

Proper Cleat Adjustment



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Dear Tech Support,

I have some new Look CX-6 pedals coming with “Q”. What is the proper cleat/pedal position on the shoe and what are the pros/cons of fore/aft adjustment? How often are cants used in cycling shoes? And, on a related note, what effect does this cleat position have on toe-down or heel-down pedal positioning?

Kent , via e-mail

Dear Kent,

Pedal and cleat adjustment is one of the most complicated and important aspects of a properly fit bicycle. Up to half the time I spend with people in a fitting session is on the feet. While it is too broad a subject to cover all the important aspects and individual variations here, in general, the following guidelines can be used to help achieve proper cleat position:

Fore/Aft Adjustment – The ball of the foot at the second metatarsal head is the central leverage and balance point of the foot and provides a powerful and stable point for the pedal to contact the foot. To locate the ball of the foot, find the joint where the foot pivots during walking and move slightly back from it (usually the widest portion of the foot). The center of the cleat should be aligned close to this point, directly under the ball at the second toe.

The primary implications of moving fore or aft of the ball are the potential of uneven pressure distribution on the foot, a common cause of foot numbness and discomfort, as well as less balanced muscle recruitment. Moving the cleat ahead of the ball will usually encourage more load on the calf muscles, shins and the quadriceps (much like standing on your toes), while more aft cleat positions tend to favor recruiting the muscles of the upper legs, often at the expense of lower leg muscles. This being said, pedaling technique and saddle position are usually more influential variables than cleat position in this regard.

Lateral “Q” Adjustment - The term “Q Factor” is used loosely in cycling to describe everything from the lateral width of the feet on the pedals, to the stiffness of a crank, to how a rider’s legs are proportioned. For this reason, “Q Factor” can be a misleading term and I’m going to refer to pedal and cleat width simply as “lateral adjustment”.

During pedaling, the rider’s feet should be in as natural and straight a line with the hips as possible. Feet that are set wider or narrower than a rider’s natural stance, can diminish power output while putting strain on the knees, ankles and hips. The width between the bony protrusions at the front of the pelvis (Anterior Superior Iliac Spine) are often good indicators of natural stance. The goal is to set the width between the rider’s left and right second toe rays to a

similar width during riding. A laser guide and tape measure can be helpful in checking this on the bike.

Because bicycles were designed based on mechanical limitations of the era, before much thought was put into the biomechanics of the ride, bikes tend to be wider than optimal at the pedals for most riders. For this reason, most riders should have their cleats placed towards the outside of the shoe, allowing the feet to be as close to the crank as possible. Rider's with wider than average hips are the exception to this and they should move the cleats more towards the inside of the shoe so that the feet are further apart.

Pedal and shoe models and brands vary widely in regards to the widths they allow, so be aware of your individual situation when considering options. The April 2003 "Tech Support" article in Triathlete discusses how this relates to some of the more popular pedal options.

Float and Cleat Angle - While some pedal systems, like Speedplay's X Series, are virtually free floating (allowing the foot to pivot almost indefinitely on the pedal), most systems have adjustable or limited float. Limited float systems can actually be better for many riders, but they also require closer attention to proper cleat alignment on the shoe to prevent unnecessary strain and discomfort on joints. While the "keep adjusting the cleat angle until it does not hurt any longer" technique is still popular, you can minimize the risk of injury and optimize efficiency from the start with the help of a qualified technician and specialty tools like the R.A.D. (Rotational Adjustment Device) that help eliminate the guesswork.

Cants - Cant wedges have become more common in cycling recently as more riders realize the power and stability benefits foot support can offer. The concept behind cant wedges is to accommodate for the natural twisting of the forefoot (varus or valgus) that most people have. This twisting is associated with pronation and supination and, like running shoe selection, the proper amount and type of support varies widely from person to person. A sports based medical professional and/or qualified fitter can provide you with a better understanding of your individual situation and whether foot support devices like cant wedges and custom footbeds are worth considering.

Toe Down vs. Heel Down Pedaling - While toe or heel down pedaling might be encouraged slightly by cleat position, in general, it is more of a technique issue that is affected by saddle position than cleat placement. For most riders, a saddle position that allows for a flat heel position at the bottom of the pedal stroke, while still allowing for full leg extension without hyper-extension, minimizes the likelihood of cramping while allowing for optimal power output.

Proper cleat and pedal set-up, in conjunction with proper foot support, is one of the most effective ways to improve biomechanical alignment while improving power output you can do. For the most consistent and safe results, make sure you choose equipment that is well suited and adjusted properly for your individual needs.

Enjoy the season!

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