

# The Future of Bike Fit

By Happy Freedman | September 2021

**With cycling’s growing popularity—as a recreational hobby, an athletic pursuit, and a commuting alternative—making sure the bike fits the rider is key to preventing future injuries.**



With the pandemic, the past year has seen people of all ages and fitness levels seeking outdoor activities and alternatives to driving and public transport, resulting in a renewed popularity of cycling for health, recreation, and commuting. The increased number of cyclists and riding frequency will amplify the search for a comfortable and efficient experience, casting a new spotlight on bike fit, as both a remedy for physical concerns, and as an instrument accompanying a purchase.

Bike fit has come a long way since its early days in the 1980s, when frame builders such as Ben Serotta and Peter Weigle looked for ways to develop a common language that would allow retailers to measure bikes for them. Over time, this specialty also grew to include an anatomically driven approach that would allow a fitter to map a rider’s position on a bike, to evaluate physical complaints and how to accommodate them, and to improve a cyclist’s efficiency on the bike. Together, this is what has grown into the professional discipline we today refer to as bike fit. To this day, those attracted to the profession often come from two or more distinctive backgrounds: retailers who wish to provide added services to their customers, and physical therapists and other professionals in the medical field who wish to improve their patients’ quality of life as they pursue physical activities. In addition, bike manufacturers have adopted bike fit as part of their sales strategy, by attempting to standardize the science of bike fit via proprietary software matched to their inventory database in support of their retailers. Today’s retailers can identify a great range of data points when placing their customer on a modern-size cycle, but they don’t always have the training to interpret the data in a meaningful way that will help the customer improve the quality and efficiency of their ride.

## What Is in Store for Bike Fit as We Go Forward?

I reached out to some of my colleagues and former students in the United States and Australia, and our discussions revealed some exciting trends and directions. “In the future, bike fitting will become more important for more casual riders, not just racers and enthusiasts,” observes **Isaac Denham** of Befitting Bicycles in Philadelphia, PA. With bikes currently in short supply, many have made purchases that need further adjustments to fit their body geometry or riding style. As the idea of bike fit becomes more well-known among recreational cyclists, more of them are looking to bike fit to help bridge the difference between the bike they are currently riding and the position that will allow them to do so comfortably. A bike fit evaluation can take into account past injuries or biomechanical issues, and yield modifications in movement or components that will improve the ride.

## New Bike Technology: New Challenges and Opportunities

**Ian Murray** is a California-based Master Fitter and Fit Instructor for Dan Empfield’s Fit Institute Slowtwitch and the Guru Academy. The Guru bike fit system was originally developed in Canada and is owned today by Cannondale. He sees a lot of the future challenges revolving around the newer bike technologies that will require special mechanical skill sets and tools, but will also offer new opportunities for bike fit.

*Over the past 40+ years some bike fitters have centered their business around an area: cleat-pedal interface, saddle position, aerodynamics, etc. The future of bike fitting will be a “prescriptive fit,” a process that will yield for the customer all their fit coordinates and the right bike to buy: the make, the model, the size, AND the specific front-end configuration required.*

*There are two modern elements that will cause this shift in fit focus: 1) direct-to-consumer sales and 2) hidden brake housing that is routed inside the handlebars, stem, and frame tubing. Dozens of bike manufacturers have been selling bikes directly to consumers for the last 5 years, and those who have not are seeking ways to transition quickly. This business model will continue to grow and the only real bugaboo in the system is the dreaded “return:” consumers want the right bike the first time, while manufacturers want to avoid return-shipping charges and a fleet of used bikes to resell. This creates an opportunity for bike fitters, especially independent fitters who are not beholden to any specific brand. These independent fitters, who have a system in place to prescribe the proper bicycle before purchase, are*

*already in a highly valued position to both the consumer and the manufacturer. Most customers find the process fun: they suit up in their cycling gear, hop on a dynamic fit bike, ride for 30-70min while the fitter takes them through a process to find their optimal position. When finished, the customer leaves in possession of all their fit coordinates (saddle height and setback, cockpit distance, handlebar elevation, etc.), as well as a prescription for the right bike to purchase (the stack and reach of the frame, paired with the proper frontend: stem length, stem pitch, bar reach, and spacer height). That “front-end configuration” is important now and will become critical soon.*

*In the recent past, and on many bikes still today, a bike fitter can change a “mortal” stem (one with no cables running through it and one that’s connected to the handlebar with just four bolts) in about 90 seconds. Switching, for example, from a 110mm, -17 degree stem to a 90mm, -6 degree stem can make a dramatic change in the rider’s comfort, control, and enjoyment of cycling. What we in the industry have been calling “super bikes” have a one-piece, custom-molded cockpit where the cables, e-tubes, brake housing, etc. is routed internally through the handlebar, the stem, and into the bike frame without ever being exposed to wind. As we progress forward through time, wireless electronic shifting will become the norm – much to the joy of fitters and mechanics – but brake housing, especially hydraulic brake lines, will still be hidden inside those cockpits. Changing that type of cockpit – one with internally routed brake lines – to give the rider the position they need and deserve, takes both time and treasure. These changes should be done by the manufacturer at the time the bike is built and can only be done correctly with the prescription from the fitter before placing the order.*

*Bicycle technology is constantly evolving and bike fitters must evolve with it to continue to serve as the conduit between the rider and the comfort and safety that rider must feel on the bike.*

As these newer component changes become more technically involved and time consuming, it is critical for both bike fitters and consumers to establish good relationships with independent bike retailers and mechanics, as they are the ones who will be making the majority of these changes, not the original manufacturer.

## **Service Fitting – Peloton and The Rise of the House Call**

Tyler, Texas-based **John Cobb** has been a major contributor to the development of cranks, saddles, and bike fit as a science. A self-described “old guy that used to know

stuff,” his forward-thinking approach to cycling continues to offer productive insights to the discipline. He sees great potential in the newfound popularity of indoor cycling, grown out of spinning. Many of those cyclists will never buy an outdoor bike, they will just continue using their stationary set up for independent workouts connected to online technology.

*What I call “Service Fitting” will be where a fitter goes to the person’s home/business and does the fitting there. But not just doing a house call on traditional bikes, these will be on the thousands and thousands of home fitness bikes. I will openly refer to these as the “Peloton” (Peloton, New York City, NY) bikes and this will include several brands and even some traditional bikes that are permanently attached to a trainer. With the advent of Peloton workouts, Zwift (Zwift, Long Beach, CA) workouts, Life Fitness (Life Fitness, Franklin Park, IL) workouts and several others, there will be more and more riders that will never actually go ride outside. New bike fitters will need to learn and develop the tools that will let them go into a home and offer the great fit improvements that have been proven to work so well. These home riders – and there are hundreds of thousands of them – deserve the performance gains and comfort gains that our knowledge can provide them and we as business people should not ignore the vast potential business to be done. Many of us older established fitters, working in large cities with an active sports market will be hesitant to move into this market but the new younger fitters will grow up doing this and build some great relationships along the way. It will be challenging, and it will require new thinking about accessories and service but from my view, it will be the mainstay for many in the future.*

## The Bike Fit Selfie App

**Vicki Whitelaw**, an Exercise Physiologist, Soft Tissue Therapist at Winning Position in Canberra, Australia, looks at the home market as a springboard for new assistive, app-based technology, as consumers are embracing personal monitoring options and data collection, while typically lacking the underlying knowledge to interpret or apply this information.

*I think there will be a continued development of self-guided “home” bike fit apps. That is, “point a camera” at yourself, an app calculates your angles and then provides you with bike fit coordinates. This will also more likely move into the bike shop world. Regarding the medical/clinical bike fits, there may be potential for AI-machine learning applications as adjuncts to the current 3D technology that exists. Presently,*

*we can acquire 3D images, however it is still up to the fitter to interpret. Also potential for a system that compares whole data sets from a bike fit against known issues and therefore acts as a diagnostic tool. Like all of our current technologies, they may be useful but still only as good as the person using them and will not effectively replace the judgement of well-trained practitioners.*

This brings the discussion back to the bike fitters themselves, what will their role be going forward, and how can their service become more accessible to more consumers?

## **Cost vs Value, Improving Access to Bike Fit**

**Doug Baumgarten**, MS, Director of Sportfit Lab in Herndon, VA, came to bike fitting 13 years ago after 30 years as a physical therapist and trainer. He would like to see greater industry investment of bike fitting in bike shops, as well as recognition from health insurance companies to bring bike fitting into patients' reach, as they have in recent years with other allied medical disciplines such as chiropractic care or acupuncture.

*My background in physiology helped me to understand and apply the science of biomechanics as it relates to riding or racing a bike. However, many bike fitters, especially those working in mainstream bike shops, come from a background of only bike riding, bike sales, or bike mechanical services. Their lack of knowledge in anatomy and physiology often leads to suboptimal outcomes in fitting bikes – especially for the many riders with pre-existing physical limitations. Most mainstream bike shops don't consider it cost effective to fund the space, equipment, salaries, and training needed to deliver high quality bike fitting. Therefore, most full-time bike fitters work independently or in their own studios. Unfortunately, that puts tremendous pressure on those independent fitters to control costs while delivering high quality, time-consuming services. That cost pressure has led to both a lack of qualified fitters and a gradual increase in prices to consumers. The challenge, going forward, is to find a cost-effective way to deliver quality fitting at reasonable prices to a larger segment of the bike-riding public – especially since the huge boom in riding spurred by the pandemic.*

*There is also the question of educating qualified bike fitters: there are very few educational programs focused on fitting, ie, no pipeline for developing future fitters. One solution may be the support of bike manufacturers such as Trek (Trek, Waterloo, WI). Trek and Specialized (Specialized Bike Components, Inc., Morgan Hill, CA) have invested some resources in bike fitting, though their investments have been sporadic and still fall short of producing consistent high-quality fitting in many locations. It*

would seem that bike fitting, which creates happier and healthier bike customers, would be a natural adjunct and boost to bike sales. But bike manufacturers and retail shops still often fall prey to the pressure to sell bikes as quickly as possible, without regard to proper fit.

Another possible solution is support from the healthcare system. It is clear that bike fitting, especially by highly qualified fitters, can be as effective as physical therapy or other modalities in both preventing and treating musculoskeletal injuries caused by the repetitive motion and strenuous exercise of cycling. As cycling continues to grow as both an exercise and a regular mode of transportation, it would make sense for our healthcare system – including insurance companies – to support and fund both fitting and bike fit education. This would likely lead to more required certification or licensure for fitters, who could then be held to a higher standard – much as physical therapists are today.

## Expand Education and Communication Between Retail and Clinical Bike Fitting

While many bike fitters in a retail setting will need further training in understanding a cyclist's biomechanics, **Michelle E. Gilpin**, PT, DPT, CYT, a Doctor of Physical Therapy in Portland, OR would like to see expanded training opportunities for physical therapists to learn more about the biomechanics of cycling, as many physical therapists have added bike fitting to their services.

*I don't know what the future is for bike fitting, but I know where I would like to see it go. I am as troubled when someone tells me that they had a bike fitting at the bike shop when they bought their bike as I am if someone tells me that they had a "gait assessment" when they bought their running shoes. A bike fitting at a bike shop is akin to a "dress fitting" when you go wedding dress shopping or to buy a tuxedo. The sales assistant helps you find something in your size, but it's the tailor or seamstress who actually fits the garment to you. In the last several years, and especially over the last year, cycling has increased in popularity. More people are riding commuter, road, gravel, and mountain bikes. They are coming to me as a physical therapist with complaints of pain while riding, or directly after. Many don't realize that it is the fit of their bike that is contributing to their complaints. As a physical therapist, I recognize that there is more to a bike fitting than angles and symmetry. A patient's individual physical history and anomalies is an important part of bike fitting that the typical bike store bike fitter does not have the education to recognize and appreciate.*

*Bike fitting and biomechanics go hand in hand. Likewise, I would like to see more physios who do bike fittings getting more education about the biomechanics of cycling and the mechanics of the bike. Just as there are bike fitters who do not have the skills to understand biomechanics, there are just as many physios claiming to do bike fittings, but have little experience in cycling. This needs to change. There needs to be more collaboration and communication between bike fitters and orthopedic professionals. I would like to see all bike shops forming a relationship with local physios and referring out for professional bike fittings. Also, bike fitting education for physios needs to include more education on the mechanics of a bike and the biomechanics of cycling.*

Bike fitting has come a long way since the days of nailing cleats to shoes and finding knee position with a plumb. Today's bike fitters are working in 2 very different environments. A retail-based bike fitter will typically focus on sizing a bike, matching riding style to customers, and supporting sales, while a more clinical bike fitter will address medical history, injuries, performance, and comfort. Looking toward the future, both sides of the field will need to improve the dialogue and offer greater opportunities for education for both types of bike fitters, covering clinical, mechanical, physiological, and biomechanical assessments, understanding the bike, its geometry and the body, and the interrelationship between the two. They will need a common vocabulary so that cyclists of all levels can access improvements in service and care, for a comfortable and efficient outcome.

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*Happy Freedman, Director of The Center for Bike Fit, is an innovator and internationally recognized expert in the field of bike fit. Over the past 15 years, Happy has been instrumental in developing the first hospital-based clinical bike fit program in North America, during his tenure at Hospital for Special Surgery. Happy Freedman sees patients at The Center for Bike Fit in New York City and holds workshops and lectures around the world.*