride sensibly (downhill mountain bike racing is probably not ideal). Wearing a helmet seems like a good idea, but don't let it make you feel over-confident and take extra risks. Some also advocate wearing additional protective gear like knee padding. This is a personal decision which will depend on your attitude to risk and the type of biking you do.

**DR MATT BROOKS**



Photo: iStockphoto.com

**openmtbmap.org.**

Satnav, where you select a destination and let the GPS unit decide and instruct you how to get there, doesn't usually work very well for cycling due to poor mapping of minor roads and paths, and because these ways aren't prioritised from a cyclist's point of view. But the author of Velomaps has done something clever with the coding that helps a Garmin plot quite sensible cycling routes.

I nevertheless prefer to plan my own, using a website such as **bikehike.co.uk** with OSM Cycle mapping. That highlights the NCN in red and regional routes in blue, but zoom

Garmin's Etrex 20 and 30 are cheaper than the Edge 800 and provide touring cyclists with a more suitable selection of features



in and it reveals other bikepaths too (blue dash), plus bridleways (green dash), tracks (brown dash) and even footpaths (red dash). Bikehike also displays OS Landranger, but I find OSM more useful these days. Click out your routes on that with Options for Follow Road set to Open Street Map and Cycling, then name and save the gpx track on your PC. Connect your Etrex by USB and you can simply transfer those files to the GPX folder in its memory. Later you can select any of those tracks on the GPS unit and a wiggly line for you to follow will appear on its map.

To plot routes on PC without an internet connection, install Basecamp, a free planning and management program from Garmin, which will display the same maps (from Velomap etc.) as your GPS.

**CHRIS JUDEN**



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