The Need for Speed: How High-Technology Swimsuits Changed the Sport of Swimming

By

David Meyer

Competitive swimming. From the outside looking in, you can't understand it; from the inside looking out, you can't explain it. For most people, competitive swimming is a novelty sport, usually watched only during the summer Olympics. However, for competitive swimmers, the year-round sport is best characterized as a "love-hate" relationship.

The "love-hate" relationship for the competitive swimmer is grounded in commitment. Swimming is an individual sport with a team aspect. While the dedicated swimmer is a part of a team, the essence of the required commitment relates to one's desire to continually improve. Every swimmer has strengths and weaknesses. However, what separates a recreational enthusiast from an elite competitive swimmer is not just the level one's talent, but also the ability to make sacrifices in the pursuit of speed.

What is the best way for a swimmer to improve? Practice. Just like any other sport, conditioning and training are crucial for the elite swimmer. Whether it be in the pool or weight room, it is not unusual for elite swimmers to spend four or five hours per day training. Swimming is a unique sport because our bodies are foreign to water. Thus, in addition to strength and endurance, technical efficiency is critical for the competitive swimmer. Although many swimmers are able adapt and change their technique, fixing one's stroke is not as easy as it sounds. Swimmers can spend hundreds of hours training only to not improve at the end of the season. Some swimmers can go years without achieving a personal best. Consequently, the need for speed is a perpetual passion that never ends.

That being said, elite swimmers are always looking to find a competitive advantage. Among other rituals, shaving and wearing caps have become common place. In 2009 however, the competitive

advantage was not coming from superior training or pre-competition rituals. Rather, it came from the evolutionary development of the high-technology swimsuit.

The 2009 World Swimming Championships in Rome marked a pivotal competition for the swimming community. Referenced as the "Plastic Games,"[1] 43 world records were set, as compared to 24 in 2007 and 19 in 2003.[2] Michael Phelps, regarded by most as the greatest swimmer of all time, was the focal point of the swimsuit controversy. Germany's Paul Biedermann, wearing a pure polyurethane suit, defeated Phelps, something nobody had done on the international level in 4 years. Incredibly, Biedermann not only defeated Phelps, but took down Phelps' world record by almost a second, clocking in at 1:42.00. Phelps' coach, Bob Bowman was quoted after the race saying, "It took me five years to get Michael from a 1:46 to a 1:42.96, and this guy (Biedermann) has done it in 11 months."[3]

Thus, the development of the high-technology swimsuits changed the sport of swimming forever. Although the suits were banned immediately after the 2009 World Championships in Rome, the Fédération Internationale de Natation (FINA) decided that the world records set by those wearing the advanced suits would maintain their standing. While some of these world records have since been broken, many people still believe a substantial portion of the records will not be beaten for a long time.

This paper analyzes the implementation of technology into the sport of swimming, and more specifically, high-technology swimsuits worn by competitive swimmers. Section 1 gives a broad overview of the development of competitive swimming, detailing the progression of the freestyle swimming technique and the evolution of the swimsuit. Section 2 discusses how the suits affected the

---

[1] Amy Shipley, *Swimsuits Cause More Questions Than Answers at World Championships*, Washington Post, August 3, 2009, http://www.washingtonpost.com/wp-dyn/content/article/2009/08/02/AR2009080201983.html
[2] Jim Tucker, *Swimming's Fabric Unravels With Suit Farce*, July 29, 2009, http://www.couriermail.com.au/news/swimmings-fabric-unravels-with-suit-farce/story-e6freon6-1225755685366
[3] Nicole Jeffery, *Michael Phelps Boycott Threat Over Suit War*, The Australian, July 30, 2009, http://www.theaustralian.com.au/news/michael-phelps-boycott-threat-over-suit-war/story-e6frg6n6-1225756100511

swimmers, the positions taken within the swimming community, and what actions FINA took to regulate the equipment. Section 3 provides a discussion on what options are available to sports equipment manufacturers who bring lawsuits as a result of equipment restrictions carried out by sports governing bodies. Primarily, section 3, using case law, analyzes the Ted Stevens Sports Act, the Sherman Antitrust Act and how those two provisions have provided obstacles for sports manufacturers. Section 4 complements section 3 by detailing the lawsuit brought by TYR against Speedo and U.S.A. Swimming. After discussing the lawsuit by TYR, section 4 concludes with the notion that although TYR lost their legal battle, they would eventually get what they wanted anyway: a free competitive market within U.S.A. Swimming. Section 5 concludes the paper.

1. History of Competitive Swimming

A. The Evolution of Freestyle

Competitive swimming can trace its origins back to 1844, when swimming was rapidly becoming established as a popular sport in England.[4] Three of the four strokes known today (butterfly, backstroke, and freestyle) were unheard of. Instead, British athletes generally relied upon a sedated form of what we today would recognize as breaststroke. However, the British breaststroke technique was done in such a manner where speed was sacrificed for composure.

On April 2nd, 1844, two Native American Indians, "Flying Gull" and "Tobacco", traveled to London and participated in a race with an Englishman by the name of Harold Kenworthy.[5] While Kenworthy used the standard British "composed" breaststroke, the two Native Americans shocked the spectators of the race with a new technique. A report from a nameless correspondent, who observed

---

[4] *Swimming From the Beginning*, The Washington Post, Reprinted with permission by the International Swimming Hall of Fame from *Weissmuller to Spitz; The History and Background of the Olympic Games*, http://www.washingtonpost.com/wp-srv/sports/olympics/longterm/swimming/swimhist.htm

[5] Nicholas Orme, *Making a Splash for 74,000 Pounds; Early British Swimming 55 B.C. – A.D. 1719*, November 12, 2007 (University of Exeter Press: 1983)

the Native American's stroke, stated "Their style of swimming is totally un-European. They lash the water violently with their arms like the sails of a windmill and beat downward with their feet, blowing with force and performing grotesque antics."[6] Although the stroke was unconventional for its time, the Native Americans were considerably faster than the Englishman. Oddly enough, despite this demonstration of speed, more than 50 years would pass before the stroke would be popularized as the "front crawl".

In the years to follow, the sidestroke became more popular than breaststroke in competitive swim races. The sidestroke combined the speed of the "grotesque" Native American technique with the gentlemanly composure of the British breaststroke. A major breakthrough came sometime between 1870 and 1890 (the specific year is debated, although most believe it occurred in 1873), when John Trudgen introduced a new swimming technique.[7] Trudgen used a variant of the sidestroke. The arms were brought forward over the water, one at a time, while using an adaptation of the familiar breaststroke kick. This new stroke was much more powerful, but was equally exhausting, forcing swimmers to only use it for short distances.

It wasn't until the dawn of the 20th century that modern freestyle developed into the fastest stroke used by competitive swimmers today. The inefficiency of the "Trudgen" kick led Australian Richard Cavill to try a new method. Cavill mimicked the concept of the alternated arm recovery out of the water one at a time, further rolling his body from side to side as he reached forward. In addition, he incorporated an up-and-down kick to coincide with the alternating arm stroke. Using this technique, he set a new world record in 1902, swimming 100 yards in 58.4 seconds.[8] After the race, when asked how

---

[6] Craig Lord, *FINA Centenary Book*, 2008, extract accessed at http://www.fina.org/H2O/index.php?option=com_content&view=article&id=901&Itemid=565

[7] David G. Thomas, *Advanced Swimming: Steps to Success*, 116, 1991

[8] *The Development of the Modern Stroke*, The Washington Post, Reprinted with permission by the International Swimming Hall of Fame from *Weissmuller to Spitz; The History and Background of the Olympic Games*, http://www.washingtonpost.com/wp-srv/sports/olympics/longterm/swimming/swimstrk.htm

to describe his technique, he stated it was like "crawling" through the water, and thus, the term "front crawl" was born.[9]

Unlike walking and other motions, swimming is an activity that is unnatural to the human body. Our normal upright posture is a far cry from the standard horizontal swimming position. Although freestyle is the fastest stroke in swimming, one's technical efficiency and physical stature can only provide limited improvement, leading to a plateau of performance. As a result, people throughout history have experimented with a variety of research and training techniques to help enhance the speed and power of the freestyle stroke. From the sport of gentlemen to the highly technical, "photo finish" competition we know today, the sport of swimming has seen substantial changes to equipment as technology has continued to evolve.

B. The Equipment: From Birthday Suits to "Technical Doping"

Recorded swim suit history begins around 1400 BC in ancient Greece and Rome.[10] In those times, bathing nude was the norm. Over the course of several hundred years however, different swimsuit styles were worn. The earliest contemporary swimsuits were very modest. They were usually made from heavy wool, revealed little to no skin, and weighed up to 9 pounds.[11]

In 1913, sweater manufacturer Jantzen Knitting Mills became the first manufacturer of swim suits when the company went from making wool sweaters and hosiery to making swim suits.[12] The story goes that a member of the Portland Rowing Club requested a pair of rowing trunks to keep him warm during chilly mornings on the Willamette River.[13] After the member tried them, he liked them so much

---

[9] Id.
[10] Supra Note 6
[11] *Team Swim Suit History*, Epic Sports: Swimming, http://swimming.epicsports.com/swimsuit-history.html
[12] Katy Muldoon, *Jantzen's 100-year History Reveals how Portland-made Swimear Changed the World and Vice Versa*, The Oregonian, August 7, 2010
[13] Id.

that he came back with other members of the crew who also wanted to purchase the trunks. These trunks subsequently became the prototype for the rib-stitch swimsuits that were first produced in 1915.[14]

As the sport of swimming began to gain popularity in the 1920s, competitive swimmers found it more and more difficult to find lightweight, secure-fitting swimsuits. In 1928, the company known today as Speedo, earned its place among top swimmers around the world when it introduced the Racerback suit.[15] This was the first time a swimsuit had been manufactured specifically for competition. The controversial yet revolutionary Racerback style's open shoulder and exposed back allowed greater range of motion in the water and weighed considerably less than its wool predecessors. The Racerback was quickly adopted by competitive swimmers around the world, despite being banned from beaches for being too revealing.[16]

In the quest for speed, swimsuit manufacturers continued to research the field hydrodynamics. After World War II, companies began to experiment with nylon, lycra, and 'paper' (lycra/nylon) fabrics, removing preconceived requirements of modesty and instead, focused on efficiency and reducing drag through the water.[17] Long before the swimsuits that are focus of this paper were created, Dr. Conrad Dottinger of West Germany designed the first modern skintight swimsuits for competition. Nicknamed the "Belgrad", the East German women dominated the 1969 first FINA World Championships in Belgrade Yugoslavia, winning 10 of 14 events and setting 7 world records wearing this swimsuit.[18] A

---

[14] Id.
[15] Speedo, http://www.speedousa.com/helpdesk/index.jsp;jsessionid=hZKpRJ0LKThWnRVGhvNy5ysyGpwJQS0JYwRLYP1dvyHjwpvCVrRG!-1361464131?display=corp&subdisplay=about
[16] Powerhouse Museum, http://www.powerhousemuseum.com/australia_innovates/?Section_id=1040&article_id=10053&behaviour=view_article
[17] Id.
[18] Jule Campbell, *Light, Tight And Right For Racing*, Sports Illustrated, August 12, 1974, http://sportsillustrated.cnn.com/vault/article/magazine/MAG1088870/index.htm

pioneer for its time, the "Belgrad" skinsuit was made of a very fine cotton that, when wet, was virtually transparent and extremely revealing.[19] The suit stretched over the body like a second skin, offering an adhesive fit which reduced drag. The East German women wore a modified, high-neck version of the "Belgrad" during the 1972 Olympic Games in Munich, but their performance in the 1972 games was not as convincing as it was in 1969.[20] The "Belgrad" skintight design opened the eyes of swimsuit manufacturers to recognize the importance of reducing drag through formfitting suits. Subsequently, over the years, swimsuit manufacturers tried different materials and designs which led to the first major modern technology incorporated into swimsuits during the 1990's.

In 1996, Speedo introduced a new competitive suit called the Aqua-Blade.[21] The material of the suit contained rough and smooth stripes, designed to create tiny channels of fast and slow moving water.[22] The material of the suit allowed air to become trapped for short periods of time, making the swimmer more buoyant in the water. At the time, it was revolutionary technology, using a water-repellant material to reduce drag. However, in 1999, Speedo improved on the Aqua-Blade technology by looking to a creature which, like humans, was not naturally hydrodynamic.

Named The Fastskin™, it was the most technically advanced competitive swimsuit ever made. Using sharkskin as a model for the fabric, Speedo attempted to replicate the creature's highly developed skin known to minimize drag and maximize swimming efficiency.[23] The shark's skin is comprised of dermal denticles, which look like tiny hydrofoils with V-shaped ridges.[24] As a shark moves through the water, the dermal denticles create a low-pressure zone, called a leading-edge vortex, which allows

---

[19] Id.
[20] Id.
[21] Swim-Shop.com, http://www.swim-shop.com/swimming/speedo-history.php
[22] Vasant R. Kothari, *Engineered Competitive Swimsuits*, September 2010, http://www.scribd.com/doc/38787938/Engineered-Competitive-Swimsuits-Part-1
[23] Id.
[24] Steve Connor, *Sharksin swimsuits lead hi-tech bid for Olympic gold*, The Independent, March 17, 2000, http://www.independent.co.uk/news/science/sharkskin-swimsuits-lead-hitech-bid-for-olympic-gold-724371.html

water to pass over the shark more efficiently.[25] Although the idea of copying sharkskin was creative, recent studies have found that the surface material of the Fastskin™ didn't work. Instead, the positive effects seen by swimmers who wore the Fastskin™ were attributed to the tight, streamline fit of the suit. The suits were so tight that they actually changed a swimmer's circulation, which increased the venous return to the body and made it easier to maintain optimum body position.[26] At the Sydney Olympics in 2000, 28 of 33 Olympic Gold Medals were won in the Speedo Fastskin™, making it the most successful suit in Olympic Games history.[27] After the introduction of the Fastskin™, the competitive swimming world would never be the same.

It was not Speedo, but rather Adidas who made the first full-body competitive swimsuit. Initially introduced in 1998, the suit was not popular among competitive swimmers due to a concern for a loss of "feel for the water." Adidas finally showcased the Jetconcept in 2003.[28] Instead of focusing on friction drag (caused by the surface of a swimmer), they instead looked into the effect of form drag (caused by the shape of a swimmer). Adidas adapted technology used by commercial aircrafts, incorporating ribbed panels into the fabric, which mimicked grooves found on an airplane's fuselage and wings.[29] The result was groundbreaking, as the fabric helped channel water more fluidly over the back, reducing active drag and turbulence while increasing swimming performance.

Another competitive swimsuit manufacturer, TYR Sport Inc., built upon the Adidas Jetconcept. In 2004, it was the first company to de-compose the components of overall total drag in racing suits with the introduction of the Tracer A7.[30] The design utilized zoned compression combined with a modified

---

[25] Peter Reuell, *A swimsuit like shark skin? Not so fast*, HarvardScience, February 9, 2012, http://news.harvard.edu/gazette/story/2012/02/a-swimsuit-like-shark-skin-not-so-fast/
[26] Id.
[27] Supra Note 15
[28] Supra Note 19
[29] Anna Quarrell, *Adidas Presents New Bodysuit: The Jetconcept*, July 19, 2003, http://www.eurekalert.org/pub_releases/2003-07/aa-apn071803.php
[30] Supra note 19

synthetic rubber (BioMark III neoprene).[31] By securely locking a swimmer's muscles, the Tracer A7 provided precise compression where muscle fatigue was known to occur. At 60% the weight of regular neoprene, the hydrophobic woven fabric maximized muscle oxygenation without compromising flexibility.[32]

The era of "technical doping" neared its peak with the launch of Speedo's LZR Racer in 2008.[33] Following three years of research and utilizing technology developed by NASA, Speedo created the most advanced swimsuit competitive swimmers had ever seen.[34] Like its competitor's previous products, the LZR's tight fit allowed for better oxygen flow to the muscles and held the body in a more hydrodynamic position with a seamless woven elastane-nylon and polyurethane fabric (LZR Pulse™).[35] In utilizing low drag "LZR" panels, swimmers who wore the LZR improved their body shape and were subsequently more buoyant in the water.[36] The results were astonishing. At the 2008 Beijing Olympics, twenty-three world records were broken by the swimmers who wore LZR Racer suits, compared with only two that were broken by the swimmers who didn't.[37] 89% of all the medals in swimming (including 94% of the gold medals) were won by swimmers who wore the Speedo LZR.[38]

The LZR Racer inspired other companies, such as Italian swimsuit manufacturers Arena and Jaked, to develop suits similar to the LZR. Instead of using a hybrid fiber, Arena and Jaked made their suits entirely out of pure polyurethane, a more buoyant material than the LZR Pulse™.[39] The benefits

---

[31] Id.
[32] Id.
[33] Supra note 15
[34] Id.
[35] Supra note 19
[36] Janet Bealer Rodie, *Ground-breaking fabric and textile construction technologies coupled with space-age product engineering and design enhance the performance of Speedo's LZR Racer® swimsuit*, Textile World, June 2008, http://www.textileworld.com/Articles/2008/May_2008/Departments/QFOM.html
[37] Clayton Goodgame, *High-Tech Swimsuits: Winning Medals Too*, Time World, August 13, 2008, http://www.time.com/time/world/article/0,8599,1832434,00.html
[38] Id.
[39] Supra note 19

from changing the material from a hybrid to pure polyurethane were staggering. At the 2009 World Aquatics Championships in Rome, 84% of swimmers used suits made from Arena or Jaked.[40] 43 new world records were set only a year after the Beijing Olympics.[41] The usage of enhancing suits was spiraling out of control, and it was after these championships that the FINA Congress voted to ban all body-length swimsuits made with high-technology fabrics.[42]

2. The Suit Debate

A. Did the Swimsuits Really Make That Much of a Difference?

In less than one year after the introduction of Speedo's LZR, more than 130 world records had been broken.[43] Clearly the introduction of high-technology suits was changing the sport, but how much help did the suits give the swimmers?

Hydrodynamic resistance, also known as drag, is a major performance issue in competitive swimming. There are three factors which comprise a swimmer's drag: skin friction, pressure, and wave.[44] Frictional drag is the result of the interaction between the swimmer's body and the water molecules, which slows down the swimmer.[45] However, friction drag also helps propel swimmers through the water, due to Newton's 3rd law of motion.[46] As a swimmer moves faster through the water, pressure drag becomes a factor due to the front region of the body, specifically the head, moves against the water. The pressure against the head of the swimmer results in a tension difference between the

---

[40] Henrique P. Neiva, *13th FINA World Championships: Analysis of Swimsuits Used by Elite Male Swimmers*, 6 Journal of Human Sport & Exercise 87, (2011)
[41] Supra note 2
[42] Amy Shipley, *FINA Opts to Ban All High-Tech Swimsuits*, Reachforthewall.com, http://reachforthewall.com/2009/07/24/suit-story/?hpid=artslot
[43] Id.
[44] Gianni Montagna, *Study and Optimisation of Swimming Performance in Swimsuits Designed With Seamless Technology*, AUTEX 2009 World Textile Conference, May 2009
[45] The Physics of Swimming, http://library.thinkquest.org/06aug/02165/physics_of_swimming.htm
[46] "When one body exerts a force on a second body, the second body simultaneously exerts a force equal in magnitude and opposite in direction to that of the first body"

two ends of the swimmer's body, resulting in turbulence.[47] Finally, wave drag supplements pressure drag because it is also the result of increased speed through the water. The pressure around the swimmer's body increases as a result of different water velocities. The different water velocities interact with the swimmer's body, creating waves and additional resistance.[48] Although freestyle is the fastest swimming stroke, it also has the greatest amount of resistance.[49] In a sport where a few hundredths of a second can mean the difference between first and last, swimmers have always taken steps to reduce the drag on their bodies. For example, as previously mentioned, swimmers will shave their entire bodies for major competitions. Removing hair actually significantly reduces the rate of velocity decay in underwater push-offs, diminishing active drag and decreasing expended energy.[50]

The polyurethane suits, however, took these steps to reduce drag to another level. Polyurethane is a fabric which is flexible and contains closed cell foam material.[51] Each micro closed cell is a pocket of gas which is less dense than water.[52] Essentially, the polyurethane suits gave swimmers extra buoyancy, allowing the swimmer to float slightly higher in the water. Since water density is approximately 800 times greater than air's, the higher a swimmer's body rides in the water, the faster they will go.[53] Even if the distance of one's body out of the water is less than half a millimeter, the pressure against the head of the swimmer is diminished, and that is enough of an advantage to make the difference between winning and losing.

---

[47] Supra note 39
[48] Id.
[49] Joshua C. White, *The Relationship Between Drag Forces and Velocity for the Four Competitive Swimming Strokes*, Med Sci Sport Exer 9, 2004
[50] *To Shave, or Not to Shave*, LaboratoryNews, 2012, http://www.labnews.co.uk/comment/science-lite/shave-shave/
[51] Lachlan Thompson, *How do full polyurethane swimsuits work?*, Crikey, July 30, 2009, http://www.crikey.com.au/2009/07/30/crikey-clarifier-how-do-full-polyurethane-swimsuits-work/
[52] Id.
[53] NBCNEWS, *The Science Behind the Swimsuit War*, July 29, 2009, http://cosmiclog.nbcnews.com/_news/2009/07/29/4350935-the-science-behind-the-swimsuit-war

Additionally, compression garments are responsible for a better blood flow, reducing blood lactate concentrations during physical activity. Better blood flow allows athletes to recover more quickly from fatigue.[54] Thus, a suit made from a polyurethane material covering the entire body not only made competitive swimmers more buoyant, but also had a significant effect on their endurance during performance of repetitive movements.[55] A study showed that following the introduction of full body swimsuits in 2000, the performance of men's sprint freestyle increased between 0.9 and 1.4%. The same study showed that the Speedo LZR polyurethane panels increased performance by an additional 1.5-3.5%, and the use of full body polyurethane suits in 2009 further increased performance up to 5.5%.[56]

B. Leveling the Playing Field: The Swimming Community's Outcry

There were concerns that swimsuit technology was encroaching on the sport's integrity as far back as 2000, the year when the first full-body suits were becoming popular. Before the high-technology swimsuits, swimming races were decided by the abilities of swimmers alone. As a result of the developed swimsuit technology, races could now be decided by swimming ability and equipment. Thus, there was a legitimate possibility that races could be won by the swimmer with the best performance-enhancing suit rather than the level of talent or amount of training.

Proponents of the suit pleaded that technological advancements are inherent in every sport, and that swimming was no different.[57] After spending millions of dollars in research, swimsuit manufacturers claimed that banning the suits would stifle technical developments and innovation in swimming. They cited several types of technological advancements that the swimming community

---

[54] Supra note 38
[55] Id.
[56] Leon Foster, *Influence of Full Body Swimsuits on Competitive Performance*, 34 Procedia Engineering 712 (2012)
[57] Brent Rushall, *A Serious Threat to the Very Nature of Competitive Swimming or not?* December 19, 1999, http://www.swimmingcoach.org/articles/200002/20002_1.htm

accepted, such as lane lines and goggles.[58] The difference however, between those advancements and the high-technology suits, rested upon equal access and ethical considerations.

Items such as lane lines and goggles affect all competitors the same. In the past, when races were swum with lane lines that consisted of a wire cord with a cork, every swimmer constantly battled waves and turbulence, slowing each competitor down equally.[59] Now, lane lines are composed of triple-stack large baffle plastic, almost eliminating turbulence altogether, but this is still a benefit available to every competitor in the pool.[60] Likewise, goggles were initially introduced to alleviate the various forms of eye discomfort resulting from constant exposure to chlorine. However, goggles have changed very little over the years and by themselves, are not performance enhancing.[61]

There was also a misplaced assumption that the technical suits could also be compared to other sports which relied upon equipment, such as cycling or rowing.[62] Nonetheless, those sports are "conveyance" sports, meaning the final performance result is dependent upon the mechanical transformation of human energy into forward movement.[63] Without a bicycle or racing shell, those sports would not exist. Conversely, swimming does not rely on equipment but rather can be conducted purely wherever there is water. Therefore, goggles and lane lines were neutral innovations, whereas the suits were performance enhancing.

A more reasonable analogy to the high-technology swimsuits can be found in the example of performance enhancing drugs. Like the suits, drugs alter the intrinsic and natural abilities of an athlete's

---

[58] Ross Tucker, *Two points of view, as the swimsuit debate continues*, The Science of Sport, July 30, 2009, http://www.sportsscientists.com/2009/07/swimsuit-debate-differing-perspectives.html
[59] Id.
[60] Id.
[61] Id.
[62] Supra note 51
[63] Supra note 52

performance.[64] Further and also similar to drugs, the suits were not available to everyone. Negating the moral and health implications of using drugs, the price of the suits was cost prohibitive. Without the standardization of racing suits, there was a large risk that competitors with access to this technology would have a performance advantage over others who could not afford the suits.[65] It follows that the manufacturers of these suits intruded upon the honor and traditional concept of competitive swimming as being human ability against human ability.

Thus, the history of sports has shown that technical innovations usually have elevated the costs of participation. By introducing equipment that not only enhanced performance but spurred issues of accessibility, competitive swimming briefly lost touch with its core principles. As sport that relies upon training, dedication, and talent, allowing technologies that significantly influenced performance was contrary to the pure concept of swimming. Consequently, the swimming community looked to FINA to take action.

C. How did FINA Handle the Swimsuit Controversy?

In one word, poorly. Instead of addressing the issue and being proactive about the evolution of competitive equipment, FINA allowed the slippery slope to become steeper.

Following the December 2008 European Short Course Championships in Croatia, where 17 world records were broken, there was a general agreement within the swimming community that FINA needed to modify the rules surrounding high-technology swimsuits.[66] In March 2009, FINA began to implement limits to high-technology swimsuit construction. Rather than banning the suits, FINA officials

[64] Id.
[65] Id.
[66] Karen Crouse, *Swimming Bans High-Tech Suits, Ending an Era*, N.Y. Times, July 24, 2009, http://www.nytimes.com/2009/07/25/sports/25swim.html?_r=1&

arranged for buoyancy tests on nearly 400 technical suit models.[67] Of these 400 suits, 202 were approved for the 2009 World Championships in Rome.[68] Following the publication of the FINA approved suit list, suit manufacturers were given time to adjust their various products which had not initially been cleared for use.[69]

FINA stipulated after the buoyancy tests that swimsuits should not cover the neck, must not extend past the shoulders and ankles, and must comply with limitations for suits' thickness and buoyancy.[70] By not explicitly defining the rules regarding fabrics and materials, FINA opened the door for all competitive swimsuit manufacturers to continue to market and produce their enhancing products.

A few short months later, in June 2009, FINA retracted its initial ruling regarding high-technology swimsuit construction.[71] Perhaps in fear of legal issues or for lack of regulation in the past, the net effect was that any suit of any material could be used at the 2009 World Championships in Rome. Following the competition in Rome, FINA reversed its position and banned the use of all "non-textile" materials from suits beginning January 10, 2010.[72] The new rules stated that there would be limited material suit coverage of the body, from "the knees to navel for men" and "the knees to shoulder straps for women."[73]

---

[67] PR37 – FINA Commission for Swimwear Approval, May 18, 2009, http://www.fina.org/project/index.php?option=com_content&task=view&id=2390&Itemid=107
[68] PR46 – FINA Executive Meeting / Swimsuits, May 18, 2009, http://www.fina.org/project/index.php?option=com_content&task=view&id=2482&Itemid=107
[69] Id.
[70] Supra note 60
[71] Supra note 61
[72] Supra note 59
[73] Supra note 61

At the FINA congress, 168 nations voted in favor of the ban while only 6 nations opposed.[74] This represented an overwhelming majority opinion that the sport had lost touch with its core foundation, racing based upon the physical performance of the athlete. Although the "playing field" was now level, a question remained for the manufacturers. After spending substantial amounts of money in research and development, could they be compensated for their losses after FINA restricted the sale of their products?

3. Sports Equipment: How the United States Legal System Evaluates National Governing Body Regulations

A. The Ted Stevens Sports Act and the Sherman Antitrust Act

Equipment regulations are created by each sport's national governing body (NGB).[75] Generally speaking, it is rare that manufacturers challenge these rules because either (1) the equipment being questioned has been used since the creation of the sport or (2) the usage of the particular equipment in question has a clear purpose.[76] If, however, a manufacturer objects to a rule, one of the avenues by which they may seek relief is through the Sherman Antitrust Act.

NGBs derive their authoritative power from the Ted Stevens Sports Act (Sports Act), which was codified in 1998 for the purposes of eliminating friction between competing governing bodies within a single sport to standardize the rules of each game.[77] When sports equipment manufacturers disagree with a NGB policy, they may utilize the Sherman Antitrust Act, claiming that a certain rule or action prevents consumers from having free choice among market alternatives.[78] A lawsuit involving Section

---

[74] Supra note 52
[75] 36 U.S.C. 220522(a)(5)(A)
[76] Tara Bhupathi, *"Who do you play for?" How the Ninth Circuit's Rejection of U.S.A. Swimming's Motion to Dismiss Protects the Integrity of Sport and Stimulates Technological Development*, 20 NYBSA Entertainment, Arts and Sports Law Journal 47, (2009)
[77] 36 U.S.C. §§220501-29 (1998) (revision of original Amateur Sports Act of 1978)
[78] 15 U.S.C §1 (2002) stating "every contract…"; 15 U.S.C. §2 (2002) stating "every person…"

one of the Sherman Antitrust Act occurs when a manufacturer alleges that a NGB combined or conspired to restrain trade.[79] Similarly, a lawsuit involving Section two occurs when a manufacturer alleges that a NGB has combined to monopolize trade.[80] In order to establish a claim against a NGB, sports equipment manufacturers must identify a relevant geographic and product market in which the NGB has power and has conspired to create an anticompetitive effect.[81]

B. Obstacles Facing Manufacturers

Antitrust cases brought against NGBs involving a conspiracy or combinations to restrict trade through equipment regulations have had an uphill battle. Courts generally defer to a league's discretion in the promulgation of its own rules.[82] This is primarily due to the unique nature of sports and the need for rules to establish standardized competition.[83] Case law has established two main hurdles for sport equipment manufacturers. First, courts require manufacturers to reach a high evidentiary threshold in order to successfully plead conspiracy or combination.[84] Second, the courts' application of the "rule of reason" standard when analyzing equipment disputes is a policy of strong deference to NGBs.[85]

i. The High Evidentiary Threshold

In *Brookins v. International Motor Contest Ass'n*, the International Motor Contest Association (IMCA) amended its rules governing IMCA-sanctioned "modified class" auto races in a way that, at least for a time, barred the use of two transmissions manufactured by the Brookins in that class of races.[86]

---

[79] Id.
[80] Id.
[81] Id.
[82] MICHAEL J. COZZILLIO ET AL., SPORTS LAW: CASES AND MATERIALS 621, 621-22 (2d ed. 2007). Sports leagues seek "competitive balance," meaning that all of the teams should be relatively equal in strength so as to generate fan interest.
[83] Stephen J. Matzura, *Will Maple Bats Splinter Baseball's Antitrust Exemptions?: The Rule of Reason Steps to the Plate*, 18 Widener L.J. 975, 978 2009
[84] See generally *Bell Atlantic Corp v. Twombly*, 127 S.Ct. 1955 (2007)
[85] Supra note 76
[86] *Brookins v. International Motor Contest Assn.*, 219 F.3d 849, 2000

The Brookins had created a novel automatic transmission, named the "Ernie Glide."[87] Due to its unique design and considerable success, speculation arose among drivers and two competing transmission manufacturers as to whether the Ernie Glide complied with IMCA's rule governing modified car transmissions. Before the start of the 1995 racing season, IMCA officials concluded that the Ernie Glide met the text but not the intent of the existing rule.[88] Consequently, Brookins began to develop a modified Ernie Glide, called the "Ernie Slide". Unfortunately, despite being assured that the Ernie Slide complied within the amended regulations, the IMCA further amended the rules to ban the use of either the Ernie Glide or Ernie Slide.[89]

The Eighth Circuit court of appeals upheld the district court's decision that the Brookins had failed to meet the threshold of showing injury to competition. Rather, they stated that the exclusion of a manufacturer's automatic transmissions in racing vehicles was the incidental result of the NGB's actions in defining the rules of the game, and thus did not constitute a naked restraint having actual effect on competition.[90] The court further noted that even though the IMCA defines the rules for modified car racing, Brookins did not establish market power on part of the NGB to show an impressible restraint of trade.[91]

Similarly, in *Warrior Sports, Inc. v. National Collegiate Athletic Association* (NCAA), Warrior Sports brought suit against the NCAA after the NCAA modified their rules rendering all Warrior lacrosse sticks obsolete.[92] Before 2006, the NCAA had used the same rules regarding the allowable dimensions of lacrosse stick heads for more than 30 years.[93] As the sport evolved, lacrosse stick manufacturers began designing their equipment to have narrower stick head dimensions, which made it more difficult

---

[87] Id.
[88] Id.
[89] Id.
[90] Id. at 853
[91] Id.
[92] *Warrior Sports, Inc. v. National Collegiate Athletic Association*, 2009 WL 646633 (E.D. Mich. 2009)
[93] Id.

for lacrosse defenders to dislodge the ball. In response to these stick developments, the NCAA required manufacturers to submit their equipment to the NCAA to obtain confirmation that their product complied with NCAA lacrosse rules.[94] After the NCAA adopted its rule changes in 2007, Warrior was asked whether it would be willing to license its intellectual property rights to other lacrosse manufacturers.[95] Warrior refused, and the NCAA submitted new rules in 2008 which made the warrior lacrosse stick head ineligible for use during competition.[96]

The court dismissed Warrior's complaint against the NCAA despite what seemed like specific evidence of motive for conspiracy to injure the company and restrict trade. The court stated that the NCAA's rule regarding the type of lacrosse equipment that may be used during play is not "commercial in nature."[97] Rather, the rule had a noncommercial purpose: to promote free dislodgment of the ball. In both *Brookins* and *Warrior*, it seems more probable than not that the courts overlooked the NGBs financial incentives to conspire and regulate equipment.[98]

ii. Application of the "Rule of Reason"

The rule of reason, which was applied in *Standard Oil Co. of New Jersey v. United States*, provides that only combinations and contracts unreasonably restraining trade are subject to antitrust provisions.[99] Based upon a plaintiff's argument, courts will first consider whether the restraint of trade warrants a per se violation because it is blatantly against public policy.[100] After dismissing a per se violation, courts use the rule of reason to weigh the procompetitive and anticompetitive effects to

---

[94] Id.
[95] Warrior Sports had obtained a patent on their Lacrosse Stick Design
[96] Supra note 85
[97] Quoting *Worldwide Basketball and Sports Tours, Inc. v. National Collegiate Athletic Association*, 388 F.3d 955 at 958 (2004)
[98] Supra note 69
[99] See generally *Standard Oil Co. v. United States*, 221 U.S. 1 (1911)
[100] Shlomi Feiner, *Regulation of Playing Equipment by Sports Associations: The Antitrust Implications*, 10 U. MIAMI BUS. L. REV. 585, 601 (2002)

determine whether the net result would be an unfair restraint of trade under the Sherman Act.[101] As one of the default tests for analyzing equipment restrictions, lawsuits involving professional sports are unique under this provision because a court has a high degree of independence to determine whether the reason behind a restrictive rule is valid.[102] This has proven to be problematic because although some practices by NGBs may be unreasonable and subsequently unlawful, the "conspirators" could argue with almost any justification that they have not restrained trade.[103] This rationale combined with the court's hesitancy to interfere with NBG policies puts sports equipment manufacturers at a disadvantage.

Court's applications of the rule of reason have significantly affected the sport of golf. In *Weight-Rite Golf Corp. v. U.S. Golf Ass'n*,[104] a court upheld as a reasonable decision of the United States Golf Association (USGA) prohibiting golf shoes that contained a wedge in the sole which helped distribute the golfer's weight so as to resist the tendency to push away from the ball during the swing.[105] The court stated "evidence that a single competitor has been removed from a relevant product market, in and of itself, is insufficient to establish a violation of the rule of reason.[106] Critics of that decision argue exactly the opposite. Elimination of the only producer of a differentiated product that cannot be duplicated by other suppliers does establish an anticompetitive effect sufficient to satisfy the rule of reason.[107]

Likewise, in *Windage v. United States Golf Association*,[108] the equipment in that case involved a product named the Windage device. It was a small, golf-ball-shaped plastic container with talc powder inside. A golfer could gauge wind direction by squeezing the Windage device to release a puff of talc

---

[101] Id. at 602
[102] Id.
[103] Supra note 76
[104] *Weight-Rite Golf Corp v. U.S. Golf Assn.*, 766 F.Supp. 1104 (1991)
[105] Id. at 1108
[106] Id. at 1111
[107] John E. Lopatka, *Antitrust and Sports Equipment Standards: Winners and Whiners*, 54 Antitrust Bull. 751, 794 (2009)
[108] *Windage, LLC v. USGA*, 2009 WL 2622965 (D. Minn 2008)

powder into the air.[109] The purpose of the device allowed golfers to assess wind conditions without having to bend over to pluck grass to toss into the air.[110] However, the USGA determined that the Windage device did not conform to the rules of golf, stating it was "an artificial device for the purpose of gauging or measuring conditions that might affect play."[111] The Eight Circuit noted "So long as [the USGA] made game-defining rules decision based upon its purposes as a sports organization, an antitrust court need not be concerned with the rationality or fairness of those decisions."[112]

Thus, it would seem that sports equipment manufacturers have a heavy burden when bringing lawsuits against NGBs. With respect to swimming, as a sport which does not completely depend upon equipment, these burdens are even greater. Despite these inherent disadvantages however, the swimsuit manufacturer TYR filed suit against Warnaco, Inc, USA swimming and Speedo for violations of the Sherman Act in 2009.

4. Antitrust Law in Competitive Swimming: How TYR Found a Silver Lining in Their Failed Lawsuit

A. TYR Sport Inc. v. Warnaco Swimwear Inc. 2009: A Short Lived Victory

In 2008, TYR filed suit against Warnaco, Inc.(Speedo), U.S.A. Swimming, and Erik Vendt.[113] To clarify, per the Sports Act previously discussed, the United States Olympic Committee recognizes U.S.A. Swimming as the national governing body of the sport of swimming.[114] In its complaint, TYR alleged that U.S.A. Swimming combined with Speedo in order to coerce National and Olympic team swimmers to exclusively wear Speedo's LZR, a violation of Sections One and Two of the Sherman Antitrust Act.[115] At

[109] Id.
[110] Id.
[111] Id. at 1336
[112] Id. at 1336-1337
[113] *TYR Sport Inc. v. Warnaco Swimwear Inc.*, 679 F.Supp.2d 1120 (2009)
[114] Id.
[115] Id.

the time this complaint was filed, SpeedoUSA had maintained exclusive technical equipment sponsorship with U.S.A. Swimming for more than 25 years.[116]

Specifically, TYR alleged that the exclusive sponsorship agreement between U.S.A. Swimming and Speedo made U.S.A. Swimming a *de facto* sales agent for Speedo.[117] They further argued that in exchange for payments from Speedo, U.S.A. Swimming agreed to act as a promoter for Speedo and to make false statements that Speedo's products were "superior" and that its rivals' products were "inferior."[118] In support of these accusations, TYR cited several statements made by the national and Olympic team head coach and hired spokesperson Mark Schubert.[119] They further cited U.S.A. Swimming's repeated refusal to allow Speedo's competitors the ability to advertise in the official NGB publication (Splash Magazine), and to sponsor U.S.A. Swimming-sanctioned meets.[120]

The court first rejected both Speedo and U.S.A. Swimming's motions to dismiss, and held that TYR had successfully identified a relevant product and geographic market.[121] The court further held that the combination of both U.S.A. Swimming and Speedo established a significant power within the market to have an anticompetitive effect on trade.[122] In so holding, the court focused on the nature of Speedo and U.S.A. Swimming's actions within their exclusive sponsorship and the alleged unlawful use of that

---

[116] Brent T. Rutemiller, *USA Swimming Ends SpeedoUSA's Exclusive Sponsorship Agreement*, SwimmingWorld, December 3, 2012, http://www.swimmingworldmagazine.com/lane9/news/USA/32810.asp

[117] Supra note 106 at 1127

[118] Id.

[119] TYR's complaint included the following statements:

1. I would strongly advise them to wear the [Speedo] at trials, or they may end up at home watching [the Olympics] on NBC. (statement by Mark Schubert)
2. Schubert has gone so far as to suggest that he will use his authority as Head Coach to mandate use of SPEEDO equipment. He was reported as stating that he will tell his team to wear Speedo at the U.S. Trials.
3. Some athletes (including Defendant VENDT) have followed through on SCHUBERT's recommendation that they breach contracts with their equipment providers in order to avoid 'staying home' during the Olympic Games

[120] Supra note 110

[121] Supra note 106 at 1129

[122] Supra note 106 at 1134, noting Courts that have discussed an NGB's influence over its sport have used the term "monolitihic control" rather than "monopoly" to describe the relationship

authority.[123] The judge reasoned that U.S.A. Swimming had motive to affect the market without being a direct market participant because U.S.A. Swimming's financial incentive to combine with Speedo in an anticompetitive scheme was a result of Speedo's substantial financial contributions.[124] In support of the *de facto* coercion, the court stated that the co-defendant Erik Vendt, who breached his contract with TYR in order to wear the LZR, was a credible example of Speedo and U.S.A. Swimming's influence on elite competitors.[125] In recognition of the high threshold that a plaintiff must overcome to show that speech rises to the level of an antitrust violation, a second round of briefing was requested by the court.

The initial holding was significant for sports equipment manufacturers. Primarily, the holding significantly increased the potential for NGB antitrust liability because it refused to acknowledge that NGBs were given implied immunity.[126] Second, the holding recognized that NGBs could have a financial interest in promulgating certain rules, even if the NGB was not a direct market participant.[127] Despite this decision however, TYR's victory would not stand for long.

B. TYR Sport Inc. v. Warnaco Swimwear Inc. 2010: The Reversal

A year later, litigation continued after motions from both sides were granted and denied.[128] This time around, TYR was not as successful as they were in their initial victory. The court granted summary judgment in favor of the defendant's against TYR's claim of antitrust liability. The judge held that the statements made by Mark Schubert indicating that coaches should advise their athletes that if they

[123] Supra note 106
[124] Supra note 106 at 1136
[125] Supra note 106 at 1139
[126] Supra note 69
[127] Id.
[128] *TYR Sport, Inc. v. Warnaco Swimwear, Inc.*, 709 F.Supp.2d 802 (C.D. Cal. 2010)

wanted to compete at the highest level they should wear Speedo equipment, was classic puffery and not actionable under antitrust laws.[129]

The court reasoned that Schubert's statements to a reporter promoting the benefits of the Speedo LZR were clearly exaggerated advertising, blustering, and boasting upon which no reasonable buyer would rely. Despite Schubert explicitly stating other products were inferior, the court said that his pro-Speedo statements were general statements which contained nothing about the specific attributes of the swimsuit.[130] Further and perhaps more surprising, the court found that the statements, when read in full context and not as carefully plucked snippets, reflected a desire for more competition in swimsuit technology, which Schubert hoped would prolong the careers of swimmers.[131] Finally, the court noted that although there existed a relevant product and geographic market, TYR failed to present evidence of the sales or market shares of any of the competitors.[132] Thus, the court was unable to determine whether TYR's lost sales were picked up by new entrants or whether Speedo actually lost overall market share to new entrants at any time during the relevant period.

Ultimately, TYR lost its suit because they could not provide evidence from which a reasonable jury could infer a significant and enduring adverse impact on competition. It was clear that the exclusive sponsorship agreement between Speedo and U.S.A. Swimming had some sort of effect on the market for high-technology swimsuits, but there was no way to confirm such an allegation. Fortunately for TYR, although they lost their legal battle, they would eventually get what they wanted anyway, the discontinuation of he exclusive sponsorship agreement between Speedo and U.S.A. Swimming.

C. The Silver Lining: USA Swimming Ends SpeedoUSA's Exclusive Sponsorship

[129] Id. at 813
[130] Supra note 121 at 820
[131] *TYR Sport, Inc. v. Warnaco Swimwear, Inc.*, 709 F.Supp.2d 821 at 829 (C.D. Cal. 2010)
[132] Supra note 121 at 817

In a losing statement to the press on May 3rd, 2010, TYR made the following comment: "While we disagree with the Court's conclusion that the wrongful acts did not have a sustained impact on the market, it is optimistic that bringing attention to the conduct (referencing U.S.A. Swimming and Speedo's exclusive agreement) will contribute to greater transparency within U.S.A. Swimming and will bring about fundamental change to the benefit of the sport."[133] TYR's foreshadowing came to fruition, and on December 3rd, 2012, SpeedoUSA and U.S.A. Swimming signed a new sponsorship agreement that expires in 2020.[134] The new agreement states that SpeedoUSA will still be the official sponsor of U.S.A. Swimming, but SpeedoUSA will no longer have exclusive rights in the area of technical equipment.[135]

When asked about the TYR lawsuit and whether or not it affected U.S.A. Swimming's decision to opening up the market, U.S.A. Swimming's Chief Marketing Officer Matt Farrell said, "The TYR lawsuit was not a factor. We did it now because we looked at the success of the trials from an attendance and T.V. ratings perspective, exposure from the Olympic games (London), and the growth of our membership…That motivated us to open the market. The sport is in a different era now, especially from a star and television perspective."[136]

The non-exclusive base sponsorships expressed in the new agreements include advertising in U.S.A. Swimming's official NGB publication, website, webcast, televised events, and retail vending at competitions.[137] In the weeks following the new sponsorship packages, U.S.A. Swimming announced that starting January 1st, 2013, the swimsuit manufacturer Arena would replace Speedo as the National

[133] Supra note 109
[134] Id.
[135] Id.
[136] Id.
[137] SwimmingWorld, *Arena Rocks USA Swimming With Exclusive Deal*, December 17, 2012, http://www.swimmingworldmagazine.com/lane9/news/Industry/32935.asp

Team's new exclusive apparel brand sponsor.[138] Arena will now officially sponsor U.S.A. Swimming's Grand Prix Circuit and will have worldwide merchandising rights for the U.S.A. Swimming Brand.[139]

5. Conclusion

The sport of competitive swimming has changed substantially. From technique dictated by etiquette to high-technology fabrics and fingernail finishes, competitive swimming has and will continue to evolve. Although TYR's lawsuit failed, and U.S.A. Swimming denies that the lawsuit had any impact on their decision to end their exclusive agreement with Speedo, it is clear that eyes were opened within the swimming community. Now more than ever there exists competition within the swimming marketplace which will foster product competition, promote free trade and provide a variety of means to satisfy the elite swimmer's perpetual passion to swim faster than they ever have before.

[138] Id.
[139] Id.