STANDARDS IN SPORT: SWIMMING

The regulations governing the construction and style of swimsuits for official competition have become much stricter since athletes broke record after record in 2008 and 2009 wearing so-called supersuits. But as clarity from the authorities has increased, the records seem to have dried up.



FINA consigns swimsuit confusion to history

Few sports' technical committees have stayed as busy in recent times as that of the beleaguered Fédération Internationale de Natation (FINA), the International Swimming Federation, and all because of advances in technical textiles that gave certain swimsuits extra buoyancy and certain swimmers, in the eyes of the authorities, an advantage.

Rules regarding swimsuits have always been part of the FINA norms. The organisation lays this out clearly in section five of its regulations, which makes it clear that swimwear (swimsuit, cap and goggles) used in official competition must be "in good moral taste" and carry no symbol that may be considered offensive. Separately, though it is surely a related point, the regulations go on to make it clear that all swimsuits should be "non-transparent". Furthermore, the referee of a competition has the authority to exclude any competitor deemed to be in breach of these rules.

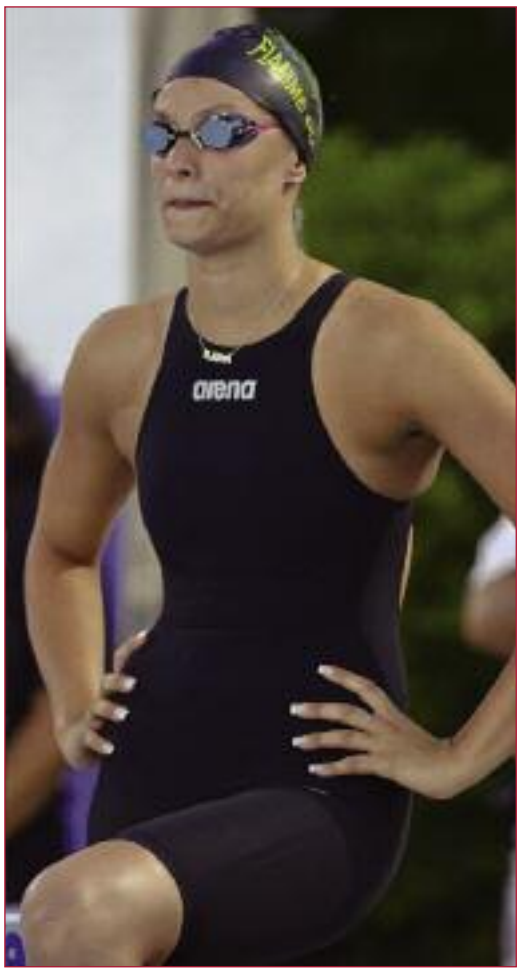
With regard to manufacturers, the only thing the formal rules say is that they must submit swimwear to FINA for approval before any new design, construction or material can be used in competition (currently paying a fee of €3,000 for each product line they submit). The international body has a Swimwear Approval Commission and publishes an approved list of the suits that athletes are allowed to wear. At first glance, all of this looks perfectly straightforward. But FINA got itself into serious hot water over this issue in the build-up to the last Summer Olympics, Beijing 2008, with the repercussions continuing until the start of this decade.

With the Beijing Games very much in mind, swimwear brand Speedo launched the LZR line of suits in February 2008. At the Games that summer, 94% of all swimming races won were

Italy's Carlotta Toni at the Milan Swimming International Meeting last year.

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The Powerskin R-EVO+ from Italian brand Arena is included on FINA's list of approved swimwear.

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won by competitors wearing the suit and 23 of the 25 world records broken were achieved by swimmers competing in it. Other brands moved as quickly as they could to emulate the LZR's capacity to limit passive drag in the pool thanks to its ultra lightweight, water-repellent material.

The intention here is not to go over old water, but it's worth pointing out that previous *WSA* articles (January-February and May-June 2010) covered in depth the rise and fall and rise of the LZR. The purpose of our Sports Specific section is to examine in detail how the governing bodies of different sports decide and communicate changes to their stipulations for clothing and equipment, so this is the focus here.

Olympic dominance

Precisely because of regulations surrounding the materials sports apparel brands used to make supersuits, FINA faced a series of controversies in the last years of the last decade. Such was the dominance at Beijing 2008 of competitors wearing the Speedo LZR that protests from those who were contracted to wear suits made by other brands, including Mizuno and ASICS, were inevitable. FINA resisted at first, but at the end of that year, at a European championship in Croatia, athletes set 17 new world records and the world of swimming decided something had to change.

The LZR and other suits such as the adidas Hydrofoil seemed to offer stark advantages to swimmers. After breaking the world record again in June 2009 wearing the Hydrofoil, German 100-metre freestyle specialist Britta Steffen said the suit made her feel like a speedboat in the water. "Never in my life would I have believed a human could glide like that," she said. "You don't die in the last metres and you feel no pain. Under normal circumstances, this suit should be forbidden, and I expect that by 2010 it will be." Within weeks of her comment, it was, along with all other long-length, high-tech swimsuits (although the ban only kicked in at the end of 2009).

Woven fabric only

From the start of the following year, men were allowed to wear only suits that run from the waist to the knees, often referred to as jammers. Women were no longer allowed to wear suits that go beyond the shoulders or below the knees. The international body also said that it would only approve suits made from woven fabric that is permeable to water and air and cannot aid buoyancy, the way it believed many of the new suits of that time did, completely covered as some of them were with poly-urethane. Now, the material in FINA-approved swimsuits must be made from "individual and non consolidated yarns used to constitute a fabric by weaving, knitting or braiding" and any coating must not close the open-mesh structure of the fabric. Other new stipulations are that the material must be flexible, soft-folding, regular and flat; it must have a maximum thickness of 0.8 millimetres (excluding seams), and suits must not have a buoyancy effect "above 0.5 Newton measured after application of vacuum". A commission led by Professor Jan-Anders Manson from the Swiss Federal Institute of Technology (EPFL) in Lausanne provided technical advice to FINA in this matter.



The FastSkin³ – part of Speedo's new generation of permissible performance swimwear. The company claims the cap, goggles and suit have been engineered to combine, creating a total racing system that cuts through the water with maximum efficiency.

Speedo

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Germany's freestyle record holder Britta Steffen sporting the controversial Hydrofoil swimsuit in 2009. Adidas have since introduced a new FINA approved version – the Hydrofoil 2.

adidas

Current freestyle swimming world records

(event, time, athlete, country, date set)

- **Men's 50 metres freestyle (long)**, 20.91, César Cielo, Brazil, 18 December 2009.
- **Men's 50 metres freestyle (short)**, 20.30, Roland Schoeman, South Africa, 8 August 2009.
- **Women's 50 metres freestyle (long)**, 23.73, Britta Steffen, Germany, 8 August 2009.
- **Women's 50 metres freestyle (short)**, 23.25, Marleen Veldhuis, Netherlands, 13 April 2008.
- **Men's 100 metres freestyle (long)**, 46.91, César Cielo, Brazil, 30 July 2009.
- **Men's 100 metres freestyle (short)**, 44.94, Amaury Leveaux, France, 13 December 2008.
- **Women's 100 metres freestyle (long)**, 52.07, Britta Steffen, Germany, 31 July 2009.
- **Women's 100 metres freestyle (short)**, 51.01, Lisbeth Trickett, Australia, 10 August 2009.
- **Men's 200 metres freestyle (long)**, 1:42.00, Paul Biedermann, Germany, 28 July 2009.
- **Men's 200 metres freestyle (short)**, 1:39.37, Paul Biedermann, Germany, 15 November 2009.
- **Women's 200 metres freestyle (long)**, 1:52.98, Federica Pellegrini, Italy, 29 July 2009.
- **Women's 200 metres freestyle (short)**, 1:51.17, Federica Pellegrini, Italy, 13 December 2009.

The pattern repeats itself for the four events (men's and women's, long course and short course) at the distances of 400 metres and 800 metres. That is, all the current world records were established in 2008 and 2009. At 1,500 metres, for the long course, Chinese swimmer Sun Yang established a new world record of 14:34.14 at the World Championships in Shanghai on July 31, 2011, but this is very much an exception.

World records

In spite of all the confusion of those times, FINA has allowed almost all of the 130 world records established by swimmers wearing one of the super suits to stand, but as soon as the 2010 ban was announced swimmers and their coaches began to warn that athletes' 2009 results were likely to be their best ever and that the sport would go for some time after that without many major records being broken. This proved prophetic, as the World Record statistics in the panel above show.

To be fair to FINA, its statement also included a commitment to try to avoid a repetition of all the 2009 confusion by publishing its approved list of swimsuit designs at least 12 months before World Championships or Olympic Games and by obliging swimwear manufacturers to have their product on the market six months in advance of the start of these competitions.

For London 2012, manufacturers, coaches and athletes have been working with a detailed set of guidelines that FINA published on February 1, 2011. It has given more than the stipulated 12 months' notice for the Olympic swimming competition and the approved list, clearly displayed on the FINA website, gives swimmers a choice of wearing the products of any of 57 different brands from around the world. They are not short of options over what to wear.

Whether any of them can reverse the fortunes of the years since supersuits were banned and treat the London 2012 crowds to world record performances remains to be seen.

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