

November 1992

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Brian Oxley (66 Felicity Drive, Scarborough, Ontario M1H
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To all,

I would like to thank all of who have responded to my
initial analysis package. It is very tedious detailed work
and your time and effort is appreciated. All the written
correspondence that I have received is attached here for the
information of all.

Al Sheahen, WAVA Age Grading Sub-Committee Chair, after
seeing my initial work towards updating Veterans Age Grading
for the Decathlon in particular, has requested that I refine
the approach (called 92Harvey herein) and extend it to all
events, not just the Decathlon events for his information.
I point out again that the final decision about what Age
Grading to propose to the WAVA Executive Council will come
from Al Sheahen, and his Age Graded Tables Sub-Committee
through Bill Taylor.

PLAN

Bill Taylor has established the following tentative
update plan. Al Sheahen's Committee is to supply the
recommended update of the Age Grading to Wg. Cmdr. Taylor by

31Jan93. Assuming that he agrees with the update, he will arrange with Torsten Carlius for distribution and a mail vote by the WAVA Executive Council. A two month period would be allowed for comment and acceptance. If the adoption vote is positive, the new Age Grading Tables will be published and distributed to WAVA affiliates worldwide before they would become effective on 1May93 as prescribed by WAVA By-laws.

CHARNOCK

Rodney Charnock's 18Sep92 reply to the initial study is attached below as Appendix A. Mr. Charnock points out that the data examined for age grading purposes points out that certain distances and heights and weights do not seem to be correct for certain age groups. I have addressed that in my narrative here although it is a separate problem not to be solved here.

I have taken his suggestion and put the Decathlon "Bests" list in a format that shows age graded performances alongside the actual performances. It does indeed make analysis easier.

Fine tuning of the Harvey method, described later, has reduced Skrivervik's M70 shot-put to 1032 points from the initial score of 1108 that Mr. Charnock felt might be too high. His 12.55 compares very well with the Age Grading Sub-Committee Chair M70 World Record of 14.05 by Elo and therefore should score high.

It is fairly well known that "new" javelins do not go as far as "old", but since the information concerning which javelins were thrown ("new" versus "old") is not available for all records, I have chosen to ignore that problem for now. The only thing we know for sure is that, as of 1May92, only the "new" javelin is acceptable.

TAYLOR

Bill Taylor's 26Sep92 letter is enclosed as Appendix B. As Wg. Cmd. Taylor assumed, this method will be immediately extended to Women and the Heptathlon if the approach seems ~~reasonable for Men and the Decathlon. As anyone can see, my~~ normal mode of doing things is to try to get everything possible out in front of as many knowledgeable people as possible, and let them decide what is best so I'm happy to see that Wg. Cmd. Taylor feels the same way. Please be aware that I have no personal desire to have my name on this (I call this approach 92Harvey only for explanatory purposes so that people know where to ask questions). My only desire is that our sport ends up with the fairest Age Grading Tables that we can produce at this time because that means that we have the fairest Multi-event scoring method.

EDLUND

Mr. Ove Edlund, Swedish Veteran's Statistician, replied 27Sep92 (see Appendix C). My reply to Mr. Edlund is also attached as Appendix C, page 10. I could not agree with him more that we need to encourage all age groups to do all of the events in Multi-event competitions. Fair and accurate Age Grading does this automatically. An open Multi-event

athlete would not ever consider "skipping" an event because he/she would not be competitive overall. The same is true of Veteran Multi-events with Age Factoring- one must seriously compete in each event if he/she wants to do well overall.

Please note Mr. Edlund's scoring software which tells competitors how far they are behind in a competition in terms of a differential of the upcoming event. This information is invaluable to the Multi-event competitor and usually has to be done by hand.

PHILLIPS

Mr. Charles Phillips wrote a reply 30Sep92 attached as Appendix D. I have included both his letter and the pages from his publication that he mentions in his reply so that everyone can come to their own informed conclusions. Let me say again that I'm amazed at the amount of work that Mr. Phillips has put into his publication. He certainly is an expert in this field and seems to be convinced of his approach. His running omni-curve (a single graphical surface containing all ages and all distances) is a well conceived and elegantly simple representation.

Mr. Phillip's letter addressed some of the reasons that his Age Standard Curves do not come close to the actual Veteran's World Records in many events and age groups. It is still my strong personal opinion that Age Factoring analysts should not be telling athletes how they "should" be performing. That not only is very presumptuous, but also very speculative. Even active athletes cannot do a very good job in their own specialty, let alone anyone further removed.

I share his desire to do Age factoring now- once and forever, but I don't think that we are smart enough to predict for once and for all. And even if we could, I don't think that we should punish today's athletes just because we know that future athletes will be performing better at some unknown future date. He repeatedly points out that

"ultimately... (the records)... will be faster, where they should be". Of course they will be better, no one argues that point, it's only a matter of time before any record falls, when it will fall and by how much is he only question. I still feel that speculation is not our prerogative and that Age Factoring should be based on accurate current results and Five Year World Records are the most carefully scrutinized data that we have available.

Mr. Phillips points out that his formula for converting throwing performances with different weight implements by saying that no one has a better single conversion factor. That may be true, but it really is meaningless when all we have to do is look at actual results to see what dedicated athletes can do, we don't need to predict it with a formula. Believe me, the World's Veteran athletes are not in a gigantic conspiracy to under-perform, they do their best and I think that the Age Grading should reflect their efforts.

Yes, the 92Harvey approach will require periodic

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updates, it will probably need to be done again in 4, 6, or 8 years. It will be a lot of work again, but I think that we owe that to Veteran athletes. We should not punish them by placing higher than currently demonstrated Age Standards on them. The argument that those high standards will be appropriate at some time in the future means little to today's athletes.

KOCH

Dr. Adolph Koch (see Appendix E), who, as you know is intimately familiar with Multi-events, has worked for many years for a fair Age Grading system. He was one of the first to point out that the current 1989WAVA Age Grading does not treat older athletes fairly. I point out that the 92Harvey method is consistent across the entire Veteran's age spectrum.

I strongly agree with Dr. Koch when he suggests that all Multi-event results be published with a complete breakdown of individual results. Those who say that the common reader will not read anything with too much detail obviously have not been around Multi-event people who eat, live, and breath excruciating details. Please, everyone, always publish lots of information, all actual performances are a minimum.

I partially share Dr. Koch's opinion that M80+ should no longer compete in Multi-events. I think that the implements and distances should be cut back and maybe even the number of events should be reduced at some point, but Multi-events definitely should not be completely dropped at any age because of its unique attributes.

Dr. Koch has made recent adjustments to his recommended Age Factors and attached are comparison plots of 92Harvey and Koch92 factors. It is obvious that these two factors, arrived at from entirely different methods are very similar.

OXLEY

Brian Oxley, longtime WAVA technical activist, replied (see attached Appendix F) that he also had noticed the ~~negative bias of the current WAVA Age Grading towards older competitors.~~

Mr. Oxley has some reservations using World Records as a basis for Age Grading because, in some cases, the World Records are far out from of the bulk of competitors. I take that to mean that he definitely is not in favor of placing the Age Standards even further out to speculated levels above existing World Records as Mr. Phillips advocates. He mentioned that Canadian Performance Standards are based on past winning performances at WAVA World Championships to keep them as reasonable as possible.

He pointed out, and I concur, that, by simple logic, performances have to get progressively worse as one ages because of the inevitable fact that all of us will post infinitely bad performances from the point of death onward (the curve goes vertical).

Mr. Oxley also points out that more thought needs to be put into where and how implements and distances change in

Veteran's Athletics as others have also noted. He also presents a mathematical relationship that he has found useful in smoothing performance curves.

HARVEY

Here is an explanation of how 92Harvey factors were generated and the pertinent data and graphs needed to develop and explain the approach. As basic data (See Appendix G) I used the 5-Year Age Group World Records as compiled by the WAVA Records Committee Chair Peter Mundle and published in National Masters News 15Apr92. I added the list from Mr. Mundle of the World Records that were set in 1992 and published in NMN in November, 1992. I used all pending records with the exception of those pending records of Singh M95? and Ivancic M45. To that I added the following recent non ratified records:

Romain	M60	400	54.6H
Mendyka	W80	DT	21.96
Brasher	W65	1500	6:02.68
		5K	22:06.34
		10K	45:49.71
Searle	W50	HT	43.30
Smit	W65	SC	12:44.78
Frith	W80	TJ	5.33

If the premise that Veteran's age grading should be based, as closely as possible, on existing Veteran's World Records, then the biggest problem is how to best represent the existing age group World Records in a smooth, ever increasing, curve. That problem is solved fairly well by the Harvey approach of using several straight line segments to approximate the curve formed by the various World Records.

Attached as Appendix H are the plots of Age versus the current World Records in all of the 20 Men's Track and Field events. Drawn in on these plots are the straight line segments that were used to approximate the data. The general approach was to stay below all existing WR in the running events and above all the existing WR in the Throws and jumps. Or, in other words, these segments are placed in such a manner that no World Record is ever better than the Age Standard assigned to that event and that age group.

You can see that most events are very linear especially at the lower age groups. Breaks between straight line elements were done only at 5 year intervals to insure fairness in Age Factors within any 5-year Age Group. You can see that anywhere from 2 to 6 elements were required to get a good fit. Note that performance standards, by definition, always decline at a increasing rate with advancing age. In other words, Age Standards do not get worse for a while and then improve before falling again.

There is a lot more confidence in the lower age groups mainly because there has been much more competition at lower ages. Some of the older groups are extremely thinly contested so those World Records, and therefore the Age Standards, are the most volatile.

Although they will not be addressed here, looking at the events in this manner points out some problems that we have when we change distances and implements to accommodate the older athlete. For example, the Steeplechase probably should not change to 2000 meters at age 60 because the age 60 and 65 WR are faster than the Open WR. The race is simply not equivalent if it can be completed significantly faster than open athletes can do it. There are problems also with the Hurdles. The short hurdles seem to be too high or too long for ages 50, 60 and 70 because none of these age groups ever approach the Open world record of 12.92 which they probably should especially at the beginning of each of the age groups. The long hurdles has the same problem but in the opposite sense. Ages 60 and 65, in their 300 meter race, are running significantly faster than the Open WR. Again, it is not a good approximation of the Open race if it can be done much faster than the Open race. In general, the Shot-put, Discus, Hammer, and Javelin all seem to not reduce in weight soon enough as the World Records in all existing age groups; 50, 60, and 70, never come close to the Open WR distances.

Where the Age Standard plots should begin poses a special problem. All current men's World records have been set between age 20 and 31. We needed a consistent method to make the transition from Open to Master's competition. Here is what I settled on. The World record was plotted against its actual age and a straight line element was placed between that point and the age 35 World Record. For example, the 200 meter Open World Record of 19.72 was set at age 27 by Pietro Mennea. A straight line was then drawn to the Age 35 World Record of 20.62 by Don Quarrie. This line happens to cross age 30 at 20.06 which, by my definition, becomes the age standard for age 30. For those World Records that have been set after age 30; the 100 meters at 30 and the Hammer Throw at age 31, the age 30 Age Standard naturally becomes the World Record itself. That means, if you are a 30 year old 100 meter sprinter, that your Age Factor is 1.000, or no aid to the time that you run. You, in theory, need no help because you happen to be the same age as the Open World Record holder.

World Records are kept in 5 year groups. For example, the M40 World Record could be set by a 40 year old or a 44 year old. On these plots, the World Records were plotted at the beginning of each age group even if the Record happened to be set at a higher age. This, again, is done in an attempt to make the competition within any 5-year group as fair as possible.

There are another complications at the changeovers in any implement or distance. The short hurdles and the throws that change every 10 years presented a special challenge to correctly place the straight line segments since there were only two points to work with and if either one of them happened to not be representative, it could badly throw off the results. The approach taken was to use the existing WR

How can you justify 20.06 when Lewis did 9.86 at age 31. 9.86 does not equal 20.06.

Carl's 9.86 at age 31. 100 m. (9.93/9.86)

I thought you were going to begin factors at age 35, not 30.

performances as much as possible, but to also supplement that with a study of the transition from one to another by known, World Class, athletes. Each transition was checked to see if it was reasonable. For example, the WR for age 49 is 15.54 for the 110/39 hurdles and the age 50 WR is 13.57 for the 100/36 hurdles. This is a difference of -2.03 seconds which is reasonably close to the -1.75 second difference shown by the straight line approach.

It is interesting to note that the field events seem to have long linear stretches that cross many age groups. That may be caused by the athletes making up for losses in strength and endurance with increased skill in these highly technical events. There is a repeating phenomena in several field events. There is a "dip" in World Record performances in generally the 40 to 50 area. See Appendix H page 16 (Pole Vault) for an example. This "dip" may be present in the throwing events also but is effectively masked by the changing implements. I did not address this "dip" at this time.

A table of the numeric results of this approach is attached as Appendix I. To quickly show how these proposed new Age Standards differ from the existing 1989 WAVA Age Standards, also attached as Appendix J is a set of plots show both the 92Harvey Age Standards and the 1989 WAVA Age Standards on a single sheet for each event. You can see that there is very little difference in the old and the proposed 92Harvey Age Standards in most cases until some of the higher age groups.

Those differences at higher age groups arises mostly out of the differences in philosophy about the older age groups that has already been discussed. The 1989 WAVA philosophy was to attempt to estimate how the older age groups "should be" performing and the 92Harvey philosophy is to not try to predict, but rather use how all age groups, including the older age groups, "are" performing (i.e.: use the current World Records as the basis, no matter how "poor" they seem to be).

In addition to the proper Age Standards in each age group of each event, the other important aspect of any Age Grading method of this type is the "Open Class" (OC) value that is set in each event. Remember that the Age Factors that are used in Multi-event scoring are the OC in each age group divided by the Age Standard for that event. For example the Age Factor for M45 Discus is the Discus OC (73.09) divided by the M45 Age Standard (66.12) giving a Age Factor of 1.105. This means that a 45 year old man's actual discus performance would be multiplied by 1.105 to arrive at an age factored performance which should compare to what he would have thrown in his prime. This Age Factored performance is what is then looked up in the International Open Scoring Book for Multi-events. The overall result then is for the overall multi-event score to be approximately what he would have scored at his prime. There are many circumstances where this will not be true, such as a short

legged person seeming to get better in the hurdles as he ages. This may be due to the lowering heights and shortening distances being better suited to his stature.

One of the most effective methods of examining the suitability of a particular method of setting OC's is to examine Multi-event scores.

The simple approach for OC's would be to use the Open World Record. However that is unsatisfactory in most cases because most World Records were set at an age below where these tables start. That means that performances have fallen off by the time that one enters the table. But how much have they fallen off is the question. I tried using the Open World Records as OC's but the results were completely unacceptable. Many of the age group Decathlon "Bests" scores were far above the Open World Record in the Decathlon. While, in theory, a Veteran Decathlete could exceed the current Open World Record in the Decathlon, it is not probable that many would. The source of the problem is obvious. Look at a field event as an example, remembering that the Age Factor equals the OC divided by the Age Standard. You can see that if the OC gets larger, the age factor gets larger and the Age Factored performance gets larger also and thus scores more points. As already discussed, the Age Standards are set by actual results and cannot be adjusted, that leaves only the OC to adjust to obtain more reasonable Age Factors. After trying many different approaches, I settled on the method of setting the OC at the age 29 Age Standard that would result from the straight line between the actual Open World Record and the age 35 World Record method already described. This results in Age Factors that give some help (in a proportional manner) to 30 year old's in all those events in which the Open World Record was set before age 30. For those Open World Records that were set at, or above, age 30, the WR itself becomes the OC. This seems logical and fair. These OC's are listed on the attached Men's Age Grading Tables as the age 29 Age Standard. Appendix K is a side-by-side listing of the World Record, 1989WAVA OC, and 92Harvey OC.

I use myself as verification that the method of OC selection is reasonable. I have competed in the Decathlon straight through from age 18 to the present, completing more decathlons than anyone else ever. I felt uneasy with the 1989WAVA Age Factors because I scored too high compared to my Open competition days. My best ever decathlon score was 7524 and my second best was 7457. I have worked long and hard and gotten more skillful at some of the events even though my actual performance levels have dropped off of course. At age 43, I scored a 1989WAVA 7692 points at the Eugene WAVA Championships (see Appendix L) which is more than my best open score and not too unreasonable considering I felt it was an exceptional competition. But, at age 45, I scored 7820 1989WAVA at Turku in what I felt was a performance inferior to the Eugene effort. The Age Factors seemed too high. For someone just getting back into Track

VOID ?
 [Handwritten scribbles]

and Field seriously for the first time since High School or College, Age Factored performances could easily exceed old personal records. But for someone like myself, who has competed seriously every year for the last 33 years at all levels of competition including many years of International competition, should not expect Age Factored performances to exceed Open performances by too much.

To make a long story short, using the 92Harvey Age Standards and setting the OC's at the age 29 Age Standard gives much more believable results (see Appendix M). That makes my Eugene performance 7497 92Harvey AF points which is slightly better than my second best Open score. More importantly, my Turku performance was 7720 92Harvey AF points. This is only slightly better than my best ever as an open athlete. I personally feel much better about Age Factors set at this level.

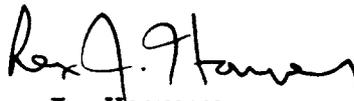
*You said
Turku inferior
to 92*

There is other Decathlon evidence in favor of setting the OC's at this level. At several points through the age groups people approach Thompson's World Open Decathlon Record of 8749 (recent tentatively raised a few points by OBrien) but they never exceed it. Kuzenko, M32 has 8646, Miller, M50 has 8655, and Skrivervik, M70 has 8743. This is a wide range of ages showing that the Age Standards are reasonable and the point totals, approaching but under the Open World Record, show that the OC's are also set reasonably.

As a quick and easy method of comparing the old 1989WAVA Age Grading to the proposed 92Harvey method is to look at World Record performance level which is usually expressed as a percentage. As has been discussed before, if the Age Grading method used was perfect, plots of these performance levels would be a straight, horizontal line. But all World Records at each age group are not inherently equal, some are intrinsically better than others. All that can be hoped for is that the performance levels resulting from any particular Age Grading method approximate a horizontal line. For example the 1989WAVA performance level of the M40 Shot put is the actual World Record (21.41) divided by the 1989WAVA M40 Age Standard (18.13) times 100 to make it a percentage. The result is 118 percent. The same calculation using 92Harvey Age Grading results in exactly 100 percent. Attached are plots of 1989WAVA (clear overlay) and 92Harvey (paper) for both the running events and the field events. As you will remember from my initial study, None of the other Age Grading methods examined gave such a consistently tight horizontal pattern.

It certainly is easier to justify Age Standards that result in the Veteran World Records varying between 82 and 100 percent of the Age Standard rather than those that we have now which vary between 50 and 118 percent. The credibility of Multi-event scores, Age Graded prizes and prize money, Age Group comparisons, and Age graded races depends entirely on the Age Grading Tables. We need to do our very best.

Thank you for your attention to this tedious record. I hope I have explained myself well enough, and if not, please contact me. Remember, this is only one of several proposed Age Grading Methods. It seems to correct many of the shortcomings of other methods and certainly seems to improve the existing tables which is not surprising since we know a lot more than we did four years ago.



Rex J. Harvey
WAVA Multi-Event Sub-Committee Chair