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All about fit

Cycling used to be so easy. Get on the bike and pedal! Then matters became complicated as fit systems appeared. Frame size, specific wheelbase, fine tune-bar and saddle positions. But that's still nothing compared to today. A good retailer will check the size of your inner palm and the length of your fingers prior to letting you take a ride. In the face of benefits to the cyclist it should be seen as a worthwhile effort.

There has been a fair amount of talk about the effect of cycling on a man's reproductive ability. Erectile dysfunction due to reduced blood flow and oxygen deficiency is an issue that interests both male and female cyclist. Urologists and sports medicine experts have thus become involved in research and development. But pressure on arteries and nerves, chafing, soreness and numbness do not only appear in the nether parts of the body. Problems appear at every contact point of body and bike: pedals/ feet, saddle/ coccyx and handles/ wrists.

The Californian Brand Specialized was the first to dedicate itself to these challenging problems: "We've put so much energy into fitting because there are such major benefits to be gained through proper fit: increased comfort, efficiency and endurance with a decreased chance of pain and injury." Its Body Geometry Fit System was co-developed by the physician and ergonomics designer Dr. Roger Minkow (gloves, grips and saddles) and sports medicine expert Dr. Andy Pruitt (pedals and shoes) and urologist Dr. Frank Sommer (saddles). Anatomically correct gloves were the first apparel item designed on bio-metrical basis.

Easy to handle

Compared to the public interest towards avoiding erectile dysfunction, numbness of hand and fingers seems to be a minor issue. But numbness has to be considered a severe interference to two essentials of riding a bike: concentration and reaction. Mountain-bikers, especially, depend on quick reactions and high alertness due to fast changing nature of their surroundings. Compared with street cyclists, they lack the opportunity to change hand positions on the handlebar. What makes things even worse, they put more pressure on their wrists because of shock and vibration.

Studies estimate that nearly 40% of all cyclists suffer from numbness and weakness problems in their hands. Three-quarters of these problems can be attributed to pressure on the ulnar nerve, which supplies sensation to half of the ring finger

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SQ-lab's bio-metric grip



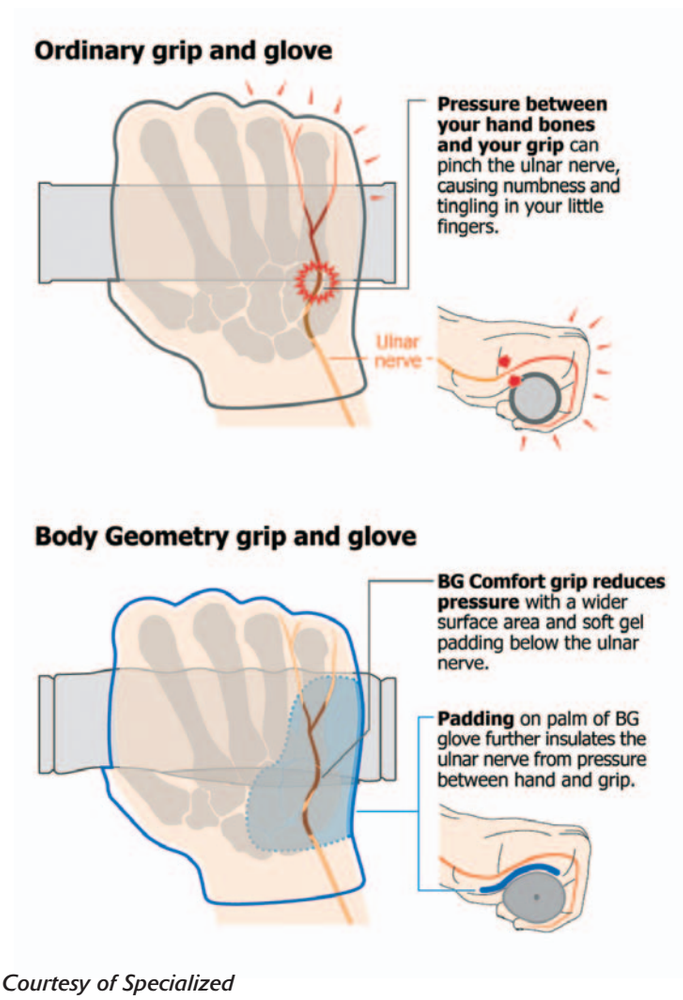
and all of the little finger leaving them tingling or even numb after a longer ride. The remaining part is due to pressure on the median nerve, which produces the 'Carpal Tunnel Syndrome', affecting the remaining fingers. Research had to try and dissipate the pressure from the ulnar and the median nerves — either by altering the grip or making the glove anatomically correct.

Pressure measurements on the handlebar showed that the highest pressure occurs on the outer part of the grip, exactly the point where the ulnar nerve passes. By increasing the surface area on the outer part, the outer palm relieved the sensitive ulnar nerve and creates a neutral hand position. Specialized 'Body Geometry' grips and grips by German SQ-lab, the second company developing bio-metric bike accessories, are quite similar. Both use a hard rubber on the inside and a softer and more comfortable rubber on the outside to build an asymmetric grip. While Specialized just makes different styles (BG MTB Grip, BG Grip or BG Comfort), SQ-lab actually offers different sizes for the same grip. "In general, one can say that women need a thinner diameter than men, but since that is not always correct, we produce each grip in sizes from 10.5 to 16 cm diameter," explains Tobias Hild, brand manager for SQ-lab. "Some men have real maulers and, one would think, they need large diameter grips, but it's the length of the palm and the fingers that actually count, not the width."

Right padding

Developing anatomically correct gloves that give a relaxed, neutral hand position works in a very similar manner. All R&D had to do was revolutionise the padding. Old padding ideas actually supported pressure on the ulnar and the median nerves, because they focused on inner palm padding close to the thumb and index finger. Specialized tackled this challenge in three steps. First they stripped down all existing padding, then they applied padding only to the outer palm position. In testing, the designers then realised that no further padding was actually needed to provide a neutral hand position on any flat-bar. The 'Body Geometry' glove was born!

Alongside Specialized and SQ-lab, several glove companies have started integrating this technology into their gloves. Chiba calls it 'BioXCell' and uses a gel cushioning whereas Roeckl combines gel and high density foam for its 'Ergonomic Cut' line. All companies differentiate gloves for road and mountain-biking, making application-specific styles. The only common issue they have is a rather bulky looking padding that seems unnecessary at first sight, but nevertheless does the job.



Courtesy of Specialized