



CANADIAN MASTERS CROSS-COUNTRY SKI ASSOCIATION
L'ASSOCIATION CANADIENNE DES MAITRES EN SKI DE FOND



With heavy rain and winds expected to reach 120 kms per hour in our area today, I thought it would be a good time to get the Fall newsletter completed. Overall the weather has not been good in the far eastern part of the country. Spring was miserable and summer was late coming as it was July before we got any warm weather. Hopefully we can look forward to a winter of consistent snow.

In September I attended the AGM of the World Masters Association in Oberwiesenthal, Germany which will be the site of the 2012 MWC. It is a beautiful little town on the border with the Cech Republic and is a great site for the event. I will provide more details in the next newsletter.

MWC2011/ Canadian Masters 2011

The event that all Canadian Masters are looking forward to for the upcoming season is obviously the MWC 2011 which is being hosted by the Sovereign Lake Nordic ski club. The Canadian Masters will be held in conjunction with that event. Registration for the event will be much easier than other years as you can register using Zone4. There is no more downloading the registration form and sending it to me. Registration is open and you can get all the details at www.mwc2011.com

If you are planning on attending and do not have your accommodations booked, do so ASAP. It has been the trend at these events for the host country to always have the greatest number of participants. We will need at least 400 Canadian participants to avoid the embarrassment of not continuing that trend.

It was decided at our 2010 meeting that the results of the 10km classic and free races would be used to determine the relay entries.

On Monday, March 7th 2011 there will be a social and awards night for the Canadian Masters. Medals for the first four races will be presented and also the relay teams will be selected that night. Everyone is invited to attend.

The Masters World Cup will not be returning to Canada until around 2020 so this may be a once in a life time opportunity. Approximately 330 Canadian Masters attended the MWC in ValCartier which is the last time it was held in Canada. Hopefully we can surpass that number.

SKI DRAW

I encourage all Masters to support our ski draw. The opportunity to purchase a ticket is available when you fill out the annual membership form. It is our only fund raiser for the year.

MASTERS SKI SUITS

Those of you that ordered the Masters suits through Wendy Grater should be receiving them sometime in November. Again many thanks to Wendy for coordinating this project.

I have attached an article that was sent to me by Jean-Yves Babin which I hope you will find interesting

The 2009-2010 season of the World Cup Cross-Country Skiing

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In this report, we will start by examining the general classification of the ten best skiers, male and female, who participated in the different cross-country ski events (sprints and long-distances) during last season's World Cup (WC) and Tour de Ski (TS). Secondly, we will examine in greater detail the performances in these same events as well as those achieved in the Olympic Games (OG) in Vancouver, placing an emphasis on average speeds attained in classical and free-style events, and the position attained by the different participating nations.

Frequency of participation in events at the World Cup

The following two tables show the general classification of the ten best male and female skiers. The men participated in 12 to 20 of the 31-programmed events between November 21th 2009 and March 21th 2010. The last (right-hand) column shows the mean rank obtained by each athlete in the competitions in which they competed. The ten best women participated in 12 to 29 of the 31-programmed events.

Of special interest are the remarkable performances of Petter Northug (PN) and Justyna Kowalczyk (JK), who turned in excellent results in both sprint and distance events.

PN participated in 5 sprint events and ranked first or second in each of them. In 13 distance events, he was among the top three in 9 races.

Table 1. General Classification of the ten best men

| Name | Nation | Points | Number of events | Mean rank for the season |
|-----------------|----------------|---------------|-------------------------|---------------------------------|
| Northug, P. | Norway | 1621 | 20 | 3 |
| Bauer, L. | Czech Republic | 1021 | 14 | 6 |
| Hellner, M. | Sweden | 985 | 20 | 7 |
| Cologna, D. | Switzerland | 885 | 19 | 8 |
| Magnificat, M. | France | 580 | 12 | 11 |
| Joansson, E. | Sweden | 554 | 12 | 9 |
| Teichmann, A. | Germany | 541 | 14 | 9 |
| Vylegzhanin, M. | Russia | 532 | 14 | 10 |
| Vittoz, V. | France | 515 | 13 | 12 |
| Di Centa, G. | Italy | 501 | 15 | 14 |

JK participated in 11 sprint events and finished among the top three in 6 of them. She participated in 16 distance events and finished among the top three in 10 of those races.

Those two athletes were clearly in a class of their own. PN accumulated 600 points more than his closest rival whereas JK finished the season with an advantage of 700 points.

Table 2. General Classification of the ten best women

| Names | Nation | Points | Number of events | Mean rank for the season |
|----------------|----------|--------|------------------|--------------------------|
| Kowalczyk, J. | Poland | 2064 | 29 | 5 |
| Bjoergen, M. | Norway | 1320 | 16 | 2.5 |
| Majdic, P. | Slovenia | 1191 | 21 | 6 |
| Saarinen, A.K. | Finland | 1123 | 23 | 7.5 |
| Follis, A. | Italy | 908 | 24 | 10 |
| Steira, K.S. | Norway | 892 | 18 | 8 |
| Roponen, R.L. | Finland | 788 | 21 | 10 |
| Kalla, C. | Sweden | 654 | 12 | 6 |
| Longa, M. | Italy | 646 | 21 | 12 |
| Korosteleva, N | Russia | 488 | 15 | 10 |

What then is the message of all this? To excel in cross-country skiing at the international level, men or women, it appears essential to participate regularly in WC events. The fact that the average age of world class cross-country skiers is about 29 years, it suggests that they have achieved this level of excellence from competing with each other over the course of several successive years.

To these ratings could be added their results from the Vancouver Olympics, and probably those of other national championships such as the *Scandinavian Cup*, the *Balkan Cup*, the *Slavic Cup*, the *Continental Cup*, etc. They undoubtedly achieve these remarkable results because they frequently compete with the world's best, and continue to do so.

Classification: Specialization

Participation in different WC and TS events allows the athletes to accumulate points according to their results in each race: 100 points for first place, 80 for second, and so on down to the 30th place which merits one point. In comparing the classification of the best ten athletes at three different rankings, (1) general, (2) sprint and (3) distance, the following tendency emerges. For women, five of the ten best at the general (overall) classification also ranked high in both sprint and distance events. For men, on the other hand, only one skier, Petter Northug, ranked high in both sprint and distance races. This suggests that women still tend to be generalists whereas men tend to be more specific in their choice of events. This was also the conclusion of STÖGGL et al. (2008) in a recent article. It is known that sprint events are run at a higher intensity than in distance events. This favors athletes who are strong and fast, i.e., those with a high percentage of fast-

twitch muscles fibres, with an exceptional capacity in anaerobic energy pathways, and with strong technical skiing skills.

Participation in events at the WC, TS and OG: classification by country

In the general classification for men, the western European countries, as well as the Scandinavian countries, occupy the most important place (8 out of 10). The classification for the sprint events (data not presented here) showed that the three Scandinavian countries (Norway, Sweden and Finland) and Russia monopolized 90% of the ten first places. The general classification for women showed the same tendency: 70% of the athletes were from Western Europe, of which five were from Scandinavia; also included were three skiers from Eastern Europe. In the distance events (data not presented here), the three Scandinavian countries and Russia occupied 60% of the ten best places.

Analyses of sprint events, in classical style and freestyle, for men

We compiled the performances of the best male and female skiers in sprint events (both classical and freestyle) during the WC season, the TS in January, as well as the OG in Vancouver. These results are presented in Table 3. Over the season, there were eight sprints in classical style and five in freestyle. The mean distance of the sprints was 1.4km. The parameters calculated for this analysis are shown in Table 3.

For this analysis, the average speed of the three fastest skiers was used to calculate the average speed of the eight classical and five freestyle races. This approach seems justified because the variation in speed for the three fastest racers in each event was of the order of a few tenths of a km/h. As for the quality of snow conditions, for both male and female events, they were evaluated as powdery and/or compact in 75 % of the races, wet snow in 16%, and icy or granular in the remaining races. The numbers in brackets represent the minimum and maximum values around the mean. As expected, freestyle events were conducted at speeds 11.5% faster than for classical events. Nevertheless, some classical events were conducted at speeds of 28-29 km/h. The total difference in elevation of the course, as expressed by metres per km, was relatively constant from one race to another at just over 30m/km for the classical events and around 25m/km for the freestyle events.

The last column indicates the nationality of the 10 best skiers for the combined classical and free-style events. In classical style, the Scandinavian countries, Norway, Sweden and Finland, dominated the scene with 58% of the ten top places. The European countries, West and East, performed better in freestyle than in classical.

Table 3. Sprint events, classical and freestyle, for men

| Speed, km/h | Difference in elevation, m/km | T° snow | # participants | Classification by country |
|--------------------------|-------------------------------|-------------|----------------|-----------------------------------|
| Sprints Classical | | | | |
| 26 | 32 | -6° | 70 | Western Europe ^A : 7% |
| (22-29) | (23-35) | (0° — -14°) | (57-91) | Scandinavia ^B : 58% |
| | | | | Eastern Europe ^C : 29% |
| | | | | Others: 6% |
| Sprints Freestyle | | | | |
| 29 | 25 | -5° | 72 | Western Europe: 27% |
| (26-31) | (12-34) | (0° — -12°) | (43-99) | Scandinavia: 20% |
| | | | | Eastern Europe: 43% |
| | | | | Others: 10% |

- A. Western Europe: France, Germany, Switzerland, Austria and Italy.
- B. The three Scandinavian countries: Norway, Sweden and Finland were combined, given their legendary reputation in cross-country skiing.
- C. Eastern Europe: Russia, Poland, Slovenia, Kazakhstan, Estonia, Ukraine, Czech Republic, and a few others. This breakdown by country is based on geographical rather than political grounds.

Analysis of distance events, relays and pursuits for men

Table 4 illustrates performances in individual races from 10 km to 50 km, in classical and freestyle, as well as in relays and pursuits.

Of seven races in classical style, three featured individual starts and the others featured mass starts or handicaps. Looking at the races individually, it is evident that speeds were one to two km/h faster in those with individual starts than with mass starts. With mass starts, strategy plays a more important role because the athletes generally wait until the final kilometres before increasing (maximizing) their speed. This strategy was evident at the recent OG.

Table 4. Distance events, relays and pursuits in classical and free-style for men

| Speed, km/h | Difference in elevation, m/km | T° snow | # participants | Classification by country |
|---------------------------------|-------------------------------|-------------|----------------|---------------------------|
| Distance Classical Style | | | | |
| 23 | 35 | -5° | 63 | Western Europe: 26% |
| (20-26) | (34-39) | (0° — -8°) | (46-94) | Scandinavia: 38% |
| | | | | Eastern Europe: 30% |
| | | | | Others: 6% |
| Distance Freestyle | | | | |
| 24 | 35 | -3° | 70 | Western Europe: 49% |
| (18-27) | (13-53) | (0° — -5°) | (33-99) | Scandinavia: 33% |
| | | | | Eastern Europe: 11% |
| | | | | Others: 7% |
| Relays | | | | |
| 24 | Cl : 37 (33-42) | -3° | 17 teams | Western Europe: 25% |
| (22-27) | Free : 40 (33-48) | (0° — -7°) | (12-24) | Scandinavia: 39% |
| | | | | Eastern Europe: 29% |
| | | | | Others: 7% |
| Pursuits | | | | |
| 23 | Cl : 35 (32-38) | -5° | 45 | Western Europe: 31% |
| (20-25) | Free : 38 (33-48) | (0° — -13°) | (22-56) | Scandinavia: 20% |
| | | | | Eastern Europe: 41% |
| | | | | Others: 8% |

In the eight races in freestyle, five were conducted with individual starts whereas the three others were with mass starts or with handicaps.

Looking at each race separately, the same phenomenon observed earlier for classical events with individual starts, is also evident in freestyle; average speeds are slightly higher in individual start events than in mass start races.

The mean speed is slightly truncated, that is slightly slower than expected because one of these races, a 10km TS event held at Val di Fiemme, was characterized by a difference in elevation of more than 53m/km. The average speed of the top three racers of that race was approximately 18km/h, which reduces somewhat the overall mean of the total races.

Western European countries registered better performances in freestyle events than in classical ones, while countries from Eastern Europe showed the opposite. The Scandinavian countries showed similar results in both freestyle and classical events.

As shown in Table 3, classical and freestyle sprints were conducted at speeds respectively 13% and 21% faster than during distance races.

There were only three relays during the season, including one at the OG in Vancouver. This type of event allows an evaluation of the relative performance of the participating

countries. Looking more closely at these events, it is evident that the average speed during the two segments in freestyle was 10 to 15% faster than in classical style, even though the elevation distance per km was slightly greater in freestyle.

During pursuit races, the skiers are given the opportunity of exploiting, in the same event, their talents in both classical and freestyle techniques. Average speeds during these races were similar to those attained in relay races. The elevation differences for the freestyle segment were slightly greater for the freestyle segment than for the classical segment, as was the case in the relays.

It is worthy of notice that the three Scandinavian countries maintained a monopoly on the ten best places in the relay races, whereas they were less successful in the pursuit events, which were dominated by Eastern European countries.

For the distance events, we examined the best three results for each race at three or four intermediate distances. The three finalists were generally among the top four fastest skiers at each of the intermediate checkpoints. Thus, the first kilometres of the race provide a strong indication of the final results. This relationship was also observed by BILODEAU et al. (1996), who showed that correlations between speeds achieved in the first 2,6km of the race and speeds for the total 30 or 50km varied between 0.75 and 0.92.

Analyses of sprint events in classical style and freestyle, for women

Table 5 provides the results of the sprint events for women. As with the men, the calendar for WC, TS, and OG included eight races in classical and five in freestyle. The average distance for classical sprint races was 1.3km and 1.1km for those in freestyle

The difference in speed between classical and freestyle events for women was 17.4%, compared to only 11.5% for men. This difference might be explained by a greater muscular power among men. In fact, in classical style, the compression of the ski on the surface of snow during the propulsive phase is an action demanding a vigorous and powerful muscle contraction. The same holds true for double-poling in which the strength of the arms plays a critical role, especially in the flat segments of the course. Several studies have shown that women have lower capacities than men in tests of strength and muscular power, mainly because of their smaller muscular mass. To reduce this difference, it would be useful for women to place a greater emphasis on strength training by using pliometric exercises as a means of developing their muscular power.

Although average speeds attained by men were greater than those achieved by women in both styles, it is nevertheless evident that during certain sprint events in both styles, the leading women attained average speeds approaching those of men.

The three Scandinavian countries dominated the scene in classical style. The Eastern European countries performed equally well in both styles. The Western European countries did much better in freestyle than in classical races.

Table 5. Sprint events, in classical style and freestyle, for women

| Speed, km/h | Difference in elevation, m/km | T° snow | # participants | Classification by country |
|--------------------------|-------------------------------|-------------|----------------|---------------------------|
| Sprints Classical | | | | |
| 23 | 30 | -4° | 60 | Western Europe: 9% |
| (19-25) | (23-38) | (0° — -14°) | (48-79) | Scandinavia: 56% |
| | | | | Eastern Europe: 31% |
| | | | | Others: 4% |
| Sprints Freestyle | | | | |
| 27 | 25 | -5° | 59 | Western Europe: 25% |
| (25-28) | (11-33) | (0° — -11°) | (34-77) | Scandinavia: 36% |
| | | | | Eastern Europe: 35% |
| | | | | Others: 4% |

Analyses of distance events, relays and pursuits for women

Table 6 shows the performances of the individual races of 5km to 30km in classical and freestyles, as well as relays and pursuits for women.

Of the seven classical races, three involved individual starts and the others were with mass or handicap starts. Looking at each race individually, it is evident that, as with the men, the races with individual starts are generally run at speeds of one or two km/h faster than those with mass starts. One of the 10km races and the 30km at the OG were run on wet snow, which affected the average speeds recorded.

Table 6. Distance events, relays and pursuits for women

| Speed, km/h | Difference in elevation, m/km | T° snow | # participants | Classification by country |
|---------------------------|-------------------------------|-------------|----------------|---------------------------|
| Distance Classical | | | | |
| 21 | 35 | -5° | 59 | Western Europe: 18% |
| (18-24) | (31-39) | (0° — -15°) | (45-83) | Scandinavia: 42% |
| | | | | Eastern Europe: 35% |
| | | | | Others: 5% |
| Distance Freestyle | | | | |
| 22 | 34 | -3° | 60 | Western Europe: 22% |
| (17-28) | (8-55) | (0° — -8°) | (42-90) | Scandinavia: 48% |
| | | | | Eastern Europe: 29% |
| | | | | Others: 1% |
| Relays | | | | |
| 22 | Cl : 37 (33-39) | -3° | 15 équipes | Western Europe: 23% |
| (20-23) | Free : 34 (33-37) | (0° — -7°) | (10-20) | Scandinavia: 47% |
| | | | | Eastern Europe: 27% |
| | | | | Others: 3% |
| Pursuits | | | | |
| 21 | Cl : 36 (32-38) | -5° | 43 | Western Europe: 27% |
| (19-23) | Free: 35 (33-37) | (0° — -15°) | (23-62) | Scandinavia: 43% |
| | | | | Eastern Europe: 23% |
| | | | | Others: 7% |

Of the eight races in freestyle, four involved individual starts whereas the others were conducted with mass starts or handicaps. It is also evident here that races with individual starts are often run at a faster speed than those with mass starts. The average speeds attained by women, in both styles, were 8% to 9% slower than those for men. Nevertheless, in several distance races, the women attained speeds almost as fast as those by men.

Just like it was for men, the difference in elevation per kilometre was similar in distance and sprint events. The steeply rising 9km TS race at Val di Fiemme, had a elevation distance of 55 m/km. However, the winner, Evgenia Medvedeva of Russia, maintained an average speed of 18 km/h, similar to the speed maintained by Lukas Bauer of the Czech Republic, the winner in the men's race.

Just like we saw in the distance events for men, the split times at intermediate segments of the race were closely related to the final results.

Women from Eastern Europe and from the three Scandinavian countries dominated the races, especially in the classical events. In terms of classification by country in the top ten places, a few differences in the performances of men versus women are evident. In

relays and pursuits, the Scandinavian women performed better than their male counterparts.

Conclusions

Regardless on how we examine the classification of the WC, TS and OG races, it is evident that the European countries dominated this past cross-country ski season. In the general classification of the top 100 male and female skiers, approximately 25% were from the Western European countries, 33% from the three Scandinavian countries, whereas 27% of the men and 33% of the women were from Eastern European countries. Other countries represented only 10% of the top 100 skiers.

Europeans dominate the upper levels of management in many International Federations of winter sports and cross-country skiing. Examination of the annual programs of competitions established over recent years shows that the vast majority of races are held in Europe, and often in the same countries and ski centres from year to year. It goes without saying that European athletes gain an advantage in having the majority of the races taking place in proximity to their home base. Also, the proposed calendar for next season's competitions does not, at present, include any races in North America (Canada/USA).

Modern competitive cross country skiing is now characterized by the presence of a training staff of specialists, trainers, wax technicians, psychologists, therapists, medical specialists, who help the athlete to attain the highest levels of performance. This is certainly the case for countries that produce the top skiers in today's competitions. These athletes rise to the top, and stay there, because they are continually in competition with the best skiers, and experience all types of races as well as all possible temperature and snow conditions.

Because it appears unlikely that the situation will change over the course of the next several years, a rapid adjustment is called for any athlete and/or team.

Given that the genetic qualities required to excel in this endurance sport are probably distributed more-or-less equally among the different competing population, it appears most urgent to concentrate on other variables, those that can be controlled.

It is our humble opinion that to help our Canadian athletes to attain the highest standards, we must follow the example of those countries now producing the top skiers: providing them with the means of participating on a regular basis, frequently and constantly, at competitions where they can measure their performance with the world's best, and to ensure the support of a world-class team of professional and technical trainers. This is the approach taken, in recent years, by the Canadian Alpine Ski Team, and in doing so it has achieved excellent results.

Bibliography

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Hopefully you will all have an enjoyable ski season and I look forward to seeing many of you at Sovereign Lake.

Bruce LeGrow
National Director