

Cross-country skiing is one of the most physically exerting, burning 1,200 calories per hour.

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STANDARDS IN SPORT: CROSS-COUNTRY SKIING

Physically one of the toughest sports, cross-country skiing is seeing a renaissance as more people seek a healthier lifestyle and are unafraid of pushing the boundaries of endurance.

In it for the long run

"A substantial and unusual tolerance for pain" is not usually a characteristic required for outdoor pursuits. But if you're a cross-country skier, it is a must, according to a spectators' guide to the Winter Olympics. That less-than-appealing prerequisite has not deterred the millions of participants who take part in the numerous events, trails and tours across the globe.

While the sport is mainly centred around Northern Europe, Canada and Alaska, it has been growing in popularity recently in the northern US, fuelled by consecutive winters with heavy snowfall, and even in China, where 10,000 spectators turned up at the beginning of January to watch the China Tour de Ski in Changchun, in the north-east of the country.

Due to the wide ranging levels of the activity, clothing and equipment varies widely. As a hobby – touring – most will wear multilayered apparel that keeps them warm over the various distances and heights. Popular in the Nordic countries – the Norwegian Trekking Association maintains 400 huts – people go out for a few days, covering hundreds of kilometres and camping or staying in one of the huts overnight. They might favour mittens over gloves, headwarmers over hats and wind pants and jackets over the Lycra suits worn by the more serious participants. Complete skin coverage provides warmth and protects against sunlight and UV rays bouncing off the snow.

As a sport, the international ski federation, Fédération Internationale de Ski (FIS), sets the rules. These are detailed and comprehensive and, at the top level, cover not only the basics, such as altitudes and distances, but also how far away from the course competitors' hotels should be, how often their rooms should be cleaned and how many meals should be provided days before competing. However, the rules regarding clothing and equipment are less onerous – they cover length, width and weight of skis and poles.

Pierre Mignerey, race director of cross country at FIS, said: "Cross-country skiing is quite a 'stable' discipline in terms of rule changes due to the fact that we have only a few rules and that we are not really impacted by safety problems due to the equipment. We have not seen any 'revolution' since the introduction of the skating technique in the 1980s and equipment made for this technique."

Safety first

Unlike its counterparts such as snowboarding and Alpine (downhill), cross country is part of the Nordic family, where the heel is not attached to the boot. The competitive distances range from 1,500 metres to 150 kilometres and terrains vary by gradient, height, exposure and snow cover. Within these are individual events and team events; classical skiing or freestyle – all have different rules, equipment and followers.

The committee overseeing the equipment publishes equipment by-laws after approval by the FIS Council, and works as a sub committee of the FIS to amend the rules where needed. This season, a change was brought in regarding the ski length for Alpine, but no significant changes have been brought in for Nordic for the last two years, except covering commercial markings on equipment. "All new developments in the field of competition equipment must be approved in principle by the FIS," states the FIS rulebook.

Safety is one of the defining reasons for updating the rules. After an accident claimed the life of Canadian athlete Nik Zoricic in Grindelwald, Switzerland in March 2012, the FIS appointed a working group and tightened its policy on safety. "It is the continued goal of FIS to work to prevent injuries from occurring," says Michel Vion, chair of the group. "Besides considerable injury prevention efforts undertaken through FIS's injury surveillance system, the ski cross working group will work with the FIS freestyle committee and its advisory group to design, refine and implement various activities."

"Safety reasons are the main reason to change the rules," adds Mr Mignerey. "Of course, the development of new technologies or new equipment might create new safety problems and lead to necessary rules adaptation. But, in general, this is not a problem in cross country."

Salomon is seeing a rise in sales for both classic and skate skis, boosted by TV coverage and the dramatic emergence of professional distance racing teams.

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Material gains

Compared with other ski disciplines, cross-country skis are longer and thinner, due to the need to fit into defined tracks, and the tips curl more. Most cross-country skis are made using the cap method, where the interior is foam or honeycomb and can be reinforced with carbon fibre. An alternative is to sandwich hollowed-out wood or foam between layers of fibreglass. The weight of the skier determines the length and camber.

Ski lengths have become gradually shorter and lighter thanks to new technology and design, but still fall into either waxed or waxless categories. Waxless skis grip the ground using a scale-like pattern underneath, while waxed skis are more difficult to handle but more widely used in competition, and come with a whole other set of rules regarding waxing cabins and trucks, including the dimensions, the ventilation systems and the cleanliness.

New developments are making waxing trucks safer, such as Scania's cabin designed for the Ski Team Sweden X-country and launched in December, which has a better ventilation system than previous versions, and extra waxing stations. Urban Nilsson, the cross-country team's chief waxing technician, said: "Ski waxers often work long shifts under stressful conditions. The vapours create an unhealthy working environment, and used to cause health problems. In 2008 we finally got our first ski waxing truck, which significantly improved the working environment."

Bindings secure the boot to the ski, with the back heel free to allow the wearer to propel themselves along. The boots are much lighter than regular ski boots but vary with technique: boots used for 'skating' have a more rigid shell and base. Poles – which are made of aluminum, fibreglass, carbon or a combination – should extend to the armpit for the classic style, and for the free technique, be more rigid and extend to the chin.

The next generation

One of the main companies manufacturing cross-country skis is Austria-based Fischer Sports. Its new offerings for the 2012-2013 season include, for the first time, a women's race boot for both classic and skating techniques – an indication of the increasing number of women taking up the sport – three new boots for the off-track category and a lightweight backcountry ski. Peter Ashley, vice-president of the Fischer Skis US Nordic division, says: "Through intense athlete involvement, in-depth research and state-of-the-art technology and materials, we have made tremendous advances in Nordic ski boot fit, comfort and performance."

For companies such a Fischer and French ski groups Salomon and Rossignol, cross country's continued growth provides exciting opportunities. Ryan Green, Nordic division manager at Rossignol, explains: "We're seeing an increase in recreational skiers that are looking to enjoy the outdoors while on an alpine ski trip and those that live in a snow climate that are looking to get some exercise. We are also seeing people that started with snowshoeing transition to Nordic, as well as a large increase in runners, cyclist and triathletes getting into skiing as a way to maintain fitness in the off season."

Recently released figures from the Cross Country Ski Areas Association in the US show that the number of cross-country skiers in the country increased from 3.5 million during the 2007 to 2008 period to 4.3 million for 2011-2012. It estimates 1.5% of the population cross-country skis, and that they spend nine days a year doing so – the highest rate of all snow sports. While they only show figures for the US, received wisdom is that they are representative of the current global state of the market.

"The largest contribution to growth is junior learn-to-ski programmes that transition into junior racing programmes and eventually into adult programmes," says Mr Green, which is perhaps the most promising sign of all for the sports companies in this market. That a new generation is being inspired to take to the snow indicates that the discipline has a long way to run.



Salomon is a key sponsor of Nordic marathons, which provide the perfect venue to work on product development with professional racers and enthusiasts alike at one venue over identical conditions and terrain.

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