

Know your sport: Ranking Scores

Every event is different — courses, terrain, event type and standard of competitors all vary. In orienteering it is impossible to compare performance on the basis of a 'personal best'. So a different method is needed to compare how people get on. This is the national ranking scheme. This is an attempt to make it understandable!

Basic concepts

- All national members of British Orienteering who are in the top year of classes M/W16, and in all classes M/W18 or older, are automatically included. The membership number is used to uniquely define each person.
- All events at Levels A, B and C can generate a ranking score except for relay, score, chasing start and other mass start events.
- The national ranking list is based on a competitor's best 6 event scores in the last 12 months.

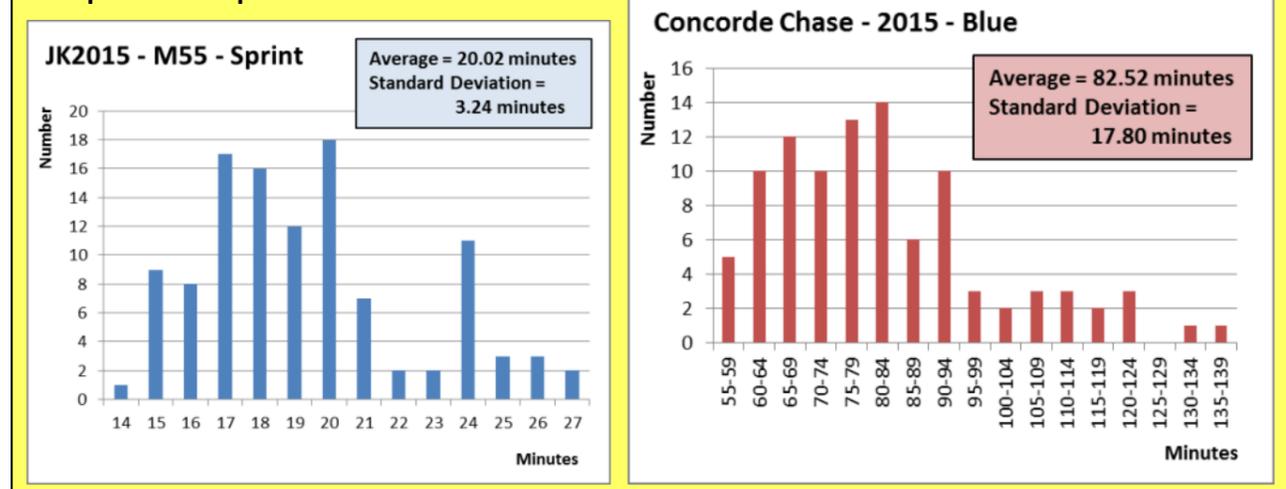
Calculating the score

- An 'average' orienteer having an 'average' run will be awarded 1000 points. However the average run is based on all eligible members in all age groups and includes both men and women.
- The spread of scores is based on the idea that the 'standard deviation' of all ranking scores for the past 12 months will be 200. The 'standard deviation' is a statistical measure of spread. For a symmetrical distribution (with a 'normal' distribution), a known proportion of scores will be within 1, 2 or 3 standard deviations of the average (the 'mean'). For example, over 99% of scores should be within ± 3 standard deviations (or 1600—400). However, times at events are not symmetrical (see figures below) and there is a tail towards the slower times. The highest scores therefore do not reach up to 1600 - the current top score is only 1453—and the lowest are considerably less than 400.
- A course at a Level A, B or C event will have competitors on it who already have ranking scores for the past 12 months. These are used to give an indication of the quality and variation of competitors on the course and determines the range of scores to be awarded on it. Courses with competitors with high averages will generate course scores with high scores. If someone has done better than their usual average in comparison to the other people on the course then they will score a higher than usual score—the reverse also applies!
- The precise method of calculating the scores is given in the example at the top of the next page.

Notes: (1) It is mathematically possible to get negative scores but the lowest allocated is zero. (2) The whole database is recalculated each week. As the average age in the sport is slowly increasing, each event score rises slightly during the year so as to keep the overall average score at 1000. (3) The bottom 10% of results on a course are actually not used to calculate the average and standard deviation time. This is because some of these might not be actually competing—they may be injured for example.

For the official details on the British Orienteering web site, see:
http://www.britishorienteering.org.uk/images/uploaded/downloads/events_competitionrule2014_s_rankingscheme.pdf

Examples of the spread of results in events



Example: Calculating ranking points

The table shows the times, rounded to a whole minute, for 10 competitors on a course. Their average time is 59 minutes and the standard deviation of these times is 11 minutes.

The second column shows the average ranking scores (over the last 12 months) for these 10 competitors taken from the national database. The average of these scores is 910 and the standard deviation is 166.

The 'time factor' is then calculated using the formula:

$$\text{Factor} = (\text{average time} - \text{runner's time}) / \text{time SD}$$

This factor is then used to work out the points:

$$\text{Event Score} = (\text{Factor} \times \text{ranking score SD}) + \text{average ranking score}$$

So **Competitor 6** ran the course in the average time (59), their factor is zero and they get the average ranking score (910). **Competitor 2** is 11 minutes faster (or one SD). Their factor is therefore 1.00 and their ranking score is therefore one ranking score SD (166) above the average (910) making a ranking score of 1076. Notice that **Competitors 4 and 5** had previously the same average scores but, since **Competitor 4** beat **Competitor 5** by 4 minutes, they get a much better score.

	Minutes	Average ranking score	Time factor	Event score
1	47	1126	1.09	1091
2	48	1111	1.00	1076
3	49	995	0.91	1061
4	52	974	0.64	1016
5	56	974	0.27	955
6	59	915	0.00	910
7	63	897	-0.36	850
8	68	784	-0.82	774
9	72	729	-1.18	714
10	79	598	-1.82	608

Average	59	910	905
SD	11	166	166

The Ranking List

This is available on the British Orienteering web site at:
<http://www.britishorienteering.org.uk/page/rankings>

It is updated every Wednesday-Thursday night to include the results added to the national site during the previous seven days. An example is shown in the figure:

A filter can be applied so as to show different 'ranking lists' based on the particular filter—club, association, age and gender. This then displays the people who match the desired filter but also indicates, in brackets, their position in the full list. Also shown is the change in position since the previous week.

The table also displays the person's top 6 scores, in date order, which make up the total score used in the list.

Based on this data, the plots on the right show the current average of the best six for the top scoring person in each age group along with the average value. This shows how scores decline with age!

National ranking list: top scores and average scores for each age group (using the total scores divided by 6)

