

Which nation is best in Nordic elite sport?

Which nation is best in Nordic elite sport. An analysis of the results of Sweden, Norway, Finland and Denmark in international elite sport - past and present

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This article focuses on elite sport in Sweden, Norway, Finland and Denmark, from historical and current perspectives. These Nordic nations have far more similarities than dissimilarities. They are all strong welfare models. This model forms values, structures and organization of a number of areas in the societies, including elite sport. All four nations rank high in international comparison of ex. economy, education, health or trust in public authorities. But how well do the nations perform, globally and among each other when it comes to elite sport? Why have they chosen four different elite sport models? Which nations prioritize winter sports, and which prioritize summer sports. And what sports - Olympic or non-Olympic - are the most competitive in each nation? These questions are attempted answered in the following pages.

Introduction: Comparative studies always contains methodological challenges

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It is difficult to make valid comparative analyses of each nation's performance in international elite sport, due to a number of methodological challenges. Pressing questions are for instance: Which Olympic and non-Olympic sports should be included in the analysis? Which international competitions - Olympic Games, World Championships, European Championships, World Cups and special events such as Grand Slam tournaments in tennis, Giro d'Italia, Tour de France and Vuelta e Espana in cycling, Formula 1 in motorsports or the PGA Tour in golf? How should the weighting of medals (gold, silver and bronze) be compared to top 6, 8 or 10 rankings in each competition? How should the analysis compare sports with many sub-disciplines such as rowing, cycling and swimming in sports with only one discipline such as handball and ice hockey – albeit played separately by women and men? And should the various sports weight differently or equally in proportion to each sports' international status?

These methodological challenges do not stop analysis and research institutions from asking the question: Which nations do best in international sports competitions, both currently and historically?

Many factors influence nations' sports results (2). One of the most recognized international analyzes are the "SPLISS study". This study shows that a nation's population size (number of citizens), economic wealth (GNP), political system and religious factors have a decisive influence on nations' sports results (3). One of the main conclusions in this analysis is that these four factors can explain more than half of a nation's success or failure in international sports competitions. The other half can be explained by nine factors that are more or less developed in each nation's elite sport system: Economic resources for elite sport, management and organization of sport policy, participation in sport, talent identification and development, support during and after the athletes' careers, training facilities, coach education, participation in national and international competitions and research and innovation in elite sport. The "SPLISS study" compares the above factors in

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15 nations over a period of 4 years with these nations' sports results, achieved in international competitions (4).

However, there are other factors than those mentioned in the "SPLISS study", that influence a nation's sporting potential and results, ex. climate and geography. Weather, temperature and geography can explain why relatively small nations such as Sweden, Norway, Finland, Austria and Switzerland are strong winter sports nations, while other relatively small nations in terms of population size such as Jamaica, Australia, Hungary and Denmark rarely win medals or even qualify for participation in Olympics winter sports like cross-country skiing, biathlon, ski jumping or bobsleigh. However, it can be more difficult to explain why sports like badminton in Denmark, golf in Sweden, biathlon in Norway, motorsport in Finland, speed skating in Holland or table tennis in China are popular and successful internationally. It is probably due to historical traditions and strong cultures that reinforce both the athletes, spectators and the media's special interest in these particular sports in the nations (5).

Common characteristics of Norway, Sweden, Finland and Denmark: The Nordic welfare model

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Norway, Sweden, Finland and Denmark are interrelated in many ways both historically, culturally, linguistically, politically and religiously. Especially after World War II the four nations have developed a political and economic system - the Nordic welfare model - with a number of common characteristics (6). The basic principles underpinning this model is that all citizens in society have equal access to social services such as child benefits, social assistance and pension regardless of social background, and those services are not linked to insurance contributions or other forms of user fees. Citizens are thus financially secure in case of sickness, unemployment and old age. There are also a number of highly expanded public services in the form of day care, free education (schools, colleges and universities), free healthcare (medical care and surgery) and social benefits (social security, unemployment benefits and retirement).

The Nordic welfare model is also characterized by high economic prosperity and growth is combined with a relatively equal income distribution (7). An important instrument in this context is taxes and charges, because the model is primarily funded by tax collection. The redistribution of economic resources is based on a progressive taxation. The dependence on tax revenues means that the model's sustainability is depend on the nations' ability to maintain a high level of employment for both sexes. The four nations have developed different models but the fundamentals are largely the same. The differences between the versions of the Nordic "model" is particularly dependent on the political alliances of the various political parties that have signed in. The development of the Nordic welfare model is often associated with strong social democratic labor movement as a driving force, but it is also significant that there has been a high degree of consensus on key reforms among most of the political parties (8).

The fundamental values of the Nordic welfare model are community, solidarity and equality. In order to promote these values the government (state, regions and municipalities) uses substantial financial resources to facilitate citizens' cultural and leisure

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activities (9). All four nations have, among other things, paved the way for diverse and well-functioning club structures in a variety of sports, where large numbers of coaches and managers - volunteer or paid - undertake a number of tasks for the benefit of children and youth in the community. Clubs are the basis for talent development and elite sport in each sports (10). Moreover, it is characteristic of the Nordic nations that individual and team sports are organized in a federal structure. Broadly speaking all sports are members of overarching national sports federations: Norwegian Olympic and Paralympic Committee and Confederation of Sport (NIF), Swedish Sports Confederation (RF), Finnish Olympic Committee (FOC) and National Olympic Committee and Sports Confederation of Denmark (DIF) (11). Sports associations must be members of the national sports federations or the National Olympic Committee to participate in international tournaments and championships.

Historical tradition and strong elite culture in the Nordic countries

The diverse network of clubs with competent children and youth coaches in combination with high material standard and good sports facilities have been the main reasons why Norway, Sweden, Finland and Denmark have been among the best sporting nations in the world for more than a Century, not least when the nation's relatively small populations are taken into account. Especially in winter sports such as cross-country skiing, biathlon, alpine skiing, speed skating and ski jumping, Norway, Finland and Sweden have been dominant at the Winter Olympics, World Championships and World Cups. Also in summer sports all three nations have excelled in a number of sports including shooting, sailing, athletics, cycling, rowing, wrestling and handball leading to relatively many medals won at Olympic Games, World Championship and European Championship (12).

Both Sweden and Denmark, along with 11 other nations represented at the first Summer Olympics in modern times, held in Athens 1896. Denmark won six medals at the Games in three different sports: shooting (3), weightlifting (2) and fencing (1), while Sweden did not win any medals in the first Olympic Games. Norway got Olympic debut at the Summer Olympics in Paris 1900, where the number of sports had grown from 9 to 19 and the number of nations from 13 to 24 (13). Finland competed at the Summer Olympic Games for the first time in London 1908 as a part of the Russian Empire, but Finland had become a sovereign member of the International Olympic Committee in 1907. Finland was also the host nation for the Summer Games 1952 in Helsinki.

Sweden, with a population of 9.6 million, was together with Finland in the first half of the 20th century one of the world's best performing sporting nations. Only United States and Great Britain won more medals than Sweden at every Summer Olympic Games before World War II (14). In the early 1960's, the Soviet Union and some Eastern European nations became increasingly dominated by "state amateurism" and widespread use of doping, the number of medals for Sweden and Finland at the Summer Olympics significantly decrease. Today, Sweden is still number 10 in the calculation of all the Summer Olympics and historically the most successful nation at the Summer Games in relation to population. Likewise, Finland is still number 14 in the calculation of all Summer Olympics, in spite the facts Finland only won one bronze medals in Rio 2016. In addition, Sweden has also historically been a strong nation in sports such as women's soccer and men soccer (World Championship silver medal in 1958 and World Championship bronze

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medal in 1994), men's handball (World Championship gold medal in 1954, 1958, 1990 and 1999 and Olympic silver medal in 1992, 1996, 2000 and 2012), tennis and golf - all sports that only in recent decades have been included in the Olympic programme. Sweden has won a total of 493 medals (145 gold, 170 silver medals and 178 bronze medals) at the Summer Olympics. The medals were won in 24 different sports, mostly wrestling (86), athletics (81) and shooting (57).

Also in relation to population sizes of 5.2 million, 5.5 million and 5.7 million citizens respectively Norway, Finland and Denmark has historically achieved good results at the Summer Olympics. Finland has won a total of 302 medals (101 gold, 85 silver medals and 117 bronze medals) in 12 different sports, primarily in athletics (114), wrestling (85) and gymnastics (25). Most of the medals are won at the Summer Games before World War II. Denmark has won a total of 194 medals (45 gold, 74 silver medals and 75 bronze medals) in 20 different sports, primarily in sailing (31), cycling (26) and rowing (24). Norway has won a total of 152 Olympic medals (56 gold, 49 silver medals and 47 bronze medals) in 17 different sports, primarily in shooting (32), sailing (31) and athletics (20).

Norway, Finland and Denmark have all won significantly fewer medals than Sweden at the Summer Olympics, but since the Sydney Olympics in 2000 Sweden has not been the best nation among the Nordic countries at any Summer Olympics – this position was taken over by Norway at Beijing 2008 and of Denmark at Athens 2004, London 2012 and Rio 2016.

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Norway, Finland and Sweden, along with 13 other countries represented at the first Olympic Winter Games in Chamonix 1924. Norway, Finland and Sweden have thus been extremely diligent medal winners at the Olympic Winter Games, as Norway has won a total of 329 Olympic medals (118 gold, 111 silver medals and 100 bronze medals) in 10 different sports, primarily in cross-country ski (107), speed skating (80) and ski jumping (35). Finland has won a total of 161 medals (42 gold, 62 silver medals and 57 bronze medals) in 10 different sports, mostly in the Nordic skiing events. Sweden has won a total of 143 Olympic medals (50 gold, 39 silver medals and 54 bronze medals) at the Winter Olympics in 11 different sports, primarily in cross country skiing (74), alpine skiing (16) and speed skating (16). Denmark debuted at the Winter Olympics in St. Moritz 1948 and despite the participation in most Winter Games so far, the nation has won only one silver medal in curling for women at Nagano 1998.

Four different elite sport models in the Nordic countries

All four nations experienced - like many other nations in Western and Southern Europe - in the 1970s and 1980s a marked decline in the number of medals at the Summer Olympics. This was not least due to the fact that the Soviet Union and other Eastern European nations invested massively in building and developing elite models. Models that included advanced sports science and sophisticated doping programmes (15). Moreover, nations in Southeast Asia - especially China, Korea and Japan – began to invest more financial resources in order to methods to achieve sporting success and national prestige through sports results at international championships. The global trend towards larger national "investments" in elite sport was the reason why politicians - both inside and outside the sports world - began to discuss and develop national elite sport models. The

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starting point for these discussions in Norway, Denmark, Sweden and Finland was the Nordic welfare model, as previously mentioned.

There was an intensive debate in the late 1970s and early 1980s about the conditions of elite athletes in Denmark, both internally in sports organizations and among the politicians. There were very different positions in the debate, but after several years of discussions and negotiations, political consensus was reached to establish a "independent" institution – Team Denmark - that would improve Danish athletes' and teams sporting achievements in international championships, while the athletes' social, educational and economic conditions were not downsized because of the athletes' increasing training and competition extent. The Act on the promotion of elite sport was passed by the Danish Parliament in December 1985 (16). From the beginning, Team Denmark was neither an association nor a state institution. It was an independent institution, born like a hybrid with a series of contradictions, which the state and sports organizations, had to manage.

In the same period there was a similar sports political debate evolving in Norway that focused on elite athletes' on and off the sports arena. This debate intensified when Norway was nominated by the IOC to host the Winter Olympics in Lillehammer 1994. The result was the establishment of Olympiatoppen (OLT) - a division of Norwegian Olympic and Paralympic and Sports Confederation (NIF) with independent political and administrative management (17).

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In Sweden, in the last decade there has been several sports policy discussions about advantages and disadvantages of setting up an autonomous and independent institution for Swedish elite sport - like Team Denmark and Olympiatoppen. However, in Sweden there are still no established organization responsible for elite sport. Instead the structure with three key actors fulfilling different roles and different responsibilities in relation to the operation and development of Swedish elite sport are upheld. These three actors are: The Swedish Olympic Committee (SOK), Swedish Sports Confederation (RF) and the sports federations such as Swedish Football Association (SvFF), Swedish Swimming Federation (SSF) and Swedish Ice Hockey Association (SIHA) (18).

In Finland, the Olympic Committee becomes the elite sport organization for many decades, but there has always been overlapping structures of competitive and elite sport activities and organizations in Finland. Another challenge has been the weakness of the vertical connection from the club and regional level to the national elite sports organization. Apart from the problems caused by conflicts with the sport organization, the doping scandal involving Finnish skiers at the World Ski Championships in Lahti 2001 caused to a decreasing support for elite sport, especially in the population. The main problems for elite sport in Finland has been structural disintegration, lack of a clear management structure and lack of cooperation between the organizations. Following the London 2012 Olympics the Finnish Olympic Committee that bears the main responsibility for developing and coordinating elite sports, established "The High Performance Unit". This unit directs and coordinates the activities of the elite sport network, including elite disability sport, together with the sports federations. Through the High Performance Unit, resources are allocated to support the everyday lives of athletes, coaches and other operators during three different programmes: "Sports Academy Programme", "Peak-Phase Programme" and "Research

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and Development Programme” together with “Research Center for Olympic Sport” (KIHU) at University of Jyväskylä (19).

Results in international sport 2013-2016: More ups than downs for the Nordic countries

There is always great attention to and interest in how the nations is doing at the Olympics, the world's biggest sporting event. However, it is also important how each nation's athletes and teams perform at World Championships and World Cups in individual sports in the years prior to the Olympics. More and more evaluation institutions use not only Olympic and World Championship medals as a measure of a nation's sporting achievements, but include to a greater extent top 8 ranking at the Olympics and World Cup. The explanation is that competition density in most Olympic events have increased, which means the difference between a place among the medals and a place outside the podium as number 4 to eight are often accidental (20).

As previously mentioned, Norway is among the world's best performing winter sports nations. This is manifest in the nation's ranking in the past four years. Of the total number of ranking points (1.526) 1.388 (91%) was obtained in the winter sports and only 138 (9%) in summer sports. Norwegian athletes and teams have in the past four years achieved 128 ranking points (9%) from 1.398 (2009-2012) for a total of 1.526 ranking points (2013-2016). The improvement, however, is exclusively taken place in winter sports (1.388 ranking points in 2013-2016 vs. 1.152 ranking points in 2009-2012), while there is a noticeable decline of 44% in summer sports (138 ranking points in 2013-2016 vs. 246 ranking points in 2009-2012). Based on these results prior to the Olympics, it was no surprise that Sochi 2014 was one of Norway's historically best with 26 medals. Rio 2016, however, was one of Norway historical worst Olympic Games results with "only" four bronze medals and a ranking as modest number 74 of the nation competition.

Table 1: Norway - Top 8 rankings in Olympic disciplines 2013-2016

	2013	2014	2015	2016
Winter sports	343	301	295	449
Summer sports	42	36	30	30
Total	385	337	325	479

Sweden is a nation that traditionally does well, both in summer and winter sports. It is also the trend that has characterized the results during the past four years. Swedish athletes and teams have during the past four years earned 1.026 ranking points, which is almost the same as in 2009-2012 (1.057 ranking points). Sweden won in 2013-2016 almost equal ranking points in winter sports (509 or 49%) as in summer sports (517 or 51%). The number of ranking points in winter sports has decreased somewhat - from 586 to 509 (13%) and especially 2016 were performance terms a really bad year for Swedish winter sports. Summer sports achieved a modest increase of 10% (471 ranking points in 2009-2012 vs. 517 ranking points in 2013-2016), which was also confirmed in relation to Rio 2016, where Sweden won 11 medals - three medals more than in London 2012.

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Table 2: **Sweden - Top 8 rankings in Olympic disciplines 2013-2016**

	2013	2014	2015	2016
Winter sports	137	149	136	87
Summer sports	123	147	116	131
Total	260	296	252	218

Finland is a nation that traditionally does well, especially in winter sports. Finland won in 2013-2016 most ranking points in winter sports (278 or 66 %), and fewer in summer sports (141 or 34 %). But within the last four years Finnish athletes and team have a surprising decrease of results in winter sports. In this period Finland only achieved 278 ranking points, which is significant lower than in 2009-2012 (360 ranking points). Remarkable Finland had a marked increase in summer sport within the last four years - from 110 ranking points in 2009-2012 to 141 ranking points in 2013-2016. Unfortunately, this progress wasn't realized in Rio 2016, where Finland only won one medal (boxing – women) – the poorest results ever for Finland in the Olympic Summer Games and 2 medals less than in London 2012 (2 silver medals and one bronze medals) and a ranking as modest number 78 of the nation competition – also the poorest result ever for Finnish elite sport.

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Table 3: **Finland - Top 8 rankings in Olympic disciplines 2013-2016**

	2013	2014	2015	2016
Winter sports	84	71	57	66
Summer sports	47	47	33	14
Total	131	118	90	80

Especially in the last decade, Denmark has performed well in summer sports. Danish athletes and teams have in the past four years reached a total of 552 ranking points, which is a remarkable improvement from the period 2009-2012, with a total of 508 ranking points - equivalent to 9%. There was a growth in both winter sports (12 ranking points in 2009-2012 vs. 23 ranking points in 2013-2016) as a summer sports (490 ranking points in 2009-2012 vs. 529 ranking points in 2013-2016). It is striking that Denmark has achieved 96% of the ranking points in the summer sports and only 4% in the winter sports. The improvement was also reflected in Rio 2016, where Danish athletes and teams won 15 medals - the best Danish Olympic performance since London1948. Somewhat surprisingly Danish athletes and teams was rewarded fewer ranking points at Rio 2016 (135) than at London 2012 (148) despite winning a total of 15 medals in Rio compared to 9 medals in London.

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Table 4: Denmark - Top 8 rankings in Olympic disciplines 2013-2016

	2013	2014	2015	2016
Winter sports	6	6	1	10
Summer sports	133	129	132	135
Total	139	135	133	145

Sochi 2014: The historically best Winter Olympics for Norway and Sweden

Both Sweden and Norway achieved historic success at Sochi 2014, where athletes and teams from 88 nations competed for Olympic medals in 15 different sports.

Norway won a total of 26 Olympic medals (11 gold medals, 5 silver medals and 10 bronze medals) in 6 different sports: Cross-country skiing (11), Ski jumping (6), Nordic combined (4), Alpine skiing (3), snowboard (1) and ski (1). The results meant that Norway was no. 2 in the nation competition - second only to the host nation Russia with 33 Olympic medals. The 26 Olympic medals, three more than Vancouver 2010 and one of the highest ever - equal to the number of Olympic medals in Lillehammer 1994. The largest Norwegian OG-profiles in Sochi was Marit Bjørgen (cross-country skiing) with 3 gold medals and Ole Einar Bjørndalen (biathlon) with 2 golds medals.

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Sweden won a total of 15 Olympic medals (2 gold, 7 silver medals and 6 bronze medals), four medals more than Vancouver 2010 and the highest medal count for Swedish winter sports ever. The medals were won in "only" four sports: Cross-country skiing (11), curling (2), ice hockey (1) and freestyle skiing (1). The largest Swedish profiles at the Olympics in 2014 was Charlotte Kalla (cross-country skiing) with three medals (one gold and two silver medals) and "Tre Kronor", who won Olympic silver medals in ice hockey for men after defeat in the final against Canada.

Finland won a total of 5 Olympic medals (one gold, 3 silver and one bronze medals) in Sochi 2014 – the same amount of medals as Vancouver 2010 (one silver and four bronze medals). The medals were won in "only" 3 sports: Cross-country skiing (3), snow-boarding (1) and ice hockey (1). The largest Finnish profiles at the Olympics in 2014 was Iivo Niskanen and Sami Jauhojärvi (gold medal in cross-country skiing – men's team sprint), Enni Rukajärvi (silver medal in snow-boarding) and the men's icehockey team (bronze medal) after a victory in the quarterfinal against the host nation and favorite of the tournament – Russia.

Denmark was represented in three sports: Curling, cross-country and alpine skiing at Sochi 2014, but also this time without winning any medals.

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Rio 2016: The historically best summer Olympics for Denmark and the worst for Norway and Finland

Denmark took revenge at Rio 2016, where 207 nations competed in 28 different sports. Danish athletes and teams won 15 medals (2 gold, 6 silver medals and 7 bronze medals), six more medals than in London 2012 which was the best Danish achievement in Olympic history to this date. The medals were won in nine sports: cycling (3), rowing (2), sailing (2), badminton (2), swimming (2), and wrestling (1), athletics (1), kayak (1) and handball (1). This resulted in Denmark being number 26 in the nations ranking and number 3 in the nation per capita ranking - second only to New Zealand and Jamaica. A surprising Danish achievement in Rio were probably Pernille Blumes Olympic gold medal in swimming and the gold medal for men's team handball – which followed the team's European Championship gold medal (2008 and 2012) and World Championship silver medal (2011 and 2013).

Sweden also improved with 11 Olympic medals (2 gold medals, 6 silver medals, and 3 bronze medals) in Rio 2016 compared to the outcome of London 2012, where Sweden "only" won a total of eight medals (1 gold, 4 silver medals and 3 bronze medals). The London Olympics represent one of Sweden's most unsuccessful ever Olympic performances. The 11 Swedish Olympic medals were won in seven sports: Swimming (3), cycling (2), wrestling (2), horse riding (1), football (1) golf (1) and shooting (1). The largest Swedish Olympic profiles in Rio was Sarah Sjöström (swimming) with three medals and Jenny Rissveds surprising gold medal in mountain biking.

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Norway's lackluster performance in summer sports in the years before Rio 2016 were sadly repeated in Rio 2016, where they "only" won 4 medals – all bronze. The medals were won in three sports: rowing (2), wrestling (1) and women's handball (1), where Norway won Olympic gold medals at both Beijing 2008 and London 2012. The number of Olympic medals in Rio was the lowest since Los Angeles 1984 and perhaps even more surprisingly, Norwegian athletes and team had relatively few top 8 rankings, namely 30 ranking points in 2016 against 44 ranking points in 2012.

Finland's poor results in Rio 2016, both in relation to medals (one bronze medal) and top 8 rankings was a negative surprise compared with the results at World Championship in the years before the Olympic Games. Finland was represented in 15 different sports, but only received top 8 rankings in three sports: boxing, athletics and sailing, namely 14 ranking points in 2016 against 35 ranking points in 2012. The largest Finnish Olympic profiles in Rio was Mira Potkonen with a bronze medal in boxing.

International elite sport is more than Olympic sports

The vast majority of nations focus on Olympic sports, but in the Nordic countries, there are also historical tradition of supporting and developing non-Olympic sports. This is in accordance with the Nordic welfare model. Both Olympiatoppen and Team Denmark have cooperation with sports which are not on the Olympic programme.

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All four nations are among the world's best in orienteering. Sweden belongs to the world elite in sports such as bandy, innebandy (floorball), speedway and bowling. Danish athletes and teams are among the world's best in sports such as speedway, bowling and sports dance, while Norway has world class athletes in sports such as climbing, sports dancing, kick-boxing and rallycross. In addition, it should be mentioned that the athlete of the year in Norway in 2016 was world champion in chess - Magnus Carlsen. Finland are among world best in sports such as motorsport, innebandy (floorball) and bowling.

The four Nordic nations are placed among the world's best, not least in relation to the population size of the nations, in both Olympic and non-Olympic sports (20). Norway and Sweden in the period 2013-2016 were among the top 20 nations in the world, while Denmark achieved its best-ever ranking as number 20 in 2016. Finland best ranking in the period was number 27 (2013 and 2014), declined to number 41 in 2016. Relative to population size, Norway - not least because of its dominance in winter sports – has been the world's second -best sporting nation per capita, second only to Slovenia (2013 and 2014), Jamaica (2015) and third-best to New Zealand and Jamaica (2016). During the same period Sweden was among the top 10 sporting nations per capita, while Denmark's rankings in 2013-2016 per capita varied between the number 4 (2016) and number 14 (2014). Finland's ranking per capita in the period varied between number 6 (2014) and number 13 (2015) - see the figure below.

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All sports (98 olympic and non-olympic sports) – Nordic countries in international ranking

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2017 - Another exciting year of sports has begun with good results to Norway

There is now less than a year to the beginning of the next Winter Olympics – Pyeongchang 2018. In recent months, the last world championships in winter sports before the Winter Games in South Korea took place.

In particular, Norway has emphasized its dominance in many ski disciplines, both at World Championship in biathlon with 4 medals and World Championship in cross-country skiing, Nordic combined and ski jumping with a total of 18 medals, as well as World Championship in alpine skiing with 2 medals. By contrast, Sweden generally - similar to 2016 - had very disappointing results in all three World Championships since Sweden "only" has won two medals at the World Championships in alpine skiing and four medals at the World Championships in the Nordic disciplines. As host for the World Championship in the Nordic skiing events in Lahti Finland won 5 medals (one gold, one silver and three bronze), which may indicate a coming success at the winter game in South Korea next year.

Neither Sweden (number 4) or Denmark (number 12) won medals at World Championships in curling for women, while Sweden won silver medals and Norway was no. 8 at the World Championships in curling for men. Denmark and Finland did not qualify for this World Championship. Sweden, with this year's WC-results, qualified both their women's and men's team, Norway qualified the men's team, while Denmark and Finland did not yet qualify either women's or men's team in curling for Pyeongchang 2018.

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Norway's success at World Championships in men's handball, where they won the silver medal came as a surprise. This was the best international result for Norwegian men's handball ever. During the same championship Sweden lost in the quarterfinals and Danish Olympic gold medalists disappointingly was eliminated in the round of 16.

The World Championships in track cycling was another disappointment for Denmark with only secondary rankings in the two Olympic disciplines: 4 km team pursuit (number 10) and omnium for men (number 6).

Conclusion

As mentioned in the introduction methodological obstacles make it difficult to identify the best sporting nation among the Nordic countries. However, it is safe to say that, Sweden appear to be the best sporting nation, if we assume a historical perspective for both Olympic and non-Olympic sports. Sweden is among the world's top 20 nations in both summer and winter sports - and measured against the nation's population of around 10 million. Sweden is among the world's three best sporting nations. It is worth noting that Sweden's performance in the Olympic sports since the Millennium has fallen behind and there is definitely an untapped potential for Sweden in several summer sports. Based on recent years' results in winter sports there is reason to believe that Sweden will find it increasingly difficult to maintain their position. This would require that they won 15 or more Olympic medals at the upcoming Pyeongchang 2018. The results at Tokyo 2020 will show if Swedish elite can re-establish the position as Scandinavia's best nation at the Summer Olympics from Denmark. The dual will be an exciting one.

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Norway is - both past and present - by far the best winter sports nation among the Nordic countries. Both at the Olympics, World Championships and World Cups, there are many and proud traditions of Norwegian athletes and teams at the winners' podium, and it is not unrealistic that Norway is the best sport nation at next year's Winter Olympics - despite the nation's tiny population of just over 5 million. Norway's competitors for the top position as the world's best winter sport nation include Russia with 142 million citizens, Canada with 36 million citizens and the US with 325 million citizens. Norway has also historically achieved good results at the Summer Olympics, but especially the recent Rio 2016 was a significant disappointment for Norway with "only" four bronze medals and a very limited number of top 8 rankings. There is definitely potential for improvement for Norway at Tokyo 2020.

Finland is still a strongest winter sports nation with a lot of good performance at the winter Olympic, World Championships and World Cups. Also in ice hockey Finland, both men's and women's team are among the best in the world. Based on the current results from the last few years it's still a realistic goal for Finland to win at least 5 medals or more at the Winter Games next year. Like Norway there is a definitely potential for improvement for Finland at the next summer games in Tokyo 2020, both in relation to medals and top 8 rankings.

Denmark is currently the best summer sporting nation in Scandinavia. There are many reasons, including climate, geography and lack of traditions as to why Denmark - unlike Norway and Sweden - will never be a winter sports nation. By contrast, the Danish athletes and teams in the last decade improved results in summer sports significantly. Both London 2012 with 9 medals and especially Rio 2016 with 15 medals in nine different sports were historic achievements, which in recent years has been complemented by world-class results in particular orienteering, bowling, speedway and sport dancing.

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Notes:

1. Scandinavian Network for Elite Sport is a network between Section of Sport Science, Aarhus University, Department of Food and Nutrition, and Sport Science, University of Gothenburg, Norwegian School of Sport Science and Faculty of Health and Sport Sciences, University of Jyväskylä. The aim of the network is to develop collaboration, knowledge exchange and research in the area of elite sport within the Nordic countries.
2. Green, M. & Houlihan, B. (2005): *Elite sport development. Policy learning and political priorities.* (London & New York: Routledge), Digel, H., Burk, V. & Fahrner, M (2006): *High-performance sport – An international comparison* (Weilheim/Teck: Bräuer), Shibli, S., Bingham, J. & Henry, I. (2007): Measuring the Sporting Success of Nations I: Henry, I: *Transnational and Comparative Research in Sport: Globalisation, governance and Sport Policy*, pp. 61-81 (London: Routledge), Bergsgard, N.A., Houlihan, B. Mangset, P. Nørdland, S.I. & Rommetveldt, H. (2007): *Sport Policy: A comparative analysis of stability and change* (Elsevier, UK), Houlihan, B. & Green, M. (2008): *Comparative Elite Sport Development. Systems, structures and public policy* (London, UK: Elsevier), Böhlke, N. & Robinson, L (2009): "Benchmarking of elite sport systems", pp. 67-84 I: *Management Decision*, 47 (1) and De Bosscher, V., Shibli, S., von Bottenburg, M, De Knop, P. & Truyens, J. (2010): Developing a method for comparing the elite sport systems and policies of nations: a mixed research methods approach. *Journal of Sport Management*, 24(5), pp. 567-600.

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3. De Bosscher, V., Shibli, S., Westerbeeck, H. & Van Bottenburg, M. (2015): *Successful Elite Sport Policies. An international comparison of the Sport Policy factors Leading to International Sporting Success (SPLISS 2.0) in 15 nations*. (Maidenhead: Meyer & Meyer Sport). Denmark and Finland are among the 15 nations included in the comparative analysis. Sweden and Norway are not partners in the analysis. The first version of SPLISS is described in the publication: De Bosscher, V., Bingham, J., Shibli, S., Van Bottenburg, M. & De Knop, P. (2008): *The global Sporting Arms race. An international comparative study on sports policy factors leading to international sporting success* (Aachen: Meyer & Meyer). The analysis included six nations, including Norway –but not Sweden, Finland and Denmark. For more information on SPLISS - see www.spliss.net
4. The results are collected in 2009-2012. The following nations are included in the comparative analysis: Brazil, Canada, Japan, South Korea, Australia, Belgium (Flat Eren and Wallonia), Denmark, Estonia, Finland, France, Netherlands, Northern Ireland, Portugal, Spain and Switzerland. The first “SPLISS study” involved six nations: Belgium, Canada, Italy, Netherlands, United Kingdom and Norway. The results of this study are collected in 2003-2004.
5. Further information about badminton in Denmark - www.badminton.dk , golf in Sweden - www.spelagolf.se/historia , biathlon in Norway - www.snl.no/skiskyting , speed skating in Holland - [www.mentalfloss.com / article / 55182 / why-are-dutch-so-good speed skating](http://www.mentalfloss.com/article/55182/why-are-dutch-so-good-speed-skating) . It is estimated that there are more than 300 million registered table tennis players in China - more than the US population.
6. Allardt, E. (1975): *Att ha, for the attention Älska, for the attention Vara: about väldfärd in the Nordic countries* (Lund: Argos) and Christensen, NF, Petersen, K., Edling, N. & Haave, P. (ed.) (2006): *The Nordic Model of Welfare: An Historical Reappraisal* (Copenhagen: Museum Tuscalamum Press).
7. Gross National Product (GNP) per capita expresses the value of all goods and services produced in a nation during a year, minus the items that are used in this production. GDP per population does not show disparities among the citizens, ex. compared to income or capital. The four nations has for many years been placed high on the list with maximum GNP per citizens. In 2015, Norway was (74,734 \$) placed as number 3 after Luxemburg (101 450 \$) and Switzerland (80 735 \$). Denmark (52 002 \$) was ranked number 8, Sweden (50 273 \$) as number 10 and Finland (43.169 \$) as number 15.
8. Dybdal, A. (red.) (2014): *Socialdemokratiske tænkere* (København: Informations Forlag). The book describes 17 of the thinkers and political practitioners who have had the greatest influence on the Scandinavian social democracies. These include Alva and Gunnar Myrdal (Sweden), Gro Harlem Brundtland (Norway) and Mogens Lykketoft (Denmark).
9. The Nordic welfare model is also known as the universal welfare model. The other two ideal types is the liberal welfare model (including the US and UK) and the Central European welfare model (eg Germany and the Netherlands) - see. Esping-Andersen, G. (1990): *The Three Worlds of Welfare Capitalism* (Oxford: Polity Press). For further information about the universal welfare model, see eg. Larsen, CA & Andersen, JG (eds.) (2015): *Den universielle velfærdsstat - funktionsmåde, folkelig opbakning og forandring* (Frydenlund Academic).
10. Bergsgard, N.A. & Norberg, J.R. (2010): “Sport and Politics – the Scandinavian way”, pp. 567-582, Støckel, J.T., Strandbu, Å., Solenes, O. Jørgensen, P. & Fransson, K. (2010): “Sport for children and youth in the Scandinavian countries”, pp. 625-643 og Bairner, A. (2010): “What’s Scandinavian about Scandinavian Sport”, pp. 734-743 I: *Sport in Society*, 13/410.
11. Further information on the national sports federations are on the following websites: Norwegian Olympic and Paralympic Committee and Confederations of Sports (NIF - www.idrettsforbundet.no) Swedish Sports Confederation (RF - www.rf.se) and National Olympic Committee and Sports Confederation of Denmark (DIF - www.dif.dk). In Sweden, an independent Olympic Committee -

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Swedish Olympic Committee (SOK - www.sok.se) with autonomy in relation to RF (note 17). Finnish Olympic Committee (FOC - www.xxx.fi)

12. In this article is winter sports defined as sports included in the Winter Olympics, while summer sports are defined as sports that are part of the Summer Olympics. Most athletes perceive their sports as a year-round activity, ie with different types of training at different times of the year. Sports such as handball and badminton, which is part of the program at the Summer Olympics, was previously defined as winter sports, primarily because they occurred indoors.
13. Olympic medals over the years - see: www.olympic.org/olympic-result and www.olympiandatabase.com
14. Rasmus K. Storm & Klaus Nielsen (2017): "Er Norden konkurrencedygtig? De skandinaviske landes konkurrenceevne i international elitesport" – in press (Trondheim: Fagbokforlaget).
15. Heinilä, K. (1984): "The totalization process in international sport" I: Ilmarinen, M. (ed.): *Sport and International Understanding* (Berlin: Springer-Verlag), Hunt, T.M. (2007): *Drug Games: The International Politics of Doping and the Olympic Movement, 1960-2007* (University of Texas at Austin), Hunt, T.M., Dimeo, P., Hemme, F. & Mueller, A. (2014): "The Health Risks of Doping during the Cold War: A Comparative Analysis of the Two Sides of the Iron Curtain" pp. 2230-2244 I: *International Journal of the History of Sport*, 31 (7)
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17. Augestad, P. & Bergsgard, N.A. (2007): *Toppidrettens formel: Olympiatoppen som alkymist* (Oslo: Novus Forlag), Goksøyr, M & Hanstad, D.V. (2012): "Elite sport developmen in Norway – a radical transformation", pp. 27-42 og Andersen, S.S. (2012): "Olympiatoppen in the Norwegian sports cluster" pp. 237-256 I: Andersen, S.S. & Ronglan, L.T. (eds.): *Nordic Elite Sport. Same ambitions – different tracks* (Oslo: Universitetsforlaget).
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19. Lämsä, J.: "Finnish elite sport – from class-based tensions to pluralist complexity", pp. 83-106 and Mäkinen, J.: "The anatomy of elite sport organizations in Finland", pp. 209-223 I: Andersen, S.S. & Ronglan, L.T. (eds.): *Nordic Elite Sport. Same ambitions – different tracks* (Oslo: Universitetsforlaget).
20. The global database - Gracenote (www.gracenote.com) contains the last 20 years of results from international competitions in 50 Olympic sports. Many institutions use a point system, where gold medal at the Olympics or World Cup is worth 8 points, silver medal at the Olympics or World Cup counts 7 points, bronze medal at the Olympics or World Cup counts 6 points etc. Ranking number 8 at the Olympics or World Championships count 1 points.
21. The global database - www.greatersportingnations.com - record results in 98 different sports (disciplines), both Olympic and non-Olympic. Among the non-Olympic included ex. rugby, cricket, bandy, karate, skateboarding and snooker.

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- Norwegian Biathlon Federation – www.skiskyting.no
- Olympian Database - www.olympiandatabase.com
- Olympiatoppen (OLT) - www.olympiatoppen.no
- Swedish Sports Confederation (RF) - www.rf.se
- SPLISS - www.spliss.net
- Swedish Golf Federation – www.swedishgolfalliance.com

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- Swedish Olympic Committee - www.sok.se
- Team Danmark - www.teamdanmark.dk
- Finnish Olympic Committee – www.olympiakomitea.fi

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