

Road safety factsheet: Cycling cleats

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What are cycling cleats?

A cycling cleat is a small triangular metal or plastic wedge, which is attached into the sole of a cyclist's shoe. It is a sprung mechanism that allows the cyclist to clip their feet in and out of their pedals. To accompany the cleats, the standard bike pedals are replaced with smaller clipless pedals. These pedals have a mechanism, which connects to the specially designed shoe cleat.

The clipless mechanism was derived from ski boot bindings, originally by the French company LOOK for road use. There are now several companies that manufacture cycling cleats for both mountain biking and road cycling. With almost all cleats, to release the clip, the cyclist twists their heel outwards, and the cleat releases. However, some cleats allow the cyclist to unclip in any direction other than straight up. This ensures that in a collision the shoes release automatically, and the cyclist can unclip easily rather than having to bend down and release a buckle as with the older clip and strap model¹.

Different kinds of cycling cleats

Various manufacturers produce different clipless pedals and shoes, but they fall into one of two types: road systems and off-road systems. Both styles use the metal or plastic cleat fastened to the sole of the shoe. Typically, these cycling shoes are designed to accept only one of the two types of cleat, although there are a limited number of shoes that will take either a road or off-road cleat.¹ It is therefore important to consider the type of cycling when deciding upon the type of cleats to purchase as off-road cycling will normally result in more frequent unclipping than road cycling.

Road systems

These systems use a large plastic cleat, fixed with three bolts. Road cleat shoes are not designed for walking, as the cleats protrude from the bottom of the shoe, making walking any significant distance near impossible,² and care is needed on slippery surfaces.

The pedals used alongside the cleats in road systems are usually single-sided, meaning the cyclist must find the correct side of the pedal to clip into when they start out. This might sound difficult, but most road pedals hang a certain way to make this relatively easy. This also means that you can ride on these pedals in 'normal' shoes if you wish to do so on some occasions².

¹ Johnson, P. 2016, 'A Beginner's Guide to Clip-less Pedals: a Bike Culture article on Cyclorama'; <http://www.cyclorama.net/viewArticle.php?id=352>: Accessed May 2023

² Bicycle Habitat, 2016, 'All about Clipless Pedals'; <http://bicyclehabitat.com/buyers-guides/all-aboutclipless-pedals-pg451.htm> : Accessed May 2023

Road safety factsheet: Cycling cleats

Off-road systems

Off-road systems are typically used for off-road cycling. This system uses a smaller metal cleat, fixed with two bolts, meaning that you will need mountain-bike or commuter style shoes that have a two-bolt fastening pattern. These systems are very popular, because the cleats are recessed into the sole of the cycling shoe. This means the cleats do not contact the ground when you walk, making this system ideal for walking and even hiking². These systems are also popular because they utilise a double-sided pedal. This means that the cyclist can click into the pedal on either side, which can be easier than clicking into single sided pedals³.

Tips for cycling with cleats

Choose the correct system

Ensure that you choose the cleat system that based on your riding. If you primarily ride a mountain bike, commute to work or are a cycle tourer then you may want to consider off road systems. The cleats are seated within the sole and therefore the shoes allow you to walk whilst wearing them. The pedals will often have a flat platform which is beneficial if you sometimes ride in 'normal' shoes. On the other hand, road cycling cleats are not designed for walking, and if you use them for that purpose, the cleat system can wear down rapidly. If you anticipate doing some walking while wearing your cycling shoes, opting for a mountain bike system would be more suitable.

The benefits of using cycle cleats are widely publicised. Cyclists who responded to the RoSPA survey cited that cleats:

- Hold your feet in the right place on the pedal
- Make cycling more efficient
- Prevent your feet slipping off the pedals in wet weather

Take time to fit them correctly

Whatever cleat system you choose, getting them set up correctly is crucial, and it may require slightly different configurations for each foot. Road cleats and mountain bike cleats have distinct setup procedures on the shoe. To guide you through the process, there are numerous helpful videos available on YouTube. For road cycling, you can refer to this [video](#), and for mountain bikers this [video](#) is recommended.

Common issues associated with cycling cleats include pressure, hot spots on the feet, and pain, which can potentially lead to knee discomfort. These happen when the cleats are not set up correctly, or the tension and float doesn't suit your riding style. Take time to set up your cleats, they may need some adjusting after setting up to ensure comfortable riding.

Tension

Cycling cleats vary in the amount of 'tension' they offer, which refers to the ease of clipping in and out of the pedals. Most cleats come with an adjuster screw that allows cyclists to customise the tightness of their clip-in experience. Beginners typically start with the lightest tension setting, gradually increasing it as they become

³ Bikeradar, 2022, Everything you need to know about cycling with cleats; <https://www.bikeradar.com/advice/skills/how-to-use-clipless-pedals/> Accessed May 2023

Road safety factsheet: Cycling cleats

more comfortable clipping in and out of their pedals³. Competitive riders often prefer a high tension setting to prevent accidental disengagement of their feet during high-speed cycling. In contrast, mountain bikers usually opt for a looser setting, enabling them to quickly release their feet from the pedals when needed, especially in challenging terrains.

Parker et al. (2011)⁴ conducted a case study on a clipless pedal user and highlighted concerns regarding tension adjustment. They noted that individuals who are new to using clipless pedals lack guidance on determining the appropriate tension. Unlike skiing, where bindings are adjusted based on weight and ability, there is no readily available guide for bicycle pedals. Consequently, users run the risk of discovering excessive tension only when they are unable to release their foot from the pedal during an emergency, potentially resulting in a fall and injury.

In a survey conducted by RoSPA⁵ on the use of cycling cleats, respondents recommended practicing in a controlled environment such as a park before venturing onto the road. This practice allows cyclists to ensure that the tension setting is correct and gain confidence in clipping in and out of their pedals.

Maintenance

Maintaining the cleats on your cycling shoes is essential for smooth clipping in and out of the pedals. Regularly clean both the pedal and cleat to ensure optimal performance.

It is also important to monitor cleat wear. As you use your cycling shoes over time, the cleats will naturally wear down, requiring replacement. Most cleats are equipped with wear markers that indicate when it's time for a replacement. Another sign is that when cleats are worn down, they may feel loose in the pedal.

Accidents involving the use of cleats

The primary contributory factors in collisions involving bicycles and other vehicles, as recorded by the police, are "failed to look properly" and "failed to judge other persons path or speed," particularly at junctions. Other common contributory factors attributed to drivers include poor turn/manoeuvre and careless/reckless behaviour. When a driver fails to see a cyclist or performs a manoeuvre that leads to physical contact or causes the rider to lose control, the use of clipless pedals is an irrelevant factor in preventing the incident.

There is a common belief that cleats contribute to cyclist injuries due to failure to unclip in time. However, according to Parker et al. (2011)⁴, despite the widespread use of clipless pedals in the past 20 years, most injuries related to clipless pedals are minor. In a survey conducted by RoSPA⁵, out of 130 cyclists who used cleats, only three respondents reported slight injuries directly attributed to cleat usage.

⁴ Parker et al. (2011) 'Proximal femoral fracture in a man resulting from modern clipless pedals: a case report'
URL: <http://jmedicalcasereports.biomedcentral.com/articles/10.1186/1752-1947-5-219>: Accessed May 2023

⁵ RoSPA (2016), 'Cycle cleats: an online survey for cyclists'