It is 9:30 on a Monday night and Jared Berger, product developer for Tyr Sport, a competitive swim- and triathlon-wear company based in Farmingdale, NY, is waiting for a conference call with a manufacturer in Asia. “We source our fabrics and manufacturers from all over the world,” he says. “I’m basically on call 24 hours a day.”

Tonight’s call is about trim for Tyr’s 2011 triathlon gear. In fashion, trim is decorative, a bit of material like lace or fur that runs along a garment’s edge. In the world of competitive athletic wear, however, clothes are equipment. Each element of a garment is evaluated for whether it aids or hinders the athlete’s movement. If it’s the former, its attributes are maximized. If it’s the latter, its drawbacks are pared to a minimum.

Trim, Berger says, can be used to ensure a tight fit at an outfit’s various openings. For triathlon wear, it’s often used for the leg holes. “Without some sort of grip, there’s no way to keep the fabric in those areas close to the skin,” he says, “and it will hang loose and flap around.” That can create drag, and in racing, drag is deadly.

A lot of “gripper” trims are made with elastic bands. Those on men’s briefs, for example. But the trim for Tyr’s new garments will be silicone beading—soft rubber dots, embedded in the fabric. “It’s snug and it’s really comfortable,” Berger says.

To a layperson, this sounds impressive. But for professional-level athletic gear, silicone-bead trim is comparatively low-tech. Berger’s is a field in which seams are not stitched but fused and bonded, to eliminate excess grooves; silver and titanium fibers and yarns are knit and woven into fabrics for their antimicrobial (that is, odor-fighting) and cooling properties; swimsuits are tested not just in pools, but in wind tunnels; and products retail at prices—like $625 for a triathlon wetsuit—that could buy a lifetime supply of mesh shorts. It is also a field in which something as seemingly innocuous as a garment (and a delicate one at that—bonded seams have been known to split when a swimmer bends at the starting block) can be credited with toppling dozens of world records; likened, in the press and by sports officials, to performance-enhancing drugs; and eventually banned from competition altogether.

In early 2008, about a year after Berger started at Tyr, competitive swimwear manufacturers began rolling out full-body suits made almost entirely of polyurethane, or rubber, panels. “They were essentially non-permeable,” Berger says. “Air got trapped inside the suit when you
put it on and made you more buoyant. So swimmers weren't getting as tired. When fatigue sets in, swimmers actually start making more and more strokes, expending more effort to stay afloat. That wasn't happening anymore. They would just maintain this steady pace."

The effect on the sport was immediate. By the time of that summer's Beijing Olympic trials, 42 new world records had been set. Newspapers printed stories focusing more on the space-age designs than the swimmers wearing them. Harold Koda, curator in charge of the Metropolitan Museum of Art's Costume Institute, included the sleek new suits in his Superheroes: Fashion and Fantasy exhibition. Swimmers ditched sponsors that didn't manufacture the suits or, with sponsors' blessings, raced in other companies' gear. By the following summer, the tally of broken world records was 135. That July, Michael Phelps, who had worn Speedo's then-ground breaking LZR suit for his eight gold-medal wins in Beijing, was upset in the 200-meter freestyle-and saw his world record beaten by nearly one full second-by Germany's Paul Biedermann, who was wearing the newer, more buoyant Arena X-Glide. Biedermann is his first job in swimwear, a field he admits he previously knew little about. "I'm not a swimmer," he says. "I'm a garmento."

Biedermann creates looks, and researchers working on fabrics and talking with the athletes who test the suits. He also measures Tyr-sponsored athletes for custom suits, a perk that has less to do with pampering the company's stars than it does with necessity. "Their proportions are unbelievable. They will not fit our regular sizes," he says. "I measured one woman with a 69-inch torso." 

With FINA's new rules in effect since January of this year, Berger has never been busier. "Everyone's starting from scratch," he says. "The focus now is on sleek design, which is tough to push forward. Our bodies are made of different lines and curves, so even the tightest woven fabric won't hug close to the body without seams. But in swimming, they're all about seamless, which is why you'll see bonded seams." Tyr is also creating all new designs for triathlon, a sport which has yet to issue a ban like FINA's, though Berger hears rumors that one is coming.

Despite the controversy and the regulations, the science and the media scrutiny, this is still the clothing business, Berger says. The industry's maxims still hold. Chief among them: style may take a backseat to function, but function alone rarely moves the consumer to buy. This, it turns out, is the reason for the late night, silicone-beading conference call.

"We're trying to get a jacquard of the Tyr logo for the beading and they're having some problems with it," he says. "You know, I don't know whether silicone beading works any better as trim than a silicone band would, but it looks cooler. I want our stuff to look good."