

Revisions to DRR standards 2024

Background

The club awards standards to members who achieve set times at a range of distances. For each age and gender group, there are 7 standards of varying difficulty, ranging from diamond, which is intended to be a challenge for faster runners, to pewter, which is intended to be an achievable goal for the majority of club members. To achieve a standard, a runner must beat the standard time in at least 4 out of the 6 distances (5k, 5 mile, 10k, 10 mile, half-marathon and marathon) within a calendar year.

Case for change

A number of members flagged issues with some of the standard times used until the end of 2023, including being required to run a quicker pace for a longer distance, inconsistencies in the difficulty of the various standards across age groups, and typographical errors. A few examples are listed below, but these are by no means exhaustive.

- Increased pace for longer distances – e.g. women 35-39 – the copper standard requires 27:30 for 5k, but 54:30 for 10k.
- Inconsistent increase in difficulty between distances – e.g. for men aged 40-44, there is a 4 minute difference in half-marathon times between gold and silver, but a 25 minute difference in marathon times.
- Inconsistent difficulty increase between standard levels – e.g. for women 45-49 – the increases in marathon times from diamond to platinum to gold are 10 minutes, but then there is a 40 minute gap to silver.
- Inconsistent increase in difficulty with age – e.g. men 50-54 the times are on average around 15% slower than for under 35, whereas for women this is 25-30%.

These inconsistencies meant that for some members there was not an appropriate level of challenge, with one level being much too hard and the level below not presenting a challenge. In other cases, times were achievable for some distances within a level, but out of reach for other distances. Finally, the inconsistent increase by age between the genders made it more difficult for veteran men than women to achieve a given standard level.

Solution

Calculate all standard times with a consistent formula that approximately matches the following World Masters Athletics age grades:

Diamond – 80%
Platinum – 75%
Gold – 70%
Silver – 65%
Bronze – 60%
Copper – 55%
Pewter – 50%

The details of the calculations are provided on page 3 for those who are interested. Note that the output times may not perfectly match calculators on the internet or parkrun age grades, for reasons explained in the section outlining the details of the calculations.

Impact

While the percentages above have been selected to minimise the changes, resolving the issues above requires significant revisions to times in some categories.

In general:

- The men's standards other than diamond typically become slightly easier, while the women's standards become more difficult, except for women under 35.
- Marathon standard times generally become more difficult, while 10 mile and half-marathon times become easier relative to 5k times.

Implementation

The new standard times will be in effect for times run during the 2024 calendar year.

Details

The new standard times have been calculated using the following formula:

$$t = W_{10} * (d/10)^{\beta} / (A * S)$$

where the standard time t for a given distance d in kilometres is calculated using:

W_{10} is the 10,000m world record time, which is 26:11 for men and 29:01 for women.

β is the Riegel coefficient, representing the rate at which runners slow over longer distances. I selected 1.06, except for marathons, for which 1.08 was used. This is a standard choice and is the methodology we use to calculate predicted times for club handicap races. The effect is that 10k times are equal to 5k times multiplied by 2.085 (so a 25 minute 5k is equivalent to a 52:10 10k), while marathon times are half marathon times multiplied by 2.114 (so a 1:30 half-marathon is equivalent to a 3:10 marathon).

A is the age factor. While World Masters Athletics provides age factors for every distance and different age factors for men and women, I averaged these for simplicity because there was no clear trend in changes in age factors with increasing distances or for men vs women. WMA provides factors by single year of age, so I selected the middle age within a category (e.g. 42 for the 40-44 age category). The age factors used were:

Under 35	1
35-39	0.982
40-44	0.946
45-49	0.909
50-54	0.872
55-59	0.833
60-64	0.793
65-69	0.753
70-74	0.712
75-79	0.669
80-85	0.619

This means that a 20 minute 5k for an under 35 is equivalent to a $20/0.793 = 25:13$ 5k for a 60-64 year old.

S is the standard level and is equal to 0.8 for diamond, 0.75 for platinum, 0.7 for gold, 0.65 for silver, 0.6 for bronze, 0.55 for copper and 0.5 for pewter. This means that for an under 35 bronze standard at 10k, the requirement is the world record time (26:11), divided by 0.6, which equals 43:38.

While it may have been simpler to just use age graded times at every distance, this does not provide results of consistent difficulty. At the extreme, a 50% age graded time for an under 35 man at the 100m sprint would be 19 seconds, which most runners would find easier than a 50% age graded marathon (4 hours).