STANDARDS IN SPORT: FENCING

Once a key part of warfare, fencing is thankfully now just a sport. But it's one that requires skill, speed and bravery, helped by specialist clothing and equipment.



En garde, with the right clothes and equipment

The pen is mightier than the sword, of course, but the sword, in the shape of the foil, épée and sabre that an athlete will use in official fencing competitions, is mighty enough in skilled hands; protective clothing and equipment to make sure participantsstay safe are an important part of this centuries-old sport. Fencing is one of only five sports (with athletics, cycling, swimming, and gymnastics) to have featured at every Summer Olympic Games in the modern era.

As with most sports, the international body governing fencing has its headquarters in Switzerland, specifically in Lausanne. It's the FIE, which stands for the Federation Internationale d'Escrime, the international fencing federation. Its detailed instructions governing what competitors must wear were last treated to a wholesale update in time for the Summer Olympics in London last year, with some smaller, more recent amendments that have come into

Epée contest. Andras Redli of Hungary (left) competes with Matthew Trager of Italy during a final men's team épée match at the World Fencing Championship in Kiev in 2012.

Lilyana Vynogradova / Shutterstock



Perfect foil. Andrea Baldini of Italy, a gold medal winner at London 2012, shows off the components of the uniform for foil, including an under-jacket and a sleeveless conductive over-jacket to allow opponents' touches to show up on the electronic scoring system.

Marie-Lan Nguyen/Wikipedia

force for each of the three disciplines in 2013.

Fencing uniforms have, as their most visible and most obvious clothing components a jacket and a pair of breeches or knickers. The FIE just says that they should be "of sufficiently robust material" and be clean and in good condition. Specifically, the material these garments are made from must be made entirely of textiles and must be able to resist pressure of up to 800 Newtons. And because scoring in all three disciplines is now electronic, with an audible tone and a flashing light indicating when an opponent's touch lands on the target area (different for each weapon), the material used to make the clothes must not be so smooth as to allow blows to glance off too easily without valid scores registering.

More than one line of defence

Manufacturers of specialist fencing clothing must pay particular attention to seams, especially under the armpits. And, just in case a weapon gets through this first line of defence, competitors have to wear an under-garment made from harder, protective plastron material to cover "the vital upper areas of the body".

One of a limited number of approved brands *(see Panel 2)*, Leon Paul of London tries to offer everything a fencer will need in his or her kit bag, including socks, shoes, baselayer tops and bottoms, and of course the gear for which the FIE has drawn up specific rules. Ben Paul, from the company's product development team, explains that the range the company made for fencers competing at London 2012 was its best ever. "You won't find anything better," he says confidently. "The material that we use for the outside of the garments is so stretchy and so comfortable to wear that it's like you're not wearing a fencing uniform at all. We line it with a wicking lining so that it transports moisture from the skin to the outside of the garment and cools you down." The lining is also treated with antimicrobial technology for anti-odour and freshness.

Panel 1: On target

The three different categories of fencing have different target areas.

Foil: The torso (including the lower part of the bib of the mask) and the groin.

Sabre: Everything from the waist up, including the arms and head, but excluding both hands.

Epée: The entire body.



Fencing mask with bib.

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The high-tech venue for fencing at London 2012. It's one of only five sports to have featured at every Summer Olympics in the modern era.

Ian Patterson/Wikipedia

From safety to scoring

Special attention must also go into making conductive clothing so that the electronic scoring system will work. In épée, the entire body is a target, so there must be conductive thread in both warp and weft throughout the garments fencers wear for this event. With sabre and foil it's different and competitors wear a lamé over-jacket. With the foil, the target areas are the torso (front and back), neck, and groin, but not the arms or the hands. For sabre the target is the entire body above the waist, excluding the hands, but including the arms. Therefore, lamé jackets for sabre have sleeves, while those for foil do not. Leon Paul's lamé jackets are made from a lightweight, flexible silver-coated fabric. They are machine-washable at 30°C, but the brand insists that only natural detergent products (with no added bleaching agents) should be used to preserve the material's conductivity. This is important because the FIE rules specifically warn against "patches of oxidation" or other defects that could prevent a competitor scoring with a valid hit.

A ball with masks

One of the areas that Leon Paul has focused on recently is masks. Fencing masks have to have bibs made from, according to the most recent FIE rules, material that can withstand twice the amount of pressure, up to 1,600 Newtons, as the rest of the uniform. For foil, the mesh part of the mask must not extend below the chin and the bib must be entirely covered with a material that has the same conductive characteristics as the lamé jacket. Ben Paul calls his company's X-Change mask "a breakthrough in mask technology". You can change the soft components, including the bib, and wash them. There are two different types of internal padding, nine different shells and four different bibs, meaning every fencer can pick and mix to make the mask fit them perfectly. Bibs slide into an aluminium groove, making it quick and easy to change them.

Richard Kruse, who represented Great Britain at London 2012, explains that he used to have to take two masks to competitions. "As soon as I sweated the bib would get wet, the sweat would conduct and it was an extra bit of target," he says. "Now I don't have to take two masks because you can change the innards and change the bib. So you can take spare innards and a spare bib and, in effect, have two masks."

Panel 2: Approved FIE brands

In total, FIE lists 14 approved manufacturers of fencing equipment and clothing. Ten of these brands are European, two are from China and two are from the US.

Absolute Fencing Gear	US
Allstar	Germany
Blue Gauntlet Fencing Gear	US
Favero	Italy
FWF Fechtwelt	Germany
KABCOM	France
Leon Paul	UK
PBT	Hungary
Prieur Sports	France
SAS Blaise Freres	France
Jianli Sport	China
StM	Ukraine
Uhlmann	Germany
Husheng Sports Goods	China

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