

Fencing Safety: The Maraging Blade

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Fencing has a long, bloody history, and non-fencers frequently assume it remains dangerous. The modern Olympic sport of fencing, however, is one of the safest sports to be found. Safety is rigorously monitored, in part to overcome public misconceptions, and equipment standards are boosted almost annually.

As a result, only seven fatalities have been recorded since 1937, and most of these have occurred in highly skilled competitors in elite competition (Epidemiology of Sports Injuries).

The drive for safer fencing was prompted by the 1982 tournament death of the Soviet champion Vladimir Smirnov. During an encounter at the Rome World Championships, a blade broke and penetrated Smirnov's mask, mortally wounding him. It remains one of fencing's few tragedies, notable in part because it was so exceptional, and it galvanized the world fencing community to adopt higher standards for equipment.

Since then, many space-aged materials and technologies have been incorporated into fencing, making it one of the most progressive sports in the world. Kevlar (R) brand fibers, ballistic nylon, and shatter-proof lexan masks have made fencing as safe as golf. The most critical change was to the swords themselves -- the fencing blades.

In the hands of a highly-trained athlete, even the heaviest blades seem flexible and light-weight. Slow-motion replays of World Championship encounters reveal how the stiff, forged metal seems to turn liquid and fragile under great stress. Hits on the target frequently bend the blade double, sometimes in different directions.

The fencing world needed a blade that was stiff enough to hold its shape under stress, that could bend into a circle under greater stress, that would be difficult to break, and that would break cleanly if it did. Enter the maraging blade.

Maraging blades

Introduced in the 1980s, maraging blades are forged from an alloy of tempered steel that incorporates iron, nickel and titanium. This steel (HRc 52-55) is twice as hard as stainless steel and 85% harder than pure titanium. The microcracks that eventually grow and snap the blade are only 5% as likely to develop in maraging steel compared to conventional steel.

Maraging blades are harder, stronger and longer-lasting than other blades -- on the order of several thousand more bends before breakage. Hard to scratch and slow to rust, some of the first maraging blades forged are still in active service. When they break, they typically break flat, without a sharp edge to them.

Maraging blades are pounded out by modern forges such as Blaise Freres, located near St. Etienne, France. Founded in 1885, Blaise Freres uses a computer-controlled robotic forge to produce its weaponry. Fencers know these blades from their imprimature "BF", and buy them from equipment vendors such as Triplette, Uhlmann and Allstar.

All this technology doesn't come cheap, and fencers can expect to pay between \$60-\$100 per blade. Luckily for most competitors, these blades are only required at high-level national and international tournaments. Standard blades, coupled with modern masks and jackets, are much improved over the equipment of prior decades, and are still deemed safe enough for lower competitions.

And, as fencing moves into a new era of explosive growth and celebrity fencers, name-brand blades are making an appearance. The Golubitsky-Pro blade was designed to the specific requirements of Ukrainian fencing prodigy Sergei Golubitsky and is offered through equipment supplier Leon Paul. This special (and expensive) blade redistributes the weight of the blade towards the hand, allowing for better balance and more precise tip movements.