

Appendix K: The Rankings Scheme

Text in bold below has mandatory status and shall be followed by relevant event officials. Other content refers to material provided for guidance and for information. This Appendix shall be read in conjunction with the BOF Rules and shall have the same authority. They shall be considered as their extension.

1. Introduction

1.1 Aim of Ranking List

1.1.1 The aim of the computerised British Orienteering ranking scheme is to rank all regular and competent orienteers in order of orienteering ability. The hope is that this will spur the spirit of competition, thereby helping to raise both navigational and fitness standards. The Ranking list may also be used for International selection purposes as well as for seeding competitors at major events.

1.2 Inclusion of Events

1.2.1 All National (Level 1) Events and all Regional (Level 2) Events are required to contribute subject to the conditions in 1.2.2.

1.2.2 Night events, Relay, Score, Chasing Start and other mass start events may give anomalous results and are excluded from the Rankings scheme.

1.2.3 All competitors [who are members of British Orienteering] in classes M/W18 or older at Ranking events shall score Ranking points.

1.3 General Description

1.3.1 All British Orienteering members who gain points at ranked events will have their points stored in one ranking list.

1.3.2 This ranking list will be displayed on the British Orienteering website and may be filtered so that, for example, only the women in the list that belong to a particular club can be listed by clicking the relevant link on the website.

1.3.3 The system is written in such a way that it can accept results data from *both* age based courses (e.g. Area Championships) *and also* colour coded courses (e.g. Regional Events) and produce valid rankings points.

1.3.4 The key to the system is the British Orienteering membership number. Membership numbers are used to link results from different events for a given runner.

1.3.5 The total of a runner's best six scores over the past 12 months gives a runner's current ranking. All courses as defined in 1.2 are included. Short classes (and M/W18B) are ranked, but are no longer ranked separately, e.g. points from the W45S course at an Area Championships will be added to the overarching ranking list, appearing within the W45 category (or the normal age class of the competitor if this is different).

1.3.6 When a competitor is to be ranked as a member of a new club or under a change of name, the British Orienteering National Office shall be informed so that the membership records can be updated. This will then update the information in the ranking lists.

1.3.7 The national rankings lists are available via the British Orienteering web site at all times.

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2. Production of the Ranking List

2.1 Submission of Results

2.1.1 Provisional results should be submitted to the British Orienteering web site as soon as possible, and preferably on the evening of the event.

2.1.2 Final results must be submitted electronically to the results page in the British Orienteering web site within 7 days of the event. Results not uploaded within this period shall be excluded from Rankings calculations.

2.1.3 Rankings points will then be calculated and displayed automatically.

2.1.4 Results must be submitted in the British Orienteering file format, as defined on the ranking page on the British Orienteering web site.

2.1.5 The validity of the rankings lists relies heavily on the accuracy of the event data supplied to the compilers of the list. Thus, event Organisers must include competitor British Orienteering numbers with their results and to submit them as soon as possible after the event. Other mandatory data is defined within the 'User Guide' available on the British Orienteering web site.

2.2 Calculation of Ranking Points

2.2.1 The single rankings list needs to be started by some means and this was done by calculating running speeds of competitors at eight major competitions in 2009. These data were then standardised (mean = 1000, standard deviation = 200) to produce "seed data" as the starting point for the 2010 Rankings system.

2.2.2 Runners who have previously gained points in a class are called 'ranked runners' and their 'current score' is the mean of all their previous scores in the last year (not just the best six). The last year is the 12 month period up to the date of the event being computed; any subsequent scores are ignored. This current score is used as the best predictor of their performance at an event (though it is their best six results that make their published ranking). The ranking scheme operates by using the performance of ranked runners on each course at an event to standardise the scores. This process ensures that points awarded to a runner are (as far as possible) dependent only upon the quality of the run and not who else turns up at the event.

2.2.3 The term "course" used in 2.2.2 is not to be confused with the term "class". In the previous rankings scheme, results for e.g. M55L and M60L were analysed separately, even though they often ran the same course. The new rankings scheme requires the results of *all* runners on the same course to be analysed together, whatever their age classes.

2.2.4 At ranking events, the mean of the current scores of the ranked runners on a course is awarded to a runner matching the mean time of those ranked runners. The standard deviation of the current scores of those ranked runners is also calculated along with the standard deviation of their times. For these four calculations, the final 10% (rounded up) are ignored e.g. if there are 38 ranked runners on a course, only the first 34 are used for the calculation. Further, any runners taking more than the winner's time plus 100%, who have not been eliminated by ignoring the final 10%, are also ignored. That helps to exclude outliers.

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2.2.5 The standard deviation score is added or subtracted from the mean score for each standard deviation time faster or slower than the mean time (pro-rata). The current scores of all ranked runners are rebased after each event to ensure that the mean current score of all ranked runners is 1000 and the standard deviation of their current scores is 200. This prevents the scores drifting over time.

2.2.6 A special calculation is used for courses that are too small for a standard deviation to be measured reliably. For courses with between 1 and 10 ranked runners, the standard deviation time is taken to be 20% of the mean time.

2.2.7 Points for the rankings lists are calculated as follows:

- Runner's points, $RP = MP + \frac{SP \times (MT - RT)}{ST}$
- $(MT - RT)/ST$ gives number of standard deviations of runner's time RT above or below race mean time MT (ST is the standard deviation of the ranked runners' times)
- Multiplying by SP , the standard deviation of the ranked runners' points, converts this to points
- This difference is added to MP , the average points for the runners in the race and this gives the runner's points RP
- a modified formula is used for small courses (see 2.2.6):-

$$RP = 2000 - RT \times (2000 - MP) / MT$$
- If there are between 11 and 19 ranked runners, a weighted mean of the scores given by the above two formulae is used, e.g. with 17 runners, the points are
- 0.7 x Main formula + 0.3 x Small course formula
- Points awarded are given the same weighting whatever the level of event.
- The smallest number of points which can be awarded is zero (any negative scores are replaced by 0)

2.2.8 Example

- Suppose X comes 4th on a course in a time of 88 minutes (RT); the average time for the ranked runners in the race is 100 minutes (MT) and the standard deviation of their times is 10 minutes (ST)
- Thus $(MT - RT)/ST = 12/10$, or 1.2 standard deviations above the average time for the ranked runners in the race
- Suppose the quality of the runners is high (mean points (MP) = 1100 and standard deviation (SP) = 100)
- So X gets more points than the average runner, this given by $1.2 \times 100 = 120$
- Thus final points = $1100 + 120 = 1220$
- If there are no ranked runners within the winner's time plus 100% then nobody on the course scores ranking points.