Track and Field Event Performance Standards and Age Factors

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Preface

This book is the culmination of a seventeen year effort commenced by the author in 1976. Producing a book was never an aim of the effort, but upon completion it seemed a fitting thing to do to tie the overall effort together.

Having run as an open class athlete, the author jogged for primary exercise purposes for the next twenty-five years and started running with a masters age running group at age 47. He immediately began wondering about such things as how much performance is lost due to aging, does aging impact speed more than endurance, can you determine whether you are improving your performance or not while aging, and so on.

Using the readily available tools at the time which were hand held pocket calculators, the author began fitting curves through masters age group record times in an attempt to understand what happens to running performance as the result of aging. Soon an evolutionary process was taking place. The author began to learn more and more about the equational mathematics involved in fitting performance curves, increased participation in competitive masters age running worldwide produced records for ages where no records existed and improved many records which did exist, and calculators/computers of increased capability became increasingly available in the marketplace.

Initial efforts dealt only with men's running events. Hurdles, field events and race walking were added along the way for both men and women including running events for youths. Obtaining new or improved data, or the availability of more powerful computers, or both, meant going back frequently and redoing everything previously done because better fitting curves were then available to produce ever improved results.

This book is neither thought to be, nor intended to be, the ultimate result in this kind of effort. Records will continue to be set in events for ages that are not presently existing, improved records will continue to occur and replace existing records, and so on. It is, however, felt that the results of this present effort are matured to the point that future efforts will result in relatively minor changes or minor improvements overall, and hence the book is useful in its present form for today's applications, and will serve as a logical point of departure for future efforts in this area.

Introduction

The primary purpose of this book is to produce performance standards and age factors for track and field events for competitors of various ages which are applicable to all levels of performance ability.

Performance standards are listed as time standards for running, hurdle and race walking events, and as distance standards for field events. As will be explained later, age factors are numerical values applied to a competitor's performance to convert it to that of an equivalent performance as an open class category competitor.

The book is organized so that running events are covered in their entirety in one chapter, hurdle events are covered in another chapter, and likewise, field events and race walking events are covered in their separate chapters. Results for both men and women are included in each chapter, with the results for men presented first, followed by presentation of the women's results.

Each chapter commences with tables of the performance standards and age factors applicable to its events, followed by a table listing the performance level percentage of the existing records measured against the standards. Next, an explanation provides insight into how the standards of that section were developed. The remainder of the chapter includes individual event graphs which show the comparison of existing event records to the standards developed, and other graphs and material that pertains to the development of those standards and age factors.

In the running and race walking chapters, the graphs are provided in the following order of appearance: rate graphs by event, then rate graphs by selected ages, and then graphs of time standards versus actual records for each individual event. In the hurdle event chapter, the events are presented in three separate groups as sprint hurdles, intermediate distance hurdles and steeplechase. Each of the three groups is a separate package containing all of the graphs which pertain to its events. In the field events chapter, each event is presented as a separate package containing all of the graphs which pertain to that event.

The performance standards produced reflect world record level performances. They were produced by curve fitting and modeling best efforts worldwide for all ages. Thus they are not directly standards for average runners or average field event jumpers and throwers, but they do apply to performers of any level of ability through use of the performance level percentage concept. Arbitrary, but reasonably realistic performance level percentage categories might be: 98-100% world class performer, 95.5-98% international class performer, 92-95.5% national class performer, 87-92% regional level performer, 80-87% state level performer, 70-80% metropolitan level performer, 56-70% team level performer, below 56% intermediate level performers.

Refer to the discussion at page 203 for efforts taken to avoid biases in developing the standards. A serious endeavor was made to avoid any biases whatsoever.

A variety of sources were used to create the data base which is a compilation of the records necessary for curve fitting, analysis and modeling. The purpose here is to acknowledge the sources used, and to state that any apparent errors in the listing of, or failure to list, records lies with the author and not with the source material. Only the record time or distance is used, the record holder is not identified and neither the date nor place of record is noted. While most of the records used have been ratified by their governing body, not all of the re-

cords used have been ratified. In addition, no claim is made or implied that no other better records exist than those that were used.

For men and women masters age performers, international records were used for all running, hurdle, walk and field events. For boys, international records were used for ages 8 and above for running, hurdle, walk and field events, while only American records were used for ages 5, 6 and 7. For girls, only American records were available and only running events were included.

Running and field event records for masters age athletes are international in scope and were extracted from "Masters Age Records (1993 edition)" published by National Masters News. Running and field event records for boys are international in scope and were extracted from TAC listings. Running event records for girls are based on American times only and were extracted from "Running Records By Age" 1984 edition, last compiled and distributed in 1984 by National Running Data Center, Inc., including records for boys for ages not included in the TAC listing. Marathon records for international runners of all ages were extracted from various issues of "Runner's World" magazine published by World Publications. Running and field event world records for open class athletes were extracted from "Track & Field News" magazine published and distributed by Track & Field News.

The support of Al Sheahen, editor and publisher of National Masters News, has been invaluable to this effort by promoting the concept of age graded scoring in his newspaper which is the official world and U.S. publication for Masters track & field, long distance running and race walking. In addition, he has helped guide the application and acceptance of the concept within the TAC/WAVA governing bodies, has been devil's advocate by challenging nearly every standard, age factor and contention developed, and has provided numerous records where there were none or where newer records were available.

Chapter One

Running Events

Standards are provided for selected track and long distance road running events most frequently included in sanctioned meets. The standards reflect times run by world record level runners. The standards apply to runners of all ability levels however through application of the performance level percentage concept.

The performance level percentage concept is that a runner's performance level is expressed as a percentage of the world record standard which is found by dividing the event standard by the runner's time for the event. To divide, the standard and the runner's time should both be expressed in seconds. A fifty-seven year old runner uses the standard listed for age 57. Runners twenty to twenty-nine years old use the standard listed for OC which is the open class runner standard. An example is given at the end of page 7.

In this chapter the men's events will be presented first being covered in their entirety, followed by a similar package of coverage for the women's events. In general, comments will apply to both the men's package and the women's package. Some age-factor and performance level charts will contain results for both men and women for comparison purposes when those charts will both fit on one page. When this is done, the combined charts will be included in the packages for both men and women.

The primary purpose of performance level percentages is to facilitate comparison of performances. An individual runner's performances can be compared against themselves, or performances of many runners can be compared. Since the standards for all events are adjusted to a world record level, comparison of performances for different events is valid. While this effort does not set standards as such for average runners, whether competitive or noncompetitive, that doesn't mean the standards aren't applicable to average runners regardless of what the term average runner may mean. See categories listed on page 1.

The tables of standards are provided at pages 8 and 9. The standards are listed in hours, minutes and seconds format (h:m:s), and are also listed in seconds. The listing in seconds is to facilitate calculating performance level percentage.

Following the tables of time standards for running events, age-factor tables are provided for the same events. See pages 10 and 11. Age-factors are used to convert the performances of non-open class runners (also race walkers and field eventers) to their equivalent performance as an open class effort. Specifically, age-factors for running events are factors which convert records for non-open class runners to the value of the open class record. This is to say the age-factor is obtained by dividing the open class world record time by the time of the records for the other ages. For this book, age-factor is defined to be division of the open class time standard by the time standard for the other ages.

These time standards were developed using a unique approach. Rather than simply curve fitting each event separately and independently of other events, the approach here fits a continuous three dimensional time surface over the axes of age and distance. This is actually accomplished in the rate domain with results then transformed to the time domain.

There are two primary by-products of the time surface: one being time-age curves for each event giving time as age varies from 5 to 100 years, and another being time-distance curves for each year of age giving time as distance varies from 50 meters to the marathon. Examples of these curves are included later in the chapter.

Both the time-age and time-distance curve equations must meet certain general requirements. They must be equations that lend themselves to direct parametric solution of coefficient and exponent values, and inherently have the shape or distribution of the data involved so that a minimum number of coefficients or exponents are required to form the curve. The benefit of this requirement is that a minimum number of data points suffice to obtain statistically good curve fits over the entire range of the curve. Curve shaping constants also are employed in the equations. Two time-age points are required to fit the time-age curve for any running event with ages ranging from 5 to 100. Three time-distance points are required to fit the time-distance curve for any age with distances ranging from 50 to 800 meters, and three more time-distance points are required to fit that age for distances ranging from 800 to 50,000 meters. The time-age and time-distance equations are obviously non-linear and are combined to operate in an interdependent manner within the program.

The time surface is computer generated as follows. Both time-age and time-distance equations are pre-loaded into the running event portion of the computer program. New youth and master's age records are manually entered into the records data base and the program then identifies all data base records which are better (faster) than the existing time standards. Selected records are manually entered into the program, which then calculates new time-distance curves, from which new time-age curves are calculated for every event, from which the program then produces a new set of time standards for all events, and in addition the program then identifies (if there any) all data base records which are better than the newly generated time standards. This is the completion of the first step. Selected records are again manually entered into the program, which then calculates new time-distance curves, from which new time-age curves are calculated for every event, from which the program then produces a new set of time standards for all events, and in addition the program then identifies (if there any) all data base records which are better than the newly generated time standards. This is the completion of the second step. This iteration process is continued until no records in the data base are identified as being better than the standards generated, and at the same time there are a maximum number of actual records included as standards and those records are suitably distributed over the entire age-distance region of the time surface. The standards are then finalized by ensuring that the running rate requirements are met for all events.

Refer to the table of page 12 which shows performance level of actual records for a quick view of how many data base records were included in defining the running standards. Those listed as 100% made it. Those listed as 99% almost made it, the 98% records were close, and so on. The chart also illustrates the distribution of those records on the time surface, that is across all ages and distances.

The fitting process described above produces its results in both the time domain and the rate domain to ensure that rate requirements are not violated. For example, rate requirements are violated when standards result for an age which would have longer distances run at faster rates than for shorter distances.

The resulting table of standards will usually "look" good just on the basis of their numerical progression in both the up-down and right-left directions. To get a better feel for how good the standards really are, refer to the running rate graphs provided at pages 14 through 17. The graphs must have a smooth continuity for each rate line, and the rate lines must be pro-

portionally spaced among themselves in a reasonable way for the standards to be realistic and hence considered good.

The age-factors are then computer generated by dividing the open class standard by the standard for each age, doing this for every event. Just as the derived time standards form a time surface over the axes of age and distance, so do the resulting age-factor standards form a surface of age-factor values over the axes of age and distance. The resulting age-factors require a brief discussion to assist in gaining an understanding of what they do and do not represent before attempts are made by the reader to analyze whether they have the general continuity and distribution that they should have.

Refer to the age-factor table of page 10 for discussion purposes. It is seen that the factors are not smooth in their progression. For every event, age-factor values decrease continuously as they go from their 1.000 value at open class (OC) ages to their fractional value at age 100, and as they go from their 1.000 value at OC ages to their fractional value at age 5. There are, however, a number of factors in play that prevent age-factors from behaving with perfect arithmetical uniformity as they vary across the distances of all events for a specific age. And as a further complication, the various effects of the factors vary in their amount as age changes. Three of the more significant factors are the open class record age phenomenon, the middle distance age-factor dip phenomenon, and the 100 meter zero velocity start phenomenon.

The open class record age phenomenon results from the fact that for sprints, world record level runner ages average at about 24 years, while for middle distances that age is at about 25 or 26 years, and for the long distances and marathon that age is at about 27 years. Thus, the age-factors for 40 year old runners would be expected to be very nearly 1.00 for long distances since they are nominally only 13 years past the most favorable age for those events, their age-factors would be somewhat less for middle distances since they are nominally 14 or 15 years past the prime age for those events, and their age-factors would be even less for sprint events since they are nominally 16 years past the prime age for sprinting. While this is the effect or contribution of this phenomenon, it is not a stand alone condition and will wind up being combined with the effects of the other phenomena to produce the final overall effect that results.

The middle distance age-factor dip phenomenon is less obvious and more difficult to envision, but it is just as real nonetheless as far as age-factors are concerned. Refer to the running rate graphs of pages 14 through 17. First look at the graph of page 16 for men or page 36 for women plotting rate for specific ages. In its simplest terms, the ability to run the 400 and 800 meter events declines more rapidly with age than does the ability to run distances which are shorter such as the 100 and 200 meter sprints or distances which are longer such as the 1500 and 3000 meter runs. In looking at the page 16 rate graph, it is seen that the hump in the curves reflecting the higher rates at which the 400 and 800 meters are run by open class and 40 year old runners is somewhat diminished for 60 year olds, is even more diminished for 80 year olds, and has essentially vanished completely for 100 year old runners. This middle distance age-factor dip phenomenon effect is not a stand alone condition and will wind up being combined with the effects of the other phenomena to produce the final overall effect that results.

The 100 meter zero velocity start phenomenon is fairly easy to envision. From ages 13 through 40 or so, the 100 meter times and their resulting standards are "slowed" with respect to those for the 200 and 400 meters and all longer distances by the zero velocity, standing start effect. A small but finite amount of time is lost because of the zero velocity start in all events, but the effect is significant in only events of less than about 140 meters as illustrated by the following example.

The open class world record time for the men's 4x100 relay is 37.40 seconds. If all four runners ran world record time 9.86 second legs, their relay time would be 39.44 seconds which is not as fast as the relay record. So how do you get 37.40? Lead runs 9.86 from a standing, zero velocity start, and the following three legs are all run in 9.18 seconds from running starts. That's the effect of the zero velocity start on the 100 meter dash.

The open class world record time for the men's 4x200 relay is 1:19.11 which is 79.11 seconds. If all four runners ran world record time 19.72 second legs, their relay time would be 78.88 seconds which is faster than the relay record. It is therefor seen that the zero velocity start effect does not significantly impact the 200 meter dash, but it does significantly impact the 100 meter dash.

100 meter runners under age 12 and over age 50 are not significantly impacted by the zero velocity start effect because they are running their 100s at about the same rate or less than open class 400 meter runners, and hence do not need a distance of more than 100 meters to build up to the speed of the running rate required. The 100 meter zero velocity start phenomenon which effects runners in the 13 to 50 year old age range, is not a stand alone condition and will wind up being combined with the effects of the other phenomena to produce the final overall effect that results.

From the discussion above, it is seen that there are certain conditions existing which prevent the resulting age-factor values for runners from having a well behaved continuity in the arithmetic or geometric progression sense as one reads age-factors across the table for a specific age. The effects of the various phenomena combine in a non-linear fashion and exhibit their greatest impact as age approaches that of the open class runners. This doesn't mean that the age-factors can not be analyzed and challenged as reflecting poor curve fitting, it simply means that some amount of warpage and undulation discontinuity is inherent to age-factors for runners, and this should be taken into consideration when looking at, or analyzing, tables of running age-factors.

The rule of precedence for creating or developing time standards and age-factor standards is that time standards are first developed which then determine age-factors, but age-factors are not first developed to then determine time standards.

The next table at page 12 is the listing of performance level in percent for actual records. The percentages listed in the table are determined by dividing the time standard by the actual record for every age of every event having a listed record. The percentage values have been rounded off to the nearest whole integer. A percentage of 100 indicates that that record was used in determining the standards that resulted. Records having a percentage of 99 or 98 are also efforts of the very highest calibre. As discussed earlier, the time surface curve fitting process attempts to include as many actual records as possible with their occurrence evenly distributed as much as possible over all of the ages and distances involved.

Following the performance level table for existing records, are graphs displaying the rates in meters per second for the standards generated. It was mentioned earlier that these rate graphs must show a smooth continuity for each rate line, and the rate lines must be proportionally spaced among themselves in a reasonable way for the standards to be realistic and hence considered suitable or good. The first two rate graphs at pages 14 and 15 plot rate versus age for individual events, while the third and fourth graphs at pages 16 and 17 plot rate versus distance for selected ages. The reader can easily test the validity of not including records of their choice by calculating the rate in meters per second for that record and plotting it on the two applicable rate graphs.

The next set of graphs at pages 18 through 27 plot standards versus actual records for individual events consisting of the 100, 200, 400, 800, 1500, mile, 3k, 5k, 10k and marathon. In all of these graphs, the actual existing record is plotted as the open or white square symbol, while the time standard is plotted as the solid black square symbol. These graphs are one of the sets of cross sections mentioned earlier that are produced by the time surface. They do not reflect attempts to curve fit the events on a stand alone basis. For example, the men's 400 and the women's 800 could have better curve fits if treated as stand alone events, but they are not stand alone events under the time surface concept.

It is frequently asked why the running standards curve up so much at the 5 year old and 100 year old edges of the graphs, as it is felt that straighter lines with less curvature would seem more realistic. The answer is that the data to be fitted requires equations that turn the curves upward sharply at the 5 year old and 100 year old portions of the curve. Refer to the graphs of pages 18 through 27 for each running event to see the plot of the actual record data shown by the white open square symbols. Every event from 100 meters to the marathon indicates a rapid increase in running ability taking place for 5, 6 and 7 year olds, and a rapid loss of running ability setting in for runners in the 85 to 100 year old age range. Refer also to pages 38 through 47 for the women's running events. Meeting that condition certainly makes the author's curve fitting equations more complicated, but that is required if the curves of the standards are to realistically portray what is physically happening as indicated by every plot of the actual records.

While the discussion above referenced mainly tables and graphs for men, the remarks also apply to women's running.

Calculating a runner's performance level percentage. Find the PL% for a 53 year old man who runs the mile in 4:30.0. Refer to the second paragraph on page 3. Convert the 4 minutes and 30.0 seconds time run to time in seconds, obtaining 270.0 seconds. Find the standard on page 8 for the age 53 men's mile which is listed as 262.48 seconds. Divide 262.48 by 270.0 obtaining a value of 0.9721 which is a percentage of 97.21%.

AGE	100	200	400	800	1500	1 MILE	3000	5000	10K	42195
5	14.65	30.58	1:09.40	2:50.96	5:47.83	6:15.25	12:01.7	20:22	41:55	3:26:01
6	13.75	28.31	1:03.84	2:36.96	5:18.77	5:43.88	11:01.5	18:41	38:29	3:08:39
7	13.06	26.60	59.67	2:26.35	4:56.89	5:20.28	10:16.7	17:26	35:58	2:55:47
8	12.50	25.27	56.43	2:18.02	4:39.83	5:01.90	9:42.2	16:29	34:04	2:45:55
9	12.05	24.20	53.85	2:11.31	4:26.18	4:47.21	9:15.0	15:45	32:35	2:38:09
10	11.67	23.33	51.76	2:05.80	4:15.05	4:35.25	8:53.0	15:09	31:24	2:31:56
11	11.35	22.61	50.03	2:01.21	4:05.85	4:25.37	8:35.2	14:41	30:28	2:26:54
12	11.07	22.01	48.60	1:57.33	3:58.16	4:17.12	8:20.4	14:17	29:43	2:22:46
13	10.82	21.50	47.40	1:54.04	3:51.67	4:10.18	8:08.2	13:58	29:06	2:19:22
14	10.61	21.07	46.39	1:51.22	3:46.17	4:04.31	7:58.0	13:42	28:36	2:16:32
15	10.42	20.70	45.54	1:48.80	3:41.50	3:59.32	7:49.5	13:30	28:11	2:14:11
16	10.25	20.39	44.81	1:46.71	3:37.51	3:55.07	7:42.4	13:19	27:51	2:12:14
17	10.10	20.12	44.20	1:44.91	3:34.12	3:51.46	7:36.5	13:10	27:35	2:10:37
18	9.97	19.90	43.69	1:43.36	3:31.23	3:48.41	7:31.6	13:03	27:22	2:09:17
19	9.86	19.72	43.29	1:42.04	3:28.80	3:45.83	7:27.6	12:57	27:11	2:08:11
OC	9.86	19.72	43.29	1:41.73	3:27.46	3:44.39	7:25.1	12:53	26:58	2:06:50
30	9.86	19.72	43.29	1:41.73	3:27.46	3:44.39	7:25.1	12:53	26:58	2:06:50
31	9.86	19.72	43.29	1:41.73	3:27.46	3:44.39	7:25.1	12:53	27:08	2:06:50
32	9.86	19.72	43.29	1:41.73	3:27.46	3:44.39	7:25.1	12:53	27:09	2:06:50
33	9.91	19.78	43.29	1:41.73	3:27.46	3:44.39	7:25.1	12:53	26:58	2:06:50
34	9.98	19.90	43.53	1:42.25	3:28.48	3:45.41	7:25.9	12:53	27:10	2:06:50
35	10.04	20.01	43.79	1:43.00	3:29.83	3:46.84	7:28.0	12:56	27:07	2:06:56
36	10.11	20.14	44.06	1:43.77	3:31.25	3:48.34	7:30.3	12:60	27:12	2:07:26
37	10.18	20.27	44.35	1:44.57	3:32.73	3:49.91	7:32.8	13:03	27:18	2:07:59
38	10.24	20.40	44.65	1:45.40	3:34.27	3:51.54	7:35.5	13:07	27:25	2:08:34
39	10.31	20.53	44.96	1:46.24	3:35.86	3:53.24	7:38.3	13:11	27:32	2:09:12
40	10.37	20.67	45.28	1:47.10	3:37.51	3:55.00	7:41.2	13:15	27:40	2:09:53
41	10.44	20.81	45.61	1:47.98	3:39.21	3:56.81	7:44.3	13:20	27:48	2:10:37
42	10.50	20.96	45.95	1:48.88	3:40.95	3:58.67	7:47.4	13:25	27:57	2:11:23
43	10.57	21.11	46.29	1:49.79	3:42.75	4:00.59	7:50.8	13:30	28:06	2:12:11
44	10.63	21.26	46.65	1:50.72	3:44.58	4:02.56	7:54.2	13:35	28:16	2:13:02
45	10.70	21.41	47.02	1:51.67	3:46.46	4:04.57	7:57.8	13:41	28:27	2:13:56
46	10.76	21.57	47.39	1:52.64	3:48.39	4:06.64	8:01.5	13:47	28:38	2:14:52
47	10.83	21.73	47.77	1:53.62	3:50.36	4:08.75	8:05.3	13:53	28:49	2:15:50
48	10.89	21.89	48.17	1:54.61	3:52.37	4:10.92	8:09.2	13:59	29:01	2:16:51
49	10.96	22.06	48.57	1:55.63	3:54.43	4:13.13	8:13.3	14:05	29:14	2:17:55
50	11.03	22.23	48.98	1:56.66	3:56.53	4:15.39	8:17.5	14:12	29:27	2:19:00
51	11.09	22.40	49.39	1:57.70	3:58.68	4:17.70	8:21.8	14:19	29:40	2:20:09
52	11.16	22.58	49.82	1:58.77	4:00.87	4:20.07	8:26.2	14:26	29:55	2:21:19
53	11.23	22.76	50.26	1:59.86	4:03.11	4:22.48	8:30.8	14:34	30:09	2:22:33
54	11.30	22.94	50.71	2:00.96	4:05.40	4:24.95	8:35.4	14:41	30:25	2:23:49
55	11.37	23.13	51.16	2:02.09	4:07.74	4:27.48	8:40.3	14:49	30:41	2:25:07
56	11.44	23.32	51.63	2:03.23	4:10.13	4:30.06	8:45.2	14:58	30:57	2:26:28
57	11.51	23.51	52.11	2:04.40	4:12.58	4:32.71	8:50.3	15:06	31:14	2:27:52
58	11.58	23.71	52.60	2:05.60	4:15.08	4:35.42	8:55.6	15:15	31:32	2:29:19
59	11.65	23.91	53.10	2:06.82	4:17.64	4:38.19	9:01.0	15:24	31:50	2:30:49
60	11.72	24.12	53.62	2:08.06	4:20.27	4:41.03	9:06.5	15:33	32:09	2:32:21
61	11.80	24.33	54.14	2:09.33	4:22.96	4:43.94	9:12.2	15:43	32:29	2:33:57
62	11.88	24.55	54.68	2:10.64	4:25.72	4:46.93	9:18.1	15:53	32:50	2:35:36
63	11.95	24.77	55.24	2:11.97	4:28.55	4:50.00	9:24.2	16:03	33:11	2:37:19
64	12.03	25.00	55.81	2:13.34	4:31.47	4:53.16	9:30.4	16:14	33:33	2:39:05
65	12.12	25.23	56.40	2:14.75	4:34.46	4:56.40	9:36.9	16:25	33:56	2:40:55
66	12.20	25.47	57.00	2:16.19	4:37.54	4:59.74	9:43.5	16:37	34:19	2:42:49
67	12.29	25.72	57.62	2:17.67	4:40.71	5:03.18	9:50.4	16:48	34:44	2:44:47
68	12.37	25.98	58.27	2:19.20	4:43.99	5:06.73	9:57.6	17:01	35:09	2:46:50
69	12.46	26.24	58.93	2:20.78	4:47.37	5:10.40	10:04.9	17:14	35:36	2:48:57
70	12.56	26.52	59.62	2:22.41	4:50.86	5:14.20	10:12.6	17:27	36:04	2:51:09
71	12.65	26.80	1:00.33	2:24.09	4:54.48	5:18.12	10:20.5	17:41	36:33	2:53:26
72	12.75	27.09	1:01.07	2:25.84	4:58.23	5:22.20	10:28.8	17:55	37:03	2:55:49
73	12.86	27.39	1:01.83	2:27.65	5:02.13	5:26.43	10:37.3	18:10	37:34	2:58:19
74	12.96	27.71	1:02.63	2:29.53	5:06.18	5:30.83	10:46.3	18:26	38:07	3:00:55
75	13.08	28.04	1:03.46	2:31.49	5:10.41	5:35.42	10:55.6	18:42	38:41	3:03:37
76	13.19	28.38	1:04.33	2:33.54	5:14.82	5:40.21	11:05.4	18:59	39:17	3:06:28
77	13.32	28.74	1:05.23	2:35.67	5:19.43	5:45.23	11:15.6	19:17	39:55	3:09:27
78	13.44	29.12	1:06.19	2:37.92	5:24.28	5:50.49	11:26.3	19:36	40:35	3:12:36
79	13.58	29.52	1:07.19	2:40.27	5:29.37	5:56.02	11:37.6	19:56	41:17	3:15:54
80	13.72	29.93	1:08.25	2:42.76	5:34.74	6:01.86	11:49.6	20:17	42:02	3:19:24
81	13.87	30.37	1:09.36	2:45.39	5:40.41	6:08.02	12:02.2	20:39	42:49	3:23:06
82	14.03	30.84	1:10.55	2:48.17	5:46.43	6:14.57	12:15.6	21:03	43:39	3:27:02
83	14.20	31.34	1:11.81	2:51.14	5:52.84	6:21.54	12:29.8	21:28	44:32	3:31:13
84	14.38	31.87	1:13.16	2:54.31	5:59.69	6:28.98	12:45.1	21:55	45:29	3:35:42
85	14.57	32.45	1:14.61	2:57.71	6:07.05	6:36.98	13:01.5	22:24	46:31	3:40:31
86	14.79	33.07	1:16.17	3:01.39	6:14.99	6:45.61	13:19.2	22:55	47:37	3:45:43
87	15.01	33.74	1:17.86	3:05.38	6:23.60	6:54.96	13:38.3	23:29	48:49	3:51:21
88	15.27	34.47	1:19.72	3:09.73	6:33.00	7:05.18	13:59.3	24:06	50:08	3:57:30
89	15.54	35.27	1:21.75	3:14.52	6:43.34	7:16.41	14:22.3	24:46	51:34	4:04:16
90	15.85	36.17	1:24.01	3:19.84	6:54.80	7:28.87	14:47.7	25:31	53:10	4:11:45
91	16.20	37.17	1:26.53	3:25.79	7:07.63	7:42.81	15:16.3	26:21	54:57	4:20:08
92	16.59	38.30	1:29.40	3:32.54	7:22.16	7:58.60	15:48.5	27:18	56:58	4:29:36
93	17.04	39.60	1:32.68	3:40.29	7:38.85	8:16.72	16:25.5	28:24	59:16	4:40:28
94	17.57	41.13	1:36.52	3:49.35	7:58.33	8:37.88	17:08.7	29:40	1:01:58	4:53:07
95	18.20	42.94	1:41.09	4:00.16	8:21.56	9:03.12	18:00.1	31:10	1:05:10	5:08:10
96	18.98	45.17	1:46.69	4:13.42	8:50.03	9:34.03	19:03.0	33:01	1:09:04	5:26:35
97	19.98	48.00	1:53.82	4:30.30	9:26.22	10:13.32	20:22.9	35:21	1:14:02	5:49:54
98	21.32	51.79	2:03.35	4:52.90	10:14.64	11:05.89	22:09.5	38:28	1:20:38	6:21:01
99	23.26	57.29	2:17.14	5:25.66	11:24.74	12:21.97	24:43.6	42:58	1:30:10	7:05:54
100	26.50	66.40	2:40.00	6:20.00	13:20.88	14:28.00	28:58.5	50:25	1:45:52	8:19:60

AGE	100	200	400	800	1500	MILE	3000	5000	10K	42195
5	14.65	30.58	69.40	170.96	347.83	375.25	721.7	1222	2515	12361
6	13.75	28.31	63.84	156.96	318.77	343.88	661.5	1121	2309	11319
7	13.06	26.60	59.67	146.35	296.89	320.28	616.7	1046	2158	10547
8	12.50	25.27	56.43	138.02	279.83	301.90	582.2	989	2044	9955
9	12.05	24.20	53.85	131.31	266.18	287.21	555.0	945	1955	9489
10	11.67	23.33	51.76	125.80	255.05	275.25	533.0	909	1884	9116
11	11.35	22.61	50.03	121.21	245.85	265.37	515.2	881	1828	8814
12	11.07	22.01	48.60	117.33	238.16	257.12	500.4	857	1783	8566
13	10.82	21.50	47.40	114.04	231.67	250.18	488.2	838	1746	8362
14	10.61	21.07	46.39	111.22	226.17	244.31	478.0	822	1716	8192
15	10.42	20.70	45.54	108.80	221.50	239.32	469.5	810	1691	8051
16	10.25	20.39	44.81	106.71	217.51	235.07	462.4	799	1671	7934
17	10.10	20.12	44.20	104.91	214.12	231.46	456.5	790	1655	7837
18	9.97	19.90	43.69	103.36	211.23	228.41	451.6	783	1642	7757
19	9.86	19.72	43.29	102.04	208.80	225.83	447.6	777	1631	7691
OC	9.86	19.72	43.29	101.73	207.46	224.39	445.1	773	1618	7610
30	9.86	19.72	43.29	101.73	207.46	224.39	445.1	773	1618	7610
31	9.86	19.72	43.29	101.73	207.46	224.39	445.1	773	1628	7610
32	9.86	19.72	43.29	101.73	207.46	224.39	445.1	773	1629	7610
33	9.91	19.78	43.29	101.73	207.46	224.39	445.1	773	1618	7610
34	9.98	19.90	43.53	102.25	208.48	225.41	445.9	773	1630	7610
35	10.04	20.01	43.79	103.00	209.83	226.84	448.0	776	1627	7616
36	10.11	20.14	44.06	103.77	211.25	228.34	450.3	780	1632	7646
37	10.18	20.27	44.35	104.57	212.73	229.91	452.8	783	1638	7679
38	10.24	20.40	44.65	105.40	214.27	231.54	455.5	787	1645	7714
39	10.31	20.53	44.96	106.24	215.86	233.24	458.3	791	1652	7752
40	10.37	20.67	45.28	107.10	217.51	235.00	461.2	795	1660	7793
41	10.44	20.81	45.61	107.98	219.21	236.81	464.3	800	1668	7837
42	10.50	20.96	45.95	108.88	220.95	238.67	467.4	805	1677	7883
43	10.57	21.11	46.29	109.79	222.75	240.59	470.8	810	1686	7931
44	10.63	21.26	46.65	110.72	224.58	242.56	474.2	815	1696	7982
45	10.70	21.41	47.02	111.67	226.46	244.57	477.8	821	1707	8036
46	10.76	21.57	47.39	112.64	228.39	246.64	481.5	827	1718	8092
47	10.83	21.73	47.77	113.62	230.36	248.75	485.3	833	1729	8150
48	10.89	21.89	48.17	114.61	232.37	250.92	489.2	839	1741	8211
49	10.96	22.06	48.57	115.63	234.43	253.13	493.3	845	1754	8275
50	11.03	22.23	48.98	116.66	236.53	255.39	497.5	852	1767	8340
51	11.09	22.40	49.39	117.70	238.68	257.70	501.8	859	1780	8409
52	11.16	22.58	49.82	118.77	240.87	260.07	506.2	866	1795	8479
53	11.23	22.76	50.26	119.86	243.11	262.48	510.8	874	1809	8553
54	11.30	22.94	50.71	120.96	245.40	264.95	515.4	881	1825	8629
55	11.37	23.13	51.16	122.09	247.74	267.48	520.3	889	1841	8707
56	11.44	23.32	51.63	123.23	250.13	270.06	525.2	898	1857	8788
57	11.51	23.51	52.11	124.40	252.58	272.71	530.3	906	1874	8872
58	11.58	23.71	52.60	125.60	255.08	275.42	535.6	915	1892	8959
59	11.65	23.91	53.10	126.82	257.64	278.19	541.0	924	1910	9049
60	11.72	24.12	53.62	128.06	260.27	281.03	546.5	933	1929	9141
61	11.80	24.33	54.14	129.33	262.96	283.94	552.2	943	1949	9237
62	11.88	24.55	54.68	130.64	265.72	286.93	558.1	953	1970	9336
63	11.95	24.77	55.24	131.97	268.55	290.00	564.2	963	1991	9439
64	12.03	25.00	55.81	133.34	271.47	293.16	570.4	974	2013	9545
65	12.12	25.23	56.40	134.75	274.46	296.40	576.9	985	2036	9655
66	12.20	25.47	57.00	136.19	277.54	299.74	583.5	997	2059	9769
67	12.29	25.72	57.62	137.67	280.71	303.18	590.4	1008	2084	9887
68	12.37	25.98	58.27	139.20	283.99	306.73	597.6	1021	2109	10010
69	12.46	26.24	58.93	140.78	287.37	310.40	604.9	1034	2136	10137
70	12.56	26.52	59.62	142.41	290.86	314.20	612.6	1047	2164	10269
71	12.65	26.80	60.33	144.09	294.48	318.12	620.5	1061	2193	10406
72	12.75	27.09	61.07	145.84	298.23	322.20	628.8	1075	2223	10549
73	12.86	27.39	61.83	147.65	302.13	326.43	637.3	1090	2254	10699
74	12.96	27.71	62.63	149.53	306.18	330.83	646.3	1106	2287	10855
75	13.08	28.04	63.46	151.49	310.41	335.42	655.6	1122	2321	11017
76	13.19	28.38	64.33	153.54	314.82	340.21	665.4	1139	2357	11188
77	13.32	28.74	65.23	155.67	319.43	345.23	675.6	1157	2395	11367
78	13.44	29.12	66.19	157.92	324.28	350.49	686.3	1176	2435	11556
79	13.58	29.52	67.19	160.27	329.37	356.02	697.6	1196	2477	11754
80	13.72	29.93	68.25	162.76	334.74	361.86	709.6	1217	2522	11964
81	13.87	30.37	69.36	165.39	340.41	368.02	722.2	1239	2569	12186
82	14.03	30.84	70.55	168.17	346.43	374.57	735.6	1263	2619	12422
83	14.20	31.34	71.81	171.14	352.84	381.54	749.8	1288	2672	12673
84	14.38	31.87	73.16	174.31	359.69	388.98	765.1	1315	2729	12942
85	14.57	32.45	74.61	177.71	367.05	396.98	781.5	1344	2791	13231
86	14.79	33.07	76.17	181.39	374.99	405.61	799.2	1375	2857	13543
87	15.01	33.74	77.86	185.38	383.60	414.96	818.3	1409	2929	13881
88	15.27	34.47	79.72	189.73	393.00	425.18	839.3	1446	3008	14250
89	15.54	35.27	81.75	194.52	403.34	436.41	862.3	1486	3094	14656
90	15.85	36.17	84.01	199.84	414.80	448.87	887.7	1531	3190	15105
91	16.20	37.17	86.53	205.79	427.63	462.81	916.3	1581	3297	15608
92	16.59	38.30	89.40	212.54	442.16	478.60	948.5	1638	3418	16176
93	17.04	39.60	92.68	220.29	458.85	496.72	985.5	1704	3556	16828
94	17.57	41.13	96.52	229.35	478.33	517.88	1028.7	1780	3718	17587
95	18.20	42.94	101.09	240.16	501.56	543.12	1080.1	1870	3910	18490
96	18.98	45.17	106.69	253.42	530.03	574.03	1143.0	1981	4144	19595
97	19.98	48.00	113.82	270.30	566.22	613.32	1222.9	2121	4442	20994
98	21.32	51.79	123.35	292.90	614.64	665.89	1329.5	2308	4838	22861
99	23.26	57.29	137.14	325.66	684.74	741.97	1483.6	2578	5410	25554
100	26.50	66.40	160.00	380.00	800.88	868.00	1738.5	3025	6352	30000

MEN'S LONG DISTANCE RUNNING STANDARDS

AGE	5K	8K	10K	15K	10 MI	20K	21097	25K	30K	42195
5	20:22	33:09	41:55	1:04:42	1:09:51	1:28:38	1:34:01	1:53:35	2:19:28	3:26:01
6	18:41	30:26	38:29	59:23	1:04:06	1:21:19	1:26:15	1:44:09	2:07:50	3:08:39
7	17:26	28:26	35:58	55:30	59:53	1:15:56	1:20:32	1:37:13	1:59:15	2:55:47
8	16:29	26:55	34:04	52:32	56:42	1:11:51	1:16:12	1:31:56	1:52:41	2:45:55
9	15:45	25:44	32:35	50:15	54:13	1:08:41	1:12:49	1:27:48	1:47:34	2:38:09
10	15:09	24:48	31:24	48:26	52:15	1:06:10	1:10:09	1:24:32	1:43:29	2:31:56
11	14:41	24:04	30:28	46:59	50:41	1:04:09	1:07:60	1:21:54	1:40:12	2:26:54
12	14:17	23:27	29:43	45:49	49:25	1:02:31	1:06:16	1:19:46	1:37:32	2:22:46
13	13:58	22:58	29:06	44:52	48:23	1:01:11	1:04:51	1:18:02	1:35:20	2:19:22
14	13:42	22:34	28:36	44:05	47:33	1:00:06	1:03:41	1:16:36	1:33:32	2:16:32
15	13:30	22:14	28:11	43:27	46:52	59:13	1:02:44	1:15:25	1:32:03	2:14:11
16	13:19	21:58	27:51	42:56	46:18	58:29	1:01:57	1:14:28	1:30:49	2:12:14
17	13:10	21:44	27:35	42:31	45:51	57:54	1:01:20	1:13:40	1:29:49	2:10:37
18	13:03	21:34	27:22	42:11	45:29	57:25	1:00:49	1:13:02	1:28:59	2:09:17
19	12:57	21:25	27:11	41:55	45:11	57:02	1:00:24	1:12:31	1:28:19	2:08:11
OC	12:53	21:16	26:58	41:32	44:46	56:28	59:48	1:11:46	1:27:23	2:06:50
30	12:53	21:16	26:58	41:32	44:46	56:28	59:48	1:11:46	1:27:23	2:06:50
31	12:53	21:16	26:58	41:32	44:46	56:28	59:48	1:11:46	1:27:23	2:06:50
32	12:53	21:16	26:58	41:32	44:46	56:28	59:48	1:11:46	1:27:23	2:06:50
33	12:53	21:16	26:58	41:32	44:46	56:28	59:48	1:11:46	1:27:23	2:06:50
34	12:53	21:18	27:02	41:37	44:52	56:34	59:54	1:11:51	1:27:24	2:06:50
35	12:56	21:23	27:07	41:45	44:60	56:44	100:04	1:12:04	1:27:41	2:06:56
36	12:60	21:27	27:12	41:53	45:08	56:55	100:16	1:12:18	1:27:59	2:07:26
37	13:03	21:32	27:18	42:02	45:18	57:08	100:29	1:12:34	1:28:20	2:07:59
38	13:07	21:38	27:25	42:11	45:29	57:21	100:44	1:12:52	1:28:42	2:08:34
39	13:11	21:44	27:32	42:22	45:40	57:36	100:60	1:13:12	1:29:07	2:09:12
40	13:15	21:50	27:40	42:34	45:53	57:52	1:01:17	1:13:32	1:29:33	2:09:53
41	13:20	21:57	27:48	42:46	46:06	58:09	1:01:35	1:13:55	1:30:01	2:10:37
42	13:25	22:04	27:57	42:60	46:21	58:28	1:01:54	1:14:19	1:30:31	2:11:23
43	13:30	22:11	28:06	43:14	46:36	58:47	1:02:15	1:14:44	1:31:02	2:12:11
44	13:35	22:20	28:16	43:29	46:52	59:08	1:02:37	1:15:11	1:31:35	2:13:02
45	13:41	22:28	28:27	43:45	47:09	59:29	1:03:00	1:15:39	1:32:10	2:13:56
46	13:47	22:37	28:38	44:01	47:27	59:52	1:03:24	1:16:08	1:32:47	2:14:52
47	13:53	22:46	28:49	44:19	47:46	1:00:16	1:03:50	1:16:39	1:33:26	2:15:50
48	13:59	22:56	29:01	44:37	48:05	1:00:41	1:04:16	1:17:12	1:34:06	2:16:51
49	14:05	23:06	29:14	44:56	48:26	1:01:07	1:04:44	1:17:45	1:34:48	2:17:55
50	14:12	23:16	29:27	45:16	48:48	1:01:35	1:05:13	1:18:21	1:35:32	2:19:00
51	14:19	23:27	29:40	45:37	49:10	1:02:03	1:05:44	1:18:57	1:36:17	2:20:09
52	14:26	23:39	29:55	45:58	49:33	1:02:33	1:06:15	1:19:36	1:37:04	2:21:19
53	14:34	23:50	30:09	46:21	49:58	1:03:04	1:06:48	1:20:15	1:37:53	2:22:33
54	14:41	24:03	30:25	46:44	50:23	1:03:36	1:07:22	1:20:57	1:38:44	2:23:49
55	14:49	24:15	30:41	47:09	50:49	1:04:09	1:07:57	1:21:39	1:39:37	2:25:07
56	14:58	24:29	30:57	47:34	51:16	1:04:44	1:08:34	1:22:24	1:40:31	2:26:28
57	15:06	24:42	31:14	47:60	51:45	1:05:20	1:09:12	1:23:10	1:41:28	2:27:52
58	15:15	24:56	31:32	48:27	52:14	1:05:57	1:09:51	1:23:57	1:42:26	2:29:19
59	15:24	25:11	31:50	48:55	52:44	1:06:35	1:10:32	1:24:47	1:43:27	2:30:49
60	15:33	25:26	32:09	49:25	53:16	1:07:15	1:11:15	1:25:38	1:44:30	2:32:21
61	15:43	25:42	32:29	49:55	53:49	1:07:57	1:11:59	1:26:31	1:45:35	2:33:57
62	15:53	25:58	32:50	50:26	54:22	1:08:40	1:12:44	1:27:26	1:46:43	2:35:36
63	16:03	26:15	33:11	50:59	54:58	1:09:24	1:13:31	1:28:23	1:47:52	2:37:19
64	16:14	26:32	33:33	51:33	55:34	1:10:10	1:14:20	1:29:22	1:49:05	2:39:05
65	16:25	26:50	33:56	52:08	56:12	1:10:58	1:15:11	1:30:23	1:50:20	2:40:55
66	16:37	27:09	34:19	52:44	56:51	1:11:48	1:16:04	1:31:27	1:51:38	2:42:49
67	16:48	27:28	34:44	53:22	57:32	1:12:40	1:16:59	1:32:33	1:52:58	2:44:47
68	17:01	27:49	35:09	54:02	58:15	1:13:34	1:17:56	1:33:42	1:54:22	2:46:50
69	17:14	28:10	35:36	54:43	58:59	1:14:30	1:18:55	1:34:53	1:55:49	2:48:57
70	17:27	28:31	36:04	55:25	59:45	1:15:28	1:19:57	1:36:07	1:57:20	2:51:09
71	17:41	28:54	36:33	56:10	1:00:33	1:16:29	1:21:01	1:37:25	1:58:54	2:53:26
72	17:55	29:18	37:03	56:56	1:01:23	1:17:32	1:22:08	1:38:45	2:00:33	2:55:49
73	18:10	29:43	37:34	57:45	1:02:15	1:18:38	1:23:18	1:40:10	2:02:16	2:58:19
74	18:26	30:09	38:07	58:36	1:03:10	1:19:47	1:24:32	1:41:38	2:04:03	3:00:55
75	18:42	30:36	38:41	59:29	1:04:07	1:20:60	1:25:48	1:43:10	2:05:55	3:03:37
76	18:59	31:04	39:17	1:00:24	1:05:07	1:22:15	1:27:09	1:44:46	2:07:53	3:06:28
77	19:17	31:34	39:55	1:01:23	1:06:11	1:23:35	1:28:33	1:46:28	2:09:57	3:09:27
78	19:36	32:05	40:35	1:02:24	1:07:17	1:24:59	1:30:02	1:48:14	2:12:07	3:12:36
79	19:56	32:38	41:17	1:03:29	1:08:27	1:26:28	1:31:36	1:50:07	2:14:24	3:15:54
80	20:17	33:13	42:02	1:04:38	1:09:41	1:28:01	1:33:15	1:52:06	2:16:49	3:19:24
81	20:39	33:50	42:49	1:05:51	1:10:60	1:29:40	1:34:60	1:54:12	2:19:22	3:23:06
82	21:03	34:30	43:39	1:07:08	1:12:23	1:31:26	1:36:52	1:56:26	2:22:05	3:27:02
83	21:28	35:12	44:32	1:08:31	1:13:52	1:33:18	1:38:51	1:58:49	2:24:59	3:31:13
84	21:55	35:57	45:29	1:09:59	1:15:28	1:35:19	1:40:58	2:01:22	2:28:06	3:35:42
85	22:24	36:45	46:31	1:11:34	1:17:10	1:37:28	1:43:15	2:04:07	2:31:26	3:40:31
86	22:55	37:37	47:37	1:13:17	1:19:01	1:39:48	1:45:43	2:07:04	2:35:01	3:45:43
87	23:29	38:33	48:49	1:15:08	1:21:01	1:42:20	1:48:24	2:10:17	2:38:56	3:51:21
88	24:06	39:35	50:08	1:17:10	1:23:12	1:45:05	1:51:19	2:13:47	2:43:11	3:57:30
89	24:46	40:43	51:34	1:19:23	1:25:36	1:48:07	1:54:32	2:17:38	2:47:53	4:04:16
90	25:31	41:58	53:10	1:21:51	1:28:16	1:51:28	1:58:05	2:21:54	2:53:04	4:11:45
91	26:21	43:22	54:57	1:24:37	1:31:14	1:55:14	2:02:04	2:26:41	2:58:52	4:20:08
92	27:18	44:57	56:58	1:27:44	1:34:36	1:59:29	2:06:33	2:32:04	3:05:26	4:29:36
93	28:24	46:46	59:16	1:31:18	1:38:27	2:04:21	2:11:43	2:38:15	3:12:57	4:40:28
94	29:40	48:53	1:01:58	1:35:28	1:42:57	2:10:01	2:17:43	2:45:27	3:21:43	4:53:07
95	31:10	51:24	1:05:10	1:40:25	1:48:17	2:16:45	2:24:51	2:54:01	3:32:08	5:08:10
96	33:01	54:28	1:09:04	1:46:28	1:54:48	2:24:60	2:33:35	3:04:30	3:44:52	5:26:35
97	35:21	58:22	1:14:02	1:54:08	2:03:04	2:35:26	2:44:38	3:17:45	4:01:00	5:49:54
98	38:28	1:03:34	1:20:38	2:04:21	2:14:05	2:49:20	2:59:22	3:35:26	4:22:31	6:21:01
99	42:58	1:11:03	1:30:10	2:19:04	2:29:57	3:09:23	3:20:35	4:00:55	4:53:33	7:05:54
100	50:25	1:23:25	1:45:52	2:43:20	2:56:08	3:42:27	3:55:36	4:42:58	5:44:44	8:19:60

AGE	5K	8K	10K	15K	10 MI	20K	21097	25K	30K	42195
5	1222	1989	2515	3882	4191	5318	5641	6815	8368	12361
6	1121	1826	2309	3563	3846	4879	5175	6249	7670	11319
7	1046	1706	2158	3330	3593	4556	4832	5833	7155	10547
8	989	1615	2044	3152	3402	4311	4572	5516	6761	9955
9	945	1544	1955	3015	3253	4121	4369	5268	6454	9489
10	909	1488	1884	2906	3135	3970	4209	5072	6209	9116
11	881	1444	1828	2819	3041	3849	4080	4914	6012	8814
12	857	1407	1783	2749	2965	3751	3976	4786	5852	8566
13	838	1378	1746	2692	2903	3671	3891	4682	5720	8362
14	822	1354	1716	2645	2853	3606	3821	4596	5612	8192
15	810	1334	1691	2607	2812	3553	3764	4525	5523	8051
16	799	1318	1671	2576	2778	3509	3717	4468	5449	7934
17	790	1304	1655	2551	2751	3474	3680	4420	5389	7837
18	783	1294	1642	2531	2729	3445	3649	4382	5339	7757
19	777	1285	1631	2515	2711	3422	3624	4351	5299	7691
OC	773	1276	1618	2492	2686	3388	3588	4306	5243	7610
30	773	1276	1618	2492	2686	3388	3588	4306	5243	7610
31	773	1276	1618	2492	2686	3388	3588	4306	5243	7610
32	773	1276	1618	2492	2686	3388	3588	4306	5243	7610
33	773	1276	1618	2492	2686	3388	3588	4306	5243	7610
34	773	1278	1622	2497	2692	3394	3594	4311	5244	7610
35	776	1283	1627	2505	2700	3404	3604	4324	5261	7616
36	780	1287	1632	2513	2708	3415	3616	4338	5279	7646
37	783	1292	1638	2522	2718	3428	3629	4354	5300	7679
38	787	1298	1645	2531	2729	3441	3644	4372	5322	7714
39	791	1304	1652	2542	2740	3456	3660	4392	5347	7752
40	795	1310	1660	2554	2753	3472	3677	4412	5373	7793
41	800	1317	1668	2566	2766	3489	3695	4435	5401	7837
42	805	1324	1677	2580	2781	3508	3714	4459	5431	7883
43	810	1331	1686	2594	2796	3527	3735	4484	5462	7931
44	815	1340	1696	2609	2812	3548	3757	4511	5495	7982
45	821	1348	1707	2625	2829	3569	3780	4539	5530	8036
46	827	1357	1718	2641	2847	3592	3804	4568	5567	8092
47	833	1366	1729	2659	2866	3616	3830	4599	5606	8150
48	839	1376	1741	2677	2885	3641	3856	4632	5646	8211
49	845	1386	1754	2696	2906	3667	3884	4665	5688	8275
50	852	1396	1767	2716	2928	3695	3913	4701	5732	8340
51	859	1407	1780	2737	2950	3723	3944	4737	5777	8409
52	866	1419	1795	2758	2973	3753	3975	4776	5824	8479
53	874	1430	1809	2781	2998	3784	4008	4815	5873	8553
54	881	1443	1825	2804	3023	3816	4042	4857	5924	8629
55	889	1455	1841	2829	3049	3849	4077	4899	5977	8707
56	898	1469	1857	2854	3076	3884	4114	4944	6031	8788
57	906	1482	1874	2880	3105	3920	4152	4990	6088	8872
58	915	1496	1892	2907	3134	3957	4191	5037	6146	8959
59	924	1511	1910	2935	3164	3995	4232	5087	6207	9049
60	933	1526	1929	2965	3196	4035	4275	5138	6270	9141
61	943	1542	1949	2995	3229	4077	4319	5191	6335	9237
62	953	1558	1970	3026	3262	4120	4364	5246	6403	9336
63	963	1575	1991	3059	3298	4164	4411	5303	6472	9439
64	974	1592	2013	3093	3334	4210	4460	5362	6545	9545
65	985	1610	2036	3128	3372	4258	4511	5423	6620	9655
66	997	1629	2059	3164	3411	4308	4564	5487	6698	9769
67	1008	1648	2084	3202	3452	4360	4619	5553	6778	9887
68	1021	1669	2109	3242	3495	4414	4676	5622	6862	10010
69	1034	1690	2136	3283	3539	4470	4735	5693	6949	10137
70	1047	1711	2164	3325	3585	4528	4797	5767	7040	10269
71	1061	1734	2193	3370	3633	4589	4861	5845	7134	10406
72	1075	1758	2223	3416	3683	4652	4928	5925	7233	10549
73	1090	1783	2254	3465	3735	4718	4998	6010	7336	10699
74	1106	1809	2287	3516	3790	4787	5072	6098	7443	10855
75	1122	1836	2321	3569	3847	4860	5148	6190	7555	11017
76	1139	1864	2357	3624	3907	4935	5229	6286	7673	11188
77	1157	1894	2395	3683	3971	5015	5313	6388	7797	11367
78	1176	1925	2435	3744	4037	5099	5402	6494	7927	11556
79	1196	1958	2477	3809	4107	5188	5496	6607	8064	11754
80	1217	1993	2522	3878	4181	5281	5595	6726	8209	11964
81	1239	2030	2569	3951	4260	5380	5700	6852	8362	12186
82	1263	2070	2619	4028	4343	5486	5812	6986	8525	12422
83	1288	2112	2672	4111	4432	5598	5931	7129	8699	12673
84	1315	2157	2729	4199	4528	5719	6058	7282	8886	12942
85	1344	2205	2791	4294	4630	5848	6195	7447	9086	13231
86	1375	2257	2857	4397	4741	5988	6343	7624	9301	13543
87	1409	2313	2929	4508	4861	6140	6504	7817	9536	13881
88	1446	2375	3008	4630	4992	6305	6679	8027	9791	14250
89	1486	2443	3094	4763	5136	6487	6872	8258	10073	14656
90	1531	2518	3190	4911	5296	6688	7085	8514	10384	15105
91	1581	2602	3297	5077	5474	6914	7324	8801	10732	15608
92	1638	2697	3418	5264	5676	7169	7593	9124	11126	16176
93	1704	2806	3556	5478	5907	7461	7903	9495	11577	16828
94	1780	2933	3718	5728	6177	7801	8263	9927	12103	17587
95	1870	3084	3910	6025	6497	8205	8691	10441	12728	18490
96	1981	3268	4144	6388	6888	8700	9215	11070	13492	19595
97	2121	3502	4442	6848	7384	9326	9878	11865	14460	20994
98	2308	3814	4838	7461	8045	10160	10762	12926	15751	22861
99	2578	4263	5410	8344	8997	11363	12035	14455	17613	25554
100	3025	5005	6352	9800	10568	13347	14136	16978	20684	30000

TRACK RUNNING EVENT AGE FACTORS

	MEN'S									
AGE	100	200	400	800	1500	MILE	3000	5000	10K	42195
5	0.673	0.645	0.624	0.595	0.596	0.598	0.617	0.632	0.643	0.616
6	0.717	0.697	0.678	0.648	0.651	0.653	0.673	0.689	0.701	0.672
7	0.755	0.741	0.726	0.695	0.699	0.701	0.722	0.738	0.750	0.722
8	0.789	0.780	0.767	0.737	0.741	0.743	0.764	0.781	0.792	0.764
9	0.818	0.815	0.804	0.775	0.779	0.781	0.802	0.818	0.828	0.802
10	0.845	0.845	0.836	0.809	0.813	0.815	0.835	0.850	0.859	0.835
11	0.869	0.872	0.865	0.839	0.844	0.846	0.864	0.877	0.885	0.863
12	0.891	0.896	0.891	0.867	0.871	0.873	0.889	0.901	0.908	0.888
13	0.911	0.917	0.913	0.892	0.895	0.897	0.912	0.922	0.927	0.910
14	0.929	0.936	0.933	0.915	0.917	0.918	0.931	0.939	0.943	0.929
15	0.946	0.952	0.951	0.935	0.937	0.938	0.948	0.954	0.957	0.945
16	0.962	0.967	0.966	0.953	0.954	0.955	0.963	0.967	0.969	0.959
17	0.976	0.980	0.979	0.970	0.969	0.969	0.975	0.978	0.978	0.971
18	0.989	0.991	0.991	0.984	0.982	0.982	0.986	0.987	0.986	0.981
19	1.000	1.000	1.000	0.997	0.994	0.994	0.994	0.994	0.992	0.989
OC	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
30	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
31	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
32	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
33	0.995	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
34	0.988	0.991	0.995	0.995	0.995	0.995	0.998	0.999	0.998	1.000
35	0.982	0.985	0.989	0.988	0.989	0.989	0.993	0.995	0.995	0.999
36	0.975	0.979	0.982	0.980	0.982	0.983	0.988	0.991	0.992	0.995
37	0.969	0.973	0.976	0.973	0.975	0.976	0.983	0.986	0.988	0.991
38	0.963	0.967	0.970	0.965	0.968	0.969	0.977	0.982	0.984	0.987
39	0.957	0.960	0.963	0.958	0.961	0.962	0.971	0.977	0.980	0.982
40	0.951	0.954	0.956	0.950	0.954	0.955	0.965	0.971	0.975	0.977
41	0.945	0.947	0.949	0.942	0.946	0.948	0.959	0.966	0.970	0.971
42	0.939	0.941	0.942	0.934	0.939	0.940	0.952	0.960	0.965	0.965
43	0.933	0.934	0.935	0.927	0.931	0.933	0.945	0.954	0.960	0.960
44	0.927	0.928	0.928	0.919	0.924	0.925	0.939	0.948	0.954	0.953
45	0.922	0.921	0.921	0.911	0.916	0.917	0.932	0.941	0.948	0.947
46	0.916	0.914	0.913	0.903	0.908	0.910	0.924	0.935	0.942	0.940
47	0.911	0.908	0.906	0.895	0.901	0.902	0.917	0.928	0.936	0.934
48	0.905	0.901	0.899	0.888	0.893	0.894	0.910	0.921	0.930	0.927
49	0.900	0.894	0.891	0.880	0.885	0.886	0.902	0.914	0.923	0.920
50	0.894	0.887	0.884	0.872	0.877	0.879	0.895	0.907	0.916	0.912
51	0.889	0.880	0.876	0.864	0.869	0.871	0.887	0.899	0.909	0.905
52	0.883	0.873	0.869	0.857	0.861	0.863	0.879	0.892	0.902	0.897
53	0.878	0.867	0.861	0.849	0.853	0.855	0.871	0.884	0.894	0.890
54	0.873	0.860	0.854	0.841	0.845	0.847	0.864	0.876	0.887	0.882
55	0.868	0.853	0.846	0.833	0.837	0.839	0.856	0.869	0.879	0.874
56	0.862	0.846	0.838	0.826	0.829	0.831	0.847	0.861	0.871	0.866
57	0.857	0.839	0.831	0.818	0.821	0.823	0.839	0.853	0.864	0.858
58	0.852	0.832	0.823	0.810	0.813	0.815	0.831	0.844	0.855	0.849
59	0.846	0.825	0.815	0.802	0.805	0.807	0.823	0.836	0.847	0.841
60	0.841	0.818	0.807	0.794	0.797	0.798	0.814	0.828	0.839	0.832
61	0.836	0.811	0.800	0.787	0.789	0.790	0.806	0.819	0.830	0.824
62	0.830	0.803	0.792	0.779	0.781	0.782	0.798	0.811	0.822	0.815
63	0.825	0.796	0.784	0.771	0.772	0.774	0.789	0.802	0.813	0.806
64	0.819	0.789	0.776	0.763	0.764	0.765	0.780	0.793	0.804	0.797
65	0.814	0.782	0.768	0.755	0.756	0.757	0.772	0.784	0.795	0.788
66	0.808	0.774	0.759	0.747	0.747	0.749	0.763	0.775	0.786	0.779
67	0.803	0.767	0.751	0.739	0.739	0.740	0.754	0.766	0.777	0.770
68	0.797	0.759	0.743	0.731	0.731	0.732	0.745	0.757	0.767	0.760
69	0.791	0.751	0.735	0.723	0.722	0.723	0.736	0.747	0.758	0.751
70	0.785	0.744	0.726	0.714	0.713	0.714	0.727	0.738	0.748	0.741
71	0.779	0.736	0.718	0.706	0.704	0.705	0.717	0.728	0.738	0.731
72	0.773	0.728	0.709	0.698	0.696	0.696	0.708	0.719	0.728	0.721
73	0.767	0.720	0.700	0.689	0.687	0.687	0.698	0.709	0.718	0.711
74	0.761	0.712	0.691	0.680	0.678	0.678	0.689	0.699	0.708	0.701
75	0.754	0.703	0.682	0.672	0.668	0.669	0.679	0.689	0.697	0.691
76	0.747	0.695	0.673	0.663	0.659	0.660	0.669	0.678	0.687	0.680
77	0.741	0.686	0.664	0.653	0.649	0.650	0.659	0.668	0.676	0.669
78	0.733	0.677	0.654	0.644	0.640	0.640	0.649	0.657	0.665	0.659
79	0.726	0.668	0.644	0.635	0.630	0.630	0.638	0.646	0.653	0.647
80	0.719	0.659	0.634	0.625	0.620	0.620	0.627	0.635	0.642	0.636
81	0.711	0.649	0.624	0.615	0.609	0.610	0.616	0.624	0.630	0.624
82	0.703	0.639	0.614	0.605	0.599	0.599	0.605	0.612	0.618	0.613
83	0.694	0.629	0.603	0.594	0.588	0.588	0.594	0.600	0.606	0.600
84	0.686	0.619	0.592	0.584	0.577	0.577	0.582	0.588	0.593	0.588
85	0.677	0.608	0.580	0.572	0.565	0.565	0.570	0.575	0.580	0.575
86	0.667	0.596	0.568	0.561	0.553	0.553	0.557	0.562	0.566	0.562
87	0.657	0.585	0.556	0.549	0.541	0.541	0.544	0.548	0.553	0.548
88	0.646	0.572	0.543	0.536	0.528	0.528	0.530	0.534	0.538	0.534
89	0.634	0.559	0.530	0.523	0.514	0.514	0.516	0.520	0.523	0.519
90	0.622	0.545	0.515	0.509	0.500	0.500	0.501	0.505	0.507	0.504
91	0.609	0.531	0.500	0.494	0.485	0.485	0.486	0.489	0.491	0.488
92	0.594	0.515	0.484	0.479	0.469	0.469	0.469	0.472	0.474	0.470
93	0.579	0.498	0.467	0.462	0.452	0.452	0.452	0.453	0.455	0.452
94	0.561	0.479	0.449	0.444	0.434	0.433	0.433	0.434	0.435	0.433
95	0.542	0.459	0.428	0.424	0.414	0.413	0.412	0.413	0.414	0.412
96	0.519	0.437	0.406	0.401	0.391	0.391	0.389	0.390	0.390	0.388
97	0.494	0.411	0.380	0.376	0.366	0.366	0.364	0.364	0.364	0.362
98	0.463	0.381	0.351	0.347	0.338	0.337	0.335	0.335	0.335	0.333
99	0.424	0.344	0.316	0.312	0.303	0.302	0.300	0.300	0.299	0.298
100	0.372	0.297	0.271	0.268	0.259	0.259	0.256	0.255	0.255	0.254

	WOMEN'S									
AGE	100	200	400	800	1500	MILE	3000	5000	10K	42195
5	0.594	0.573	0.539	0.559	0.574	0.575	0.577	0.571	0.561	0.561
6	0.652	0.639	0.608	0.627	0.644	0.645	0.647	0.642	0.631	0.630
7	0.702	0.696	0.669	0.688	0.705	0.707	0.709	0.703	0.692	0.690
8	0.747	0.747	0.724	0.742	0.759	0.760	0.762	0.757	0.745	0.743
9	0.787	0.791	0.773	0.788	0.804	0.805	0.807	0.803	0.792	0.789
10	0.822	0.829	0.815	0.828	0.843	0.844	0.846	0.842	0.832	0.829
11	0.853	0.862	0.852	0.863	0.876	0.877	0.879	0.875	0.865	0.862
12	0.881	0.891	0.883	0.892	0.904	0.904	0.906	0.902	0.894	0.891
13	0.905	0.915	0.910	0.917	0.927	0.927	0.928	0.925	0.918	0.915
14	0.926	0.935	0.932	0.938	0.945	0.945	0.946	0.944	0.937	0.934
15	0.944	0.952	0.951	0.954	0.960	0.960	0.961	0.959	0.953	0.951
16	0.960	0.966	0.966	0.968	0.972	0.972	0.972	0.971	0.966	0.964
17	0.974	0.978	0.978	0.979	0.982	0.982	0.982	0.980	0.977	0.974
18	0.986	0.987	0.988	0.988	0.989	0.989	0.989	0.988	0.985	0.983
19	0.995	0.994	0.995	0.995	0.995	0.995	0.994	0.993	0.991	0.989
OC	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
30	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
31	0.999	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
32	0.993	0.995	0.998	0.999	1.000	1.000	1.000	1.000	1.000	1.000
33	0.987	0.990	0.994	0.996	0.998	0.997	0.998	0.999	0.999	1.000
34	0.981	0.986	0.989	0.992	0.995	0.995	0.995	0.996	0.996	0.998
35	0.974	0.980	0.984	0.988	0.991	0.991	0.993	0.994	0.993	0.996
36	0.968	0.975	0.978	0.983	0.987	0.987	0.989	0.990	0.990	0.993
37	0.961	0.969	0.972	0.978	0.983	0.983	0.985	0.986	0.986	0.990
38	0.953	0.962	0.965	0.972	0.978	0.979	0.981	0.982	0.982	0.986
39	0.946	0.955	0.958	0.966	0.973	0.973	0.976	0.978	0.977	0.982
40	0.938	0.948	0.950	0.959	0.967	0.968	0.971	0.972	0.972	0.977
41	0.931	0.940	0.942	0.952	0.961	0.962	0.966	0.967	0.967	0.972
42	0.923	0.933	0.934	0.944	0.955	0.955	0.959	0.961	0.961	0.967
43	0.915	0.925	0.925	0.937	0.948	0.948	0.953	0.954	0.954	0.961
44	0.907	0.916	0.916	0.928	0.940	0.941	0.946	0.948	0.947	0.955
45	0.900	0.908	0.907	0.920	0.933	0.934	0.939	0.940	0.940	0.948
46	0.891	0.899	0.897	0.911	0.925	0.926	0.931	0.933	0.932	0.941
47	0.883	0.890	0.887	0.902	0.916	0.917	0.923	0.925	0.924	0.934
48	0.875	0.881	0.877	0.893	0.908	0.909	0.915	0.916	0.916	0.926
49	0.867	0.872	0.867	0.883	0.899	0.900	0.906	0.908	0.907	0.917
50	0.859	0.863	0.856	0.873	0.889	0.890	0.897	0.899	0.898	0.909
51	0.851	0.853	0.845	0.863	0.880	0.881	0.888	0.889	0.889	0.900
52	0.843	0.843	0.835	0.853	0.870	0.871	0.878	0.880	0.879	0.891
53	0.834	0.834	0.824	0.842	0.860	0.861	0.868	0.870	0.869	0.881
54	0.826	0.824	0.812	0.832	0.849	0.851	0.858	0.860	0.859	0.872
55	0.818	0.814	0.801	0.821	0.839	0.840	0.848	0.849	0.848	0.861
56	0.809	0.804	0.790	0.810	0.828	0.829	0.837	0.839	0.838	0.851
57	0.801	0.794	0.778	0.799	0.817	0.819	0.826	0.828	0.827	0.841
58	0.793	0.783	0.767	0.788	0.806	0.807	0.815	0.817	0.816	0.830
59	0.784	0.773	0.755	0.777	0.795	0.796	0.804	0.805	0.805	0.819
60	0.776	0.763	0.744	0.765	0.783	0.785	0.792	0.794	0.793	0.807
61	0.767	0.752	0.732	0.754	0.772	0.773	0.781	0.782	0.781	0.796
62	0.759	0.742	0.720	0.742	0.760	0.761	0.769	0.770	0.770	0.784
63	0.750	0.731	0.708	0.731	0.748	0.750	0.757	0.758	0.758	0.773
64	0.742	0.721	0.697	0.719	0.736	0.738	0.745	0.746	0.746	0.761
65	0.733	0.710	0.685	0.707	0.724	0.726	0.733	0.734	0.733	0.749
66	0.724	0.699	0.673	0.696	0.712	0.713	0.720	0.722	0.721	0.736
67	0.716	0.689	0.661	0.684	0.700	0.701	0.708	0.709	0.709	0.724
68	0.707	0.678	0.649	0.672	0.688	0.689	0.695	0.697	0.696	0.711
69	0.698	0.667	0.637	0.660	0.675	0.676	0.683	0.684	0.683	0.699
70	0.689	0.656	0.625	0.648	0.663	0.664	0.670	0.671	0.671	0.686
71	0.680	0.645	0.613	0.636	0.650	0.651	0.657	0.658	0.658	0.673
72	0.671	0.634	0.601	0.623	0.637	0.639	0.644	0.645	0.645	0.660
73	0.662	0.623	0.589	0.611	0.625	0.626	0.631	0.632	0.632	0.647
74	0.653	0.612	0.577	0.599	0.612	0.613	0.618	0.619	0.619	0.634
75	0.644	0.601	0.565	0.587	0.599	0.600	0.605	0.606	0.606	0.620
76	0.634	0.589	0.552	0.574	0.586	0.587	0.592	0.593	0.592	0.607
77	0.624	0.578	0.540	0.562	0.573	0.574	0.579	0.579	0.579	0.594
78	0.615	0.566	0.528	0.549	0.560	0.561	0.565	0.566	0.566	0.580
79	0.605	0.555	0.515	0.537	0.547	0.548	0.552	0.552	0.552	0.566
80	0.595	0.543	0.503	0.524	0.534	0.534	0.538	0.539	0.538	0.552
81	0.584	0.531	0.491	0.511	0.520	0.521	0.524	0.525	0.525	0.538
82	0.574	0.519	0.478	0.498	0.507	0.507	0.510	0.511	0.511	0.524
83	0.563	0.507	0.465	0.485	0.493	0.494	0.497	0.497	0.497	0.510
84	0.552	0.494	0.452	0.472	0.479	0.480	0.482	0.483	0.483	0.496
85	0.541	0.482	0.440	0.459	0.465	0.466	0.468	0.468	0.469	0.481
86	0.529	0.469	0.426	0.445	0.451	0.452	0.454	0.454	0.454	0.467
87	0.517	0.456	0.413	0.431	0.437	0.437	0.439	0.439	0.440	0.452
88	0.505	0.442	0.399	0.417	0.422	0.423	0.424	0.424	0.425	0.436
89	0.492	0.429	0.386	0.403	0.407	0.408	0.409	0.409	0.410	0.421
90	0.479	0.414	0.372	0.389	0.392	0.392	0.394	0.394	0.394	0.405
91	0.465	0.400	0.357	0.374	0.377	0.377	0.378	0.378	0.378	0.389
92	0.450	0.384	0.342	0.358	0.361	0.361	0.362	0.361	0.362	0.372
93	0.434	0.369	0.327	0.342	0.344	0.344	0.345	0.345	0.345	0.355
94	0.417	0.352	0.311	0.325	0.327	0.327	0.327	0.327	0.328	0.337
95	0.400	0.334	0.294	0.308	0.309	0.309	0.309	0.309	0.310	0.319
96	0.380	0.315	0.276	0.289	0.290	0.290	0.290	0.290	0.290	0.299
97	0.359	0.295	0.257	0.270	0.270	0.270	0.270	0.269	0.270	0.278
98	0.335	0.273	0.236	0.248	0.248	0.248	0.248	0.247	0.248	0.255
99	0.307	0.248	0.213	0.224	0.224	0.224	0.223	0.223	0.224	0.231
100	0.275	0.219	0.187	0.197	0.196	0.196	0.196	0.196	0.196	0.202

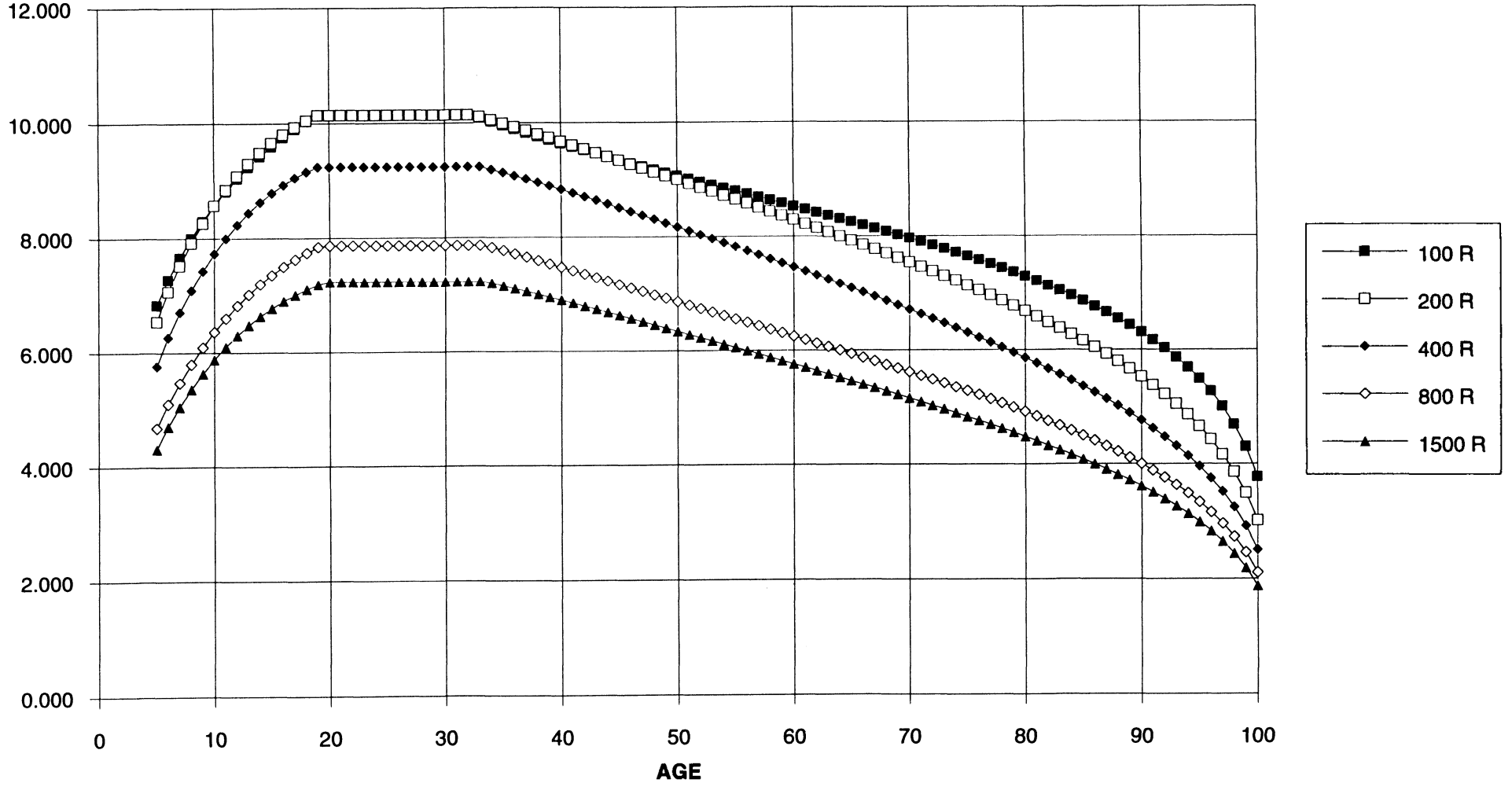
LONG DISTANCE AGE FACTORS

	MEN'S											WOMEN'S									
AGE	5K	8K	10K	15K	10 MI	20K	21097	25K	30K	42195	AGE	5K	8K	10K	15K	10 MI	20K	21097	25K	30K	42195
5	0.632	0.642	0.643	0.642	0.641	0.637	0.636	0.632	0.627	0.616	5	0.590	0.579	0.573	0.562	0.561	0.557	0.556	0.554	0.554	0.561
6	0.689	0.699	0.701	0.699	0.698	0.694	0.693	0.689	0.684	0.672	6	0.659	0.648	0.642	0.631	0.629	0.625	0.624	0.623	0.623	0.630
7	0.738	0.748	0.750	0.748	0.747	0.744	0.742	0.738	0.733	0.722	7	0.717	0.707	0.701	0.691	0.690	0.686	0.685	0.683	0.684	0.690
8	0.781	0.790	0.792	0.790	0.790	0.786	0.785	0.781	0.775	0.764	8	0.767	0.758	0.753	0.744	0.742	0.739	0.738	0.737	0.737	0.743
9	0.818	0.826	0.828	0.826	0.826	0.822	0.821	0.817	0.812	0.802	9	0.808	0.801	0.796	0.789	0.788	0.785	0.784	0.783	0.783	0.789
10	0.850	0.857	0.859	0.857	0.857	0.853	0.852	0.849	0.844	0.835	10	0.842	0.836	0.833	0.827	0.826	0.824	0.824	0.823	0.824	0.829
11	0.877	0.884	0.885	0.884	0.883	0.880	0.879	0.876	0.872	0.863	11	0.871	0.866	0.864	0.860	0.859	0.858	0.858	0.857	0.858	0.862
12	0.901	0.907	0.908	0.906	0.906	0.903	0.902	0.900	0.896	0.888	12	0.893	0.891	0.889	0.887	0.887	0.886	0.886	0.887	0.887	0.891
13	0.922	0.926	0.927	0.926	0.925	0.923	0.922	0.920	0.917	0.910	13	0.912	0.910	0.910	0.910	0.910	0.910	0.910	0.911	0.912	0.915
14	0.939	0.943	0.943	0.942	0.941	0.939	0.939	0.937	0.934	0.929	14	0.927	0.926	0.927	0.929	0.929	0.930	0.930	0.931	0.932	0.934
15	0.954	0.957	0.957	0.956	0.955	0.954	0.953	0.951	0.949	0.945	15	0.938	0.939	0.941	0.944	0.944	0.946	0.947	0.948	0.949	0.951
16	0.967	0.969	0.969	0.967	0.967	0.965	0.965	0.964	0.962	0.959	16	0.947	0.949	0.951	0.956	0.957	0.960	0.960	0.962	0.963	0.964
17	0.978	0.978	0.978	0.977	0.976	0.975	0.975	0.974	0.973	0.971	17	0.954	0.957	0.960	0.966	0.967	0.970	0.971	0.973	0.975	0.974
18	0.987	0.986	0.986	0.984	0.984	0.983	0.983	0.983	0.982	0.981	18	0.959	0.963	0.966	0.973	0.975	0.979	0.979	0.982	0.983	0.983
19	0.994	0.993	0.992	0.991	0.991	0.990	0.990	0.990	0.989	0.989	19	0.963	0.968	0.971	0.979	0.981	0.985	0.986	0.989	0.990	0.989
OC	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	OC	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
30	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	30	0.969	0.975	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
31	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	31	0.969	0.975	0.979	0.990	0.992	0.998	0.999	1.000	1.000	1.000
32	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	32	0.968	0.974	0.978	0.989	0.991	0.996	0.997	1.000	1.000	1.000
33	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	33	0.966	0.972	0.977	0.987	0.989	0.994	0.996	0.999	1.000	1.000
34	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.999	1.000	1.000	34	0.965	0.971	0.975	0.985	0.987	0.992	0.993	0.997	0.999	0.998
35	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.996	0.997	0.999	35	0.963	0.969	0.973	0.983	0.984	0.990	0.991	0.994	0.997	0.996
36	0.991	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.993	0.995	36	0.961	0.966	0.970	0.980	0.981	0.986	0.988	0.991	0.993	0.993
37	0.986	0.988	0.988	0.988	0.988	0.988	0.988	0.989	0.989	0.991	37	0.958	0.963	0.967	0.976	0.978	0.983	0.984	0.987	0.990	0.990
38	0.982	0.984	0.984	0.984	0.984	0.984	0.985	0.985	0.985	0.987	38	0.955	0.960	0.964	0.973	0.974	0.979	0.980	0.983	0.986	0.986
39	0.977	0.979	0.980	0.980	0.980	0.980	0.980	0.980	0.981	0.982	39	0.952	0.956	0.960	0.968	0.970	0.974	0.975	0.979	0.981	0.982
40	0.971	0.974	0.975	0.976	0.976	0.976	0.976	0.976	0.976	0.977	40	0.948	0.952	0.956	0.964	0.965	0.969	0.971	0.974	0.976	0.977
41	0.966	0.969	0.970	0.971	0.971	0.971	0.971	0.971	0.971	0.971	41	0.944	0.948	0.951	0.959	0.960	0.964	0.965	0.968	0.971	0.972
42	0.960	0.964	0.965	0.966	0.966	0.966	0.966	0.966	0.965	0.965	42	0.939	0.943	0.946	0.953	0.954	0.958	0.959	0.962	0.965	0.967
43	0.954	0.959	0.960	0.961	0.961	0.961	0.960	0.960	0.960	0.960	43	0.934	0.938	0.941	0.947	0.948	0.952	0.953	0.956	0.959	0.961
44	0.948	0.953	0.954	0.955	0.955	0.955	0.955	0.955	0.954	0.953	44	0.929	0.932	0.935	0.941	0.942	0.945	0.946	0.949	0.952	0.955
45	0.941	0.947	0.948	0.949	0.949	0.949	0.949	0.949	0.948	0.947	45	0.923	0.926	0.928	0.934	0.935	0.938	0.939	0.942	0.945	0.948
46	0.935	0.941	0.942	0.943	0.943	0.943	0.943	0.942	0.942	0.940	46	0.917	0.919	0.922	0.927	0.928	0.931	0.932	0.934	0.937	0.941
47	0.928	0.934	0.936	0.937	0.937	0.937	0.937	0.936	0.935	0.934	47	0.910	0.913	0.915	0.919	0.920	0.923	0.924	0.927	0.929	0.934
48	0.921	0.928	0.930	0.931	0.931	0.930	0.930	0.930	0.929	0.927	48	0.903	0.905	0.907	0.911	0.912	0.915	0.916	0.918	0.921	0.926
49	0.914	0.921	0.923	0.924	0.924	0.924	0.924	0.923	0.922	0.920	49	0.896	0.898	0.899	0.903	0.904	0.907	0.907	0.910	0.912	0.917
50	0.907	0.914	0.916	0.917	0.917	0.917	0.917	0.916	0.915	0.912	50	0.888	0.890	0.891	0.894	0.895	0.898	0.898	0.901	0.903	0.909
51	0.899	0.907	0.909	0.910	0.910	0.910	0.910	0.909	0.908	0.905	51	0.880	0.881	0.883	0.886	0.886	0.889	0.889	0.891	0.894	0.900
52	0.892	0.900	0.902	0.903	0.903	0.903	0.903	0.902	0.900	0.897	52	0.872	0.873	0.874	0.876	0.877	0.879	0.880	0.882	0.885	0.891
53	0.884	0.892	0.894	0.896	0.896	0.895	0.895	0.894	0.893	0.890	53	0.863	0.864	0.865	0.867	0.867	0.869	0.870	0.872	0.875	0.881
54	0.876	0.885	0.887	0.889	0.889	0.888	0.888	0.887	0.885	0.882	54	0.854	0.855	0.855	0.857	0.858	0.859	0.860	0.862	0.865	0.872
55	0.869	0.877	0.879	0.881	0.881	0.880	0.880	0.879	0.877	0.874	55	0.845	0.845	0.845	0.847	0.847	0.849	0.850	0.852	0.854	0.861
56	0.861	0.869	0.871	0.873	0.873	0.872	0.872	0.871	0.869	0.866	56	0.835	0.835	0.835	0.837	0.837	0.839	0.839	0.841	0.844	0.851
57	0.853	0.861	0.864	0.865	0.865	0.864	0.864	0.863	0.861	0.858	57	0.825	0.825	0.825	0.826	0.826	0.828	0.828	0.830	0.833	0.841
58	0.844	0.853	0.855	0.857	0.857	0.856	0.856	0.855	0.853	0.849	58	0.815	0.815	0.815	0.815	0.816	0.817	0.817	0.819	0.822	0.830
59	0.836	0.845	0.847	0.849	0.849	0.848	0.848	0.846	0.845	0.841	59	0.805	0.804	0.804	0.804	0.805	0.806	0.806	0.808	0.811	0.819
60	0.828	0.836	0.839	0.840	0.840	0.840	0.839	0.838	0.836	0.832	60	0.794	0.793	0.793	0.793	0.793	0.795	0.795	0.797	0.799	0.807
61	0.819	0.828	0.830	0.832	0.832	0.831	0.831	0.829	0.828	0.824	61	0.783	0.782	0.782	0.782	0.782	0.783	0.784	0.785	0.788	0.796
62	0.811	0.819	0.822	0.823	0.823	0.822	0.822	0.821	0.819	0.815	62	0.772	0.771	0.771	0.770	0.770	0.771	0.772	0.774	0.776	0.784
63	0.802	0.810	0.813	0.815	0.814	0.814	0.813	0.812	0.810	0.806	63	0.760	0.760	0.759	0.759	0.759	0.760	0.760	0.762	0.764	0.773
64	0.793	0.802	0.804	0.806	0.806	0.805	0.804	0.803	0.801	0.797	64	0.749	0.748	0.747	0.747	0.747	0.748	0.748	0.750	0.752	0.761
65	0.784	0.793	0.795	0.797	0.796	0.796	0.795	0.794	0.792	0.788	65	0.737	0.736	0.735	0.735	0.735	0.736	0.736	0.737	0.740	0.749
66	0.775	0.783	0.786	0.787	0.787	0.786	0.786	0.785	0.783	0.779	66	0.725	0.724	0.723	0.723	0.723	0.723	0.724	0.725	0.728	0.736
67	0.766	0.774	0.777	0.778	0.778	0.777	0.777	0.775	0.774	0.770	67	0.713	0.712	0.711	0.710	0.710	0.711	0.711	0.713	0.715	0.724
68	0.757	0.765	0.767	0.769	0.769	0.768	0.767	0.766	0.764	0.760	68	0.701	0.700	0.699	0.698	0.698	0.699	0.699	0.700	0.703	0.711
69	0.747	0.755	0.758	0.759	0.759	0.758	0.758	0.756	0.754	0.751	69	0.689	0.687	0.686	0.685	0.685	0.686	0.686	0.688	0.690	0.699
70	0.738	0.746	0.748	0.749	0.749	0.748	0.748	0.747	0.745	0.741	70	0.676	0.675	0.674	0.673	0.673	0.673	0.674	0.675	0.678	0.686
71	0.728	0.736	0.738	0.739	0.739	0.738	0.738	0.737	0.735	0.731	71	0.663	0.662	0.661	0.660	0.660	0.661	0.661	0.662	0.665	0.673
72	0.719	0.726	0.728	0.729	0.729	0.728	0.728	0.727	0.725	0.721	72	0.650	0.649	0.648	0.647	0.647	0.648	0.648	0.649	0.652	0.660
73	0.709	0.716	0.718	0.719	0.719	0.718	0.718	0.716	0.715	0.711	73	0.637	0.636	0.635	0.634	0.634	0.635	0.635	0.636	0.639	0.647
74	0.699	0.706	0.708	0.709	0.709	0.708	0.707	0.706	0.704	0.701	74	0.624	0.623	0.622	0.621	0.621	0.622	0.622	0.623	0.626	0.634
75	0.689	0.695	0.697	0.698	0.698	0.697	0.697	0.696	0.694	0.691	75	0.611	0.610	0.609	0.608	0.608	0.609	0.609	0.610	0.613	0.620
76	0.678	0.685	0.687	0.687	0.687	0.686	0.686	0.685	0.683	0.680	76	0.598	0.597	0.596	0.595	0.595	0.595	0.596	0.597	0.599	0.607
77	0.668	0.674	0.676	0.677	0.676	0.676	0.675	0.674	0.672	0.669	77	0.584	0.583	0.582	0.581	0.582	0.582	0.582	0.584	0.586	0.594
78	0.657	0.663	0.665	0.665	0.665	0.664	0.664	0.663	0.661	0.659	78	0.571	0.570	0.569	0.568	0.568	0.569	0.569	0.570	0.573	0.580
79	0.646	0.652	0.653	0.654	0.654	0.653	0.653	0.652	0.650	0.647	79	0.557	0.556	0.555	0.555	0.555	0.555	0.556	0.557	0.559	0.566
80	0.635	0.640	0.642	0.642	0.642	0.642	0.641	0.640	0.639	0.636	80	0.543	0.542	0.541	0.541	0.541	0.542	0.542	0.543	0.545	0.552
81	0.624	0.629	0.630	0.631	0.631	0.630	0.629	0.628	0.627	0.624	81	0.529	0.528	0.528	0.527	0.527	0.528	0.528	0.530	0.532	0.538
82	0.612	0.617	0.618	0.619	0.618	0.618	0.617	0.616	0.615	0.613	82	0.515	0.514	0.514	0.513	0.513	0.514	0.514	0.516	0.518	0.524
83	0.600	0.604	0.606	0.606	0.606	0.605	0.605	0.604	0.603	0.600	83	0.501	0.500	0.500	0.499	0.499	0.500	0.500	0.502	0.504	0.510
84	0.588	0.592	0.593	0.593	0.593	0.592	0.592	0.591	0.590	0.588	84	0.487	0.486	0.485	0.485	0.485	0.486	0.486	0.488	0.490	0.496
85	0.575	0.579	0.580	0.580	0.580	0.579	0.579	0.578	0.577	0.575	85	0.472	0.471	0.471	0.471	0.471	0.472	0.472	0.473	0.475	0.481
86	0.562	0.566	0.566	0.567	0.567	0.566	0.566	0.565	0.564	0.562	86	0.457	0.457	0.456	0.456	0.457	0.457	0.458	0.459	0.461	0.467
87	0.548	0.552	0.553	0.553	0.553	0.552	0.552	0.551	0.550	0.548	87	0.442	0.442	0.442	0.442	0.442	0.443	0.443	0.444	0.446	0.452
88	0.534	0.537	0.538	0.538	0.538	0.537	0.537	0.536	0.535	0.534	88	0.427	0.427	0.426	0.427	0.427	0.428	0.428	0.429	0.431	0.436
89	0.520	0.522	0.523	0.523	0.523	0.522	0.522	0.521	0.521	0.519	89	0.412	0.411	0.411	0.412	0.412	0.413	0.413	0.414	0.416	0.421
90	0.505	0.507	0.507	0.507	0.507	0.507	0.506	0.506	0.505	0.504	90	0.396	0.396	0.395	0.396	0.396	0.397	0.397	0.399	0.400	0.405
91	0.489	0.490	0.491	0.491	0.491	0.490	0.490	0.489	0.489	0.488	91	0.380	0.380	0.379	0.380	0.380	0.381	0.382	0.383	0.384	0.389
92	0.472	0.473	0.474	0.473	0.473	0.473	0.472	0.472	0.471	0.470	92	0.363	0.363	0.363	0.364	0.364	0.365	0.365	0.366	0.368	0.372
93	0.453	0.455	0.455	0.455	0.455	0.454	0.454	0.453	0.453	0.452	93	0.346	0.346	0.346	0.347	0.347	0.348	0.348	0.349	0.351	0.355
94	0.434	0.435	0.435	0.435	0.435	0.434	0.434	0.434	0.433	0.433	94	0.328	0.328	0.329	0.329	0.330	0.331	0.331	0.332	0.333	0.337
95	0.413	0.414	0.414	0.414	0.413	0.413	0.413	0.412	0.412	0.412	95	0.310	0.310	0.310	0.311	0.311	0.312	0.313	0.314	0.315	0.319
96	0.390	0.390	0.390	0.390	0.390	0.389	0.389	0.389	0.389	0.388	96	0.291	0.291	0.291	0.292	0.292	0.293	0.293	0.294	0.296	0.299
97	0.364	0.364	0.364	0.364	0.364	0.363	0.363	0.363	0.363	0.362	97	0.270	0.270	0.270	0.271	0.272	0.273	0.273	0.274	0.275	0.278
98	0.335	0.335	0.335	0.334	0.334	0.333	0.333	0.333	0.333	0.333	98	0.248	0.248	0.248	0.249	0.250	0.250	0.251	0.252	0.253	0.255
99	0.300	0.299	0.299	0.299	0.299	0.298	0.298	0.298	0.298	0.298	99	0.223	0.224	0.224	0.225	0.225	0.226	0.226	0.227	0.228	0.231
100	0.255	0.255	0.255	0.254	0.254	0.254	0.254	0.254	0.253	0.254	100	0.196	0.196	0.196	0.197	0.197	0.198	0.198	0.199	0.200	0.202

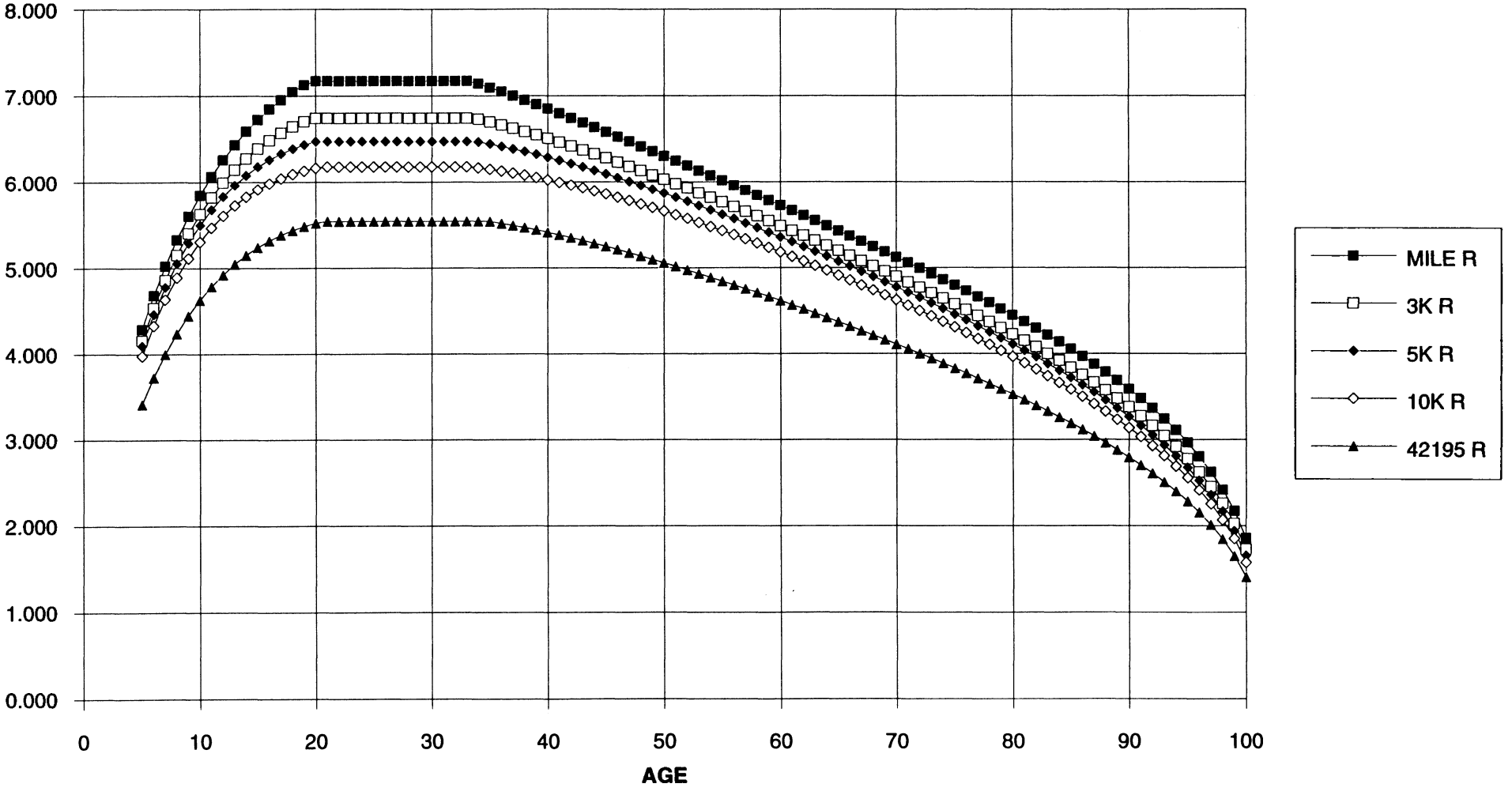
MEN'S RUNNING: PERFORMANCE LEVEL OF ACTUAL RECORDS

AGE	100	200	400	800	1500	MILE	3K	5K	10K	42195
5	68	82	78	82		91	83	84	79	63
6	68	81	84	86	88	92	85	85	80	76
7	91	92	83	91	96	97	87	85	86	80
8	93	92	89	94	93	91	92	87	86	92
9	94	90	88	94	93	90	88	84	84	89
10	96	93	89	94	92	90	91	83	88	87
11	96	94	92	93	92	91	91	86	80	88
12	99	96	93	95	94	90	91	82	83	86
13	99	97	95	96	95	93	91	87	85	85
14	100	98	98	98	97	93	93	87	87	85
15	100	99	98	100	100	96	95	97	98	90
16	100	100	99	100	99	95	97	96	95	92
17	99	100	98	97	98	97	93	99	99	91
18	99	99	98	99	98	97	98	95	98	94
19	99	98	99	98	98	98	97	98	100	97
30	97	96	96	95	93	96	94	94	96	99
31	98	91	93	94	93	94	89	96	96	99
32	99	93	93	92	93	93	93	96	94	96
33	92	93	93	92		92	93	95	94	97
34	98					94		96	93	96
35	98	97	94	95	98	97	96	97	99	96
36	97	94	93	92	99	98	96	96	99	93
37	97	98	92	94	99	98	97	98	100	94
38	97	96	91	93	99	98	94	95	97	
39	98	97	94	92	93	92	95	96	96	92
40	98	94	93	95	95	96	93	96	97	96
41	98	95	95	97	96	96	92	93	96	99
42	97	96	94	94	95	93	93	95	96	95
43	98	95	96	95	97	98	95	94	94	97
44	97	95	96	95	96	92	95	93	93	96
45	97	96	93	96	95	95	93	92	94	95
46	97	97	94	96	93	94	91	96	92	98
47	98	96	94	98	93	95	92	94	96	96
48	99	95	95	97	95	94	91	91	91	95
49	97	94	94	97	94	95	93	95	95	95
50	98	97	95	97	96	94	93	94	95	95
51	97	97	95	97	96	91	91	96	96	96
52	99	99	96	97	95	95	93	92	93	93
53	98	96	94	97	97	97	96	94	91	95
54	98	97	96	97	96	92	91	91	92	93
55	98	98	95	98	97	95	96	94	93	99
56	99	100	95	95	95	94	94	94	92	100
57	99	97	99	96	98	93	92	91	95	88
58	97	98	100	98	99	92	89	95	94	88
59	100	96	99	95	96	93	91	92	91	95
60	98	97	98	96	96	92	94	94	94	91
61	100	97	93	96	95	96	96	95	94	90
62	97	95	93	99	99	94	91	95	95	92
63	100	96	96	96	94	95	90	92	94	91
64	98	98	97	98	94	90	88	94	90	98
65	97	99	96	98	98	100	98	99	98	100
66	97	97	93	97	96	91	94	95	94	100
67	95	97	94	97	95	89	96	94	94	88
68	95	95	93	93	94	90	87	94	93	95
69	96	98	94	89	94	88	92	92	92	93
70	97	99	96	97	93	95	89	93	94	94
71	97	98	93	95	91	90	90	94	95	93
72	97	99	92	94	93	91	88	94	95	90
73	95	97	96	95	94	93	90	91	88	93
74	100	100	91	95	94	92	87	88	86	82
75	98	100	93	95	94	94	91	91	92	87
76	94	98	92	93	94	80	88	90	89	87
77	89	91	89	94	93	83	90	95	85	
78	90	95	92	96	95	93	90	90	86	83
79	90	94	91	96	94	85	78	93	94	82
80	90	93	91	94	94	90	90	90	92	89
81	88	93	92	98	92	76	73	95	96	
82	90	91	89	95	92	64	88	95	100	91
83	86	86	82	89	76			93	93	
84	83	85	57	90	93	80	81	95	93	
85	86	85	82	85	87		79	80	79	69
86	78	92	80	74	80			79	74	
87	78	82	76	82	85	86	81	87	90	
88	94	77	68	71	76		74	79	71	
89	94	82	84	84	84					
90	80	81	70	71	73	55	73	68	74	
91	73	72	65	69	71	56	74	54	67	
92	80	56	68	67	72			67	65	48
93	74	76	62		58					
94	66			55	61	61				
95	47	69		66	60	61		62		77
96	66		63		60					
97										
98										84
99										
100										

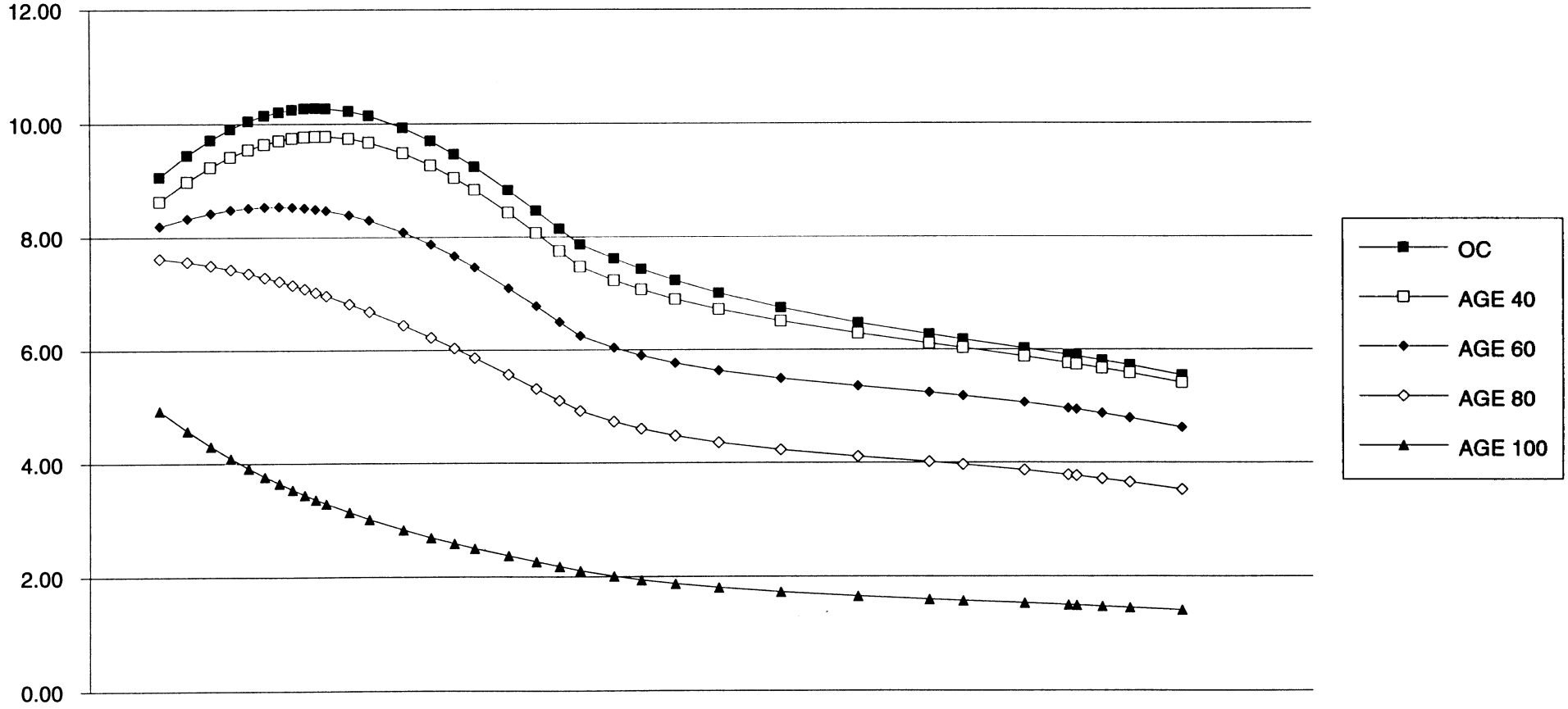
MENS AND BOYS RUNNING RATE IN METERS/SECOND



MENS AND BOYS RUNNING RATE IN METERS/SECOND

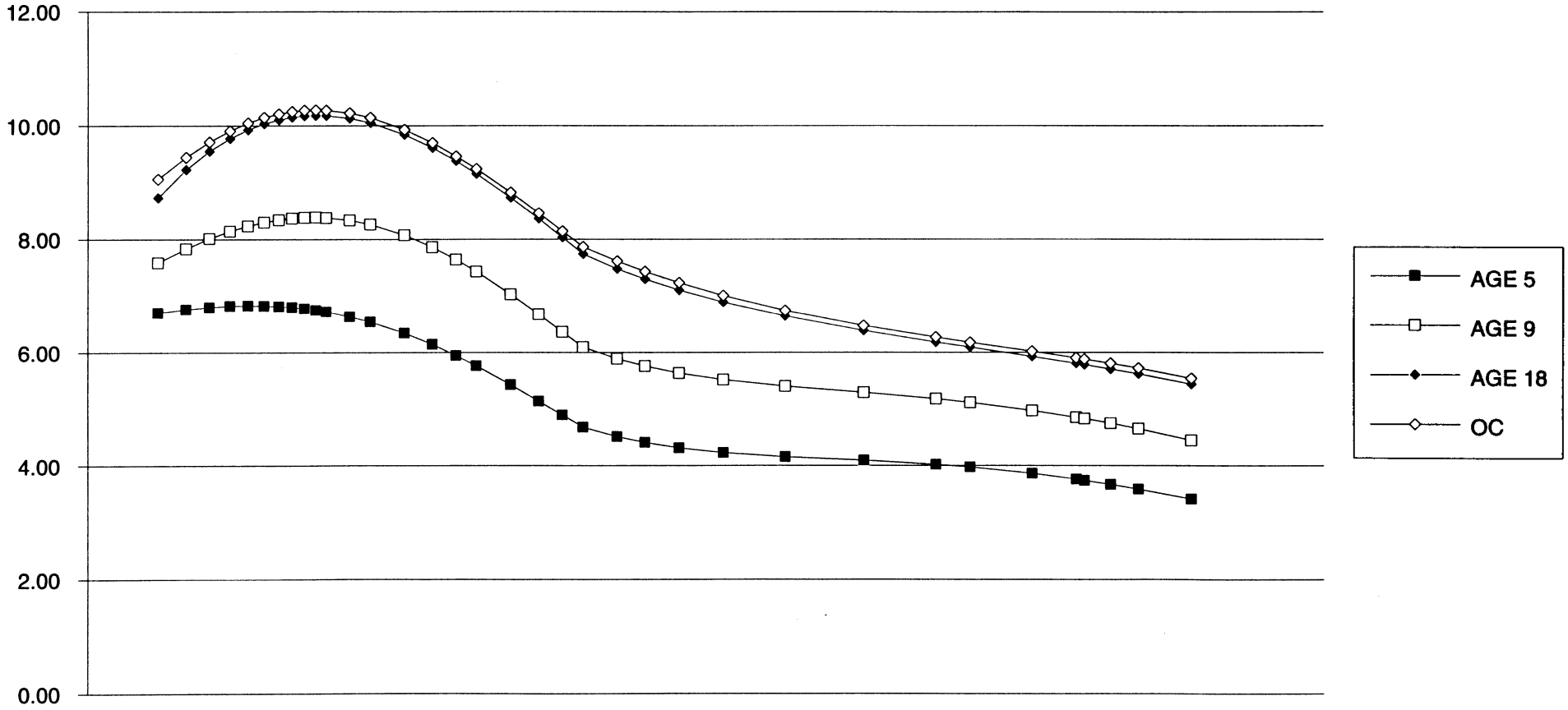


MENS RUNNING RATE IN METERS/SECOND



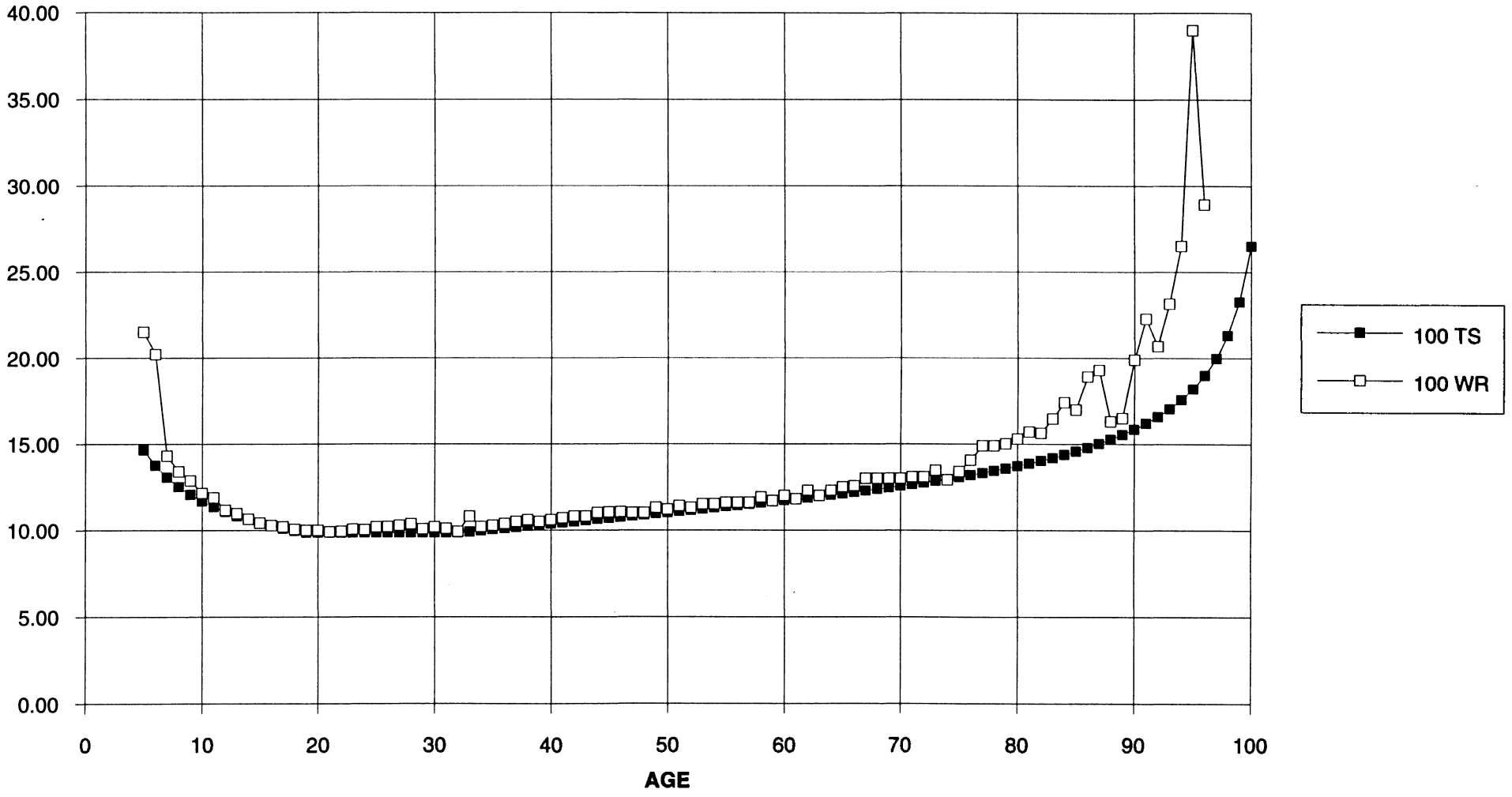
EVENT DISTANCES PLOTTED LOGARITHMICALLY IN METERS ARE:
50,60,70,80,90,100,110,120,130,140,150,175,200,250,300,350,400,500,600,700,800,1000,1200,
1500,2K,3K,5K,8K,10K,15K,20K,21097,25K,30K,42195

BOYS RUNNING RATE IN METERS/SECOND

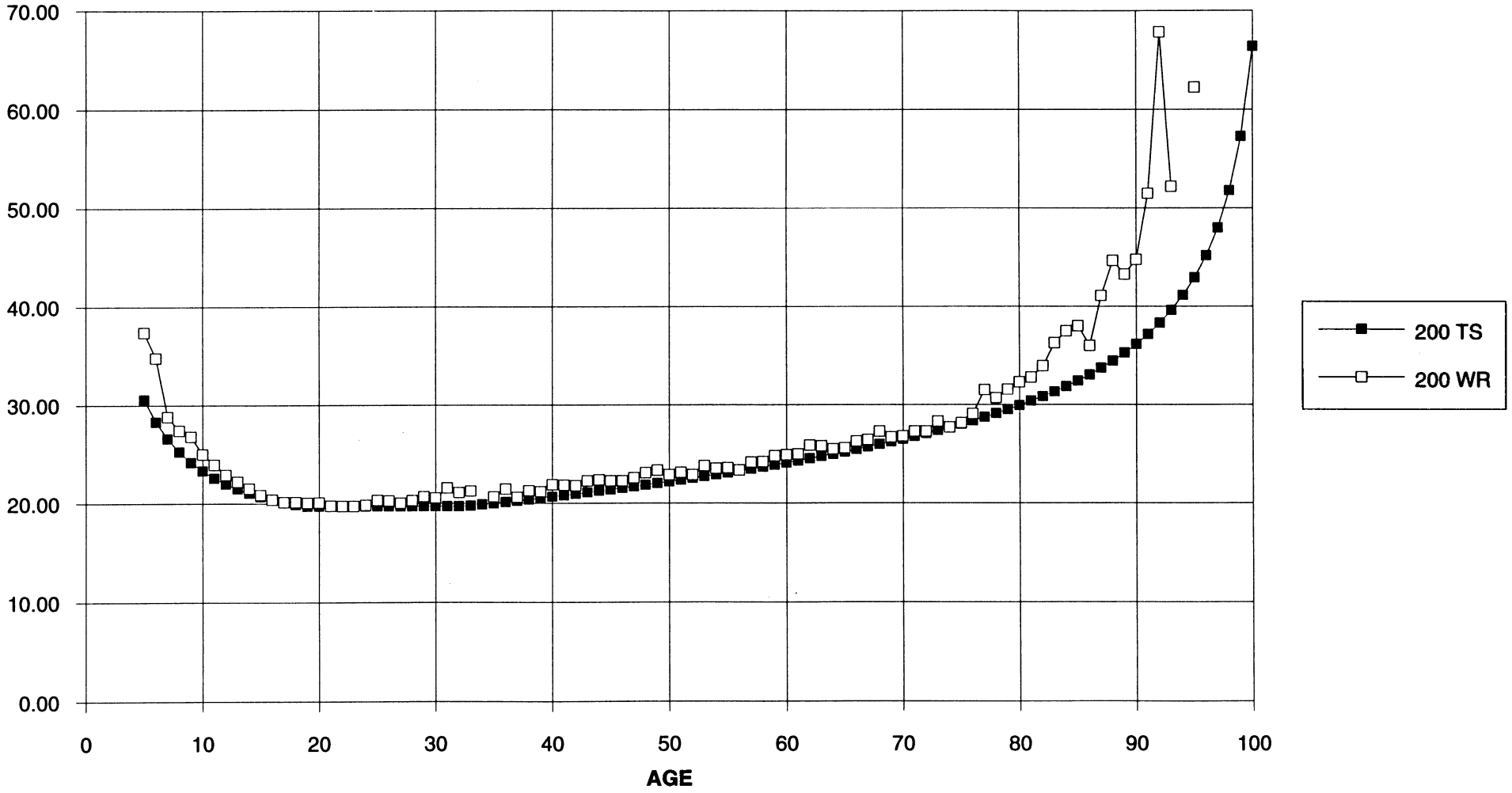


EVENT DISTANCES PLOTTED LOGARITHMICALLY IN METERS ARE:
50,60,70,80,90,100,110,120,130,140,150,175,200,250,300,350,400,500,600,700,800,1000,1200, 1500,
2K,3K,5K,8K,10K,15K,20K,21097,25K,30K,42195

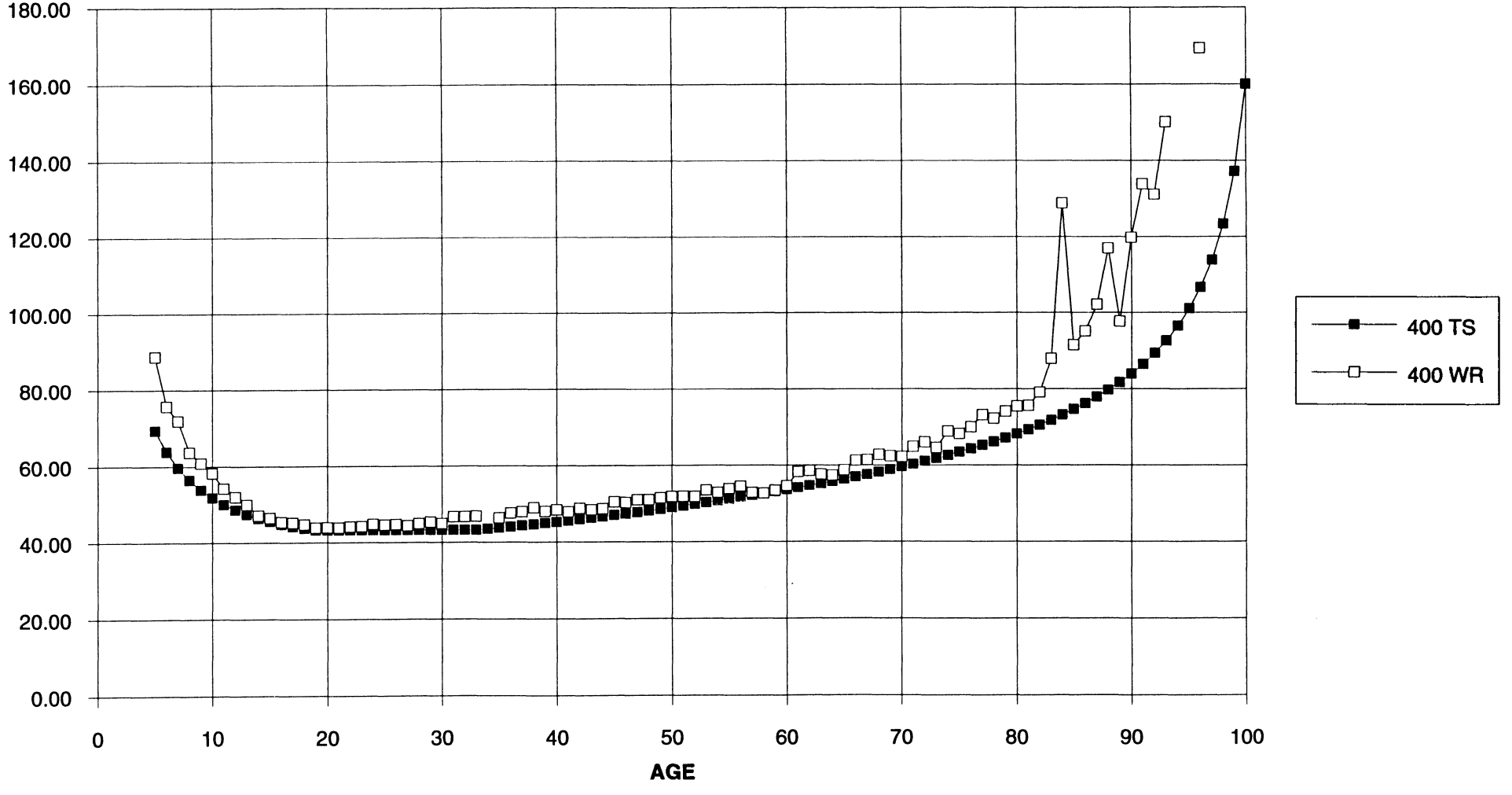
MENS AND BOYS TIME STANDARDS AND RECORDS IN SECONDS



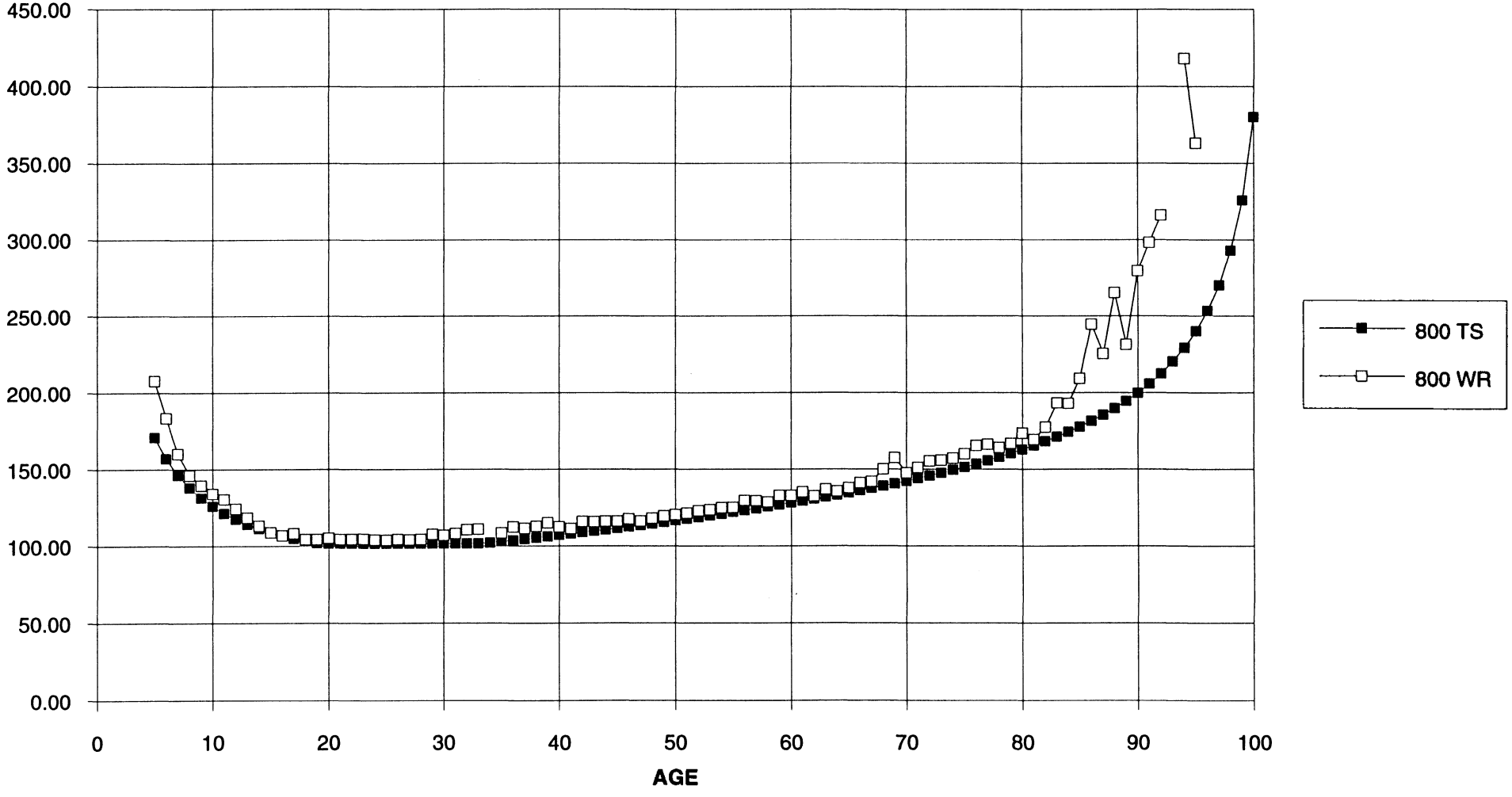
MENS AND BOYS TIME STANDARDS AND RECORDS IN SECONDS



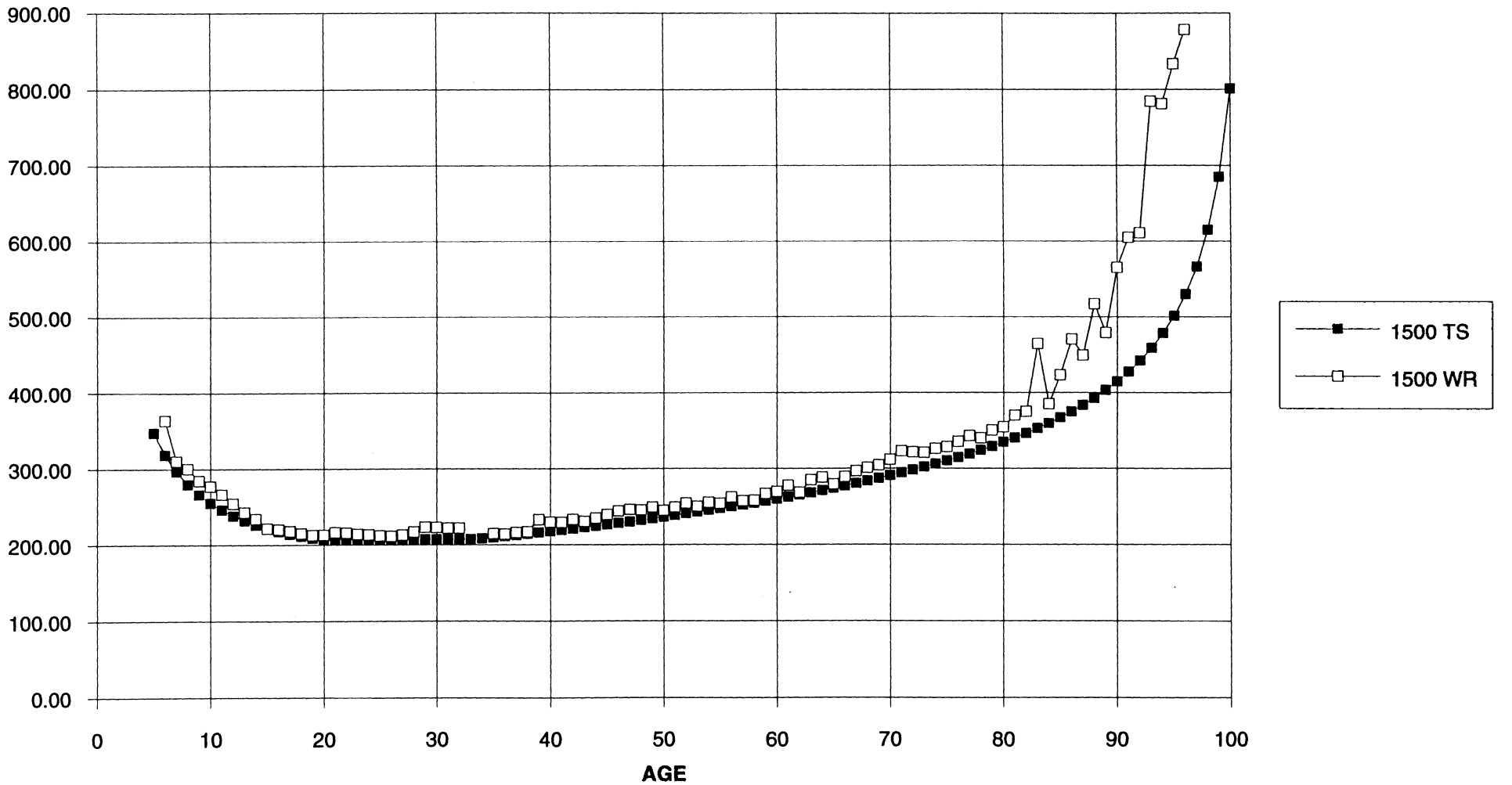
MENS AND BOYS TIME STANDARDS AND RECORDS IN SECONDS



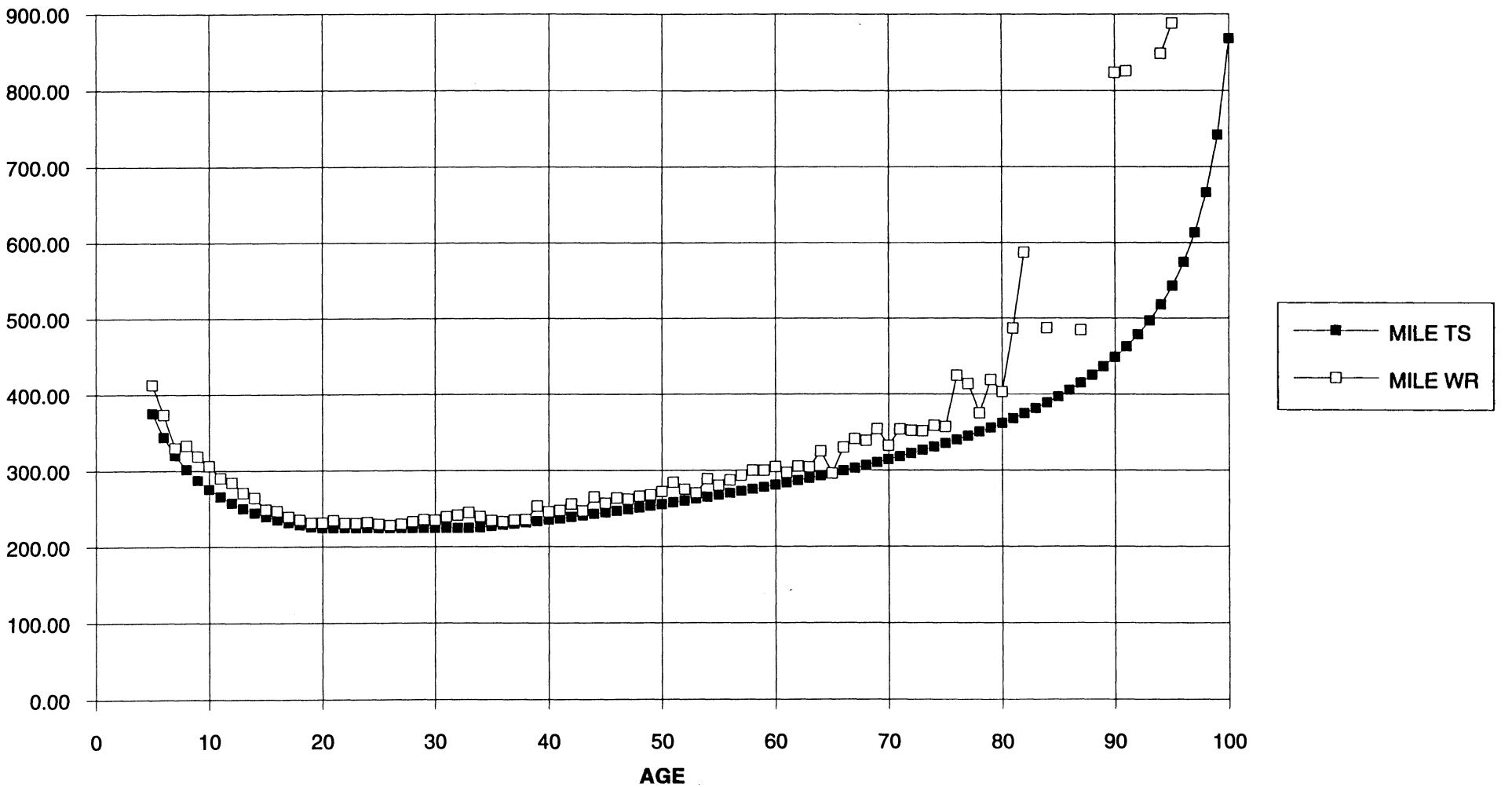
MENS AND BOYS TIME STANDARDS AND RECORDS IN SECONDS



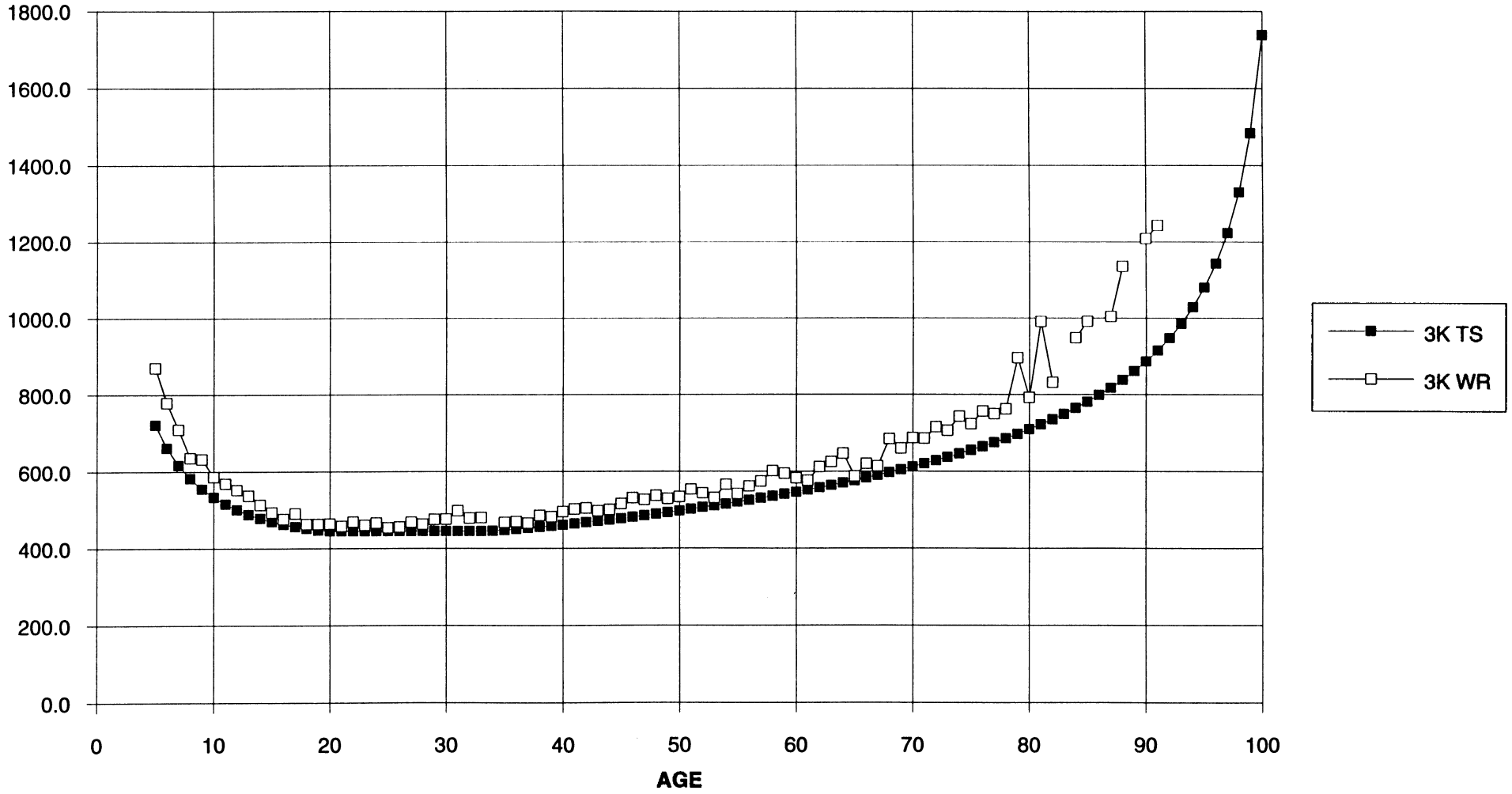
MENS AND BOYS TIME STANDARDS AND RECORDS IN SECONDS



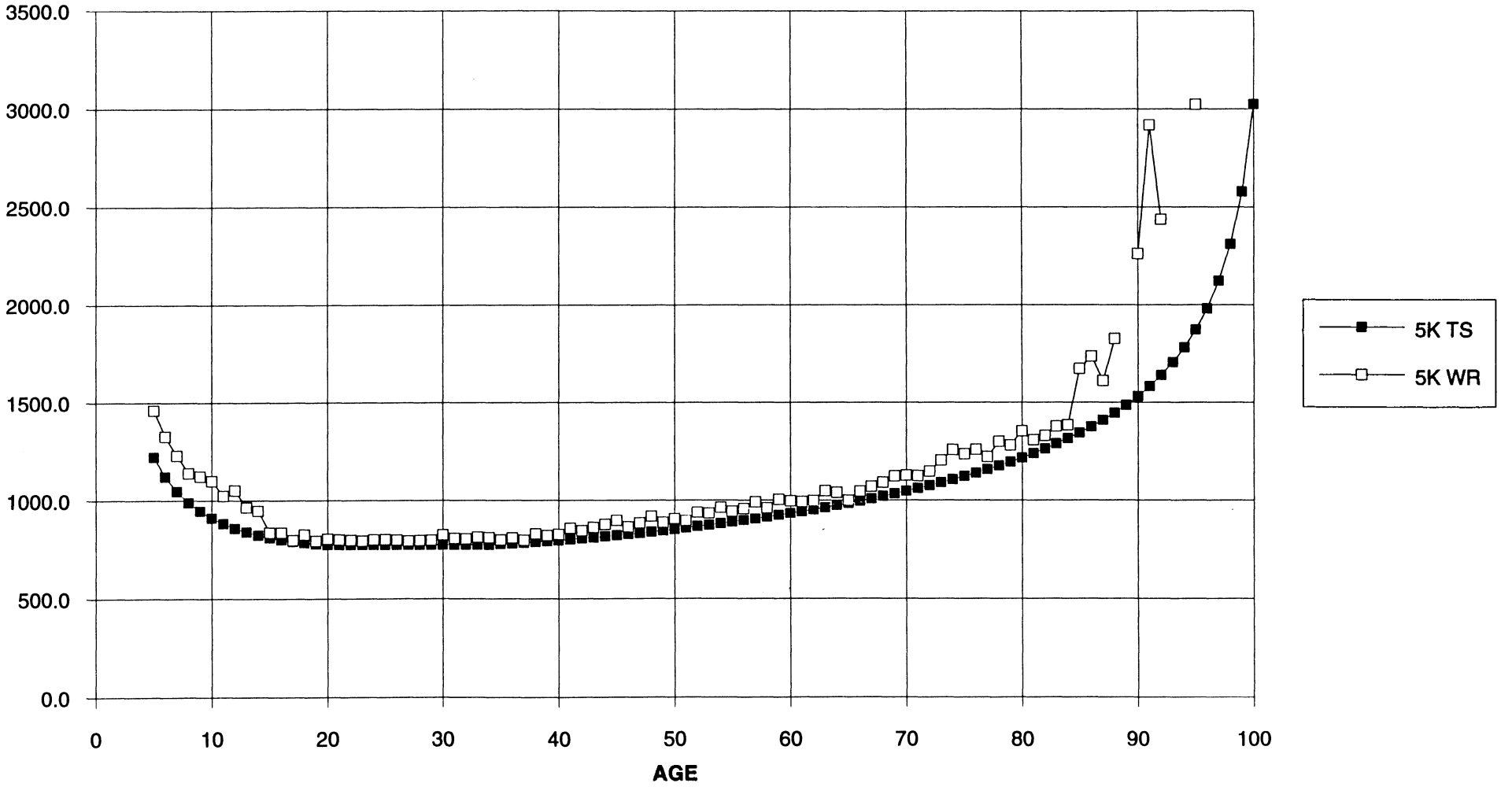
MENS AND BOYS TIME STANDARDS AND RECORDS IN SECONDS



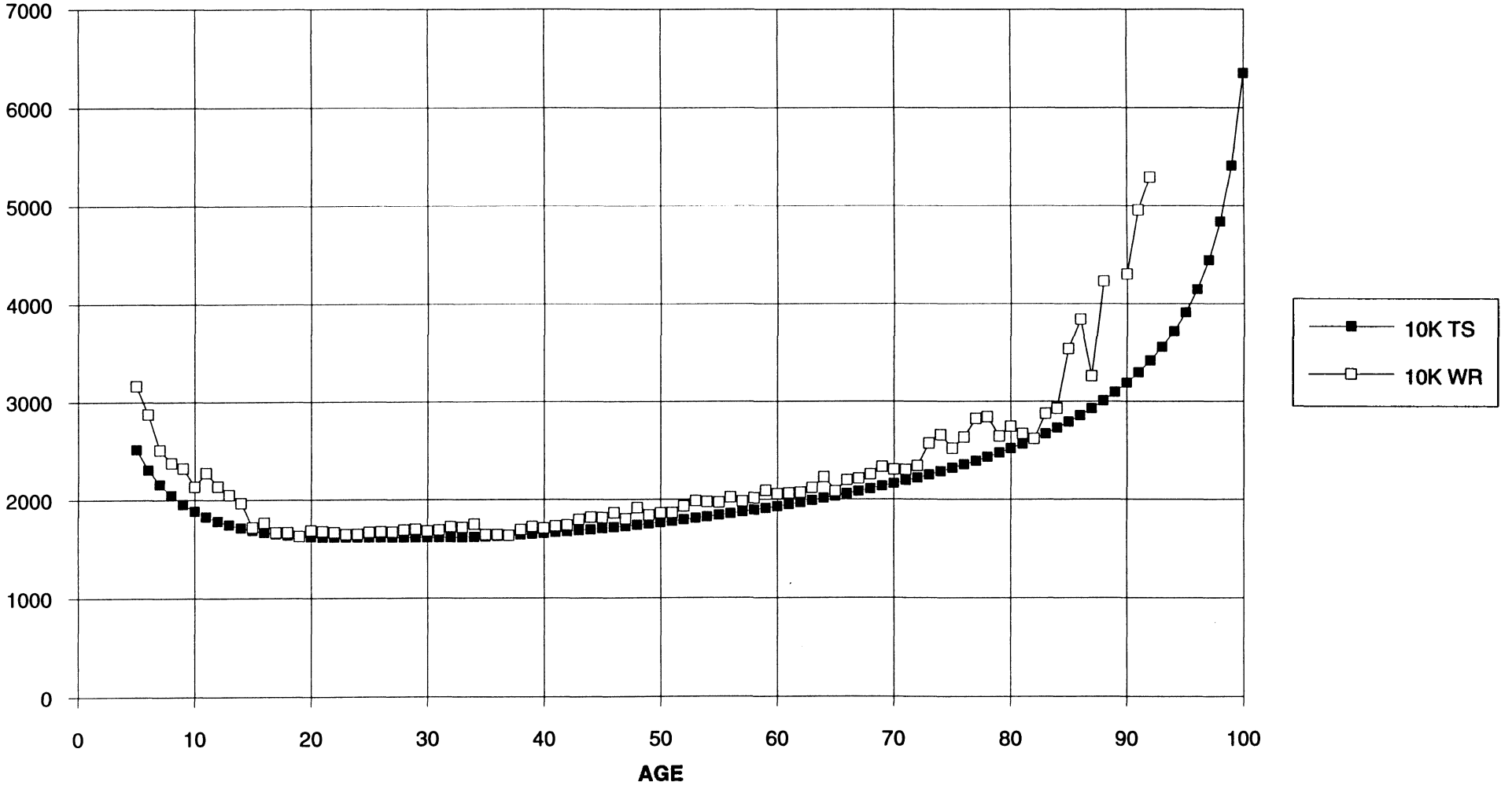
MENS AND BOYS TIME STANDARDS AND RECORDS IN SECONDS



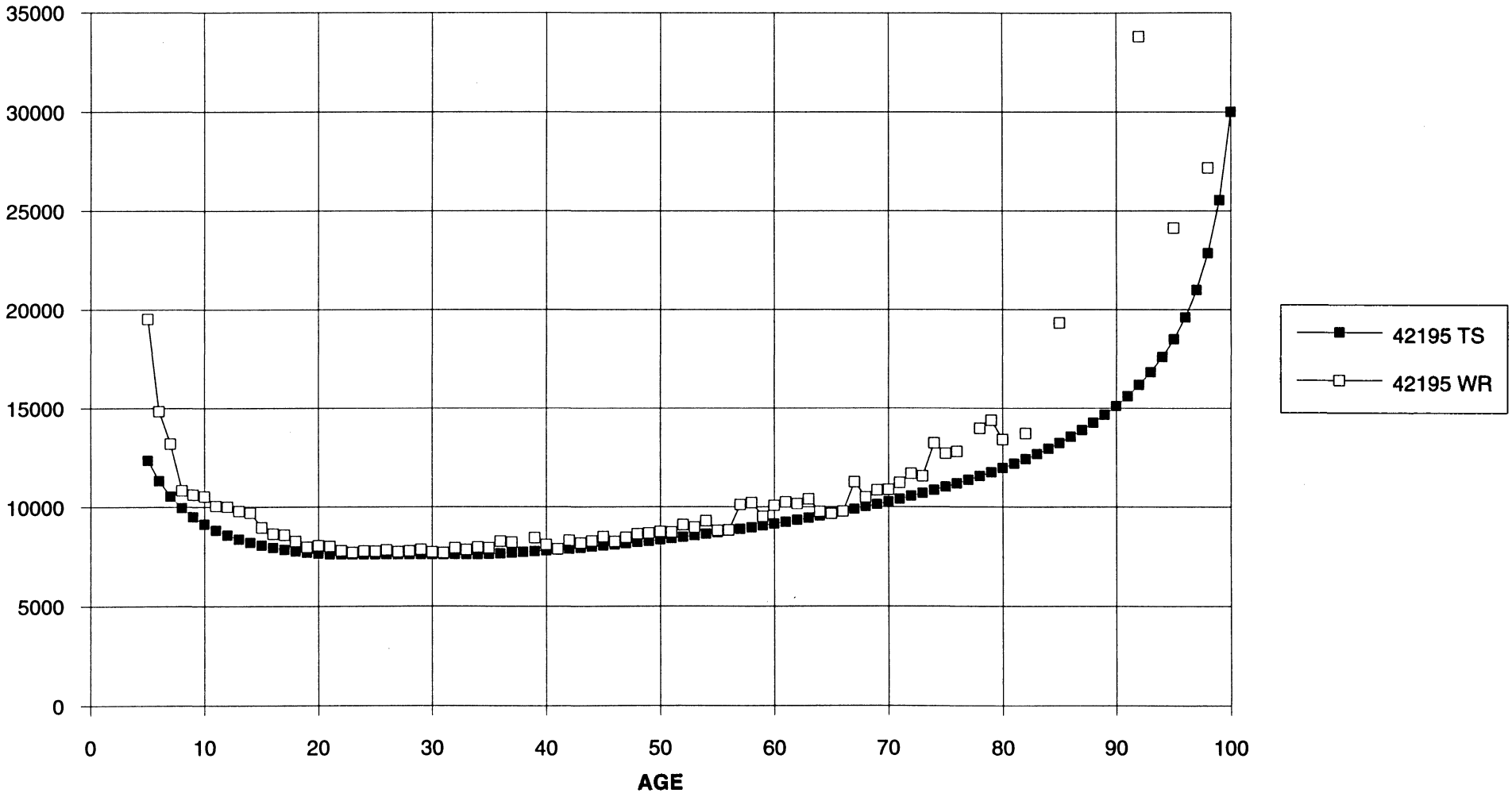
MENS AND BOYS TIME STANDARDS AND RECORDS IN SECONDS



MENS AND BOYS TIME STANDARDS AND RECORDS IN SECONDS



MENS AND BOYS TIME STANDARDS AND RECORDS IN SECONDS



WOMEN'S TRACK RUNNING EVENT STANDARDS

AGE	100	200	400	800	1500	1 MILE	3000	5000	10K	42195
5	17.65	37.22	1:28.35	3:22.81	6:37.37	7:08.57	14:02.9	24:35	52:37	4:11:23
6	16.09	33.41	1:18.33	3:00.60	5:54.17	6:22.01	12:31.1	21:54	46:49	3:43:59
7	14.93	30.65	1:11.10	2:44.63	5:23.37	5:48.84	11:25.9	19:59	42:41	3:24:21
8	14.04	28.58	1:05.71	2:32.76	5:00.69	5:24.43	10:38.0	18:34	39:37	3:09:48
9	13.33	26.98	1:01.60	2:23.73	4:43.59	5:06.05	10:02.0	17:30	37:18	2:58:46
10	12.76	25.74	58.40	2:16.74	4:30.49	4:51.97	9:34.6	16:42	35:31	2:50:15
11	12.3	24.75	55.89	2:11.27	4:20.34	4:41.07	9:13.3	16:04	34:07	2:43:37
12	11.91	23.96	53.91	2:06.96	4:12.41	4:32.58	8:56.8	15:34	33:02	2:38:24
13	11.6	23.33	52.33	2:03.54	4:06.21	4:25.93	8:43.9	15:11	32:11	2:34:17
14	11.33	22.82	51.08	2:00.83	4:01.34	4:20.72	8:33.9	14:53	31:30	2:31:01
15	11.11	22.41	50.08	1:58.68	3:57.54	4:16.65	8:26.0	14:39	30:59	2:28:26
16	10.92	22.08	49.29	1:56.99	3:54.58	4:13.49	8:19.9	14:28	30:34	2:26:24
17	10.77	21.82	48.67	1:55.67	3:52.30	4:11.05	8:15.3	14:20	30:14	2:24:48
18	10.64	21.62	48.19	1:54.65	3:50.56	4:09.20	8:11.7	14:13	29:59	2:23:34
19	10.54	21.46	47.82	1:53.88	3:49.27	4:07.82	8:09.1	14:09	29:48	2:22:37
OC	10.49	21.34	47.60	1:53.28	3:48.12	4:06.49	8:06.1	14:03	29:32	2:21:06
30	10.49	21.34	47.60	1:53.28	3:48.12	4:06.49	8:06.1	14:03	29:32	2:21:06
31	10.5	21.37	47.60	1:53.28	3:48.12	4:06.49	8:06.1	14:03	29:32	2:21:06
32	10.56	21.45	47.68	1:53.35	3:48.12	4:06.56	8:06.1	14:03	29:32	2:21:06
33	10.63	21.55	47.88	1:53.73	3:48.67	4:07.14	8:07.1	14:04	29:34	2:21:06
34	10.69	21.65	48.11	1:54.17	3:49.34	4:07.85	8:08.3	14:06	29:38	2:21:21
35	10.77	21.77	48.37	1:54.67	3:50.12	4:08.67	8:09.7	14:08	29:44	2:21:41
36	10.84	21.89	48.65	1:55.24	3:51.02	4:09.62	8:11.4	14:11	29:49	2:22:05
37	10.92	22.03	48.97	1:55.87	3:52.03	4:10.70	8:13.3	14:15	29:56	2:22:33
38	11	22.18	49.31	1:56.56	3:53.17	4:11.90	8:15.5	14:18	30:04	2:23:05
39	11.09	22.34	49.68	1:57.31	3:54.43	4:13.24	8:17.9	14:22	30:13	2:23:41
40	11.18	22.51	50.08	1:58.13	3:55.81	4:14.70	8:20.5	14:27	30:22	2:24:21
41	11.27	22.69	50.51	1:59.01	3:57.31	4:16.30	8:23.5	14:32	30:33	2:25:06
42	11.36	22.88	50.97	1:59.95	3:58.93	4:18.03	8:26.6	14:37	30:44	2:25:55
43	11.46	23.08	51.45	2:00.96	4:00.68	4:19.89	8:30.1	14:43	30:57	2:26:48
44	11.56	23.29	51.96	2:02.02	4:02.56	4:21.89	8:33.8	14:50	31:10	2:27:46
45	11.66	23.51	52.50	2:03.15	4:04.56	4:24.03	8:37.8	14:56	31:25	2:28:49
46	11.77	23.73	53.06	2:04.34	4:06.69	4:26.31	8:42.0	15:04	31:40	2:29:56
47	11.87	23.97	53.65	2:05.59	4:08.95	4:28.73	8:46.6	15:12	31:57	2:31:09
48	11.98	24.22	54.27	2:06.91	4:11.34	4:31.29	8:51.4	15:20	32:15	2:32:26
49	12.1	24.48	54.92	2:08.29	4:13.87	4:33.99	8:56.5	15:29	32:33	2:33:47
50	12.21	24.74	55.60	2:09.73	4:16.53	4:36.84	9:01.9	15:38	32:53	2:35:14
51	12.33	25.02	56.30	2:11.24	4:19.32	4:39.84	9:07.6	15:48	33:14	2:36:46
52	12.45	25.3	57.03	2:12.82	4:22.26	4:42.99	9:13.6	15:58	33:36	2:38:24
53	12.57	25.6	57.79	2:14.46	4:25.34	4:46.30	9:19.9	16:09	33:59	2:40:06
54	12.7	25.91	58.59	2:16.17	4:28.57	4:49.76	9:26.5	16:21	34:23	2:41:54
55	12.83	26.23	59.41	2:17.96	4:31.94	4:53.39	9:33.5	16:33	34:48	2:43:48
56	12.96	26.55	1:00.26	2:19.81	4:35.47	4:57.18	9:40.8	16:45	35:15	2:45:47
57	13.1	26.89	1:01.15	2:21.74	4:39.16	5:01.14	9:48.4	16:58	35:43	2:47:52
58	13.23	27.24	1:02.06	2:23.74	4:43.01	5:05.28	9:56.4	17:12	36:12	2:50:04
59	13.38	27.61	1:03.02	2:25.83	4:47.02	5:09.60	10:04.8	17:27	36:42	2:52:21
60	13.52	27.98	1:04.00	2:27.99	4:51.21	5:14.11	10:13.5	17:42	37:14	2:54:45
61	13.67	28.37	1:05.03	2:30.24	4:55.57	5:18.81	10:22.7	17:58	37:47	2:57:16
62	13.82	28.77	1:06.09	2:32.57	5:00.12	5:23.71	10:32.2	18:14	38:22	2:59:53
63	13.98	29.18	1:07.19	2:35.00	5:04.87	5:28.82	10:42.2	18:31	38:59	3:02:38
64	14.14	29.61	1:08.33	2:37.52	5:09.81	5:34.15	10:52.6	18:50	39:36	3:05:30
65	14.31	30.05	1:09.52	2:40.14	5:14.96	5:39.71	11:03.4	19:08	40:16	3:08:31
66	14.48	30.51	1:10.75	2:42.86	5:20.34	5:45.50	11:14.8	19:28	40:57	3:11:39
67	14.66	30.99	1:12.02	2:45.69	5:25.94	5:51.54	11:26.6	19:49	41:41	3:14:56
68	14.84	31.48	1:13.35	2:48.63	5:31.79	5:57.85	11:39.0	20:10	42:26	3:18:22
69	15.03	31.99	1:14.73	2:51.70	5:37.89	6:04.43	11:51.9	20:32	43:13	3:21:57
70	15.22	32.53	1:16.17	2:54.89	5:44.26	6:11.31	12:05.4	20:56	44:02	3:25:43
71	15.42	33.08	1:17.66	2:58.22	5:50.91	6:18.50	12:19.6	21:21	44:54	3:29:39
72	15.63	33.65	1:19.22	3:01.70	5:57.87	6:26.02	12:34.4	21:46	45:48	3:33:47
73	15.84	34.25	1:20.84	3:05.32	6:05.16	6:33.89	12:49.9	22:13	46:44	3:38:06
74	16.07	34.88	1:22.54	3:09.12	6:12.79	6:42.14	13:06.2	22:42	47:43	3:42:39
75	16.3	35.53	1:24.32	3:13.09	6:20.80	6:50.79	13:23.3	23:11	48:46	3:47:25
76	16.54	36.21	1:26.18	3:17.25	6:29.21	6:59.87	13:41.3	23:42	49:51	3:52:26
77	16.8	36.93	1:28.13	3:21.62	6:38.05	7:09.43	14:00.2	24:15	51:00	3:57:43
78	17.06	37.68	1:30.18	3:26.22	6:47.37	7:19.50	14:20.2	24:50	52:13	4:03:18
79	17.34	38.47	1:32.34	3:31.06	6:57.19	7:30.13	14:41.2	25:27	53:29	4:09:11
80	17.64	39.3	1:34.62	3:36.18	7:07.58	7:41.37	15:03.5	26:05	54:50	4:15:26
81	17.95	40.18	1:37.03	3:41.59	7:18.59	7:53.27	15:27.2	26:46	56:16	4:22:03
82	18.28	41.11	1:39.58	3:47.33	7:30.29	8:05.92	15:52.3	27:30	57:48	4:29:05
83	18.62	42.1	1:42.30	3:53.43	7:42.74	8:19.40	16:19.1	28:17	0:59:25	4:36:34
84	18.99	43.16	1:45.20	3:59.95	7:56.05	8:33.79	16:47.7	29:06	1:01:09	4:44:36
85	19.39	44.29	1:48.30	4:06.94	8:10.31	8:49.22	17:18.4	29:60	1:03:01	4:53:12
86	19.82	45.5	1:51.64	4:14.44	8:25.66	9:05.83	17:51.4	30:57	1:05:01	5:02:27
87	20.27	46.81	1:55.25	4:22.55	8:42.24	9:23.78	18:27.1	31:59	1:07:11	5:12:28
88	20.77	48.23	1:59.16	4:31.36	9:00.26	9:43.28	19:05.9	33:07	1:09:32	5:23:21
89	21.32	49.79	2:03.43	4:40.97	9:19.95	10:04.58	19:48.4	34:20	1:12:06	5:35:15
90	21.91	51.49	2:08.12	4:51.54	9:41.60	10:28.02	20:35.0	35:41	1:14:56	5:48:21
91	22.58	53.39	2:13.33	5:03.26	10:05.60	10:53.99	21:26.8	37:11	1:18:04	6:02:51
92	23.32	55.5	2:19.15	5:16.37	10:32.45	11:23.04	22:24.6	38:52	1:21:35	6:19:05
93	24.16	57.9	2:25.73	5:31.18	11:02.80	11:55.90	23:30.1	40:46	1:25:32	6:37:26
94	25.13	1:00.6	2:33.28	5:48.17	11:37.58	12:33.54	24:45.0	42:56	1:30:05	6:58:28
95	26.26	1:03.8	2:42.07	6:07.95	12:18.09	13:17.38	26:12.3	45:28	1:35:22	7:22:57
96	27.6	1:07.6	2:52.53	6:31.48	13:06.24	14:09.49	27:56.1	48:28	1:41:40	7:52:02
97	29.25	1:12.3	3:05.31	7:00.22	14:05.03	15:13.10	30:02.7	52:08	1:49:20	8:27:32
98	31.34	1:18.2	3:21.50	7:36.62	15:19.42	16:33.60	32:42.9	56:47	1:59:02	9:12:25
99	34.14	1:26.1	3:43.08	8:25.12	16:58.46	18:20.76	36:16.1	1:02:57	2:11:57	10:12:08
100	38.2	1:37.5	4:14.20	9:35.00	19:21.00	20:54.98	41:22.7	1:11:50	2:30:32	11:38:00

AGE	100	200	400	800	1500	MILE	3000	5000	10K	42195
5	17.65	37.22	88.35	202.81	397.37	428.57	842.9	1475	3157	15053
6	16.09	33.41	78.33	180.6	354.17	382.01	751.1	1314	2809	13439
7	14.93	30.65	71.10	164.63	323.37	348.84	685.9	1199	2561	12261
8	14.04	28.58	65.71	152.76	300.69	324.43	638.0	1114	2377	11368
9	13.33	26.98	61.60	143.73	283.59	306.05	602.0	1050	2238	10726
10	12.76	25.74	58.40	136.74	270.49	291.97	574.6	1002	2131	10215
11	12.3	24.75	55.89	131.27	260.34	281.07	553.3	964	2047	9817
12	11.91	23.96	53.91	126.96	252.41	272.58	536.8	934	1982	9504
13	11.6	23.33	52.33	123.54	246.21	265.93	523.9	911	1931	9257
14	11.33	22.82	51.08	120.83	241.34	260.72	513.9	893	1890	9061
15	11.11	22.41	50.08	118.68	237.54	256.65	506.0	879	1859	8906
16	10.92	22.08	49.29	116.99	234.58	253.49	499.9	868	1834	8784
17	10.77	21.82	48.67	115.67	232.3	251.05	495.3	860	1814	8688
18	10.64	21.62	48.19	114.65	230.56	249.20	491.7	853	1799	8614
19	10.54	21.46	47.82	113.88	229.27	247.82	489.1	849	1788	8557
OC	10.49	21.34	47.60	113.28	228.12	246.49	486.1	843	1772	8466
30	10.49	21.34	47.60	113.28	228.12	246.49	486.1	843	1772	8466
31	10.5	21.37	47.60	113.28	228.12	246.49	486.1	843	1772	8466
32	10.56	21.45	47.68	113.35	228.12	246.56	486.1	843	1772	8466
33	10.63	21.55	47.88	113.73	228.67	247.14	487.1	844	1774	8466
34	10.69	21.65	48.11	114.17	229.34	247.85	488.3	846	1778	8481
35	10.77	21.77	48.37	114.67	230.12	248.67	489.7	848	1784	8501
36	10.84	21.89	48.65	115.24	231.02	249.62	491.4	851	1789	8525
37	10.92	22.03	48.97	115.87	232.03	250.70	493.3	855	1796	8553
38	11	22.18	49.31	116.56	233.17	251.90	495.5	858	1804	8585
39	11.09	22.34	49.68	117.31	234.43	253.24	497.9	862	1813	8621
40	11.18	22.51	50.08	118.13	235.81	254.70	500.5	867	1822	8661
41	11.27	22.69	50.51	119.01	237.31	256.30	503.5	872	1833	8706
42	11.36	22.88	50.97	119.95	238.93	258.03	506.6	877	1844	8755
43	11.46	23.08	51.45	120.96	240.68	259.89	510.1	883	1857	8808
44	11.56	23.29	51.96	122.02	242.56	261.89	513.8	890	1870	8866
45	11.66	23.51	52.50	123.15	244.56	264.03	517.8	896	1885	8929
46	11.77	23.73	53.06	124.34	246.69	266.31	522.0	904	1900	8996
47	11.87	23.97	53.65	125.59	248.95	268.73	526.6	912	1917	9069
48	11.98	24.22	54.27	126.91	251.34	271.29	531.4	920	1935	9146
49	12.1	24.48	54.92	128.29	253.87	273.99	536.5	929	1953	9227
50	12.21	24.74	55.60	129.73	256.53	276.84	541.9	938	1973	9314
51	12.33	25.02	56.30	131.24	259.32	279.84	547.6	948	1994	9406
52	12.45	25.3	57.03	132.82	262.26	282.99	553.6	958	2016	9504
53	12.57	25.6	57.79	134.46	265.34	286.30	559.9	969	2039	9606
54	12.7	25.91	58.59	136.17	268.57	289.76	566.5	981	2063	9714
55	12.83	26.23	59.41	137.96	271.94	293.39	573.5	993	2088	9828
56	12.96	26.55	60.26	139.81	275.47	297.18	580.8	1005	2115	9947
57	13.1	26.89	61.15	141.74	279.16	301.14	588.4	1018	2143	10072
58	13.23	27.24	62.06	143.74	283.01	305.28	596.4	1032	2172	10204
59	13.38	27.61	63.02	145.83	287.02	309.60	604.8	1047	2202	10341
60	13.52	27.98	64.00	147.99	291.21	314.11	613.5	1062	2234	10485
61	13.67	28.37	65.03	150.24	295.57	318.81	622.7	1078	2267	10636
62	13.82	28.77	66.09	152.57	300.12	323.71	632.2	1094	2302	10793
63	13.98	29.18	67.19	155	304.87	328.82	642.2	1111	2339	10958
64	14.14	29.61	68.33	157.52	309.81	334.15	652.6	1130	2376	11130
65	14.31	30.05	69.52	160.14	314.96	339.71	663.4	1148	2416	11311
66	14.48	30.51	70.75	162.86	320.34	345.50	674.8	1168	2457	11499
67	14.66	30.99	72.02	165.69	325.94	351.54	686.6	1189	2501	11696
68	14.84	31.48	73.35	168.63	331.79	357.85	699.0	1210	2546	11902
69	15.03	31.99	74.73	171.7	337.89	364.43	711.9	1232	2593	12117
70	15.22	32.53	76.17	174.89	344.26	371.31	725.4	1256	2642	12343
71	15.42	33.08	77.66	178.22	350.91	378.50	739.6	1281	2694	12579
72	15.63	33.65	79.22	181.7	357.87	386.02	754.4	1306	2748	12827
73	15.84	34.25	80.84	185.32	365.16	393.89	769.9	1333	2804	13086
74	16.07	34.88	82.54	189.12	372.79	402.14	786.2	1362	2863	13359
75	16.3	35.53	84.32	193.09	380.8	410.79	803.3	1391	2926	13645
76	16.54	36.21	86.18	197.25	389.21	419.87	821.3	1422	2991	13946
77	16.8	36.93	88.13	201.62	398.05	429.43	840.2	1455	3060	14263
78	17.06	37.68	90.18	206.22	407.37	439.50	860.2	1490	3133	14598
79	17.34	38.47	92.34	211.06	417.19	450.13	881.2	1527	3209	14951
80	17.64	39.3	94.62	216.18	427.58	461.37	903.5	1565	3290	15326
81	17.95	40.18	97.03	221.59	438.59	473.27	927.2	1606	3376	15723
82	18.28	41.11	99.58	227.33	450.29	485.92	952.3	1650	3468	16145
83	18.62	42.1	102.30	233.43	462.74	499.40	979.1	1697	3565	16594
84	18.99	43.16	105.20	239.95	476.05	513.79	1007.7	1746	3669	17076
85	19.39	44.29	108.30	246.94	490.31	529.22	1038.4	1800	3781	17592
86	19.82	45.5	111.64	254.44	505.66	545.83	1071.4	1857	3901	18147
87	20.27	46.81	115.25	262.55	522.24	563.78	1107.1	1919	4031	18748
88	20.77	48.23	119.16	271.36	540.26	583.28	1145.9	1987	4172	19401
89	21.32	49.79	123.43	280.97	559.95	604.58	1188.4	2060	4326	20115
90	21.91	51.49	128.12	291.54	581.6	628.02	1235.0	2141	4496	20901
91	22.58	53.39	133.33	303.26	605.6	653.99	1286.8	2231	4684	21771
92	23.32	55.5	139.15	316.37	632.45	683.04	1344.6	2332	4895	22745
93	24.16	57.9	145.73	331.18	662.8	715.90	1410.1	2446	5132	23846
94	25.13	60.64	153.28	348.17	697.58	753.54	1485.0	2576	5405	25108
95	26.26	63.84	162.07	367.95	738.09	797.38	1572.3	2728	5722	26577
96	27.6	67.65	172.53	391.48	786.24	849.49	1676.1	2908	6100	28322
97	29.25	72.3	185.31	420.22	845.03	913.10	1802.7	3128	6560	30452
98	31.34	78.21	201.50	456.62	919.42	993.60	1962.9	3407	7142	33145
99	34.14	86.08	223.08	505.12	1018.5	1100.76	2176.1	3777	7917	36728
100	38.2	97.45	254.20	575	1161	1254.98	2482.7	4310	9032	41880

WOMEN'S LONG DISTANCE RUNNING STANDARDS

AGE	5K	8K	10K	15K	10 MI	20K	21097	25K	30K	42195
5	23:49	40:09	51:32	1:21:10	1:27:48	1:51:51	1:58:40	2:23:07	2:54:39	4:11:23
6	21:20	35:53	46:01	1:12:19	1:18:13	1:39:34	1:45:38	2:07:22	2:35:26	3:43:59
7	19:35	32:53	42:06	1:06:01	1:11:23	1:30:47	1:36:18	1:56:04	2:21:38	3:24:21
8	18:19	30:41	39:14	1:01:22	1:06:19	1:24:16	1:29:22	1:47:40	2:11:23	3:09:48
9	17:23	29:03	37:05	0:57:51	1:02:30	1:19:20	1:24:07	1:41:17	2:03:35	2:58:46
10	16:41	27:48	35:27	55:10	0:59:34	1:15:32	1:20:04	1:36:22	1:57:33	2:50:15
11	16:08	26:51	34:11	53:04	0:57:17	1:12:34	1:16:54	1:32:31	1:52:50	2:43:37
12	15:43	26:07	33:13	51:26	55:30	1:10:14	1:14:25	1:29:28	1:49:07	2:38:24
13	15:24	25:32	32:27	50:09	54:06	1:08:23	1:12:27	1:27:04	1:46:10	2:34:17
14	15:10	25:06	31:51	49:09	52:60	1:06:56	1:10:54	1:25:10	1:43:49	2:31:01
15	14:59	24:45	31:24	48:21	52:07	1:05:47	1:09:40	1:23:39	1:41:58	2:28:26
16	14:50	24:30	31:02	47:44	51:26	1:04:52	1:08:41	1:22:28	1:40:30	2:26:24
17	14:44	24:18	30:46	47:15	50:55	1:04:10	1:07:56	1:21:31	1:39:20	2:24:48
18	14:39	24:09	30:34	46:53	50:30	1:03:37	1:07:21	1:20:47	1:38:26	2:23:34
19	14:35	24:02	30:24	46:36	50:11	1:03:12	1:06:54	1:20:14	1:37:45	2:22:37
OC	14:03	23:15	29:32	45:38	49:14	1:02:15	1:05:57	1:19:19	1:36:49	2:21:06
30	14:30	23:50	29:32	45:38	49:14	1:02:15	1:05:57	1:19:19	1:36:49	2:21:06
31	14:30	23:51	30:09	46:06	49:38	1:02:24	1:06:02	1:19:19	1:36:49	2:21:06
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45	15:14	25:07	31:49	48:52	52:39	1:06:20	1:10:13	1:24:12	1:42:29	2:28:49
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52	16:07	26:38	33:48	52:04	56:08	1:10:49	1:14:58	1:29:56	1:49:26	2:38:24
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73	22:02	36:33	46:29	1:11:57	1:17:37	1:38:04	1:43:51	2:04:37	2:31:31	3:38:06
74	22:30	37:19	47:28	1:13:28	1:19:15	1:40:07	1:46:02	2:07:14	2:34:41	3:42:39
75	22:59	38:08	48:30	1:15:03	1:20:57	1:42:16	1:48:19	2:09:58	2:38:01	3:47:25
76	23:30	38:59	49:34	1:16:43	1:22:45	1:44:33	1:50:43	2:12:51	2:41:30	3:52:26
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78	24:37	40:49	51:55	1:20:20	1:26:39	1:49:27	1:55:54	2:19:04	2:49:04	4:03:18
79	25:13	41:50	53:11	1:22:17	1:28:46	1:52:06	1:58:43	2:22:26	2:53:09	4:09:11
80	25:52	42:53	54:32	1:24:22	1:30:60	1:54:55	2:01:42	2:26:00	2:57:29	4:15:26
81	26:32	44:01	55:58	1:26:34	1:33:22	1:57:54	2:04:51	2:29:47	3:02:05	4:22:03
82	27:16	45:13	57:29	1:28:54	1:35:53	2:01:04	2:08:13	2:33:48	3:06:57	4:29:05
83	28:02	46:30	0:59:06	1:31:24	1:38:34	2:04:27	2:11:47	2:38:05	3:12:09	4:36:34
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85	29:46	49:20	1:02:42	1:36:55	1:44:31	2:11:56	2:19:42	2:47:34	3:23:40	4:53:12
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88	32:53	54:30	1:09:15	1:46:56	1:55:19	2:25:31	2:34:04	3:04:45	3:44:33	5:23:21
89	34:07	56:32	1:11:50	1:50:54	1:59:34	2:30:52	2:39:44	3:11:32	3:52:47	5:35:15
90	35:29	0:58:47	1:14:40	1:55:15	2:04:15	2:36:45	2:45:58	3:18:60	4:01:50	5:48:21
91	36:60	1:01:16	1:17:49	2:00:04	2:09:27	2:43:17	2:52:52	3:27:15	4:11:52	6:02:51
92	38:41	1:04:03	1:21:20	2:05:28	2:15:15	2:50:35	3:00:36	3:36:30	4:23:06	6:19:05
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94	42:47	1:10:49	1:29:53	2:18:33	2:29:21	3:08:18	3:19:20	3:58:56	4:50:20	6:58:28
95	45:20	1:15:01	1:35:12	2:26:41	2:38:07	3:19:19	3:30:59	4:12:53	5:07:16	7:22:57
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99	62:55	1:44:01	2:11:55	3:22:56	3:38:40	4:35:28	4:51:33	5:49:18	7:04:22	10:12:08
100	71:50	1:58:44	2:30:32	3:51:29	4:09:25	5:14:08	5:32:28	6:38:17	8:03:50	11:38:00

AGE	5K	8K	10K	15K	10 MI	20K	21097	25K	30K	42195
5	1429	2409	3092	4870	5268	6711	7120	8587	10479	15083
6	1280	2153	2761	4339	4693	5974	6338	7642	9326	13439
7	1175	1973	2526	3961	4283	5447	5778	6964	8498	12261
8	1099	1841	2354	3682	3979	5056	5362	6460	7883	11388
9	1043	1743	2225	3471	3750	4760	5047	6077	7415	10726
10	1001	1668	2127	3310	3574	4532	4804	5782	7053	10215
11	968	1611	2051	3184	3437	4354	4614	5551	6770	9817
12	943	1567	1993	3086	3330	4214	4465	5368	6547	9504
13	924	1532	1947	3009	3246	4103	4347	5224	6370	9257
14	910	1506	1911	2949	3180	4016	4254	5110	6229	9061
15	899	1485	1884	2901	3127	3947	4180	5019	6118	8906
16	890	1470	1862	2864	3086	3892	4121	4948	6030	8784
17	884	1458	1846	2835	3055	3850	4076	4891	5960	8688
18	879	1449	1834	2813	3030	3817	4041	4847	5906	8614
19	875	1442	1824	2796	3011	3792	4014	4814	5865	8557
OC	843	1395	1772	2738	2954	3735	3957	4759	5809	8466
30	870	1430	1772	2738	2954	3735	3957	4759	5809	8466
31	870	1431	1809	2766	2978	3744	3962	4759	5809	8466
32	871	1433	1811	2769	2982	3749	3968	4759	5809	8466
33	872	1435	1814	2774	2987	3756	3975	4764	5809	8466
34	874	1437	1817	2780	2993	3764	3984	4774	5813	8481
35	875	1440	1821	2787	3001	3774	3994	4787	5829	8501
36	877	1444	1826	2795	3010	3786	4007	4803	5847	8525
37	880	1448	1832	2804	3020	3800	4022	4820	5868	8553
38	883	1453	1838	2815	3032	3815	4038	4841	5893	8585
39	886	1459	1845	2828	3045	3833	4057	4863	5920	8621
40	889	1465	1854	2841	3060	3852	4078	4888	5950	8661
41	893	1472	1863	2857	3077	3874	4100	4916	5984	8706
42	898	1479	1873	2873	3095	3897	4125	4946	6020	8755
43	903	1488	1884	2891	3115	3923	4153	4979	6060	8808
44	908	1497	1896	2911	3136	3950	4182	5014	6103	8866
45	914	1507	1909	2932	3159	3980	4213	5052	6149	8929
46	920	1517	1922	2955	3184	4012	4247	5093	6198	8996
47	926	1529	1937	2979	3210	4046	4283	5137	6251	9069
48	933	1541	1953	3005	3238	4082	4321	5183	6307	9146
49	941	1554	1970	3032	3268	4120	4362	5232	6367	9227
50	949	1568	1988	3061	3299	4161	4405	5284	6429	9314
51	958	1583	2007	3092	3333	4203	4451	5339	6496	9406
52	967	1598	2028	3124	3368	4249	4498	5396	6566	9504
53	977	1615	2049	3159	3405	4296	4549	5457	6640	9606
54	987	1632	2072	3195	3444	4346	4602	5521	6717	9714
55	998	1651	2096	3233	3485	4398	4658	5588	6798	9828
56	1010	1670	2121	3273	3529	4453	4716	5658	6883	9947
57	1022	1691	2147	3314	3574	4511	4777	5732	6973	10072
58	1034	1712	2175	3358	3621	4571	4841	5809	7066	10204
59	1048	1735	2204	3404	3671	4635	4908	5889	7164	10341
60	1062	1758	2234	3452	3723	4701	4978	5973	7266	10485
61	1077	1783	2266	3502	3777	4769	5051	6061	7372	10636
62	1092	1809	2299	3555	3834	4842	5127	6153	7484	10793
63	1108	1837	2334	3609	3893	4917	5207	6249	7600	10958
64	1126	1865	2371	3667	3955	4995	5290	6349	7721	11130
65	1143	1895	2409	3727	4020	5078	5377	6453	7848	11311
66	1162	1927	2450	3789	4087	5163	5468	6562	7981	11499
67	1182	1960	2492	3855	4158	5253	5563	6676	8119	11696
68	1203	1994	2536	3924	4232	5347	5662	6795	8263	11902
69	1224	2030	2582	3995	4310	5444	5766	6920	8414	12117
70	1247	2068	2630	4070	4390	5547	5875	7050	8572	12343
71	1271	2108	2681	4149	4475	5654	5988	7186	8737	12579
72	1296	2149	2734	4231	4564	5766	6107	7328	8910	12827
73	1322	2193	2789	4317	4657	5884	6231	7477	9091	13086
74	1350	2239	2848	4408	4755	6007	6362	7634	9281	13359
75	1379	2288	2910	4503	4857	6136	6499	7798	9481	13645
76	1410	2339	2974	4603	4965	6273	6643	7971	9690	13946
77	1442	2393	3043	4709	5079	6416	6795	8152	9911	14263
78	1477	2449	3115	4820	5199	6567	6954	8344	10144	14598
79	1513	2510	3191	4937	5326	6726	7123	8546	10389	14951
80	1552	2573	3272	5062	5460	6895	7302	8760	10649	15326
81	1592	2641	3358	5194	5602	7074	7491	8987	10925	15723
82	1636	2713	3449	5334	5753	7264	7693	9228	11217	16145
83	1682	2790	3546	5484	5914	7467	7907	9485	11529	16594
84	1732	2872	3651	5643	6086	7684	8137	9759	11863	17076
85	1786	2960	3762	5815	6271	7916	8382	10054	12220	17592
86	1843	3055	3883	6000	6470	8166	8647	10371	12605	18147
87	1905	3158	4013	6199	6685	8437	8933	10713	13021	18748
88	1973	3270	4155	6416	6919	8731	9244	11085	13473	19401
89	2047	3392	4310	6654	7174	9052	9584	11492	13967	20115
90	2129	3527	4480	6915	7455	9405	9958	11940	14510	20901
91	2220	3676	4669	7204	7767	9797	10372	12435	15112	21771
92	2321	3843	4880	7528	8115	10235	10836	12990	15786	22745
93	2436	4032	5119	7894	8509	10730	11360	13617	16548	23846
94	2567	4249	5393	8313	8961	11298	11960	14336	17420	25108
95	2720	4501	5712	8801	9487	11959	12659	15173	18436	26577
96	2901	4800	6091	9381	10111	12744	13490	16167	19644	28322
97	3123	5165	6553	10089	10874	13703	14504	17381	21117	30452
98	3403	5627	7137	10985	11838	14915	15787	18916	22981	33145
99	3775	6241	7915	12176	13120	16528	17493	20958	25462	36728
100	4310	7124	9032	13889	14965	18848	19948	23897	29030	41880

TRACK RUNNING EVENT AGE FACTORS

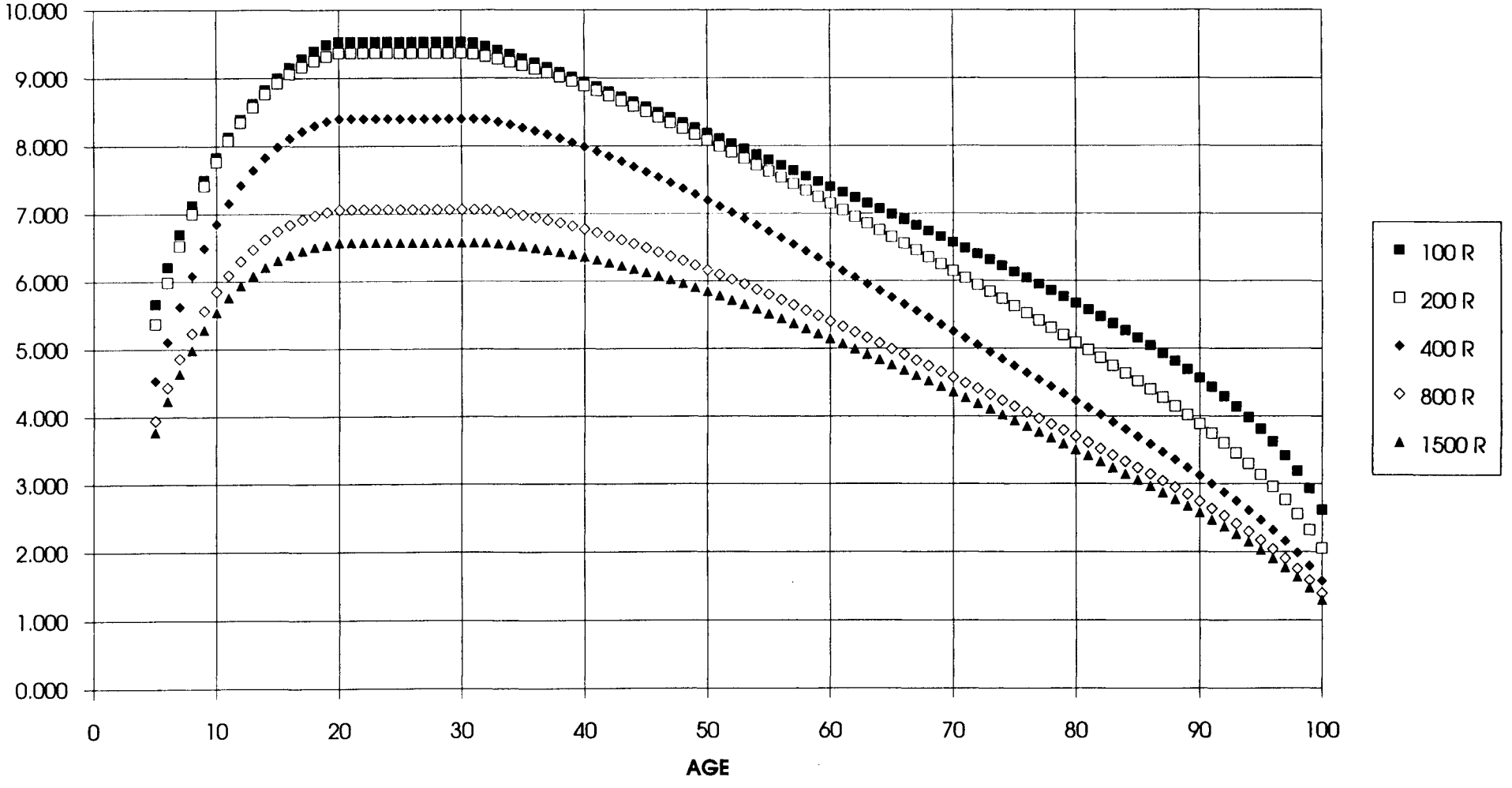
	MEN'S										WOMEN'S									
AGE	100	200	400	800	1500	MILE	3000	5000	10K	42195	AGE	100	200	400	800	1500	MILE	3000	5000	10K	42195
5	0.673	0.645	0.624	0.595	0.596	0.598	0.617	0.632	0.643	0.616	5	0.594	0.573	0.539	0.559	0.574	0.575	0.577	0.571	0.561	0.561
6	0.717	0.697	0.678	0.648	0.651	0.653	0.673	0.689	0.701	0.672	6	0.652	0.639	0.608	0.627	0.644	0.645	0.647	0.642	0.631	0.630
7	0.755	0.741	0.726	0.695	0.699	0.701	0.722	0.738	0.750	0.722	7	0.702	0.696	0.669	0.688	0.705	0.707	0.709	0.703	0.692	0.690
8	0.789	0.780	0.767	0.737	0.741	0.743	0.764	0.781	0.792	0.764	8	0.747	0.747	0.724	0.742	0.759	0.760	0.762	0.757	0.745	0.743
9	0.818	0.815	0.804	0.775	0.779	0.781	0.802	0.818	0.828	0.802	9	0.787	0.791	0.773	0.788	0.804	0.805	0.807	0.803	0.792	0.789
10	0.845	0.845	0.836	0.809	0.813	0.815	0.835	0.850	0.859	0.835	10	0.822	0.829	0.815	0.828	0.843	0.844	0.846	0.842	0.832	0.829
11	0.869	0.872	0.865	0.839	0.844	0.846	0.864	0.877	0.885	0.863	11	0.853	0.862	0.852	0.863	0.876	0.877	0.879	0.875	0.865	0.862
12	0.891	0.896	0.891	0.867	0.871	0.873	0.889	0.901	0.908	0.888	12	0.881	0.891	0.883	0.892	0.904	0.904	0.906	0.902	0.894	0.891
13	0.911	0.917	0.913	0.892	0.895	0.897	0.912	0.922	0.927	0.910	13	0.905	0.915	0.910	0.917	0.927	0.927	0.928	0.925	0.918	0.915
14	0.929	0.936	0.933	0.915	0.917	0.918	0.931	0.939	0.943	0.929	14	0.926	0.935	0.932	0.938	0.945	0.945	0.946	0.944	0.937	0.934
15	0.946	0.952	0.951	0.935	0.937	0.938	0.948	0.954	0.957	0.945	15	0.944	0.952	0.951	0.954	0.960	0.960	0.961	0.959	0.953	0.951
16	0.962	0.967	0.966	0.953	0.954	0.955	0.963	0.967	0.969	0.959	16	0.960	0.966	0.966	0.968	0.972	0.972	0.972	0.971	0.966	0.964
17	0.976	0.980	0.979	0.970	0.969	0.969	0.975	0.978	0.978	0.971	17	0.974	0.978	0.978	0.979	0.982	0.982	0.982	0.980	0.977	0.974
18	0.989	0.991	0.991	0.984	0.982	0.982	0.986	0.987	0.986	0.981	18	0.986	0.987	0.988	0.988	0.989	0.989	0.989	0.988	0.985	0.983
19	1.000	1.000	1.000	0.997	0.994	0.994	0.994	0.994	0.992	0.989	19	0.995	0.994	0.995	0.995	0.995	0.995	0.994	0.993	0.991	0.989
OC	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	OC	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
30	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	30	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
31	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	31	0.999	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
32	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	32	0.993	0.995	0.998	0.999	1.000	1.000	1.000	1.000	1.000	1.000
33	0.995	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	33	0.987	0.990	0.994	0.996	0.998	0.997	0.998	0.999	0.999	1.000
34	0.988	0.991	0.995	0.995	0.995	0.995	0.998	0.999	0.998	1.000	34	0.981	0.986	0.989	0.992	0.995	0.995	0.995	0.996	0.996	0.998
35	0.982	0.985	0.989	0.988	0.989	0.989	0.993	0.995	0.995	0.999	35	0.974	0.980	0.984	0.988	0.991	0.991	0.993	0.994	0.993	0.996
36	0.975	0.979	0.982	0.980	0.982	0.983	0.988	0.991	0.992	0.995	36	0.968	0.975	0.978	0.983	0.987	0.987	0.989	0.990	0.990	0.993
37	0.969	0.973	0.976	0.973	0.975	0.976	0.983	0.986	0.988	0.991	37	0.961	0.969	0.972	0.978	0.983	0.983	0.985	0.986	0.986	0.990
38	0.963	0.967	0.970	0.965	0.968	0.969	0.977	0.982	0.984	0.987	38	0.953	0.962	0.965	0.972	0.978	0.979	0.981	0.982	0.982	0.986
39	0.957	0.960	0.963	0.958	0.961	0.962	0.971	0.977	0.980	0.982	39	0.946	0.955	0.958	0.966	0.973	0.973	0.976	0.978	0.977	0.982
40	0.951	0.954	0.956	0.950	0.954	0.955	0.965	0.971	0.975	0.977	40	0.938	0.948	0.950	0.959	0.967	0.968	0.971	0.972	0.972	0.977
41	0.945	0.947	0.949	0.942	0.946	0.948	0.959	0.966	0.970	0.971	41	0.931	0.940	0.942	0.952	0.961	0.962	0.966	0.967	0.967	0.972
42	0.939	0.941	0.942	0.934	0.939	0.940	0.952	0.960	0.965	0.965	42	0.923	0.933	0.934	0.944	0.955	0.955	0.959	0.961	0.961	0.967
43	0.933	0.934	0.935	0.927	0.931	0.933	0.945	0.954	0.960	0.960	43	0.915	0.925	0.925	0.937	0.948	0.948	0.953	0.954	0.954	0.961
44	0.927	0.928	0.928	0.919	0.924	0.925	0.939	0.948	0.954	0.953	44	0.907	0.916	0.916	0.928	0.940	0.941	0.946	0.948	0.947	0.955
45	0.922	0.921	0.921	0.911	0.916	0.917	0.932	0.941	0.948	0.947	45	0.900	0.908	0.907	0.920	0.933	0.934	0.939	0.940	0.940	0.948
46	0.916	0.914	0.913	0.903	0.908	0.910	0.924	0.935	0.942	0.940	46	0.891	0.899	0.897	0.911	0.925	0.926	0.931	0.933	0.932	0.941
47	0.911	0.908	0.906	0.895	0.901	0.902	0.917	0.928	0.936	0.934	47	0.883	0.890	0.887	0.902	0.916	0.917	0.923	0.925	0.924	0.934
48	0.905	0.901	0.899	0.888	0.893	0.894	0.910	0.921	0.930	0.927	48	0.875	0.881	0.877	0.893	0.908	0.909	0.915	0.916	0.916	0.926
49	0.900	0.894	0.891	0.880	0.885	0.886	0.902	0.914	0.923	0.920	49	0.867	0.872	0.867	0.883	0.899	0.900	0.906	0.908	0.907	0.917
50	0.894	0.887	0.884	0.872	0.877	0.879	0.895	0.907	0.916	0.912	50	0.859	0.863	0.856	0.873	0.889	0.890	0.897	0.899	0.898	0.909
51	0.889	0.880	0.876	0.864	0.869	0.871	0.887	0.899	0.909	0.905	51	0.851	0.853	0.845	0.863	0.880	0.881	0.888	0.889	0.889	0.900
52	0.883	0.873	0.869	0.857	0.861	0.863	0.879	0.892	0.902	0.897	52	0.843	0.843	0.835	0.853	0.870	0.871	0.878	0.880	0.879	0.891
53	0.878	0.867	0.861	0.849	0.853	0.855	0.871	0.884	0.894	0.890	53	0.834	0.834	0.824	0.842	0.860	0.861	0.868	0.870	0.869	0.881
54	0.873	0.860	0.854	0.841	0.845	0.847	0.864	0.876	0.887	0.882	54	0.826	0.824	0.812	0.832	0.849	0.851	0.858	0.860	0.859	0.872
55	0.868	0.853	0.846	0.833	0.837	0.839	0.856	0.869	0.879	0.874	55	0.818	0.814	0.801	0.821	0.839	0.840	0.848	0.849	0.848	0.861
56	0.862	0.846	0.838	0.826	0.829	0.831	0.847	0.861	0.871	0.866	56	0.809	0.804	0.790	0.810	0.828	0.829	0.837	0.839	0.838	0.851
57	0.857	0.839	0.831	0.818	0.821	0.823	0.839	0.853	0.864	0.858	57	0.801	0.794	0.778	0.799	0.817	0.819	0.826	0.828	0.827	0.841
58	0.852	0.832	0.823	0.810	0.813	0.815	0.831	0.844	0.855	0.849	58	0.793	0.783	0.767	0.788	0.806	0.807	0.815	0.817	0.816	0.830
59	0.846	0.825	0.815	0.802	0.805	0.807	0.823	0.836	0.847	0.841	59	0.784	0.773	0.755	0.777	0.795	0.796	0.804	0.805	0.805	0.819
60	0.841	0.818	0.807	0.794	0.797	0.798	0.814	0.828	0.839	0.832	60	0.776	0.763	0.744	0.765	0.783	0.785	0.792	0.794	0.793	0.807
61	0.836	0.811	0.800	0.787	0.789	0.790	0.806	0.819	0.830	0.824	61	0.767	0.752	0.732	0.754	0.772	0.773	0.781	0.782	0.781	0.796
62	0.830	0.803	0.792	0.779	0.781	0.782	0.798	0.811	0.822	0.815	62	0.759	0.742	0.720	0.742	0.760	0.761	0.769	0.770	0.770	0.784
63	0.825	0.796	0.784	0.771	0.772	0.774	0.789	0.802	0.813	0.806	63	0.750	0.731	0.708	0.731	0.748	0.750	0.757	0.758	0.758	0.773
64	0.819	0.789	0.776	0.763	0.764	0.765	0.780	0.793	0.804	0.797	64	0.742	0.721	0.697	0.719	0.736	0.738	0.745	0.746	0.746	0.761
65	0.814	0.782	0.768	0.755	0.756	0.757	0.772	0.784	0.795	0.788	65	0.733	0.710	0.685	0.707	0.724	0.726	0.733	0.734	0.733	0.749
66	0.808	0.774	0.759	0.747	0.747	0.749	0.763	0.775	0.786	0.779	66	0.724	0.699	0.673	0.696	0.712	0.713	0.720	0.722	0.721	0.736
67	0.803	0.767	0.751	0.739	0.739	0.740	0.754	0.766	0.777	0.770	67	0.716	0.689	0.661	0.684	0.700	0.701	0.708	0.709	0.709	0.724
68	0.797	0.759	0.743	0.731	0.731	0.732	0.745	0.757	0.767	0.760	68	0.707	0.678	0.649	0.672	0.688	0.689	0.695	0.697	0.696	0.711
69	0.791	0.751	0.735	0.723	0.722	0.723	0.736	0.747	0.758	0.751	69	0.698	0.667	0.637	0.660	0.675	0.676	0.683	0.684	0.683	0.699
70	0.785	0.744	0.726	0.714	0.713	0.714	0.727	0.738	0.748	0.741	70	0.689	0.656	0.625	0.648	0.663	0.664	0.670	0.671	0.671	0.686
71	0.779	0.736	0.718	0.706	0.704	0.705	0.717	0.728	0.738	0.731	71	0.680	0.645	0.613	0.636	0.650	0.651	0.657	0.658	0.658	0.673
72	0.773	0.728	0.709	0.698	0.696	0.696	0.708	0.719	0.728	0.721	72	0.671	0.634	0.601	0.623	0.637	0.639	0.644	0.645	0.645	0.660
73	0.767	0.720	0.700	0.689	0.687	0.687	0.698	0.709	0.718	0.711	73	0.662	0.623	0.589	0.611	0.625	0.626	0.631	0.632	0.632	0.647
74	0.761	0.712	0.691	0.680	0.678	0.678	0.689	0.699	0.708	0.701	74	0.653	0.612	0.577	0.599	0.612	0.613	0.618	0.619	0.619	0.634
75	0.754	0.703	0.682	0.672	0.668	0.669	0.679	0.689	0.697	0.691	75	0.644	0.601	0.565	0.587	0.599	0.600	0.605	0.606	0.606	0.620
76	0.747	0.695	0.673	0.663	0.659	0.660	0.669	0.678	0.687	0.680	76	0.634	0.589	0.552	0.574	0.586	0.587	0.592	0.593	0.592	0.607
77	0.741	0.686	0.664	0.653	0.649	0.650	0.659	0.668	0.676	0.669	77	0.624	0.578	0.540	0.562	0.573	0.574	0.579	0.579	0.579	0.594
78	0.733	0.677	0.654	0.644	0.640	0.640	0.649	0.657	0.665	0.659	78	0.615	0.566	0.528	0.549	0.560	0.561	0.565	0.566	0.566	0.580
79	0.726	0.668	0.644	0.635	0.630	0.630	0.638	0.646	0.653	0.647	79	0.605	0.555	0.515	0.537	0.547	0.548	0.552	0.552	0.552	0.566
80	0.719	0.659	0.634	0.625	0.620	0.620	0.627	0.635	0.642	0.636	80	0.595	0.543	0.503	0.524	0.534	0.534	0.538	0.539	0.538	0.552
81	0.711	0.649	0.624	0.615	0.609	0.610	0.616	0.624	0.630	0.624	81	0.584	0.531	0.491	0.511	0.520	0.521	0.524	0.525	0.525	0.538
82	0.703	0.639	0.614	0.605	0.599	0.599	0.605	0.612	0.618	0.613	82	0.574	0.519	0.478	0.498	0.507	0.507	0.510	0.511	0.511	0.524
83	0.694	0.629	0.603	0.594	0.588	0.588	0.594	0.600	0.606	0.600	83	0.563	0.507	0.465	0.485	0.493	0.494	0.497	0.497	0.497	0.510
84	0.686	0.619	0.592	0.584	0.577	0.577	0.582	0.588	0.593	0.588	84	0.552	0.494	0.452	0.472	0.479	0.480	0.482	0.483	0.483	0.496
85	0.677	0.608	0.580	0.572	0.565	0.565	0.570	0.575	0.580	0.575	85	0.541	0.482	0.440	0.459	0.465	0.466	0.468	0.468	0.469	0.481
86	0.667	0.596	0.568	0.561	0.553	0.553	0.557	0.562	0.566	0.562	86	0.529	0.469	0.426	0.445	0.451	0.452	0.454	0.454	0.454	0.467
87	0.657	0.585	0.556	0.549	0.541	0.541	0.544	0.548	0.553	0.548	87	0.517	0.456	0.413	0.431	0.437	0.437	0.439	0.439	0.440	0.452
88	0.646	0.572	0.543	0.536	0.528	0.528	0.530	0.534	0.538	0.534	88	0.505	0.442	0.399	0.417	0.422	0.423	0.424	0.424	0.425	0.436
89	0.634	0.559	0.530	0.523	0.514	0.514	0.516	0.520	0.523	0.519	89	0.492	0.429	0.386	0.403	0.407	0.408	0.409	0.409	0.410	0.421
90	0.622	0.545	0.515	0.509	0.500	0.500	0.501	0.505	0.507	0.504	90	0.479	0.414	0.372	0.389	0.392	0.392	0.394	0.394	0.394	0.405
91	0.609	0.531	0.500	0.494	0.485	0.485	0.486	0.489	0.491	0.488	91	0.465	0.400	0.357	0.374	0.377	0.377	0.378	0.378	0.378	0.389
92	0.594	0.515	0.484	0.479	0.469	0.469	0.469	0.472	0.474	0.470	92	0.450	0.384	0.342	0.358	0.361	0.361	0.362	0.361	0.362	0.372
93	0.579	0.498	0.467	0.462	0.452	0.452	0.452	0.453	0.455	0.452	93	0.434	0.369	0.327	0.342	0.344	0.344	0.345	0.345	0.345	0.355
94	0.561	0.479	0.449	0.444	0.434	0.433	0.433	0.434	0.435	0.433	94	0.417	0.352	0.311	0.325	0.327	0.327	0.327	0.327	0.328	0.337
95	0.542	0.459	0.428	0.424	0.414	0.413	0.412	0.413	0.414	0.412	95	0.400	0.334	0.294	0.308	0.309	0.309	0.309	0.309	0.310	0.319
96	0.519	0.437	0.406	0.401	0.391	0.391	0.389	0.390	0.390	0.388	96	0.380	0.315	0.276	0.289	0.290	0.290	0.290	0.290	0.290	0.299
97	0.494	0.411	0.380	0.376	0.366	0.366	0.364	0.364	0.364	0.362	97	0.359	0.295	0.257	0.270	0.270	0.270	0.270	0.269	0.270	0.278
98	0.463	0.381	0.351	0.347	0.338	0.337	0.335	0.335	0.335	0.333	98	0.335	0.273	0.236	0.248	0.248	0.248	0.248	0.247	0.248	0.255
99	0.424	0.344	0.316	0.312	0.303	0.302	0.300	0.300	0.299	0.298	99	0.307	0.248	0.213	0.224	0.224	0.224	0.223	0.223	0.224	0.231
100	0.372	0.297	0.271	0.268	0.259	0.259	0.256	0.255	0.255	0.254	100	0.275	0.219	0.187	0.197	0.196	0.196	0.196	0.196	0.196	0.202

LONG DISTANCE AGE FACTORS

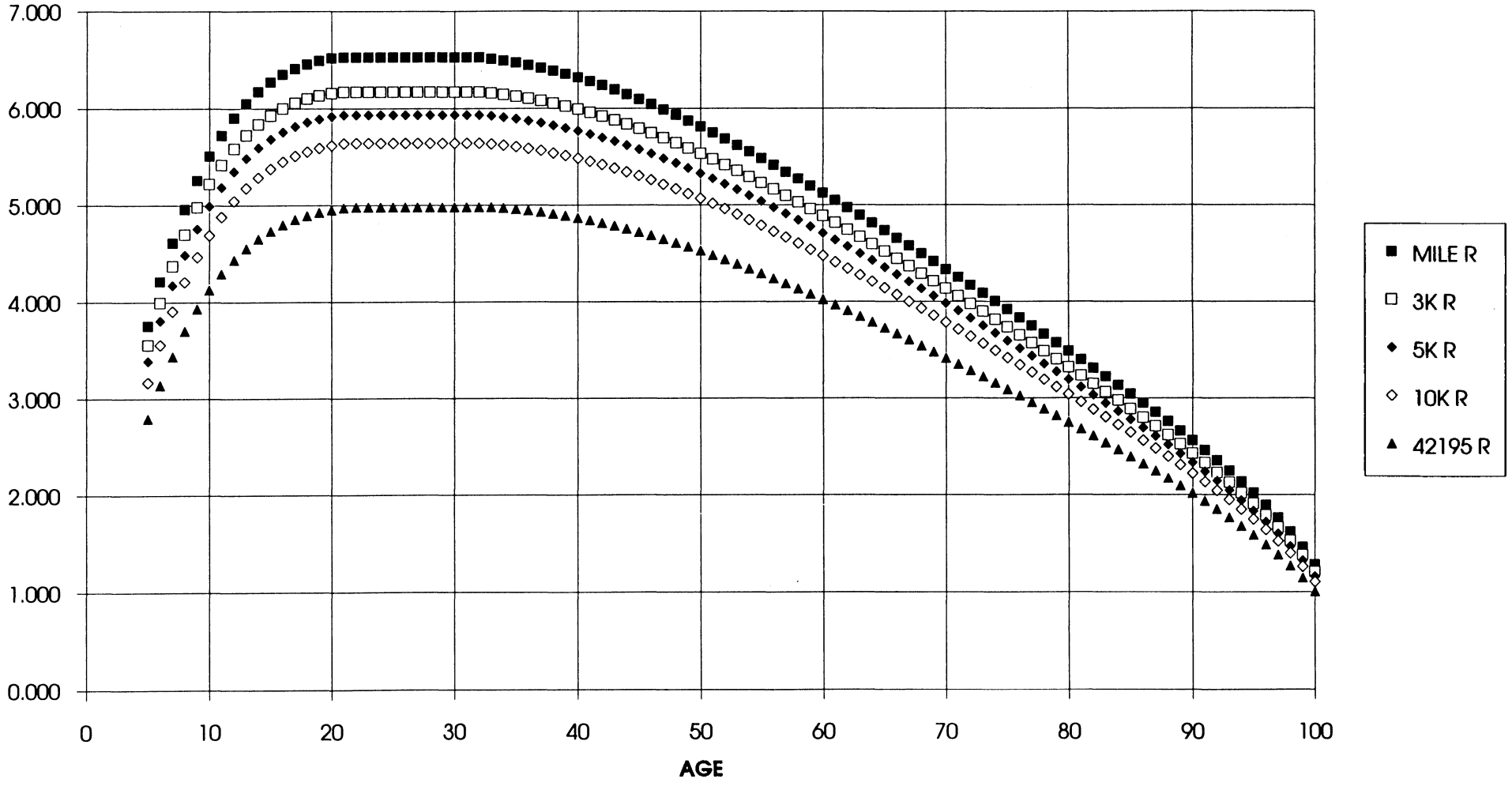
	MEN'S											WOMEN'S									
AGE	5K	8K	10K	15K	10 MI	20K	21097	25K	30K	42195	AGE	5K	8K	10K	15K	10 MI	20K	21097	25K	30K	42195
5	0.632	0.642	0.643	0.642	0.641	0.637	0.636	0.632	0.627	0.616	5	0.590	0.579	0.573	0.562	0.561	0.557	0.556	0.554	0.554	0.561
6	0.689	0.699	0.701	0.699	0.698	0.694	0.693	0.689	0.684	0.672	6	0.659	0.648	0.642	0.631	0.629	0.625	0.624	0.623	0.623	0.630
7	0.738	0.748	0.750	0.748	0.747	0.744	0.742	0.738	0.733	0.722	7	0.717	0.707	0.701	0.691	0.690	0.686	0.685	0.683	0.684	0.690
8	0.781	0.790	0.792	0.790	0.790	0.786	0.785	0.781	0.775	0.764	8	0.767	0.758	0.753	0.744	0.742	0.739	0.738	0.737	0.737	0.743
9	0.818	0.826	0.828	0.826	0.826	0.822	0.821	0.817	0.812	0.802	9	0.808	0.801	0.796	0.789	0.788	0.785	0.784	0.783	0.783	0.789
10	0.850	0.857	0.859	0.857	0.857	0.853	0.852	0.849	0.844	0.835	10	0.842	0.836	0.833	0.827	0.826	0.824	0.824	0.823	0.824	0.829
11	0.877	0.884	0.885	0.884	0.883	0.880	0.879	0.876	0.872	0.863	11	0.871	0.866	0.864	0.860	0.859	0.858	0.858	0.857	0.858	0.862
12	0.901	0.907	0.908	0.906	0.906	0.903	0.902	0.900	0.896	0.888	12	0.893	0.891	0.889	0.887	0.887	0.886	0.886	0.887	0.887	0.891
13	0.922	0.926	0.927	0.926	0.925	0.923	0.922	0.920	0.917	0.910	13	0.912	0.910	0.910	0.910	0.910	0.910	0.910	0.911	0.912	0.915
14	0.939	0.943	0.943	0.942	0.941	0.939	0.939	0.937	0.934	0.929	14	0.927	0.926	0.927	0.929	0.929	0.930	0.930	0.931	0.932	0.934
15	0.954	0.957	0.957	0.956	0.955	0.954	0.953	0.951	0.949	0.945	15	0.938	0.939	0.941	0.944	0.944	0.946	0.947	0.948	0.949	0.951
16	0.967	0.969	0.969	0.967	0.967	0.965	0.965	0.964	0.962	0.959	16	0.947	0.949	0.951	0.956	0.957	0.960	0.960	0.962	0.963	0.964
17	0.978	0.978	0.978	0.977	0.976	0.975	0.975	0.974	0.973	0.971	17	0.954	0.957	0.960	0.966	0.967	0.970	0.971	0.973	0.975	0.974
18	0.987	0.986	0.986	0.984	0.984	0.983	0.983	0.983	0.982	0.981	18	0.959	0.963	0.966	0.973	0.975	0.979	0.979	0.982	0.983	0.983
19	0.994	0.993	0.992	0.991	0.991	0.990	0.990	0.990	0.989	0.989	19	0.963	0.968	0.971	0.979	0.981	0.985	0.986	0.989	0.990	0.989
OC	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	OC	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
30	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	30	0.969	0.975	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
31	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	31	0.969	0.975	0.979	0.990	0.992	0.998	0.999	1.000	1.000	1.000
32	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	32	0.968	0.974	0.978	0.989	0.991	0.996	0.997	1.000	1.000	1.000
33	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	33	0.966	0.972	0.977	0.987	0.989	0.994	0.996	0.999	1.000	1.000
34	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.999	1.000	1.000	34	0.965	0.971	0.975	0.985	0.987	0.992	0.993	0.997	0.999	0.998
35	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.996	0.997	0.999	35	0.963	0.969	0.973	0.983	0.984	0.990	0.991	0.994	0.997	0.996
36	0.991	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.993	0.995	36	0.961	0.966	0.970	0.980	0.981	0.986	0.988	0.991	0.993	0.993
37	0.986	0.988	0.988	0.988	0.988	0.988	0.988	0.989	0.989	0.991	37	0.958	0.963	0.967	0.976	0.978	0.983	0.984	0.987	0.990	0.990
38	0.982	0.984	0.984	0.984	0.984	0.984	0.985	0.985	0.985	0.987	38	0.955	0.960	0.964	0.973	0.974	0.979	0.980	0.983	0.986	0.986
39	0.977	0.979	0.980	0.980	0.980	0.980	0.980	0.980	0.981	0.982	39	0.952	0.956	0.960	0.968	0.970	0.974	0.975	0.979	0.981	0.982
40	0.971	0.974	0.975	0.976	0.976	0.976	0.976	0.976	0.976	0.977	40	0.948	0.952	0.956	0.964	0.965	0.969	0.971	0.974	0.976	0.977
41	0.966	0.969	0.970	0.971	0.971	0.971	0.971	0.971	0.971	0.971	41	0.944	0.948	0.951	0.959	0.960	0.964	0.965	0.968	0.971	0.972
42	0.960	0.964	0.965	0.966	0.966	0.966	0.966	0.966	0.965	0.965	42	0.939	0.943	0.946	0.953	0.954	0.958	0.959	0.962	0.965	0.967
43	0.954	0.959	0.960	0.961	0.961	0.961	0.960	0.960	0.960	0.960	43	0.934	0.938	0.941	0.947	0.948	0.952	0.953	0.956	0.959	0.961
44	0.948	0.953	0.954	0.955	0.955	0.955	0.955	0.955	0.954	0.953	44	0.929	0.932	0.935	0.941	0.942	0.945	0.946	0.949	0.952	0.955
45	0.941	0.947	0.948	0.949	0.949	0.949	0.949	0.949	0.948	0.947	45	0.923	0.926	0.928	0.934	0.935	0.938	0.939	0.942	0.945	0.948
46	0.935	0.941	0.942	0.943	0.943	0.943	0.943	0.942	0.942	0.940	46	0.917	0.919	0.922	0.927	0.928	0.931	0.932	0.934	0.937	0.941
47	0.928	0.934	0.936	0.937	0.937	0.937	0.937	0.936	0.935	0.934	47	0.910	0.913	0.915	0.919	0.920	0.923	0.924	0.927	0.929	0.934
48	0.921	0.928	0.930	0.931	0.931	0.930	0.930	0.930	0.929	0.927	48	0.903	0.905	0.907	0.911	0.912	0.915	0.916	0.918	0.921	0.926
49	0.914	0.921	0.923	0.924	0.924	0.924	0.924	0.923	0.922	0.920	49	0.896	0.898	0.899	0.903	0.904	0.907	0.907	0.910	0.912	0.917
50	0.907	0.914	0.916	0.917	0.917	0.917	0.917	0.916	0.915	0.912	50	0.888	0.890	0.891	0.894	0.895	0.898	0.898	0.901	0.903	0.909
51	0.899	0.907	0.909	0.910	0.910	0.910	0.910	0.909	0.908	0.905	51	0.880	0.881	0.883	0.886	0.886	0.889	0.889	0.891	0.894	0.900
52	0.892	0.900	0.902	0.903	0.903	0.903	0.903	0.902	0.900	0.897	52	0.872	0.873	0.874	0.876	0.877	0.879	0.880	0.882	0.885	0.891
53	0.884	0.892	0.894	0.896	0.896	0.895	0.895	0.894	0.893	0.890	53	0.863	0.864	0.865	0.867	0.867	0.869	0.870	0.872	0.875	0.881
54	0.876	0.885	0.887	0.889	0.889	0.888	0.888	0.887	0.885	0.882	54	0.854	0.855	0.855	0.857	0.858	0.859	0.860	0.862	0.865	0.872
55	0.869	0.877	0.879	0.881	0.881	0.880	0.880	0.879	0.877	0.874	55	0.845	0.845	0.845	0.847	0.847	0.849	0.850	0.852	0.854	0.861
56	0.861	0.869	0.871	0.873	0.873	0.872	0.872	0.871	0.869	0.866	56	0.835	0.835	0.835	0.837	0.837	0.839	0.839	0.841	0.844	0.851
57	0.853	0.861	0.864	0.865	0.865	0.864	0.864	0.863	0.861	0.858	57	0.825	0.825	0.825	0.826	0.826	0.828	0.828	0.830	0.833	0.841
58	0.844	0.853	0.855	0.857	0.857	0.856	0.856	0.855	0.853	0.849	58	0.815	0.815	0.815	0.815	0.816	0.817	0.817	0.819	0.822	0.830
59	0.836	0.845	0.847	0.849	0.849	0.848	0.848	0.846	0.845	0.841	59	0.805	0.804	0.804	0.804	0.805	0.806	0.806	0.808	0.811	0.819
60	0.828	0.836	0.839	0.840	0.840	0.840	0.839	0.838	0.836	0.832	60	0.794	0.793	0.793	0.793	0.793	0.795	0.795	0.797	0.799	0.807
61	0.819	0.828	0.830	0.832	0.832	0.831	0.831	0.829	0.828	0.824	61	0.783	0.782	0.782	0.782	0.782	0.783	0.784	0.785	0.788	0.796
62	0.811	0.819	0.822	0.823	0.823	0.822	0.822	0.821	0.819	0.815	62	0.772	0.771	0.771	0.770	0.770	0.771	0.772	0.774	0.776	0.784
63	0.802	0.810	0.813	0.815	0.814	0.814	0.813	0.812	0.810	0.806	63	0.760	0.760	0.759	0.759	0.759	0.760	0.760	0.762	0.764	0.773
64	0.793	0.802	0.804	0.806	0.806	0.805	0.804	0.803	0.801	0.797	64	0.749	0.748	0.747	0.747	0.747	0.748	0.748	0.750	0.752	0.761
65	0.784	0.793	0.795	0.797	0.796	0.796	0.795	0.794	0.792	0.788	65	0.737	0.736	0.735	0.735	0.735	0.736	0.736	0.737	0.740	0.749
66	0.775	0.783	0.786	0.787	0.787	0.786	0.786	0.785	0.783	0.779	66	0.725	0.724	0.723	0.723	0.723	0.723	0.724	0.725	0.728	0.736
67	0.766	0.774	0.777	0.778	0.778	0.777	0.777	0.775	0.774	0.770	67	0.713	0.712	0.711	0.710	0.710	0.711	0.711	0.713	0.715	0.724
68	0.757	0.765	0.767	0.769	0.769	0.768	0.767	0.766	0.764	0.760	68	0.701	0.700	0.699	0.698	0.698	0.699	0.699	0.700	0.703	0.711
69	0.747	0.755	0.758	0.759	0.759	0.758	0.758	0.756	0.754	0.751	69	0.689	0.687	0.686	0.685	0.685	0.686	0.686	0.688	0.690	0.699
70	0.738	0.746	0.748	0.749	0.749	0.748	0.748	0.747	0.745	0.741	70	0.676	0.675	0.674	0.673	0.673	0.673	0.674	0.675	0.678	0.686
71	0.728	0.736	0.738	0.739	0.739	0.738	0.738	0.737	0.735	0.731	71	0.663	0.662	0.661	0.660	0.660	0.661	0.661	0.662	0.665	0.673
72	0.719	0.726	0.728	0.729	0.729	0.728	0.728	0.727	0.725	0.721	72	0.650	0.649	0.648	0.647	0.647	0.648	0.648	0.649	0.652	0.660
73	0.709	0.716	0.718	0.719	0.719	0.718	0.718	0.716	0.715	0.711	73	0.637	0.636	0.635	0.634	0.634	0.635	0.635	0.636	0.639	0.647
74	0.699	0.706	0.708	0.709	0.709	0.708	0.707	0.706	0.704	0.701	74	0.624	0.623	0.622	0.621	0.621	0.622	0.622	0.623	0.626	0.634
75	0.689	0.695	0.697	0.698	0.698	0.697	0.697	0.696	0.694	0.691	75	0.611	0.610	0.609	0.608	0.608	0.609	0.609	0.610	0.613	0.620
76	0.678	0.685	0.687	0.687	0.687	0.686	0.686	0.685	0.683	0.680	76	0.598	0.597	0.596	0.595	0.595	0.595	0.596	0.597	0.599	0.607
77	0.668	0.674	0.676	0.677	0.676	0.676	0.675	0.674	0.672	0.669	77	0.584	0.583	0.582	0.581	0.582	0.582	0.582	0.584	0.586	0.594
78	0.657	0.663	0.665	0.665	0.665	0.664	0.664	0.663	0.661	0.659	78	0.571	0.570	0.569	0.568	0.568	0.569	0.569	0.570	0.573	0.580
79	0.646	0.652	0.653	0.654	0.654	0.653	0.653	0.652	0.650	0.647	79	0.557	0.556	0.555	0.555	0.555	0.555	0.556	0.557	0.559	0.566
80	0.635	0.640	0.642	0.642	0.642	0.642	0.641	0.640	0.639	0.636	80	0.543	0.542	0.541	0.541	0.541	0.542	0.542	0.543	0.545	0.552
81	0.624	0.629	0.630	0.631	0.631	0.630	0.629	0.628	0.627	0.624	81	0.529	0.528	0.528	0.527	0.527	0.528	0.528	0.530	0.532	0.538
82	0.612	0.617	0.618	0.619	0.618	0.618	0.617	0.616	0.615	0.613	82	0.515	0.514	0.514	0.513	0.513	0.514	0.514	0.516	0.518	0.524
83	0.600	0.604	0.606	0.606	0.606	0.605	0.605	0.604	0.603	0.600	83	0.501	0.500	0.500	0.499	0.499	0.500	0.500	0.502	0.504	0.510
84	0.588	0.592	0.593	0.593	0.593	0.592	0.592	0.591	0.590	0.588	84	0.487	0.486	0.485	0.485	0.485	0.486	0.486	0.488	0.490	0.496
85	0.575	0.579	0.580	0.580	0.580	0.579	0.579	0.578	0.577	0.575	85	0.472	0.471	0.471	0.471	0.471	0.472	0.472	0.473	0.475	0.481
86	0.562	0.566	0.566	0.567	0.567	0.566	0.566	0.565	0.564	0.562	86	0.457	0.457	0.456	0.456	0.457	0.457	0.458	0.459	0.461	0.467
87	0.548	0.552	0.553	0.553	0.553	0.552	0.552	0.551	0.550	0.548	87	0.442	0.442	0.442	0.442	0.442	0.443	0.443	0.444	0.446	0.452
88	0.534	0.537	0.538	0.538	0.538	0.537	0.537	0.536	0.535	0.534	88	0.427	0.427	0.426	0.427	0.427	0.428	0.428	0.429	0.431	0.436
89	0.520	0.522	0.523	0.523	0.523	0.522	0.522	0.521	0.521	0.519	89	0.412	0.411	0.411	0.412	0.412	0.413	0.413	0.414	0.416	0.421
90	0.505	0.507	0.507	0.507	0.507	0.507	0.506	0.506	0.505	0.504	90	0.396	0.396	0.395	0.396	0.396	0.397	0.397	0.399	0.400	0.405
91	0.489	0.490	0.491	0.491	0.491	0.490	0.490	0.489	0.489	0.488	91	0.380	0.380	0.379	0.380	0.380	0.381	0.382	0.383	0.384	0.389
92	0.472	0.473	0.474	0.473	0.473	0.473	0.472	0.472	0.471	0.470	92	0.363	0.363	0.363	0.364	0.364	0.365	0.365	0.366	0.368	0.372
93	0.453	0.455	0.455	0.455	0.455	0.454	0.454	0.453	0.453	0.452	93	0.346	0.346	0.346	0.347	0.347	0.348	0.348	0.349	0.351	0.355
94	0.434	0.435	0.435	0.435	0.435	0.434	0.434	0.434	0.433	0.433	94	0.328	0.328	0.329	0.329	0.330	0.331	0.331	0.332	0.333	0.337
95	0.413	0.414	0.414	0.414	0.413	0.413	0.413	0.412	0.412	0.412	95	0.310	0.310	0.310	0.311	0.311	0.312	0.313	0.314	0.315	0.319
96	0.390	0.390	0.390	0.390	0.390	0.389	0.389	0.389	0.389	0.388	96	0.291	0.291	0.291	0.292	0.292	0.293	0.293	0.294	0.296	0.299
97	0.364	0.364	0.364	0.364	0.364	0.363	0.363	0.363	0.363	0.362	97	0.270	0.270	0.270	0.271	0.272	0.273	0.273	0.274	0.275	0.278
98	0.335	0.335	0.335	0.334	0.334	0.333	0.333	0.333	0.333	0.333	98	0.248	0.248	0.248	0.249	0.250	0.250	0.251	0.252	0.253	0.255
99	0.300	0.299	0.299	0.299	0.299	0.298	0.298	0.298	0.298	0.298	99	0.223	0.224	0.224	0.225	0.225	0.226	0.226	0.227	0.228	0.231
100	0.255	0.255	0.255	0.254	0.254	0.254	0.254	0.254	0.253	0.254	100	0.196	0.196	0.196	0.197	0.197	0.198	0.198	0.199	0.200	0.202

AGE	100	200	400	800	1500	MILE	3K	5K	10K	42195
5	88	75	85	93		91				85
6	93	92	95	100		100	91			93
7	94	100	97	96	96	96	96		65	88
8	100	100	100	98	96	95	91	65		98
9	99	96	98	97	92	92		94	93	94
10	96	100	99	96	91	93	88		78	91
11	100	96	95	96	93	94	89	89	89	89
12	97	100	96	96	93	93	88	92	84	89
13	96	97	95	96	90	90	89	81	80	89
14	97	96	95	99	91	93	90	83	80	88
15	97	95	97	97	91	89	89	87	75	89
16	96	97	95	95	91	91	89	86	88	90
17	97	96	96	95	90	91	88	85		87
18	96	96	95	95	90	90	95	89	91	89
19	97	97	97	97	94	96	91	96	92	95
30	89		83	91	91	91	91	90	87	87
31				94					88	89
32	88		86	96					86	87
33	90		91	96						91
34	89	85		88	78					100
35	97	89	96	99	97	97	96	93	94	92
36	91	97	94	98	95	95	95	92	90	86
37	91	90	88	98	97	89	95	90	90	87
38	90	88	88	98	96	94	90	87	96	90
39	91	89	90	92	95	80	88	88	90	87
40	92	90	90	91	97	86	91	86	90	86
41	94	90	91	94	90	86	83	90	87	99
42	92	92	91	93	89	85	87	91	89	89
43	91	90	88	88	86	88	86	92	94	98
44	96	90	89	90	87	81	83	92	95	95
45	93	90	91	90	88	87	91	92	85	90
46	93	91	88	89	86	83	91	84	97	83
47	92	93	90	92	87	85	90	86	86	
48	92	89	86	90	87	81	88	86	87	83
49	94	90	89	92	88	82	86	86	82	86
50	93	90	88	91	87	84	85	90	92	91
51	96	92	90	90	87	85	86	88	90	79
52	91	91	91	89	86	81	89	88	82	82
53	94	92	89	86	85	80	85	86	92	
54	94	94	93	87	88	81	86	89	89	81
55	94	92	91	88	90	84	89	89	90	
56	95	93	91	88	88	82	82	88	87	88
57	94	91	88	86	86	79	83	86	85	81
58	94	90	89	88	89	76	84	88	90	73
59	94	93	88	89	88	81	89	89	90	80
60	97	93	93	87	87	78	82	92	88	89
61	96	94	94	87	86	75	83	89	88	66
62	95	95	97	86	86	79	85	87	87	
63	96	95	93	89	87	85	79	88	87	
64	95	94	92	84	85	72	84	84	84	
65	98	93	91	88	87	85	87	87	91	83
66	97	98	96	89	87	83	87	87	86	
67	97	98	95	90	89	70	97	87	94	
68	92	94	94	92	89	83	84	84	85	
69	98	98	100	85	90	76	78	90	88	
70	94	94	96	85	87	83	87	90	91	82
71	100	99	96	91	88	77	85	87	88	75
72	92	97	93	88	85	77	85	86	69	
73	98	97	96	86	90	88	83	87	87	
74	97	97	93	89	91	64	82	88	86	
75	97	99	94	91	100	52	84	85	91	
76	96	97	95	85	91	78	81	93	77	80
77	98	97	92	92	93		85	93	96	
78	97	97	93	86	75		55	71		
79	91	94	94	83	85	58		84	80	
80	96	87	94	92	95	78	82	91	93	82
81	88	72	74	78	85			86	86	
82	95	100	48	65	83			69		
83	72	73	72	64	69			72		
84	74	67	67	69	69		67	73	72	
85	74	76	64	66	70		68	81		71
86	63		63	81	60					
87	42									
88	56	52	51	60	54					
89										
90					56					
91										
92										
93										
94										
95										
96										
97										
98										
99										
100										

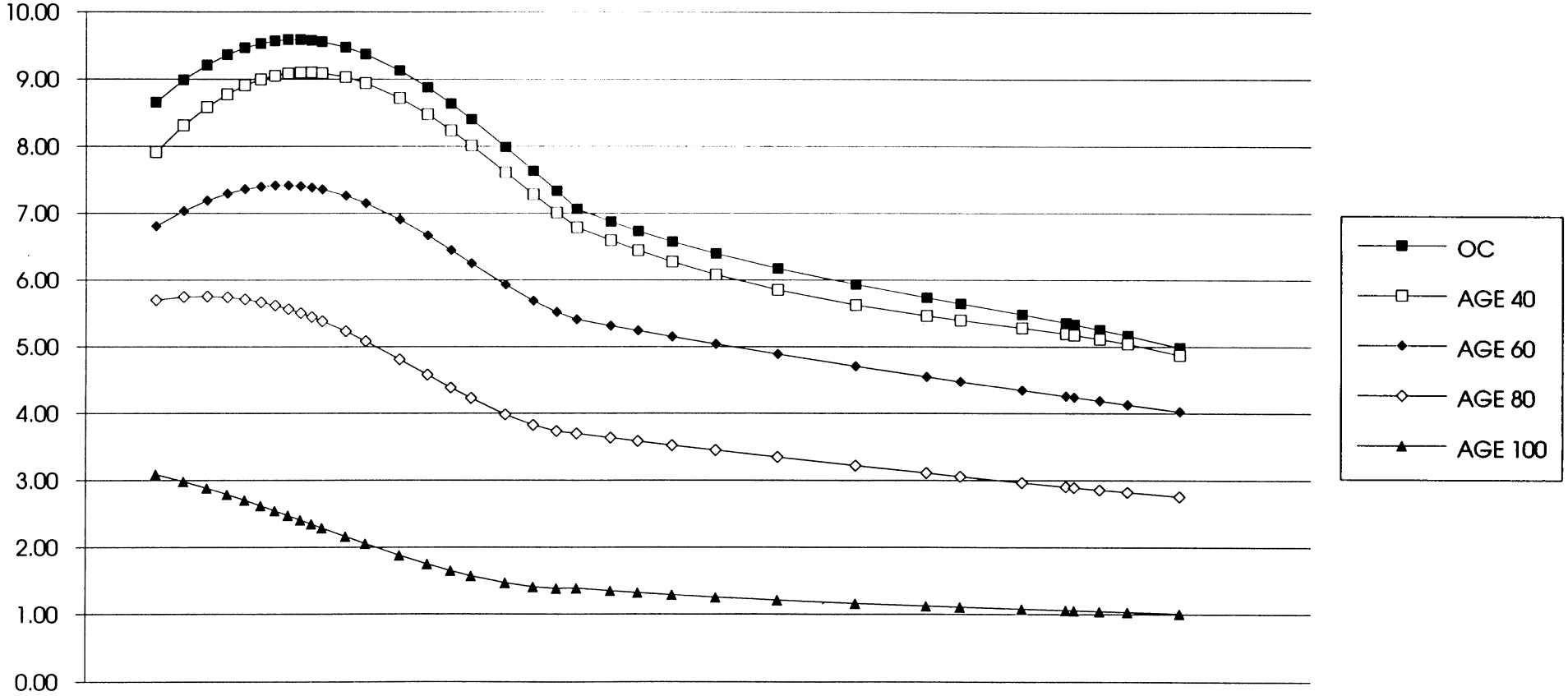
WOMENS AND GIRLS RUNNING RATE IN METERS/SECOND



WOMENS AND GIRLS RUNNING RATE IN METERS/SECOND

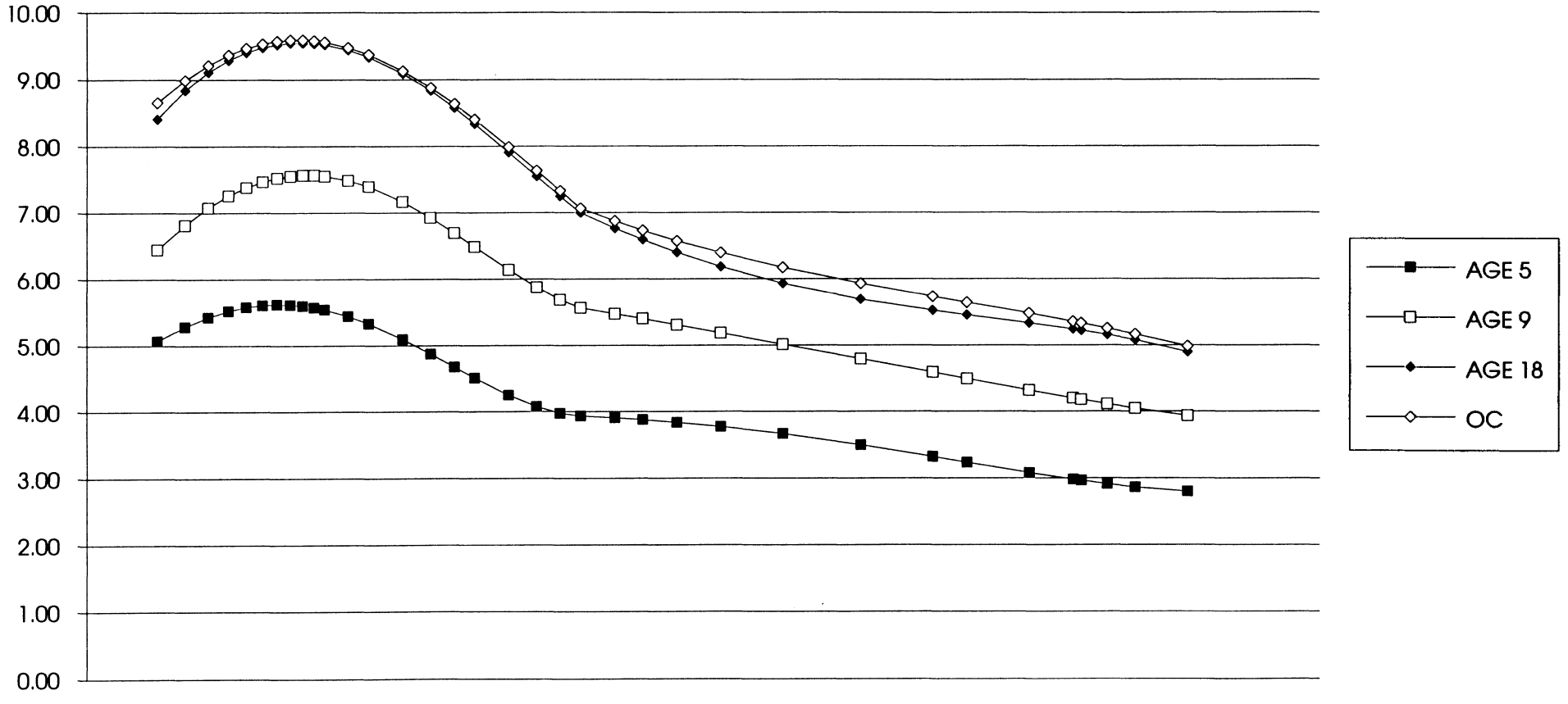


WOMENS RUNNING RATE IN METERS/SECOND



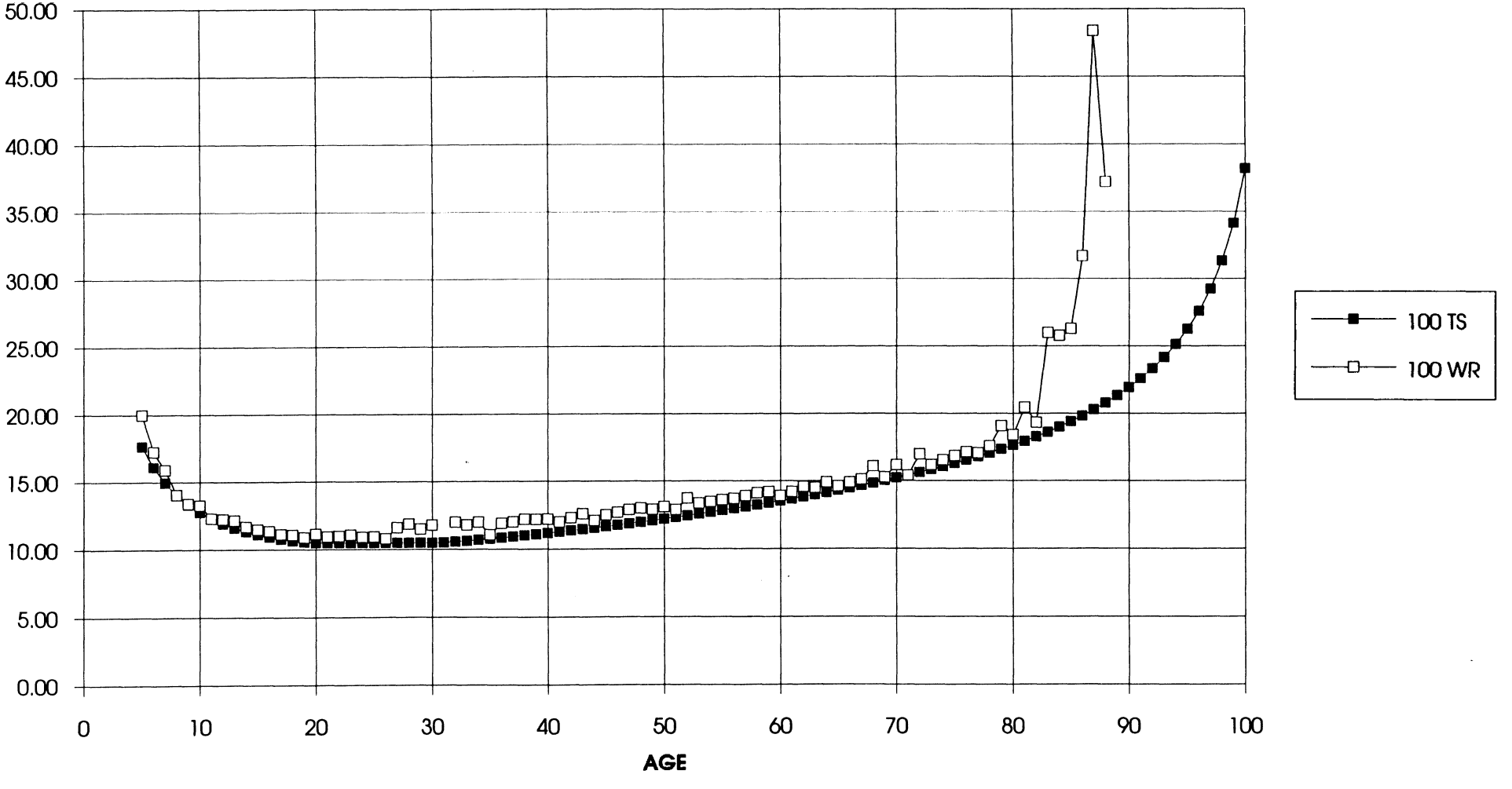
EVENT DISTANCES PLOTTED LOGARITHMICALLY IN METERS ARE:
50,60,70,80,90,100,110,120,130,140,150,175,200,250,300,350,400,500,600,700,800,1000,1200,
1500,2K,3K,5K,8K,10K,15K,20K,21097,25K,30K,42195

GIRLS RUNNING RATE IN METERS/SECOND

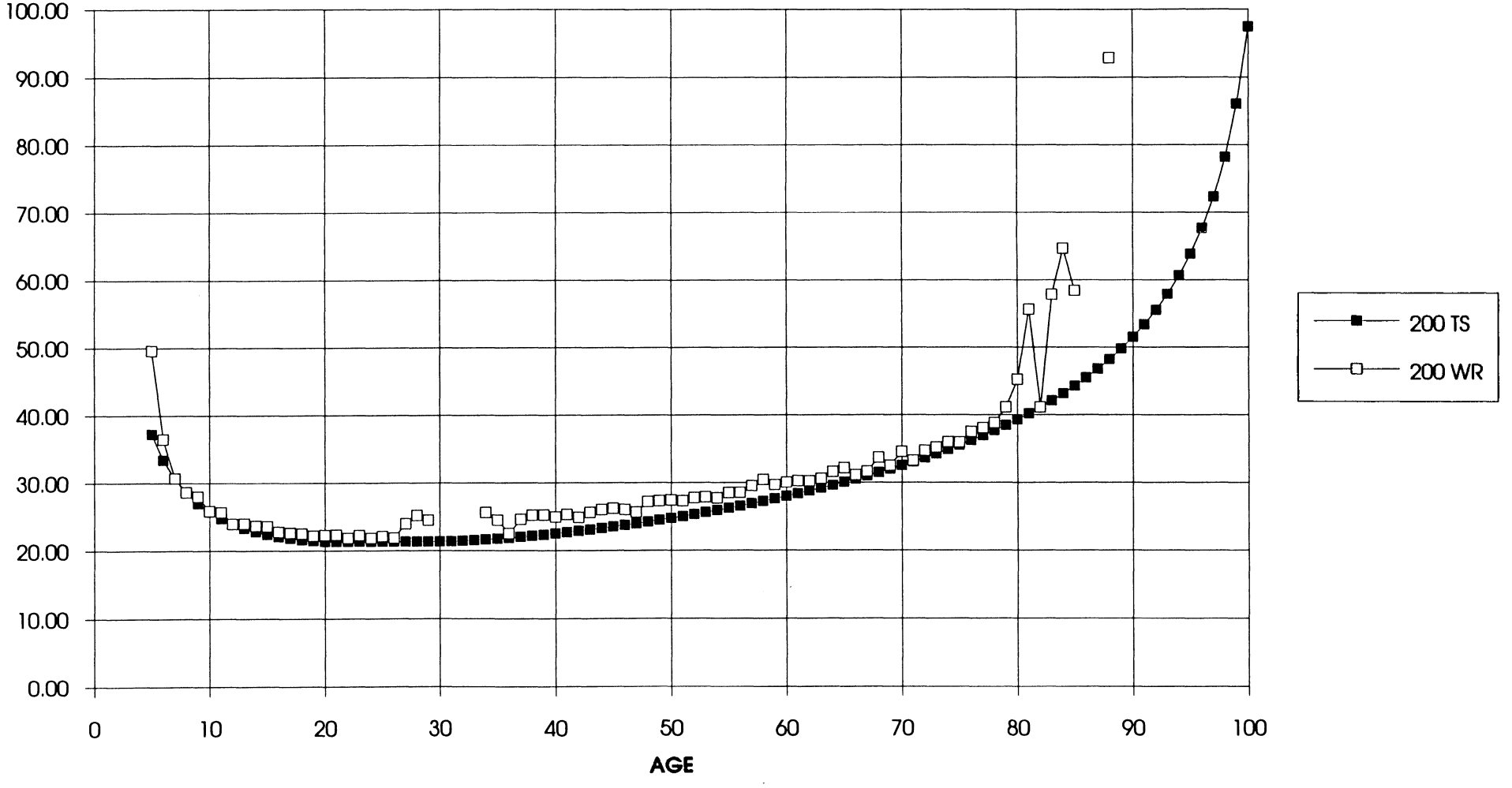


EVENT DISTANCES PLOTTED LOGARITHMICALLY IN METERS ARE:
50,60,70,80,90,100,110,120,130,140,150,175,200,250,300,350,400,500,600,700,800,1000,1200,1500,2K,3K,5K,8K,10K,15K,20K,21097,25K,30K,42195

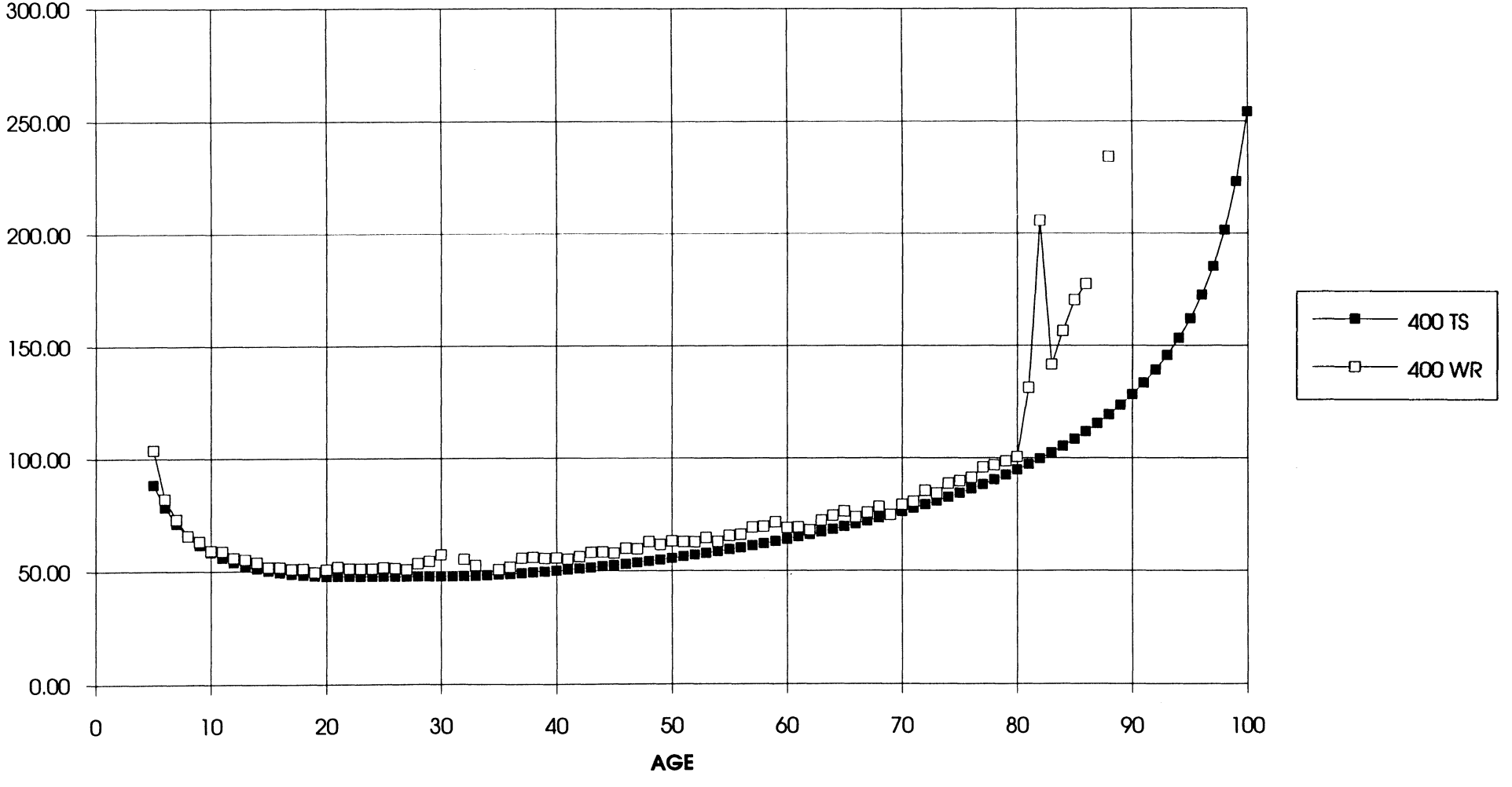
WOMENS AND GIRLS TIME STANDARDS AND RECORDS IN SECONDS



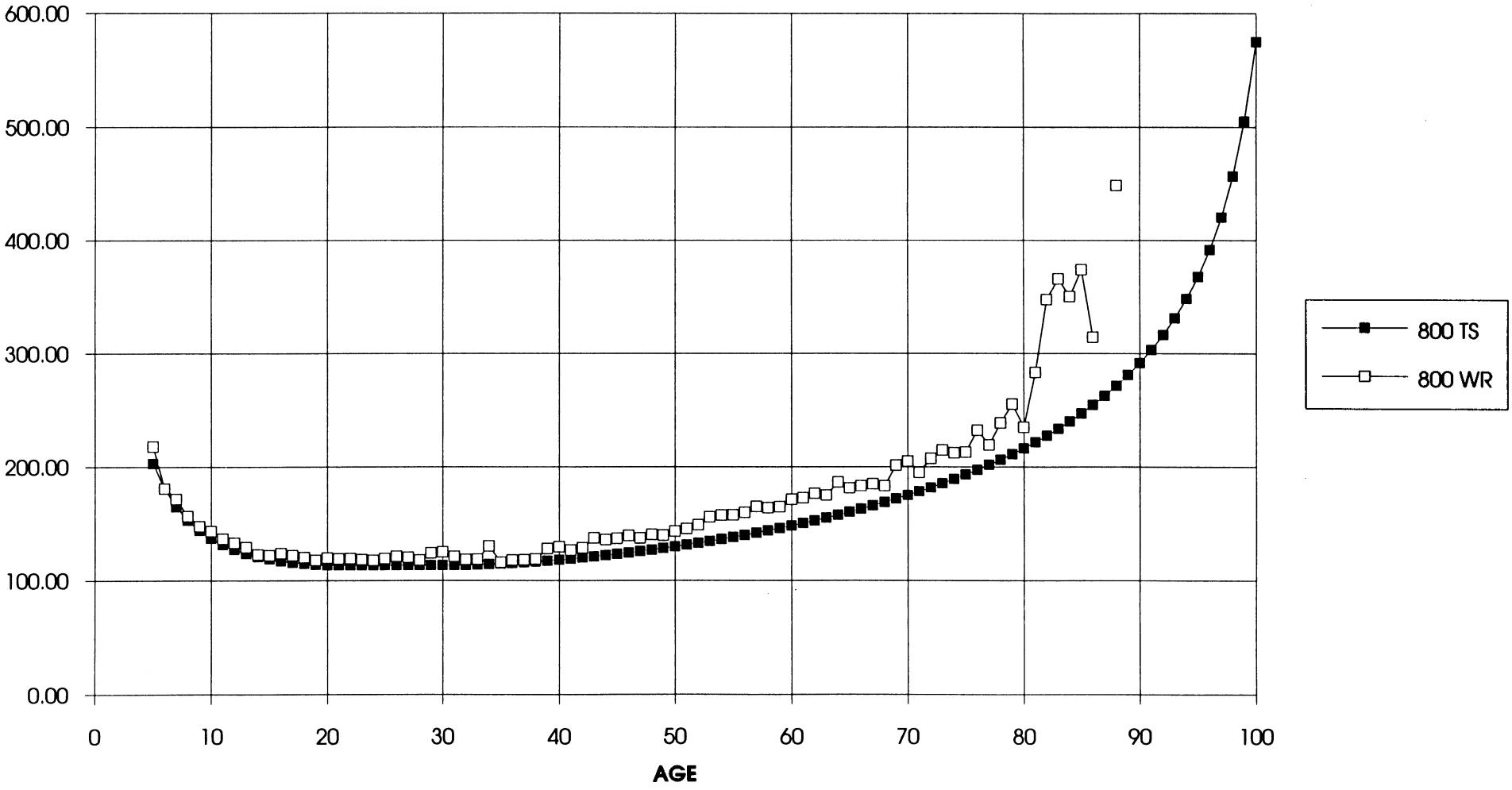
WOMENS AND GIRLS TIME STANDARDS AND RECORDS IN SECONDS



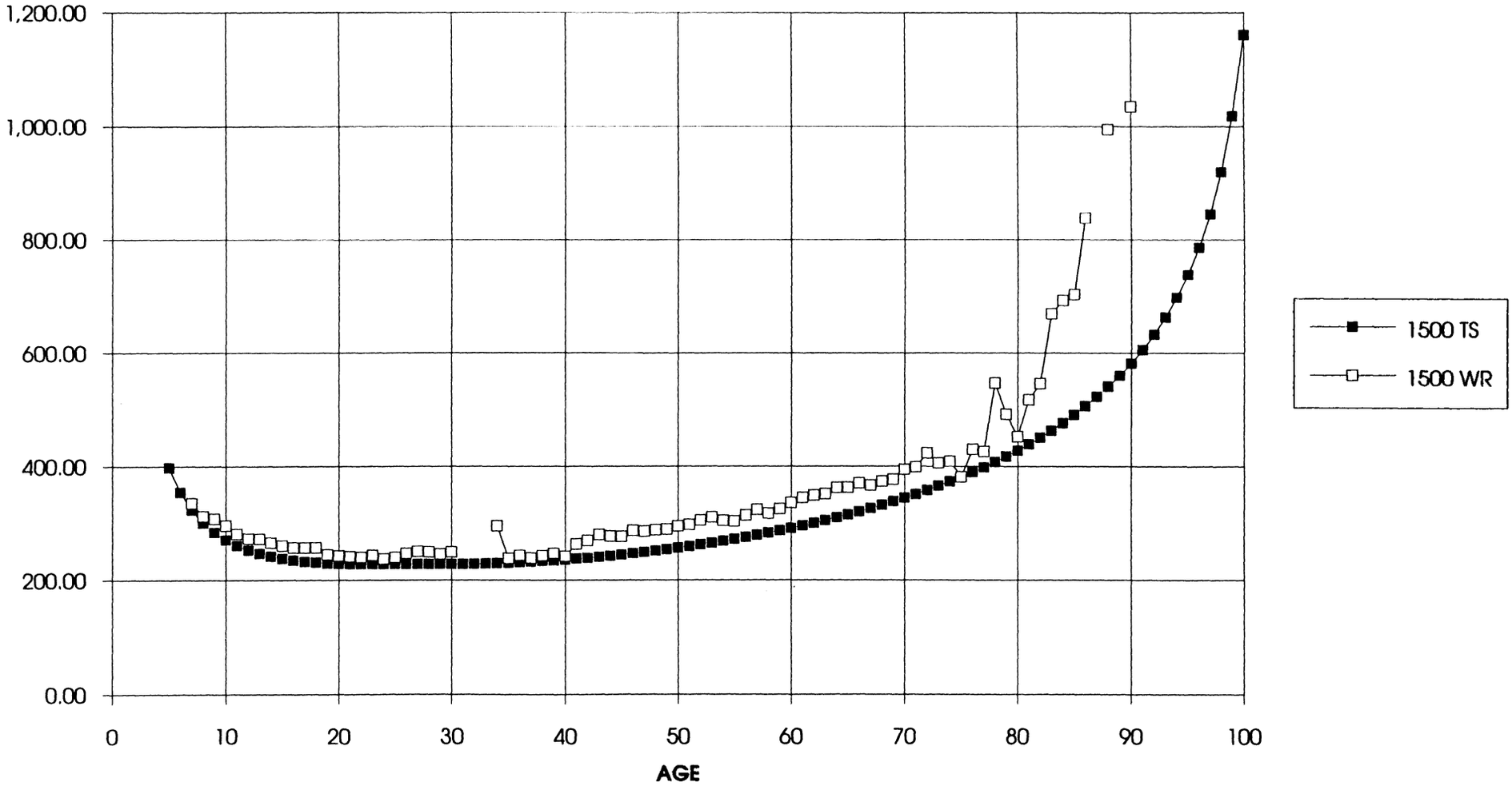
WOMENS AND GIRLS TIME STANDARDS AND RECORDS IN SECONDS



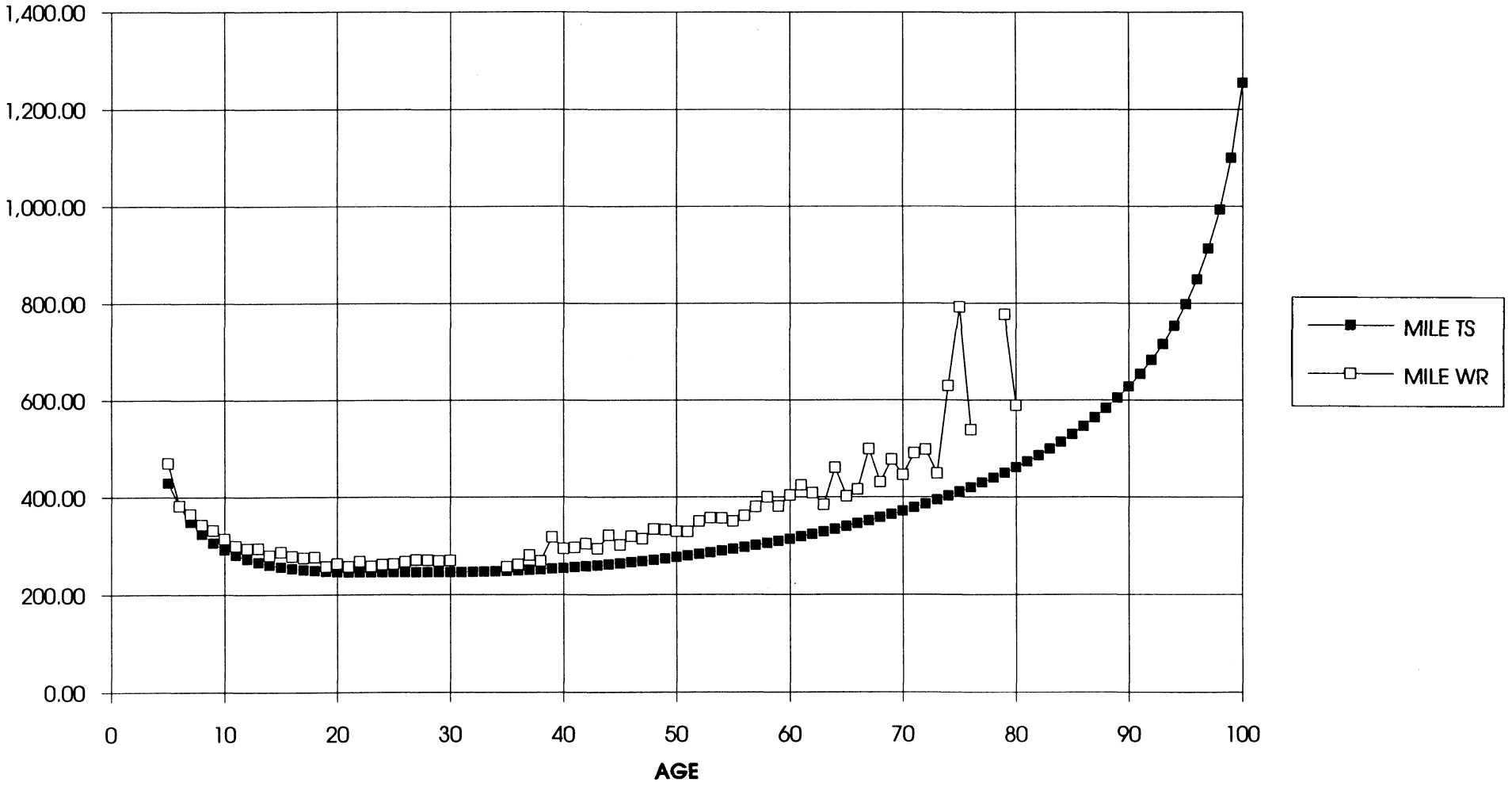
WOMENS AND GIRLS TIME STANDARDS AND RECORDS IN SECONDS



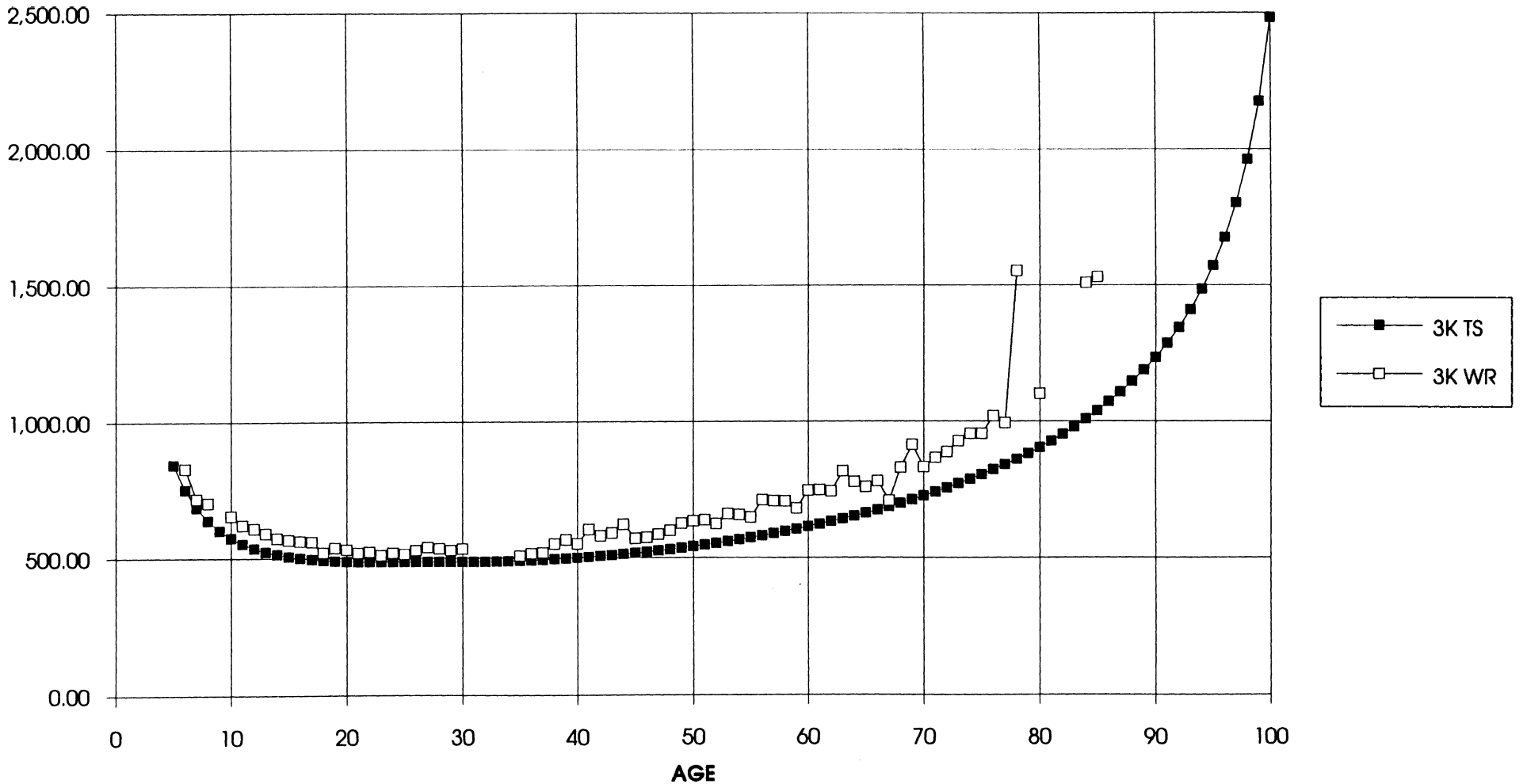
WOMENS AND GIRLS TIME STANDARDS AND RECORDS IN SECONDS



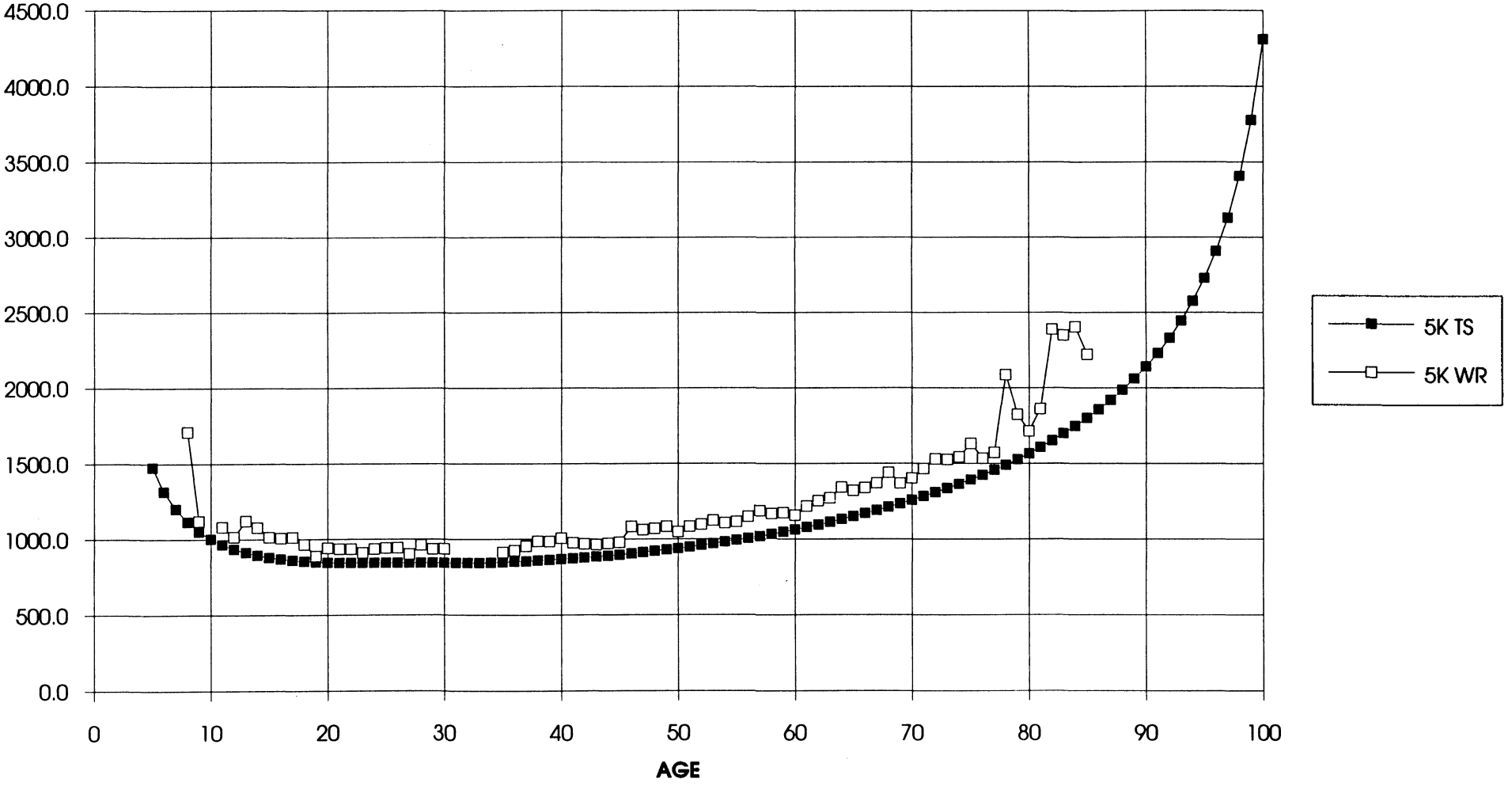
WOMENS AND GIRLS TIME STANDARDS AND RECORDS IN SECONDS



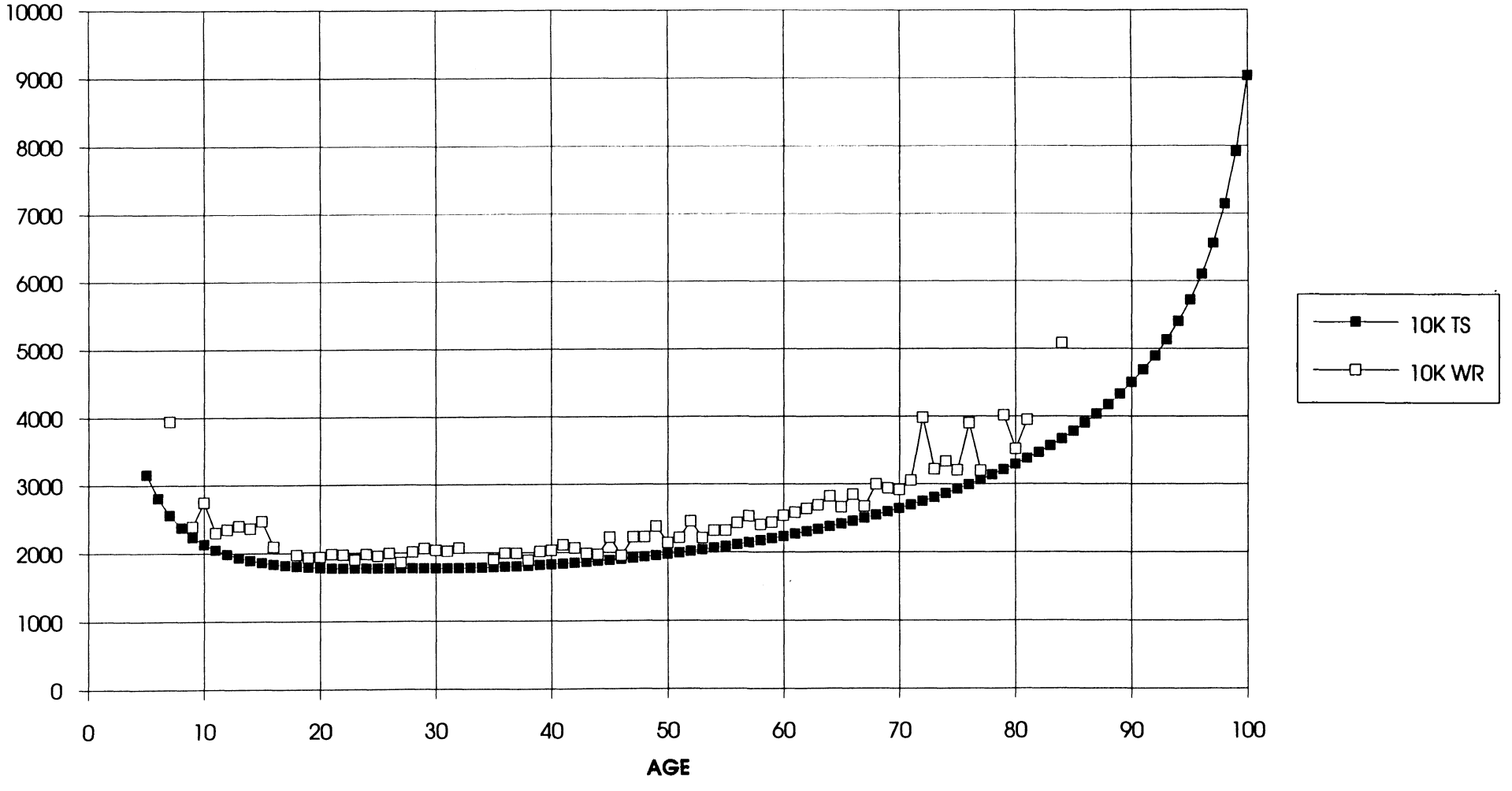
WOMENS AND GIRLS TIME STANDARDS AND RECORDS IN SECONDS



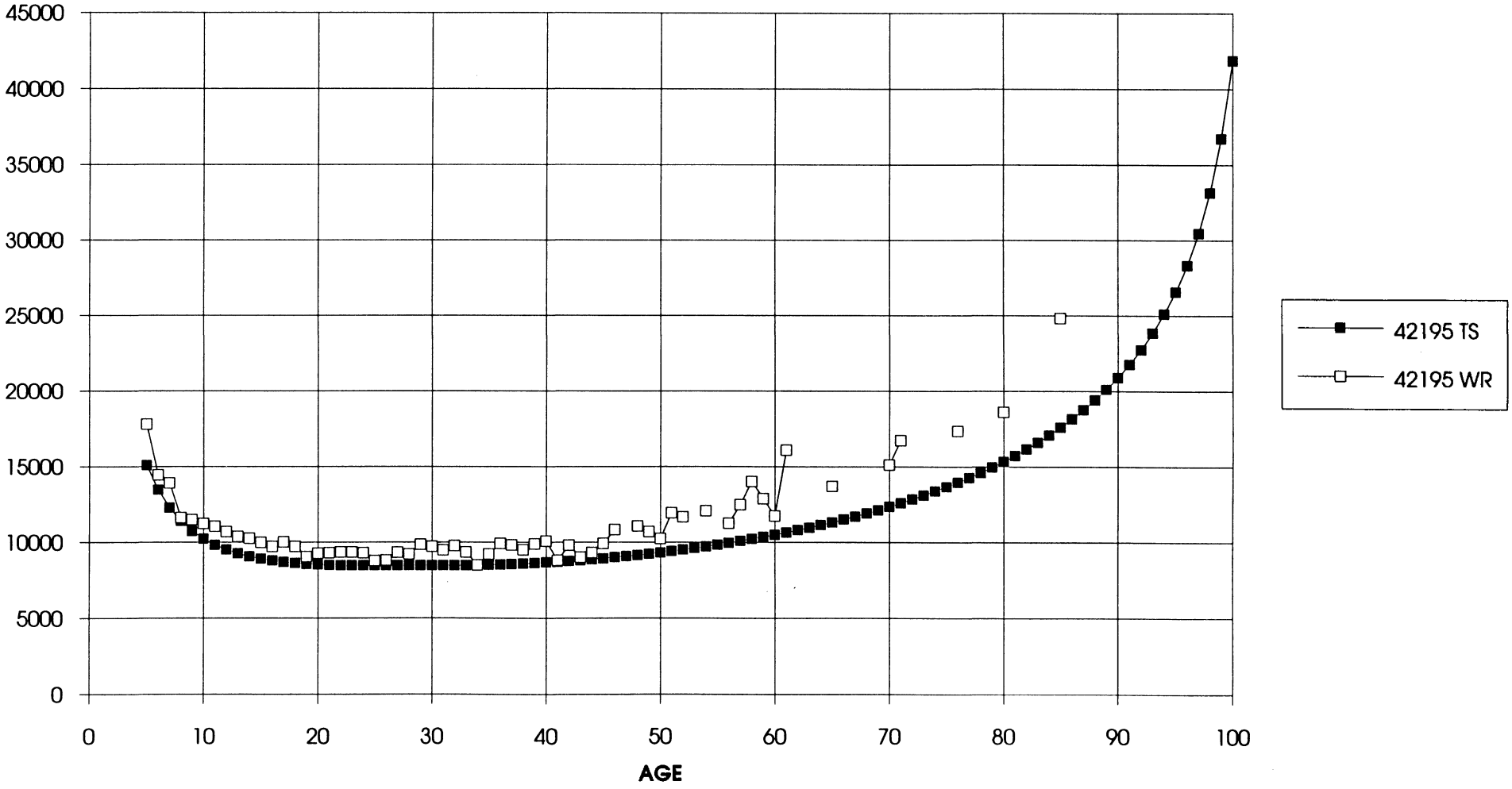
WOMENS AND GIRLS TIME STANDARDS AND RECORDS IN SECONDS



WOMENS AND GIRLS TIME STANDARDS AND RECORDS IN SECONDS



WOMENS AND GIRLS TIME STANDARDS AND RECORDS IN SECONDS



Chapter Two

Hurdle Events

Standards are provided for selected hurdle events most frequently included in sanctioned meets. See pages 52 and 53. The standards reflect times run by world record level hurdlers. The standards apply to hurdlers of all ability levels however through application of the performance level percentage concept.

The performance level percentage concept is that a hurdler's performance level is expressed as a percentage of the world record standard which is found by dividing the event standard by the hurdler's time for the event. To divide, the standard and the hurdler's time should both be expressed in seconds. A fifty-seven year old hurdler uses the standard listed for age 57. Hurdlers twenty to twenty-nine years old use the standard listed for OC which is the open class hurdler standard. An example is given at the end of page 51.

In this chapter the men's events will be presented first being covered in their entirety as a complete package, followed by a similar package of coverage for the women's events. In general, comments will apply to both the men's package and the women's package. Age-factor charts will contain results for both men and women for comparison purposes. The combined chart will be included in the packages for both men and women.

The primary purpose of performance level percentages is to facilitate comparison of performances. An individual hurdler's performances can be compared against themselves, or performances of many hurdlers can be compared. Since the standards for all events are adjusted to a world record level, comparison of performances for different events is valid. While this effort does not set standards as such for average hurdlers, whether competitive or noncompetitive, that doesn't mean the standards aren't applicable to average hurdlers regardless of what the term average hurdler may mean. Refer to categories listed on page 1.

The standards are listed in hours, minutes and seconds format (h:m:s), and are also listed in seconds. The listing in seconds is to facilitate calculating performance level percentage.

The hurdle time standards at page 52 are those of the WAVA/TAC specified events by distance, hurdle height and age. At page 53, the same standards are given, including some for non-WAVA/TAC events, with standards included for ages 30 through 100. The reason for the standards of page 53 will be explained later.

Following the tables of time standards for hurdle events, age-factor tables are provided for the same events. See page 54. Age-factors are used to convert the performances of non-open class hurdlers to their equivalent performance as an open class effort. Specifically, age-factors for hurdle events are factors which convert records for non-open class hurdlers to the value of the open class record. This is to say the age-factor is obtained by dividing the open class world record time by the time of the records for the other ages. The author, for this book, has defined age-factor to be division of the open class time standard by the time standard for the other ages.

The hurdle time standards use the results of the running event time standards in their derivation. In generating hurdle standards, the hurdles are treated as barriers which impede the hurdler's ability to run. In this approach, factors are derived which represent the difference in time between running the flat distance and running the distance with hurdles. The factors vary depending on the hurdle heights involved and how many hurdles comprise the

event. These various hurdle factors are then applied to corresponding running event time standards to produce the resulting time standards for hurdles. For events of the same distance having two or more hurdle heights (e.g., 400/36, 400/33 and 400/30), a convention is employed whereby the resulting hurdle factors generated for any given age (and thus for every age) must be of larger value for the higher hurdle than for lower hurdles.

Just as the running event time standards are generated in the rate domain as well as in the time domain, so are the hurdle event standards. The guiding rule for hurdle rates is that for hurdle events of the same distance but of different hurdle heights, the lower hurdle event is run at a faster rate than is the higher hurdle event. And it goes without saying that the hurdle factors always increase in severity with age for masters age hurdlers. Thus for standards purposes, there is no way the standard for older ages for a higher hurdle height can be faster than the standard for younger ages for a lower hurdle height when the event distance is the same. This condition is a requirement of the time standards generated for hurdle events, and is the reason that standards are calculated over the entire age range of 30 to 100 years even though no one has, or is expected to, run events of such hurdle heights at all such ages. In fact, a fairly good rule of thumb is that when hurdle time standards exceed the age 30 time standard for that event by a factor of about 8, the event has become too physically demanding to be run by hurdlers of those ages and while the constructed times have mathematical meaning for curve crossover purposes, they have no meaning in the physical sense.

The hurdle time standards are computer generated as follows. Hurdle factor equations are pre-loaded into the hurdle event portion of the computer program. Time standards from the running event portion of the program are also copied into the hurdle event program for the distances of 80, 100, 110, 300, 400, 2000 and 3000 meters. New youth and master's age records are manually entered into the records data base and the program then identifies all data base records which are better (faster) than the existing time standards. Selected records are manually entered into the program (two for each event), which then calculates new hurdle factors for each event, from which new time-age curves are calculated for every hurdle event, from which the program then produces a new set of time standards for all events, and in addition the program then identifies (if there are any) all data base records which are better than the newly generated time standards. By manual operation, the hurdle rate curves are then evaluated to determine if the rate requirements discussed above have been met, and if required, adjustments are made. This is the completion of the first step. Selected records are again manually entered into the program (two for each event), which then calculates new hurdle factors for each event, from which new time-age curves are calculated for every hurdle event, from which the program then produces a new set of time standards for all events, and in addition the program then identifies (if there are any) all data base records which are better than the newly generated time standards. By manual operation, the hurdle rate curves are then evaluated to determine if the rate requirements have been met, and if required, adjustments are made. This is the completion of the second step. This iteration process is continued until no records in the data base are identified as being better than the standards generated, and at the same time there are a maximum number of actual records included as standards and those records are suitably distributed across all of the events of that distance.

The process described above is separately carried out for each hurdle event having more than one hurdle height. In this manner, a separate time surface is generated for each multiple hurdle height event. Such events are dependently related and none are curve fitted on a stand alone basis.

Refer to the table of page 55 which shows performance level of actual records for a quick view of how many data base records were included in defining the hurdle event standards. Those listed as 100% made it. Those listed as 99% almost made it, the 98% records were

close, and so on. The chart also illustrates the distribution of those records across all ages and events.

The resulting table of standards will usually "look" good just on the basis of their numerical progression in both the up-down and right-left directions. To get a better feel for how good the standards really are, refer to the hurdle rate graphs provided at pages 56 and 57 for the sprint hurdles, at pages 66 and 67 for intermediate distance hurdles, and at page 75 for steeplechase. The graphs must have a smooth continuity for each rate line, and the rate lines must be proportionally spaced among themselves in a reasonable way for the standards to be realistic and hence considered good.

The age-factors are then computer generated by dividing the open class standard by the standard for each age, doing this for every event. Since there is no open class event for the 110/39", 100/36", 100/33" and 80/30" events, time for the open class 110/42" event is used in determining the age-factor for all of those events. Because of this, age-factors result which are greater than 1.000. The same convention holds for the intermediate distance hurdle and steeplechase events. Since the derived time standards for hurdle events of the same group form a time surface over the axes of age and hurdle event, so do the resulting age-factor standards form a surface of age-factor values over the axes of age and hurdle event for events of the same group.

While conditions similar to those discussed for running events also take place and impact age-factor results for hurdle events, the effects of the non-linearities are essentially obscured by even larger effects introduced by mixing in events of different distances which produces age-factors that range from less than 1.0 to more than 1.0 for every non-open class event.

In the same way as for the running events, there are certain conditions existing which prevent the resulting age-factor values for hurdlers from having a well behaved continuity in the arithmetic or geometric progression sense as one reads age-factors across the table for a specific age. The effects of the various phenomena combine in non-linear fashions. This doesn't mean that the age-factors can not be analyzed and challenged as reflecting poor curve fitting, it simply means that some amount of warpage and undulation discontinuity is inherent to age-factors for hurdlers, and this should be taken into consideration when looking at, or analyzing, tables of age-factors for hurdlers.

The rule of precedence for creating or developing time standards and age-factor standards is that time standards are first developed which then determine age-factors, but age-factors are not first developed to then determine time standards.

The next table at page 55 is the listing of performance level in percent for actual records. The percentages listed in the table are determined by dividing the time standard by the actual record for every age of every event having a listed record. The percentage values have been rounded off to the nearest whole integer. A percentage of 100 indicates that that record was used in determining the standards that resulted. Records having a percentage of 99 or 98 are also efforts of the very highest calibre. As discussed earlier, the time standard curve fitting process for hurdles attempts to include as many actual records as possible with their occurrence evenly distributed as much as possible over all of the ages and all of the events in the group.

The rest of this chapter is separated into three parts, one for sprint hurdles, one for intermediate distance hurdles, and one for the steeplechase. The same arrangement of graphs is presented for all three parts, but the discussion here will explain only the graphs of the

sprint hurdle part. In general, the explanation also will apply to the graphs of the intermediate distance hurdles and steeplechase.

Following the performance level table for existing records are graphs displaying the rates in meters per second for the hurdle event standards generated. It was mentioned earlier that these rate graphs must show a smooth continuity for each rate line, and the rate lines must be proportionally spaced among themselves in a reasonable way for the standards to be realistic and hence considered suitable or good. As a general rule, hurdle rate curves should not cross each other. However, in the special case of the 80 and 100 meter hurdles, rate curve crossover does occur for both men and women at about age 40 which is attributable to the zero velocity standing start phenomenon for sprint distances discussed in chapter one.

The first two rate graphs at pages 56 and 57 plot rate versus age for individual events. The reader can easily test the validity of not including records of their choice by calculating the rate in meters per second for that record and plotting it on the applicable rate graph.

The next graph, at page 58, is a composite graph of standards versus actual records for events and their ages of applicability per the existing WAVA/TAC hurdles specifications. The specified event distances, hurdle heights and ages of applicability are listed underneath the graph. For all graphs of standards versus actual records, the time standards are plotted as the solid black square symbols and their corresponding actual records are plotted as the open white square symbols.

The second graph of the package at page 59 is a combination graph of curves plotting the standards (less the records) of the events in the previous composite graph for ages 30 to 100 in order to show that the extended curves are properly behaved and do not cross each other. Note that at ages 30 to 40 there is very little difference in time for the 3 inch difference in hurdle height for the 100 meter hurdles, while at older ages the 3 inch difference in hurdle height becomes quite significant.

The last graph set, at pages 60 through 65, for the sprint hurdle package provides individual event graphs plotting time standards versus actual records for all sprint hurdle events run by masters age competitors. In all of these graphs, the actual existing record is plotted as the open white square symbol, while the time standard is plotted as the solid black square symbol. These graphs are one of the sets of cross sections that are produced by the time standards for hurdle events of the same group. They do not reflect attempts to curve fit the events on a stand alone basis. For example, the men's 80/30" and 100/36" hurdles could have better curve fits if treated as stand alone events, but they are not stand alone events under the concept applied, and doing the exercise suggested above in the paragraph on rate graphs will demonstrate more clearly why they have the curve fits that did result.

While the remaining men's hurdle events and the women's hurdle events will not be given the same graph by graph review as done above for the men's sprint hurdle events, one item of significant note concerns the women's 400/30" hurdles. The record for the 36 year old is considered to be "too good" and was not used in calculating the standards. Note that her records set at ages 35 and 37 are good and both are 100 percent performance level efforts. Refer to page 202 for a discussion of "too good" records.

Calculating a hurdler's performance level percentage. Find the PL% for a 53 year old woman who runs the 300/30" in 54.5 seconds. Refer to the second paragraph on page 48. Find the standard on page 82 for the age 53 women's 300/30" hurdles which is listed as 49.04 seconds. Divide 49.04 by 54.5 obtaining a value of 0.8998 which is a percentage of 89.98%.

MEN'S HURDLE TIME STANDARDS

AGE	SPRINT		AGE	INTER		AGE	STEEPLE
	100/42			400/36			3000/SC
14	15.53		14	53.77		14	9:16.4
15	14.60		15	51.32		15	8:57.9
16	13.97		16	49.62		16	8:41.9
17	13.52		17	48.42		17	8:27.7
18	13.20		18	47.56		18	8:15.3
19	12.97		19	46.92		19	8:04.2
OC	12.91			46.78			8:02.1
30	12.91		30	46.78		30	8:02.1
31	12.91		31	46.78		31	8:02.1
32	12.91		32	46.78		32	8:02.1
33	12.99		33	46.79		33	8:02.1
34	13.09		34	47.08		34	8:02.1
	110/39		35	47.39		35	8:02.1
35	12.75		36	47.73		36	8:07.7
36	12.85		37	48.10		37	8:13.8
37	12.96		38	48.50		38	8:20.0
38	13.08		39	48.93		39	8:26.3
39	13.21		40	49.40		40	8:32.7
40	13.34		41	49.91		41	8:39.2
41	13.49		42	50.46		42	8:45.8
42	13.64		43	51.05		43	8:52.5
43	13.81		44	51.68		44	8:59.3
44	14.00		45	52.37		45	9:06.2
45	14.19		46	53.11		46	9:13.3
46	14.40		47	53.91		47	9:20.4
47	14.63		48	54.77		48	9:27.7
48	14.87		49	55.69		49	9:35.1
49	15.13			400/33		50	9:42.6
	100/36		50	52.87		51	9:50.2
50	13.50		51	53.57		52	9:58.0
51	13.73		52	54.30		53	10:05.9
52	13.97		53	55.06		54	10:14.0
53	14.22		54	55.87		55	10:22.2
54	14.48		55	56.71		56	10:30.6
55	14.76		56	57.60		57	10:39.2
56	15.05		57	58.53		58	10:47.9
57	15.36		58	59.51		59	10:56.9
58	15.68		59	1:00.53			2000/SC
59	16.02			300/30		60	7:08.1
	100/33		60	41.47		61	7:13.9
60	14.38		61	42.11		62	7:20.0
61	14.59		62	42.79		63	7:26.1
62	14.81		63	43.49		64	7:32.5
63	15.03		64	44.23		65	7:39.0
64	15.26		65	44.99		66	7:45.7
65	15.50		66	45.80		67	7:52.6
66	15.74		67	46.64		68	7:59.7
67	15.99		68	47.52		69	8:07.0
68	16.25		69	48.44		70	8:14.6
69	16.52		70	49.41		71	8:22.4
	80/30		71	50.42		72	8:30.5
70	12.49		72	51.48		73	8:38.9
71	12.66		73	52.59		74	8:47.6
72	12.84		74	53.76		75	8:56.6
73	13.02		75	54.98		76	9:06.0
74	13.21		76	56.27		77	9:15.8
75	13.40		77	57.63		78	9:26.1
76	13.61		78	59.06		79	9:36.8
77	13.81		79	1:00.57		80	9:48.1
78	14.03		80	1:02.16		81	10:00.1
79	14.26		81	1:03.85		82	10:12.6
80	14.49		82	1:05.64		83	10:26.0
81	14.74		83	1:07.55		84	10:40.2
82	15.00		84	1:09.59		85	10:55.4
83	15.27		85	1:11.77		86	11:11.7
84	15.56		86	1:14.11		87	11:29.3
85	15.86		87	1:16.63		88	11:48.4
86	16.19		88	1:19.37		89	12:09.4
87	16.53		89	1:22.36		90	12:32.5
88	16.90		90	1:25.64		91	12:58.2
89	17.30		91	1:29.27		92	13:27.2
90	17.74		92	1:33.33		93	14:00.4
91	18.22		93	1:37.94		94	14:38.8
92	18.76		94	1:43.23		95	15:24.5
93	19.36		95	1:49.44		96	16:20.1
94	20.06		96	1:56.92		97	17:30.3
95	20.87		97	2:06.24		98	19:03.9
96	21.85		98	2:18.47		99	21:18.5
97	23.06		99	2:35.79		100	25:00.4
98	24.67		100	3:03.87			
99	26.95						
100	30.67						

MEN'S HURDLE TIME STANDARDS

DIST.	110	110	100	100	80	400	400	300	3000	2000
HT.	42	39	36	33	30	36	33	30	SC	SC
AGE	n/a	30-49	50-59	60-69	70-100	30-49	50-59	60-100	30-59	60-100
14	15.53	14.66	12.42	11.80	9.21	53.77	50.12	34.46	9:16.4	5:52.4
15	14.60	13.92	11.98	11.46	9.00	51.32	48.57	33.57	8:57.9	5:42.2
16	13.97	13.40	11.66	11.18	8.82	49.62	47.42	32.89	8:41.9	5:33.8
17	13.52	13.02	11.42	10.95	8.67	48.42	46.55	32.36	8:27.7	5:26.7
18	13.20	12.74	11.22	10.77	8.54	47.56	45.87	31.95	8:15.3	5:20.8
19	12.97	12.53	11.06	10.61	8.42	46.92	45.34	31.62	8:04.2	5:16.0
OC	12.91					46.78			8:02.08	
30	12.91	12.48	11.03	10.60	8.41	46.78	45.29	31.51	8:02.1	5:14.4
31	12.91	12.48	11.03	10.60	8.41	46.78	45.29	31.51	8:02.1	5:14.4
32	12.91	12.48	11.06	10.61	8.44	46.78	45.29	31.51	8:02.1	5:14.4
33	12.99	12.56	11.14	10.69	8.51	46.79	45.29	31.65	8:02.1	5:14.4
34	13.09	12.65	11.23	10.77	8.58	47.08	45.56	31.83	8:02.1	5:17.0
35	13.19	12.75	11.32	10.86	8.65	47.39	45.85	32.02	8:02.1	5:19.7
36	13.30	12.85	11.41	10.95	8.72	47.73	46.16	32.22	8:07.7	5:22.6
37	13.42	12.96	11.51	11.04	8.79	48.10	46.48	32.43	8:13.8	5:25.7
38	13.55	13.08	11.62	11.14	8.87	48.50	46.83	32.66	8:20.0	5:28.9
39	13.69	13.21	11.73	11.24	8.94	48.93	47.20	32.90	8:26.3	5:32.2
40	13.84	13.34	11.84	11.34	9.02	49.40	47.59	33.15	8:32.7	5:35.7
41	14.01	13.49	11.97	11.45	9.10	49.91	48.00	33.41	8:39.2	5:39.2
42	14.19	13.64	12.10	11.56	9.18	50.46	48.44	33.68	8:45.8	5:42.9
43	14.39	13.81	12.24	11.68	9.26	51.05	48.89	33.97	8:52.5	5:46.7
44	14.61	14.00	12.39	11.80	9.34	51.68	49.38	34.27	8:59.3	5:50.6
45	14.84	14.19	12.55	11.92	9.43	52.37	49.89	34.59	9:06.2	5:54.7
46	15.10	14.40	12.72	12.05	9.52	53.11	50.42	34.91	9:13.3	5:58.8
47	15.38	14.63	12.90	12.18	9.61	53.91	50.99	35.26	9:20.4	6:03.0
48	15.68	14.87	13.09	12.32	9.70	54.77	51.59	35.62	9:27.7	6:07.3
49	16.00	15.13	13.29	12.46	9.80	55.69	52.21	36.00	9:35.1	6:11.8
50	16.35	15.41	13.50	12.61	9.90	56.68	52.87	36.39	9:42.6	6:16.3
51	16.73	15.70	13.73	12.76	10.00	57.74	53.57	36.80	9:50.2	6:21.0
52	17.14	16.01	13.97	12.92	10.10	58.87	54.30	37.23	9:58.0	6:25.7
53	17.57	16.35	14.22	13.08	10.21	1:00.1	55.06	37.68	10:05.9	6:30.6
54	18.03	16.70	14.48	13.25	10.31	1:01.4	55.87	38.16	10:14.0	6:35.6
55	18.53	17.08	14.76	13.43	10.42	1:02.7	56.71	38.65	10:22.2	6:40.7
56	19.06	17.48	15.05	13.61	10.54	1:04.2	57.60	39.16	10:30.6	6:45.9
57	19.62	17.90	15.36	13.79	10.66	1:05.8	58.53	39.70	10:39.2	6:51.3
58	20.22	18.34	15.68	13.98	10.78	1:07.4	59.51	40.27	10:47.9	6:56.7
59	20.85	18.81	16.02	14.18	10.90	1:09.2	1:00.5	40.85	10:56.9	7:02.3
60	21.52	19.31	16.37	14.38	11.02	1:11.0	1:01.6	41.47	11:06.0	7:08.1
61	22.23	19.83	16.74	14.59	11.15	1:13.0	1:02.7	42.11	11:15.3	7:13.9
62	22.98	20.38	17.13	14.81	11.29	1:15.1	1:03.9	42.79	11:24.8	7:20.0
63	23.77	20.95	17.54	15.03	11.42	1:17.3	1:05.1	43.49	11:34.6	7:26.1
64	24.60	21.55	17.96	15.26	11.56	1:19.7	1:06.4	44.23	11:44.6	7:32.5
65	25.48	22.19	18.40	15.50	11.71	1:22.1	1:07.8	44.99	11:54.9	7:39.0
66	26.40	22.85	18.86	15.74	11.86	1:24.7	1:09.2	45.80	12:05.4	7:45.7
67	27.37	23.55	19.34	15.99	12.01	1:27.5	1:10.7	46.64	12:16.3	7:52.6
68	28.39	24.27	19.84	16.25	12.16	1:30.4	1:12.3	47.52	12:27.4	7:59.7
69	29.45	25.03	20.37	16.52	12.33	1:33.4	1:13.9	48.44	12:38.9	8:07.0
70	30.57	25.83	20.91	16.80	12.49	1:36.7	1:15.6	49.41	12:50.8	8:14.6
71	31.75	26.66	21.48	17.09	12.66	1:40.1	1:17.4	50.42	13:03.0	8:22.4
72	32.98	27.53	22.07	17.38	12.84	1:43.6	1:19.3	51.48	13:15.6	8:30.5
73	34.27	28.45	22.69	17.69	13.02	1:47.4	1:21.3	52.59	13:28.7	8:38.9
74	35.63	29.40	23.33	18.01	13.21	1:51.4	1:23.3	53.76	13:42.3	8:47.6
75	37.05	30.40	24.00	18.34	13.40	1:55.6	1:25.5	54.98	13:56.5	8:56.6
76	38.54	31.44	24.70	18.68	13.61	2:00.0	1:27.8	56.27	14:11.2	9:06.0
77	40.10	32.53	25.43	19.04	13.81	2:04.7	1:30.2	57.63	14:26.5	9:15.8
78	41.73	33.67	26.20	19.41	14.03	2:09.7	1:32.8	59.06	14:42.5	9:26.1
79	43.45	34.87	27.00	19.80	14.26	2:14.9	1:35.4	1:00.6	14:59.3	9:36.8
80	45.26	36.13	27.84	20.20	14.49	2:20.4	1:38.3	1:02.2	15:16.9	9:48.1
81	47.16	37.46	28.71	20.62	14.74	2:26.3	1:41.3	1:03.9	15:35.5	10:00.1
82	49.16	38.85	29.64	21.07	15.00	2:32.5	1:44.5	1:05.6	15:55.2	10:12.6
83	51.27	40.32	30.61	21.53	15.27	2:39.2	1:47.9	1:07.6	16:16.0	10:26.0
84	53.50	41.87	31.63	22.03	15.56	2:46.2	1:51.5	1:09.6	16:38.2	10:40.2
85	55.87	43.51	32.72	22.55	15.86	2:53.8	1:55.3	1:11.8	17:01.9	10:55.4
86	58.38	45.25	33.87	23.10	16.19	3:01.9	1:59.5	1:14.1	17:27.4	11:11.7
87	1:01.1	47.11	35.10	23.70	16.53	3:10.6	2:03.9	1:16.6	17:54.9	11:29.3
88	1:03.9	49.10	36.41	24.33	16.90	3:20.0	2:08.8	1:19.4	18:24.8	11:48.4
89	1:07.0	51.24	37.82	25.02	17.30	3:30.3	2:14.1	1:22.4	18:57.5	12:09.4
90	1:10.3	53.56	39.35	25.77	17.74	3:41.5	2:19.8	1:25.6	19:33.6	12:32.5
91	1:14.0	56.10	41.02	26.60	18.22	3:53.8	2:26.2	1:29.3	20:13.9	12:58.2
92	1:17.9	58.88	42.85	27.52	18.76	4:07.6	2:33.4	1:33.3	20:59.2	13:27.2
93	1:22.4	1:02.0	44.90	28.55	19.36	4:23.0	2:41.4	1:37.9	21:51.1	14:00.4
94	1:27.4	1:05.5	47.22	29.73	20.06	4:40.6	2:50.7	1:43.2	22:51.2	14:38.8
95	1:33.1	1:09.5	49.89	31.11	20.87	5:01.1	3:01.6	1:49.4	24:02.7	15:24.5
96	1:39.9	1:14.3	53.05	32.77	21.85	5:25.6	3:14.6	1:56.9	25:29.7	16:20.1
97	1:48.1	1:20.1	56.93	34.83	23.06	5:55.7	3:30.8	2:06.2	27:19.7	17:30.3
98	1:58.6	1:27.6	1:01.9	37.53	24.67	6:34.8	3:52.0	2:18.5	29:46.2	19:03.9
99	2:13.2	1:38.0	1:08.9	41.36	26.95	7:29.5	4:22.0	2:35.8	33:17.0	21:18.5
100	2:36.1	1:54.5	1:20.0	47.59	30.67	8:56.9	5:10.4	3:03.9	39:04.4	25:00.4

DIST.	110	110	100	100	80	400	400	300	3000	2000
HT.	42	39	36	33	30	36	33	30	SC	SC
AGE	n/a	30-49	50-59	60-69	70-100	30-49	50-59	60-100	30-59	60-100
14	15.53	14.66	12.42	11.8	9.21	53.77	50.12	34.46	556.4	352.4
15	14.60	13.92	11.98	11.46	9.00	51.32	48.57	33.57	537.9	342.2
16	13.97	13.4	11.66	11.18	8.82	49.62	47.42	32.89	521.9	333.8
17	13.52	13.02	11.42	10.95	8.67	48.42	46.55	32.36	507.7	326.7
18	13.20	12.74	11.22	10.77	8.54	47.56	45.87	31.95	495.3	320.8
19	12.97	12.53	11.06	10.61	8.42	46.92	45.34	31.62	484.2	316.0
OC	12.91					46.78			482.08	
30	12.91	12.48	11.03	10.6	8.41	46.78	45.29	31.51	482.1	314.4
31	12.91	12.48	11.03	10.6	8.41	46.78	45.29	31.51	482.1	314.4
32	12.91	12.48	11.06	10.61	8.44	46.78	45.29	31.51	482.1	314.4
33	12.99	12.56	11.14	10.69	8.51	46.79	45.29	31.65	482.1	314.4
34	13.09	12.65	11.23	10.77	8.58	47.08	45.56	31.83	482.1	317.0
35	13.19	12.75	11.32	10.86	8.65	47.39	45.85	32.02	482.1	319.7
36	13.30	12.85	11.41	10.95	8.72	47.73	46.16	32.22	487.7	322.6
37	13.42	12.96	11.51	11.04	8.79	48.10	46.48	32.43	493.8	325.7
38	13.55	13.08	11.62	11.14	8.87	48.50	46.83	32.66	500.0	328.9
39	13.69	13.21	11.73	11.24	8.94	48.93	47.20	32.90	506.3	332.2
40	13.84	13.34	11.84	11.34	9.02	49.40	47.59	33.15	512.7	335.7
41	14.01	13.49	11.97	11.45	9.10	49.91	48.00	33.41	519.2	339.2
42	14.19	13.64	12.1	11.56	9.18	50.46	48.44	33.68	525.8	342.9
43	14.39	13.81	12.24	11.68	9.26	51.05	48.89	33.97	532.5	346.7
44	14.61	14	12.39	11.8	9.34	51.68	49.38	34.27	539.3	350.6
45	14.84	14.19	12.55	11.92	9.43	52.37	49.89	34.59	546.2	354.7
46	15.10	14.4	12.72	12.05	9.52	53.11	50.42	34.91	553.3	358.8
47	15.38	14.63	12.9	12.18	9.61	53.91	50.99	35.26	560.4	363.0
48	15.68	14.87	13.09	12.32	9.70	54.77	51.59	35.62	567.7	367.3
49	16.00	15.13	13.29	12.46	9.80	55.69	52.21	36.00	575.1	371.8
50	16.35	15.41	13.5	12.61	9.90	56.68	52.87	36.39	582.6	376.3
51	16.73	15.7	13.73	12.76	10.00	57.74	53.57	36.80	590.2	381.0
52	17.14	16.01	13.97	12.92	10.10	58.87	54.30	37.23	598.0	385.7
53	17.57	16.35	14.22	13.08	10.21	60.08	55.06	37.68	605.9	390.6
54	18.03	16.7	14.48	13.25	10.31	61.37	55.87	38.16	614.0	395.6
55	18.53	17.08	14.76	13.43	10.42	62.74	56.71	38.65	622.2	400.7
56	19.06	17.48	15.05	13.61	10.54	64.21	57.60	39.16	630.6	405.9
57	19.62	17.9	15.36	13.79	10.66	65.77	58.53	39.70	639.2	411.3
58	20.22	18.34	15.68	13.98	10.78	67.42	59.51	40.27	647.9	416.7
59	20.85	18.81	16.02	14.18	10.90	69.18	60.53	40.85	656.9	422.3
60	21.52	19.31	16.37	14.38	11.02	71.04	61.60	41.47	666.0	428.1
61	22.23	19.83	16.74	14.59	11.15	73.02	62.73	42.11	675.3	433.9
62	22.98	20.38	17.13	14.81	11.29	75.11	63.91	42.79	684.8	440.0
63	23.77	20.95	17.54	15.03	11.42	77.32	65.14	43.49	694.6	446.1
64	24.60	21.55	17.96	15.26	11.56	79.65	66.43	44.23	704.6	452.5
65	25.48	22.19	18.4	15.5	11.71	82.12	67.79	44.99	714.9	459.0
66	26.40	22.85	18.86	15.74	11.86	84.73	69.21	45.80	725.4	465.7
67	27.37	23.55	19.34	15.99	12.01	87.47	70.70	46.64	736.3	472.6
68	28.39	24.27	19.84	16.25	12.16	90.37	72.25	47.52	747.4	479.7
69	29.45	25.03	20.37	16.52	12.33	93.43	73.89	48.44	758.9	487.0
70	30.57	25.83	20.91	16.8	12.49	96.66	75.60	49.41	770.8	494.6
71	31.75	26.66	21.48	17.09	12.66	100.06	77.39	50.42	783.0	502.4
72	32.98	27.53	22.07	17.38	12.84	103.64	79.28	51.48	795.6	510.5
73	34.27	28.45	22.69	17.69	13.02	107.42	81.25	52.59	808.7	518.9
74	35.63	29.4	23.33	18.01	13.21	111.40	83.32	53.76	822.3	527.6
75	37.05	30.4	24	18.34	13.40	115.60	85.50	54.98	836.5	536.6
76	38.54	31.44	24.7	18.68	13.61	120.03	87.80	56.27	851.2	546.0
77	40.10	32.53	25.43	19.04	13.81	124.71	90.21	57.63	866.5	555.8
78	41.73	33.67	26.2	19.41	14.03	129.66	92.75	59.06	882.5	566.1
79	43.45	34.87	27	19.8	14.26	134.89	95.44	60.57	899.3	576.8
80	45.26	36.13	27.84	20.2	14.49	140.43	98.27	62.16	916.9	588.1
81	47.16	37.46	28.71	20.62	14.74	146.30	101.28	63.85	935.5	600.1
82	49.16	38.85	29.64	21.07	15.00	152.53	104.46	65.64	955.2	612.6
83	51.27	40.32	30.61	21.53	15.27	159.16	107.85	67.55	976.0	626.0
84	53.50	41.87	31.63	22.03	15.56	166.23	111.46	69.59	998.2	640.2
85	55.87	43.51	32.72	22.55	15.86	173.79	115.33	71.77	1021.9	655.4
86	58.38	45.25	33.87	23.1	16.19	181.90	119.47	74.11	1047.4	671.7
87	61.05	47.11	35.1	23.7	16.53	190.62	123.94	76.63	1074.9	689.3
88	63.92	49.1	36.41	24.33	16.90	200.05	128.78	79.37	1104.8	708.4
89	67.00	51.24	37.82	25.02	17.30	210.30	134.05	82.36	1137.5	729.4
90	70.33	53.56	39.35	25.77	17.74	221.50	139.83	85.64	1173.6	752.5
91	73.96	56.1	41.02	26.6	18.22	233.84	146.23	89.27	1213.9	778.2
92	77.95	58.88	42.85	27.52	18.76	247.57	153.37	93.33	1259.2	807.2
93	82.38	61.98	44.9	28.55	19.36	263.01	161.44	97.94	1311.1	840.4
94	87.38	65.49	47.22	29.73	20.06	280.64	170.71	103.23	1371.2	878.8
95	93.12	69.53	49.89	31.11	20.87	301.13	181.56	109.44	1442.7	924.5
96	99.88	74.3	53.05	32.77	21.85	325.57	194.59	116.92	1529.7	980.1
97	108.11	80.13	56.93	34.83	23.06	355.73	210.80	126.24	1639.7	1050.3
98	118.63	87.63	61.93	37.53	24.67	394.81	232.00	138.47	1786.2	1143.9
99	133.18	98.03	68.89	41.36	26.95	449.48	261.95	155.79	1997.0	1278.5
100	156.15	114.5	80	47.59	30.67	536.87	310.37	183.87	2344.4	1500.4

HURDLE AGE FACTORS

					MEN										WOMEN		
DIST.	110	110	100	100	80	400	400	300	3000	2000	DIST.	100	80	400	300	2000
HT.	42	39	36	33	30	36	30	30	SC	SC	HT.	33	30	30	30	SC
AGE	14-34	35-49	50-59	60-69	70-100	30-49	50-59	60-100	30-59	60-100	AGE	30-39	40-100	30-49	50-100	30-100
14	0.8310					0.8700			0.8664	1.3681	14	0.7946		0.8077		
15	0.8841					0.9116			0.8962	1.4087	15	0.8320		0.8468		
16	0.9244					0.9427			0.9238	1.4444	16	0.8667		0.8809		
17	0.9547					0.9661			0.9495	1.4756	17	0.8986		0.9101		
18	0.9777					0.9837			0.9734	1.5025	18	0.9276		0.9349		
19	0.9954					0.9970			0.9956	1.5255	19	0.9538		0.9554		
OC	1.0000					1.0000			1.0000		OC	1.0000		1.0000		
30	1.0000	1.0345	1.1704	1.2179	1.5351	1.0000	1.0542	1.4846	1.0000	1.5332	30	1.0000	1.2371	1.0000	1.4053	1.0000
31	1.0000	1.0345	1.1704	1.2179	1.5351	1.0000	1.0542	1.4846	1.0000	1.5332	31	0.9934	1.2371	1.0000	1.4053	0.9919
32	1.0000	1.0345	1.1675	1.2173	1.5291	1.0000	1.0542	1.4846	1.0000	1.5332	32	0.9791	1.2371	0.9981	1.4053	0.9779
33	0.9939	1.0282	1.1588	1.2080	1.5168	0.9997	1.0542	1.4782	1.0000	1.5332	33	0.9644	1.2371	0.9911	1.4053	0.9647
34	0.9865	1.0207	1.1499	1.1986	1.5046	0.9936	1.0483	1.4699	1.0000	1.5209	34	0.9495	1.2247	0.9830	1.4053	0.9521
35	0.9787	1.0128	1.1408	1.1890	1.4924	0.9870	1.0420	1.4611	1.0000	1.5078	35	0.9345	1.2115	0.9740	1.4001	0.9401
36	0.9705	1.0046	1.1313	1.1792	1.4802	0.9800	1.0355	1.4519	0.9884	1.4942	36	0.9194	1.1979	0.9642	1.3880	0.9284
37	0.9619	0.9960	1.1216	1.1693	1.4680	0.9725	1.0287	1.4423	0.9762	1.4802	37	0.9044	1.1842	0.9535	1.3749	0.9170
38	0.9527	0.9871	1.1115	1.1591	1.4558	0.9645	1.0218	1.4323	0.9641	1.4658	38	0.8895	1.1703	0.9421	1.3607	0.9058
39	0.9429	0.9776	1.1010	1.1488	1.4436	0.9560	1.0146	1.4220	0.9521	1.4511	39	0.8747	1.1562	0.9301	1.3455	0.8948
40	0.9325	0.9677	1.0900	1.1383	1.4313	0.9469	1.0073	1.4113	0.9403	1.4362	40	0.8600	1.1421	0.9175	1.3295	0.8839
41	0.9214	0.9572	1.0787	1.1276	1.4190	0.9373	0.9998	1.4002	0.9285	1.4211	41	0.8456	1.1278	0.9045	1.3128	0.8730
42	0.9096	0.9461	1.0669	1.1167	1.4066	0.9272	0.9921	1.3888	0.9169	1.4058	42	0.8313	1.1136	0.8910	1.2953	0.8622
43	0.8970	0.9346	1.0546	1.1056	1.3941	0.9164	0.9843	1.3771	0.9053	1.3904	43	0.8172	1.0993	0.8771	1.2772	0.8514
44	0.8837	0.9224	1.0418	1.0944	1.3815	0.9051	0.9763	1.3650	0.8939	1.3749	44	0.8033	1.0850	0.8629	1.2585	0.8406
45	0.8697	0.9097	1.0286	1.0830	1.3689	0.8932	0.9681	1.3526	0.8826	1.3593	45	0.7896	1.0707	0.8485	1.2393	0.8297
46	0.8550	0.8964	1.0149	1.0714	1.3562	0.8808	0.9598	1.3398	0.8713	1.3437	46	0.7762	1.0565	0.8338	1.2197	0.8188
47	0.8395	0.8826	1.0008	1.0597	1.3434	0.8677	0.9513	1.3268	0.8602	1.3280	47	0.7630	1.0423	0.8189	1.1998	0.8079
48	0.8234	0.8682	0.9863	1.0478	1.3305	0.8541	0.9427	1.3133	0.8492	1.3123	48	0.7500	1.0282	0.8040	1.1795	0.7969
49	0.8067	0.8534	0.9713	1.0358	1.3176	0.8400	0.9338	1.2996	0.8383	1.2967	49	0.7372	1.0141	0.7889	1.1590	0.7859
50	0.7894	0.8380	0.9560	1.0237	1.3045	0.8254	0.9248	1.2855	0.8275	1.2810	50	0.7247	1.0001	0.7738	1.1383	0.7748
51	0.7716	0.8223	0.9403	1.0115	1.2914	0.8102	0.9156	1.2711	0.8168	1.2654	51	0.7123	0.9862	0.7586	1.1174	0.7637
52	0.7534	0.8062	0.9243	0.9991	1.2783	0.7947	0.9061	1.2564	0.8061	1.2497	52	0.7002	0.9724	0.7435	1.0964	0.7525
53	0.7348	0.7897	0.9080	0.9867	1.2651	0.7787	0.8965	1.2414	0.7956	1.2341	53	0.6883	0.9587	0.7283	1.0754	0.7412
54	0.7159	0.7729	0.8914	0.9741	1.2518	0.7623	0.8867	1.2260	0.7851	1.2186	54	0.6766	0.9450	0.7132	1.0543	0.7299
55	0.6967	0.7559	0.8746	0.9615	1.2384	0.7456	0.8766	1.2104	0.7747	1.2031	55	0.6650	0.9315	0.6982	1.0332	0.7185
56	0.6774	0.7386	0.8576	0.9489	1.2250	0.7285	0.8663	1.1945	0.7644	1.1876	56	0.6537	0.9180	0.6832	1.0121	0.7071
57	0.6580	0.7213	0.8405	0.9361	1.2116	0.7113	0.8558	1.1783	0.7542	1.1722	57	0.6425	0.9047	0.6684	0.9911	0.6957
58	0.6386	0.7038	0.8232	0.9233	1.1981	0.6938	0.8451	1.1618	0.7440	1.1568	58	0.6316	0.8914	0.6536	0.9701	0.6842
59	0.6192	0.6862	0.8059	0.9105	1.1846	0.6762	0.8341	1.1450	0.7339	1.1415	59	0.6207	0.8782	0.6390	0.9493	0.6727
60	0.5999	0.6686	0.7885	0.8977	1.1710	0.6585	0.8229	1.1280	0.7239	1.1262	60	0.6101	0.8652	0.6245	0.9285	0.6612
61	0.5808	0.6511	0.7710	0.8848	1.1574	0.6407	0.8114	1.1108	0.7139	1.1110	61	0.5996	0.8522	0.6101	0.9079	0.6496
62	0.5619	0.6336	0.7536	0.8719	1.1438	0.6228	0.7997	1.0933	0.7039	1.0957	62	0.5892	0.8392	0.5959	0.8875	0.6380
63	0.5432	0.6162	0.7362	0.8589	1.1301	0.6050	0.7878	1.0756	0.6940	1.0806	63	0.5790	0.8264	0.5818	0.8672	0.6264
64	0.5248	0.5990	0.7188	0.8460	1.1164	0.5873	0.7756	1.0578	0.6842	1.0654	64	0.5689	0.8137	0.5679	0.8470	0.6147
65	0.5067	0.5819	0.7016	0.8331	1.1027	0.5697	0.7632	1.0397	0.6743	1.0503	65	0.5589	0.8010	0.5542	0.8271	0.6031
66	0.4890	0.5650	0.6845	0.8202	1.0889	0.5521	0.7506	1.0214	0.6645	1.0352	66	0.5491	0.7884	0.5406	0.8073	0.5915
67	0.4717	0.5483	0.6675	0.8072	1.0751	0.5348	0.7377	1.0030	0.6548	1.0200	67	0.5393	0.7758	0.5271	0.7877	0.5798
68	0.4548	0.5319	0.6506	0.7943	1.0613	0.5176	0.7246	0.9844	0.6450	1.0049	68	0.5297	0.7633	0.5139	0.7684	0.5681
69	0.4383	0.5157	0.6339	0.7814	1.0474	0.5007	0.7112	0.9657	0.6352	0.9898	69	0.5202	0.7509	0.5008	0.7492	0.5565
70	0.4222	0.4998	0.6174	0.7685	1.0335	0.4840	0.6977	0.9468	0.6255	0.9747	70	0.5107	0.7385	0.4878	0.7302	0.5448
71	0.4066	0.4842	0.6011	0.7555	1.0195	0.4675	0.6840	0.9278	0.6157	0.9595	71	0.5013	0.7261	0.4750	0.7114	0.5332
72	0.3914	0.4689	0.5850	0.7426	1.0055	0.4514	0.6700	0.9087	0.6059	0.9443	72	0.4920	0.7138	0.4624	0.6928	0.5215
73	0.3767	0.4538	0.5691	0.7297	0.9915	0.4355	0.6559	0.8895	0.5961	0.9291	73	0.4827	0.7014	0.4499	0.6744	0.5098
74	0.3624	0.4391	0.5534	0.7168	0.9773	0.4199	0.6416	0.8702	0.5862	0.9138	74	0.4735	0.6891	0.4376	0.6562	0.4982
75	0.3485	0.4247	0.5379	0.7039	0.9632	0.4047	0.6271	0.8508	0.5763	0.8984	75	0.4643	0.6768	0.4254	0.6382	0.4865
76	0.3350	0.4106	0.5226	0.6910	0.9489	0.3897	0.6124	0.8313	0.5664	0.8829	76	0.4552	0.6645	0.4133	0.6203	0.4749
77	0.3220	0.3969	0.5076	0.6781	0.9345	0.3751	0.5976	0.8118	0.5564	0.8673	77	0.4461	0.6521	0.4014	0.6027	0.4632
78	0.3093	0.3834	0.4928	0.6651	0.9200	0.3608	0.5826	0.7921	0.5463	0.8516	78	0.4370	0.6398	0.3896	0.5852	0.4515
79	0.2971	0.3702	0.4782	0.6522	0.9054	0.3468	0.5675	0.7724	0.5361	0.8357	79	0.4278	0.6273	0.3779	0.5678	0.4398
80	0.2852	0.3573	0.4638	0.6391	0.8907	0.3331	0.5522	0.7526	0.5258	0.8197	80	0.4187	0.6148	0.3663	0.5506	0.4281
81	0.2738	0.3447	0.4496	0.6260	0.8757	0.3198	0.5368	0.7327	0.5153	0.8034	81	0.4095	0.6022	0.3549	0.5335	0.4164
82	0.2626	0.3323	0.4356	0.6128	0.8606	0.3067	0.5213	0.7126	0.5047	0.7869	82	0.4003	0.5895	0.3435	0.5165	0.4046
83	0.2518	0.3202	0.4218	0.5995	0.8453	0.2939	0.5056	0.6925	0.4939	0.7701	83	0.3910	0.5767	0.3321	0.4997	0.3928
84	0.2413	0.3084	0.4081	0.5861	0.8297	0.2814	0.4898	0.6722	0.4830	0.7530	84	0.3817	0.5637	0.3209	0.4829	0.3809
85	0.2311	0.2967	0.3946	0.5725	0.8138	0.2692	0.4738	0.6518	0.4718	0.7356	85	0.3722	0.5505	0.3097	0.4661	0.3689
86	0.2212	0.2853	0.3812	0.5588	0.7976	0.2572	0.4577	0.6312	0.4603	0.7177	86	0.3626	0.5371	0.2985	0.4494	0.3569
87	0.2115	0.2740	0.3678	0.5448	0.7809	0.2454	0.4414	0.6104	0.4485	0.6994	87	0.3528	0.5234	0.2873	0.4327	0.3447
88	0.2020	0.2629	0.3546	0.5305	0.7638	0.2338	0.4249	0.5894	0.4364	0.6805	88	0.3429	0.5094	0.2761	0.4160	0.3324
89	0.1927	0.2519	0.3414	0.5159	0.7461	0.2224	0.4082	0.5680	0.4238	0.6609	89	0.3327	0.4951	0.2649	0.3992	0.3200
90	0.1836	0.2410	0.3281	0.5009	0.7276	0.2112	0.3913	0.5463	0.4108	0.6406	90	0.3223	0.4803	0.2536	0.3823	0.3074
91	0.1746	0.2301	0.3148	0.4853	0.7084	0.2000	0.3740	0.5240	0.3971	0.6194	91	0.3115	0.4650	0.2421	0.3652	0.2945
92	0.1656	0.2193	0.3013	0.4692	0.6882	0.1890	0.3564	0.5012	0.3828	0.5972	92	0.3003	0.4491	0.2306	0.3479	0.2813
93	0.1567	0.2083	0.2875	0.4522	0.6667	0.1779	0.3383	0.4777	0.3677	0.5737	93	0.2887	0.4325	0.2188	0.3303	0.2678
94	0.1477	0.1971	0.2734	0.4342	0.6437	0.1667	0.3196	0.4532	0.3516	0.5485	94	0.2765	0.4150	0.2068	0.3123	0.2539
95	0.1386	0.1857	0.2588	0.4150	0.6186	0.1553	0.3002	0.4274	0.3342	0.5215	95	0.2635	0.3964	0.1944	0.2937	0.2394
96	0.1293	0.1738	0.2433	0.3940	0.5910	0.1437	0.2797	0.4001	0.3151	0.4919	96	0.2497	0.3765	0.1815	0.2744	0.2242
97	0.1194	0.1611	0.2268	0.3707	0.5597	0.1315	0.2578	0.3706	0.2940	0.4590	97	0.2347	0.3547	0.1680	0.2541	0.2082
98	0.1088	0.1473	0.2085	0.3440	0.5234	0.1185	0.2338	0.3378	0.2699	0.4214	98	0.2181	0.3306	0.1536	0.2325	0.1909
99	0.0969	0.1317	0.1874	0.3121	0.4790	0.1041	0.2066	0.3003	0.2414	0.3771	99	0.1995	0.3033	0.1379	0.2089	0.1720
100	0.0827	0.1127	0.1614	0.2713	0.4209	0.0871	0.1740	0.2544	0.2056	0.3213	100	0.1776	0.2710	0.1203	0.1825	0.1505

MEN'S HURDLES: PERFORMANCE LEVEL OF ACTUAL RECORDS

AGE	80	100	100	110	110	110	300	300	400	400	400	2K	3K
	30"	33"	36"	36"	39"	42"	30"	33"	30"	33"	36"	SC	SC
14											96	98	
15											100	96	
16						100					98	100	
17						98					97	99	100
18						98					99	98	98
19						98					99	97	99
OC						100					100		100
30													
31													
32													
33													
34													
35					90	94					97		94
36					89	94					92		95
37					93	93					90		96
38					91	95					92		91
39					91	94					91		94
40				86	94	96					94		98
41				91	93	93					91		98
42				92	93	96					95		95
43				91	93	88					94		95
44				90	94	97					93		97
45				92	97	98					94		98
46				88	96	100					95		98
47				87	95	93					98		98
48				89	97	99					95		100
49				86	97	94					100		100
50			100	92	94	89		98		91	92		100
51			99	96	100	85		98		92	97		100
52			96	93	86	86		94		91	87		100
53			96	96	85	86		93		93	68		98
54			91	95	84	88		90		89	92		97
55			98	94	98	83		99		91	99		96
56			97	99	95	99		98		90	96		99
57			100	94	99	83		96		98	78		94
58			99	94		83		100		92	87		96
59			83	100		85				93	89		94
60	53	96		83	70		90		88	85	90	93	94
61	53	94		80		73	92		87			100	96
62		98		89	91	100	94		89			93	92
63	62	100		90		92	100		86	100		95	92
64		88		79	95	100	94		86		85	89	94
65	57	95		90			100		86		96	97	96
66		90		90	90		90		85	79		96	95
67	58	90		90			94		84	78	85	90	97
68		92		88	86	88	95		88	76	99	88	95
69		94		83			95		87	72			98
70	92	92		85			92		87	69	86	93	96
71	87	82		64			98		85			97	100
72	89	86		91			98		88	68	94	95	97
73	90	85					91		82			96	95
74	89			81	92				70		100	77	92
75	89	82					97		81			91	91
76	90	71					99		81				83
77	84	84					90		87			83	71
78	86	85					91		83			82	
79	83								84			84	
80	85	100					88		76			73	
81	78	84					82		71			84	
82	77												
83	71								74				
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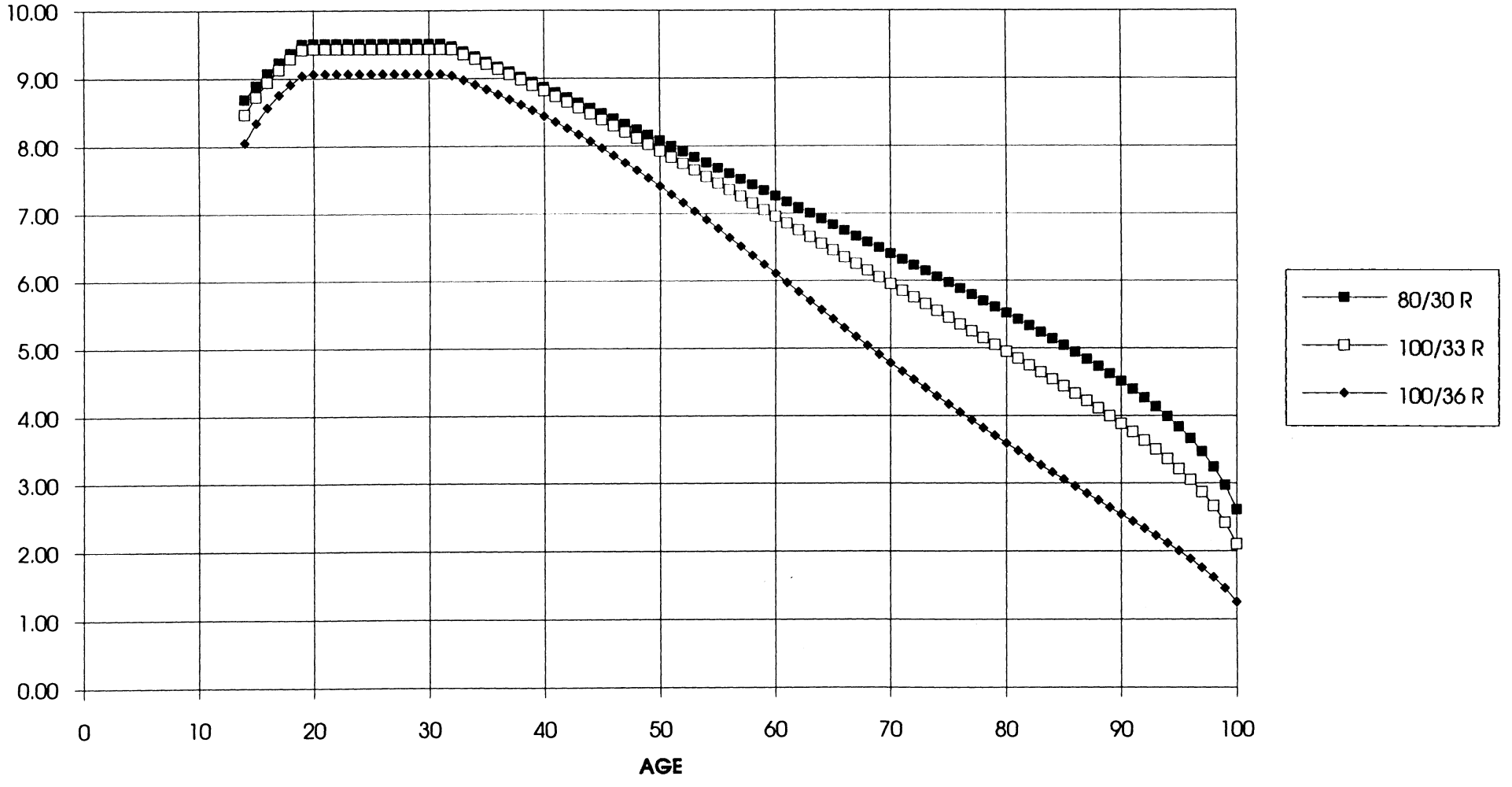
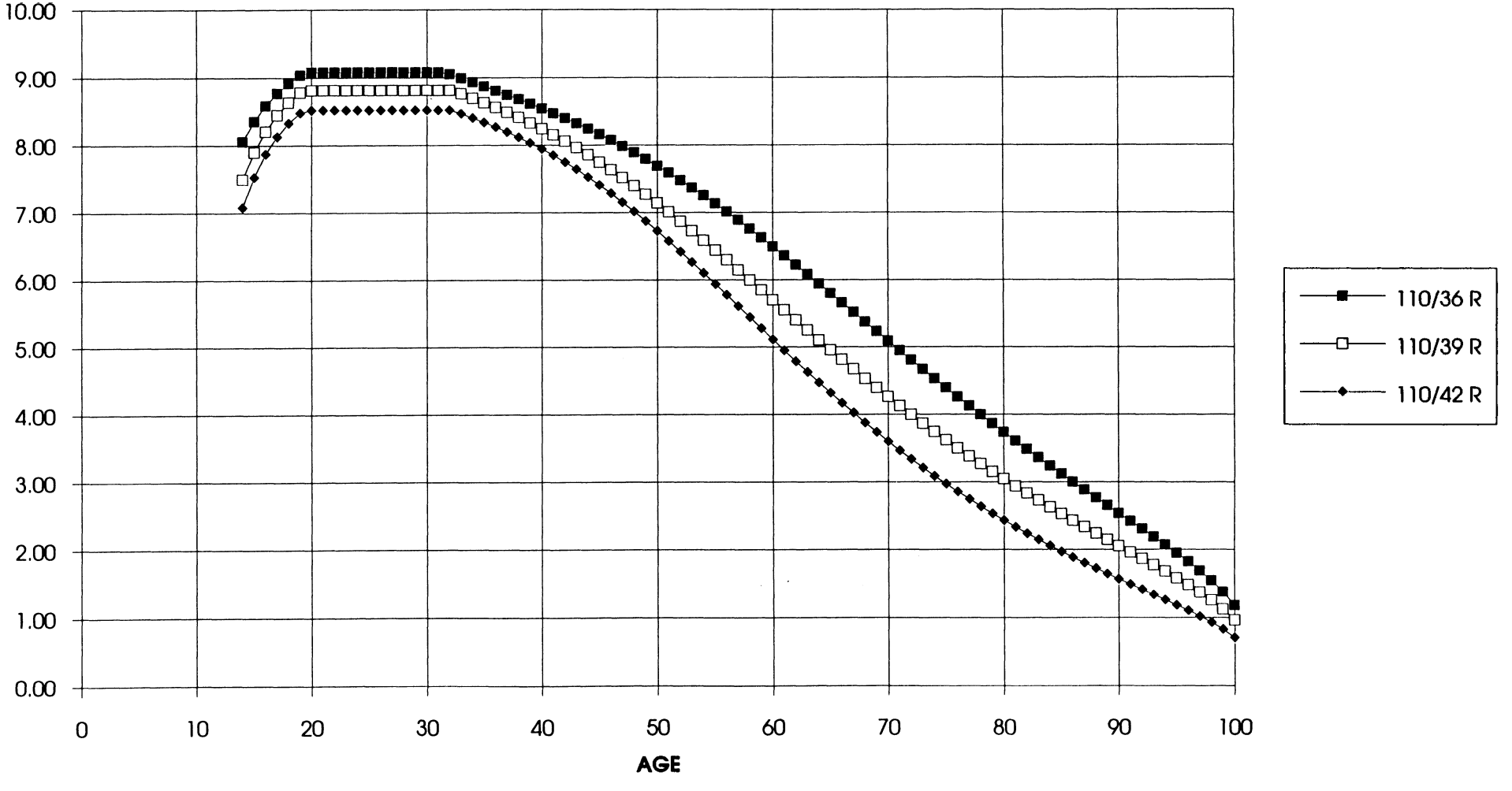
97													
98													
99													
100													

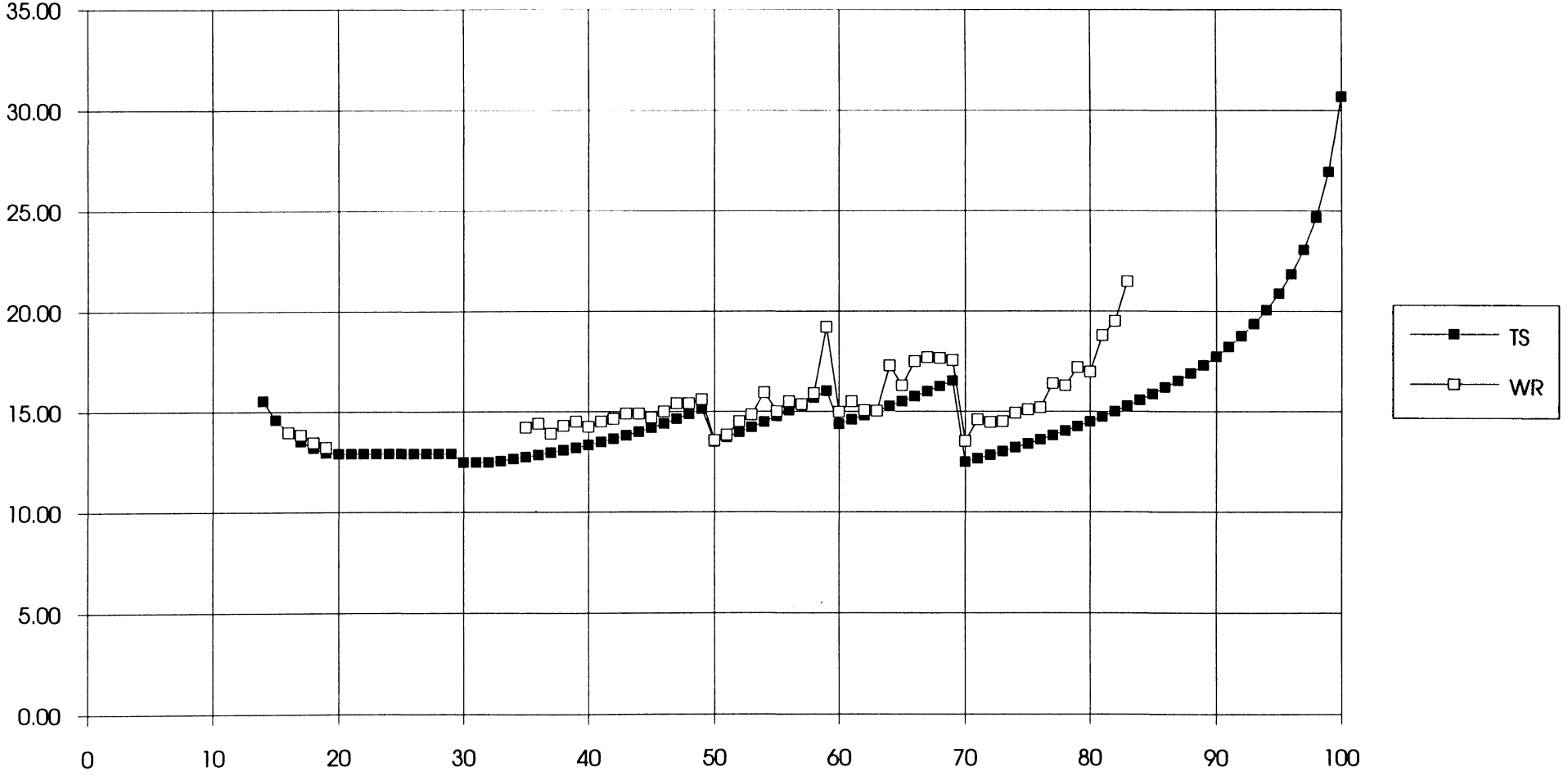
MENS HURDLE STANDARDS RUNNING RATE IN METERS/SECOND



MENS HURDLE STANDARDS RUNNING RATE IN METERS/SECOND

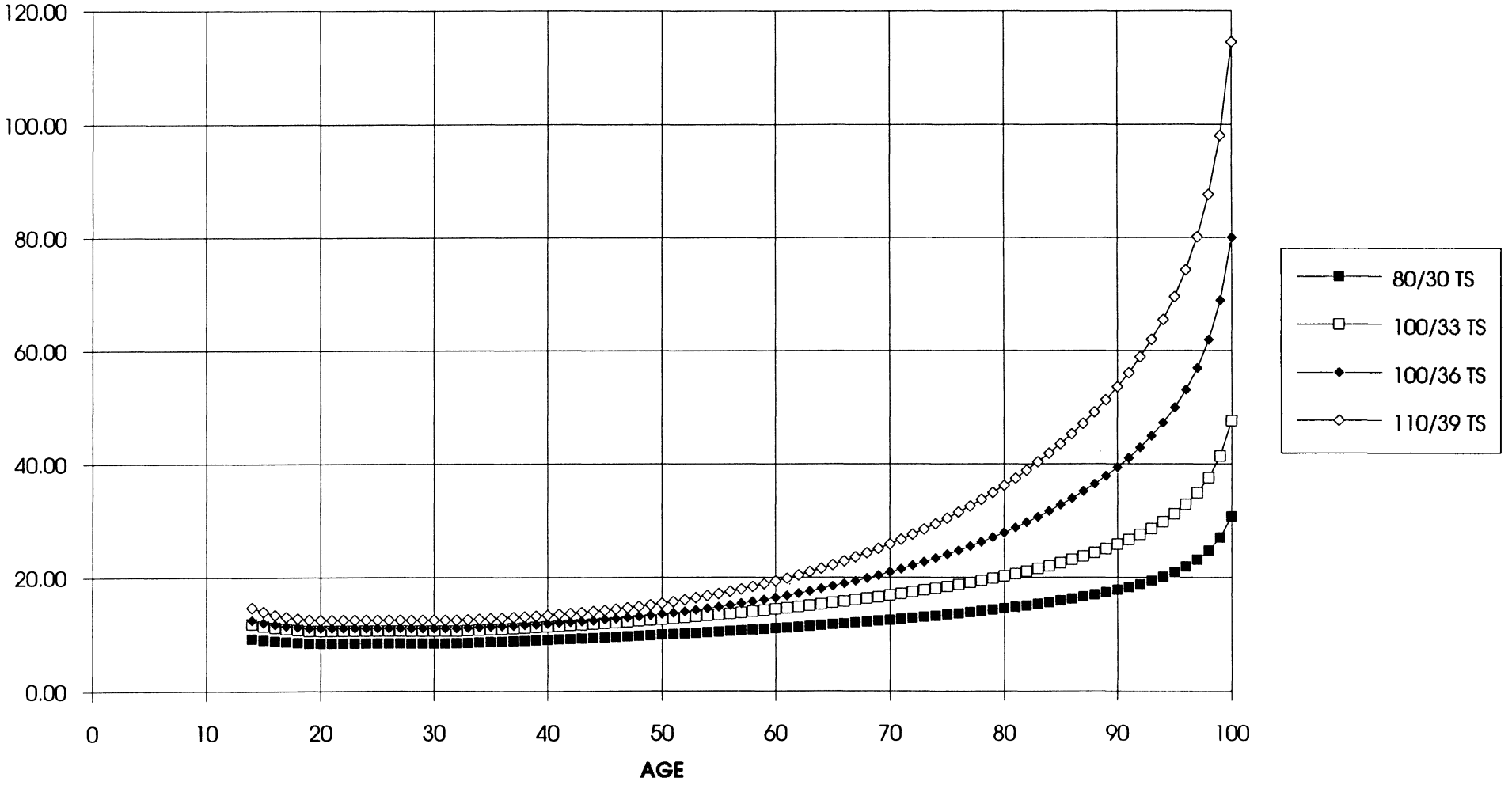


COMPOSITE CHART: MENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS

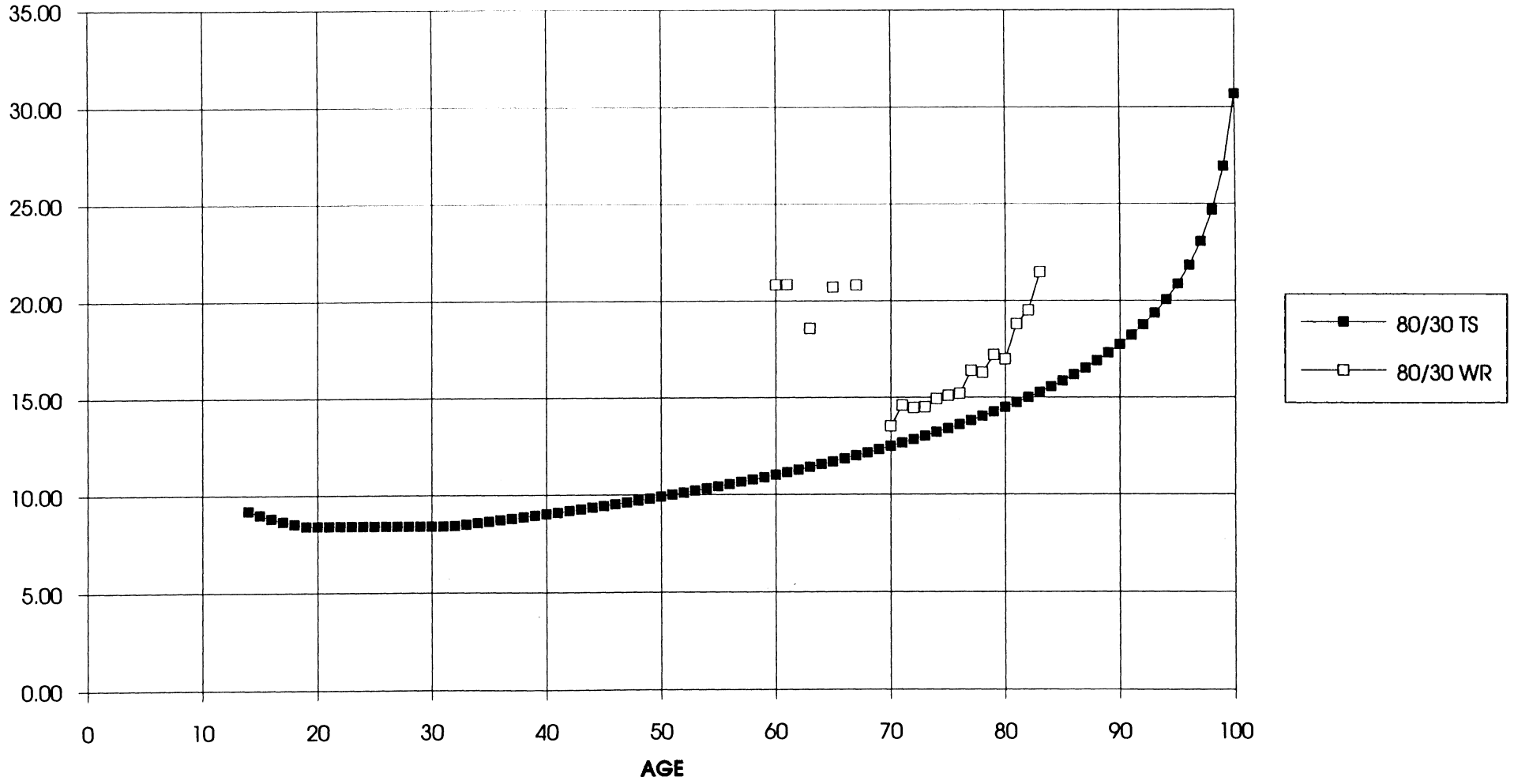


110/42" AGE 14-34; 110/39" AGE 35-49; 100/36" AGE 50-59; 100/33" AGE 60-69; 80/30" AGE 70-100

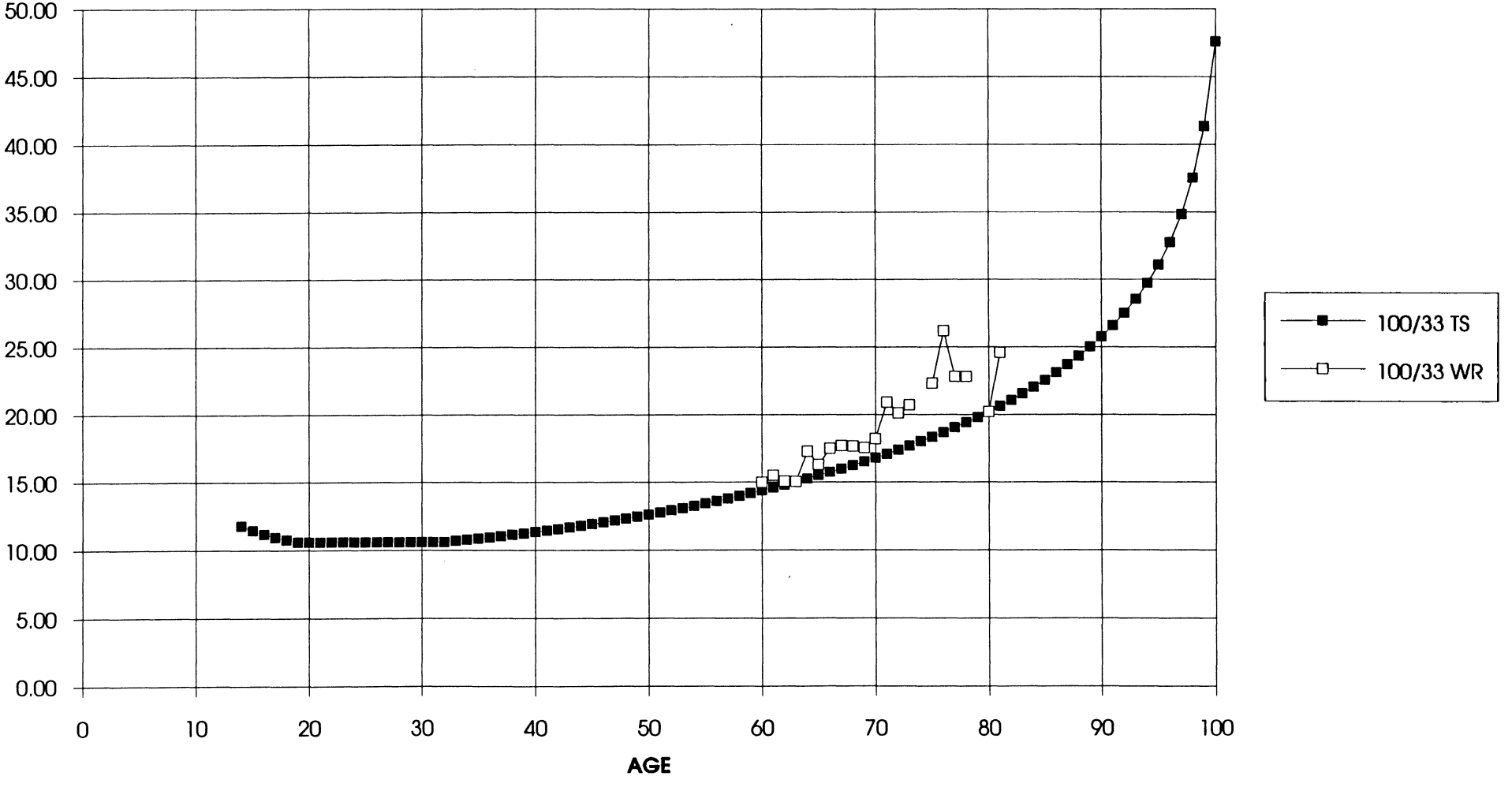
COMPARISON CHART: MENS HURDLE TIME STANDARDS IN SECONDS



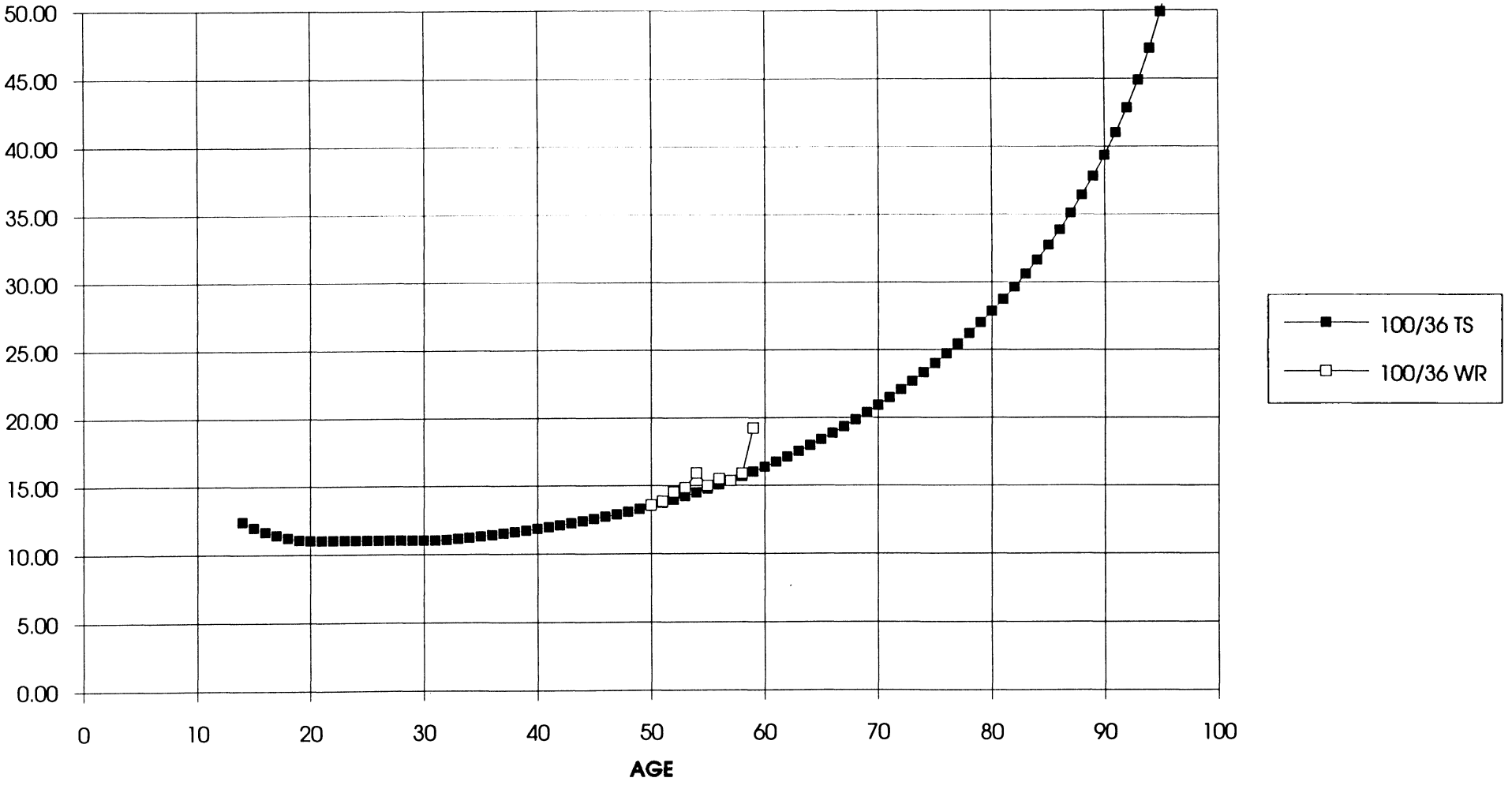
MENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



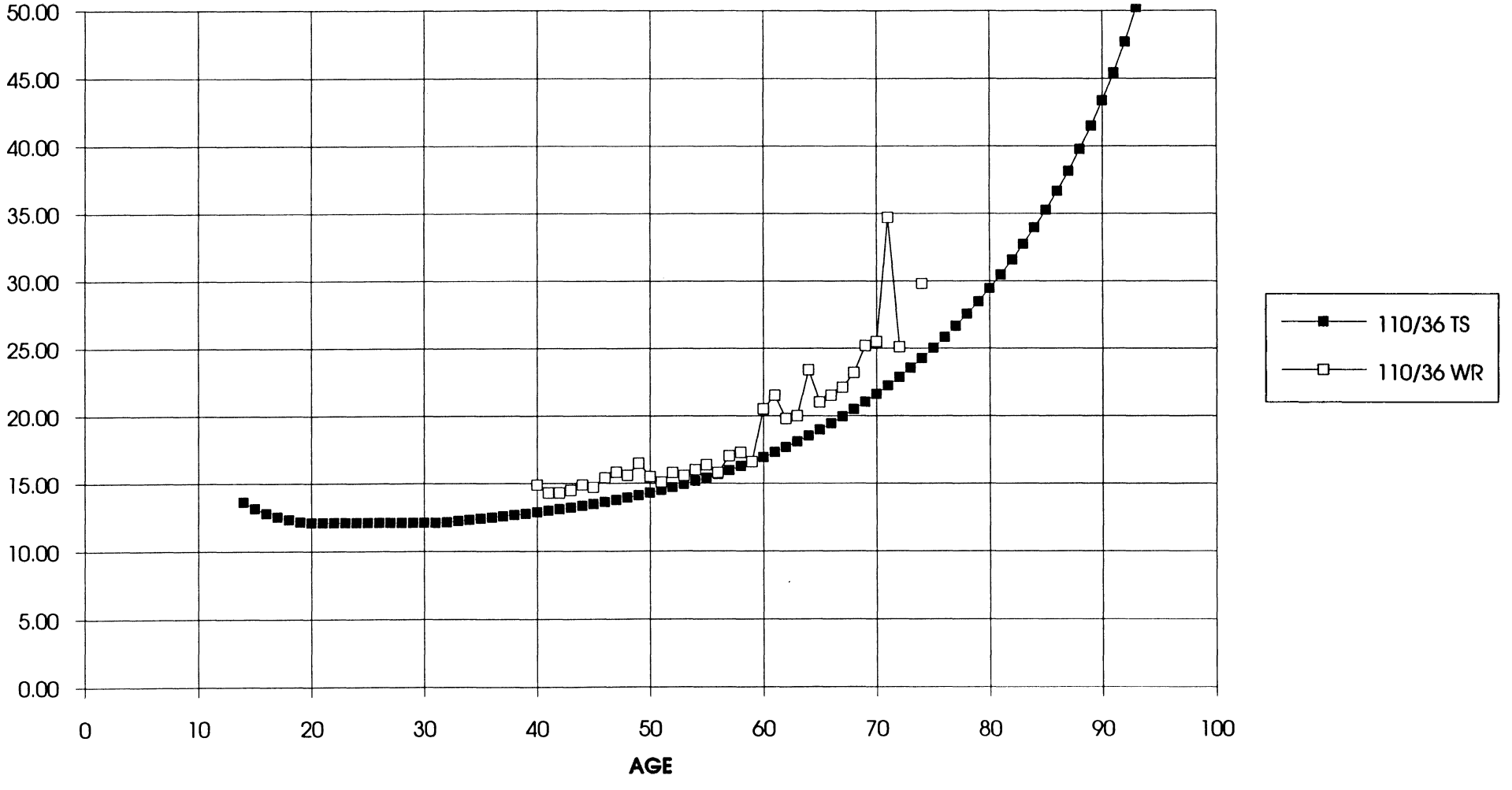
MENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



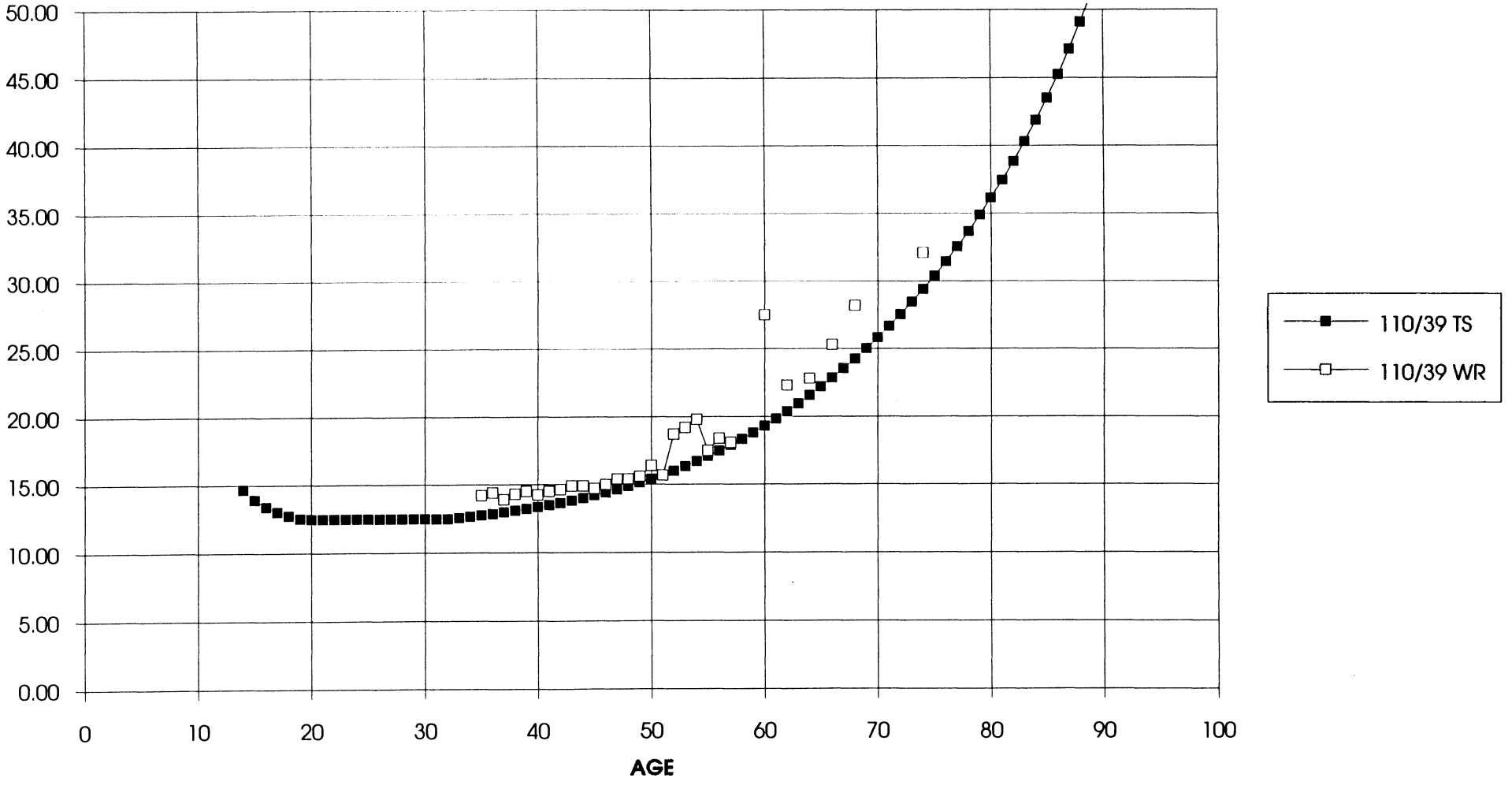
MENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



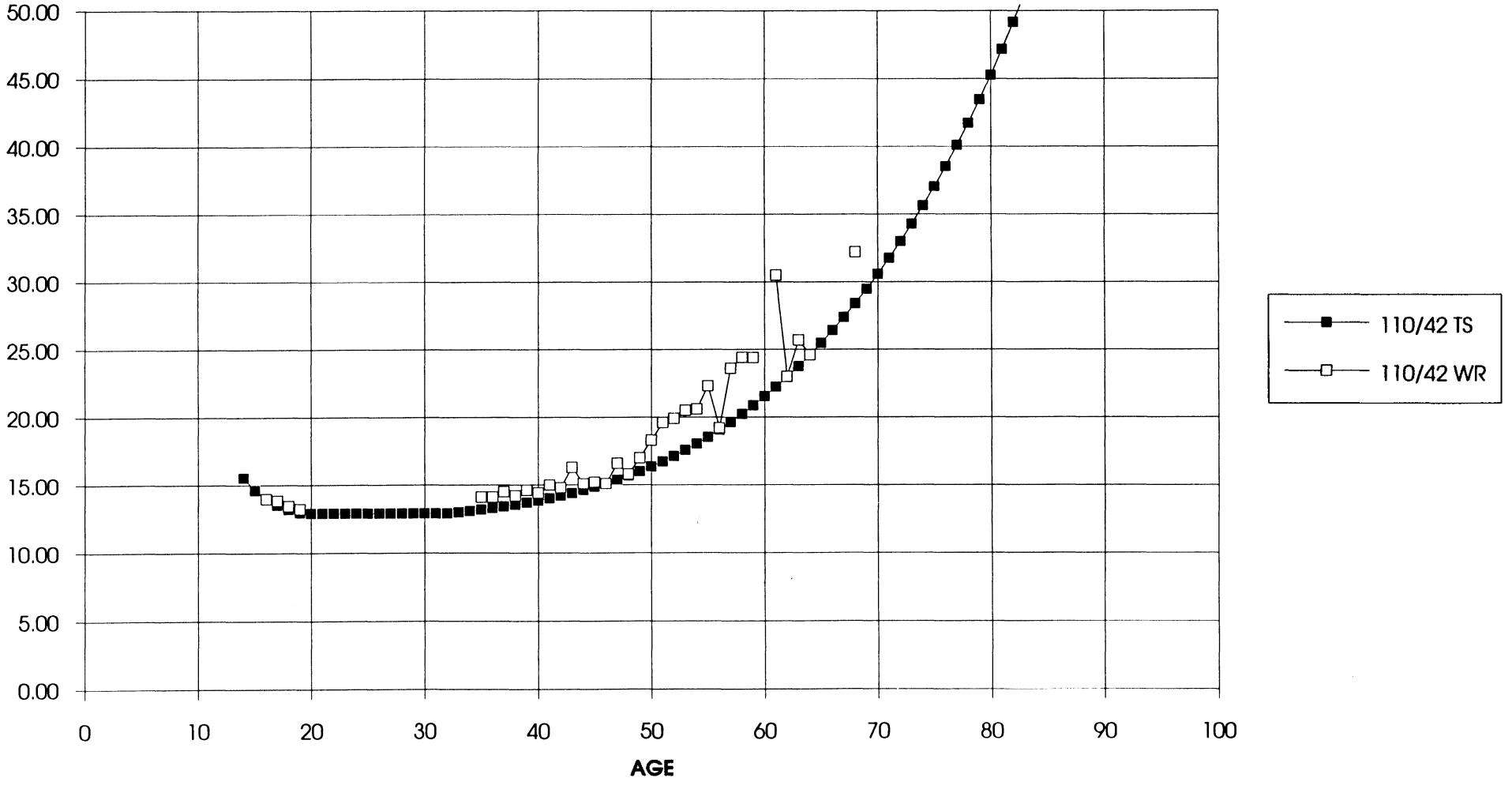
MENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



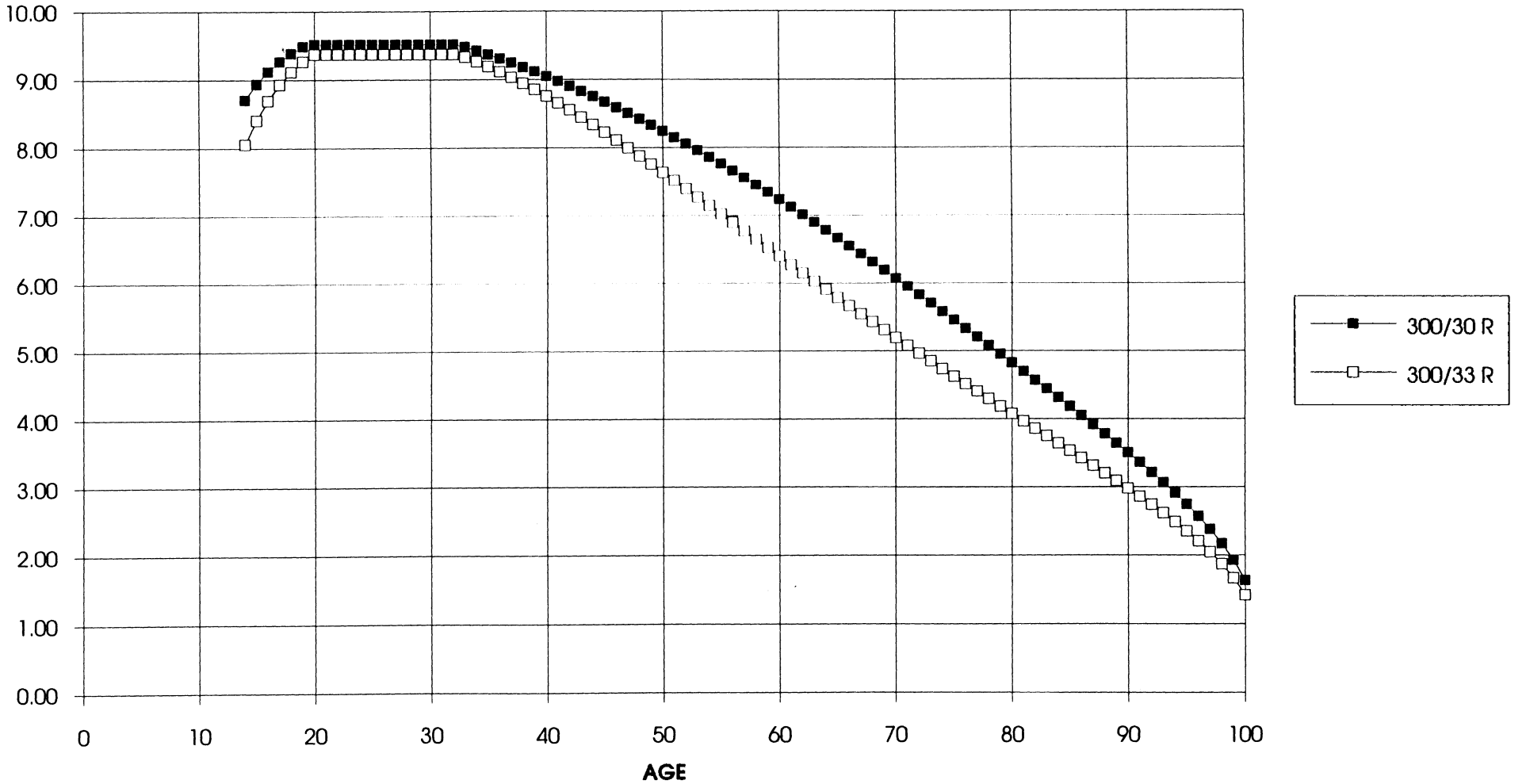
MENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



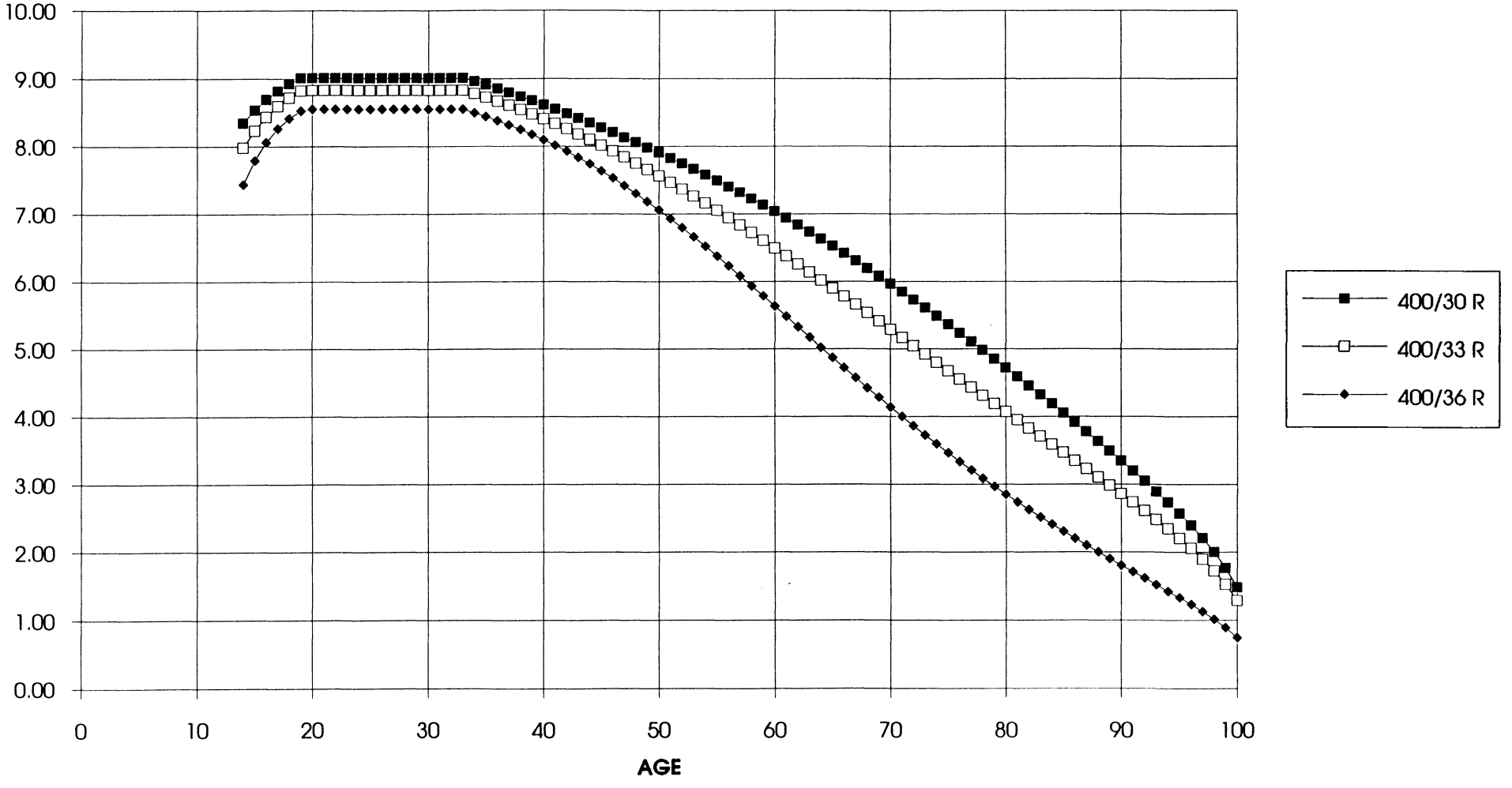
MENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



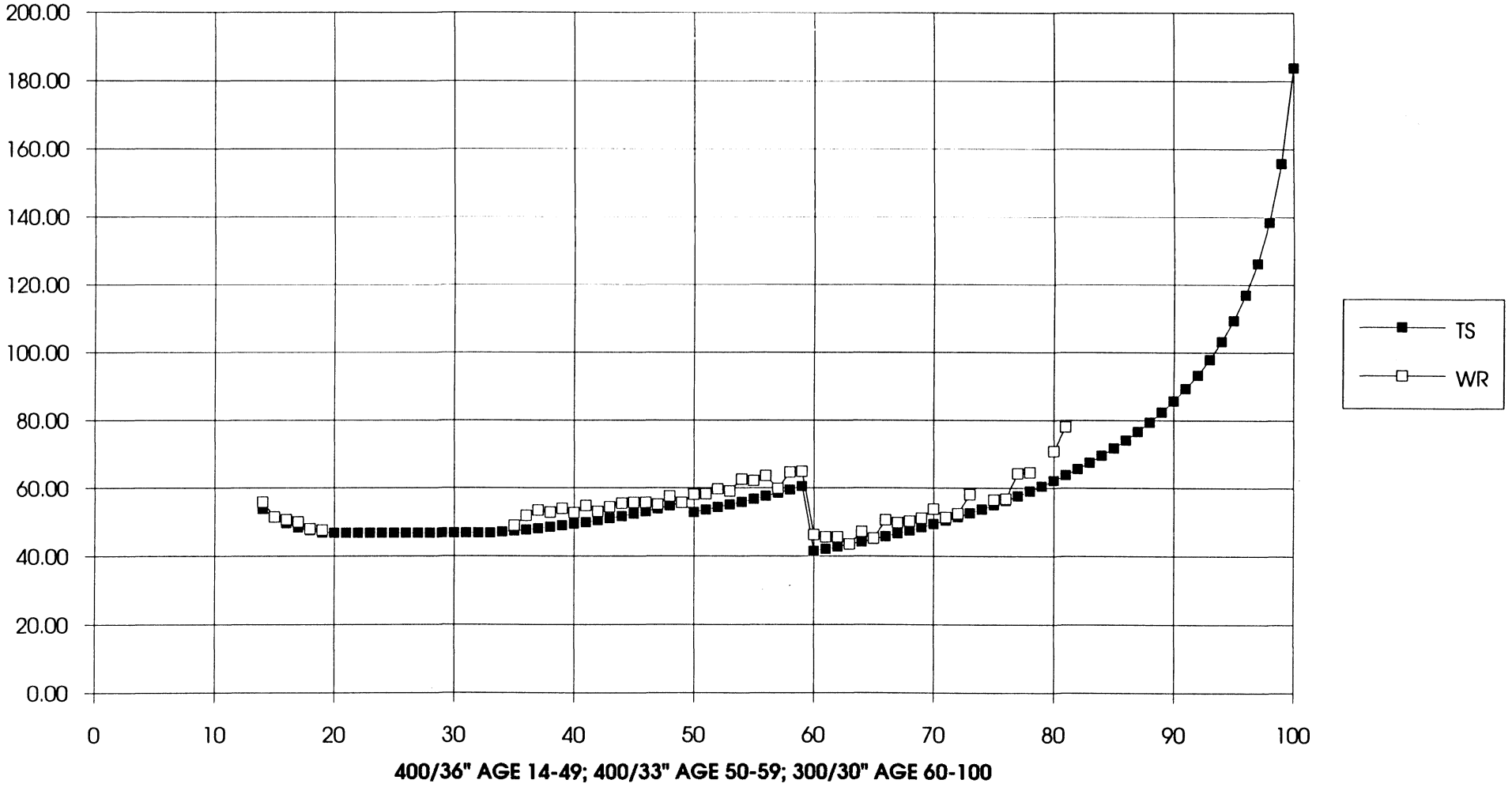
MENS HURDLE STANDARDS RUNNING RATE IN METERS/SECOND



MENS HURDLE STANDARDS RUNNING RATE IN METERS/SECOND

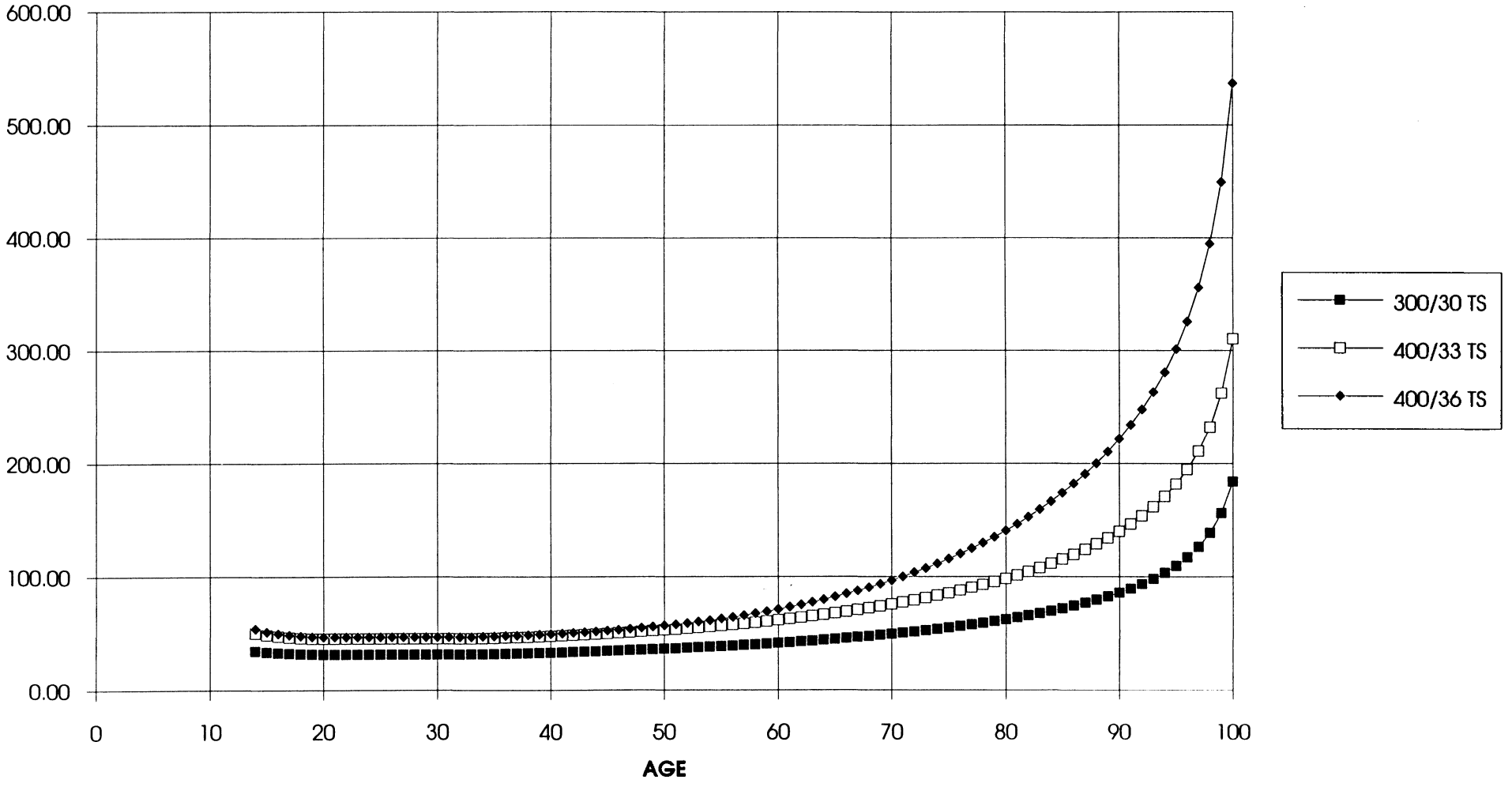


COMPOSITE CHART: MENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS

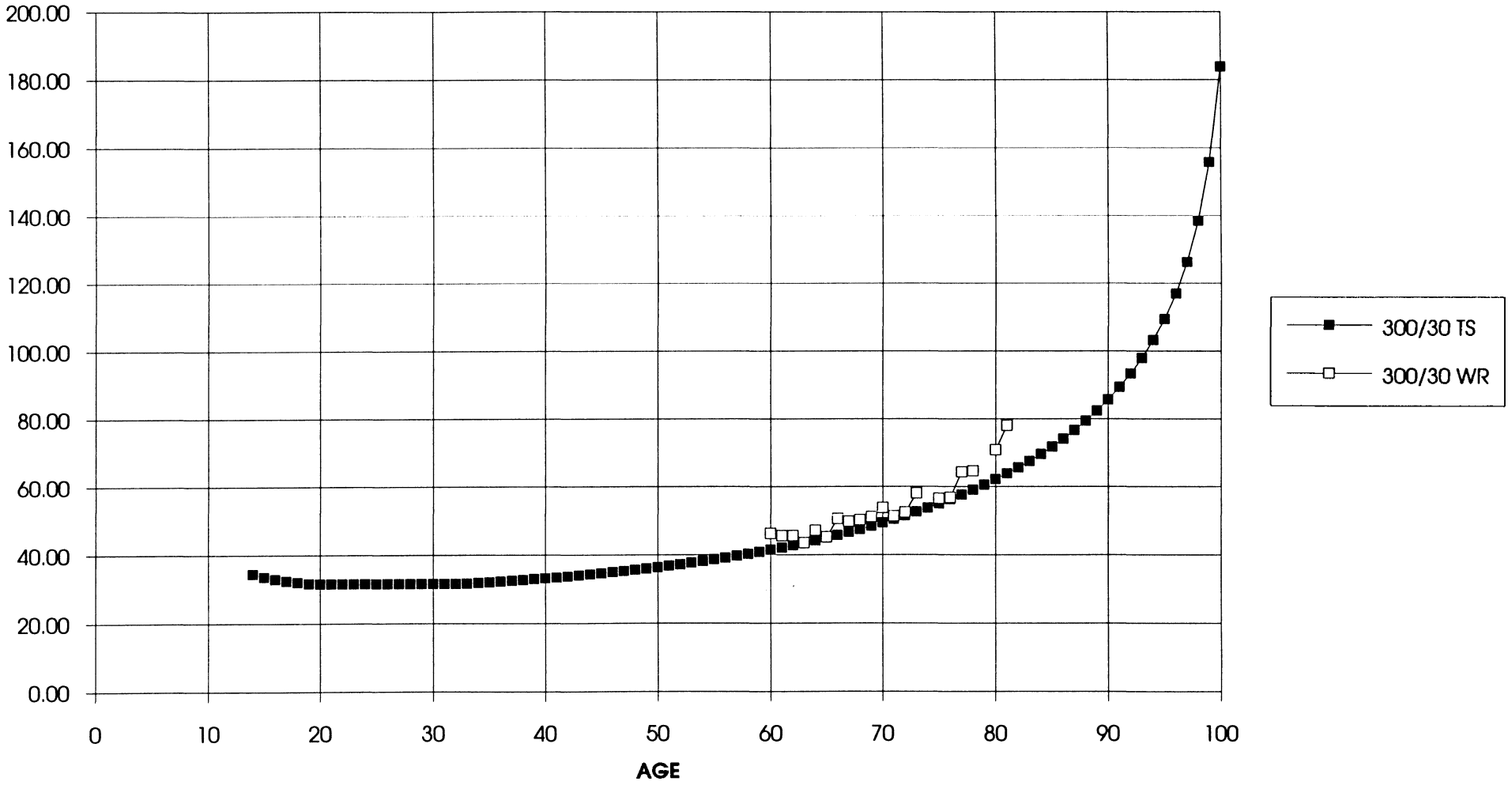


400/36" AGE 14-49; 400/33" AGE 50-59; 300/30" AGE 60-100

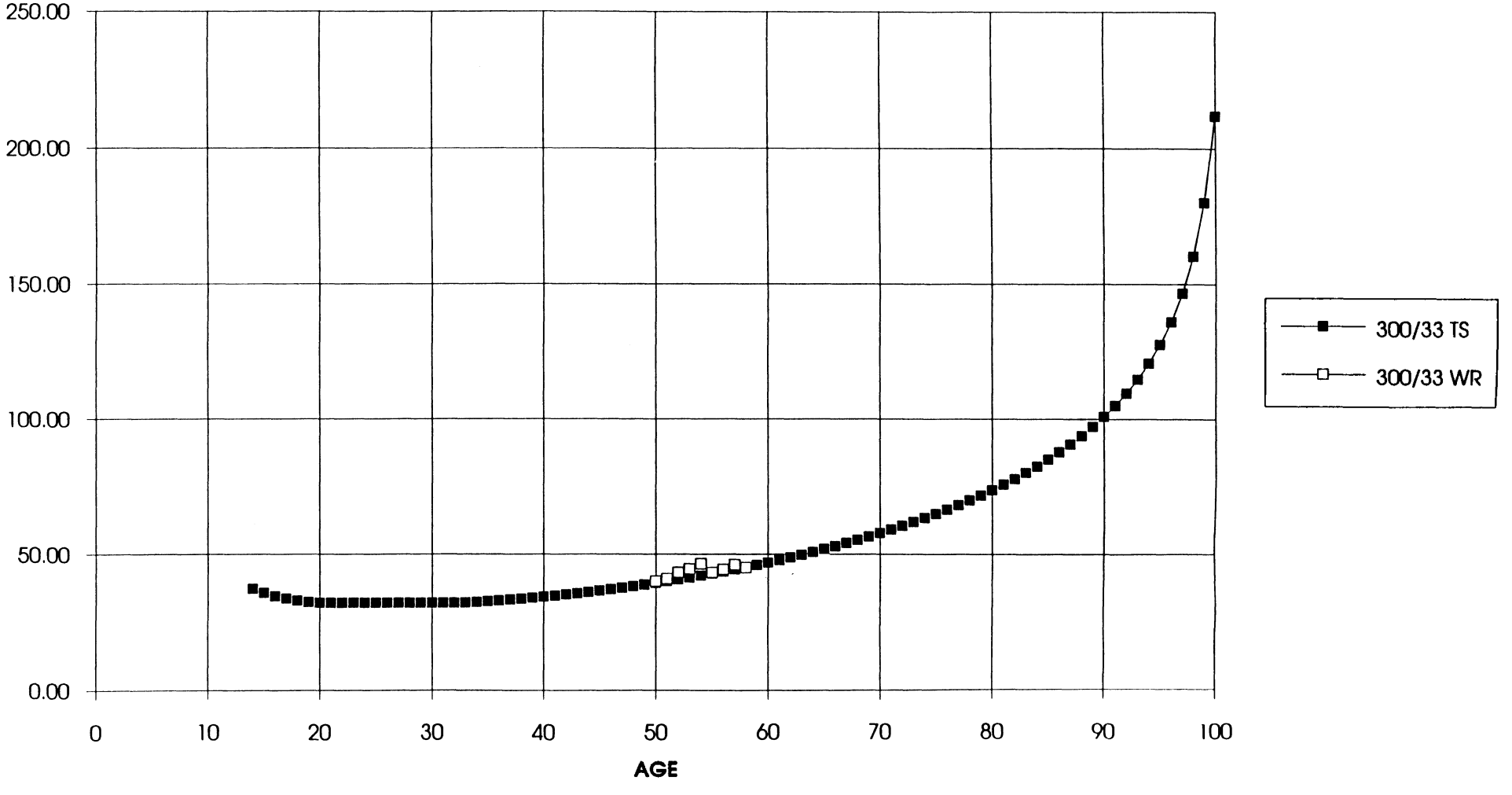
COMPARISON CHART: MENS HURDLE TIME STANDARDS IN SECONDS



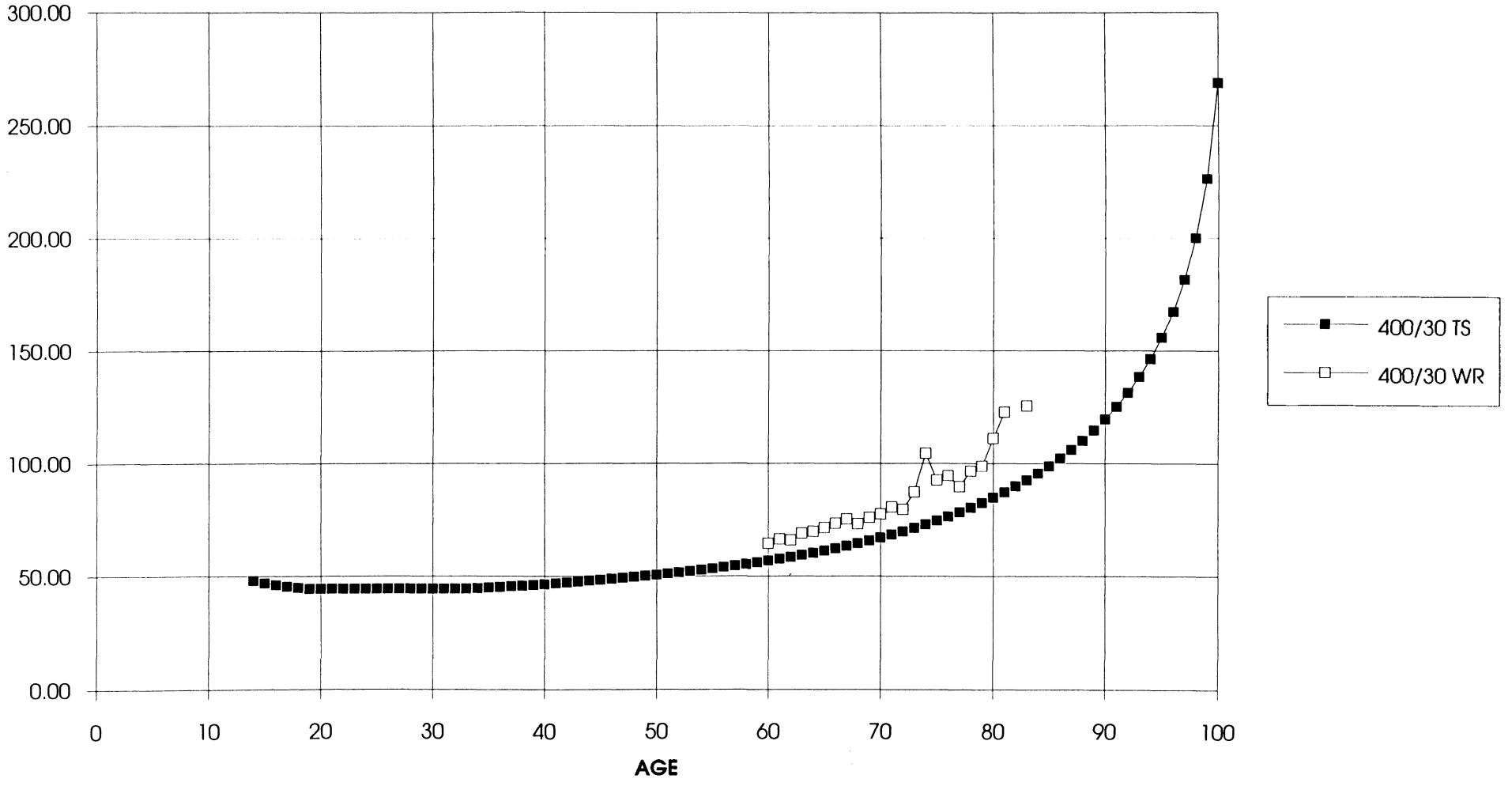
MENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



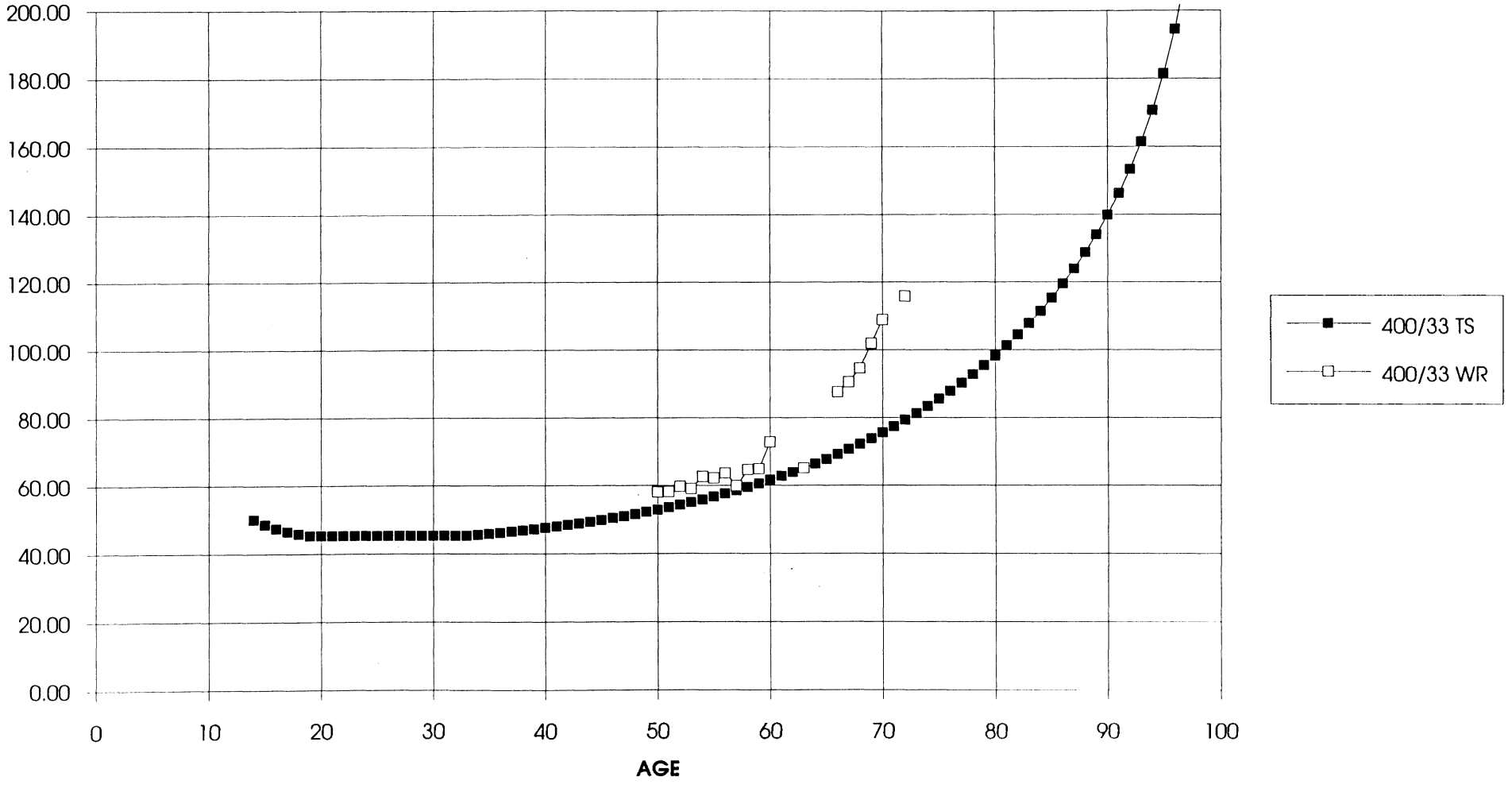
MENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



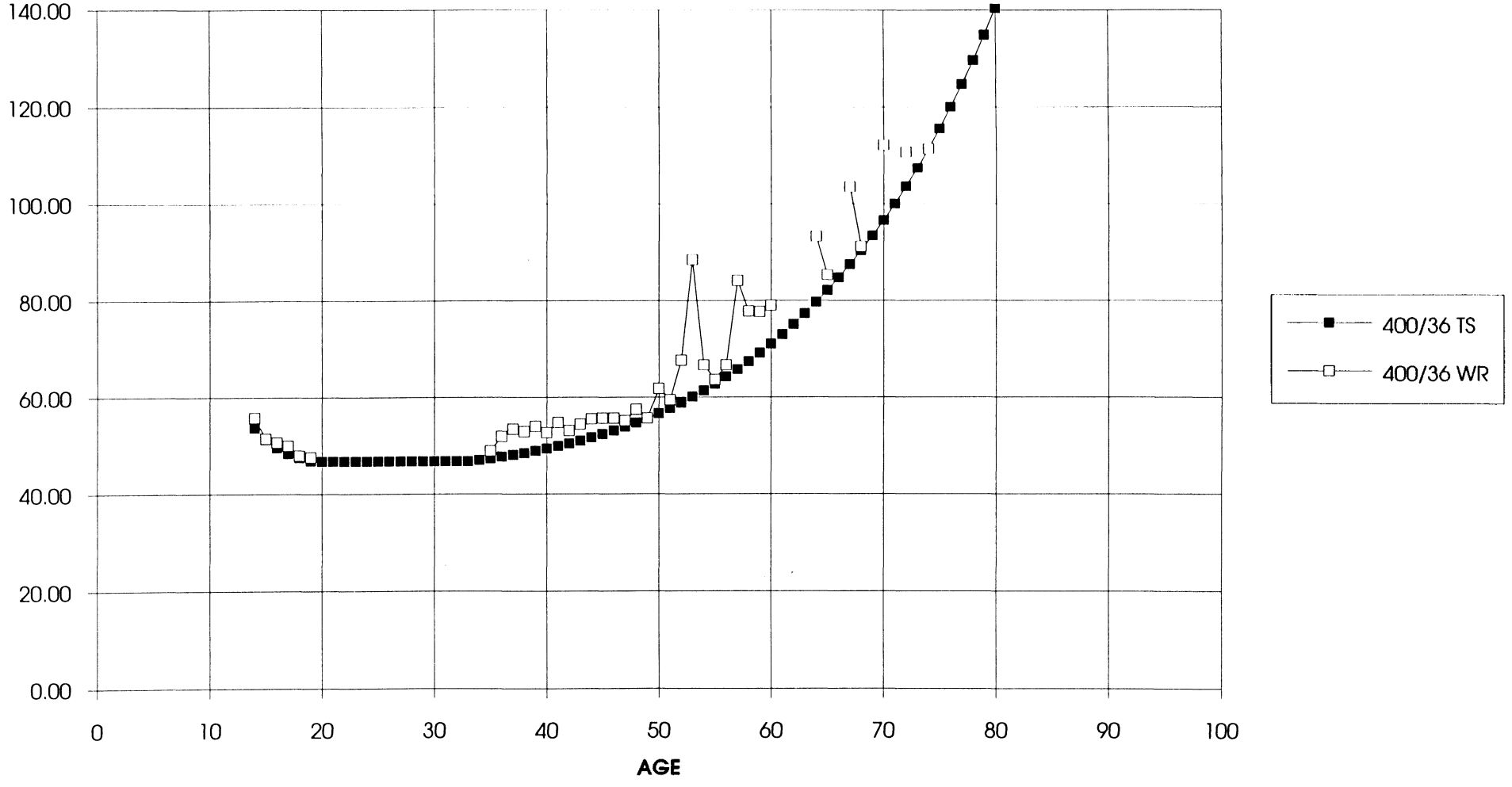
MENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



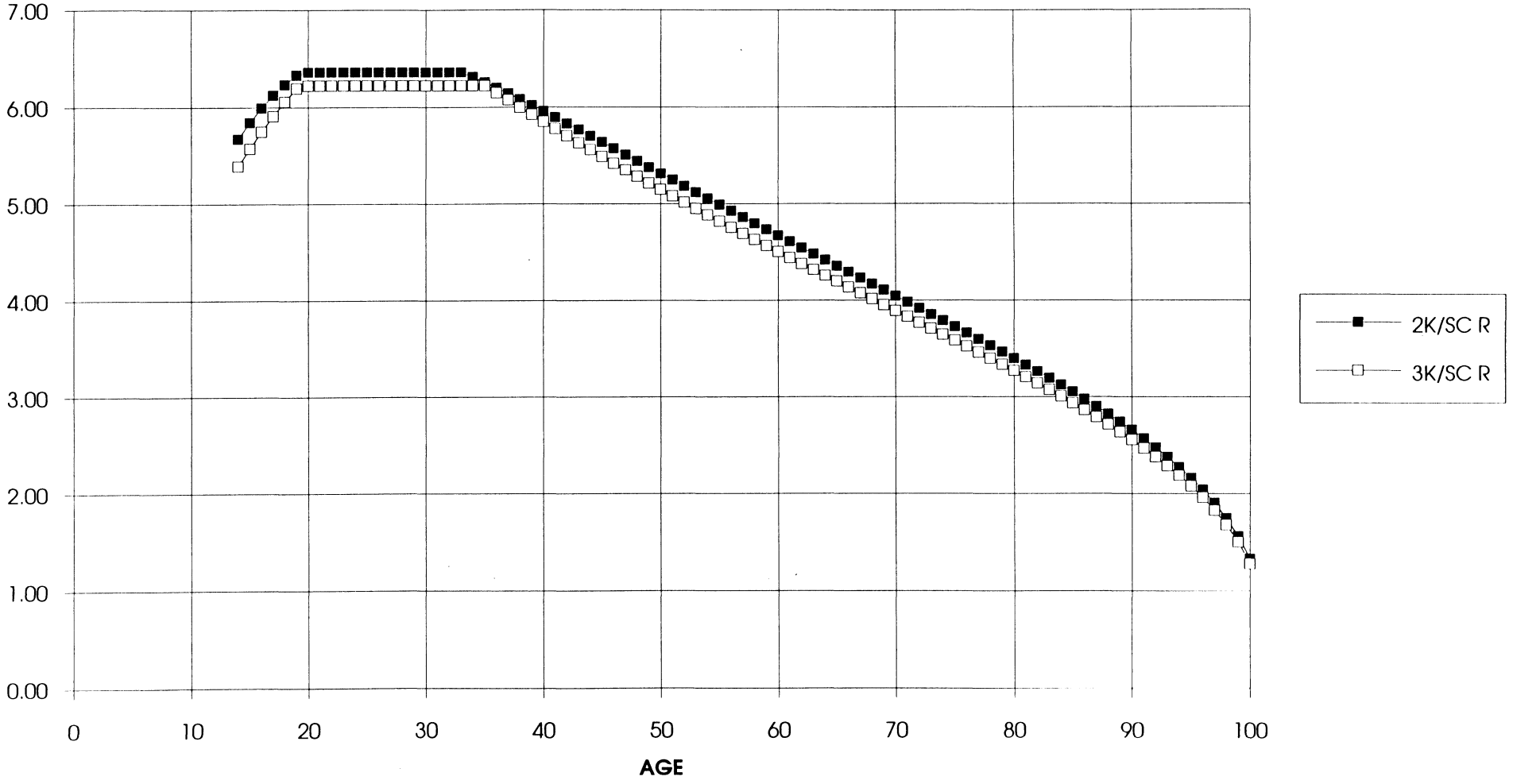
MENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



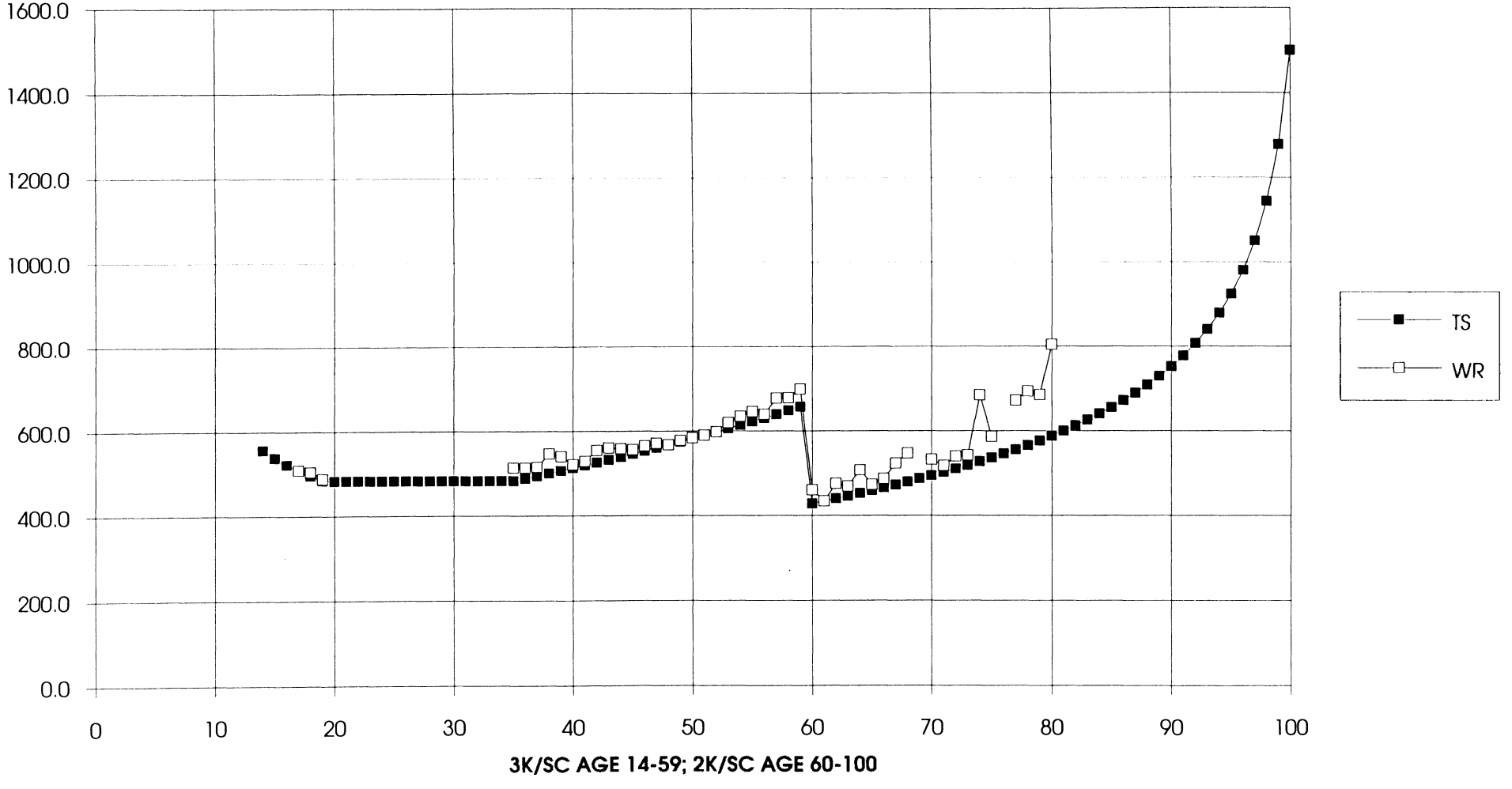
MENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



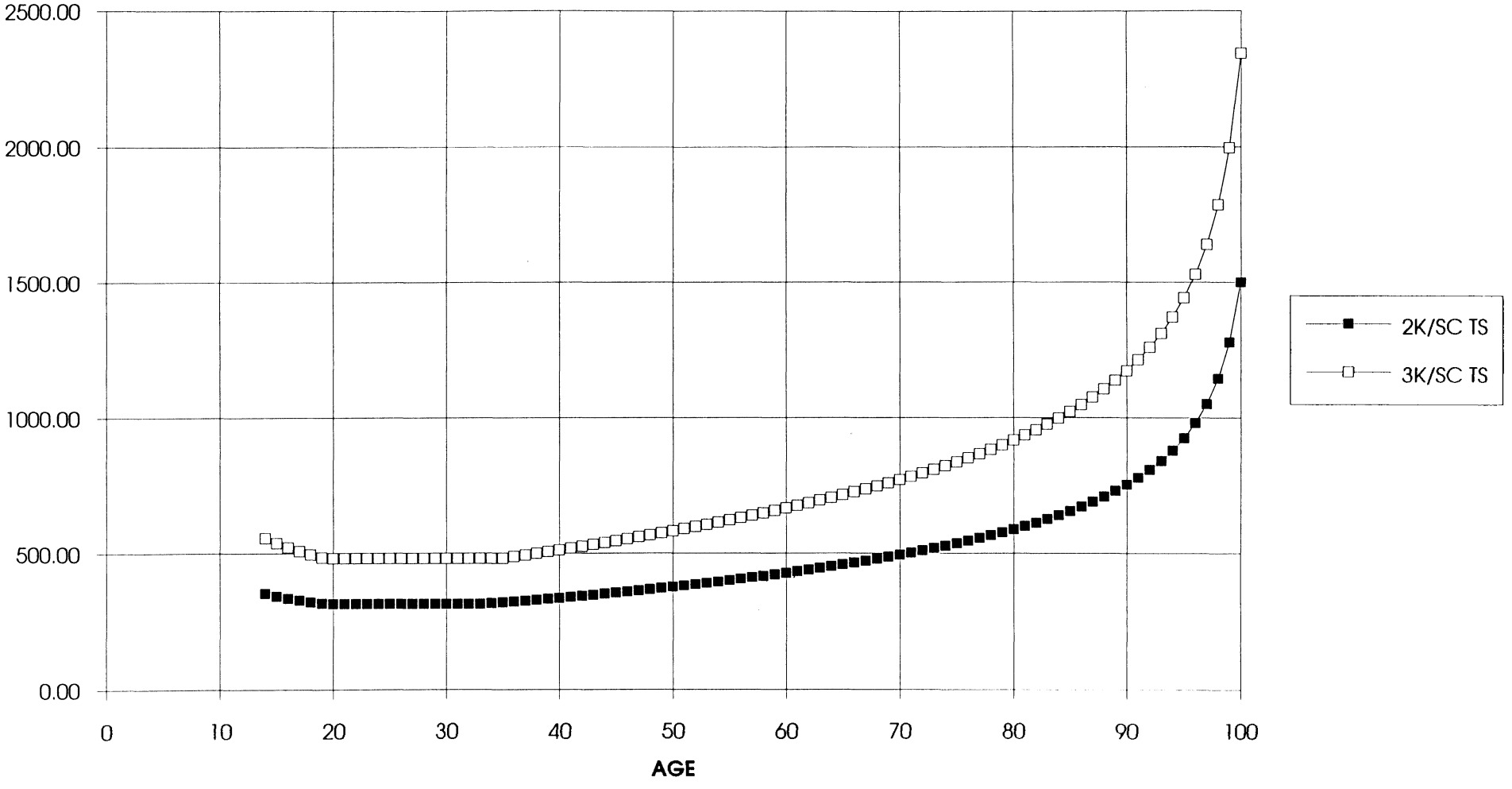
MENS STEEPLECHASE STANDARDS RUNNING RATE IN METERS/SECOND



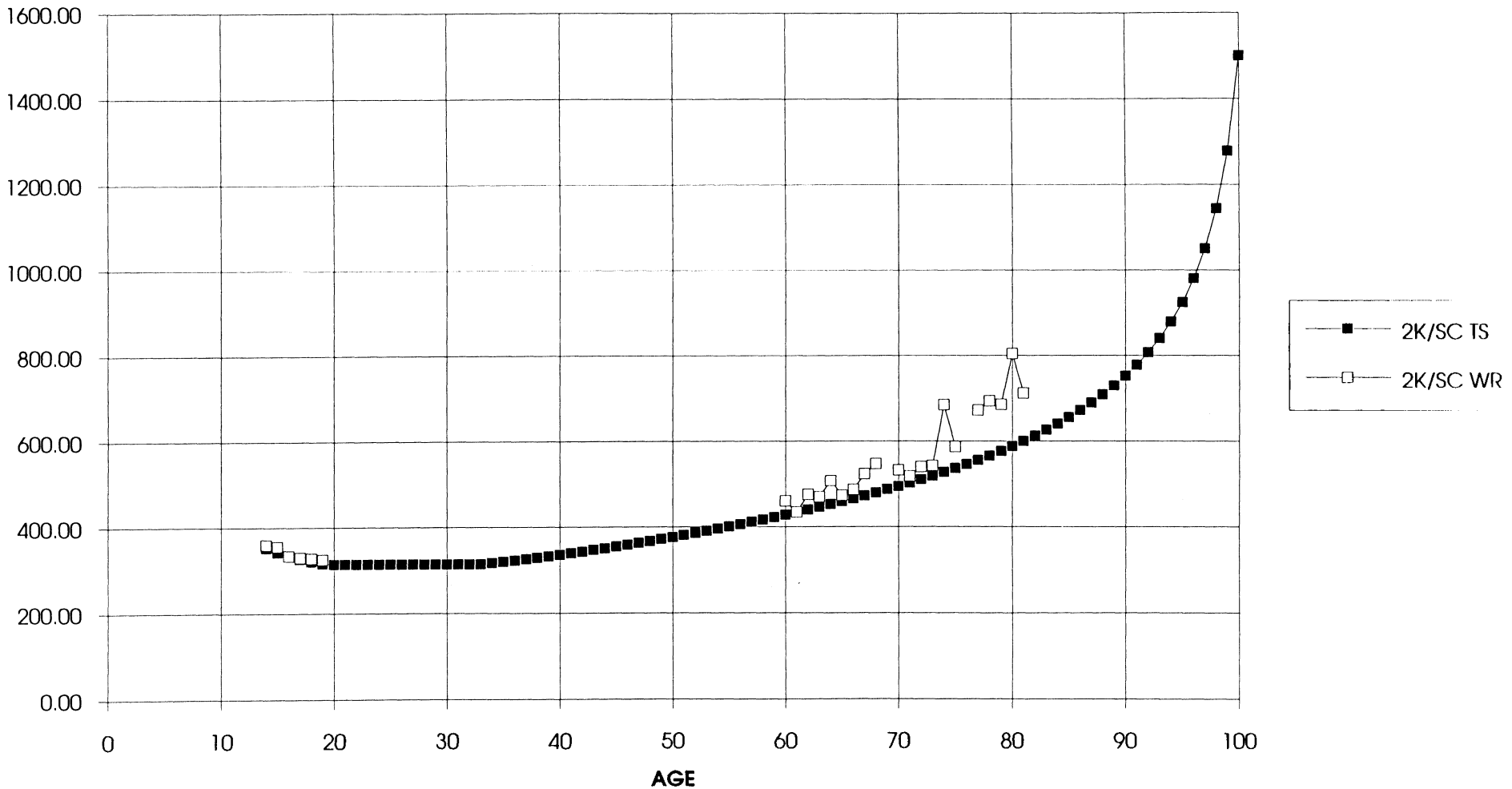
COMPOSITE CHART: MENS STEEPLECHASE TIME STANDARDS AND RECORDS IN SECONDS



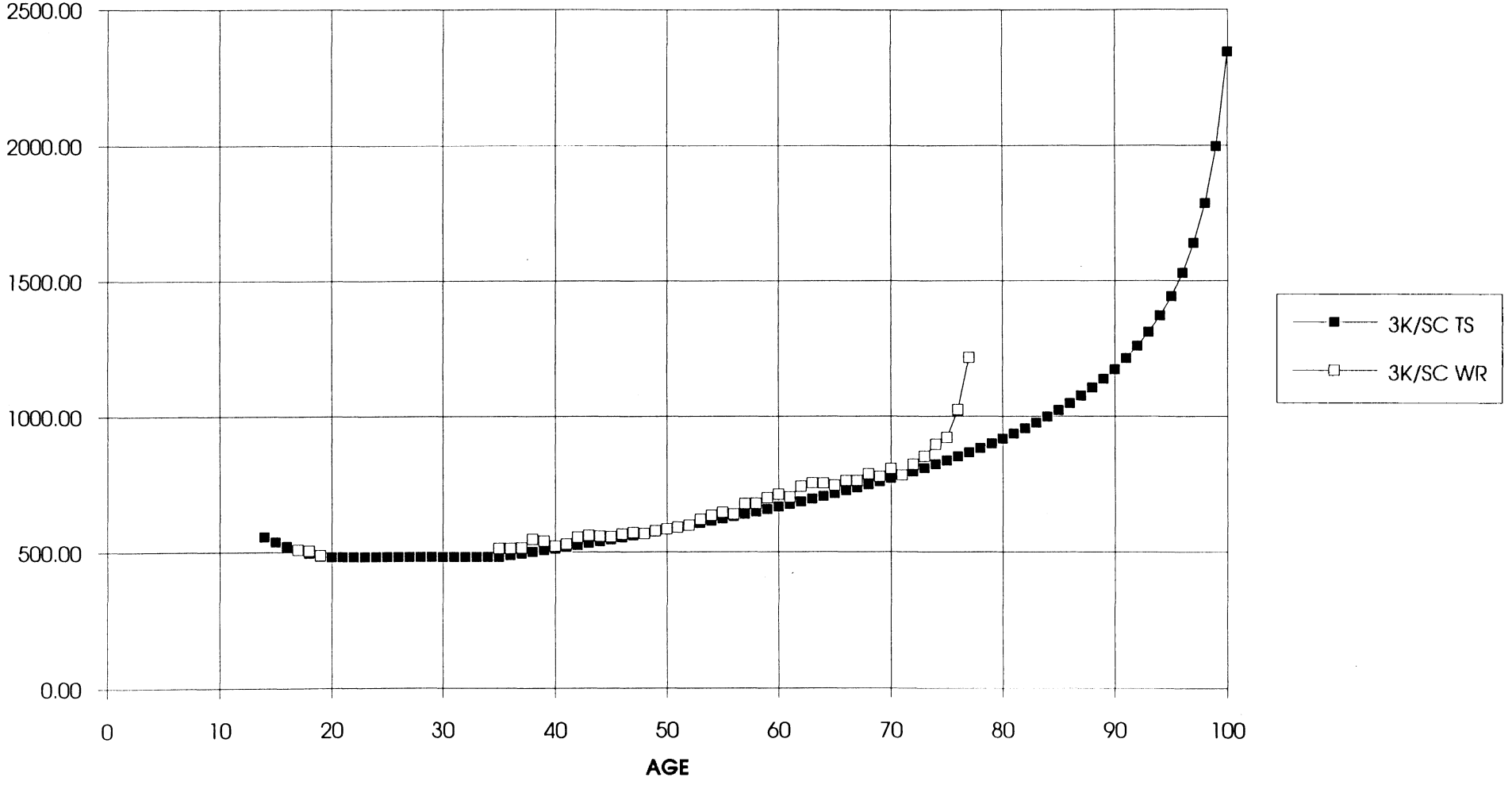
COMPARISON CHART: MENS STEEPLECHASE TIME STANDARDS IN SECONDS



MENS STEEPLECHASE TIME STANDARDS AND RECORDS IN SECONDS



MENS STEEPLECHASE TIME STANDARDS AND RECORDS IN SECONDS



AGE	SPRINT	AGE	INTER	AGE	STEEPLE
	100/33		400/30		2000/SC
19	12.80		55.20		
OC	12.21		52.74		
30	12.21	30	52.74	30	6:00.00
31	12.29	31	52.74	31	6:02.93
32	12.47	32	52.84	32	6:08.15
33	12.66	33	53.22	33	6:13.19
34	12.86	34	53.65	34	6:18.11
35	13.07	35	54.15	35	6:22.95
36	13.28	36	54.70	36	6:27.77
37	13.50	37	55.31	37	6:32.58
38	13.73	38	55.98	38	6:37.42
39	13.96	39	56.70	39	6:42.32
	80/30	40	57.48	40	6:47.29
40	10.69	41	58.31	41	6:52.36
41	10.83	42	59.19	42	6:57.53
42	10.96	43	1:00.13	43	7:02.84
43	11.11	44	1:01.12	44	7:08.28
44	11.25	45	1:02.16	45	7:13.88
45	11.40	46	1:03.25	46	7:19.65
46	11.56	47	1:04.40	47	7:25.60
47	11.71	48	1:05.60	48	7:31.74
48	11.88	49	1:06.85	49	7:38.08
49	12.04		300/30	50	7:44.64
50	12.21	50	46.33	51	7:51.42
51	12.38	51	47.20	52	7:58.43
52	12.56	52	48.10	53	8:05.70
53	12.74	53	49.04	54	8:13.22
54	12.92	54	50.03	55	8:21.01
55	13.11	55	51.05	56	8:29.09
56	13.30	56	52.11	57	8:37.46
57	13.50	57	53.22	58	8:46.15
58	13.70	58	54.36	59	8:55.15
59	13.90	59	55.56	60	9:04.50
60	14.11	60	56.80	61	9:14.20
61	14.33	61	58.09	62	9:24.27
62	14.55	62	59.43	63	9:34.73
63	14.77	63	1:00.82	64	9:45.61
64	15.01	64	1:02.26	65	9:56.91
65	15.24	65	1:03.77	66	10:08.67
66	15.49	66	1:05.33	67	10:20.90
67	15.74	67	1:06.95	68	10:33.64
68	16.00	68	1:08.64	69	10:46.92
69	16.26	69	1:10.40	70	11:00.77
70	16.53	70	1:12.23	71	11:15.22
71	16.82	71	1:14.14	72	11:30.32
72	17.11	72	1:16.12	73	11:46.11
73	17.41	73	1:18.20	74	12:02.63
74	17.72	74	1:20.37	75	12:19.95
75	18.04	75	1:22.64	76	12:38.13
76	18.37	76	1:25.02	77	12:57.23
77	18.72	77	1:27.51	78	13:17.33
78	19.09	78	1:30.13	79	13:38.53
79	19.46	79	1:32.88	80	14:00.93
80	19.86	80	1:35.79	81	14:24.65
81	20.28	81	1:38.85	82	14:49.82
82	20.71	82	1:42.10	83	15:16.61
83	21.17	83	1:45.55	84	15:45.21
84	21.66	84	1:49.22	85	16:15.84
85	22.18	85	1:53.14	86	16:48.77
86	22.74	86	1:57.35	87	17:24.32
87	23.33	87	2:01.88	88	18:02.91
88	23.97	88	2:06.78	89	18:45.01
89	24.66	89	2:12.12	90	19:31.26
90	25.42	90	2:17.96	91	20:22.44
91	26.26	91	2:24.41	92	21:19.61
92	27.19	92	2:31.59	93	22:24.14
93	28.23	93	2:39.68	94	23:37.95
94	29.42	94	2:48.90	95	25:03.74
95	30.80	95	2:59.58	96	26:45.50
96	32.43	96	3:12.22	97	28:49.44
97	34.42	97	3:27.56	98	31:25.88
98	36.93	98	3:46.88	99	34:53.59
99	40.26	99	4:12.45	100	39:51.66
100	45.06	100	4:49.04		

DIST.	100	80	400	300	2000
HT.	33	30	30	30	SC
AGE	30-39	40-100	30-49	50-100	30-100
19	12.8		55.20		
OC	12.21		52.74		
30	12.21	9.87	52.74	37.53	6:00.0
31	12.29	9.87	52.74	37.53	6:02.9
32	12.47	9.87	52.84	37.53	6:08.1
33	12.66	9.87	53.22	37.53	6:13.2
34	12.86	9.97	53.65	37.53	6:18.1
35	13.07	10.08	54.15	37.67	6:23.0
36	13.28	10.19	54.70	38.00	6:27.8
37	13.5	10.31	55.31	38.36	6:32.6
38	13.73	10.43	55.98	38.76	6:37.4
39	13.96	10.56	56.70	39.20	6:42.3
40	14.2	10.69	57.48	39.67	6:47.3
41	14.44	10.83	58.31	40.17	6:52.4
42	14.69	10.96	59.19	40.72	6:57.5
43	14.94	11.11	1:00.13	41.29	7:02.8
44	15.2	11.25	1:01.12	41.91	7:08.3
45	15.46	11.40	1:02.16	42.56	7:13.9
46	15.73	11.56	1:03.25	43.24	7:19.7
47	16	11.71	1:04.40	43.96	7:25.6
48	16.28	11.88	1:05.60	44.71	7:31.7
49	16.56	12.04	1:06.85	45.50	7:38.1
50	16.85	12.21	1:08.16	46.33	7:44.6
51	17.14	12.38	1:09.52	47.20	7:51.4
52	17.44	12.56	1:10.94	48.10	7:58.4
53	17.74	12.74	1:12.41	49.04	8:05.7
54	18.05	12.92	1:13.95	50.03	8:13.2
55	18.36	13.11	1:15.54	51.05	8:21.0
56	18.68	13.30	1:17.19	52.11	8:29.1
57	19	13.50	1:18.91	53.22	8:37.5
58	19.33	13.70	1:20.69	54.36	8:46.1
59	19.67	13.90	1:22.54	55.56	8:55.2
60	20.01	14.11	1:24.45	56.80	9:04.5
61	20.36	14.33	1:26.44	58.09	9:14.2
62	20.72	14.55	1:28.50	59.43	9:24.3
63	21.09	14.77	1:30.64	1:00.82	9:34.7
64	21.46	15.01	1:32.86	1:02.26	9:45.6
65	21.85	15.24	1:35.17	1:03.77	9:56.9
66	22.24	15.49	1:37.56	1:05.33	10:08.7
67	22.64	15.74	1:40.05	1:06.95	10:20.9
68	23.05	16.00	1:42.63	1:08.64	10:33.6
69	23.47	16.26	1:45.32	1:10.40	10:46.9
70	23.91	16.53	1:48.11	1:12.23	11:00.8
71	24.36	16.82	1:51.02	1:14.14	11:15.2
72	24.82	17.11	1:54.06	1:16.12	11:30.3
73	25.29	17.41	1:57.22	1:18.20	11:46.1
74	25.79	17.72	2:00.52	1:20.37	12:02.6
75	26.3	18.04	2:03.98	1:22.64	12:20.0
76	26.82	18.37	2:07.59	1:25.02	12:38.1
77	27.37	18.72	2:11.38	1:27.51	12:57.2
78	27.94	19.09	2:15.36	1:30.13	13:17.3
79	28.54	19.46	2:19.55	1:32.88	13:38.5
80	29.16	19.86	2:23.96	1:35.79	14:00.9
81	29.82	20.28	2:28.62	1:38.85	14:24.7
82	30.5	20.71	2:33.55	1:42.10	14:49.8
83	31.23	21.17	2:38.79	1:45.55	15:16.6
84	31.99	21.66	2:44.36	1:49.22	15:45.2
85	32.81	22.18	2:50.32	1:53.14	16:15.8
86	33.68	22.74	2:56.70	1:57.35	16:48.8
87	34.61	23.33	3:03.58	2:01.88	17:24.3
88	35.61	23.97	3:11.02	2:06.78	18:02.9
89	36.7	24.66	3:19.13	2:12.12	18:45.0
90	37.89	25.42	3:28.00	2:17.96	19:31.3
91	39.2	26.26	3:37.81	2:24.41	20:22.4
92	40.66	27.19	3:48.72	2:31.59	21:19.6
93	42.3	28.23	4:01.02	2:39.68	22:24.1
94	44.17	29.42	4:15.05	2:48.90	23:38.0
95	46.33	30.80	4:31.32	2:59.58	25:03.7
96	48.9	32.43	4:50.57	3:12.22	26:45.5
97	52.03	34.42	5:13.96	3:27.56	28:49.4
98	55.97	36.93	5:43.42	3:46.88	31:25.9
99	61.22	40.26	6:22.46	4:12.45	34:53.6
100	68.76	45.06	7:18.37	4:49.04	39:51.7

DIST.	100	80	400	300	2000
HT.	33	30	30	30	SC
AGE	30-39	40-100	30-49	50-100	30-100
19	12.80	9.87	55.20	37.98	360.0
OC	12.21		52.74		
30	12.21	9.87	52.74	37.53	360.0
31	12.29	9.87	52.74	37.53	362.9
32	12.47	9.87	52.84	37.53	368.1
33	12.66	9.87	53.22	37.53	373.2
34	12.86	9.97	53.65	37.53	378.1
35	13.07	10.08	54.15	37.67	383.0
36	13.28	10.19	54.70	38.00	387.8
37	13.50	10.31	55.31	38.36	392.6
38	13.73	10.43	55.98	38.76	397.4
39	13.96	10.56	56.70	39.20	402.3
40	14.20	10.69	57.48	39.67	407.3
41	14.44	10.83	58.31	40.17	412.4
42	14.69	10.96	59.19	40.72	417.5
43	14.94	11.11	60.13	41.29	422.8
44	15.20	11.25	61.12	41.91	428.3
45	15.46	11.40	62.16	42.56	433.9
46	15.73	11.56	63.25	43.24	439.7
47	16.00	11.71	64.40	43.96	445.6
48	16.28	11.88	65.60	44.71	451.7
49	16.56	12.04	66.85	45.50	458.1
50	16.85	12.21	68.16	46.33	464.6
51	17.14	12.38	69.52	47.20	471.4
52	17.44	12.56	70.94	48.10	478.4
53	17.74	12.74	72.41	49.04	485.7
54	18.05	12.92	73.95	50.03	493.2
55	18.36	13.11	75.54	51.05	501.0
56	18.68	13.30	77.19	52.11	509.1
57	19.00	13.50	78.91	53.22	517.5
58	19.33	13.70	80.69	54.36	526.1
59	19.67	13.90	82.54	55.56	535.2
60	20.01	14.11	84.45	56.80	544.5
61	20.36	14.33	86.44	58.09	554.2
62	20.72	14.55	88.50	59.43	564.3
63	21.09	14.77	90.64	60.82	574.7
64	21.46	15.01	92.86	62.26	585.6
65	21.85	15.24	95.17	63.77	596.9
66	22.24	15.49	97.56	65.33	608.7
67	22.64	15.74	100.05	66.95	620.9
68	23.05	16.00	102.63	68.64	633.6
69	23.47	16.26	105.32	70.40	646.9
70	23.91	16.53	108.11	72.23	660.8
71	24.36	16.82	111.02	74.14	675.2
72	24.82	17.11	114.06	76.12	690.3
73	25.29	17.41	117.22	78.20	706.1
74	25.79	17.72	120.52	80.37	722.6
75	26.30	18.04	123.98	82.64	740.0
76	26.82	18.37	127.59	85.02	758.1
77	27.37	18.72	131.38	87.51	777.2
78	27.94	19.09	135.36	90.13	797.3
79	28.54	19.46	139.55	92.88	818.5
80	29.16	19.86	143.96	95.79	840.9
81	29.82	20.28	148.62	98.85	864.7
82	30.50	20.71	153.55	102.10	889.8
83	31.23	21.17	158.79	105.55	916.6
84	31.99	21.66	164.36	109.22	945.2
85	32.81	22.18	170.32	113.14	975.8
86	33.68	22.74	176.70	117.35	1008.8
87	34.61	23.33	183.58	121.88	1044.3
88	35.61	23.97	191.02	126.78	1082.9
89	36.70	24.66	199.13	132.12	1125.0
90	37.89	25.42	208.00	137.96	1171.3
91	39.20	26.26	217.81	144.41	1222.4
92	40.66	27.19	228.72	151.59	1279.6
93	42.30	28.23	241.02	159.68	1344.1
94	44.17	29.42	255.05	168.90	1418.0
95	46.33	30.80	271.32	179.58	1503.7
96	48.90	32.43	290.57	192.22	1605.5
97	52.03	34.42	313.96	207.56	1729.4
98	55.97	36.93	343.42	226.88	1885.9
99	61.22	40.26	382.46	252.45	2093.6
100	68.76	45.06	438.37	289.04	2391.7

HURDLE AGE FACTORS

MEN											WOMEN					
DIST.	110	110	100	100	80	400	400	300	3000	2000	DIST.	100	80	400	300	2000
HT.	42	39	36	33	30	36	30	30	SC	SC	HT.	33	30	30	30	SC
AGE	14-34	35-49	50-59	60-69	70-100	30-49	50-59	60-100	30-59	60-100	AGE	30-39	40-100	30-49	50-100	30-100
14	0.8310					0.8700			0.8664	1.3681	14	0.7946		0.8077		
15	0.8841					0.9116			0.8962	1.4087	15	0.8320		0.8468		
16	0.9244					0.9427			0.9238	1.4444	16	0.8667		0.8809		
17	0.9547					0.9661			0.9495	1.4756	17	0.8986		0.9101		
18	0.9777					0.9837			0.9734	1.5025	18	0.9276		0.9349		
19	0.9954					0.9970			0.9956	1.5255	19	0.9538		0.9554		
OC	1.0000					1.0000			1.0000		OC	1.0000		1.0000		
30	1.0000	1.0345	1.1704	1.2179	1.5351	1.0000	1.0542	1.4846	1.0000	1.5332	30	1.0000	1.2371	1.0000	1.4053	1.0000
31	1.0000	1.0345	1.1704	1.2179	1.5351	1.0000	1.0542	1.4846	1.0000	1.5332	31	0.9934	1.2371	1.0000	1.4053	0.9919
32	1.0000	1.0345	1.1675	1.2173	1.5291	1.0000	1.0542	1.4846	1.0000	1.5332	32	0.9791	1.2371	0.9981	1.4053	0.9779
33	0.9939	1.0282	1.1588	1.2080	1.5168	0.9997	1.0542	1.4782	1.0000	1.5332	33	0.9644	1.2371	0.9911	1.4053	0.9647
34	0.9865	1.0207	1.1499	1.1986	1.5046	0.9936	1.0483	1.4699	1.0000	1.5209	34	0.9495	1.2247	0.9830	1.4053	0.9521
35	0.9787	1.0128	1.1408	1.1890	1.4924	0.9870	1.0420	1.4611	1.0000	1.5078	35	0.9345	1.2115	0.9740	1.4001	0.9401
36	0.9705	1.0046	1.1313	1.1792	1.4802	0.9800	1.0355	1.4519	0.9884	1.4942	36	0.9194	1.1979	0.9642	1.3880	0.9284
37	0.9619	0.9960	1.1216	1.1693	1.4680	0.9725	1.0287	1.4423	0.9762	1.4802	37	0.9044	1.1842	0.9535	1.3749	0.9170
38	0.9527	0.9871	1.1115	1.1591	1.4558	0.9645	1.0218	1.4323	0.9641	1.4658	38	0.8895	1.1703	0.9421	1.3607	0.9058
39	0.9429	0.9776	1.1010	1.1488	1.4436	0.9560	1.0146	1.4220	0.9521	1.4511	39	0.8747	1.1562	0.9301	1.3455	0.8948
40	0.9325	0.9677	1.0900	1.1383	1.4313	0.9469	1.0073	1.4113	0.9403	1.4362	40	0.8600	1.1421	0.9175	1.3295	0.8839
41	0.9214	0.9572	1.0787	1.1276	1.4190	0.9373	0.9998	1.4002	0.9285	1.4211	41	0.8456	1.1278	0.9045	1.3128	0.8730
42	0.9096	0.9461	1.0669	1.1167	1.4066	0.9272	0.9921	1.3888	0.9169	1.4058	42	0.8313	1.1136	0.8910	1.2953	0.8622
43	0.8970	0.9346	1.0546	1.1056	1.3941	0.9164	0.9843	1.3771	0.9053	1.3904	43	0.8172	1.0993	0.8771	1.2772	0.8514
44	0.8837	0.9224	1.0418	1.0944	1.3815	0.9051	0.9763	1.3650	0.8939	1.3749	44	0.8033	1.0850	0.8629	1.2585	0.8406
45	0.8697	0.9097	1.0286	1.0830	1.3689	0.8932	0.9681	1.3526	0.8826	1.3593	45	0.7896	1.0707	0.8485	1.2393	0.8297
46	0.8550	0.8964	1.0149	1.0714	1.3562	0.8808	0.9598	1.3398	0.8713	1.3437	46	0.7762	1.0565	0.8338	1.2197	0.8188
47	0.8395	0.8826	1.0008	1.0597	1.3434	0.8677	0.9513	1.3268	0.8602	1.3280	47	0.7630	1.0423	0.8189	1.1998	0.8079
48	0.8234	0.8682	0.9863	1.0478	1.3305	0.8541	0.9427	1.3133	0.8492	1.3123	48	0.7500	1.0282	0.8040	1.1795	0.7969
49	0.8067	0.8534	0.9713	1.0358	1.3176	0.8400	0.9338	1.2996	0.8383	1.2967	49	0.7372	1.0141	0.7889	1.1590	0.7859
50	0.7894	0.8380	0.9560	1.0237	1.3045	0.8254	0.9248	1.2855	0.8275	1.2810	50	0.7247	1.0001	0.7738	1.1383	0.7748
51	0.7716	0.8223	0.9403	1.0115	1.2914	0.8102	0.9156	1.2711	0.8168	1.2654	51	0.7123	0.9862	0.7586	1.1174	0.7637
52	0.7534	0.8062	0.9243	0.9991	1.2783	0.7947	0.9061	1.2564	0.8061	1.2497	52	0.7002	0.9724	0.7435	1.0964	0.7525
53	0.7348	0.7897	0.9080	0.9867	1.2651	0.7787	0.8965	1.2414	0.7956	1.2341	53	0.6883	0.9587	0.7283	1.0754	0.7412
54	0.7159	0.7729	0.8914	0.9741	1.2518	0.7623	0.8867	1.2260	0.7851	1.2186	54	0.6766	0.9450	0.7132	1.0543	0.7299
55	0.6967	0.7559	0.8746	0.9615	1.2384	0.7456	0.8766	1.2104	0.7747	1.2031	55	0.6650	0.9315	0.6982	1.0332	0.7185
56	0.6774	0.7386	0.8576	0.9489	1.2250	0.7285	0.8663	1.1945	0.7644	1.1876	56	0.6537	0.9180	0.6832	1.0121	0.7071
57	0.6580	0.7213	0.8405	0.9361	1.2116	0.7113	0.8558	1.1783	0.7542	1.1722	57	0.6425	0.9047	0.6684	0.9911	0.6957
58	0.6386	0.7038	0.8232	0.9233	1.1981	0.6938	0.8451	1.1618	0.7440	1.1568	58	0.6316	0.8914	0.6536	0.9701	0.6842
59	0.6192	0.6862	0.8059	0.9105	1.1846	0.6762	0.8341	1.1450	0.7339	1.1415	59	0.6207	0.8782	0.6390	0.9493	0.6727
60	0.5999	0.6686	0.7885	0.8977	1.1710	0.6585	0.8229	1.1280	0.7239	1.1262	60	0.6101	0.8652	0.6245	0.9285	0.6612
61	0.5808	0.6511	0.7710	0.8848	1.1574	0.6407	0.8114	1.1108	0.7139	1.1110	61	0.5996	0.8522	0.6101	0.9079	0.6496
62	0.5619	0.6336	0.7536	0.8719	1.1438	0.6228	0.7997	1.0933	0.7039	1.0957	62	0.5892	0.8392	0.5959	0.8875	0.6380
63	0.5432	0.6162	0.7362	0.8589	1.1301	0.6050	0.7878	1.0756	0.6940	1.0806	63	0.5790	0.8264	0.5818	0.8672	0.6264
64	0.5248	0.5990	0.7188	0.8460	1.1164	0.5873	0.7756	1.0578	0.6842	1.0654	64	0.5689	0.8137	0.5679	0.8470	0.6147
65	0.5067	0.5819	0.7016	0.8331	1.1027	0.5697	0.7632	1.0397	0.6743	1.0503	65	0.5589	0.8010	0.5542	0.8271	0.6031
66	0.4890	0.5650	0.6845	0.8202	1.0889	0.5521	0.7506	1.0214	0.6645	1.0352	66	0.5491	0.7884	0.5406	0.8073	0.5915
67	0.4717	0.5483	0.6675	0.8072	1.0751	0.5348	0.7377	1.0030	0.6548	1.0200	67	0.5393	0.7758	0.5271	0.7877	0.5798
68	0.4548	0.5319	0.6506	0.7943	1.0613	0.5176	0.7246	0.9844	0.6450	1.0049	68	0.5297	0.7633	0.5139	0.7684	0.5681
69	0.4383	0.5157	0.6339	0.7814	1.0474	0.5007	0.7112	0.9657	0.6352	0.9898	69	0.5202	0.7509	0.5008	0.7492	0.5565
70	0.4222	0.4998	0.6174	0.7685	1.0335	0.4840	0.6977	0.9468	0.6255	0.9747	70	0.5107	0.7385	0.4878	0.7302	0.5448
71	0.4066	0.4842	0.6011	0.7555	1.0195	0.4675	0.6840	0.9278	0.6157	0.9595	71	0.5013	0.7261	0.4750	0.7114	0.5332
72	0.3914	0.4689	0.5850	0.7426	1.0055	0.4514	0.6700	0.9087	0.6059	0.9443	72	0.4920	0.7138	0.4624	0.6928	0.5215
73	0.3767	0.4538	0.5691	0.7297	0.9915	0.4355	0.6559	0.8895	0.5961	0.9291	73	0.4827	0.7014	0.4499	0.6744	0.5098
74	0.3624	0.4391	0.5534	0.7168	0.9773	0.4199	0.6416	0.8702	0.5862	0.9138	74	0.4735	0.6891	0.4376	0.6562	0.4982
75	0.3485	0.4247	0.5379	0.7039	0.9632	0.4047	0.6271	0.8508	0.5763	0.8984	75	0.4643	0.6768	0.4254	0.6382	0.4865
76	0.3350	0.4106	0.5226	0.6910	0.9489	0.3897	0.6124	0.8313	0.5664	0.8829	76	0.4552	0.6645	0.4133	0.6203	0.4749
77	0.3220	0.3969	0.5076	0.6781	0.9345	0.3751	0.5976	0.8118	0.5564	0.8673	77	0.4461	0.6521	0.4014	0.6027	0.4632
78	0.3093	0.3834	0.4928	0.6651	0.9200	0.3608	0.5826	0.7921	0.5463	0.8516	78	0.4370	0.6398	0.3896	0.5852	0.4515
79	0.2971	0.3702	0.4782	0.6522	0.9054	0.3468	0.5675	0.7724	0.5361	0.8357	79	0.4278	0.6273	0.3779	0.5678	0.4398
80	0.2852	0.3573	0.4638	0.6391	0.8907	0.3331	0.5522	0.7526	0.5258	0.8197	80	0.4187	0.6148	0.3663	0.5506	0.4281
81	0.2738	0.3447	0.4496	0.6260	0.8757	0.3198	0.5368	0.7327	0.5153	0.8034	81	0.4095	0.6022	0.3549	0.5335	0.4164
82	0.2626	0.3323	0.4356	0.6128	0.8606	0.3067	0.5213	0.7126	0.5047	0.7869	82	0.4003	0.5895	0.3435	0.5165	0.4046
83	0.2518	0.3202	0.4218	0.5995	0.8453	0.2939	0.5056	0.6925	0.4939	0.7701	83	0.3910	0.5767	0.3321	0.4997	0.3928
84	0.2413	0.3084	0.4081	0.5861	0.8297	0.2814	0.4898	0.6722	0.4830	0.7530	84	0.3817	0.5637	0.3209	0.4829	0.3809
85	0.2311	0.2967	0.3946	0.5725	0.8138	0.2692	0.4738	0.6518	0.4718	0.7356	85	0.3722	0.5505	0.3097	0.4661	0.3689
86	0.2212	0.2853	0.3812	0.5588	0.7976	0.2572	0.4577	0.6312	0.4603	0.7177	86	0.3626	0.5371	0.2985	0.4494	0.3569
87	0.2115	0.2740	0.3678	0.5448	0.7809	0.2454	0.4414	0.6104	0.4485	0.6994	87	0.3528	0.5234	0.2873	0.4327	0.3447
88	0.2020	0.2629	0.3546	0.5305	0.7638	0.2338	0.4249	0.5894	0.4364	0.6805	88	0.3429	0.5094	0.2761	0.4160	0.3324
89	0.1927	0.2519	0.3414	0.5159	0.7461	0.2224	0.4082	0.5680	0.4238	0.6609	89	0.3327	0.4951	0.2649	0.3992	0.3200
90	0.1836	0.2410	0.3281	0.5009	0.7276	0.2112	0.3913	0.5463	0.4108	0.6406	90	0.3223	0.4803	0.2536	0.3823	0.3074
91	0.1746	0.2301	0.3148	0.4853	0.7084	0.2000	0.3740	0.5240	0.3971	0.6194	91	0.3115	0.4650	0.2421	0.3652	0.2945
92	0.1656	0.2193	0.3013	0.4692	0.6882	0.1890	0.3564	0.5012	0.3828	0.5972	92	0.3003	0.4491	0.2306	0.3479	0.2813
93	0.1567	0.2083	0.2875	0.4522	0.6667	0.1779	0.3383	0.4777	0.3677	0.5737	93	0.2887	0.4325	0.2188	0.3303	0.2678
94	0.1477	0.1971	0.2734	0.4342	0.6437	0.1667	0.3196	0.4532	0.3516	0.5485	94	0.2765	0.4150	0.2068	0.3123	0.2539
95	0.1386	0.1857	0.2588	0.4150	0.6186	0.1553	0.3002	0.4274	0.3342	0.5215	95	0.2635	0.3964	0.1944	0.2937	0.2394
96	0.1293	0.1738	0.2433	0.3940	0.5910	0.1437	0.2797	0.4001	0.3151	0.4919	96	0.2497	0.3765	0.1815	0.2744	0.2242
97	0.1194	0.1611	0.2268	0.3707	0.5597	0.1315	0.2578	0.3706	0.2940	0.4590	97	0.2347	0.3547	0.1680	0.2541	0.2082
98	0.1088	0.1473	0.2085	0.3440	0.5234	0.1185	0.2338	0.3378	0.2699	0.4214	98	0.2181	0.3306	0.1536	0.2325	0.1909
99	0.0969	0.1317	0.1874	0.3121	0.4790	0.1041	0.2066	0.3003	0.2414	0.3771	99	0.1995	0.3033	0.1379	0.2089	0.1720
100	0.0827	0.1127	0.1614	0.2713	0.4209	0.0871	0.1740	0.2544	0.2056	0.3213	100	0.1776	0.2710	0.1203	0.1825	0.1505

AGE	80	100	300	400	2K SC
	30"	33"	30"	30"	
19		100		100	
OC					
30		90			
31		89			
32		82			
33		89			
34		89			
35		96		100	
36		97		103	80
37		99		100	84
38		97		86	80
39		97		83	78
40	91	98		88	84
41	91	94		88	86
42	90	77		84	87
43	92	92		96	90
44	94	100		88	91
45	91	95		96	93
46	90			92	84
47	95	83		100	94
48	96			94	96
49	95			90	100
50	88		92		97
51	94	89	85		88
52	96	89	94	86	87
53	89		86		
54	94	86	94		79
55	93		96		85
56	100		100		84
57	94		96		87
58	93		90		86
59	88		97		
60	91		100		82
61	97		99		88
62	92		91		67
63	95		89		
64	86		92		
65	83		97		
66	82		91		80
67					
68	86				
69					
70					
71					
72	62				
73	83				
74					
75	65				
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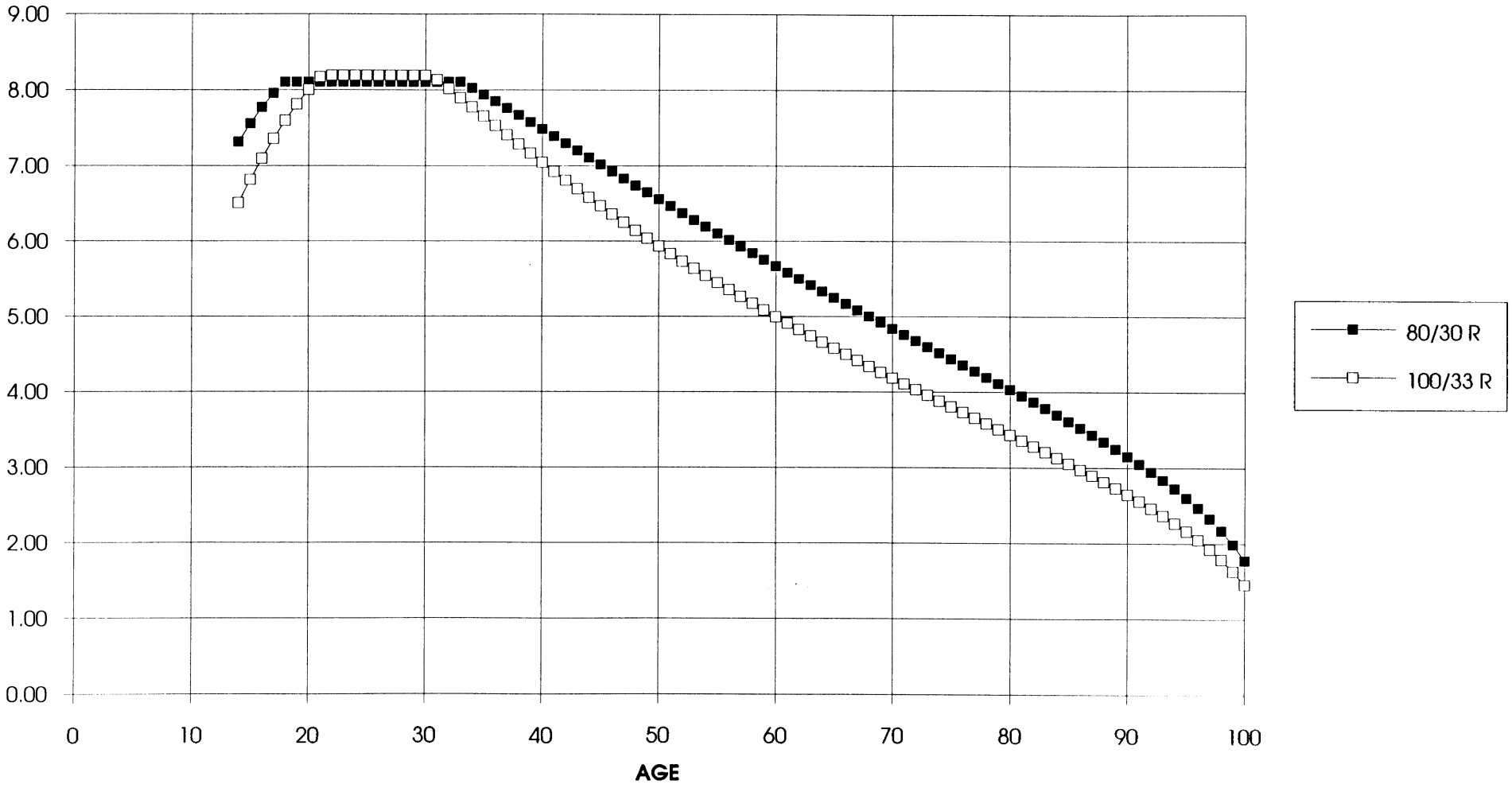
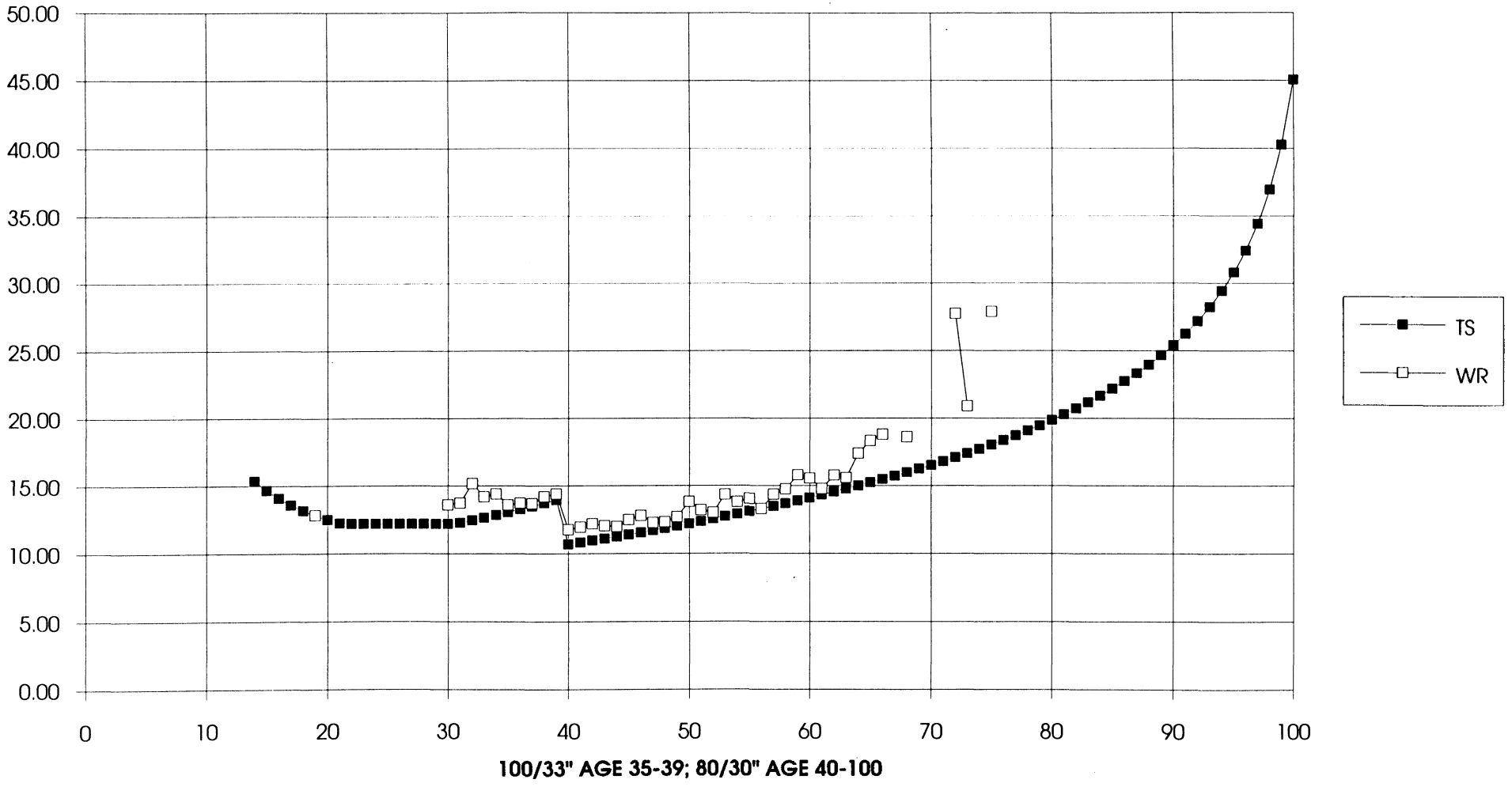
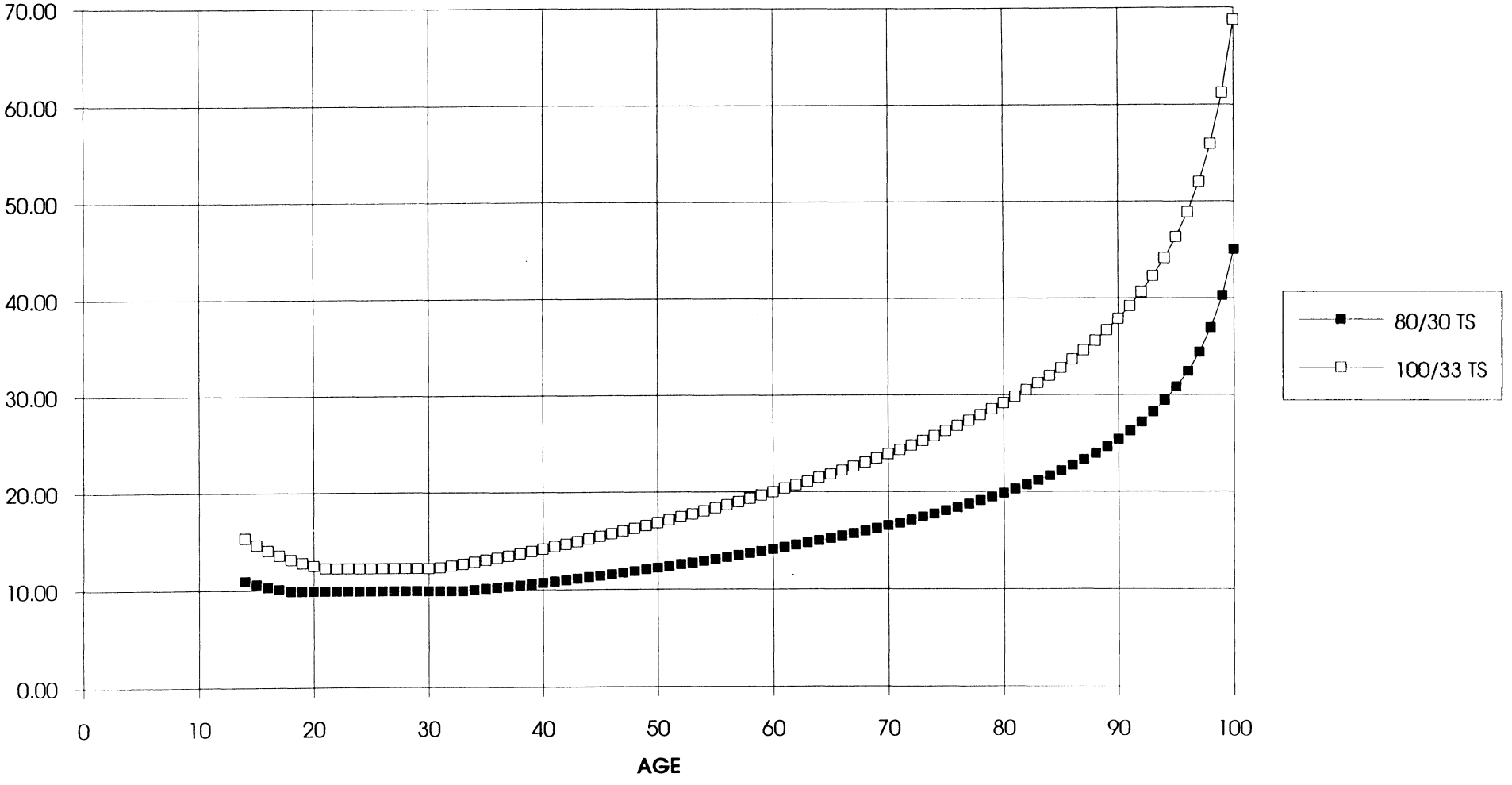
WOMENS HURDLE STANDARDS RUNNING RATE IN METERS/SECOND



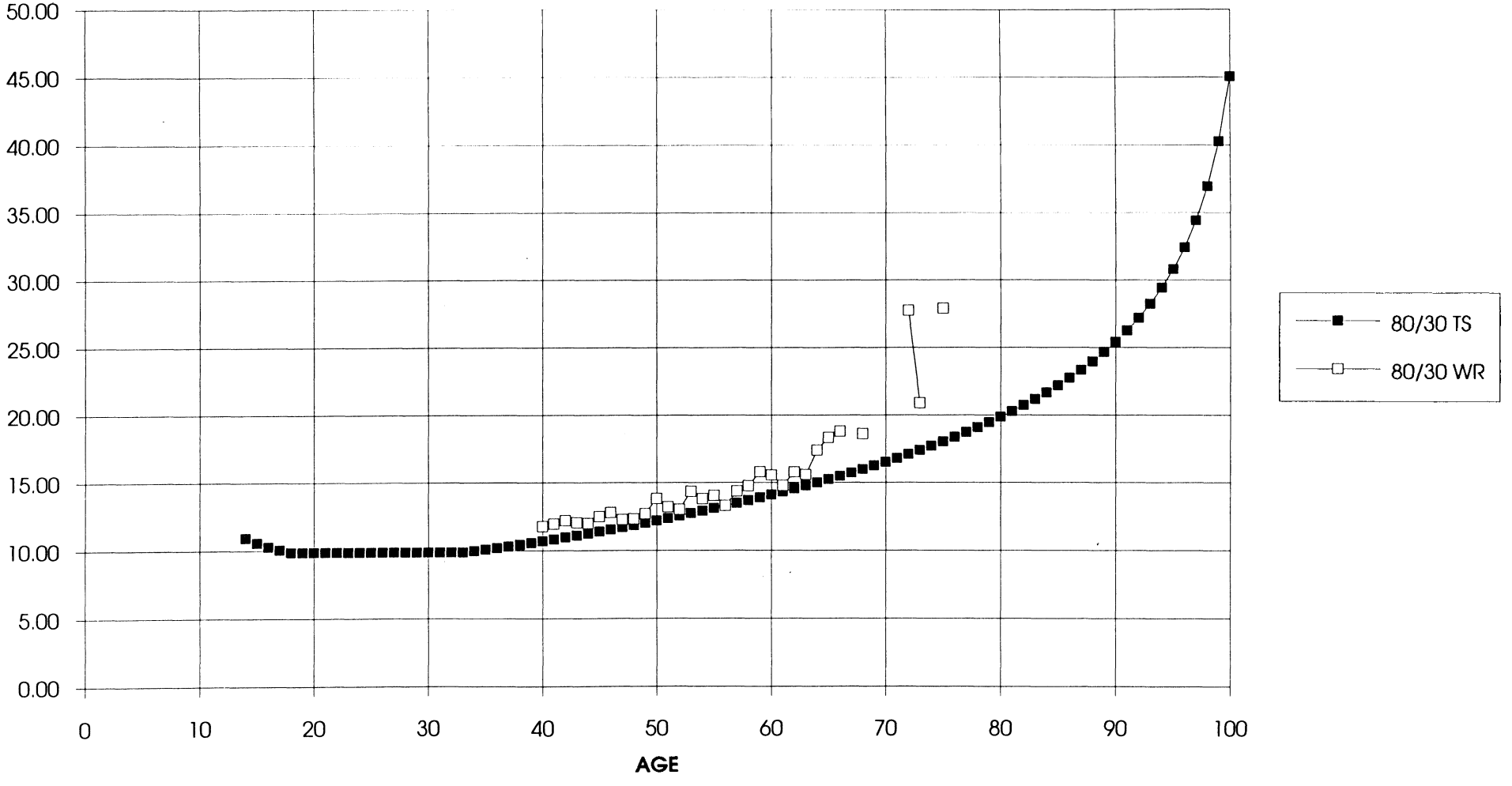
COMPOSITE CHART: WOMENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



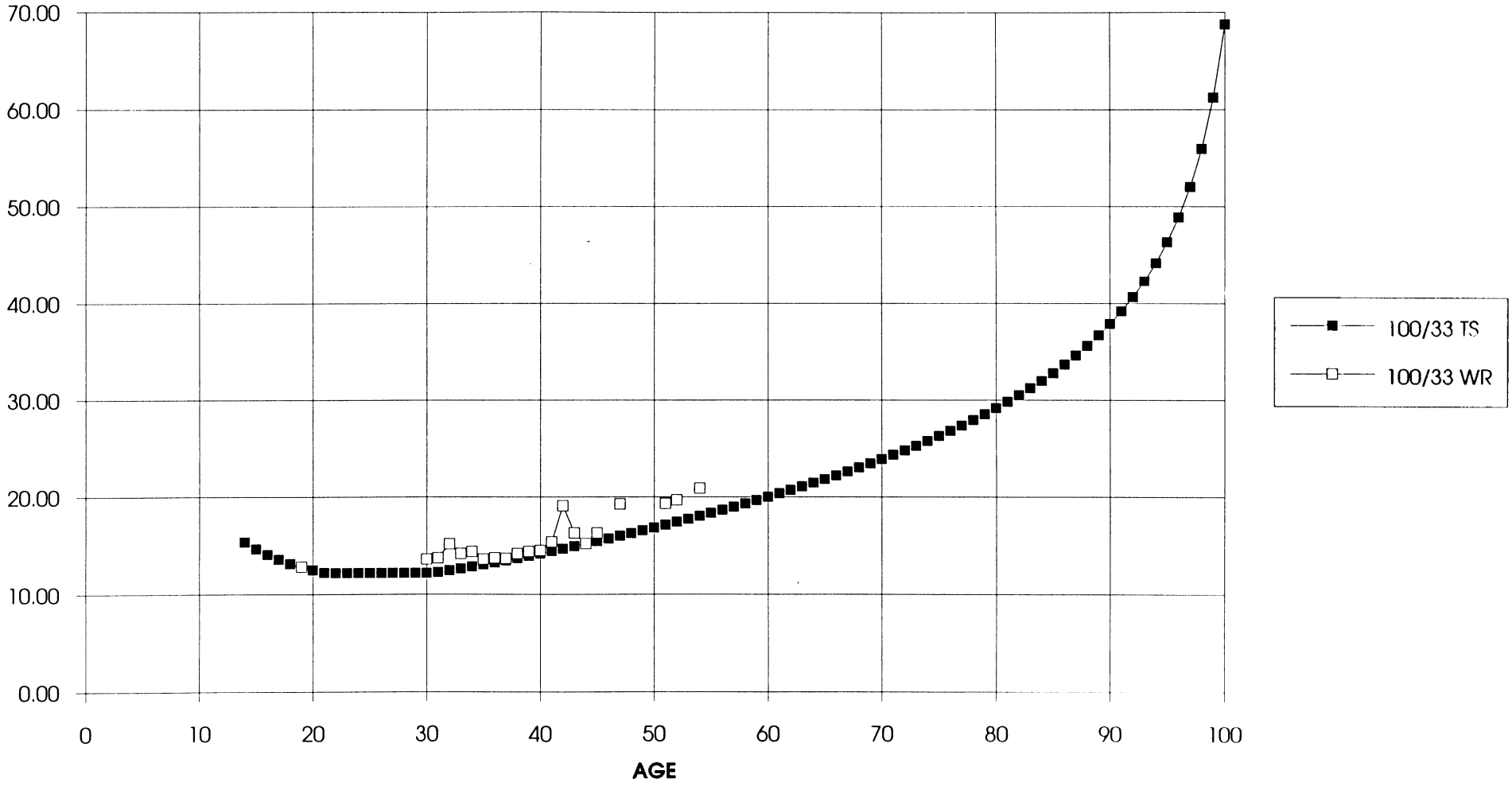
COMPARISON CHART: WOMENS HURDLE TIME STANDARDS IN SECONDS



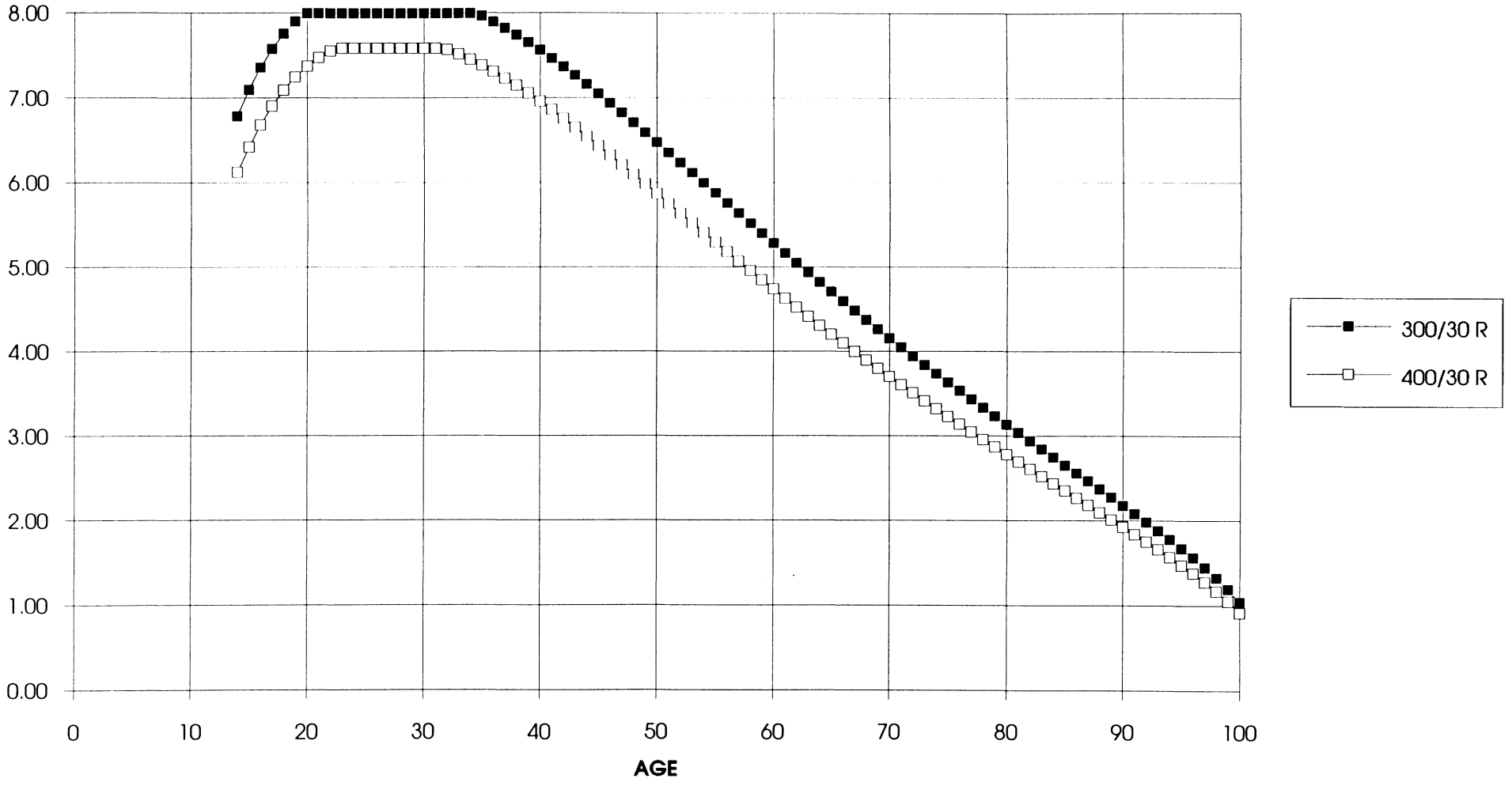
WOMENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



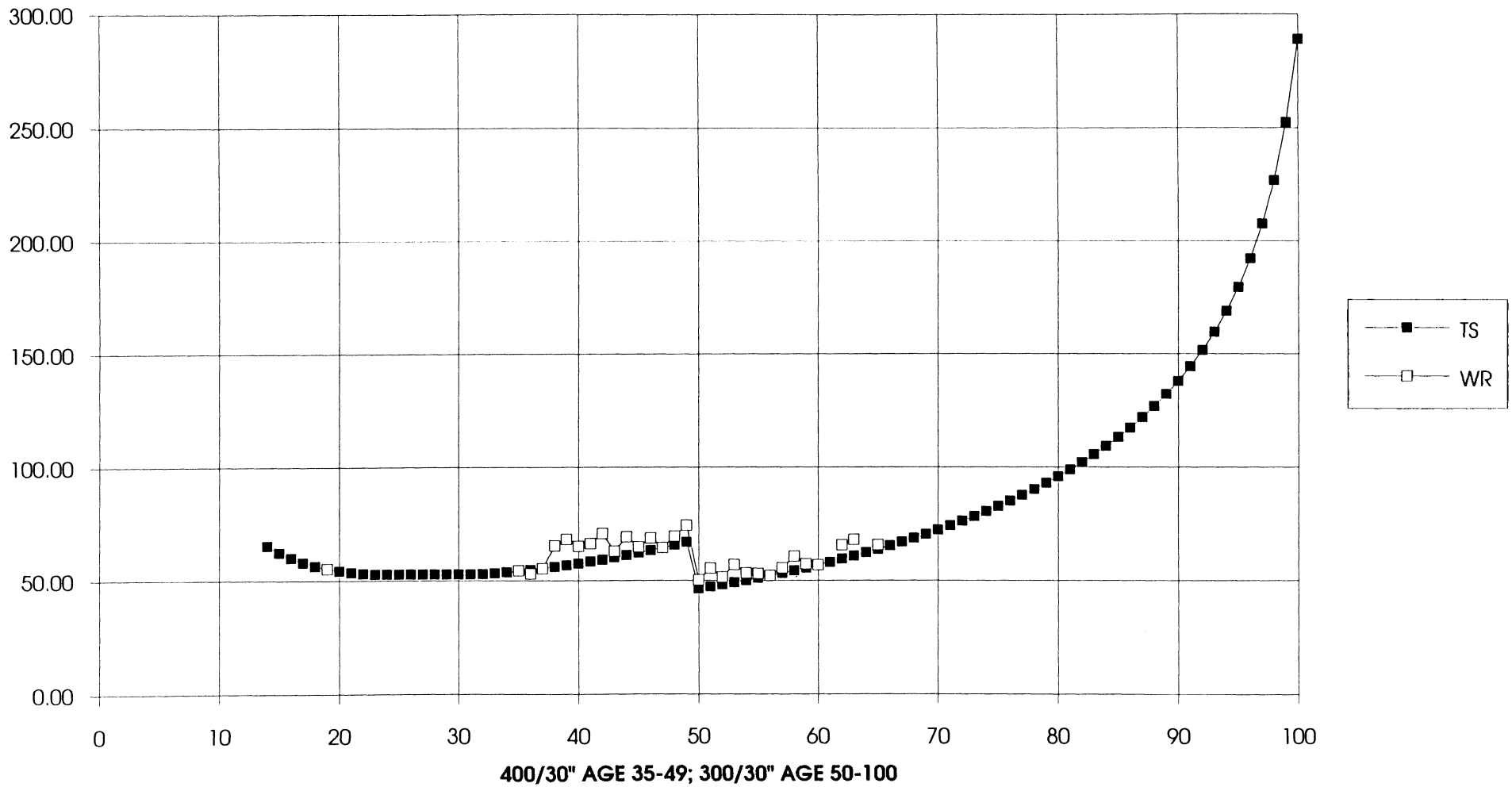
WOMENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



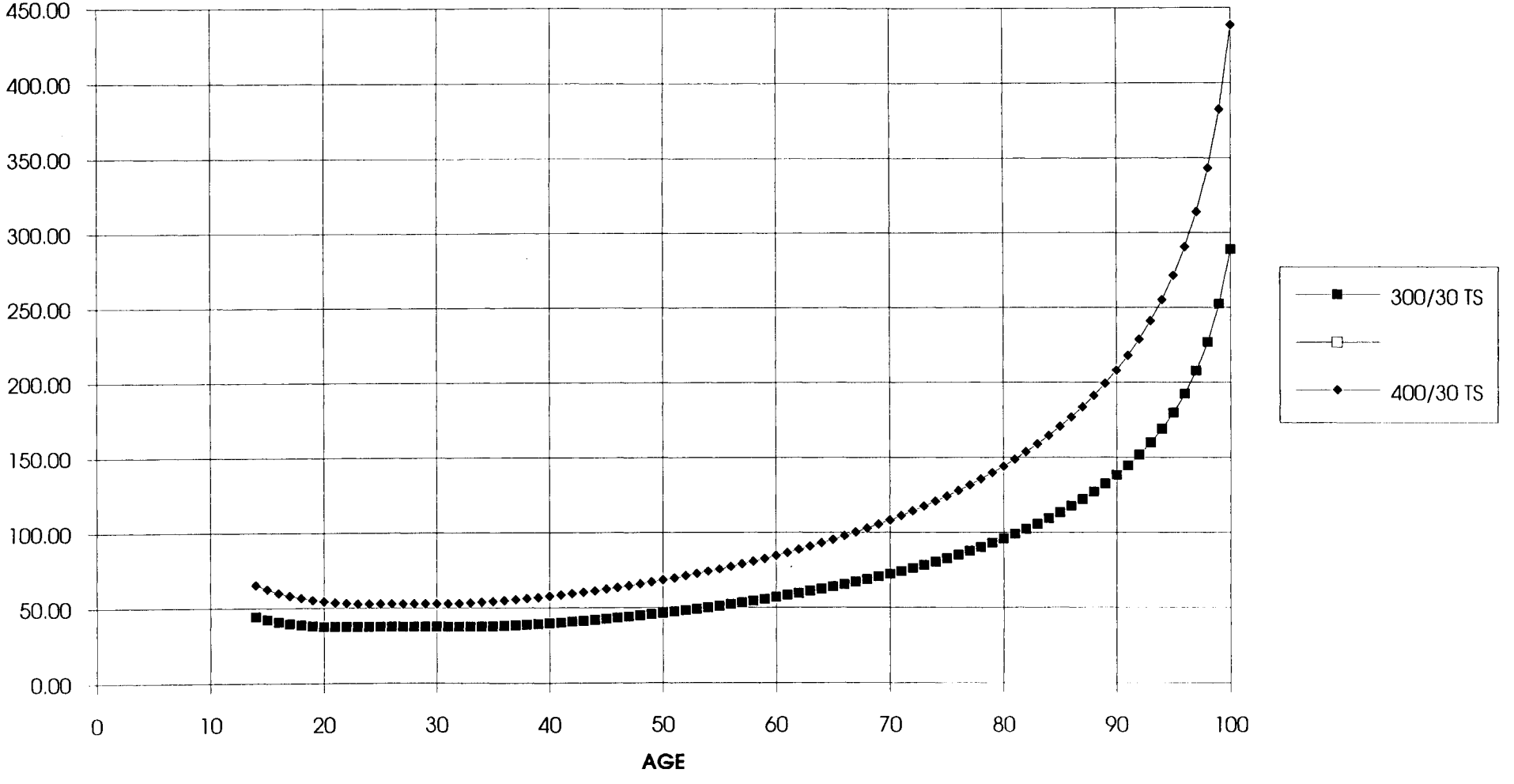
WOMENS HURDLE STANDARDS RUNNING RATE IN METERS/SECOND



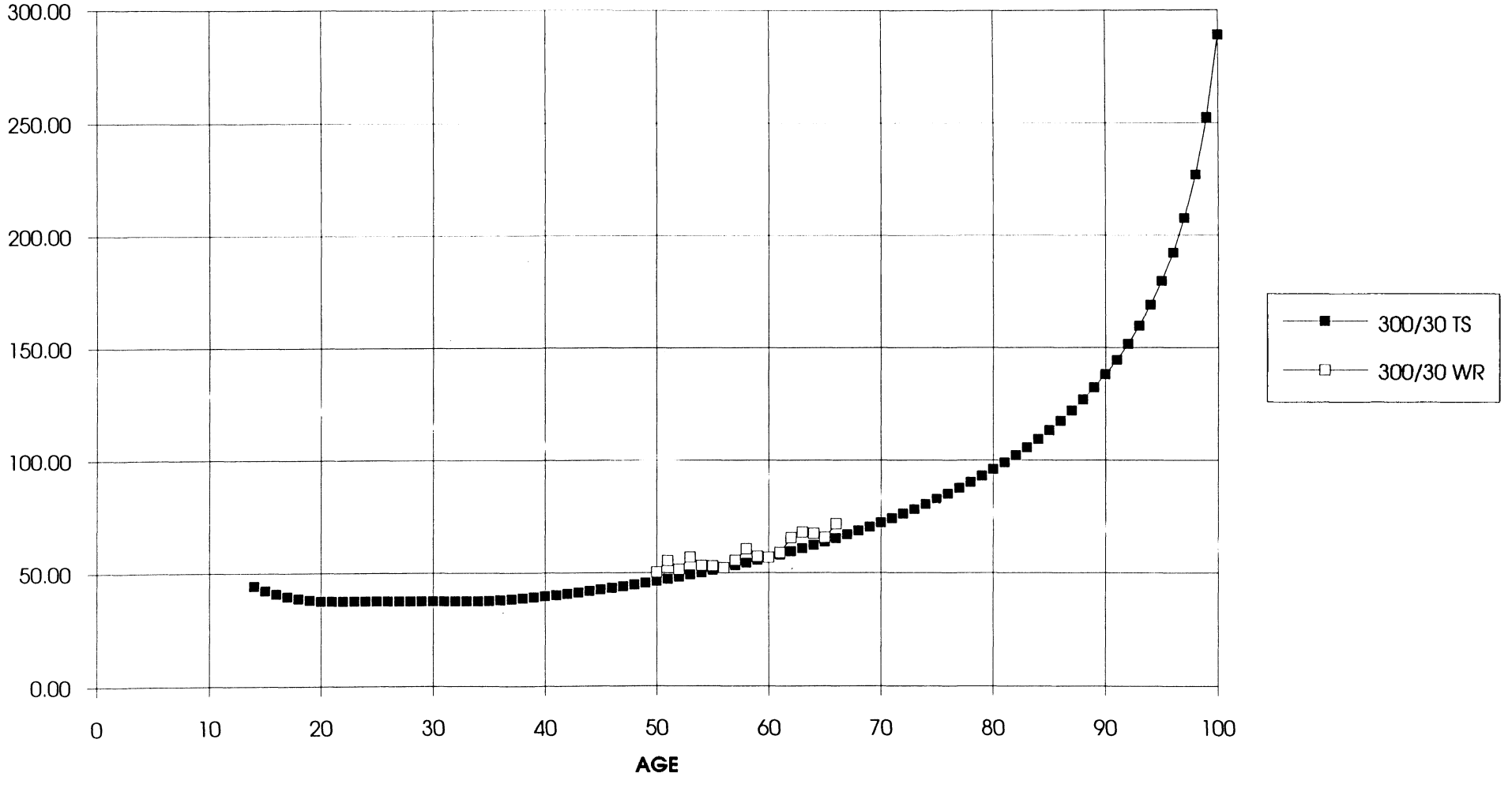
COMPOSITE CHART: WOMENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



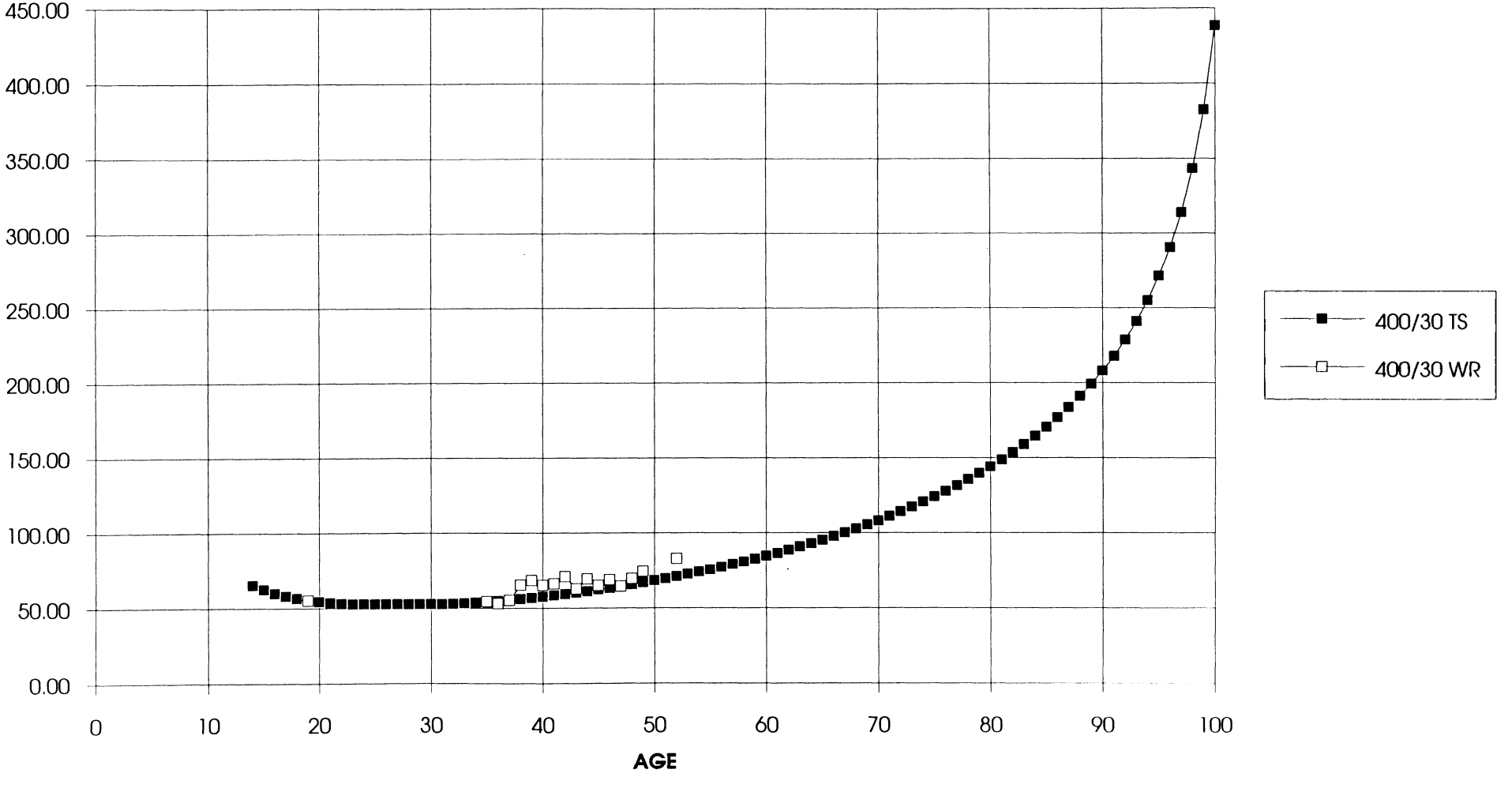
COMPARISON CHART: WOMENS HURDLE TIME STANDARDS IN SECONDS



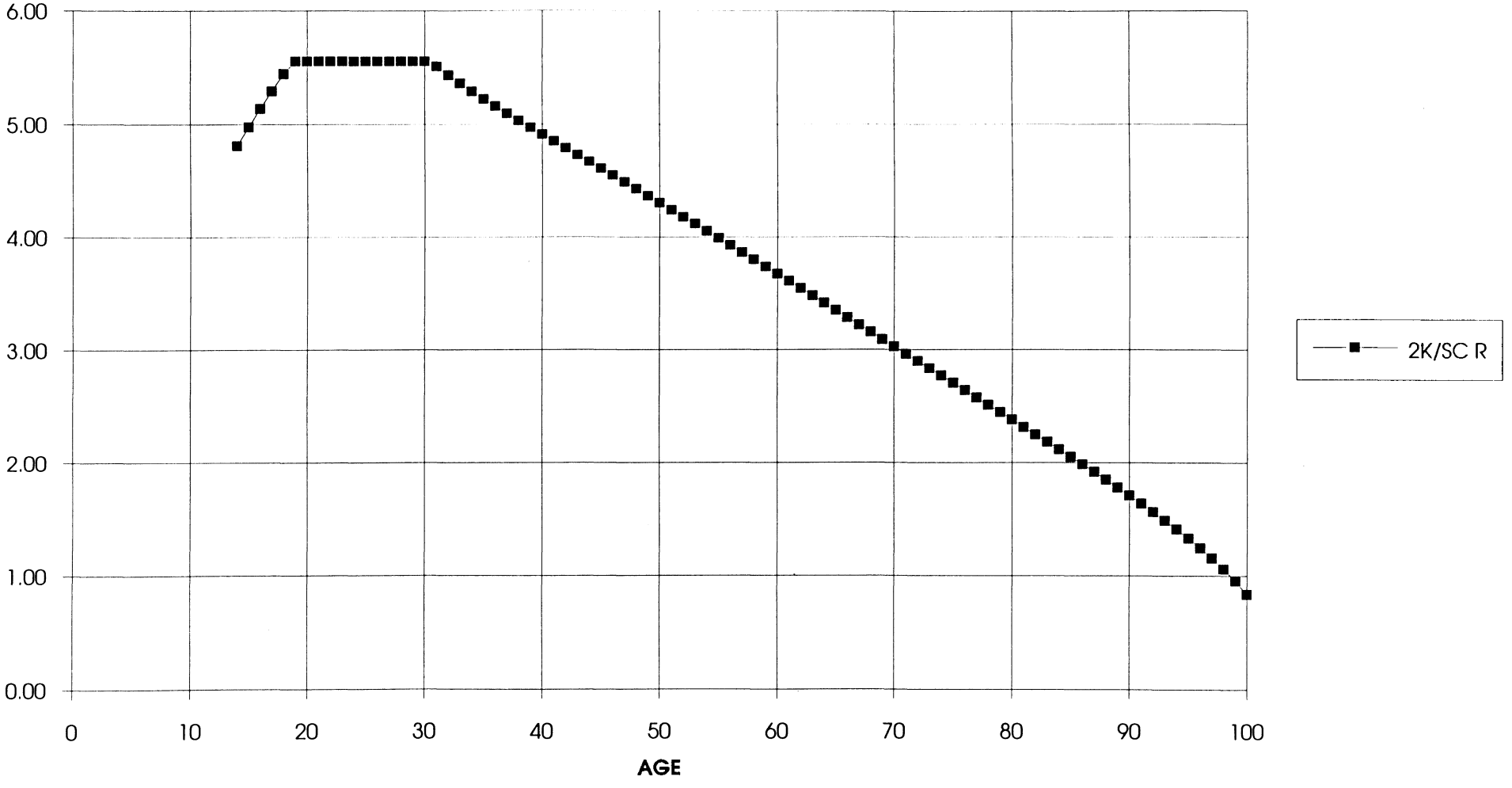
WOMENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



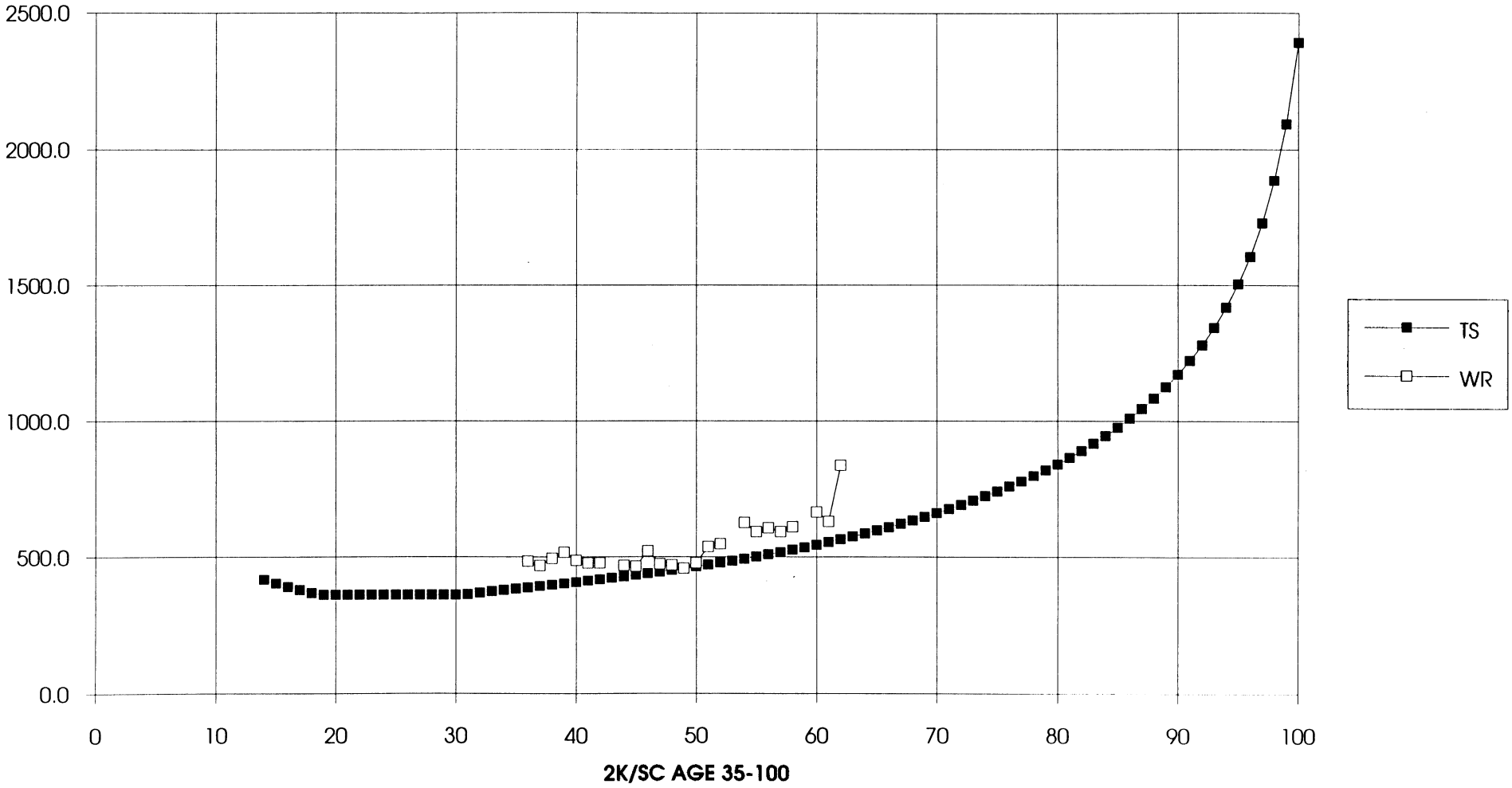
WOMENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



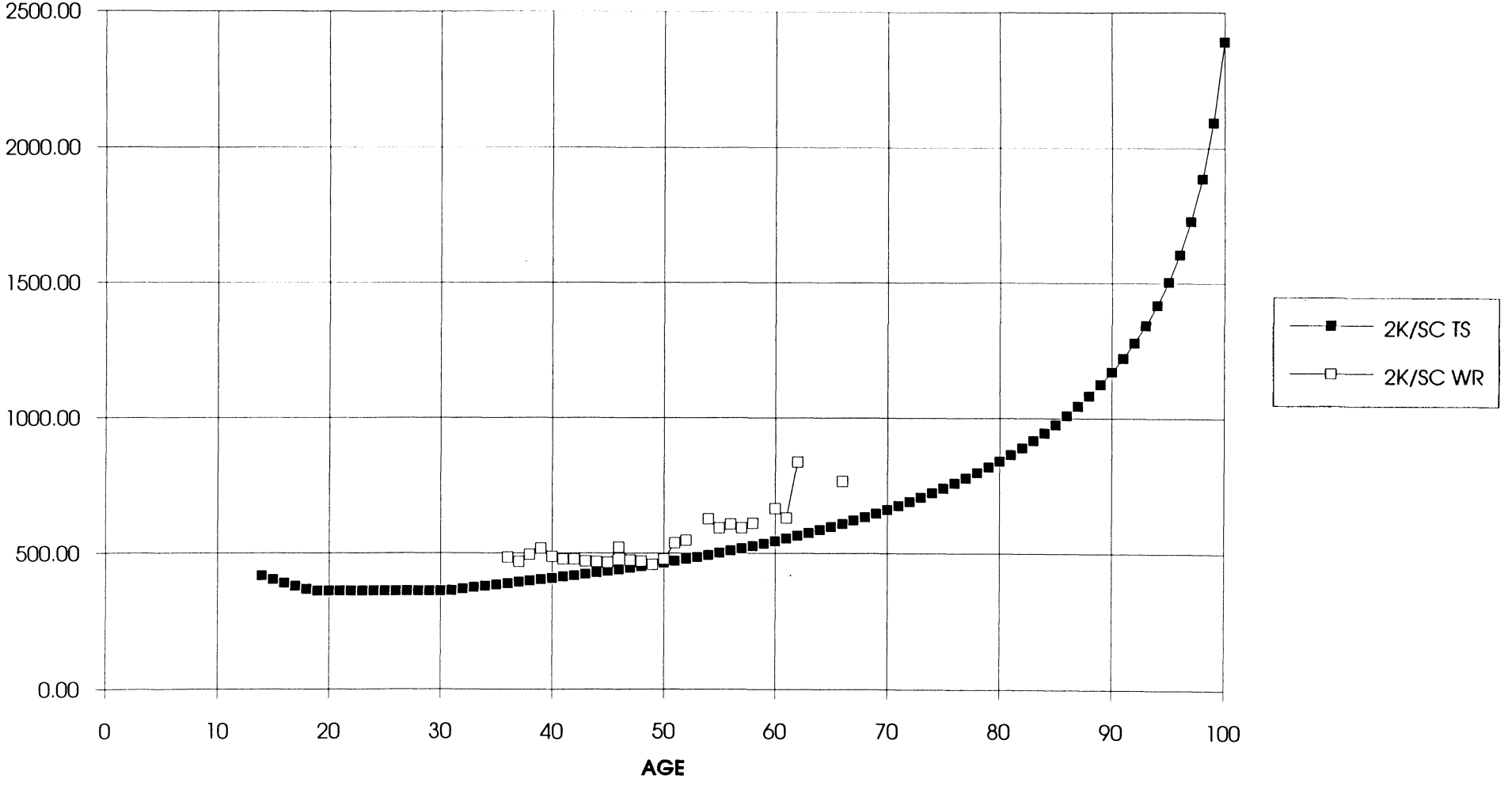
WOMENS 2K STEEPLECHASE STANDARDS RUNNING RATE IN METERS/SECOND



COMPOSITE CHART: WOMENS STEEPLECHASE TIME STANDARDS AND RECORDS IN SECONDS



WOMENS HURDLE TIME STANDARDS AND RECORDS IN SECONDS



Chapter Three

Field Events

Standards are provided for selected field events most frequently included in sanctioned meets. See pages 104 and 105. The standards reflect distances jumped or thrown by world record level competitors. The standards apply to performers of all ability levels however through application of the performance level percentage concept.

The performance level percentage concept is that a competitor's performance level is expressed as a percentage of the world record standard which is found by dividing the competitor's distance for the event by the event standard. By listing standards for all events in meters, units of measure are always compatible for calculation purposes. A fifty-seven year old performer uses the standard listed for age 57. Performers twenty to twenty-nine years old use the standard listed for OC which is the open class performer standard. An example is given at the end of page 102.

In this chapter the men's events will be presented first being covered in their entirety as a complete package, followed by a similar package of coverage for the women's events. In general, comments will apply to both the men's package and the women's package.

The primary purpose of performance level percentages is to facilitate comparison of performances. An individual competitor's performances can be compared against themselves, or performances of many competitors can be compared. Since the standards for all events are adjusted to a world record level, comparison of performances for different events is valid. While this effort does not set standards as such for average field event performers, whether competitive or noncompetitive, that doesn't mean the standards aren't applicable to average field event jumpers and throwers regardless of what the term average may mean. Refer to categories listed in Introduction on page 1.

The field event distance standards at page 104 are those of the WAVA/TAC specified events by implement weight and age. At page 105, the same standards are given, but with standards included for ages 30 through 100. The reason for the standards of page 105 will be explained later.

Following the tables of distance standards for field events, age-factor tables are provided for the same events. See page 106. Age-factors are used to convert the performances of non-open class competitors to their equivalent performance as an open class effort. Specifically, age-factors for field events are factors which convert records for non-open class competitors to the value of the open class record. This is to say the age-factor is obtained by dividing the open class world record distance into the distance of the records for the other ages. For this book, age-factor is defined to be division of the open class distance standard into the distance standard for the other ages.

The distance standards for the jump events are generated by curve fitting the actual records data for the pole vault, high jump, long jump and triple jump as separate stand alone events. Distance standards for the throw events which include shot put, hammer throw, discus throw, javelin throw and weight throw are developed using a unique approach. Rather than simply curve fitting each event separately and independently of other events, the approach used here fits a continuous three dimensional distance surface over the axes of age and implement weight for each event having implements of different weights employed.

Dynamics theory for masses is that the distance two similar objects can be displaced by the same force is inversely proportional to the square root of their masses, subject to the condition that the masses are within reasonable limits of each other. The differences in masses (or weight) of the similar implements specified by WAVA/TAC certainly are within such reasonable limits of each other, and hence are properly comparable under the theory. This theory would be improperly applied if we were trying to equate the shot put to a baseball put, the discus throw to a frisbee throw, or the javelin throw to an arrow throw.

The guiding rule for standards for throwing implements of different weights is that for any age, the lighter implement is always thrown/put farther than the heavier implement. Thus for standards purposes, there is no way the distance standard for older ages for a heavier implement can be farther than the standard for younger ages for a lighter weight implement for that event. This condition is a requirement of the distance standards generated for field events, and is the reason that standards are calculated over the entire age range of 30 to 100 years even though no one has, or is expected to, throw/put implements of such weights at all such ages.

The field event curve equations must meet certain general requirements. They must be equations that lend themselves to direct parametric solution of coefficient and exponent values, and inherently have the shape or distribution of the data involved so that a minimum number of coefficients or exponents are required to form the curve. The benefit of this requirement is that a minimum number of data points suffice to obtain statistically good curve fits over the entire range of the curve. Curve shaping constants also are employed in the equations. Two points are required to fit the curve for any jump event with ages ranging from 8 to 100. Two points are required to fit the curve for each implement of different weight constituting a throw event in order to generate the resulting distance surface of standards with ages ranging from 14 to 100. The equations are obviously non-linear and are combined to be operated in an interdependent manner within the program.

For jump events, the standards are computer generated as follows. The distance-age equation is pre-loaded into the field event portion of the computer program. New youth and master's age records are manually entered into the records data base and the program then identifies all data base records which are better (farther) than the existing distance standards. The four jumping events are then separately and independently curve fitted one at a time. Selected records are manually entered into the program which thencalculates a new distance-age curve, from which the program then produces a new set of distance standards for the event, and in addition the program then identifies (if there are any) all data base records which are better than the newly generated standards. This iteration process is continued for each event until no records in the data base are identified as being better than the standards generated, and at the same time there are a maximum number of actual records included as standards and those records are suitably distributed over all ages for the event.

For throw events which have lesser weight implements for prescribed older ages, the standards are computer generated as follows. Both distance-age and distance-implement weight equations are pre-loaded into the field event portion of the computer program. New youth and master's age records are manually entered into the records data base and the program then identifies all data base records which are better (farther) than the existing distance standards. The five throwing events are then fitted separately. While the shot, hammer, discus, javelin and weight throw are fitted independently of each other, within each event the curves for the different weight implements (e.g., discus of 2, 1.5 and 1 kilograms) are dependently fitted by the requirement of the distance-implement weight equation. Selected records are manually entered into the program, which then calculates new distance-implement weight curves, from which new distance-age curves are calculated, from which the pro-

gram then produces a new set of distance standards for all implements of the event, and in addition the program then identifies (if there are any) all data base records which are better than the newly generated distance standards for that family of events. The generated standards are then checked for curve cross over. This is the completion of the first step. Again, selected records are manually entered into the program, which then calculates new distance-implement weight curves, from which new distance-age curves are calculated, from which the program then produces a new set of distance standards for all implements of the event, and in addition the program then identifies (if there are any) all data base records which are better than the newly generated distance standards for that family of events. The generated standards are then checked for curve cross over. This is the completion of the second step. This iteration process is continued until no records in the data base are identified as being better than the standards generated, and at the same time there are a maximum number of actual records included as standards and those records are suitably distributed over the entire region of the distance surface.

Refer to the table of page 107 which shows performance level of actual records for a quick view of how many data base records were included in defining the field event standards. Those listed as 100% made it. Those listed as 99% almost made it, the 98% records were close, and so on. The chart also illustrates the distribution of those records across all ages and events.

The age-factors are then computer generated by dividing the open class standard into the standard for each age, doing this for each jump event. Since there are no open class records for implements of lesser weight for the throw events, the one open class event standard is divided into the standards of all implements for that event to determine the age-factors for that event. Because of this, age-factors result which are greater than 1.000 for the throws. Since the derived distance standards for each field event throw forms a distance surface over the axes of age and implement weight for the event, so do the resulting age-factor standards form a surface of age-factor values over the axes of age and implement weight for the throw events.

For field event age-factors, no attempt will be made to try and explain what the physical reason or cause might be for the particular values that resulted. The age-factor values are what they are because those are the values supported by the actual records existing at this time, since the age-factors were directly determined from the standards.

The rule of precedence for creating or developing field event distance standards and age-factor standards is that distance standards are first developed which then determine age-factors; age-factors are not first developed to then determine distance standards.

The next table at page 107 is the listing of performance level in percent for actual records. The percentages listed in the table are determined by dividing the distance standard into the actual record for every age of every event having a listed record. The percentage values have been rounded off to the nearest whole integer. A percentage of 100 indicates that that record was used in determining the standards that resulted. Records having a percentage of 99 or 98 are also efforts of the very highest calibre. As discussed earlier, the distance surface curve fitting process attempts to include as many actual records as possible with their occurrence evenly distributed as much as possible over all of the ages and events involved.

Following the performance level table for existing records are the four graphs of pages 108 through 111 which plot standards versus actual records for the pole vault, high jump, long jump and triple jump. Standards for the jumps are generated as stand alone curve fits. The rest of this chapter is divided into parts in order to cover each throw event separately and in its entirety. The same order of graphs is presented for each event, but the discussion here

will explain only the graphs of the first event covered which is the shot put. In general, the explanation also will apply to the graphs of the other events.

The order of appearance of the graphs for each event will be as follows. The first graph, at page 112 for the shot put, is a composite graph of standards versus actual records for events and their ages of applicability per the existing WAVA/TAC implement specifications. The specified implement weight and ages of applicability are listed underneath the graph. For all graphs of standards versus actual records, the distance standards are plotted as the solid black square symbols and their corresponding actual records are plotted as the open white square symbols.

The second graph of the package, at page 113 for the shot put, is a combination graph of curves plotting the standards (less the records) of the events in the previous composite graph for ages 30 to 100 in order to show that the extended curves are properly behaved and do not cross each other.

The last graph set, at pages 114 through 117 for the shot put package, provides individual event graphs plotting distance standards versus actual records for all implement weights specified for the event. In all of these graphs, the actual existing record is plotted as the open white square symbol, while the distance standard is plotted as the solid black square symbol. These graphs are one of the sets of cross section graphs that are produced by the surface of distance standards for field event throws. They do not reflect attempts to curve fit the events on a stand alone basis. For example, the men's 6k and 5k shot events could have closer curve fits if treated as stand alone events, but they are not stand alone events under the dynamics theory concept applied.

While the remaining men's throw events and the women's field events will not be given the same graph by graph review as done above for the men's shot put, the following comments address significant observations regarding those other events which do require special mention.

The women's pole vault, page 142, has only been attempted the last year or two, and as a result there is only a smattering of records available and they vary considerably at the present time. Their better results, which define the curve, compare favorably with results for men. In the women's long jump, page 144, the age 66 record is intentionally not used in fitting the curve on the assumption there is a mistake or error in its listing. Other records by the same competitor are used including her age 64 record which is one of the 100% defining points of the curve for the long jump. The women's shot put standards at page 146 are mentioned in that they are noteworthy in having so many actual records of a 99 or 100 percent level result. The women's hammer throw and weight throw events are not yet well stabilized in that 1993 is the first year in which records for these events are available. Like the women's pole vault, their better hammer and weight results compare favorably with those for men.

Calculating a field eventer's performance level percentage. Find the PL% for a 53 year old man who puts the 6K shot 18.12 meters. Refer to the second paragraph on page 99. Find the standard on page 104 for the age 53 men's 6K shot which is listed as 19.98 meters. Divide 18.12 by 19.98 obtaining a value of 0.9069 which is a percentage of 90.69%.

AGE	PV	HJ	LJ	TJ
8	2.70	1.39	4.67	9.09
9	3.22	1.60	5.34	10.76
10	3.66	1.76	5.90	12.11
11	4.04	1.89	6.38	13.22
12	4.37	2.00	6.79	14.14
13	4.66	2.10	7.15	14.93
14	4.92	2.18	7.47	15.60
15	5.17	2.26	7.76	16.18
16	5.40	2.33	8.02	16.68
17	5.62	2.40	8.25	17.11
18	5.83	2.45	8.46	17.49
19	6.03	2.45	8.65	17.82
OC	6.13	2.45	8.95	17.97
30	6.13	2.29	8.95	17.97
31	6.09	2.26	8.90	17.97
32	5.99	2.24	8.80	17.97
33	5.90	2.22	8.70	17.92
34	5.81	2.20	8.60	17.76
35	5.73	2.18	8.50	17.59
36	5.65	2.16	8.40	17.42
37	5.57	2.14	8.30	17.25
38	5.50	2.12	8.21	17.08
39	5.43	2.11	8.11	16.90
40	5.36	2.09	8.02	16.72
41	5.29	2.07	7.92	16.55
42	5.22	2.05	7.83	16.37
43	5.16	2.04	7.74	16.19
44	5.10	2.02	7.64	16.01
45	5.03	2.00	7.55	15.83
46	4.97	1.99	7.46	15.65
47	4.91	1.97	7.37	15.47
48	4.85	1.96	7.28	15.29
49	4.78	1.94	7.19	15.10
50	4.72	1.92	7.10	14.92
51	4.66	1.91	7.01	14.74
52	4.60	1.89	6.92	14.55
53	4.54	1.87	6.83	14.37
54	4.48	1.86	6.74	14.18
55	4.42	1.84	6.65	13.99
56	4.35	1.82	6.56	13.81
57	4.29	1.81	6.47	13.62
58	4.23	1.79	6.38	13.43
59	4.17	1.77	6.29	13.24
60	4.10	1.75	6.20	13.05
61	4.04	1.73	6.11	12.86
62	3.97	1.72	6.01	12.67
63	3.91	1.70	5.92	12.47
64	3.84	1.68	5.83	12.28
65	3.77	1.66	5.74	12.08
66	3.70	1.64	5.65	11.89
67	3.63	1.62	5.55	11.69
68	3.56	1.60	5.46	11.49
69	3.49	1.58	5.36	11.29
70	3.41	1.56	5.27	11.09
71	3.34	1.54	5.17	10.88
72	3.26	1.52	5.08	10.68
73	3.18	1.50	4.98	10.47
74	3.10	1.48	4.88	10.26
75	3.02	1.45	4.78	10.05
76	2.94	1.43	4.68	9.84
77	2.85	1.41	4.58	9.62
78	2.76	1.38	4.48	9.41
79	2.67	1.36	4.37	9.19
80	2.58	1.33	4.27	8.97
81	2.49	1.31	4.16	8.75
82	2.39	1.28	4.06	8.52
83	2.29	1.25	3.95	8.30
84	2.19	1.23	3.84	8.07
85	2.08	1.20	3.73	7.84
86	1.97	1.17	3.62	7.60
87	1.86	1.14	3.51	7.37
88	1.75	1.11	3.39	7.13
89	1.63	1.07	3.27	6.89
90	1.51	1.04	3.16	6.64
91	1.38	1.01	3.04	6.39
92	1.25	0.97	2.92	6.14
93	1.11	0.93	2.79	5.89
94	0.97	0.90	2.67	5.63
95	0.83	0.86	2.54	5.37
96	0.68	0.82	2.41	5.11
97	0.52	0.78	2.28	4.84
98	0.36	0.73	2.15	4.57
99	0.19	0.69	2.01	4.30
100	0.02	0.64	1.88	4.02

AGE	SP/7.26k	HT/7.26k
8	0.00	0.00
9	0.00	0.00
10	0.00	0.00
11	0.00	0.00
12	0.00	0.00
13	0.00	0.00
14	15.17	57.37
15	17.40	63.80
16	19.06	69.16
17	20.29	73.62
18	21.21	77.32
19	21.88	80.35
OC	23.12	86.74
30	23.12	86.74
31	23.12	86.74
32	23.12	86.74
33	23.12	86.34
34	23.04	85.48
35	22.92	84.55
36	22.78	83.56
37	22.62	82.52
38	22.45	81.43
39	22.25	80.31
40	22.04	79.16
41	21.82	77.99
42	21.58	76.79
43	21.32	75.57
44	21.05	74.34
45	20.77	73.10
46	20.48	71.84
47	20.17	70.58
48	19.86	69.32
49	19.53	68.05
	SP/6k	HT/6k
50	21.12	73.45
51	20.75	72.05
52	20.37	70.65
53	19.98	69.26
54	19.58	67.86
55	19.18	66.47
56	18.78	65.08
57	18.37	63.70
58	17.96	62.32
59	17.55	60.95
	SP/5k	HT/5k
60	18.77	65.28
61	18.32	63.79
62	17.87	62.31
63	17.41	60.84
64	16.96	59.38
65	16.50	57.93
66	16.05	56.49
67	15.60	55.06
68	15.16	53.63
69	14.71	52.22
	SP/4k	HT/4k
70	15.96	56.81
71	15.47	55.26
72	14.99	53.71
73	14.51	52.17
74	14.03	50.65
75	13.57	49.14
76	13.10	47.63
77	12.64	46.14
78	12.19	44.66
79	11.75	43.20
80	11.30	41.74
81	10.87	40.29
82	10.44	38.86
83	10.02	37.43
84	9.61	36.02
85	9.20	34.62
86	8.80	33.23
87	8.40	31.84
88	8.01	30.47
89	7.63	29.11
90	7.25	27.76
91	6.88	26.42
92	6.52	25.09
93	6.16	23.77
94	5.81	22.46
95	5.47	21.16
96	5.13	19.87
97	4.80	18.59
98	4.47	17.32
99	4.16	16.06
100	3.84	14.80

AGE	DT/2k
8	0.00
9	0.00
10	0.00
11	0.00
12	0.00
13	0.00
14	47.81
15	53.43
16	58.06
17	61.84
18	64.91
19	67.36
OC	74.08
30	74.08
31	74.08
32	74.08
33	74.08
34	74.08
35	74.08
36	74.08
37	73.98
38	73.64
39	73.24
40	72.79
41	72.27
42	71.68
43	71.04
44	70.34
45	69.58
46	68.77
47	67.90
48	66.98
49	66.01
	DT/1.5k
50	75.05
51	73.83
52	72.57
53	71.26
54	69.91
55	68.52
56	67.10
57	65.66
58	64.18
59	62.69
	DT/1k
60	74.92
61	73.04
62	71.15
63	69.25
64	67.34
65	65.42
66	63.50
67	61.59
68	59.68
69	57.77
70	55.87
71	53.99
72	52.12
73	50.26
74	48.42
75	46.61
76	44.81
77	43.04
78	41.29
79	39.56
80	37.86
81	36.19
82	34.54
83	32.92
84	31.33
85	29.77
86	28.24
87	26.74
88	25.26
89	23.82
90	22.41
91	21.02
92	19.67
93	18.34
94	17.05
95	15.78
96	14.54
97	13.33
98	12.15
99	11.00
100	9.87

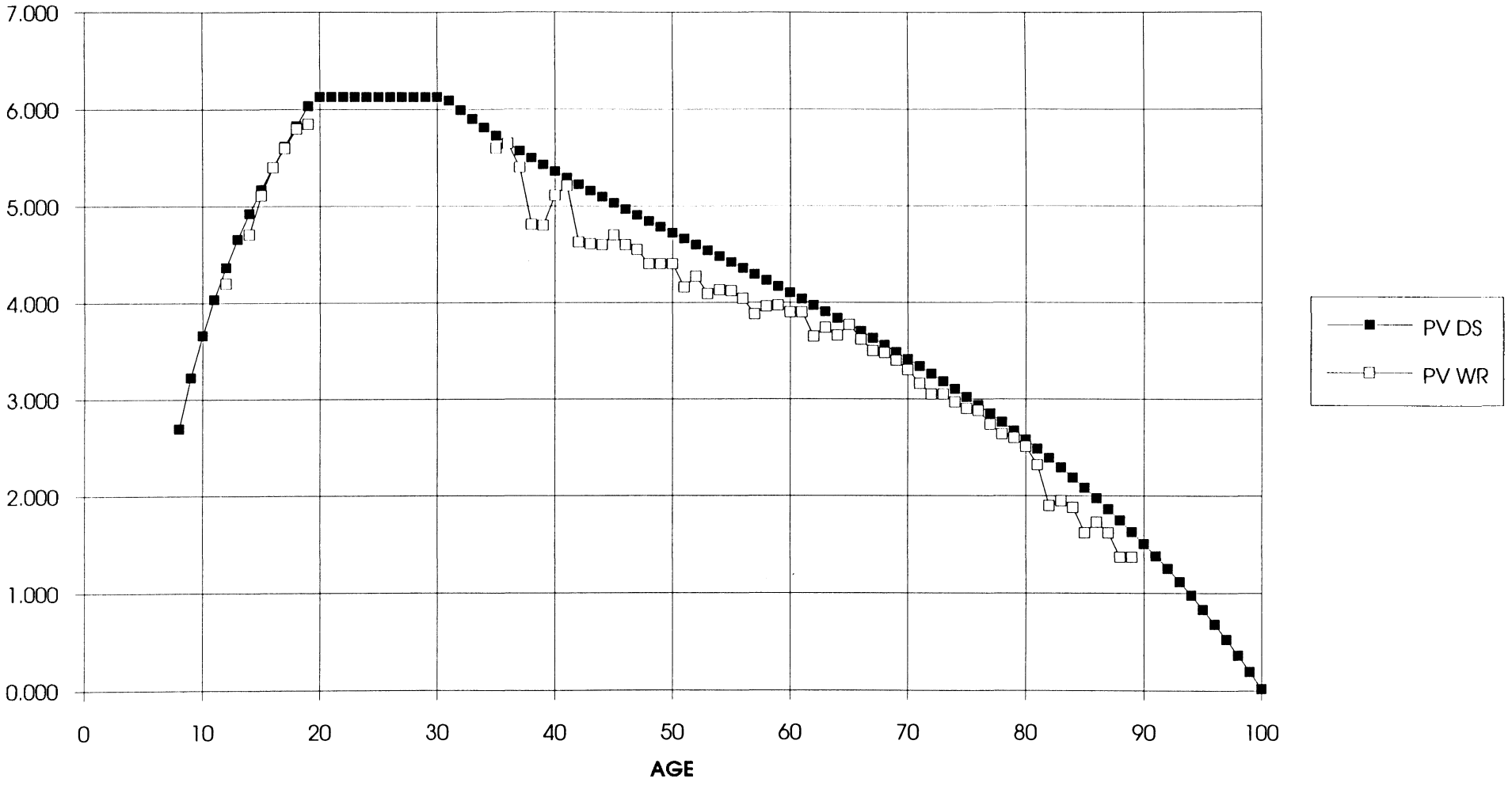
AGE	JT/800g	WT/35Lb
8	0.00	0.00
9	0.00	0.00
10	0.00	0.00
11	0.00	0.00
12	0.00	0.00
13	0.00	0.00
14	67.21	14.64
15	74.22	16.41
16	79.97	17.92
17	84.69	19.20
18	88.54	20.30
19	91.65	21.23
OC	95.66	24.67
30	95.66	24.67
31	95.66	24.67
32	94.80	24.67
33	93.65	24.67
34	92.45	24.67
35	91.19	24.59
36	89.90	24.44
37	88.57	24.27
38	87.21	24.08
39	85.83	23.87
40	84.44	23.63
41	83.03	23.39
42	81.61	23.12
43	80.19	22.84
44	78.75	22.55
45	77.32	22.24
46	75.89	21.92
47	74.45	21.59
48	73.02	21.25
49	71.59	20.90
50	70.16	20.55
51	68.74	20.18
52	67.32	19.81
53	65.91	19.43
54	64.51	19.05
55	63.11	18.66
56	61.72	18.26
57	60.33	17.86
58	58.95	17.46
59	57.58	17.06
	JT/600g	WT/25Lb
60	64.92	19.70
61	63.35	19.21
62	61.79	18.72
63	60.25	18.23
64	58.71	17.73
65	57.18	17.24
66	55.66	16.74
67	54.15	16.24
68	52.64	15.74
69	51.15	15.24
70	49.67	14.74
71	48.19	14.24
72	46.72	13.74
73	45.26	13.25
74	43.81	12.75
75	42.37	12.25
76	40.94	11.75
77	39.51	11.26
78	38.09	10.76
79	36.68	10.27
80	35.28	9.78
81	33.89	9.29
82	32.50	8.80
83	31.12	8.32
84	29.75	7.84
85	28.38	7.35
86	27.03	6.88
87	25.68	6.40
88	24.33	5.93
89	23.00	5.45
90	21.67	4.98
91	20.35	4.52
92	19.03	4.05
93	17.72	3.59
94	16.42	3.13
95	15.12	2.68
96	13.83	2.22
97	12.54	1.77
98	11.26	1.33
99	9.99	0.88
100	8.72	0.44

	PV	HJ	LJ	TJ	SP	SP	SP	SP	HT	HT	HT	HT	DT	DT	DT	JT	JT	WT	WT
WT.					16Lb	6Kg	5Kg	4Kg	16Lb	6Kg	5Kg	4Kg	2Kg	1.5Kg	1Kg	800Gm	600Gm	35Lb	25Lb
AGE	all	all	all	all	30-49	50-59	60-69	70-100	30-49	50-59	60-69	70-100	30-49	50-59	60-100	30-59	60-100	30-59	60-100
8	2.70	1.39	4.67	9.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	3.22	1.60	5.34	10.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	3.66	1.76	5.90	12.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	4.04	1.89	6.38	13.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	4.37	2.00	6.79	14.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	4.66	2.10	7.15	14.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	4.92	2.18	7.47	15.60	15.17	16.69	18.28	20.44	57.37	63.11	69.13	77.29	47.81	55.20	67.61	67.21	77.61	14.64	17.32
15	5.17	2.26	7.76	16.18	17.40	19.14	20.97	23.45	63.80	70.18	76.88	85.94	53.43	61.70	75.56	74.22	85.70	16.41	19.41
16	5.40	2.33	8.02	16.68	19.06	20.97	22.97	25.68	69.16	76.08	83.34	93.17	58.06	67.04	82.11	79.97	92.35	17.92	21.20
17	5.62	2.40	8.25	17.11	20.29	22.32	24.45	27.34	73.62	80.98	88.72	99.18	61.84	71.41	87.46	84.69	97.80	19.20	22.72
18	5.83	2.45	8.46	17.49	21.21	23.33	25.55	28.57	77.32	85.05	93.17	104.16	64.91	74.95	91.79	88.54	102.24	20.30	24.02
19	6.03	2.45	8.65	17.82	21.88	24.07	26.37	29.48	80.35	88.39	96.83	108.25	67.36	77.78	95.27	91.65	105.83	21.23	25.12
OC	6.13	2.45	8.95	17.97	23.12				86.74				74.08			95.66		24.67	
30	6.13	2.29	8.95	17.97	23.12	25.43	27.86	31.15	86.74	95.41	104.52	116.86	74.08	85.54	104.76	95.66	110.46	24.67	29.19
31	6.09	2.26	8.90	17.97	23.12	25.43	27.86	31.15	86.74	95.41	104.52	116.86	74.08	85.54	104.76	95.66	110.46	24.67	29.19
32	5.99	2.24	8.80	17.97	23.12	25.43	27.86	31.15	86.74	95.41	104.52	116.86	74.08	85.54	104.76	94.80	109.46	24.67	29.19
33	5.90	2.22	8.70	17.92	23.12	25.43	27.86	31.15	86.34	94.98	104.04	116.32	74.08	85.54	104.76	93.65	108.14	24.67	29.19
34	5.81	2.20	8.60	17.76	23.04	25.34	27.76	31.03	85.48	94.03	103.00	115.16	74.08	85.54	104.76	92.45	106.75	24.67	29.19
35	5.73	2.18	8.50	17.59	22.92	25.21	27.61	30.87	84.55	93.00	101.88	113.90	74.08	85.54	104.76	91.19	105.30	24.59	29.09
36	5.65	2.16	8.40	17.42	22.78	25.06	27.45	30.69	83.56	91.91	100.68	112.57	74.08	85.54	104.76	89.90	103.80	24.44	28.92
37	5.57	2.14	8.30	17.25	22.62	24.88	27.26	30.48	82.52	90.77	99.43	111.16	73.98	85.42	104.62	88.57	102.27	24.27	28.72
38	5.50	2.12	8.21	17.08	22.45	24.69	27.05	30.24	81.43	89.58	98.13	109.71	73.64	85.03	104.14	87.21	100.70	24.08	28.49
39	5.43	2.11	8.11	16.90	22.25	24.48	26.81	29.98	80.31	88.34	96.78	108.20	73.24	84.58	103.58	85.83	99.11	23.87	28.24
40	5.36	2.09	8.02	16.72	22.04	24.25	26.56	29.70	79.16	87.08	95.39	106.65	72.79	84.05	102.94	84.44	97.50	23.63	27.97
41	5.29	2.07	7.92	16.55	21.82	24.00	26.29	29.39	77.99	85.78	93.97	105.06	72.27	83.45	102.20	83.03	95.87	23.39	27.67
42	5.22	2.05	7.83	16.37	21.58	23.73	26.00	29.07	76.79	84.47	92.53	103.45	71.68	82.77	101.38	81.61	94.24	23.12	27.36
43	5.16	2.04	7.74	16.19	21.32	23.45	25.69	28.72	75.57	83.13	91.06	101.81	71.04	82.03	100.47	80.19	92.59	22.84	27.03
44	5.10	2.02	7.64	16.01	21.05	23.16	25.37	28.36	74.34	81.77	89.58	100.15	70.34	81.22	99.48	78.75	90.94	22.55	26.68
45	5.03	2.00	7.55	15.83	20.77	22.85	25.03	27.98	73.10	80.41	88.08	98.47	69.58	80.35	98.40	77.32	89.28	22.24	26.31
46	4.97	1.99	7.46	15.65	20.48	22.52	24.67	27.59	71.84	79.03	86.57	96.79	68.77	79.41	97.25	75.89	87.63	21.92	25.94
47	4.91	1.97	7.37	15.47	20.17	22.19	24.31	27.18	70.58	77.64	85.05	95.09	67.90	78.40	96.03	74.45	85.97	21.59	25.55
48	4.85	1.96	7.28	15.29	19.86	21.84	23.93	26.75	69.32	76.25	83.53	93.38	66.98	77.34	94.73	73.02	84.32	21.25	25.15
49	4.78	1.94	7.19	15.10	19.53	21.49	23.54	26.32	68.05	74.85	82.00	91.67	66.01	76.23	93.36	71.59	82.66	20.90	24.73
50	4.72	1.92	7.10	14.92	19.20	21.12	23.14	25.87	66.77	73.45	80.46	89.96	65.00	75.05	91.92	70.16	81.02	20.55	24.31
51	4.66	1.91	7.01	14.74	18.86	20.75	22.73	25.41	65.50	72.05	78.93	88.24	63.94	73.83	90.43	68.74	79.38	20.18	23.88
52	4.60	1.89	6.92	14.55	18.51	20.37	22.31	24.94	64.23	70.65	77.40	86.53	62.85	72.57	88.88	67.32	77.74	19.81	23.44
53	4.54	1.87	6.83	14.37	18.16	19.98	21.88	24.47	62.96	69.26	75.87	84.82	61.71	71.26	87.27	65.91	76.11	19.43	22.99
54	4.48	1.86	6.74	14.18	17.80	19.58	21.45	23.98	61.69	67.86	74.34	83.11	60.54	69.91	85.62	64.51	74.49	19.05	22.54
55	4.42	1.84	6.65	13.99	17.44	19.18	21.02	23.50	60.43	66.47	72.81	81.40	59.34	68.52	83.92	63.11	72.87	18.66	22.08
56	4.35	1.82	6.56	13.81	17.07	18.78	20.57	23.00	59.16	65.08	71.29	79.71	58.11	67.10	82.18	61.72	71.26	18.26	21.61
57	4.29	1.81	6.47	13.62	16.70	18.37	20.13	22.50	57.91	63.70	69.78	78.01	56.86	65.66	80.41	60.33	69.66	17.86	21.14
58	4.23	1.79	6.38	13.43	16.33	17.96	19.68	22.00	56.66	62.32	68.27	76.33	55.58	64.18	78.61	58.95	68.07	17.46	20.66
59	4.17	1.77	6.29	13.24	15.96	17.55	19.23	21.50	55.41	60.95	66.77	74.65	54.29	62.69	76.77	57.58	66.49	17.06	20.18
60	4.10	1.75	6.20	13.05	15.58	17.14	18.77	20.99	54.17	59.59	65.28	72.98	52.98	61.17	74.92	56.22	64.92	16.65	19.70
61	4.04	1.73	6.11	12.86	15.20	16.72	18.32	20.48	52.94	58.23	63.79	71.32	51.65	59.64	73.04	54.86	63.35	16.24	19.21
62	3.97	1.72	6.01	12.67	14.83	16.31	17.87	19.97	51.71	56.88	62.31	69.67	50.31	58.10	71.15	53.52	61.79	15.82	18.72
63	3.91	1.70	5.92	12.47	14.45	15.89	17.41	19.47	50.49	55.54	60.84	68.02	48.97	56.54	69.25	52.18	60.25	15.41	18.23
64	3.84	1.68	5.83	12.28	14.07	15.48	16.96	18.96	49.28	54.21	59.38	66.39	47.62	54.98	67.34	50.84	58.71	14.99	17.73
65	3.77	1.66	5.74	12.08	13.70	15.07	16.50	18.45	48.08	52.88	57.93	64.77	46.26	53.42	65.42	49.52	57.18	14.57	17.24
66	3.70	1.64	5.65	11.89	13.32	14.65	16.05	17.95	46.88	51.57	56.49	63.15	44.90	51.85	63.50	48.20	55.66	14.15	16.74
67	3.63	1.62	5.55	11.69	12.95	14.24	15.60	17.45	45.69	50.26	55.06	61.55	43.55	50.29	61.59	46.89	54.15	13.73	16.24
68	3.56	1.60	5.46	11.49	12.58	13.84	15.16	16.95	44.51	48.96	53.63	59.96	42.20	48.72	59.68	45.59	52.64	13.31	15.74
69	3.49	1.58	5.36	11.29	12.21	13.43	14.71	16.45	43.34	47.67	52.22	58.38	40.85	47.17	57.77	44.30	51.15	12.88	15.24
70	3.41	1.56	5.27	11.09	11.85	13.03	14.27	15.96	42.17	46.39	50.82	56.81	39.51	45.62	55.87	43.01	49.67	12.46	14.74
71	3.34	1.54	5.17	10.88	11.48	12.63	13.84	15.47	41.02	45.12	49.42	55.26	38.18	44.08	53.99	41.73	48.19	12.04	14.24
72	3.26	1.52	5.08	10.68	11.12	12.24	13.41	14.99	39.87	43.85	48.04	53.71	36.85	42.55	52.12	40.46	46.72	11.62	13.74
73	3.18	1.50	4.98	10.47	10.77	11.85	12.98	14.51	38.73	42.60	46.67	52.17	35.54	41.04	50.26	39.20	45.26	11.20	13.25
74	3.10	1.48	4.88	10.26	10.42	11.46	12.55	14.03	37.60	41.36	45.30	50.65	34.24	39.54	48.42	37.94	43.81	10.77	12.75
75	3.02	1.45	4.78	10.05	10.07	11.08	12.13	13.57	36.47	40.12	43.95	49.14	32.96	38.05	46.61	36.69	42.37	10.35	12.25
76	2.94	1.43	4.68	9.84	9.73	10.70	11.72	13.10	35.36	38.89	42.61	47.63	31.69	36.59	44.81	35.45	40.94	9.93	11.75
77	2.85	1.41	4.58	9.62	9.39	10.32	11.31	12.64	34.25	37.68	41.27	46.14	30.43	35.14	43.04	34.22	39.51	9.52	11.26
78	2.76	1.38	4.48	9.41	9.05	9.95	10.90	12.19	33.15	36.47	39.95	44.66	29.19	33.71	41.29	32.99	38.09	9.10	10.76
79	2.67	1.36	4.37	9.19	8.72	9.59	10.51	11.75	32.06	35.27	38.64	43.20	27.97	32.30	39.56	31.77	36.68	8.68	10.27
80	2.58	1.33	4.27	8.97	8.39	9.23	10.11	11.30	30.98	34.08	37.33	41.74	26.77	30.91	37.86	30.55	35.28	8.27	9.78
81	2.49	1.31	4.16	8.75	8.07	8.88	9.72	10.87	29.91	32.90	36.04	40.29	25.59	29.55	36.19	29.35	33.89	7.85	9.29
82	2.39	1.28	4.06	8.52	7.75	8.53	9.34	10.44	28.84	31.73	34.76	38.86	24.42	28.20	34.54	28.15	32.50	7.44	8.80
83	2.29	1.25	3.95	8.30	7.44	8.18	8.96	10.02	27.79	30.56	33.48	37.43	23.28	26.88	32.92	26.95	31.12	7.03	8.32
84	2.19	1.23	3.84	8.07	7.13	7.84	8.59	9.61	26.74	29.41	32.22	36.02	22.16	25.58	31.33	25.76	29.75	6.62	7.84
85	2.08	1.20	3.73	7.84	6.83	7.51	8.23	9.20	25.70	28.27	30.96	34.62	21.05	24.31	29.77	24.58	28.38	6.22	7.35
86	1.97	1.17	3.62	7.60	6.53	7.18	7.87	8.80	24.66	27.13	29.72	33.23	19.97	23.06	28.24	23.41	27.03	5.81	6.88
87	1.86	1.14	3.51	7.37	6.24	6.86	7.51	8.40	23.64	26.00	28.48	31.84	18.91	21.83	26.74	22.24	25.68	5.41	6.40
88	1.75	1.11	3.39	7.13	5.95	6.54	7.17	8.01	22.62	24.88	27.26	30.47	17.86	20.63	25.26	21.07	24.33	5.01	5.93
89	1.63	1.07	3.27	6.89	5.66	6.23	6.82	7.63	21.61	23.77	26.04	29.11	16.84	19.45	23.82	19.92	23.00	4.61	5.45
90	1.51	1.04	3.16	6.64	5.38	5.92	6.49	7.25	20.61	22.67	24.83	27.76	15.84	18.29	22.41	18.77	21.67	4.21	4.98
91	1.38	1.01	3.04	6.39	5.11	5.62	6.16	6.88	19.61	21.57	23.63	26.42	14.87	17.16	21.02	17.62	20.35	3.82	4.52
92	1.25	0.97	2.92	6.14	4.84	5.32	5.83	6.52	18.63	20.49	22.44	25.09	13.91	16.06	19.67	16.48	19.03	3.43	4.05
93	1.11	0.93	2.79	5.89	4.57	5.03	5.51	6.16	17.65	19.41	21.26	23.77	12.97	14.98	18.34	15.35	17.72	3.04	3.59
94	0.97	0.90	2.67	5.63	4.31	4.75	5.20	5.81	16.67	18.34	20.09	22.46	12.05	13.92	17.05	14.22	16.42	2.65	3.13
95	0.83	0.86	2.54	5.37	4.06	4.47	4.89	5.47	15.71	17.28	18.93	21.16	11.16	12.88	15.78	13.09	15.12	2.26	2.68
96	0.68	0.82	2.41	5.11	3.81	4.19	4.59	5.13	14.75	16.23	17.77	19.87	10.28	11.87	14.54	11.97	13.83	1.88	2.22
97	0.52	0.78	2.28	4.84	3.56	3.92	4.29	4.80	13.80	15.18	16.63	18.59	9.43	10.89	13.33	10.86	12.54	1.50	1.77
98	0.36	0.73	2.15	4.57	3.32	3.65	4.00	4.47	12.86	14.14	15.49	17.32	8.59	9.92	12.15	9.75	11.26	1.12	1.33
99	0.19	0.69	2.01	4.30	3.08	3.39	3.72	4.16	11.92	13.11	14.36	16.06	7.77	8.98	11.00	8.65	9.99	0.74	0.88
100	0.02	0.64	1.88	4.02	2.85	3.14	3.44	3.84	10.99	12.09	13.24	14.80	6.98	8.06	9.87	7.55	8.72	0.37	0.44

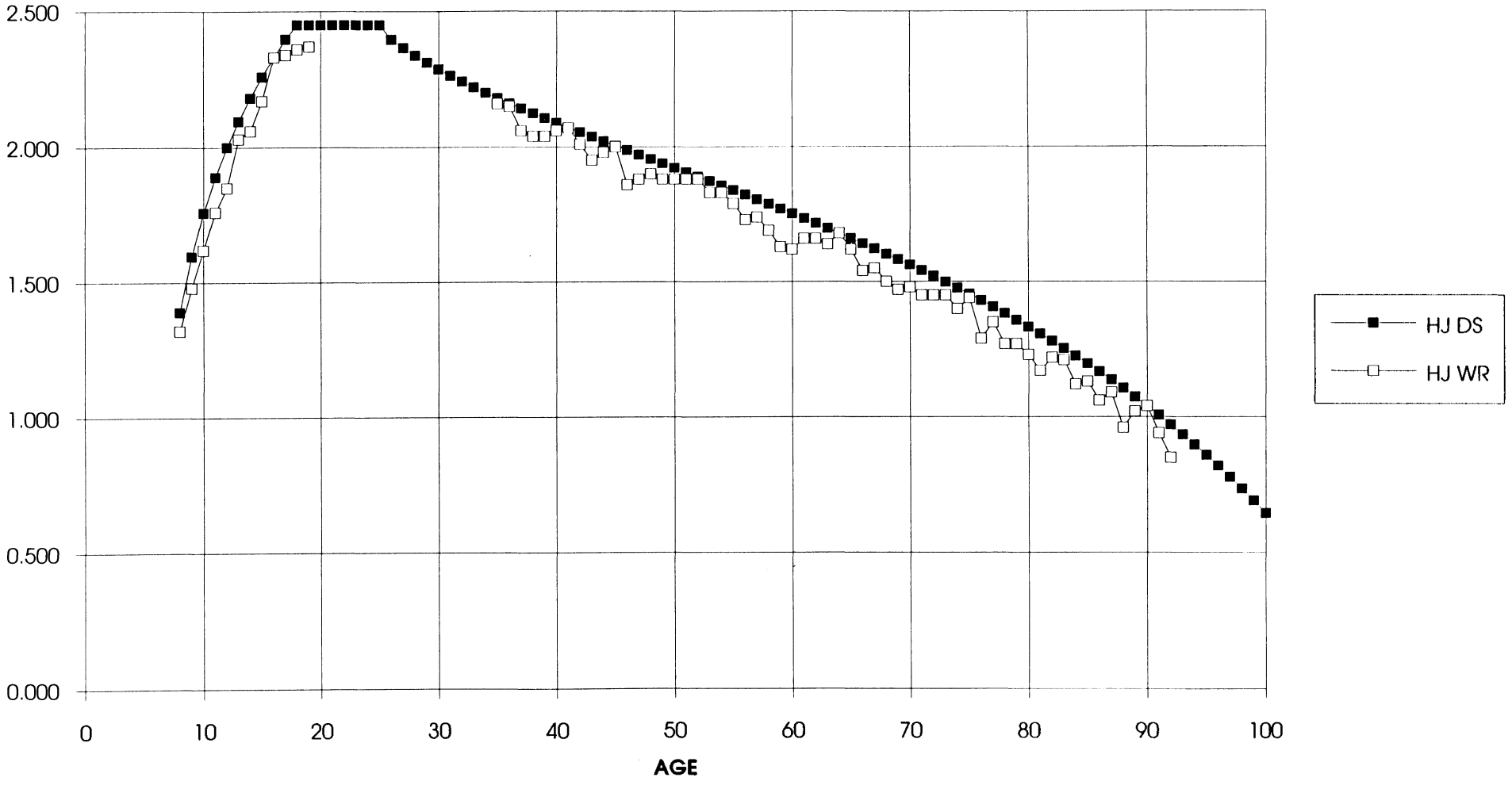
	PV	HJ	LJ	TJ	SP	SP	SP	SP	HT	HT	HT	HT	DT	DT	DT	JT	JT	WT	WT
WT.					16Lb	6Kg	5Kg	4Kg	16Lb	6Kg	5Kg	4Kg	2Kg	1.5Kg	1Kg	800Gm	600Gm	35Lb	25Lb
AGE	all	all	all	all	30-49	50-59	60-69	70-100	30-49	50-59	60-69	70-100	30-49	50-59	60-100	30-59	60-100	30-49	50-59
8	0.440	0.567	0.522	0.506	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9	0.526	0.652	0.597	0.599	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.598	0.718	0.659	0.674	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11	0.659	0.771	0.712	0.736	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	0.712	0.816	0.758	0.787	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13	0.760	0.856	0.799	0.831	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14	0.803	0.890	0.835	0.868	0.656	0.722	0.791	0.884	0.661	0.728	0.797	0.891	0.645	0.745	0.913	0.703	0.811	0.593	0.702
15	0.843	0.922	0.867	0.900	0.753	0.828	0.907	1.014	0.735	0.809	0.886	0.991	0.721	0.833	1.020	0.776	0.896	0.665	0.787
16	0.881	0.951	0.896	0.928	0.824	0.907	0.993	1.111	0.797	0.877	0.961	1.074	0.784	0.905	1.108	0.836	0.965	0.726	0.859
17	0.917	0.979	0.922	0.952	0.878	0.966	1.058	1.183	0.849	0.934	1.023	1.143	0.835	0.964	1.181	0.885	1.022	0.778	0.921
18	0.951	1.000	0.945	0.973	0.917	1.009	1.105	1.236	0.891	0.981	1.074	1.201	0.876	1.012	1.239	0.926	1.069	0.823	0.974
19	0.984	1.000	0.967	0.991	0.946	1.041	1.140	1.275	0.926	1.019	1.116	1.248	0.909	1.050	1.286	0.958	1.106	0.861	1.018
OC	1.000	1.000	1.000	1.000	1.000				1.000				1.000			1.000		1.000	
30	1.000	0.934	1.000	1.000	1.000	1.100	1.205	1.347	1.000	1.100	1.205	1.347	1.000	1.155	1.414	1.000	1.155	1.000	1.183
31	0.994	0.924	0.994	1.000	1.000	1.100	1.205	1.347	1.000	1.100	1.205	1.347	1.000	1.155	1.414	1.000	1.155	1.000	1.183
32	0.978	0.915	0.983	1.000	1.000	1.100	1.205	1.347	1.000	1.100	1.205	1.347	1.000	1.155	1.414	0.991	1.144	1.000	1.183
33	0.963	0.906	0.972	0.997	1.000	1.100	1.205	1.347	0.995	1.095	1.199	1.341	1.000	1.155	1.414	0.979	1.130	1.000	1.183
34	0.948	0.898	0.961	0.988	0.996	1.096	1.201	1.342	0.985	1.084	1.187	1.328	1.000	1.155	1.414	0.966	1.116	1.000	1.183
35	0.935	0.890	0.950	0.979	0.991	1.090	1.194	1.335	0.975	1.072	1.175	1.313	1.000	1.155	1.414	0.953	1.101	0.997	1.179
36	0.922	0.882	0.939	0.969	0.985	1.084	1.187	1.327	0.963	1.060	1.161	1.298	1.000	1.155	1.414	0.940	1.085	0.991	1.172
37	0.909	0.875	0.928	0.960	0.978	1.076	1.179	1.318	0.951	1.046	1.146	1.282	0.999	1.153	1.412	0.926	1.069	0.984	1.164
38	0.897	0.867	0.917	0.950	0.971	1.068	1.170	1.308	0.939	1.033	1.131	1.265	0.994	1.148	1.406	0.912	1.053	0.976	1.155
39	0.886	0.860	0.906	0.940	0.962	1.059	1.160	1.297	0.926	1.018	1.116	1.247	0.989	1.142	1.398	0.897	1.036	0.967	1.145
40	0.874	0.853	0.896	0.931	0.953	1.049	1.149	1.284	0.913	1.004	1.100	1.230	0.983	1.135	1.390	0.883	1.019	0.958	1.134
41	0.863	0.846	0.885	0.921	0.944	1.038	1.137	1.271	0.899	0.989	1.083	1.211	0.976	1.126	1.380	0.868	1.002	0.948	1.122
42	0.852	0.839	0.875	0.911	0.933	1.027	1.125	1.257	0.885	0.974	1.067	1.193	0.968	1.117	1.368	0.853	0.985	0.937	1.109
43	0.842	0.832	0.864	0.901	0.922	1.014	1.111	1.242	0.871	0.958	1.050	1.174	0.959	1.107	1.356	0.838	0.968	0.926	1.095
44	0.831	0.825	0.854	0.891	0.911	1.002	1.097	1.227	0.857	0.943	1.033	1.155	0.950	1.096	1.343	0.823	0.951	0.914	1.081
45	0.821	0.818	0.844	0.881	0.898	0.988	1.083	1.210	0.843	0.927	1.015	1.135	0.939	1.085	1.328	0.808	0.933	0.901	1.067
46	0.811	0.811	0.834	0.871	0.886	0.974	1.067	1.193	0.828	0.911	0.998	1.116	0.928	1.072	1.313	0.793	0.916	0.889	1.051
47	0.801	0.805	0.823	0.861	0.872	0.960	1.051	1.175	0.814	0.895	0.981	1.096	0.917	1.058	1.296	0.778	0.899	0.875	1.036
48	0.790	0.798	0.813	0.851	0.859	0.945	1.035	1.157	0.799	0.879	0.963	1.077	0.904	1.044	1.279	0.763	0.881	0.861	1.019
49	0.780	0.791	0.803	0.840	0.845	0.929	1.018	1.138	0.784	0.863	0.945	1.057	0.891	1.029	1.260	0.748	0.864	0.847	1.003
50	0.770	0.785	0.793	0.830	0.830	0.914	1.001	1.119	0.770	0.847	0.928	1.037	0.877	1.013	1.241	0.733	0.847	0.833	0.985
51	0.760	0.778	0.783	0.820	0.816	0.897	0.983	1.099	0.755	0.831	0.910	1.017	0.863	0.997	1.221	0.719	0.830	0.818	0.968
52	0.751	0.771	0.773	0.810	0.801	0.881	0.965	1.079	0.740	0.815	0.892	0.998	0.848	0.980	1.200	0.704	0.813	0.803	0.950
53	0.741	0.764	0.763	0.799	0.786	0.864	0.947	1.058	0.726	0.798	0.875	0.978	0.833	0.962	1.178	0.689	0.796	0.788	0.932
54	0.731	0.758	0.753	0.789	0.770	0.847	0.928	1.037	0.711	0.782	0.857	0.958	0.817	0.944	1.156	0.674	0.779	0.772	0.914
55	0.720	0.751	0.743	0.779	0.754	0.830	0.909	1.016	0.697	0.766	0.839	0.938	0.801	0.925	1.133	0.660	0.762	0.756	0.895
56	0.710	0.744	0.733	0.768	0.738	0.812	0.890	0.995	0.682	0.750	0.822	0.919	0.784	0.906	1.109	0.645	0.745	0.740	0.876
57	0.700	0.737	0.723	0.758	0.722	0.795	0.871	0.973	0.668	0.734	0.804	0.899	0.768	0.886	1.085	0.631	0.728	0.724	0.857
58	0.690	0.730	0.713	0.747	0.706	0.777	0.851	0.952	0.653	0.718	0.787	0.880	0.750	0.866	1.061	0.616	0.712	0.708	0.838
59	0.680	0.723	0.702	0.737	0.690	0.759	0.832	0.930	0.639	0.703	0.770	0.861	0.733	0.846	1.036	0.602	0.695	0.691	0.818
60	0.669	0.715	0.692	0.726	0.674	0.741	0.812	0.908	0.625	0.687	0.753	0.841	0.715	0.826	1.011	0.588	0.679	0.675	0.798
61	0.659	0.708	0.682	0.716	0.658	0.723	0.792	0.886	0.610	0.671	0.735	0.822	0.697	0.805	0.986	0.574	0.662	0.658	0.779
62	0.648	0.701	0.672	0.705	0.641	0.705	0.773	0.864	0.596	0.656	0.718	0.803	0.679	0.784	0.960	0.559	0.646	0.641	0.759
63	0.637	0.693	0.662	0.694	0.625	0.687	0.753	0.842	0.582	0.640	0.701	0.784	0.661	0.763	0.935	0.545	0.630	0.624	0.739
64	0.626	0.686	0.651	0.683	0.609	0.670	0.733	0.820	0.568	0.625	0.685	0.765	0.643	0.742	0.909	0.531	0.614	0.608	0.719
65	0.615	0.678	0.641	0.672	0.592	0.652	0.714	0.798	0.554	0.610	0.668	0.747	0.624	0.721	0.883	0.518	0.598	0.591	0.699
66	0.604	0.670	0.631	0.661	0.576	0.634	0.694	0.776	0.540	0.594	0.651	0.728	0.606	0.700	0.857	0.504	0.582	0.573	0.679
67	0.592	0.662	0.620	0.650	0.560	0.616	0.675	0.755	0.527	0.579	0.635	0.710	0.588	0.679	0.831	0.490	0.566	0.556	0.658
68	0.581	0.654	0.610	0.639	0.544	0.599	0.656	0.733	0.513	0.564	0.618	0.691	0.570	0.658	0.806	0.477	0.550	0.539	0.638
69	0.569	0.646	0.599	0.628	0.528	0.581	0.636	0.712	0.500	0.550	0.602	0.673	0.551	0.637	0.780	0.463	0.535	0.522	0.618
70	0.557	0.638	0.589	0.617	0.512	0.564	0.617	0.690	0.486	0.535	0.586	0.655	0.533	0.616	0.754	0.450	0.519	0.505	0.598
71	0.544	0.629	0.578	0.606	0.497	0.546	0.599	0.669	0.473	0.520	0.570	0.637	0.515	0.595	0.729	0.436	0.504	0.488	0.577
72	0.532	0.620	0.567	0.594	0.481	0.529	0.580	0.648	0.460	0.506	0.554	0.619	0.497	0.574	0.704	0.423	0.488	0.471	0.557
73	0.519	0.612	0.556	0.583	0.466	0.512	0.561	0.628	0.446	0.491	0.538	0.601	0.480	0.554	0.678	0.410	0.473	0.454	0.537
74	0.506	0.603	0.545	0.571	0.451	0.496	0.543	0.607	0.433	0.477	0.522	0.584	0.462	0.534	0.654	0.397	0.458	0.437	0.517
75	0.493	0.593	0.534	0.559	0.436	0.479	0.525	0.587	0.420	0.463	0.507	0.566	0.445	0.514	0.629	0.384	0.443	0.420	0.497
76	0.479	0.584	0.523	0.547	0.421	0.463	0.507	0.567	0.408	0.448	0.491	0.549	0.428	0.494	0.605	0.371	0.428	0.403	0.476
77	0.465	0.574	0.512	0.536	0.406	0.447	0.489	0.547	0.395	0.434	0.476	0.532	0.411	0.474	0.581	0.358	0.413	0.386	0.456
78	0.451	0.564	0.500	0.524	0.391	0.431	0.472	0.527	0.382	0.420	0.461	0.515	0.394	0.455	0.557	0.345	0.398	0.369	0.436
79	0.436	0.554	0.489	0.511	0.377	0.415	0.454	0.508	0.370	0.407	0.445	0.498	0.378	0.436	0.534	0.332	0.383	0.352	0.416
80	0.421	0.544	0.477	0.499	0.363	0.399	0.437	0.489	0.357	0.393	0.430	0.481	0.361	0.417	0.511	0.319	0.369	0.335	0.396
81	0.406	0.533	0.465	0.487	0.349	0.384	0.421	0.470	0.345	0.379	0.415	0.465	0.345	0.399	0.488	0.307	0.354	0.318	0.377
82	0.390	0.523	0.453	0.474	0.335	0.369	0.404	0.452	0.333	0.366	0.401	0.448	0.330	0.381	0.466	0.294	0.340	0.302	0.357
83	0.374	0.511	0.441	0.462	0.322	0.354	0.388	0.433	0.320	0.352	0.386	0.432	0.314	0.363	0.444	0.282	0.325	0.285	0.337
84	0.357	0.500	0.429	0.449	0.308	0.339	0.372	0.416	0.308	0.339	0.371	0.415	0.299	0.345	0.423	0.269	0.311	0.268	0.318
85	0.340	0.488	0.417	0.436	0.295	0.325	0.356	0.398	0.296	0.326	0.357	0.399	0.284	0.328	0.402	0.257	0.297	0.252	0.298
86	0.322	0.476	0.404	0.423	0.282	0.311	0.340	0.380	0.284	0.313	0.343	0.383	0.270	0.311	0.381	0.245	0.283	0.236	0.279
87	0.304	0.464	0.392	0.410	0.270	0.297	0.325	0.363	0.273	0.300	0.328	0.367	0.255	0.295	0.361	0.232	0.268	0.219	0.259
88	0.285	0.451	0.379	0.397	0.257	0.283	0.310	0.346	0.261	0.287	0.314	0.351	0.241	0.278	0.341	0.220	0.254	0.203	0.240
89	0.266	0.438	0.366	0.383	0.245	0.269	0.295	0.330	0.249	0.274	0.300	0.336	0.227	0.263	0.322	0.208	0.240	0.187	0.221
90	0.246	0.425	0.353	0.370	0.233	0.256	0.281	0.314	0.238	0.261	0.286	0.320	0.214	0.247	0.302	0.196	0.227	0.171	0.202
91	0.225	0.411	0.339	0.356	0.221	0.243	0.266	0.298	0.226	0.249	0.272	0.305	0.201	0.232	0.284	0.184	0.213	0.155	0.183
92	0.204	0.396	0.326	0.342	0.209	0.230	0.252	0.282	0.215	0.236	0.259	0.289	0.188	0.217	0.265	0.172	0.199	0.139	0.164
93	0.182	0.382	0.312	0.328	0.198	0.218	0.238	0.267	0.203	0.224	0.245	0.274	0.175	0.202	0.248	0.160	0.185	0.123	0.146
94	0.159	0.366	0.298	0.313	0.187	0.205	0.225	0.251	0.192	0.211	0.232	0.259	0.163	0.188	0.230	0.149	0.172	0.107	0.127
95	0.135	0.350	0.284	0.299	0.176	0.193	0.212	0.237	0.181	0.199	0.218	0.244	0.151	0.174	0.213	0.137	0.158	0.092	0.108
96	0.111	0.334	0.270	0.284	0.165	0.181	0.198	0.222	0.170	0.187	0.205	0.229	0.139	0.160	0.196	0.125	0.145	0.076	0.090
97	0.085	0.317	0.255	0.269	0.154	0.169	0.186	0.208	0.159	0.175	0.192	0.214	0.127	0.147	0.180	0.114	0.131	0.061	0.072
98	0.059	0.300	0.240	0.254	0.144	0.158	0.173	0.194	0.148	0.163	0.179	0.200	0.116	0.134	0.164	0.102	0.118	0.045	0.054
99	0.031	0.282	0.225	0.239	0.133	0.147	0.161	0.180	0.137	0.151	0.166	0.185	0.105	0.121	0.148	0.090	0.104	0.030	0.036
100	0.003	0.263	0.210	0.224	0.123	0.136	0.149	0.166	0.127	0.139	0.153	0.171	0.094	0.109	0.133	0.079	0.091	0.015	0.018

AGE	PV	HJ	LJ	TJ	SP 16Lb	SP 6Kg	SP 5Kg	SP 4Kg	HT 16Lb	HT 6Kg	HT 5Kg	HT 4Kg	DT 2Kg	DT 1.5Kg	DT 1Kg	JT 800Gm	JT 600Gm	WT 35Lb	WT 25Lb
8		95	99																
9		93	90																
10		92	89																
11		93	92																
12	96	92	94																
13		97	97	91															
14	96	94	100	94	89				76				86			95			
15	99	96	99	97	99				87				97			95			
16	100	100	99	100	98				99				94			100			
17	100	98	100	99	99				98				100			96			
18	100	96		99	97				99				96			91			
19	97	97	100	98	100				100				97			88			
OC	100	100	100	100	100				100				100			100		100	
30																			
31																			
32																			
33																			
34																			
35	98	99	100	96	96				98				96			96		86	
36	100	99	97	96	95				99				96			96		84	
37	97	96	95	94	94				100				92			97		86	
38	87	96	91	97	99				96				97			93		89	
39	88	97	93	100	95				97				90			96		86	
40	95	99	94	93	97				90				92	66		93		87	
41	98	100	96	95	94				92				90	67		94		91	
42	89	98	92	90	95				96				93	74		97		94	
43	89	96	94	94	94				98				98	63		95		99	
44	90	98	92	89	96				100				98	75		94		87	
45	93	100	94	89	100	81			86				95	76		92		88	
46	93	94	97	89	99	79			86				94	70		96		80	
47	93	95	92	87	88	82			87				100	65		89		90	
48	91	97	90	88	94	82			92				96	72		100		80	
49	92	97	89	91	85	75			90				95	78		94		86	
50	93	98	94	91	87	83			88	82			78	87		94	67	92	
51	89	99	92	92	82	77			84	88			91	86		95	65	97	
52	93	100	88	88	72	86			85	87			86	86		96	66	100	
53	90	98	92	90	84	82			81	89			80	85		99	90	90	
54	92	99	91	92	85	83			85	94			85	76		99	71	87	
55	93	97	92	91	85	83			88	94			82	73		91	73	94	
56	93	95	92	93	68	79		71	85	92			85	80	68	92	76	98	
57	90	96	91	94	77	72		73	84	100			84	79	74	90	73	88	
58	94	95	94	93	77	75		75	76	91			82	77	70	87	72	87	
59	95	92	97	93	85	81		68	83	94			87	83	76	93	81	82	
60	95	92	98	94	83	83	85	80	86	77	88		76	69	77	91	90	80	90
61	97	96	94	93	79	74	83	80	81	74	91		73	72	78	92	89	74	98
62	92	97	88	94	74	74	85	78	74	78	85		73	67	75	87	87	64	100
63	96	97	89	91	77	79	84	76	80	87	91		71	70	77	82	90	75	83
64	95	100	88	87	75	74	85	81	77		74		74	65	79	89	98	76	83
65	100	98	92	92	77	75	89	82	76	77	89		75	76	85	83	91	82	86
66	98	94	94	91	78	79	84	86	80	83	89		81	78	78	79	88	78	90
67	96	96	90	90	75	79	83	90	77	87	86		81	79	78	85	89	82	85
68	98	94	91	90	85	81	87	80	77	82	79		78	80	81	86	89	80	86
69	98	93	90	88	86	85	91	86	77	84	77		78	78	79	77	92	89	94
70	97	95	95	93	82	84		88	82	87	82	80	89	85	85	79	97	85	92
71	95	94	93	92	85	88		88	80	83	79	86	94	89	88	81	94	89	98
72	94	95	89	96	91	91		89	83	84	79	87	90	88	84	78	99	86	92
73	96	97	91	94	88	94		95	86	92	87	88	90	89	86	93	92	87	95
74	96	95	85	94	93	87		92	82	89	77	79	93	91	89	97	97	94	88
75	96	99	100	100	87	96		93	58	68	67	91	75	77	89	97	97	85	96
76	98	90	93	93	94	85		96	72	86		82	83	87	91	100	94	91	94
77	96	96	93	95	82	83		95	51	85		81	76	58	95	79	93	76	89
78	96	92	97	99	80	83		96	49	76	62	82	81	79	90	65	83	68	89
79	97	94	85	85	77	82		94	50		57	84	79	74	96	70	95	72	88
80	97	92	97	100	79	79		98	60	100		82	67	46	100	77	84	73	81
81	93	90	84	82				91				69			87	71	81	62	84
82	80	95	94	97				90		85	65	72			93	88	100	66	86
83	85	97	100	94				91		78		65			90	59	82	68	73
84	86	91	80	85				83				46			87		78	68	73
85	78	94	81	81				92			88	59			91	92	88	67	74
86	88	91	94	72				95				46			94		85	76	49
87	87	96	70	72				100				52			98	75	76		77
88	78	87	75	71				83							77	61	78		80
89	84	95	62	70				89				54			76	63	69		91
90		100	77	83				96				61			92		80		
91		93	79	73				75				64			91		49		
92		88		65				73							79		76		
93								70							48		45		
94			45	50				69							62				
95			70					81							94		94		
96								91							100		86		
97								100							84		82		
98																	69		
99																			
100																			

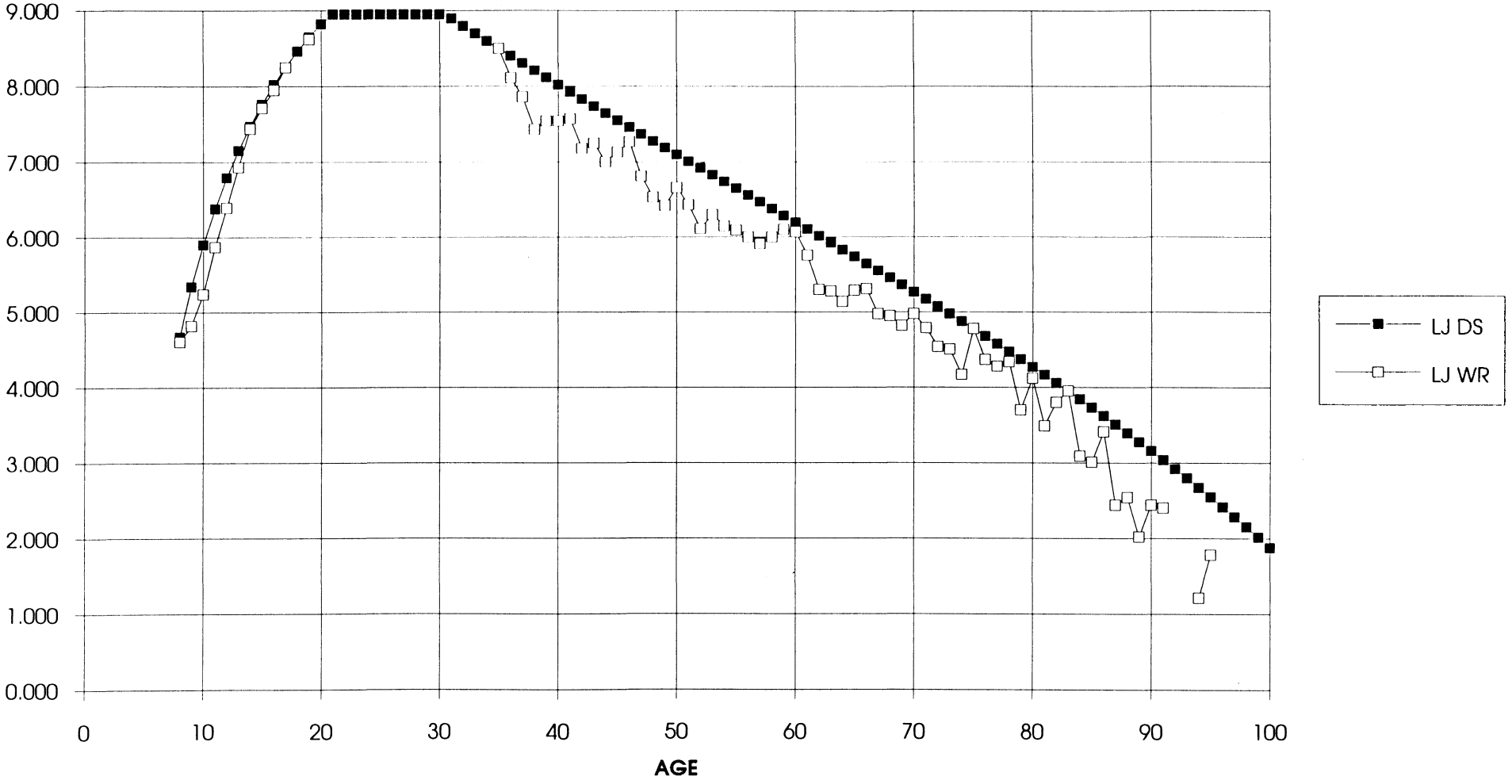
MENS DISTANCE STANDARDS AND RECORDS IN METERS



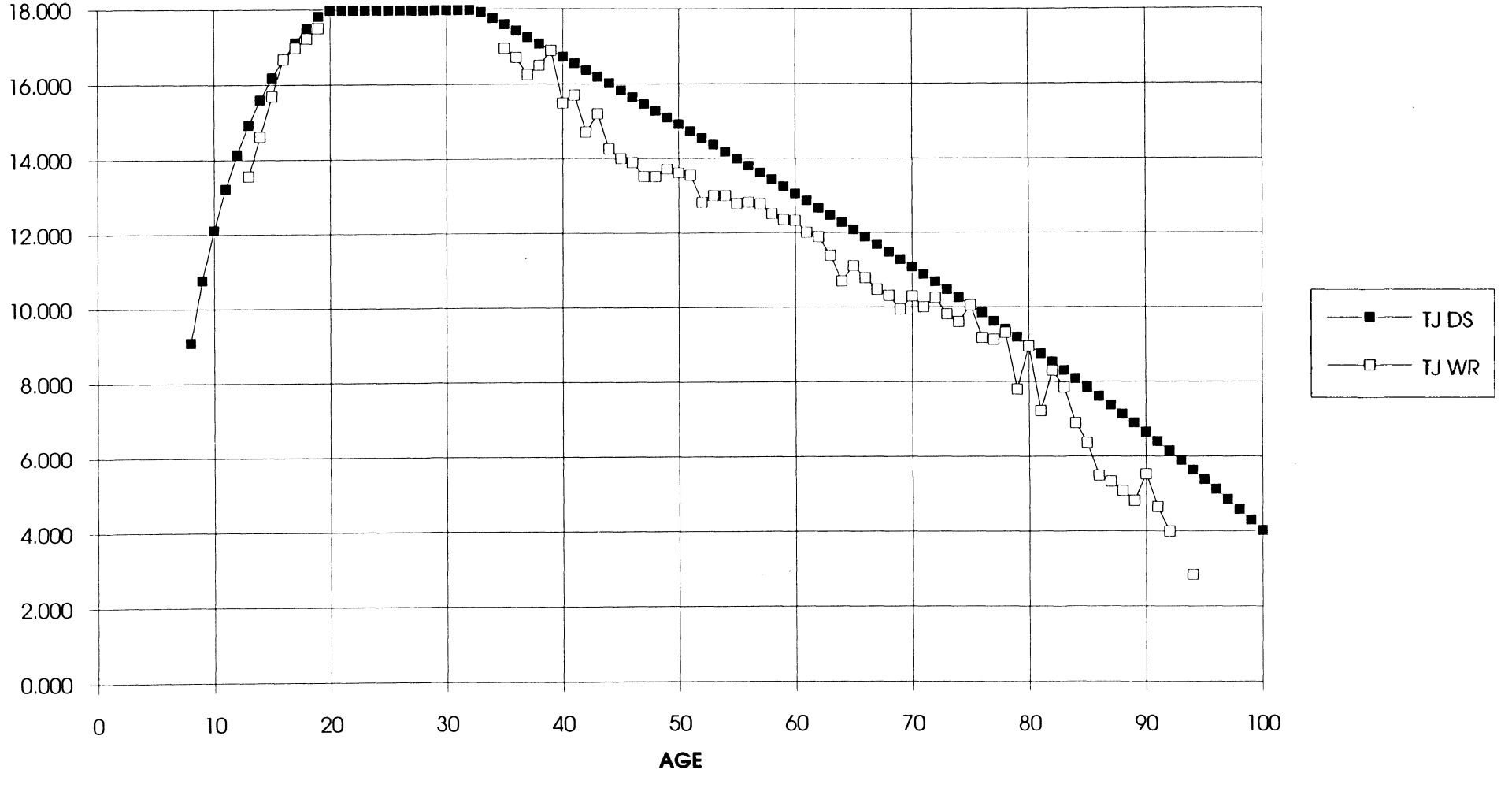
MENS DISTANCE STANDARDS AND RECORDS IN METERS



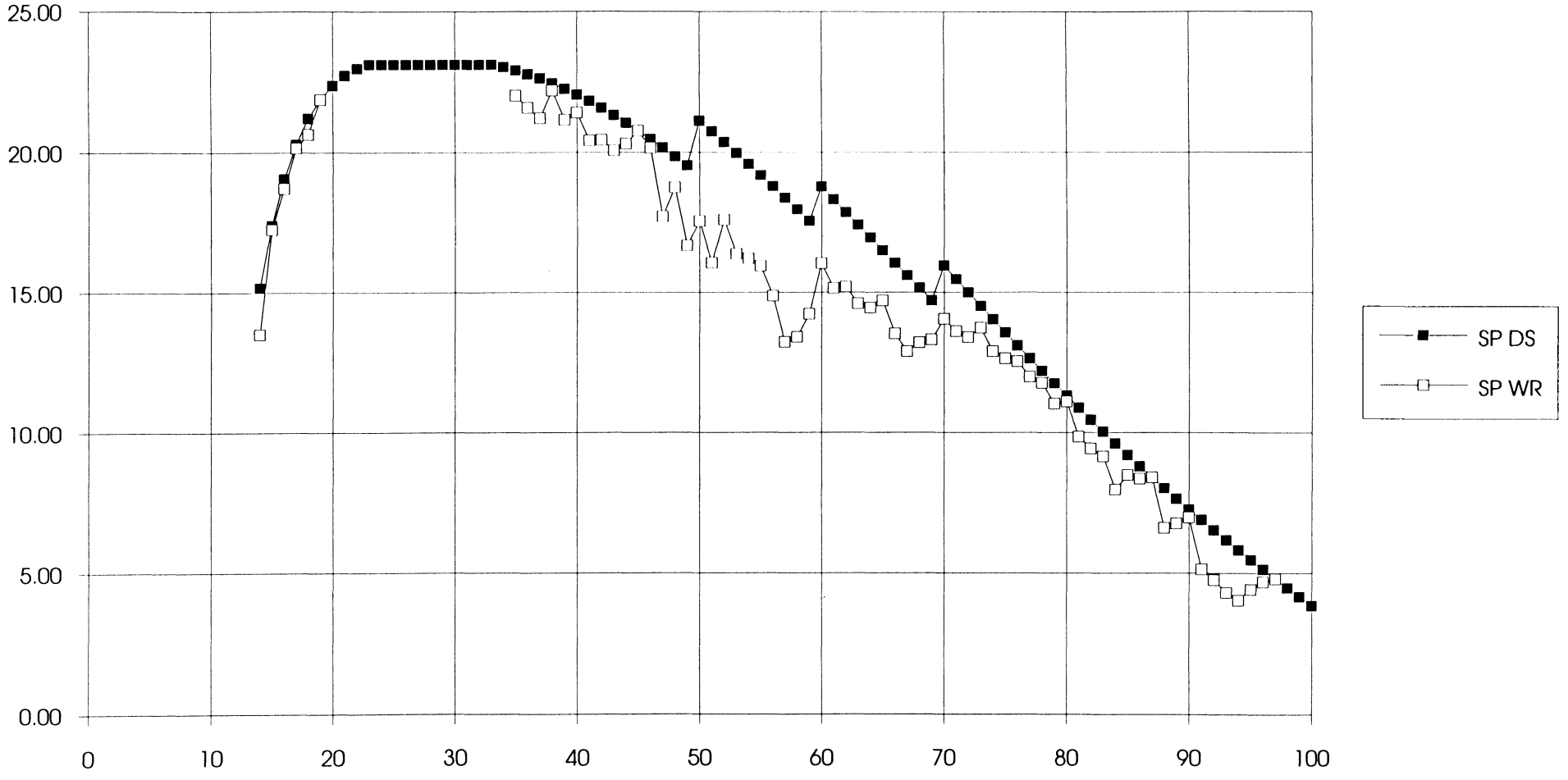
MENS DISTANCE STANDARDS AND RECORDS IN METERS



MENS DISTANCE STANDARDS AND RECORDS IN METERS

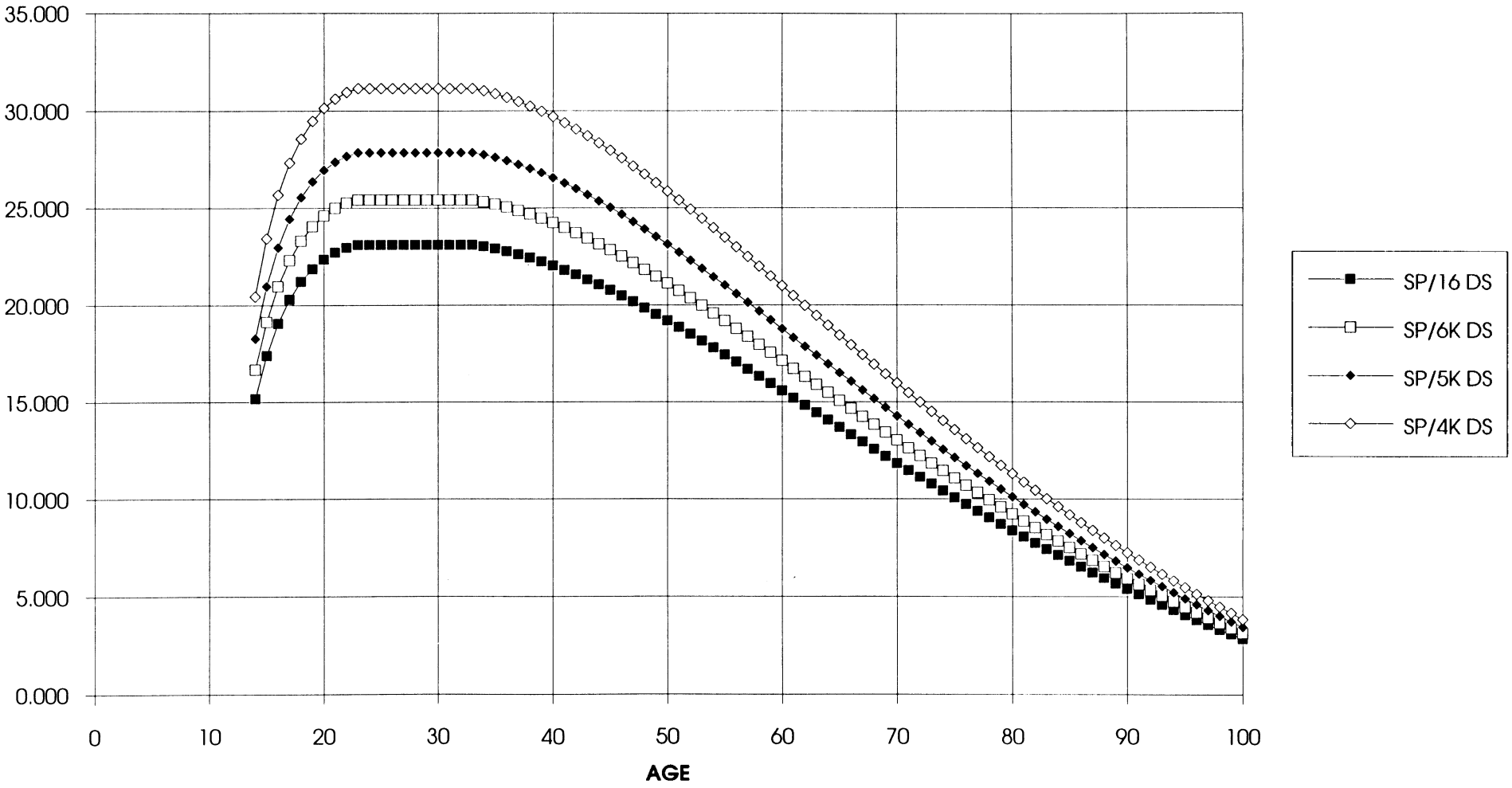


COMPOSITE CHART: MENS SHOT PUT DISTANCE STANDARDS AND RECORDS IN METERS

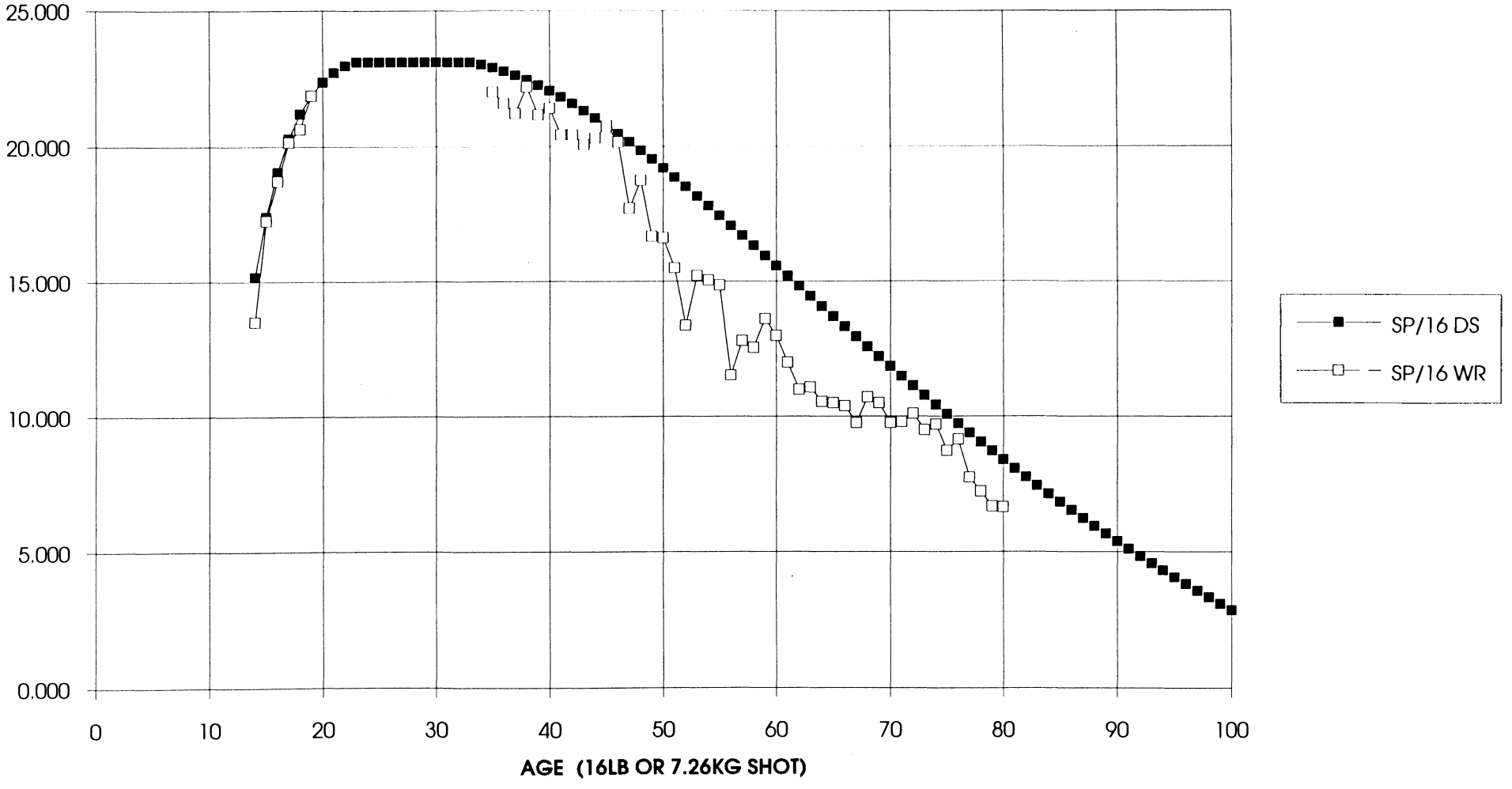


16LB OR 7.26KG AGE 14-49; 6KG AGE 50-59; 5KG AGE 60-69; 4KG AGE 70-100

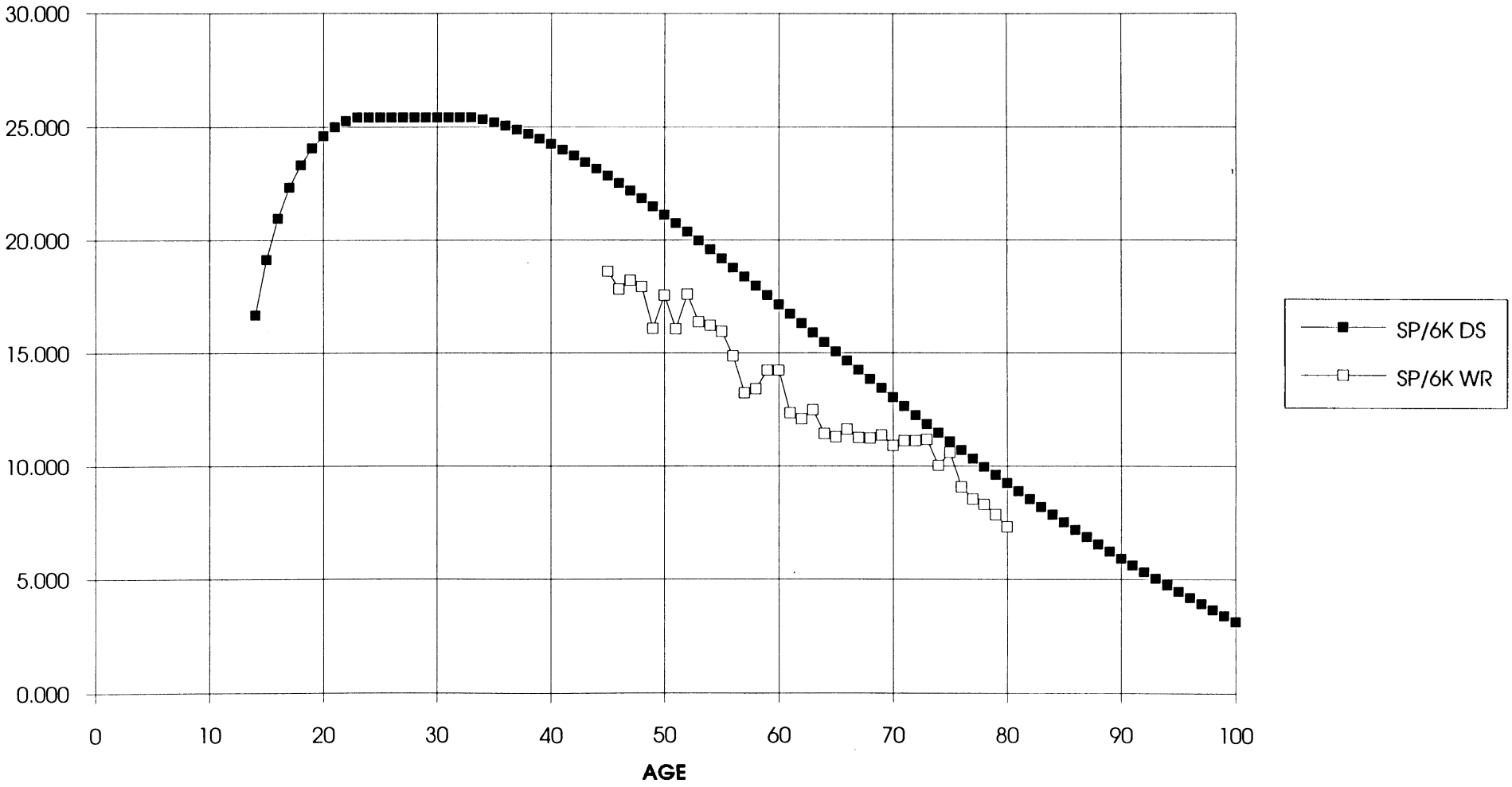
COMPARISON CHART: MENS SHOT PUT DISTANCE STANDARDS IN METERS



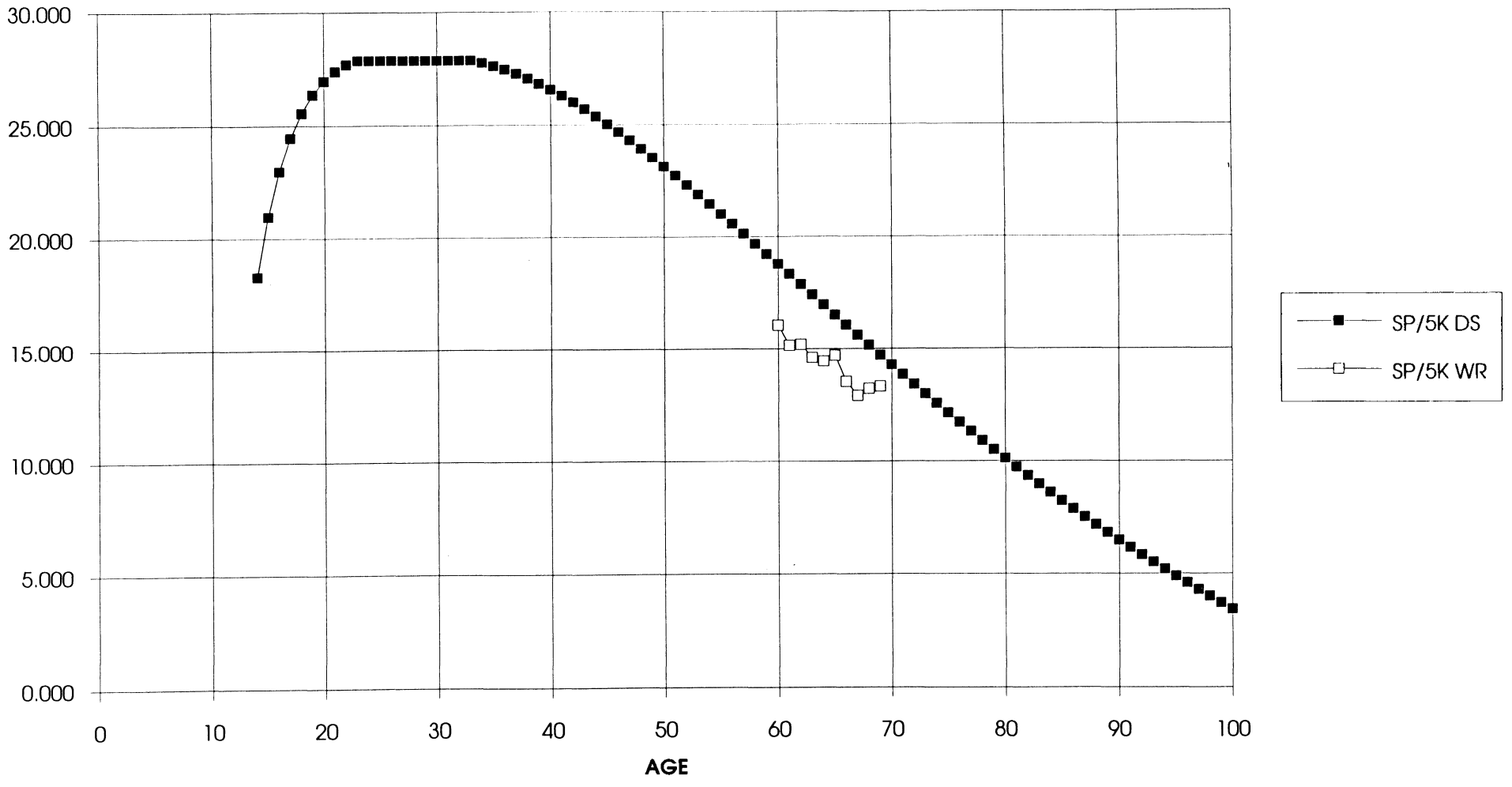
MENS DISTANCE STANDARDS AND RECORDS IN METERS



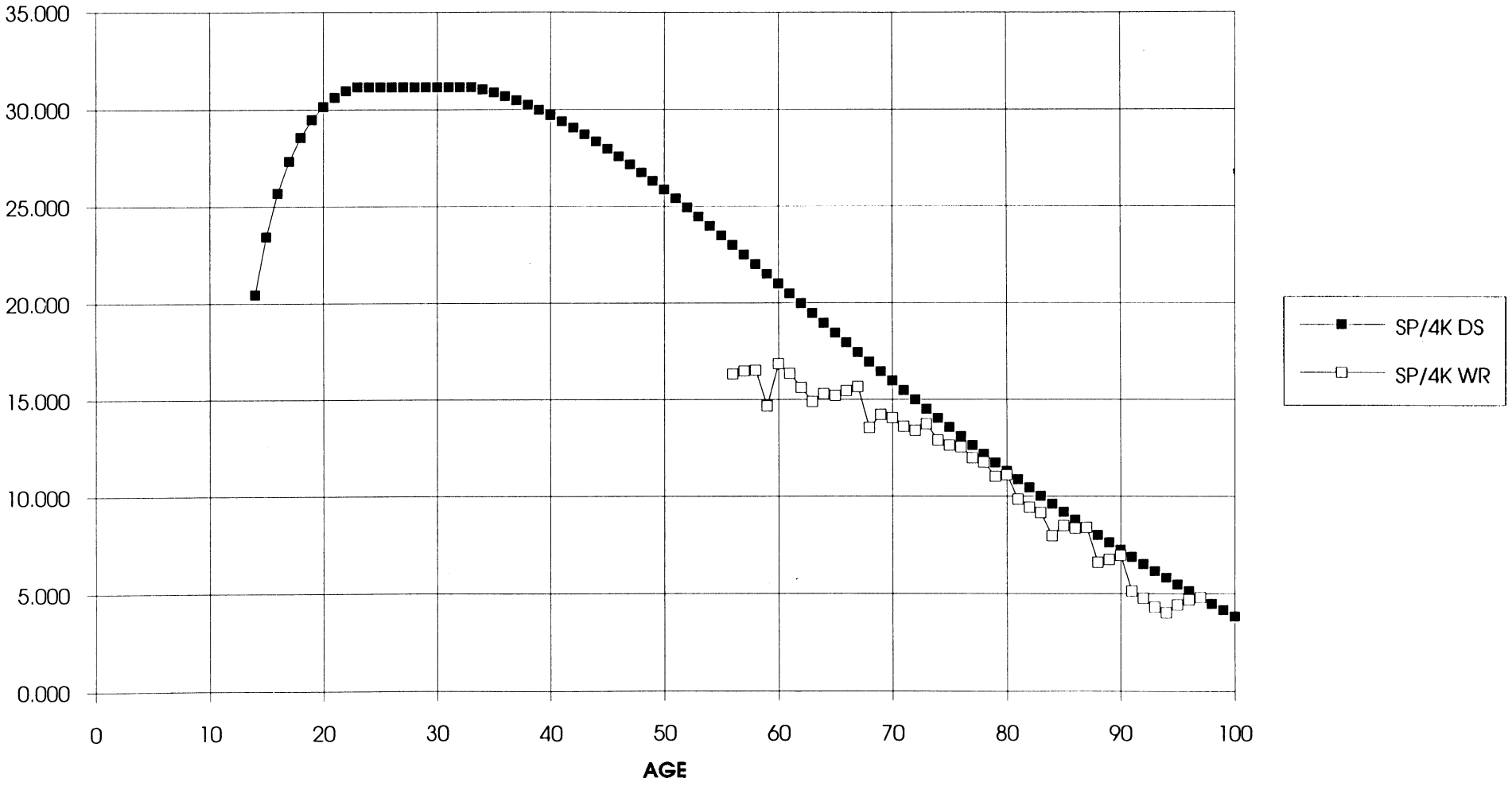
MENS DISTANCE STANDARDS AND RECORDS IN METERS



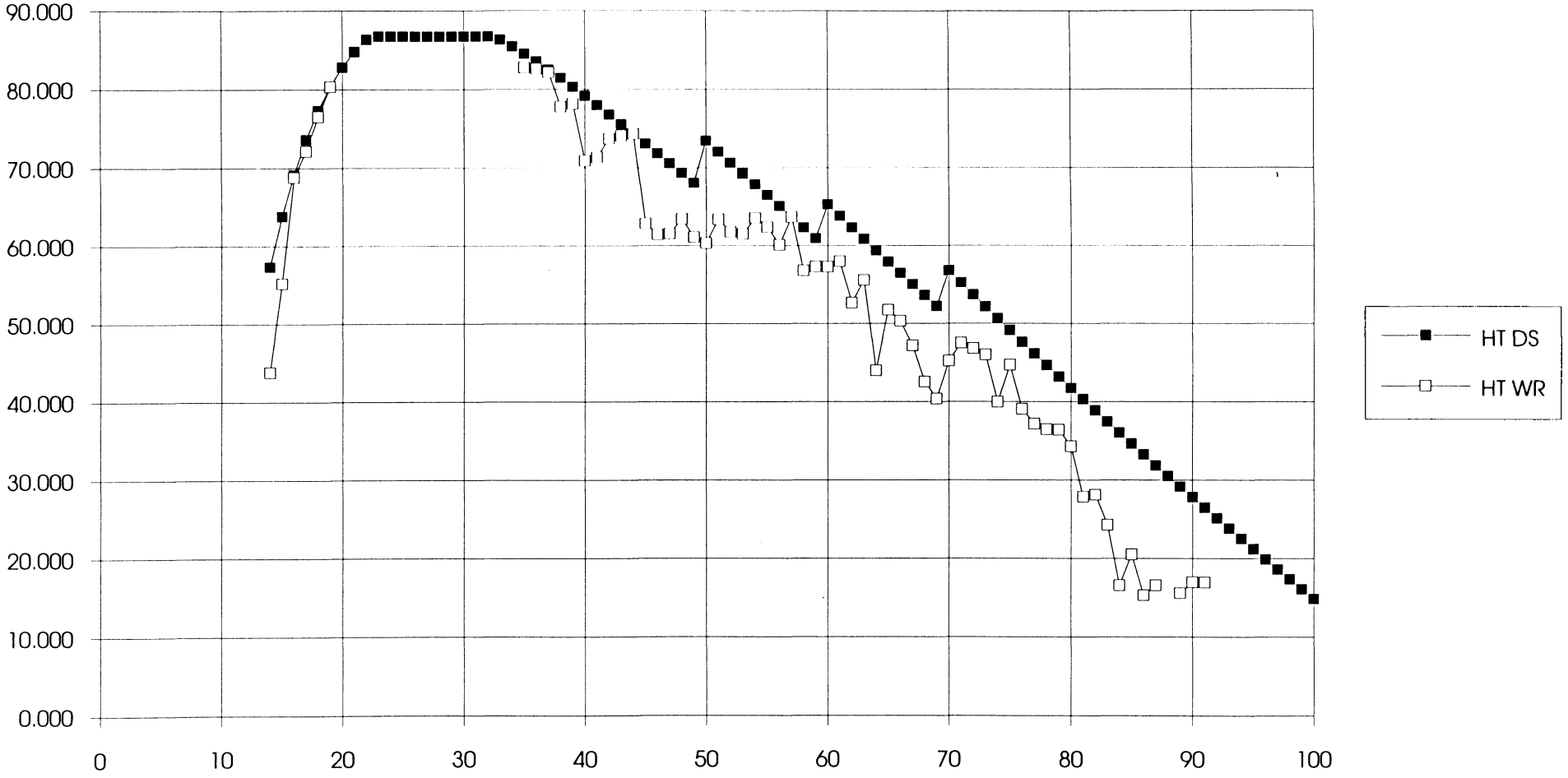
MENS DISTANCE STANDARDS AND RECORDS IN METERS



MENS DISTANCE STANDARDS AND RECORDS IN METERS

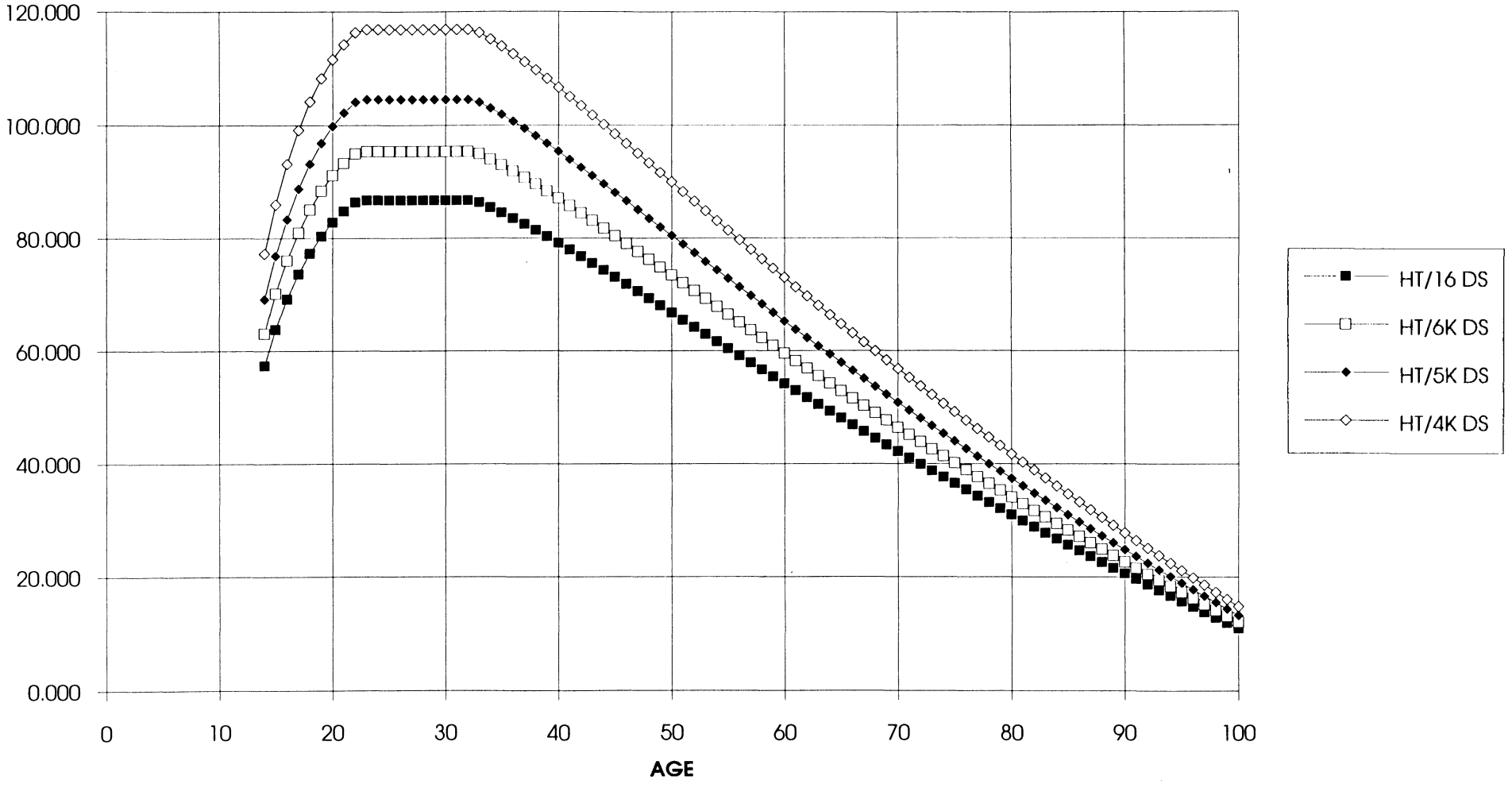


COMPOSITE CHART: MENS HAMMER THROW DISTANCE STANDARDS AND RECORDS IN METERS

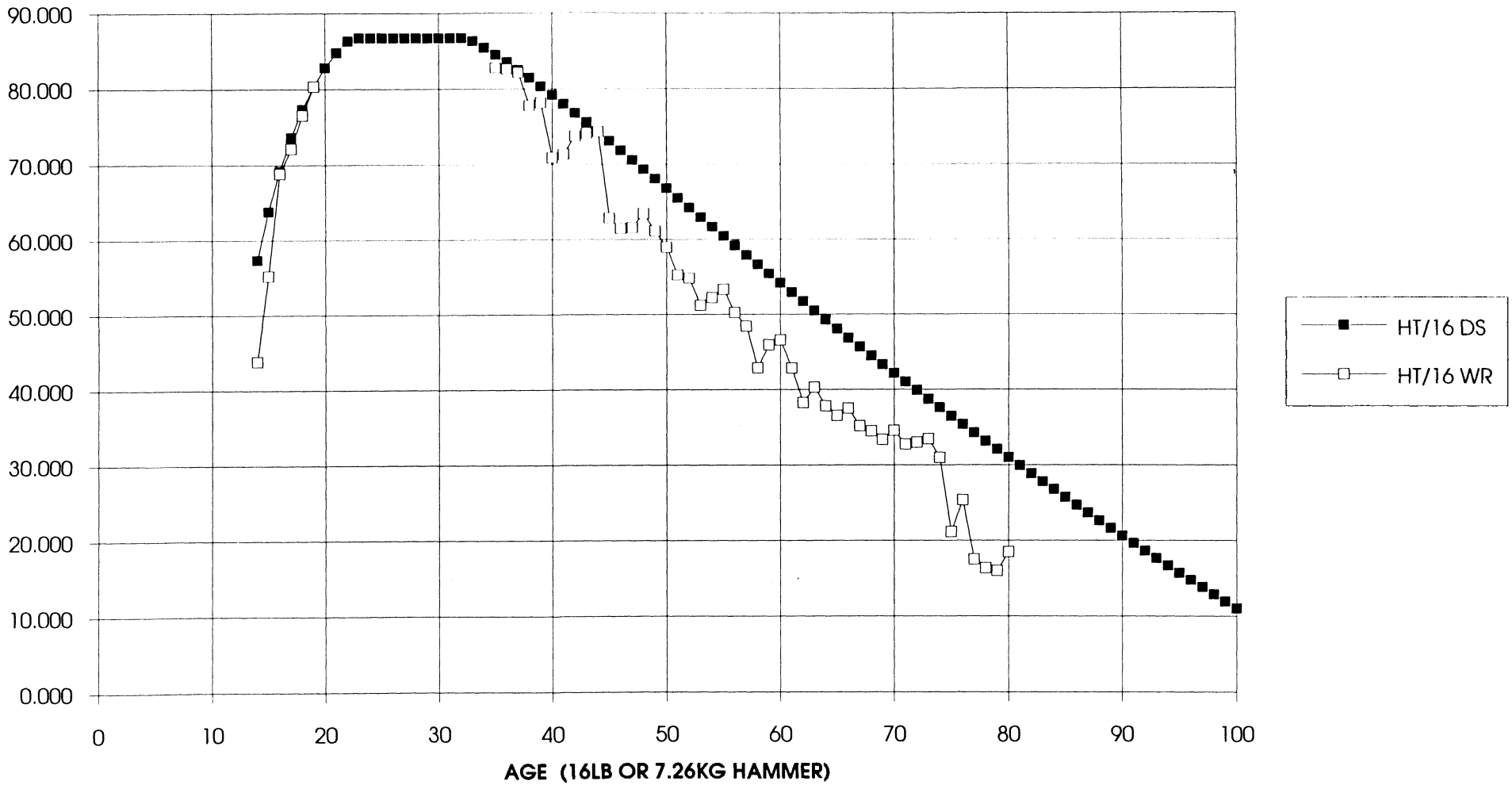


16LB OR 7.26KG AGE 14-49; 6KG AGE 50-59; 5KG AGE 60-69; 4KG AGE 70-100

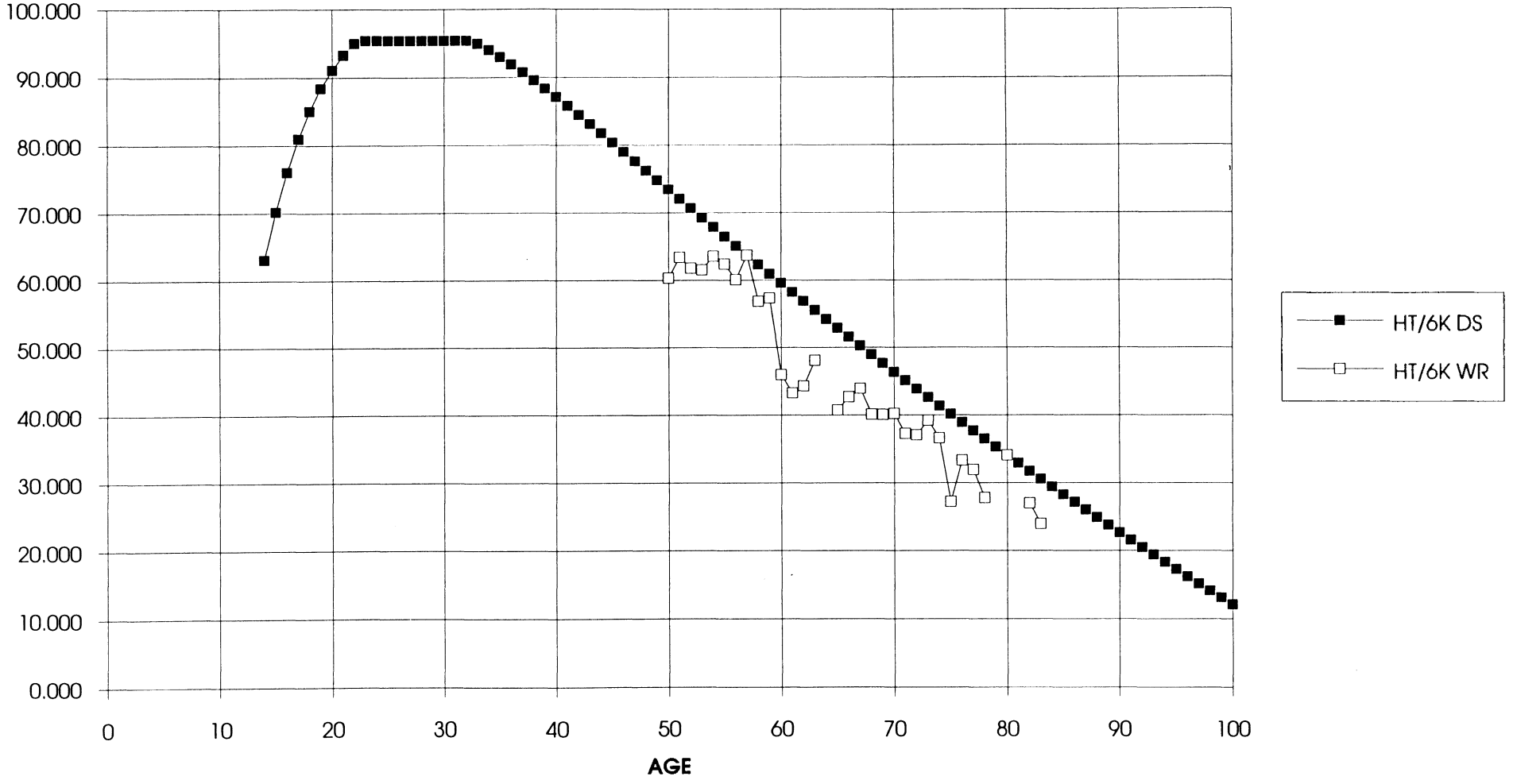
COMPARISON CHART: MENS HAMMER THROW DISTANCE STANDARDS IN METERS



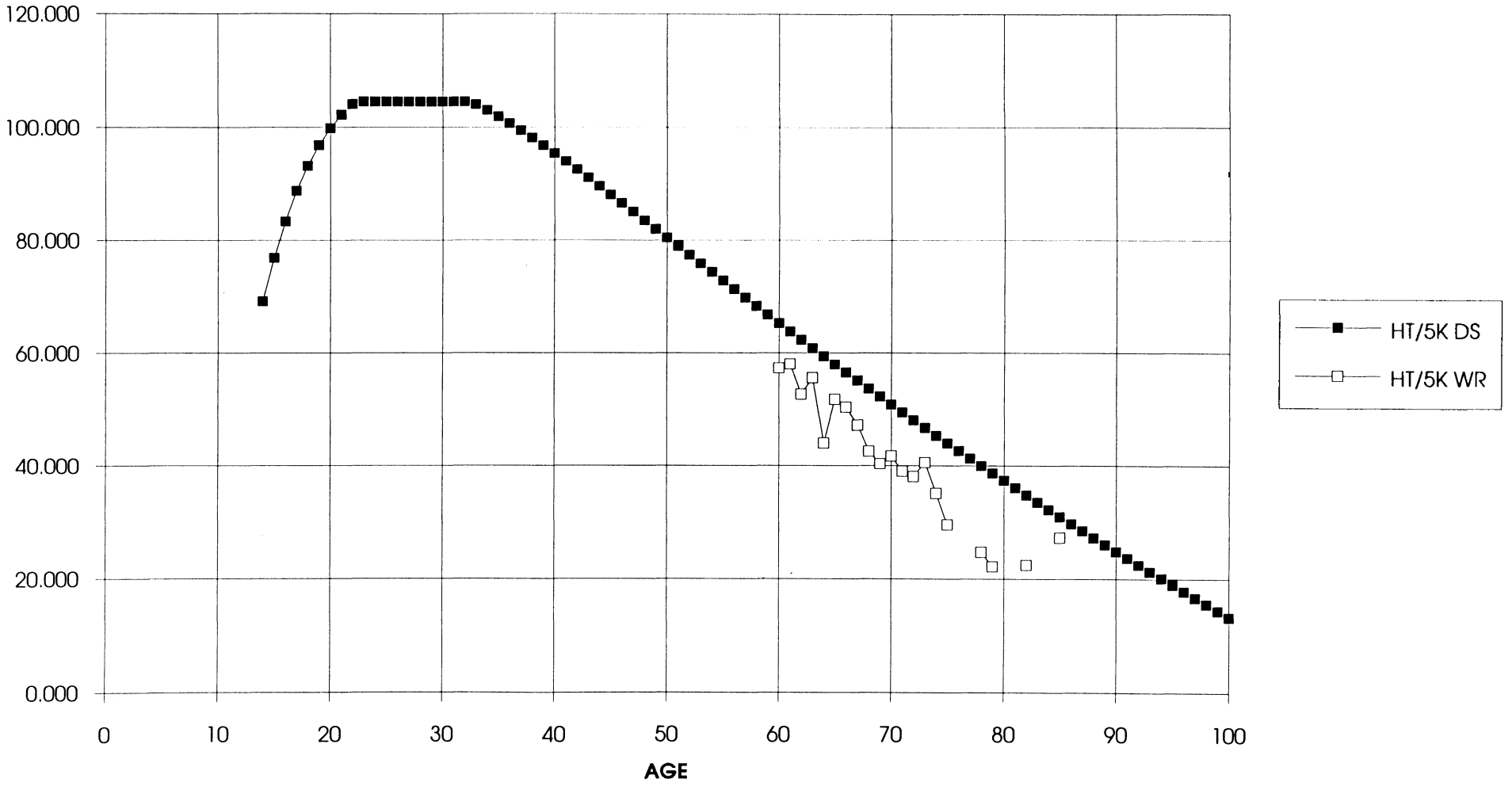
MENS DISTANCE STANDARDS AND RECORDS IN METERS



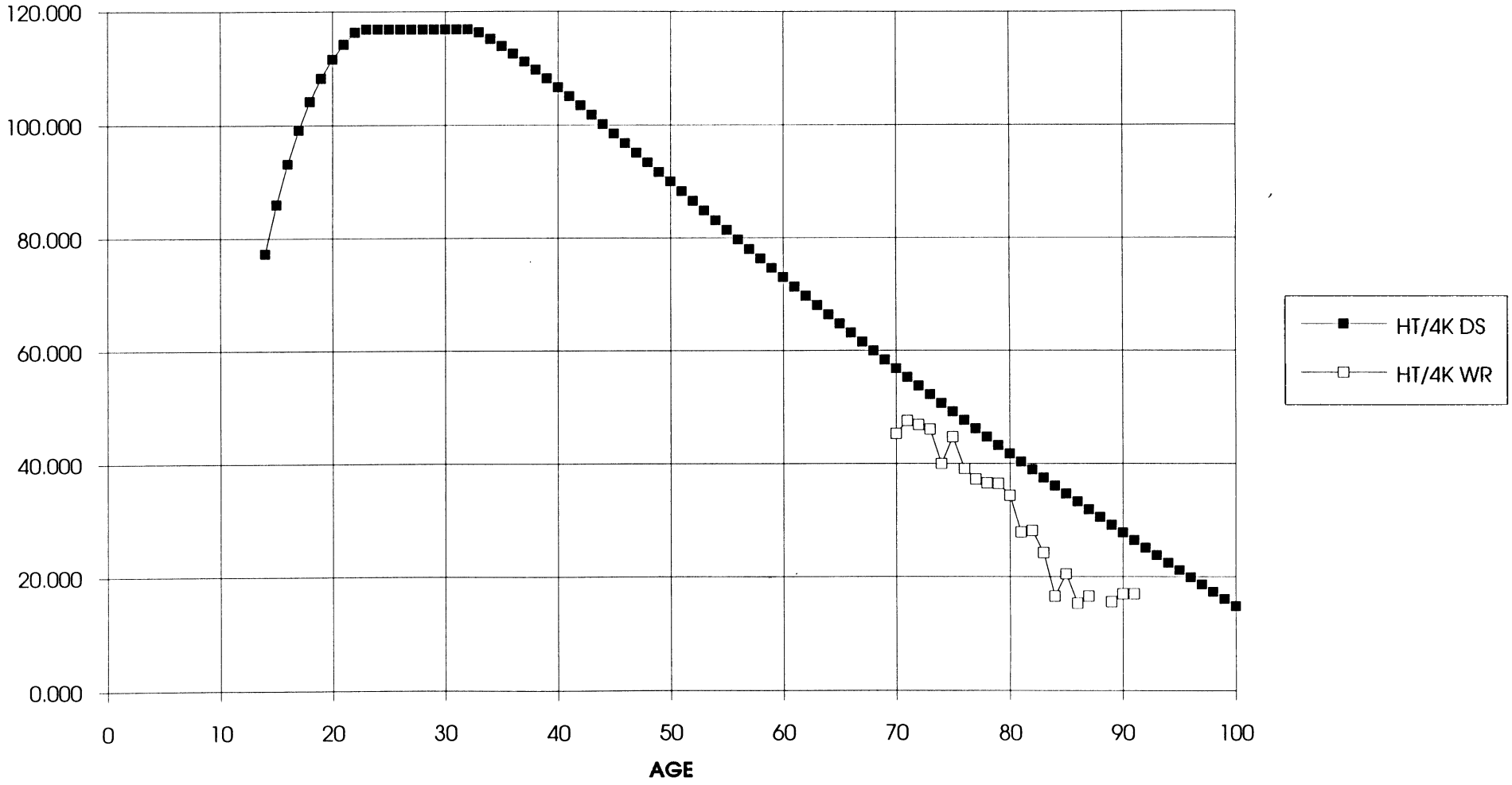
MENS DISTANCE STANDARDS AND RECORDS IN METERS



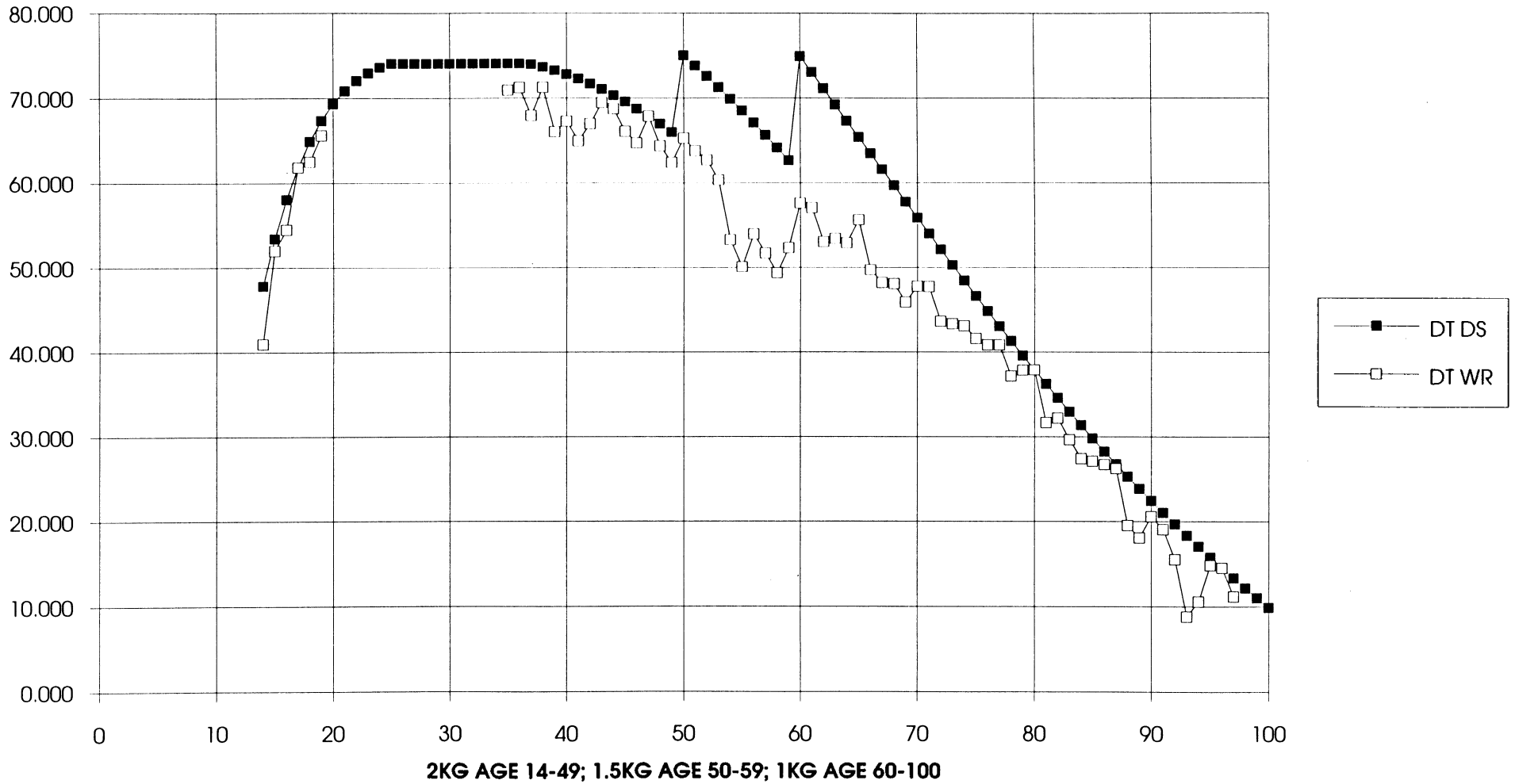
MENS DISTANCE STANDARDS AND RECORDS IN METERS



MENS DISTANCE STANDARDS AND RECORDS IN METERS

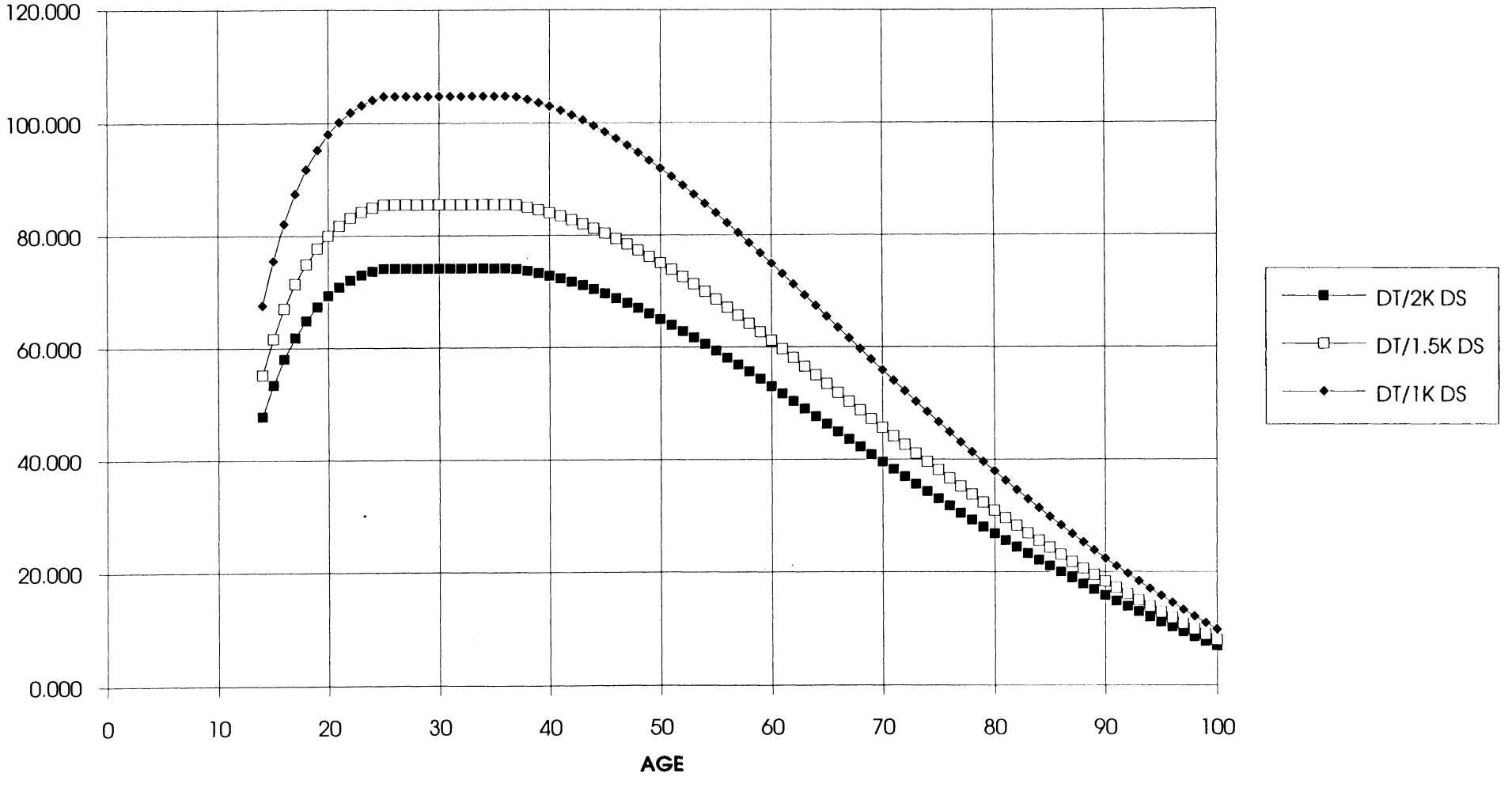


COMPOSITE CHART: MENS DISCUS THROW DISTANCE STANDARDS AND RECORDS IN METERS

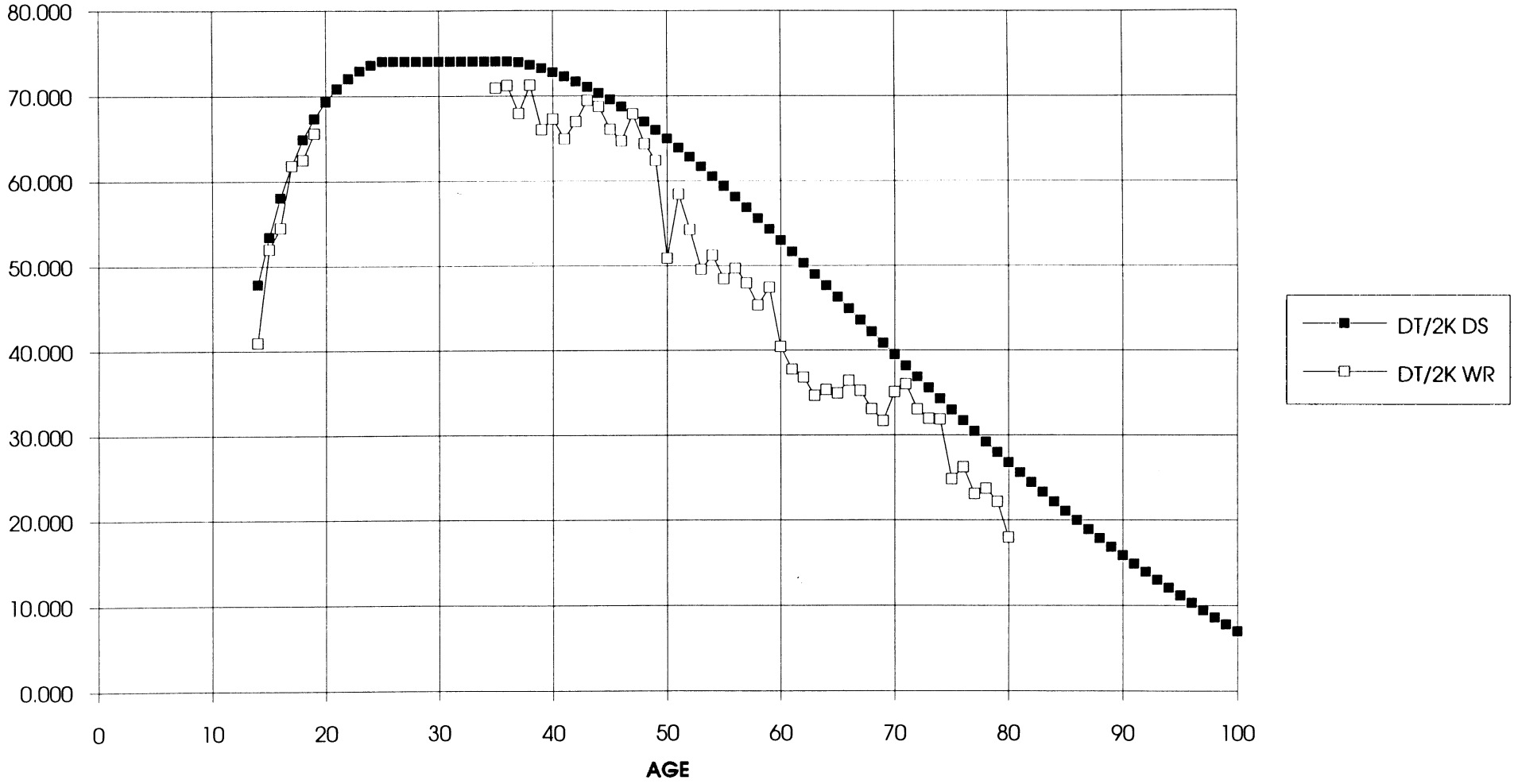


2KG AGE 14-49; 1.5KG AGE 50-59; 1KG AGE 60-100

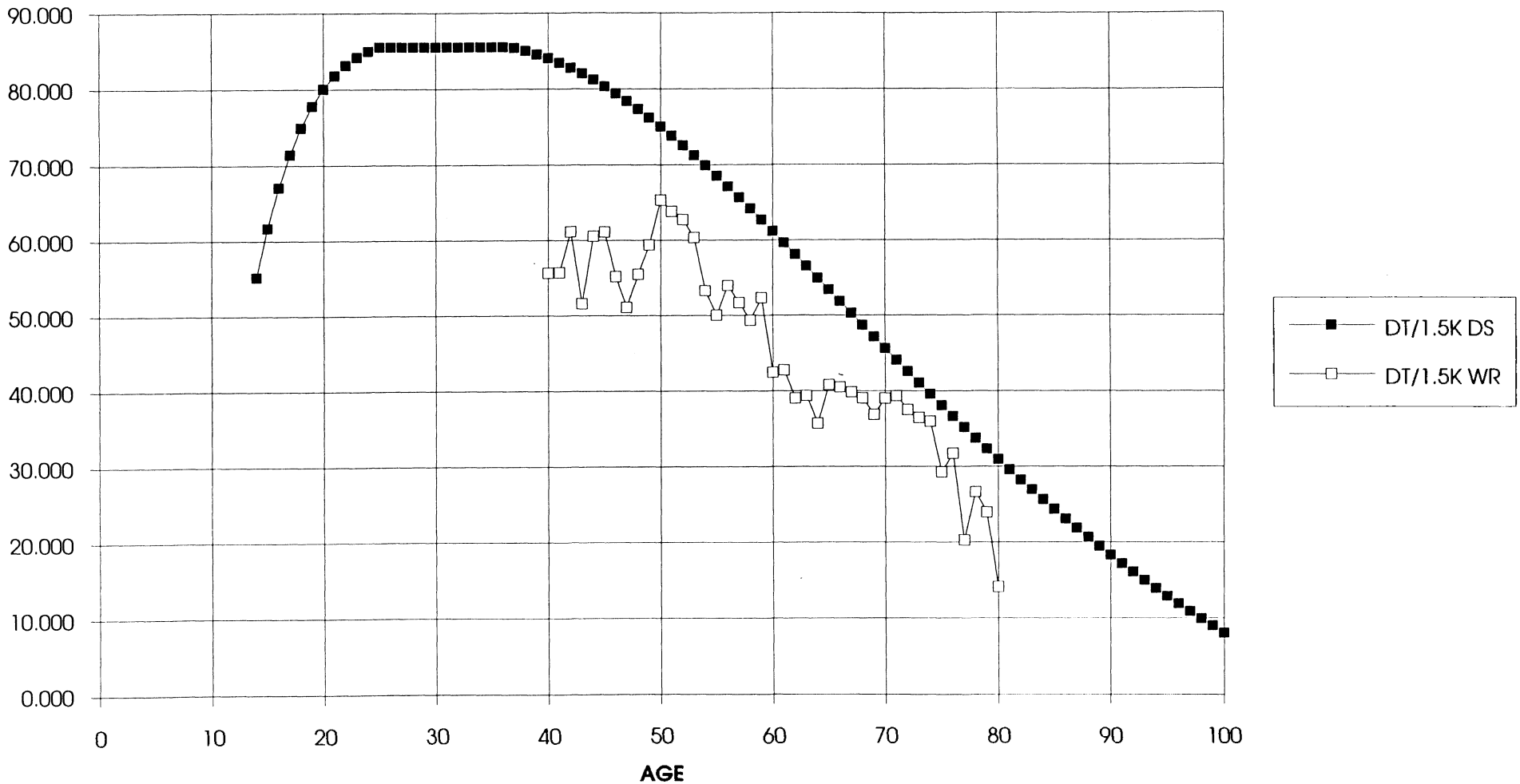
COMPARISON CHART: MENS DISCUS THROW DISTANCE STANDARDS IN METERS



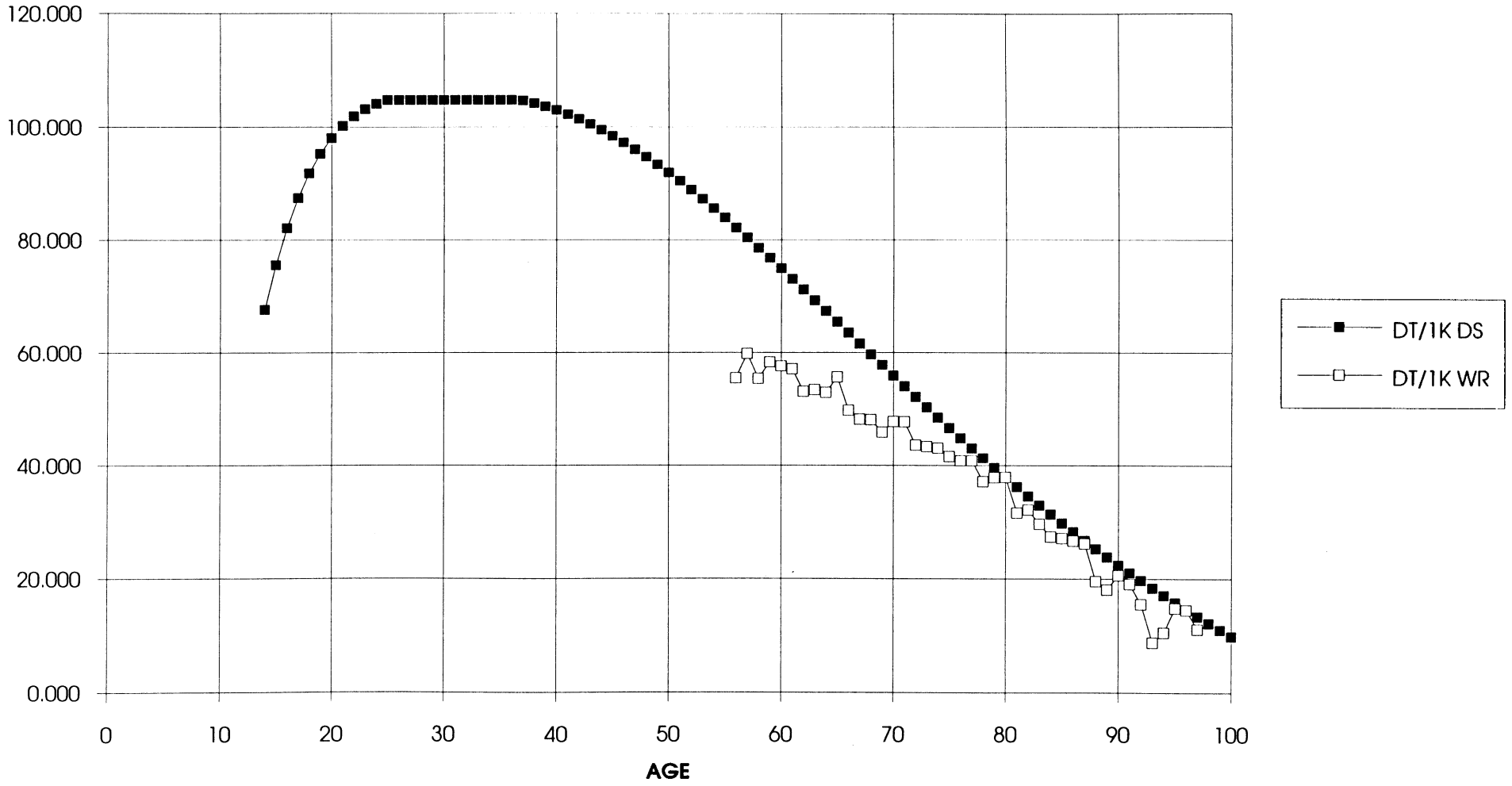
MENS DISTANCE STANDARDS AND RECORDS IN METERS



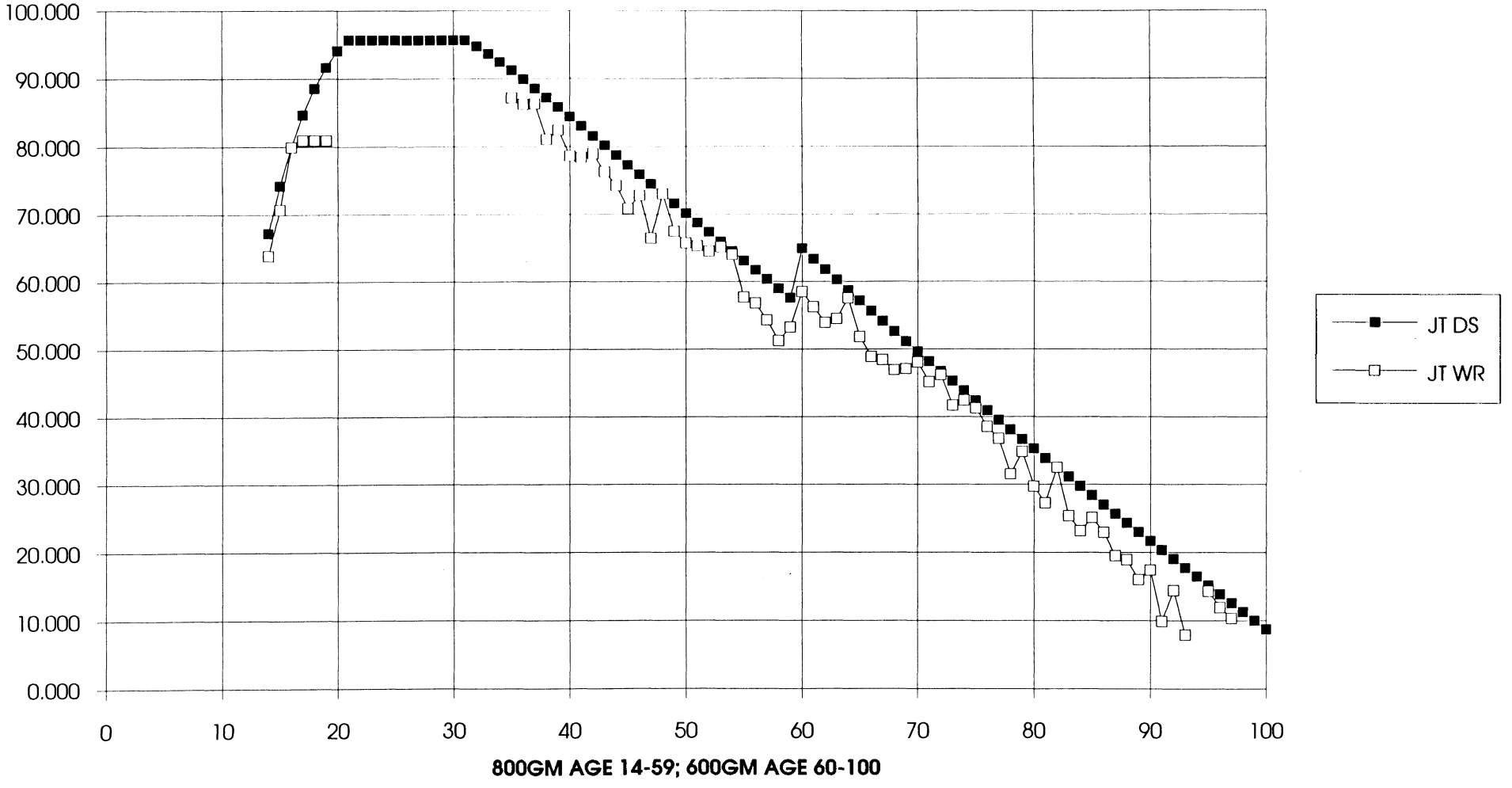
MENS DISTANCE STANDARDS AND RECORDS IN METERS



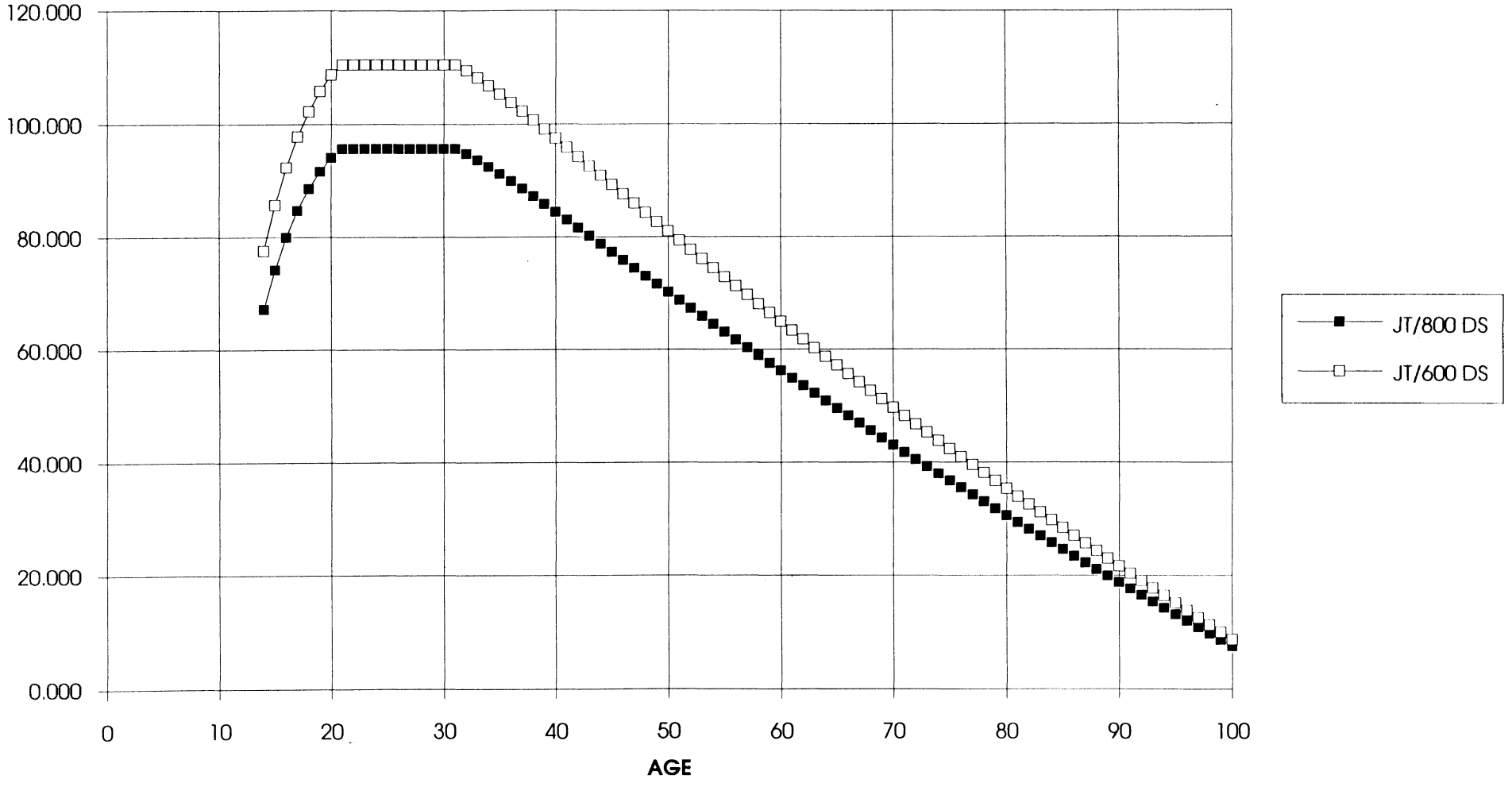
MENS DISTANCE STANDARDS AND RECORDS IN METERS



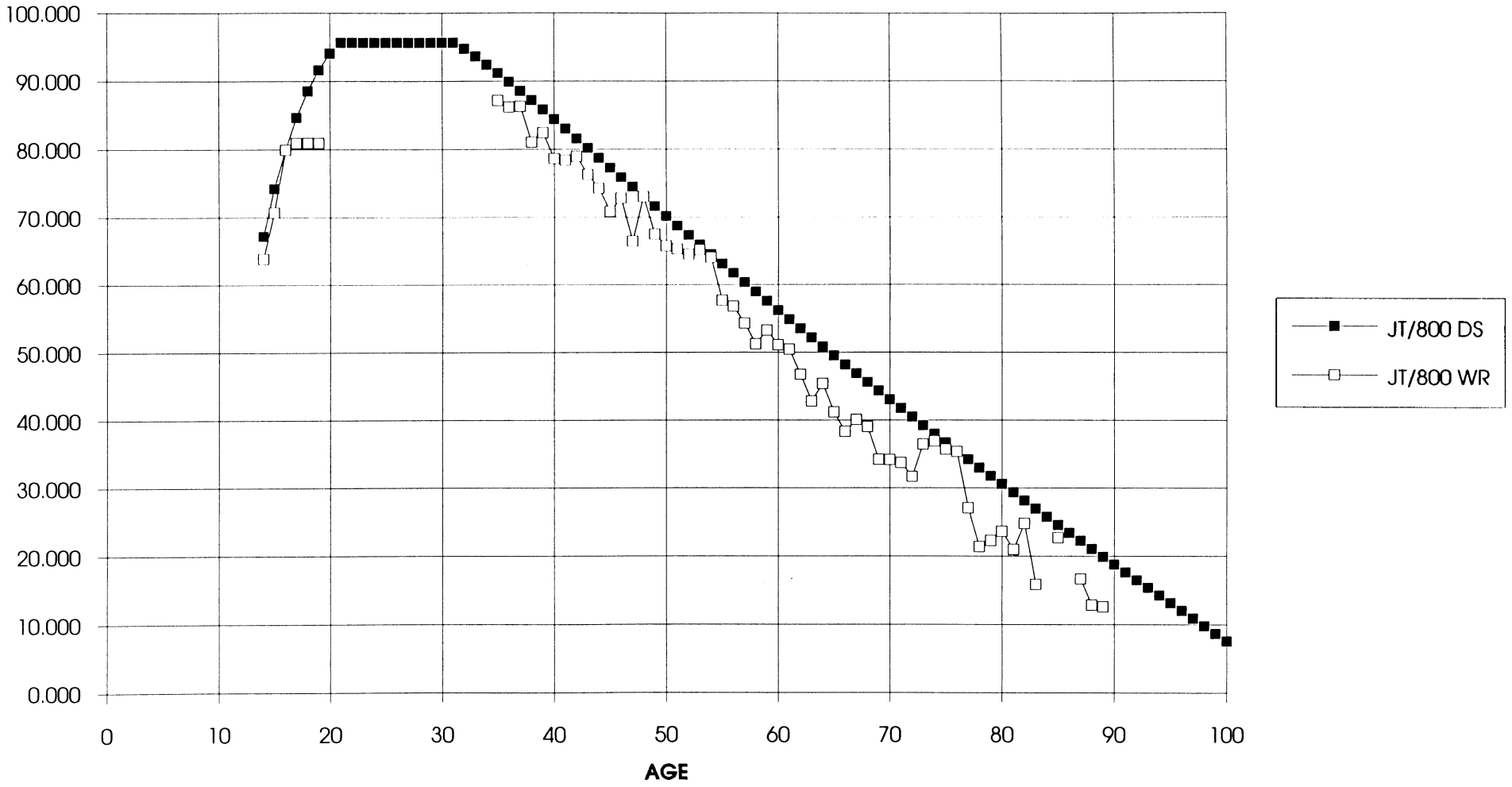
COMPOSITE CHART: MENS JAVELIN THROW DISTANCE STANDARDS AND RECORDS IN METERS



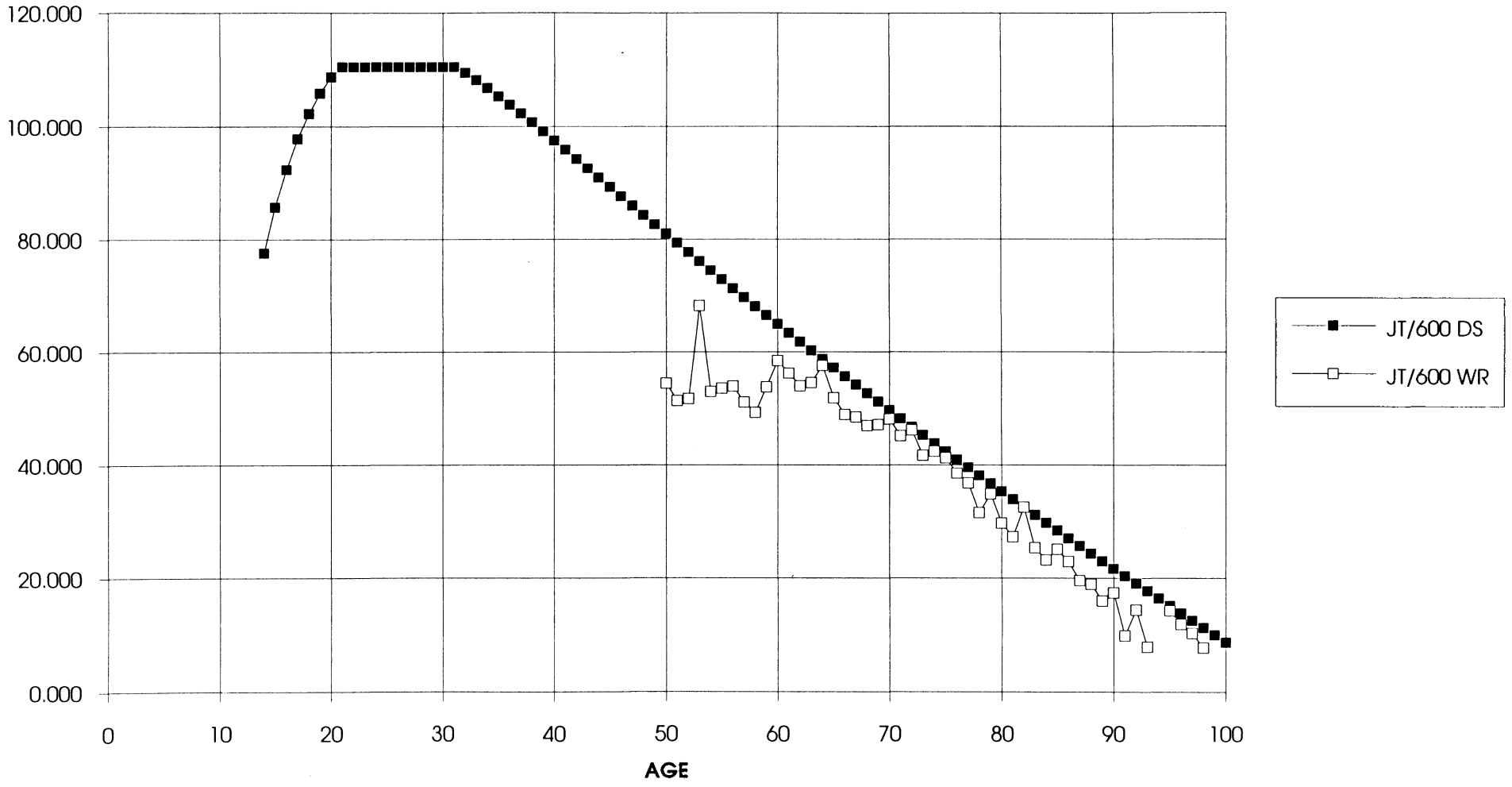
COMPARISON CHART: MENS JAVELIN THROW DISTANCE STANDARDS IN METERS



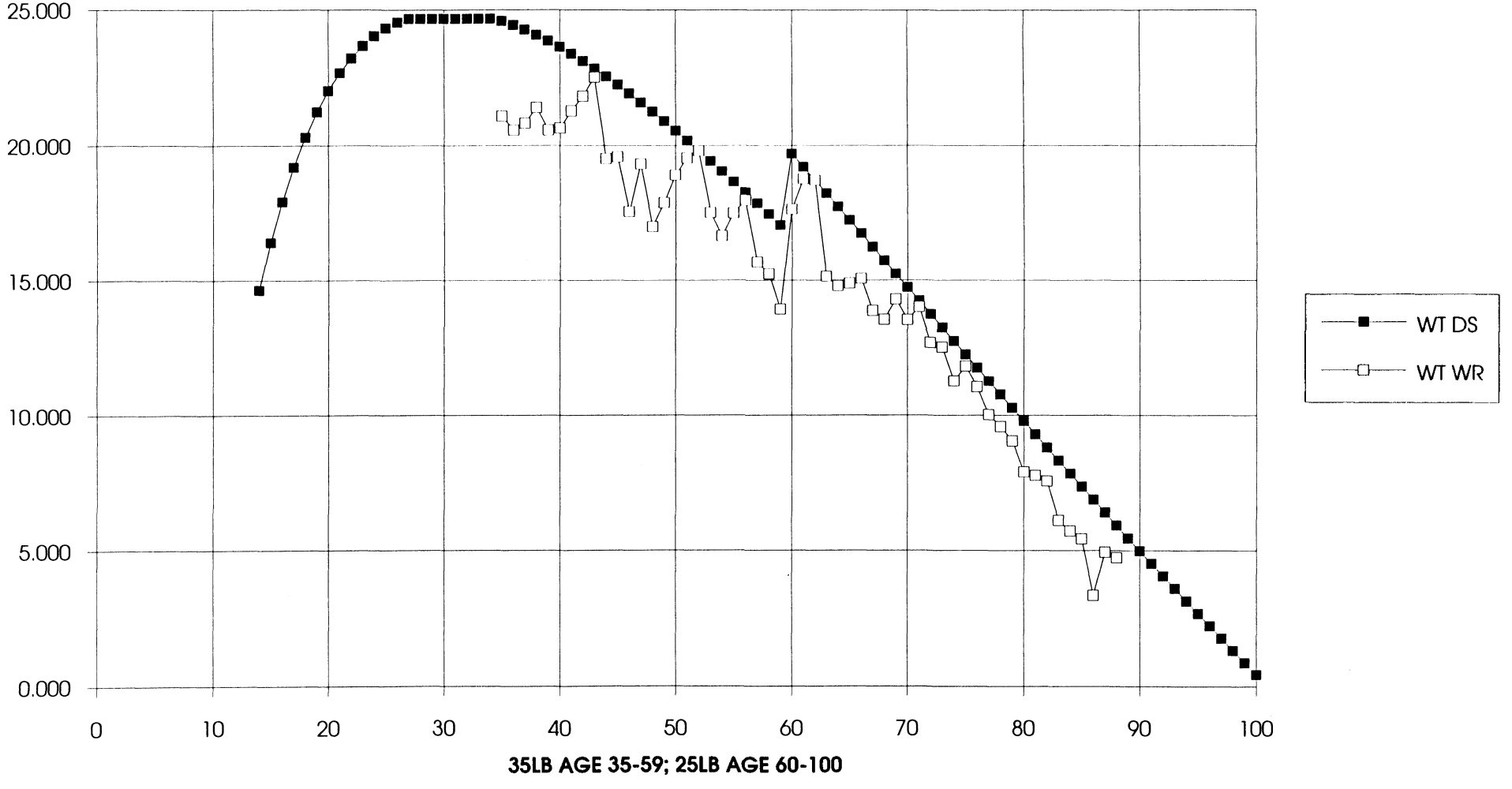
MENS DISTANCE STANDARDS AND RECORDS IN METERS



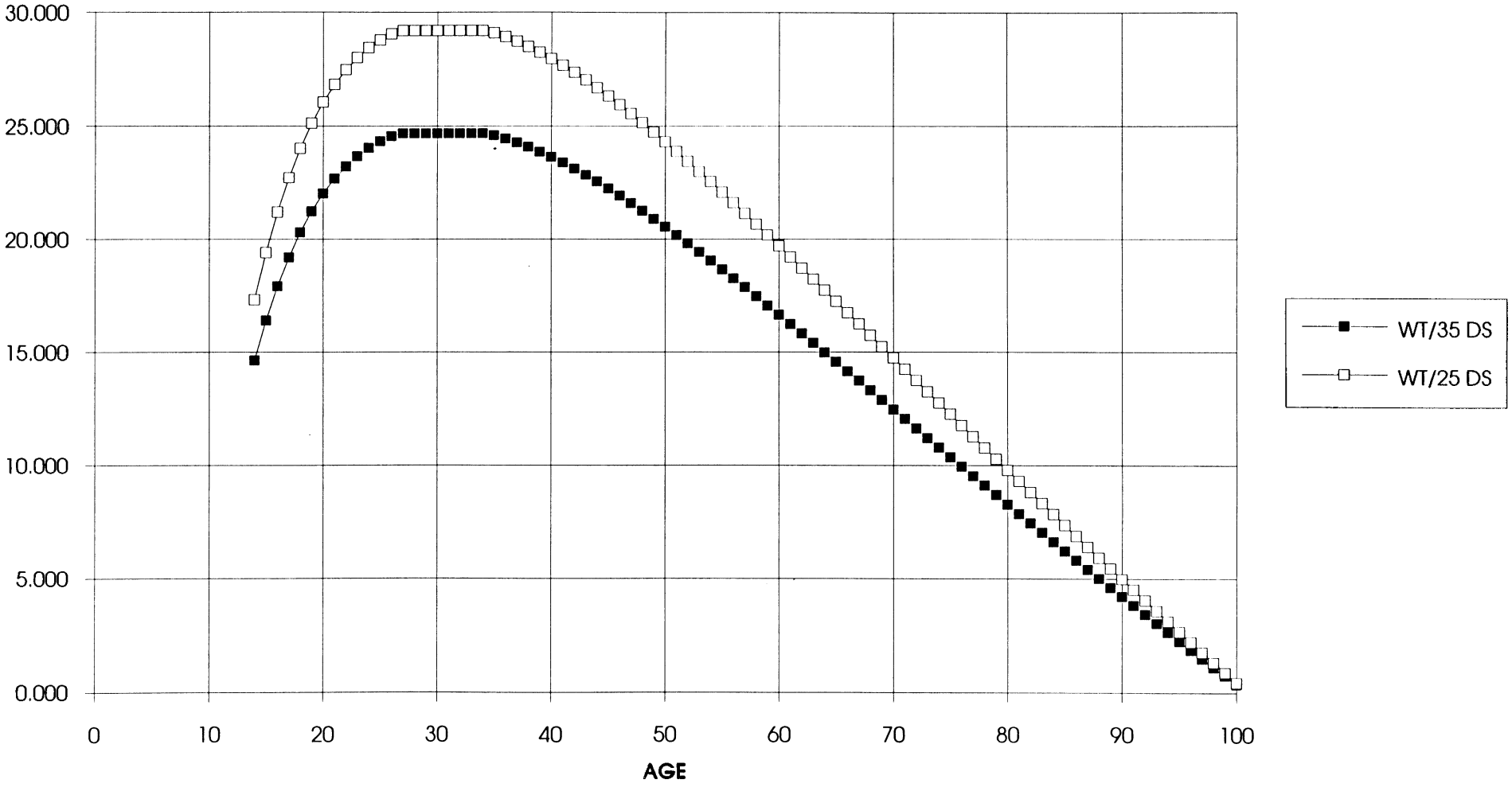
MENS DISTANCE STANDARDS AND RECORDS IN METERS



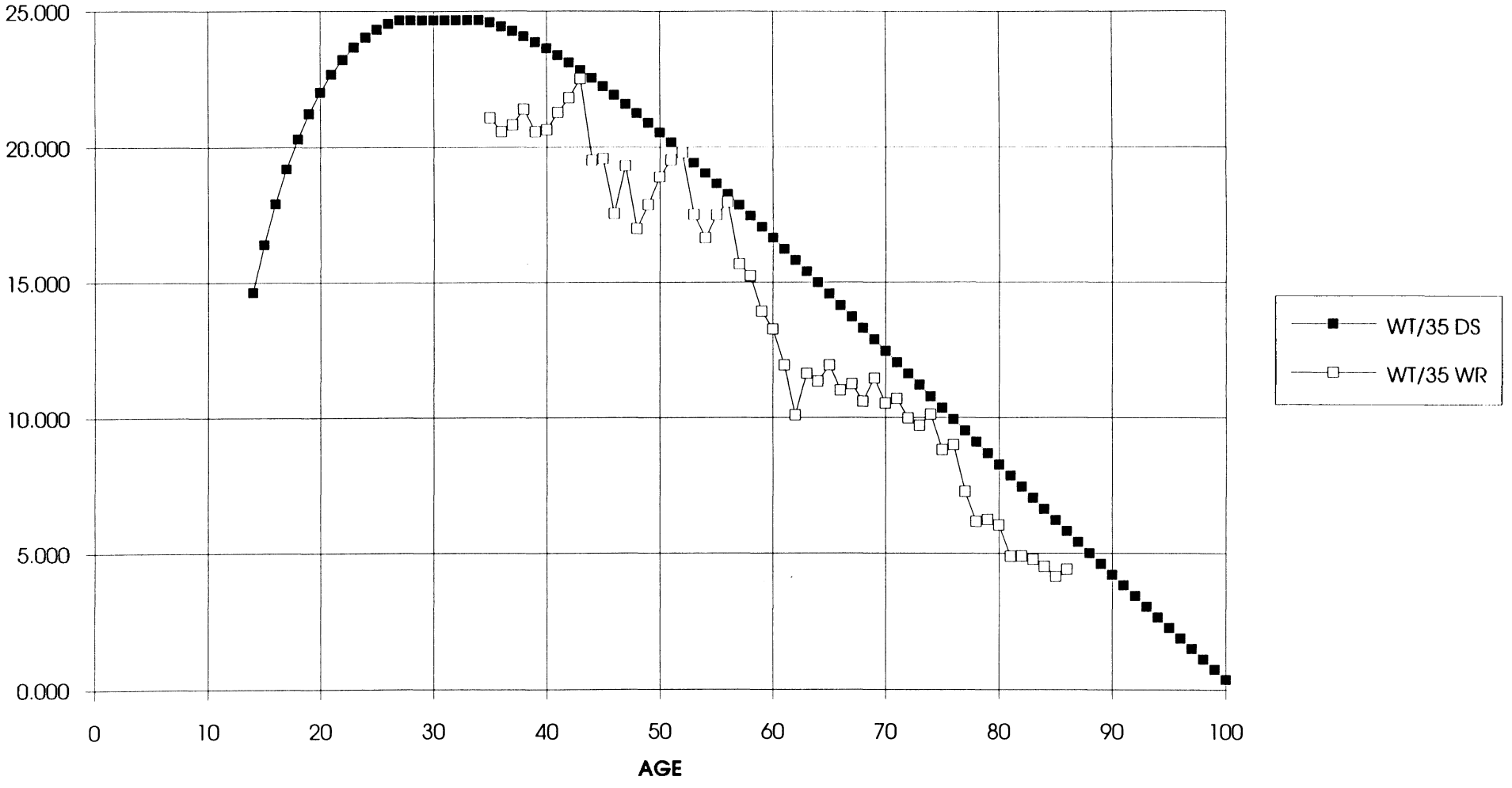
COMPOSITE CHART: MENS WEIGHT THROW DISTANCE STANDARDS AND RECORDS IN METERS



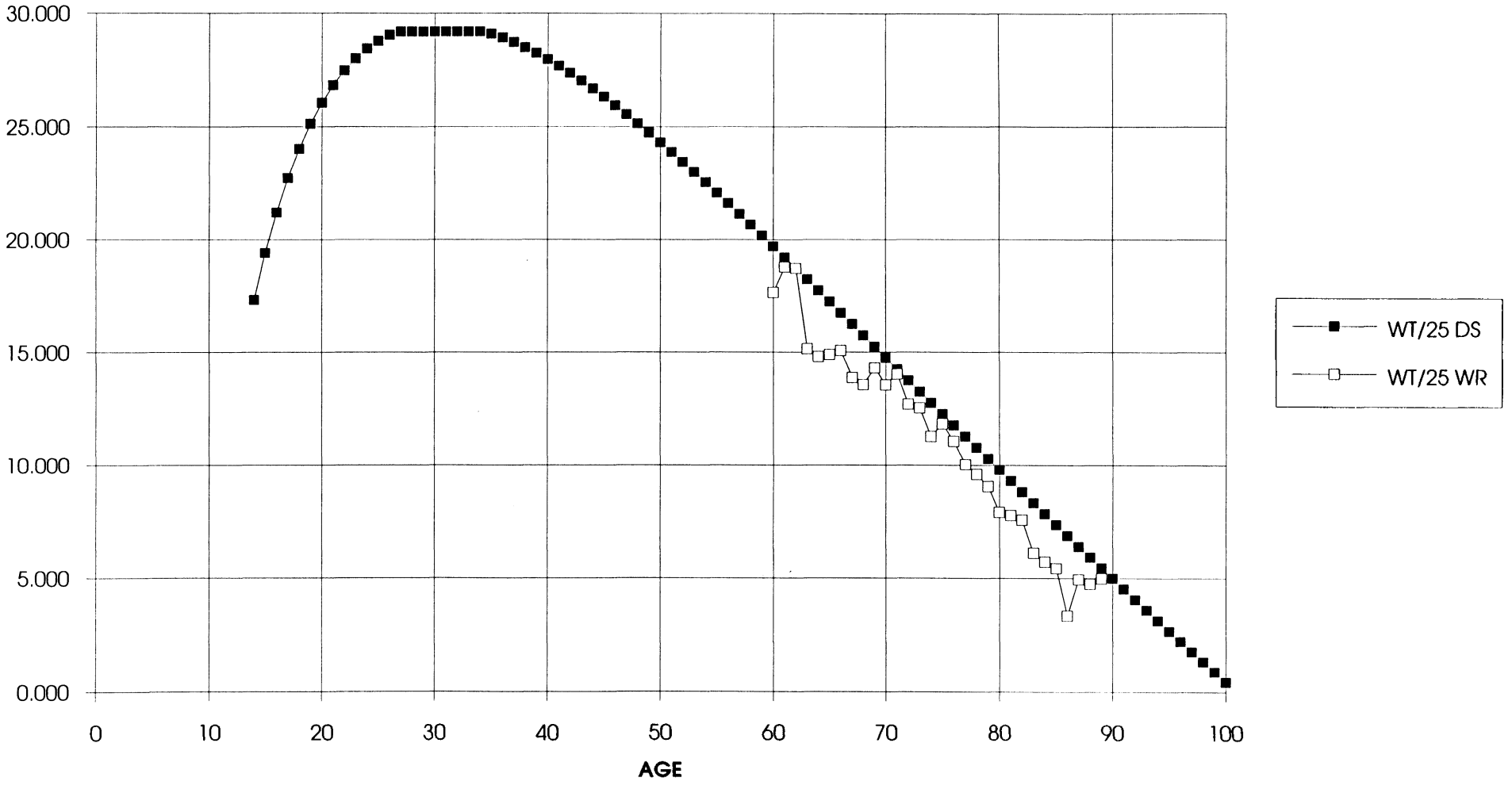
COMPARISON CHART: MENS WEIGHT THROW DISTANCE STANDARDS IN METERS



MENS DISTANCE STANDARDS AND RECORDS IN METERS



MENS DISTANCE STANDARDS AND RECORDS IN METERS



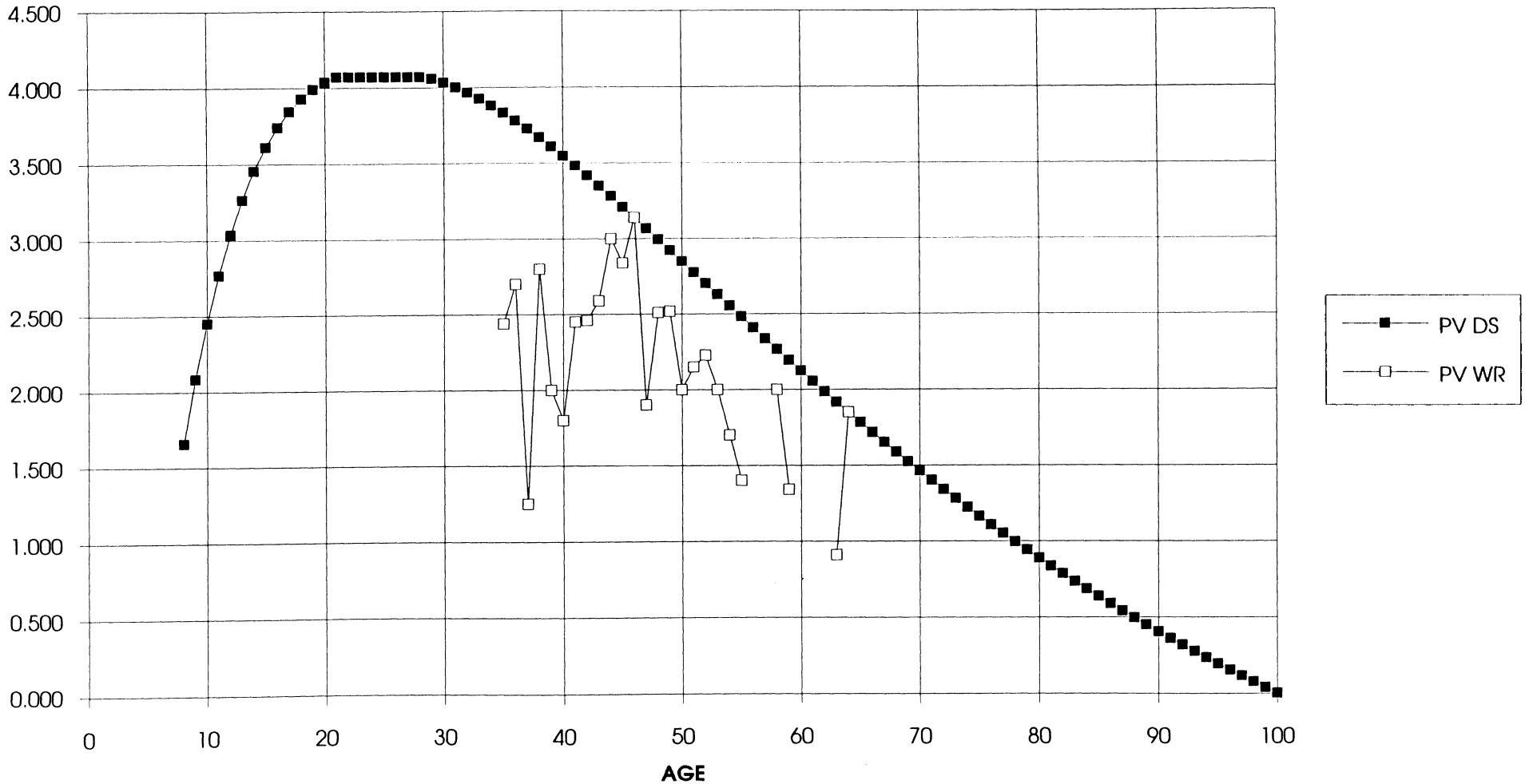
AGE	PV	HJ	LJ	TJ	AGE	SP/4k	HT/4k	DT/1k	JT/600g	WT/20lb
14	3.46	1.61	5.44	10.97	14	13.25	45.72	56.32	41.01	
15	3.61	1.70	5.77	11.58	15	15.21	50.59	62.02	48.10	
16	3.74	1.78	6.09	12.16	16	16.91	54.45	66.47	54.77	
17	3.85	1.86	6.39	12.73	17	18.35	57.47	69.90	60.99	
18	3.93	1.94	6.69	13.29	18	19.56	59.81	72.49	66.70	
19	3.99	2.01	6.98	13.85	19	20.54	61.58	74.41	71.88	
OC	4.07	2.09	7.52	15.09	OC	22.63	64.64	76.80	80.00	19.15
30	4.03	2.05	7.31	14.50	30	22.63	64.64	76.80	77.70	19.13
31	4.00	2.01	7.16	14.21	31	22.61	64.43	76.30	75.46	18.96
32	3.97	1.98	7.02	13.95	32	22.38	64.02	75.66	73.26	18.76
33	3.93	1.95	6.88	13.72	33	22.13	63.53	74.93	71.11	18.55
34	3.88	1.92	6.76	13.50	34	21.84	62.96	74.11	69.02	18.32
35	3.83	1.89	6.64	13.30	35	21.53	62.32	73.22	67.00	18.07
36	3.78	1.86	6.53	13.11	36	21.19	61.62	72.25	65.04	17.80
37	3.73	1.83	6.42	12.93	37	20.84	60.86	71.21	63.15	17.52
38	3.67	1.81	6.32	12.76	38	20.47	60.04	70.12	61.32	17.23
39	3.61	1.78	6.22	12.59	39	20.08	59.17	68.97	59.56	16.93
40	3.55	1.76	6.13	12.43	40	19.69	58.26	67.78	57.86	16.62
41	3.48	1.74	6.04	12.28	41	19.29	57.30	66.55	56.22	16.31
42	3.42	1.72	5.95	12.13	42	18.88	56.31	65.28	54.64	15.99
43	3.35	1.69	5.87	11.99	43	18.47	55.29	63.98	53.10	15.66
44	3.28	1.67	5.78	11.84	44	18.06	54.23	62.65	51.62	15.33
45	3.21	1.65	5.70	11.70	45	17.65	53.15	61.31	50.19	15.00
46	3.14	1.63	5.62	11.57	46	17.24	52.05	59.95	48.80	14.67
47	3.07	1.61	5.54	11.43	47	16.83	50.94	58.58	47.46	14.33
48	3.00	1.59	5.47	11.30	48	16.42	49.81	57.20	46.15	14.00
49	2.92	1.57	5.39	11.16	49	16.02	48.67	55.82	44.89	13.67
50	2.85	1.55	5.32	11.03		SP/3k	HT/3k	DT/1k	JT/400g	WT/16Lb
51	2.78	1.53	5.25	10.90	50	18.03	54.87	54.43	53.47	14.91
52	2.70	1.51	5.17	10.77	51	17.58	53.54	53.05	52.00	14.54
53	2.63	1.50	5.10	10.64	52	17.13	52.21	51.67	50.58	14.17
54	2.56	1.48	5.03	10.51	53	16.69	50.88	50.29	49.19	13.81
55	2.48	1.46	4.96	10.38	54	16.25	49.55	48.93	47.84	13.45
56	2.41	1.44	4.89	10.25	55	15.82	48.22	47.57	46.52	13.09
57	2.34	1.42	4.82	10.12	56	15.40	46.90	46.22	45.24	12.74
58	2.27	1.40	4.75	9.98	57	14.99	45.59	44.89	43.98	12.39
59	2.20	1.38	4.68	9.85	58	14.58	44.29	43.58	42.76	12.04
60	2.13	1.36	4.61	9.72	59	14.18	43.00	42.28	41.56	11.70
61	2.06	1.35	4.54	9.58	60	13.79	41.72	40.99	40.39	11.36
62	1.99	1.33	4.47	9.45	61	13.41	40.46	39.72	39.24	11.03
63	1.92	1.31	4.40	9.31	62	13.04	39.21	38.48	38.12	10.70
64	1.85	1.29	4.33	9.17	63	12.67	37.98	37.25	37.02	10.38
65	1.78	1.27	4.26	9.03	64	12.31	36.77	36.04	35.94	10.06
66	1.72	1.25	4.19	8.89	65	11.96	35.57	34.85	34.89	9.75
67	1.65	1.23	4.12	8.74	66	11.62	34.39	33.67	33.85	9.44
68	1.59	1.21	4.05	8.60	67	11.29	33.23	32.52	32.83	9.14
69	1.52	1.19	3.98	8.45	68	10.96	32.09	31.39	31.83	8.84
70	1.46	1.17	3.91	8.30	69	10.64	30.96	30.29	30.85	8.55
71	1.40	1.15	3.84	8.15	70	10.33	29.86	29.20	29.89	8.26
72	1.34	1.13	3.77	7.99	71	10.02	28.77	28.13	28.94	7.98
73	1.28	1.11	3.69	7.83	72	9.72	27.71	27.08	28.01	7.70
74	1.22	1.09	3.62	7.67	73	9.43	26.66	26.05	27.09	7.43
75	1.16	1.07	3.55	7.51	74	9.14	25.64	25.05	26.18	7.16
76	1.11	1.05	3.47	7.34	75	8.87	24.63	24.06	25.29	6.90
77	1.05	1.03	3.40	7.18	76	8.59	23.64	23.09	24.42	6.64
78	1.00	1.01	3.32	7.00	77	8.33	22.68	22.15	23.55	6.39
79	0.94	0.99	3.25	6.83	78	8.07	21.73	21.22	22.70	6.14
80	0.89	0.96	3.17	6.65	79	7.81	20.80	20.31	21.86	5.89
81	0.84	0.94	3.09	6.46	80	7.56	19.89	19.42	21.03	5.65
82	0.79	0.92	3.01	6.27	81	7.32	19.00	18.55	20.21	5.42
83	0.74	0.90	2.93	6.08	82	7.08	18.13	17.70	19.41	5.19
84	0.69	0.87	2.85	5.89	83	6.85	17.27	16.87	18.61	4.96
85	0.64	0.85	2.77	5.69	84	6.62	16.44	16.05	17.82	4.74
86	0.59	0.83	2.69	5.48	85	6.40	15.62	15.25	17.04	4.52
87	0.54	0.80	2.61	5.27	86	6.18	14.82	14.47	16.28	4.31
88	0.50	0.78	2.52	5.05	87	5.97	14.03	13.70	15.52	4.10
89	0.45	0.75	2.44	4.83	88	5.76	13.26	12.96	14.77	3.89
90	0.41	0.73	2.35	4.61	89	5.56	12.51	12.22	14.03	3.69
91	0.36	0.70	2.26	4.37	90	5.36	11.78	11.51	13.29	3.49
92	0.32	0.67	2.17	4.14	91	5.17	11.06	10.81	12.57	3.29
93	0.28	0.65	2.08	3.89	92	4.98	10.35	10.12	11.85	3.10
94	0.24	0.62	1.99	3.64	93	4.79	9.67	9.45	11.14	2.91
95	0.20	0.59	1.90	3.38	94	4.61	8.99	8.79	10.43	2.73
96	0.16	0.56	1.80	3.11	95	4.43	8.33	8.15	9.74	2.55
97	0.12	0.53	1.70	2.84	96	4.25	7.69	7.52	9.05	2.37
98	0.08	0.50	1.61	2.55	97	4.08	7.06	6.90	8.36	2.19
99	0.04	0.47	1.51	2.26	98	3.91	6.44	6.30	7.68	2.02
100	0.00	0.44	1.41	1.96	99	3.75	5.84	5.71	7.01	1.85
					100	3.59	5.25	5.14	6.35	1.69

	PV	HJ	LJ	TJ	SP	SP	HT	HT	DT	JT	JT	WT	WT
WT.					4Kg	3Kg	4Kg	3Kg	1Kg	600	400	20Lb	16Lb
AGE	all	all	all	all	30-49	50-100	30-49	50-100	all	30-49	50-100	30-49	50-100
14	3.46	1.61	5.44	10.97	13.25	15.29	45.72	52.80	56.32	41.01	50.22		
15	3.61	1.70	5.77	11.58	15.21	17.56	50.59	58.41	62.02	48.10	58.91		
16	3.74	1.78	6.09	12.16	16.91	19.53	54.45	62.87	66.47	54.77	67.08		
17	3.85	1.86	6.39	12.73	18.35	21.19	57.47	66.36	69.90	60.99	74.69		
18	3.93	1.94	6.69	13.29	19.56	22.58	59.81	69.06	72.49	66.70	81.69		
19	3.99	2.01	6.98	13.85	20.54	23.72	61.58	71.10	74.41	71.88	88.03		
OC	4.07	2.09	7.52	15.09	22.63		64.64		76.80	80.00		19.15	
30	4.03	2.05	7.31	14.50	22.63	26.13	64.64	74.64	76.80	77.70	95.16	19.13	21.38
31	4.00	2.01	7.16	14.21	22.61	26.10	64.43	74.40	76.30	75.46	92.42	18.96	21.20
32	3.97	1.98	7.02	13.95	22.38	25.85	64.02	73.92	75.66	73.26	89.73	18.76	20.98
33	3.93	1.95	6.88	13.72	22.13	25.55	63.53	73.35	74.93	71.11	87.10	18.55	20.74
34	3.88	1.92	6.76	13.50	21.84	25.22	62.96	72.70	74.11	69.02	84.54	18.32	20.48
35	3.83	1.89	6.64	13.30	21.53	24.86	62.32	71.97	73.22	67.00	82.06	18.07	20.20
36	3.78	1.86	6.53	13.11	21.19	24.47	61.62	71.16	72.25	65.04	79.66	17.80	19.90
37	3.73	1.83	6.42	12.93	20.84	24.06	60.86	70.28	71.21	63.15	77.34	17.52	19.59
38	3.67	1.81	6.32	12.76	20.47	23.63	60.04	69.33	70.12	61.32	75.11	17.23	19.27
39	3.61	1.78	6.22	12.59	20.08	23.19	59.17	68.33	68.97	59.56	72.95	16.93	18.93
40	3.55	1.76	6.13	12.43	19.69	22.74	58.26	67.27	67.78	57.86	70.87	16.62	18.58
41	3.48	1.74	6.04	12.28	19.29	22.27	57.30	66.17	66.55	56.22	68.86	16.31	18.23
42	3.42	1.72	5.95	12.13	18.88	21.81	56.31	65.02	65.28	54.64	66.92	15.99	17.87
43	3.35	1.69	5.87	11.99	18.47	21.33	55.29	63.84	63.98	53.10	65.04	15.66	17.51
44	3.28	1.67	5.78	11.84	18.06	20.86	54.23	62.62	62.65	51.62	63.23	15.33	17.14
45	3.21	1.65	5.70	11.70	17.65	20.38	53.15	61.38	61.31	50.19	61.47	15.00	16.77
46	3.14	1.63	5.62	11.57	17.24	19.91	52.05	60.11	59.95	48.80	59.77	14.67	16.40
47	3.07	1.61	5.54	11.43	16.83	19.43	50.94	58.82	58.58	47.46	58.12	14.33	16.03
48	3.00	1.59	5.47	11.30	16.42	18.96	49.81	57.52	57.20	46.15	56.52	14.00	15.65
49	2.92	1.57	5.39	11.16	16.02	18.50	48.67	56.20	55.82	44.89	54.97	13.67	15.28
50	2.85	1.55	5.32	11.03	15.62	18.03	47.52	54.87	54.43	43.66	53.47	13.34	14.91
51	2.78	1.53	5.25	10.90	15.22	17.58	46.37	53.54	53.05	42.46	52.00	13.01	14.54
52	2.70	1.51	5.17	10.77	14.83	17.13	45.22	52.21	51.67	41.30	50.58	12.68	14.17
53	2.63	1.50	5.10	10.64	14.45	16.69	44.06	50.88	50.29	40.16	49.19	12.35	13.81
54	2.56	1.48	5.03	10.51	14.07	16.25	42.91	49.55	48.93	39.06	47.84	12.03	13.45
55	2.48	1.46	4.96	10.38	13.70	15.82	41.76	48.22	47.57	37.98	46.52	11.71	13.09
56	2.41	1.44	4.89	10.25	13.34	15.40	40.62	46.90	46.22	36.94	45.24	11.39	12.74
57	2.34	1.42	4.82	10.12	12.98	14.99	39.48	45.59	44.89	35.91	43.98	11.08	12.39
58	2.27	1.40	4.75	9.98	12.63	14.58	38.36	44.29	43.58	34.91	42.76	10.77	12.04
59	2.20	1.38	4.68	9.85	12.28	14.18	37.24	43.00	42.28	33.93	41.56	10.46	11.70
60	2.13	1.36	4.61	9.72	11.95	13.79	36.13	41.72	40.99	32.98	40.39	10.16	11.36
61	2.06	1.35	4.54	9.58	11.61	13.41	35.04	40.46	39.72	32.04	39.24	9.87	11.03
62	1.99	1.33	4.47	9.45	11.29	13.04	33.96	39.21	38.48	31.13	38.12	9.57	10.70
63	1.92	1.31	4.40	9.31	10.97	12.67	32.89	37.98	37.25	30.23	37.02	9.28	10.38
64	1.85	1.29	4.33	9.17	10.66	12.31	31.84	36.77	36.04	29.35	35.94	9.00	10.06
65	1.78	1.27	4.26	9.03	10.36	11.96	30.80	35.57	34.85	28.49	34.89	8.72	9.75
66	1.72	1.25	4.19	8.89	10.06	11.62	29.78	34.39	33.67	27.64	33.85	8.45	9.44
67	1.65	1.23	4.12	8.74	9.77	11.29	28.78	33.23	32.52	26.81	32.83	8.17	9.14
68	1.59	1.21	4.05	8.60	9.49	10.96	27.79	32.09	31.39	25.99	31.83	7.91	8.84
69	1.52	1.19	3.98	8.45	9.21	10.64	26.81	30.96	30.29	25.19	30.85	7.65	8.55
70	1.46	1.17	3.91	8.30	8.94	10.33	25.86	29.86	29.20	24.40	29.89	7.39	8.26
71	1.40	1.15	3.84	8.15	8.68	10.02	24.92	28.77	28.13	23.63	28.94	7.14	7.98
72	1.34	1.13	3.77	7.99	8.42	9.72	24.00	27.71	27.08	22.87	28.01	6.89	7.70
73	1.28	1.11	3.69	7.83	8.17	9.43	23.09	26.66	26.05	22.12	27.09	6.65	7.43
74	1.22	1.09	3.62	7.67	7.92	9.14	22.20	25.64	25.05	21.38	26.18	6.41	7.16
75	1.16	1.07	3.55	7.51	7.68	8.87	21.33	24.63	24.06	20.65	25.29	6.17	6.90
76	1.11	1.05	3.47	7.34	7.44	8.59	20.48	23.64	23.09	19.94	24.42	5.94	6.64
77	1.05	1.03	3.40	7.18	7.21	8.33	19.64	22.68	22.15	19.23	23.55	5.71	6.39
78	1.00	1.01	3.32	7.00	6.99	8.07	18.82	21.73	21.22	18.53	22.70	5.49	6.14
79	0.94	0.99	3.25	6.83	6.77	7.81	18.01	20.80	20.31	17.85	21.86	5.27	5.89
80	0.89	0.96	3.17	6.65	6.55	7.56	17.23	19.89	19.42	17.17	21.03	5.06	5.65
81	0.84	0.94	3.09	6.46	6.34	7.32	16.45	19.00	18.55	16.50	20.21	4.85	5.42
82	0.79	0.92	3.01	6.27	6.13	7.08	15.70	18.13	17.70	15.85	19.41	4.64	5.19
83	0.74	0.90	2.93	6.08	5.93	6.85	14.96	17.27	16.87	15.19	18.61	4.44	4.96
84	0.69	0.87	2.85	5.89	5.74	6.62	14.23	16.44	16.05	14.55	17.82	4.24	4.74
85	0.64	0.85	2.77	5.69	5.54	6.40	13.52	15.62	15.25	13.92	17.04	4.04	4.52
86	0.59	0.83	2.69	5.48	5.35	6.18	12.83	14.82	14.47	13.29	16.28	3.85	4.31
87	0.54	0.80	2.61	5.27	5.17	5.97	12.15	14.03	13.70	12.67	15.52	3.66	4.10
88	0.50	0.78	2.52	5.05	4.99	5.76	11.49	13.26	12.96	12.06	14.77	3.48	3.89
89	0.45	0.75	2.44	4.83	4.81	5.56	10.84	12.51	12.22	11.45	14.03	3.30	3.69
90	0.41	0.73	2.35	4.61	4.64	5.36	10.20	11.78	11.51	10.85	13.29	3.12	3.49
91	0.36	0.70	2.26	4.37	4.47	5.17	9.58	11.06	10.81	10.26	12.57	2.94	3.29
92	0.32	0.67	2.17	4.14	4.31	4.98	8.97	10.35	10.12	9.67	11.85	2.77	3.10
93	0.28	0.65	2.08	3.89	4.15	4.79	8.37	9.67	9.45	9.09	11.14	2.60	2.91
94	0.24	0.62	1.99	3.64	3.99	4.61	7.79	8.99	8.79	8.52	10.43	2.44	2.73
95	0.20	0.59	1.90	3.38	3.84	4.43	7.22	8.33	8.15	7.95	9.74	2.28	2.55
96	0.16	0.56	1.80	3.11	3.68	4.25	6.66	7.69	7.52	7.39	9.05	2.12	2.37
97	0.12	0.53	1.70	2.84	3.54	4.08	6.11	7.06	6.90	6.83	8.36	1.96	2.19
98	0.08	0.50	1.61	2.55	3.39	3.91	5.58	6.44	6.30	6.27	7.68	1.81	2.02
99	0.04	0.47	1.51	2.26	3.25	3.75	5.06	5.84	5.71	5.73	7.01	1.66	1.85
100	0.00	0.44	1.41	1.96	3.11	3.59	4.54	5.25	5.14	5.18	6.35	1.51	1.69

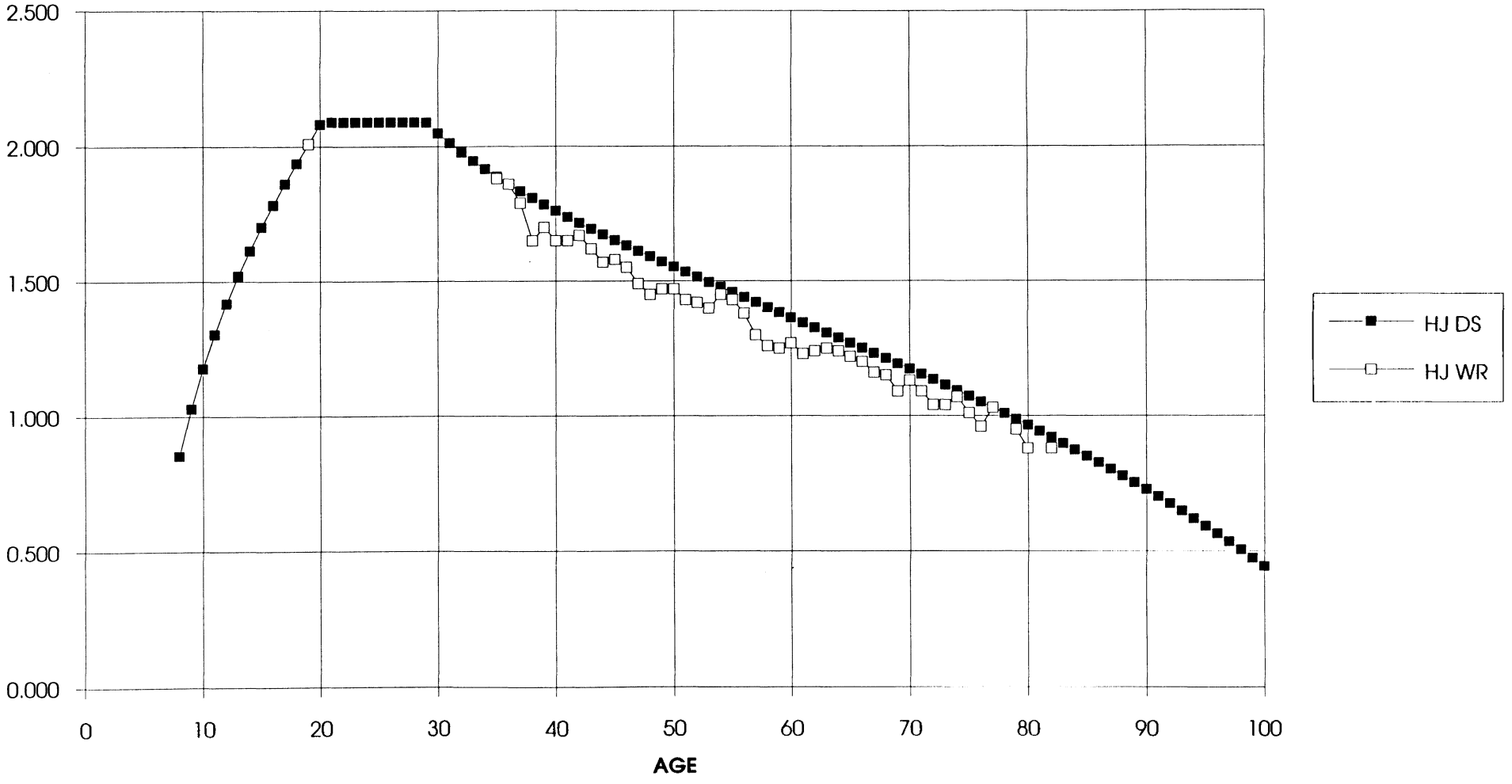
	PV	HJ	LJ	TJ	SP	SP	HT	HT	DT	JT	JT	WT	WT
WT.					4Kg	3Kg	4Kg	3Kg	1Kg	600Gm	400Gm	20lb	16Lb
AGE	all	all	all	all	30-49	50-100	30-49	50-100	all	30-49	50-100	30-49	50-100
14	0.849	0.773	0.723	0.727	0.585	0.676	0.707	0.817	0.733	0.513	0.628	0.724	0.810
15	0.888	0.814	0.767	0.767	0.672	0.776	0.783	0.904	0.808	0.601	0.736	0.800	0.894
16	0.919	0.854	0.810	0.806	0.747	0.863	0.842	0.973	0.866	0.685	0.839	0.860	0.961
17	0.945	0.891	0.850	0.843	0.811	0.937	0.889	1.027	0.910	0.762	0.934	0.906	1.013
18	0.965	0.927	0.889	0.880	0.864	0.998	0.925	1.068	0.944	0.834	1.021	0.942	1.054
19	0.980	0.962	0.928	0.918	0.908	1.048	0.953	1.100	0.969	0.899	1.100	0.969	1.084
OC	1.000	1.000	1.000	1.000	1.000		1.000		1.000	1.000		1.000	
30	0.991	0.981	0.973	0.961	1.000	1.155	1.000	1.155	1.000	0.971	1.189	0.999	1.117
31	0.983	0.963	0.952	0.942	0.999	1.153	0.997	1.151	0.993	0.943	1.155	0.990	1.107
32	0.975	0.947	0.933	0.925	0.989	1.142	0.990	1.144	0.985	0.916	1.122	0.980	1.096
33	0.965	0.931	0.915	0.909	0.978	1.129	0.983	1.135	0.976	0.889	1.089	0.969	1.083
34	0.954	0.917	0.899	0.895	0.965	1.114	0.974	1.125	0.965	0.863	1.057	0.957	1.069
35	0.942	0.903	0.883	0.881	0.951	1.098	0.964	1.113	0.953	0.838	1.026	0.943	1.055
36	0.929	0.890	0.868	0.869	0.936	1.081	0.953	1.101	0.941	0.813	0.996	0.930	1.039
37	0.916	0.877	0.854	0.857	0.921	1.063	0.942	1.087	0.927	0.789	0.967	0.915	1.023
38	0.902	0.865	0.841	0.845	0.904	1.044	0.929	1.073	0.913	0.767	0.939	0.900	1.006
39	0.887	0.854	0.828	0.834	0.887	1.025	0.915	1.057	0.898	0.745	0.912	0.884	0.988
40	0.872	0.843	0.815	0.824	0.870	1.005	0.901	1.041	0.883	0.723	0.886	0.868	0.970
41	0.856	0.832	0.803	0.814	0.852	0.984	0.887	1.024	0.866	0.703	0.861	0.852	0.952
42	0.840	0.821	0.791	0.804	0.834	0.964	0.871	1.006	0.850	0.683	0.836	0.835	0.933
43	0.823	0.811	0.780	0.794	0.816	0.943	0.855	0.988	0.833	0.664	0.813	0.818	0.914
44	0.806	0.801	0.769	0.785	0.798	0.922	0.839	0.969	0.816	0.645	0.790	0.801	0.895
45	0.789	0.791	0.758	0.776	0.780	0.901	0.822	0.950	0.798	0.627	0.768	0.783	0.876
46	0.771	0.781	0.748	0.766	0.762	0.880	0.805	0.930	0.781	0.610	0.747	0.766	0.856
47	0.754	0.771	0.737	0.758	0.744	0.859	0.788	0.910	0.763	0.593	0.727	0.749	0.837
48	0.736	0.762	0.727	0.749	0.726	0.838	0.771	0.890	0.745	0.577	0.707	0.731	0.817
49	0.718	0.752	0.717	0.740	0.708	0.817	0.753	0.869	0.727	0.561	0.687	0.714	0.798
50	0.700	0.743	0.707	0.731	0.690	0.797	0.735	0.849	0.709	0.546	0.668	0.696	0.779
51	0.682	0.734	0.697	0.722	0.673	0.777	0.717	0.828	0.691	0.531	0.650	0.679	0.759
52	0.664	0.725	0.688	0.714	0.656	0.757	0.700	0.808	0.673	0.516	0.632	0.662	0.740
53	0.646	0.716	0.678	0.705	0.639	0.737	0.682	0.787	0.655	0.502	0.615	0.645	0.721
54	0.628	0.707	0.669	0.696	0.622	0.718	0.664	0.767	0.637	0.488	0.598	0.628	0.702
55	0.610	0.698	0.659	0.688	0.605	0.699	0.646	0.746	0.619	0.475	0.582	0.611	0.684
56	0.592	0.689	0.650	0.679	0.589	0.681	0.628	0.726	0.602	0.462	0.565	0.595	0.665
57	0.575	0.680	0.641	0.670	0.574	0.662	0.611	0.705	0.585	0.449	0.550	0.579	0.647
58	0.557	0.671	0.631	0.662	0.558	0.644	0.593	0.685	0.567	0.436	0.534	0.562	0.629
59	0.539	0.662	0.622	0.653	0.543	0.627	0.576	0.665	0.550	0.424	0.519	0.546	0.611
60	0.522	0.653	0.613	0.644	0.528	0.610	0.559	0.645	0.534	0.412	0.505	0.531	0.593
61	0.505	0.644	0.604	0.635	0.513	0.593	0.542	0.626	0.517	0.401	0.491	0.515	0.576
62	0.488	0.635	0.594	0.626	0.499	0.576	0.525	0.607	0.501	0.389	0.477	0.500	0.559
63	0.471	0.626	0.585	0.617	0.485	0.560	0.509	0.588	0.485	0.378	0.463	0.485	0.542
64	0.455	0.617	0.576	0.608	0.471	0.544	0.493	0.569	0.469	0.367	0.449	0.470	0.525
65	0.438	0.608	0.567	0.598	0.458	0.529	0.477	0.550	0.454	0.356	0.436	0.455	0.509
66	0.422	0.599	0.557	0.589	0.445	0.514	0.461	0.532	0.438	0.345	0.423	0.441	0.493
67	0.406	0.589	0.548	0.579	0.432	0.499	0.445	0.514	0.423	0.335	0.410	0.427	0.477
68	0.390	0.580	0.539	0.570	0.419	0.484	0.430	0.496	0.409	0.325	0.398	0.413	0.462
69	0.375	0.571	0.529	0.560	0.407	0.470	0.415	0.479	0.394	0.315	0.386	0.399	0.446
70	0.359	0.561	0.520	0.550	0.395	0.456	0.400	0.462	0.380	0.305	0.374	0.386	0.431
71	0.344	0.552	0.510	0.540	0.383	0.443	0.385	0.445	0.366	0.295	0.362	0.373	0.417
72	0.329	0.542	0.501	0.530	0.372	0.430	0.371	0.429	0.353	0.286	0.350	0.360	0.402
73	0.315	0.533	0.491	0.519	0.361	0.417	0.357	0.412	0.339	0.276	0.339	0.347	0.388
74	0.300	0.523	0.481	0.509	0.350	0.404	0.343	0.397	0.326	0.267	0.327	0.335	0.374
75	0.286	0.513	0.472	0.498	0.339	0.392	0.330	0.381	0.313	0.258	0.316	0.322	0.360
76	0.272	0.503	0.462	0.487	0.329	0.380	0.317	0.366	0.301	0.249	0.305	0.310	0.347
77	0.258	0.493	0.452	0.475	0.319	0.368	0.304	0.351	0.288	0.240	0.294	0.298	0.334
78	0.245	0.483	0.442	0.464	0.309	0.356	0.291	0.336	0.276	0.232	0.284	0.287	0.321
79	0.232	0.472	0.432	0.452	0.299	0.345	0.279	0.322	0.264	0.223	0.273	0.275	0.308
80	0.218	0.462	0.421	0.440	0.289	0.334	0.266	0.308	0.253	0.215	0.263	0.264	0.295
81	0.206	0.451	0.411	0.428	0.280	0.323	0.255	0.294	0.242	0.206	0.253	0.253	0.283
82	0.193	0.440	0.401	0.416	0.271	0.313	0.243	0.280	0.230	0.198	0.243	0.242	0.271
83	0.181	0.429	0.390	0.403	0.262	0.303	0.231	0.267	0.220	0.190	0.233	0.232	0.259
84	0.168	0.418	0.379	0.390	0.253	0.293	0.220	0.254	0.209	0.182	0.223	0.221	0.247
85	0.156	0.407	0.369	0.377	0.245	0.283	0.209	0.242	0.199	0.174	0.213	0.211	0.236
86	0.145	0.395	0.358	0.363	0.237	0.273	0.198	0.229	0.188	0.166	0.203	0.201	0.225
87	0.133	0.384	0.346	0.349	0.228	0.264	0.188	0.217	0.178	0.158	0.194	0.191	0.214
88	0.122	0.372	0.335	0.335	0.221	0.255	0.178	0.205	0.169	0.151	0.185	0.182	0.203
89	0.111	0.360	0.324	0.320	0.213	0.246	0.168	0.194	0.159	0.143	0.175	0.172	0.192
90	0.100	0.348	0.312	0.305	0.205	0.237	0.158	0.182	0.150	0.136	0.166	0.163	0.182
91	0.089	0.335	0.301	0.290	0.198	0.228	0.148	0.171	0.141	0.128	0.157	0.154	0.172
92	0.079	0.323	0.289	0.274	0.190	0.220	0.139	0.160	0.132	0.121	0.148	0.145	0.162
93	0.068	0.310	0.277	0.258	0.183	0.212	0.129	0.150	0.123	0.114	0.139	0.136	0.152
94	0.058	0.297	0.265	0.241	0.176	0.204	0.120	0.139	0.114	0.106	0.130	0.127	0.142
95	0.048	0.283	0.252	0.224	0.169	0.196	0.112	0.129	0.106	0.099	0.122	0.119	0.133
96	0.038	0.270	0.240	0.206	0.163	0.188	0.103	0.119	0.098	0.092	0.113	0.111	0.124
97	0.029	0.256	0.227	0.188	0.156	0.180	0.095	0.109	0.090	0.085	0.105	0.102	0.115
98	0.019	0.241	0.214	0.169	0.150	0.173	0.086	0.100	0.082	0.078	0.096	0.094	0.106
99	0.010	0.227	0.200	0.150	0.144	0.166	0.078	0.090	0.074	0.072	0.088	0.087	0.097
100	0.001	0.212	0.187	0.130	0.137	0.159	0.070	0.081	0.067	0.065	0.079	0.079	0.088

AGE	PV	HJ	LJ	TJ	SP	SP	HT	HT	DT	JT	JT	WT	WT
					4Kg	3Kg	4Kg	3Kg	1Kg	600Gm	400Gm	20Lb	16Lb
19		100	100	100	100				100	100			
OC	100	100	100	100	100		100		100	100		100	
30													
31													
32													
33													
34													
35	64	100	98	88	100		62		95	100		45	
36	71	100	94	85	100		65		92	100		66	
37	34	98	100	96	100		71		89	93		72	
38	76	91	93	91	100		66		90	91		69	
39	55	95	96	91	99		71		90	88		70	
40	51	94	100	97	97		71		89	90		73	
41	70	95	98	100	99		57		95	90		37	
42	72	97	93	96	97		75		94	94		48	
43	77	96	95	86	100		76		100	91			
44	91	94	95	88	93		70		97	90		53	
45	88	96	97	95	80		84		97	95		47	
46	100	95	98	91	81		66		80	87		36	
47	62	92	93	79	76		79		100	82		63	
48	84	91	90	82	71		73		78	88		71	
49	86	93	95	86	77		67		82	84		81	
50	70	95	95	91		82		78	82		71		100
51	77	93	91	91		79		73	87		86		85
52	83	94	90	91		79		83	93		87		67
53	76	94	88	100	65	82		66	80		91		76
54	67	98	100	81		79		65	78		94		87
55	56	98	93	93		77		91	83		99		69
56		96	98	96		94		75	88		88	60	69
57		92	91	80		76		97	76		83		74
58		90	92	83	65	87		92	80		86		67
59		90	97	80		81		94	80		83		50
60		93	95	84		88		66	92		81		73
61		91	96	86		81		100	82		68		81
62		93	95	89		85		72	77		85		86
63	47	96	96	94		89		78	77		70		97
64	100	96	100	85		74		81	79		73		89
65		96	85	100	64	84		93	79		88		93
66		96	107	85		78		88	86		68		76
67		94	98	85		77		86	79		75		65
68		95	83	87		76		94	81		73		49
69		91	100	70		77		78	81		72		68
70		96	98	83		86		99	88		84	90	39
71		94	93	88		77		76	88		84	37	100
72		92	80	60		78		62	89		89		72
73		93	79	65		82		64	83		88		
74		98	80	82		84		68	93		90		
75		94	74	82		82		71	77		90		
76		91	73	64		86		75	90		92		94
77		100	72			93		72	77		98		
78			78	56		97		59	100		100		
79		96	72			94		96	83		82		
80		91	63			93		96	88		94		
81			71	81		100		100	83		85		
82		96	71	85		94		97	94		78	100	99
83									33		30		
84			79	96		48			36		32		
85						86		99	90		81		
86													
87						46			41		28		
88													
89													
90													
91													
92													
93													
94													
95													
96													
97													
98					100								
99													
100													

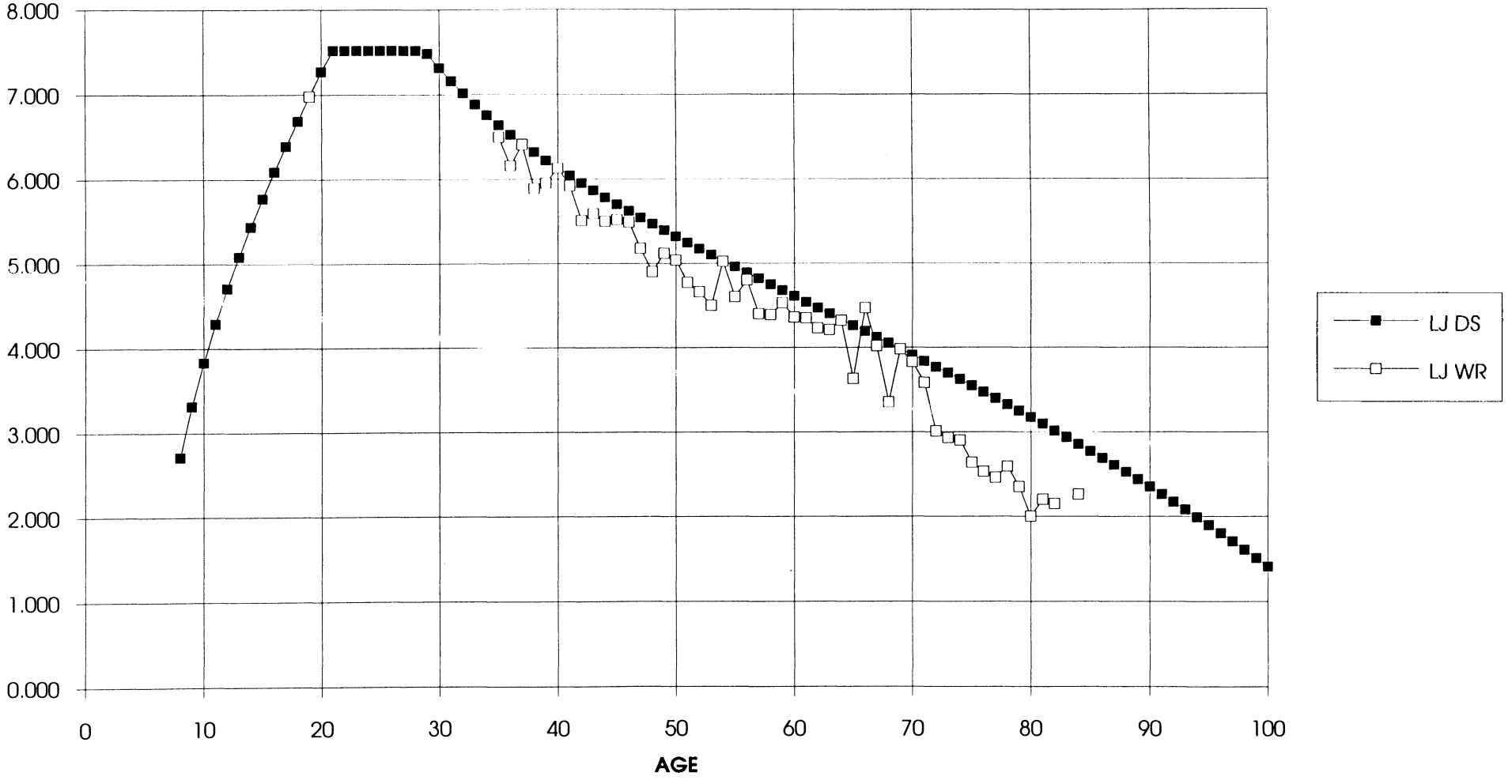
WOMENS DISTANCE STANDARDS AND RECORDS IN METERS



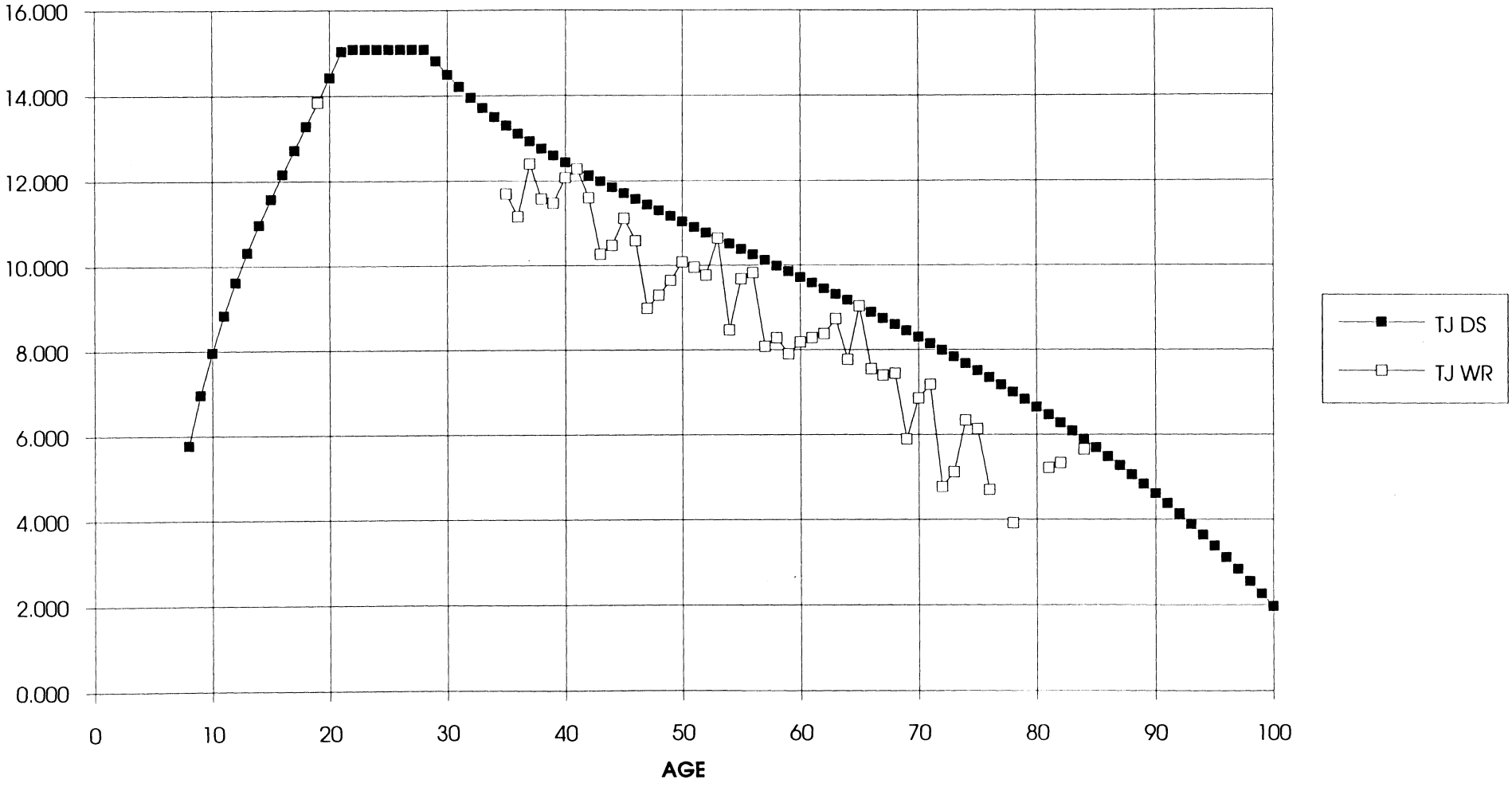
WOMENS DISTANCE STANDARDS AND RECORDS IN METERS



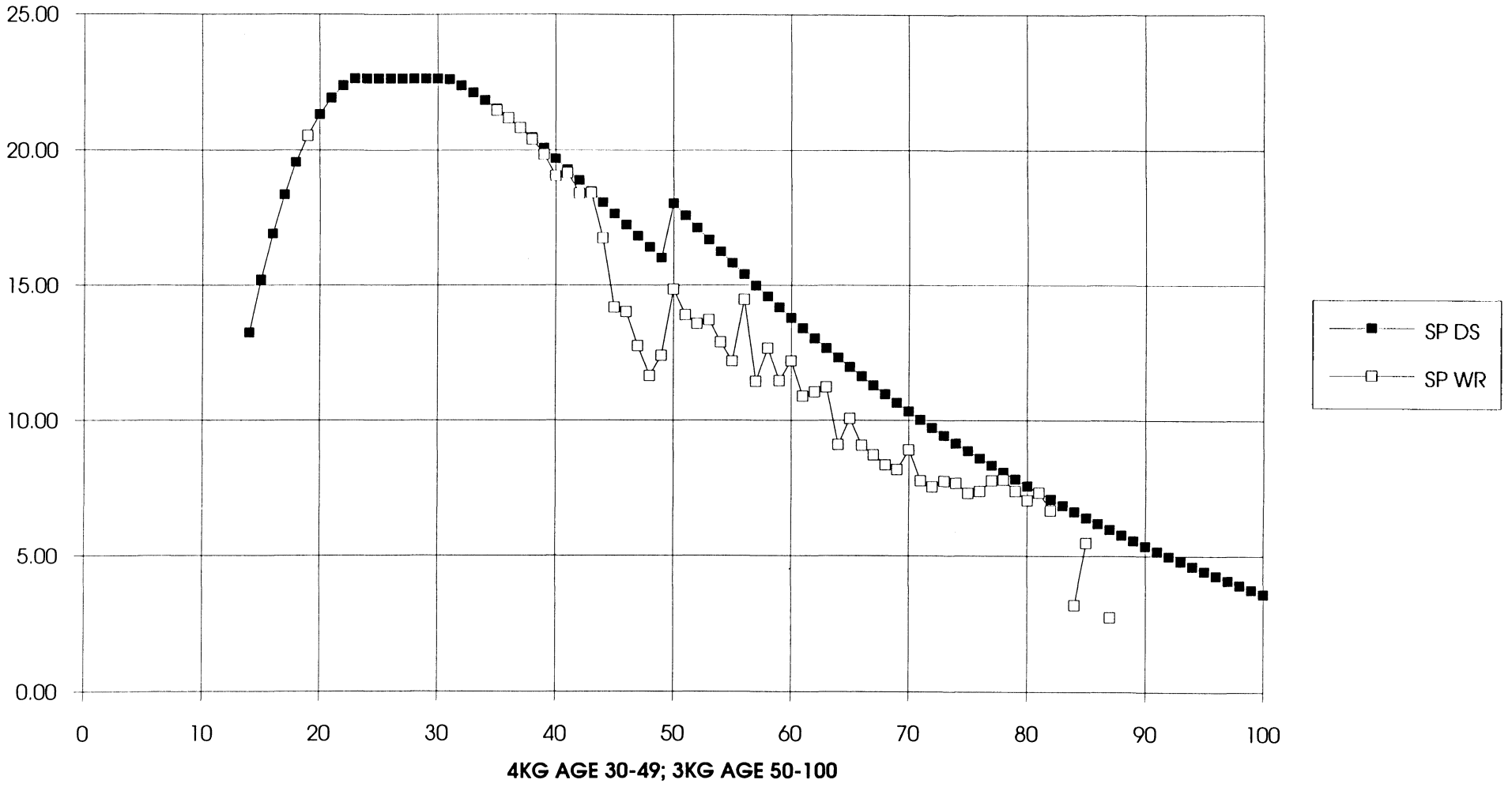
WOMENS DISTANCE STANDARDS AND RECORDS IN METERS



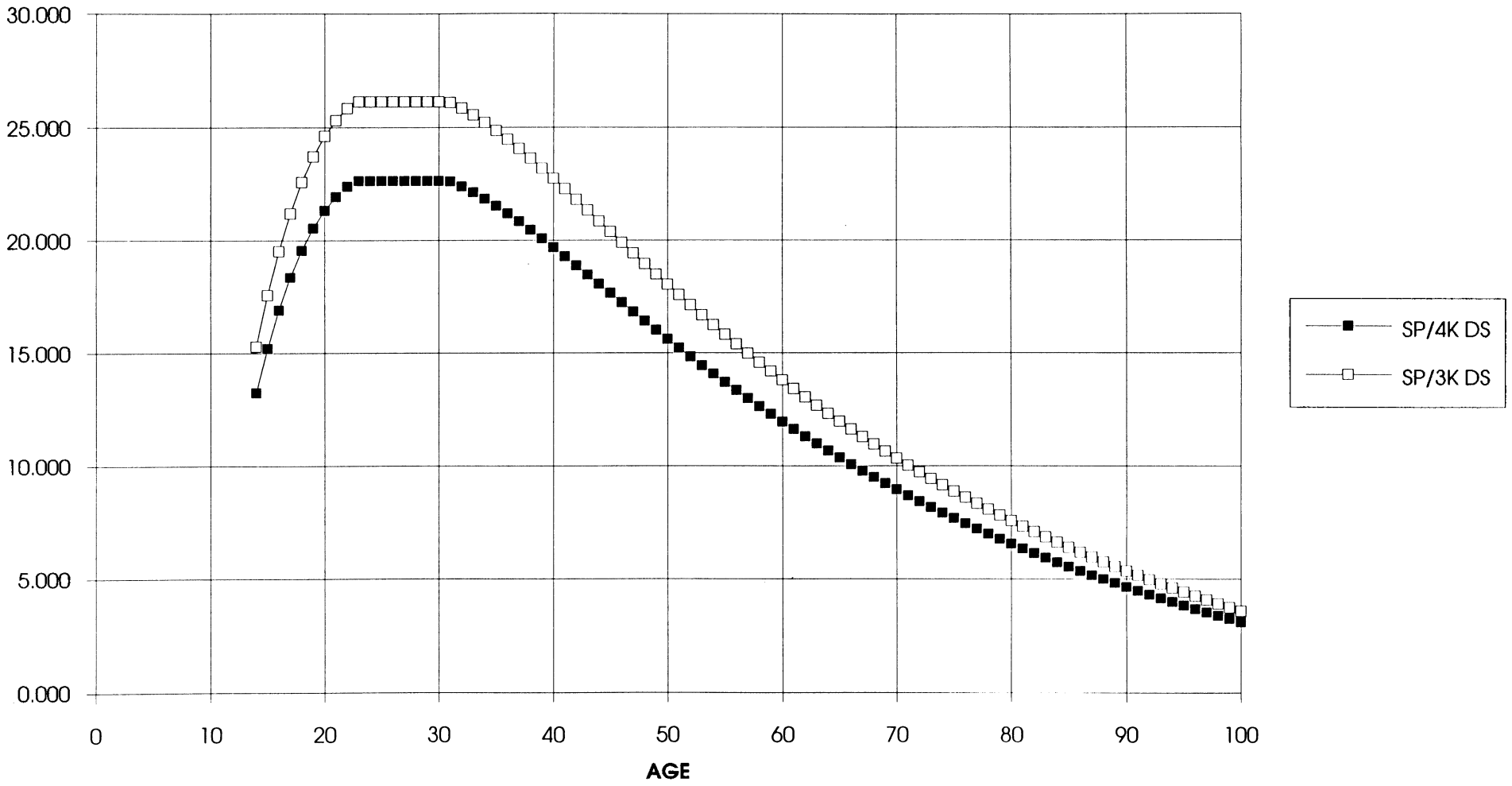
WOMENS DISTANCE STANDARDS AND RECORDS IN METERS



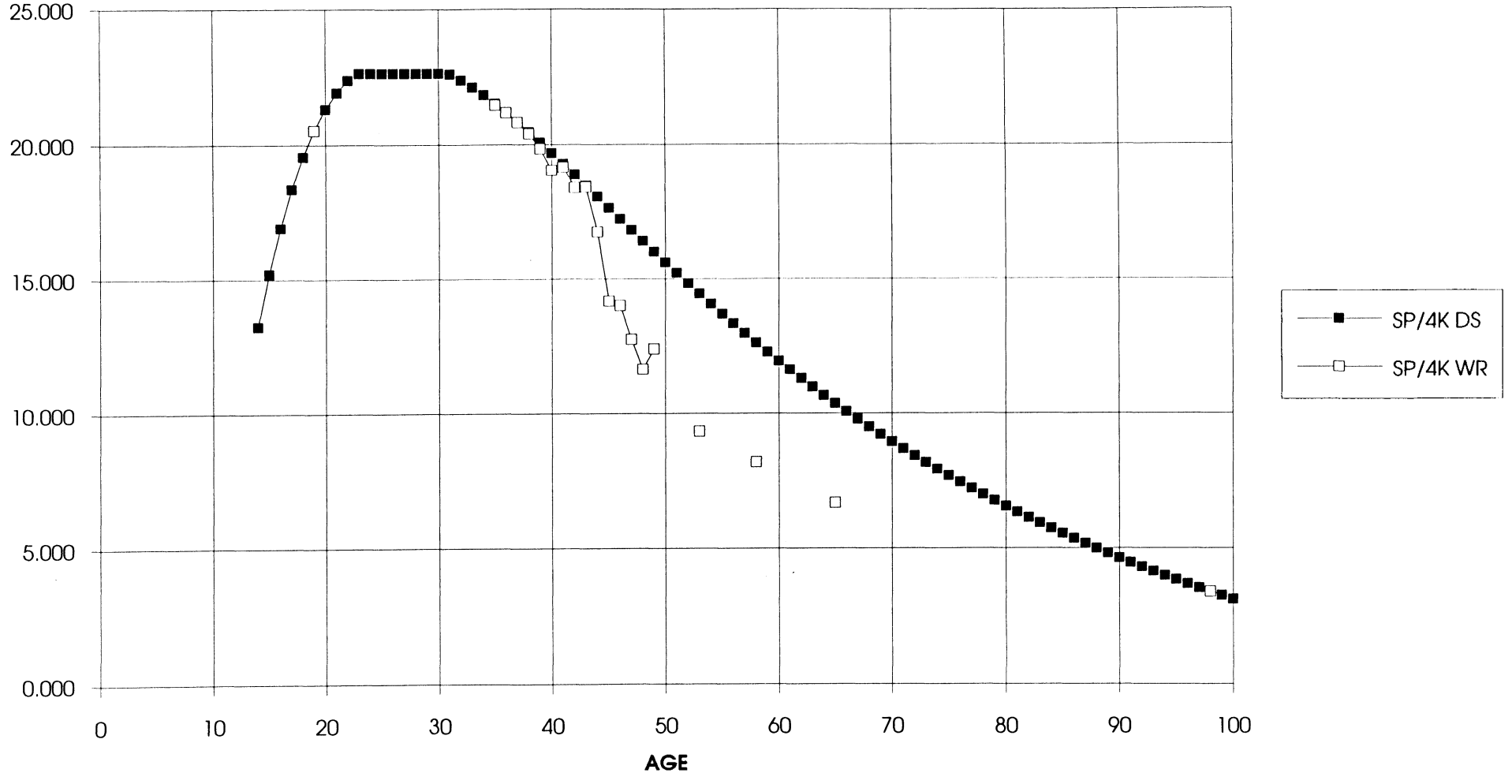
COMPOSITE CHART: WOMENS SHOT PUT DISTANCE STANDARDS AND RECORDS IN METERS



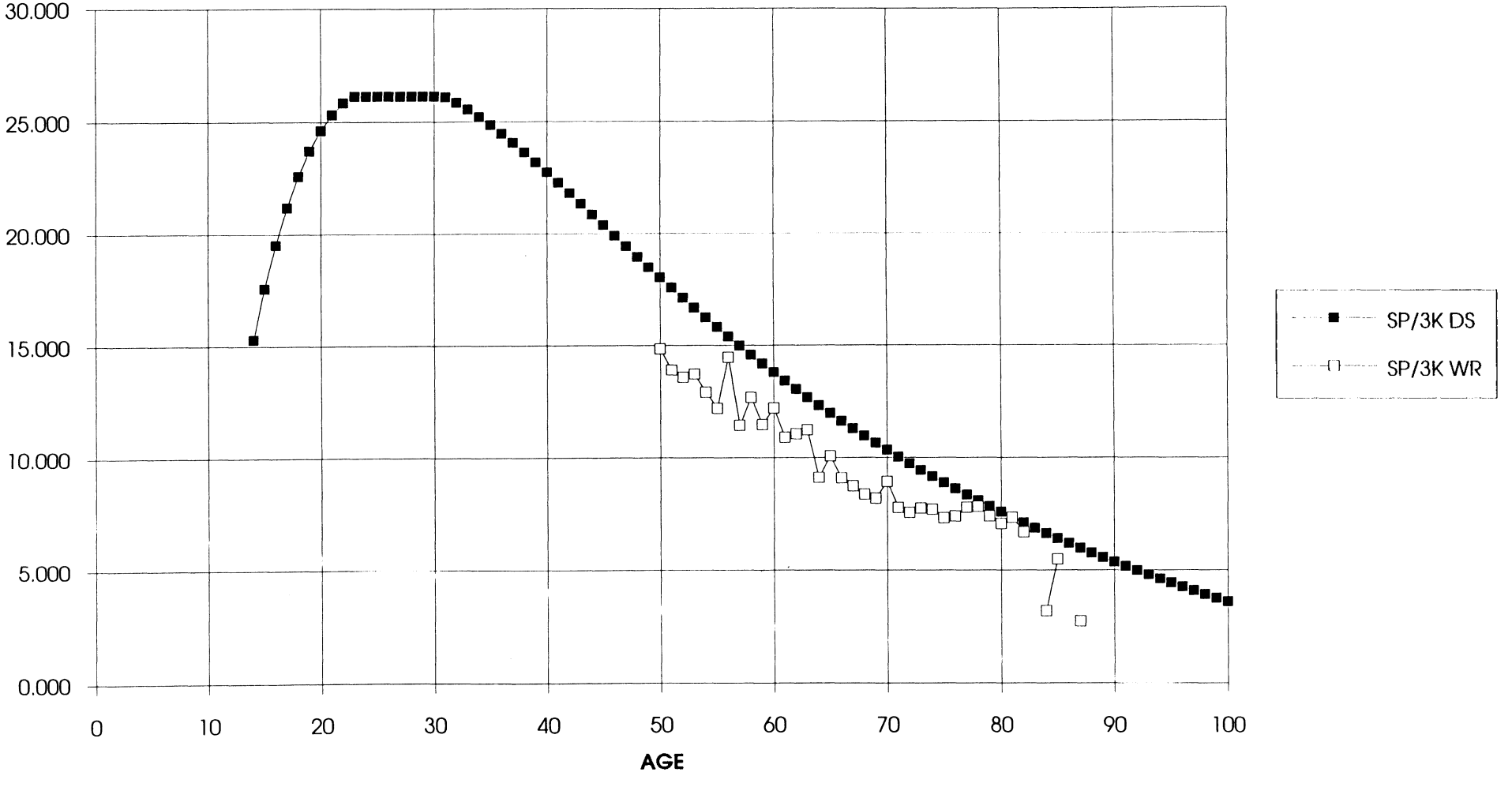
COMPARISON CHART: WOMENS SHOT PUT DISTANCE STANDARDS IN METERS



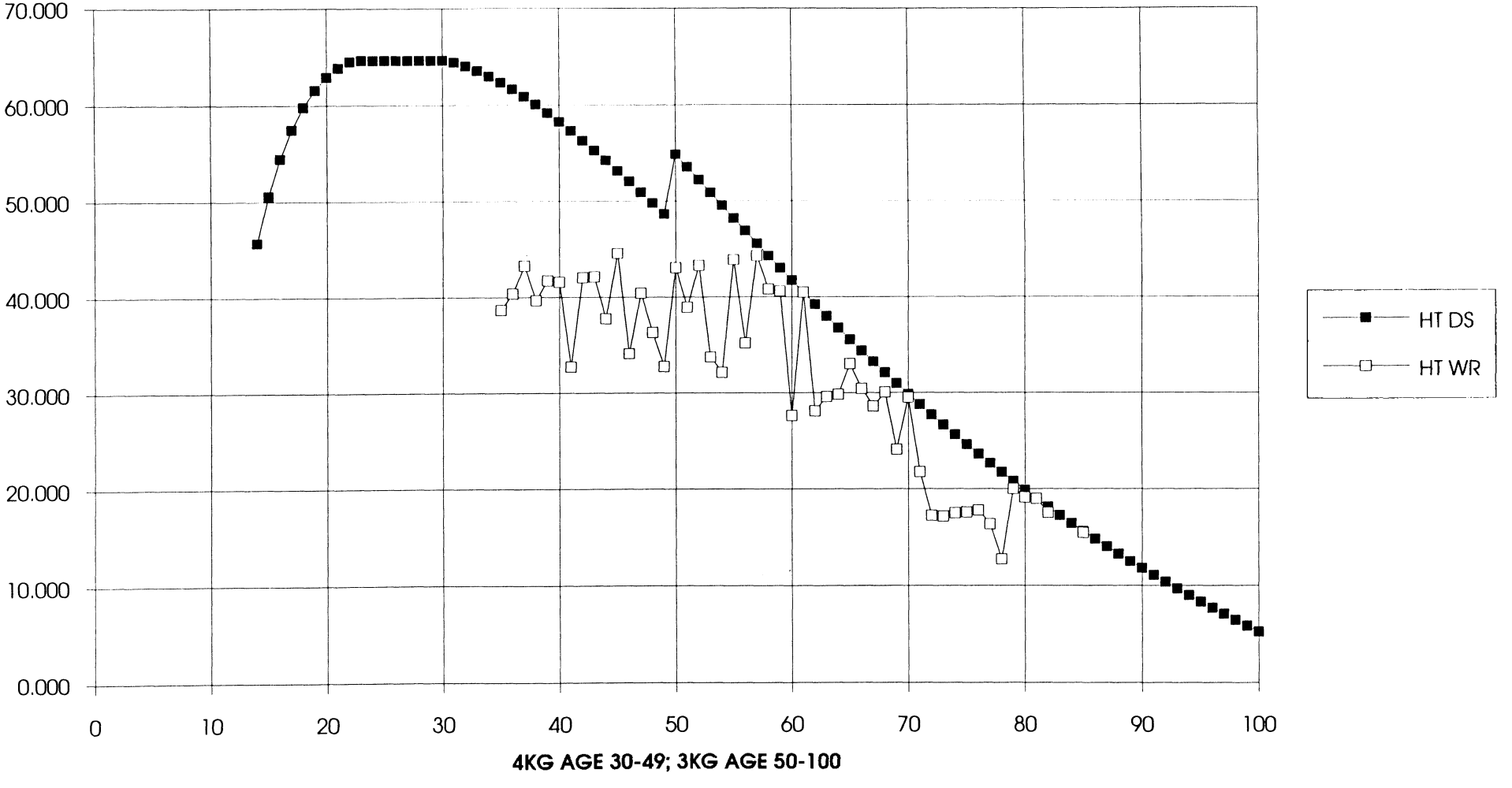
WOMENS DISTANCE STANDARDS AND RECORDS IN METERS



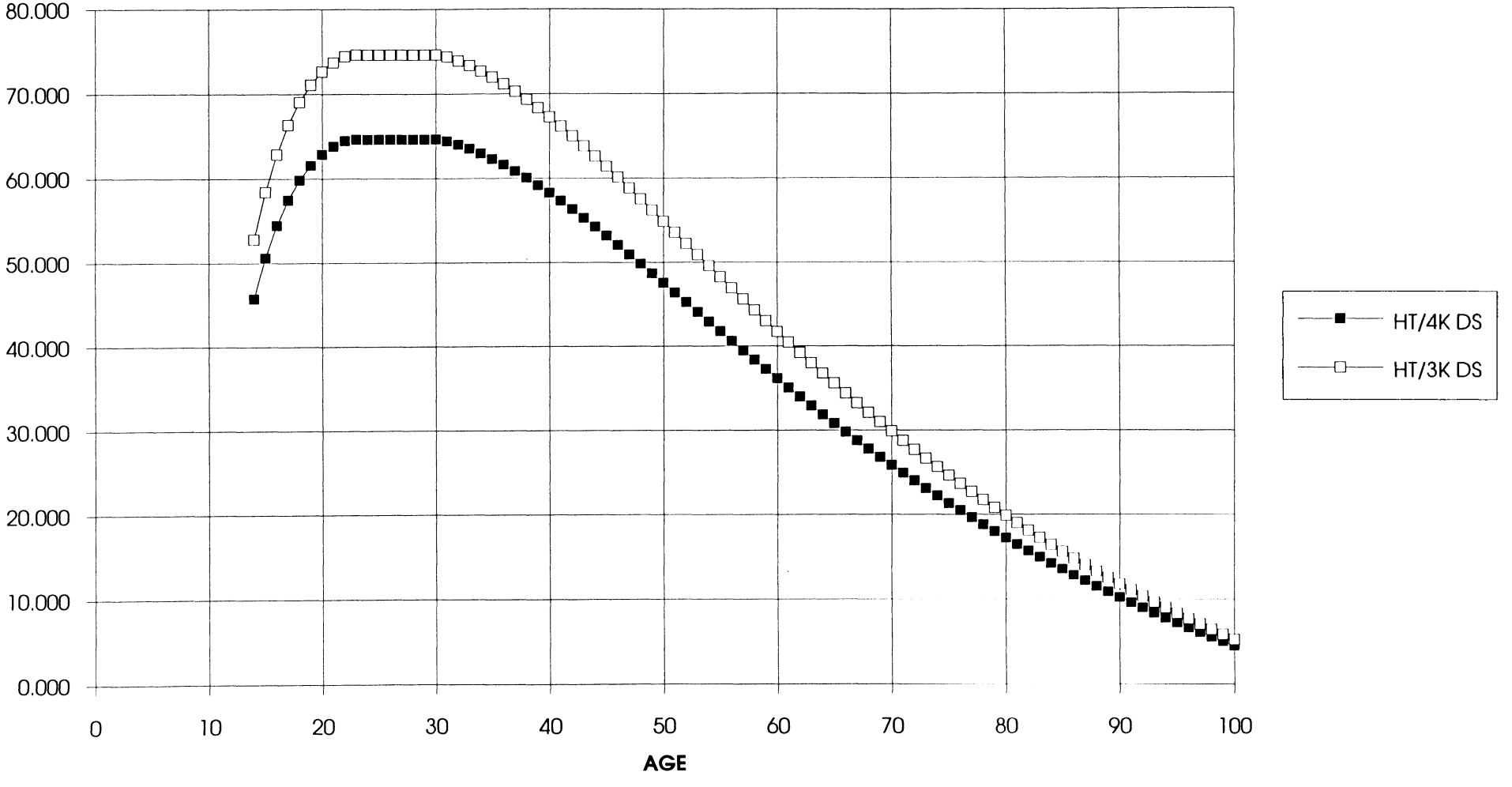
WOMENS DISTANCE STANDARDS AND RECORDS IN METERS



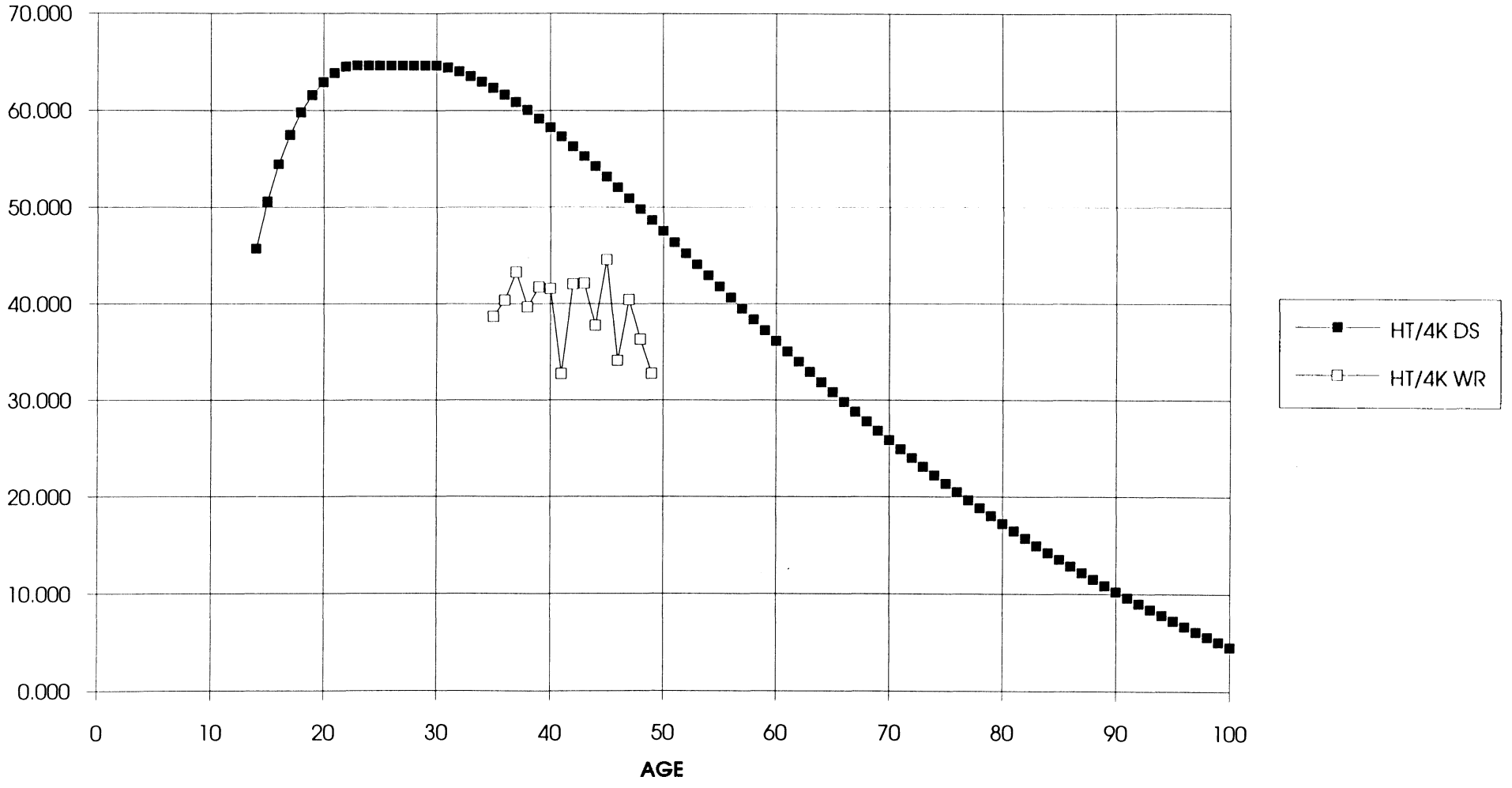
COMPOSITE CHART: WOMENS HAMMER THROW DISTANCE STANDARDS AND RECORDS IN METERS



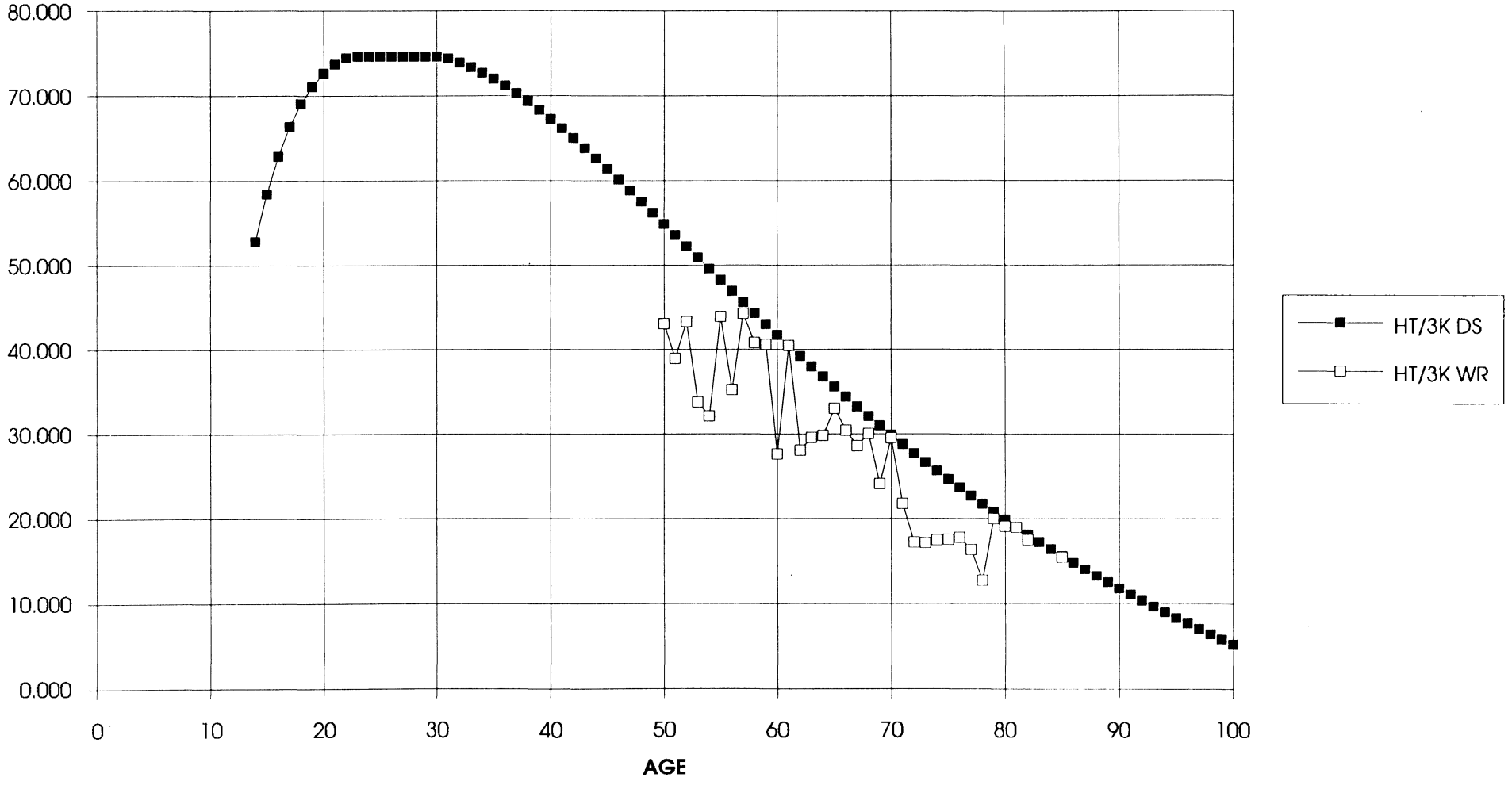
COMPARISON CHART: WOMENS HAMMER THROW DISTANCE STANDARDS IN METERS

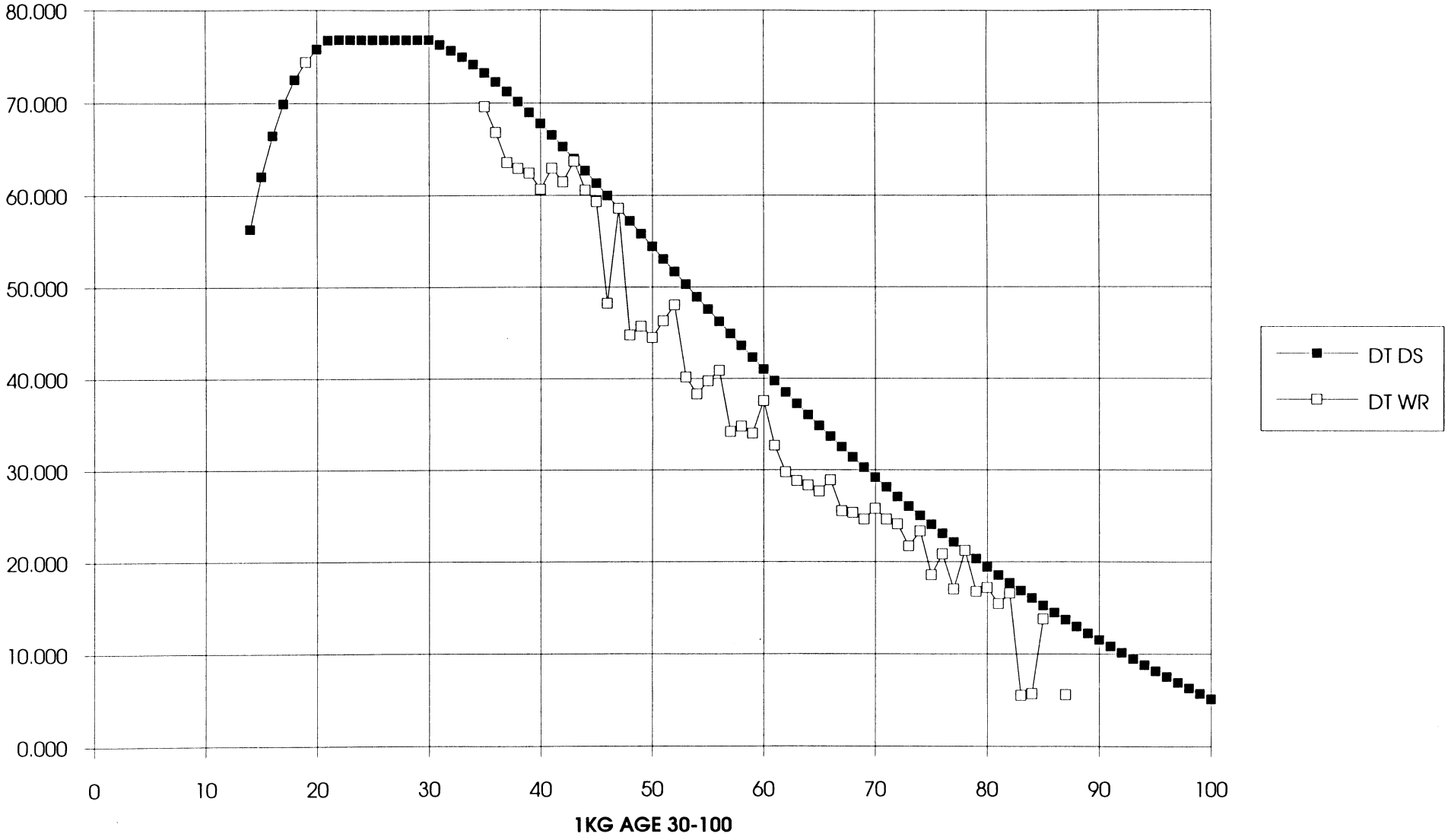


WOMENS DISTANCE STANDARDS AND RECORDS IN METERS

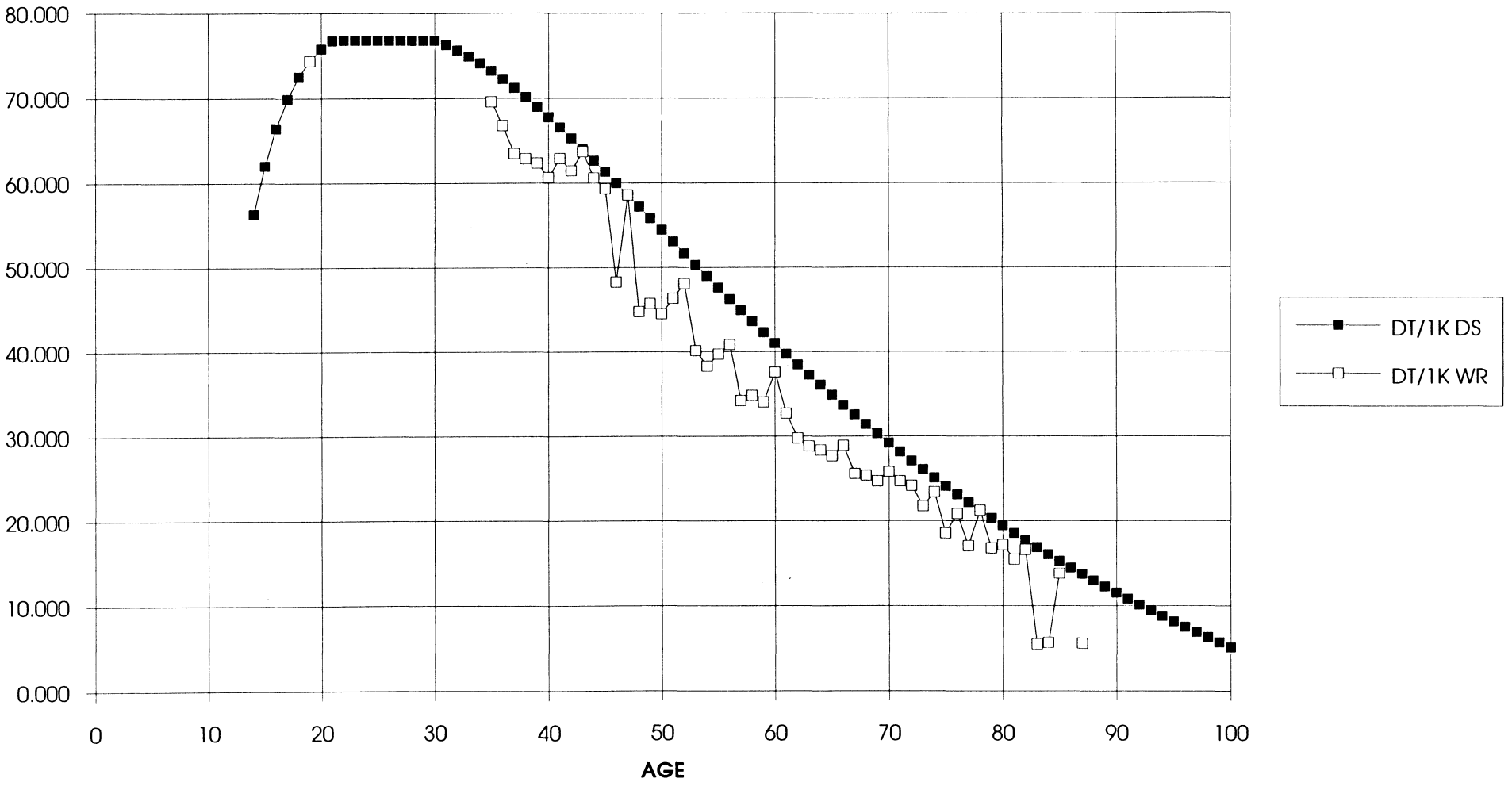


WOMENS DISTANCE STANDARDS AND RECORDS IN METERS

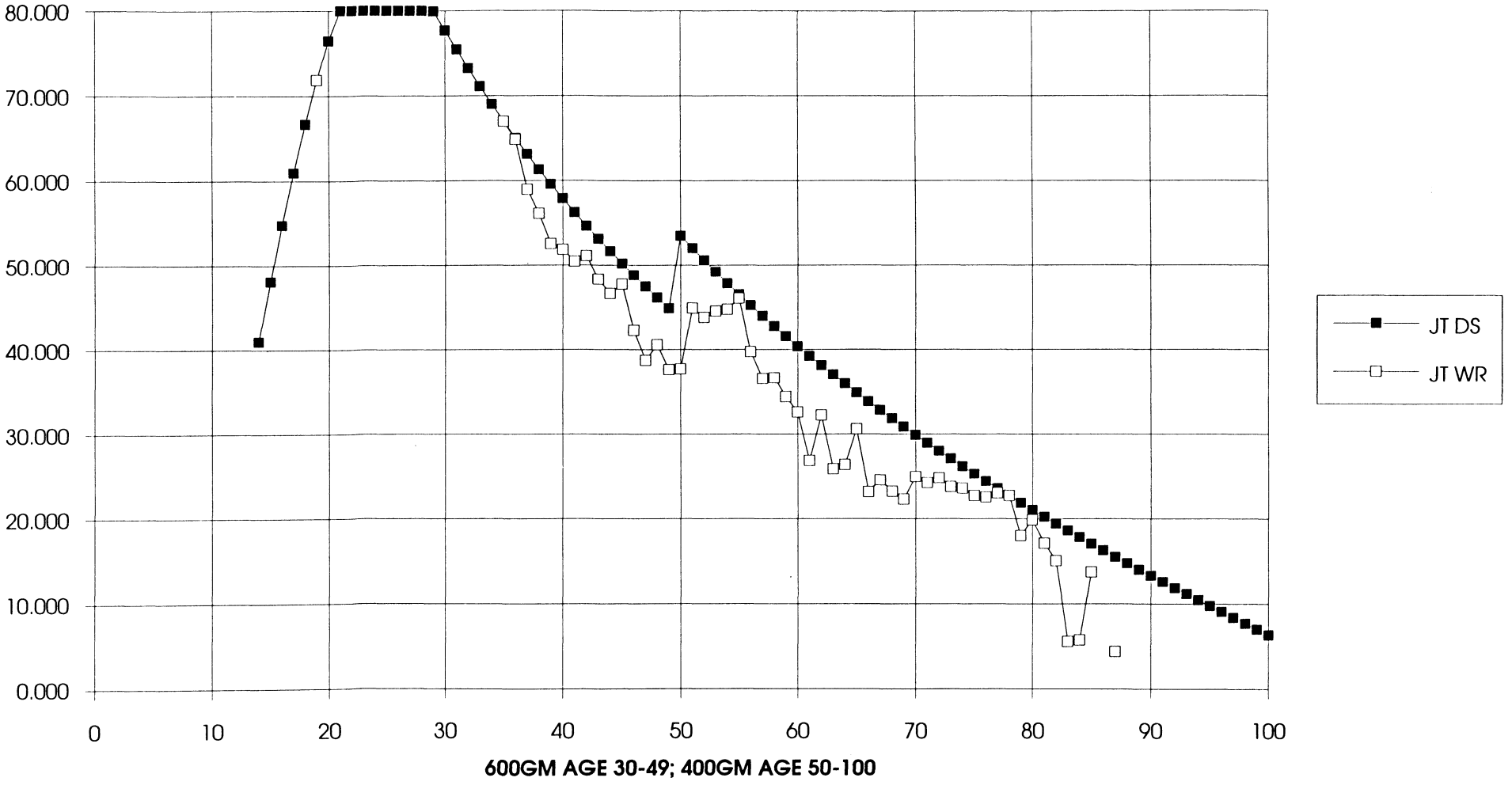



80.000
70.000
60.000
50.000
40.000
30.000
20.000
10.000
0.000
0
10
20
30
40
50
60
70
80
90
100
DT DS
DT WR
1KG AGE 30-100

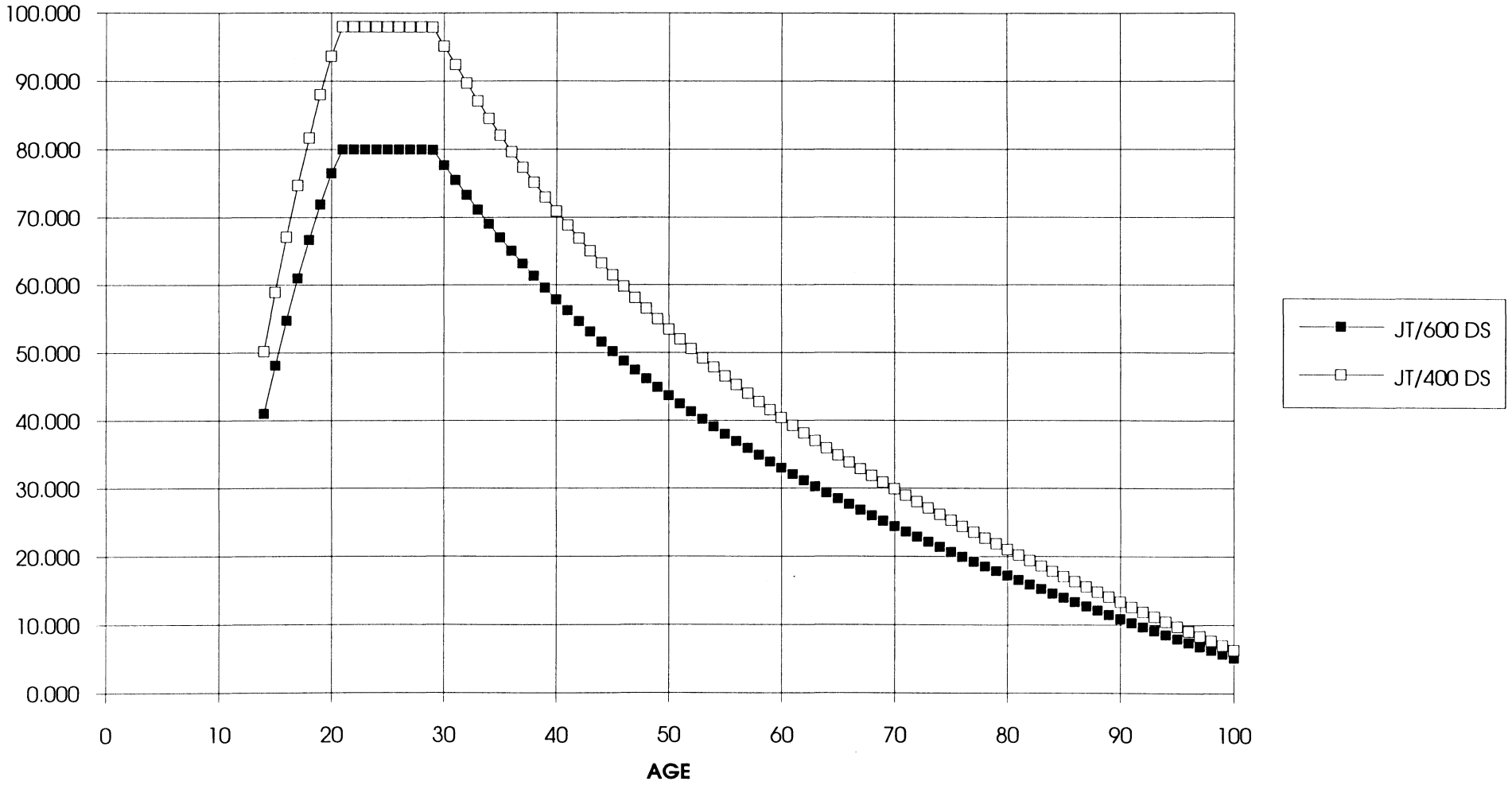
WOMENS DISTANCE STANDARDS AND RECORDS IN METERS



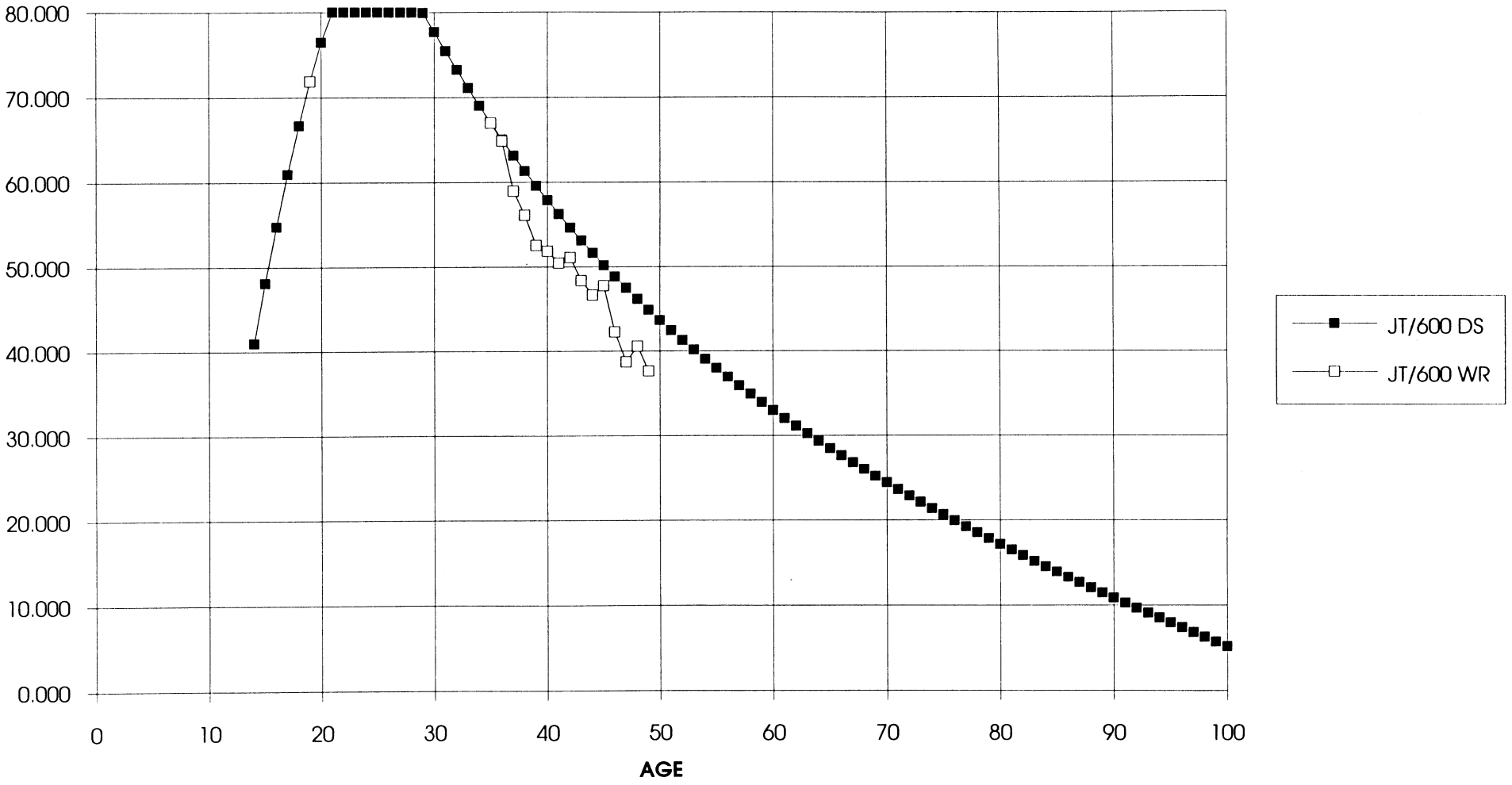
COMPOSITE CHART: WOMENS JAVELIN THROW DISTANCE STANDARDS AND RECORDS IN METERS



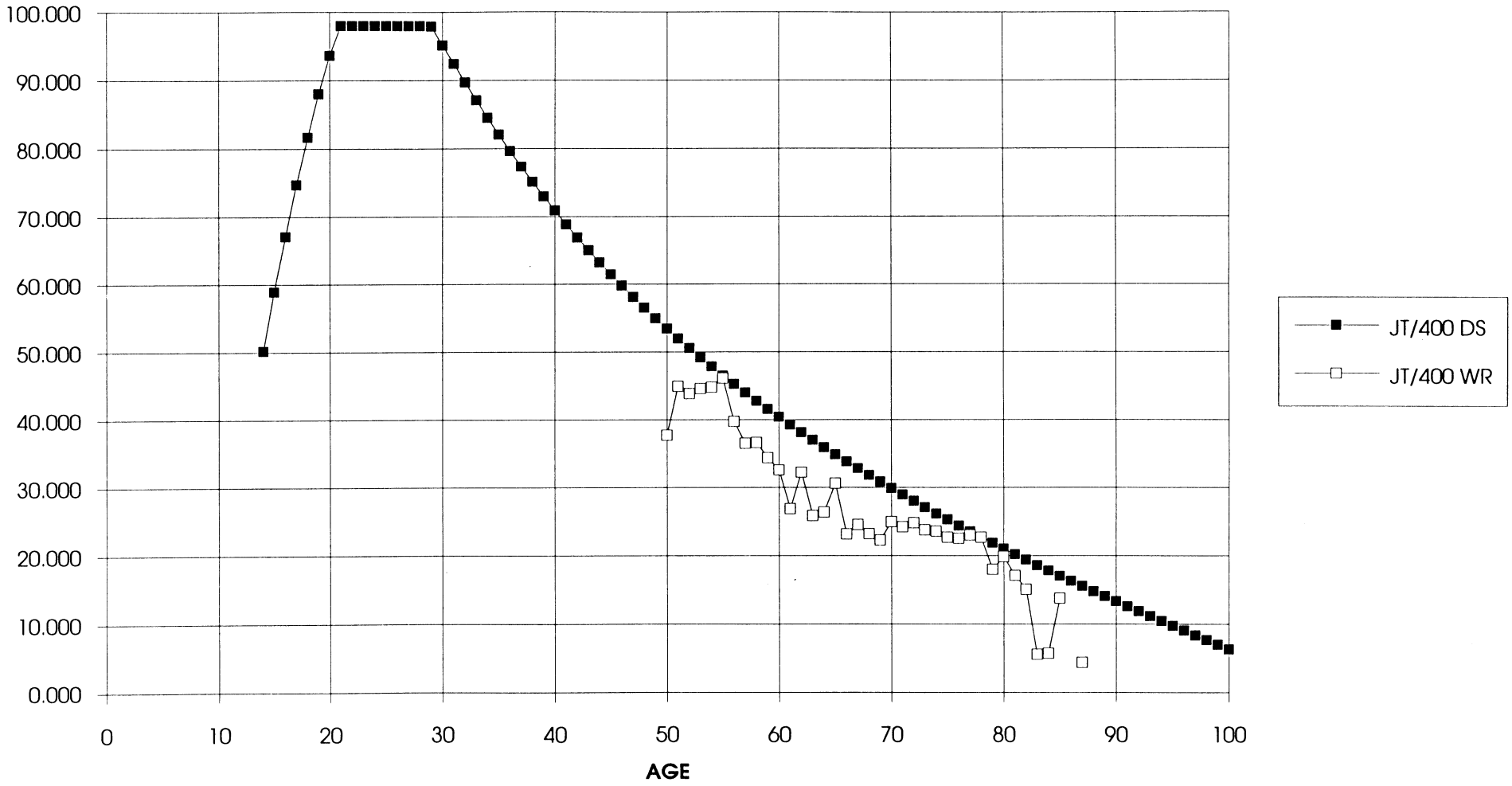
COMPARISON CHART: WOMENS JAVELIN THROW DISTANCE STANDARDS IN METERS



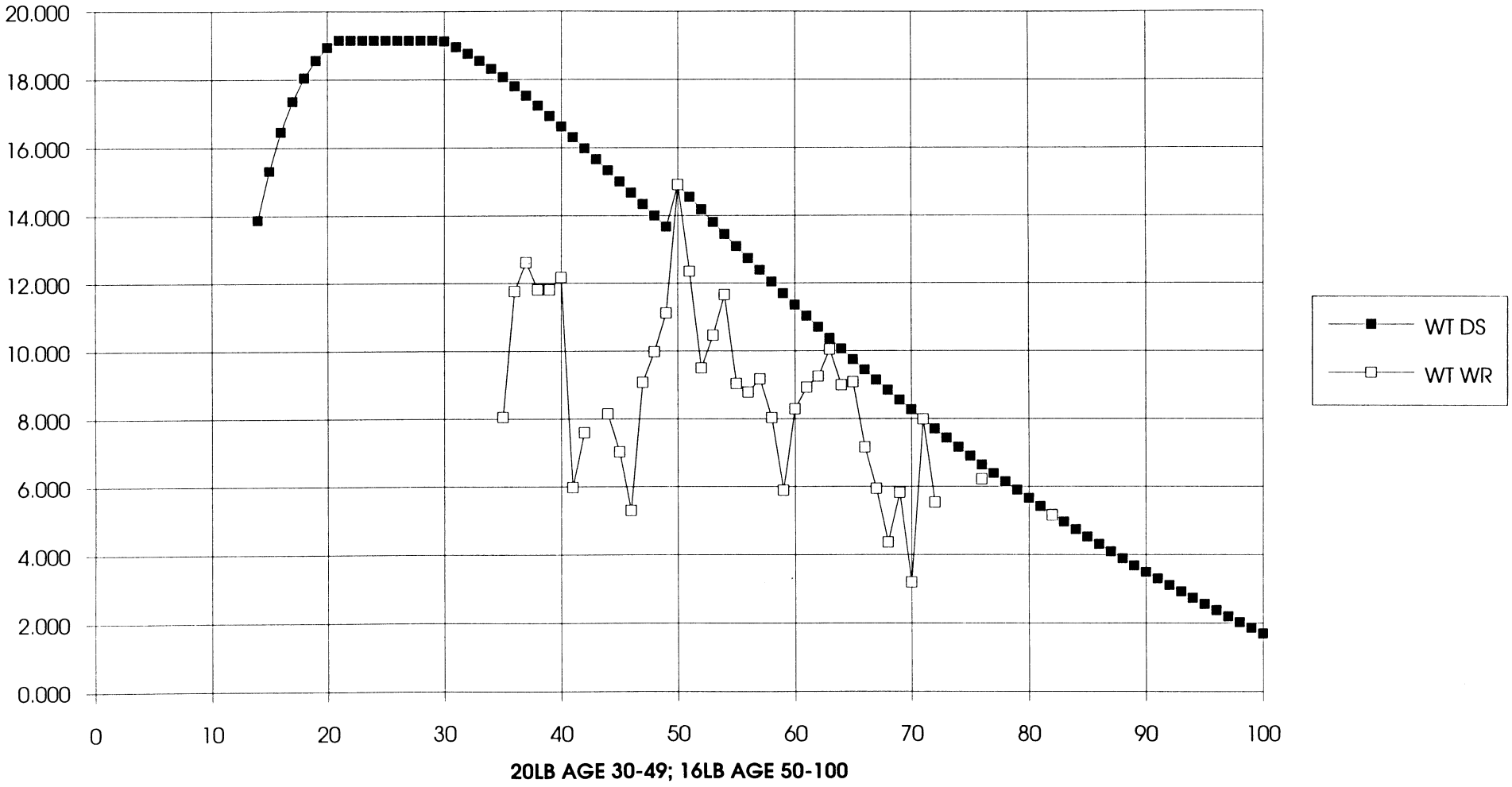
WOMENS DISTANCE STANDARDS AND RECORDS IN METERS



WOMENS DISTANCE STANDARDS AND RECORDS IN METERS

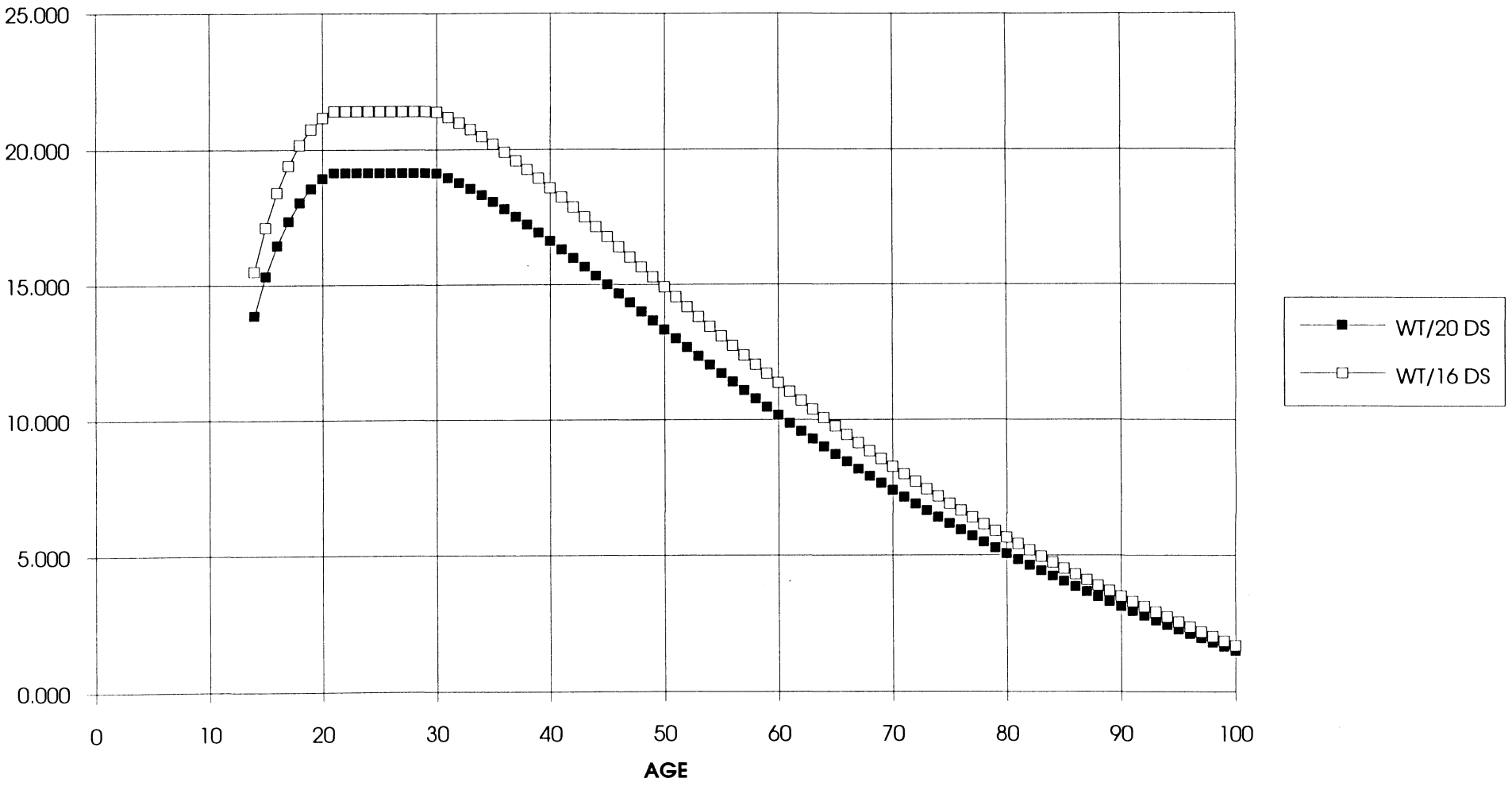


COMPOSITE CHART: WOMENS WEIGHT THROW DISTANCE STANDARDS AND RECORDS IN METERS

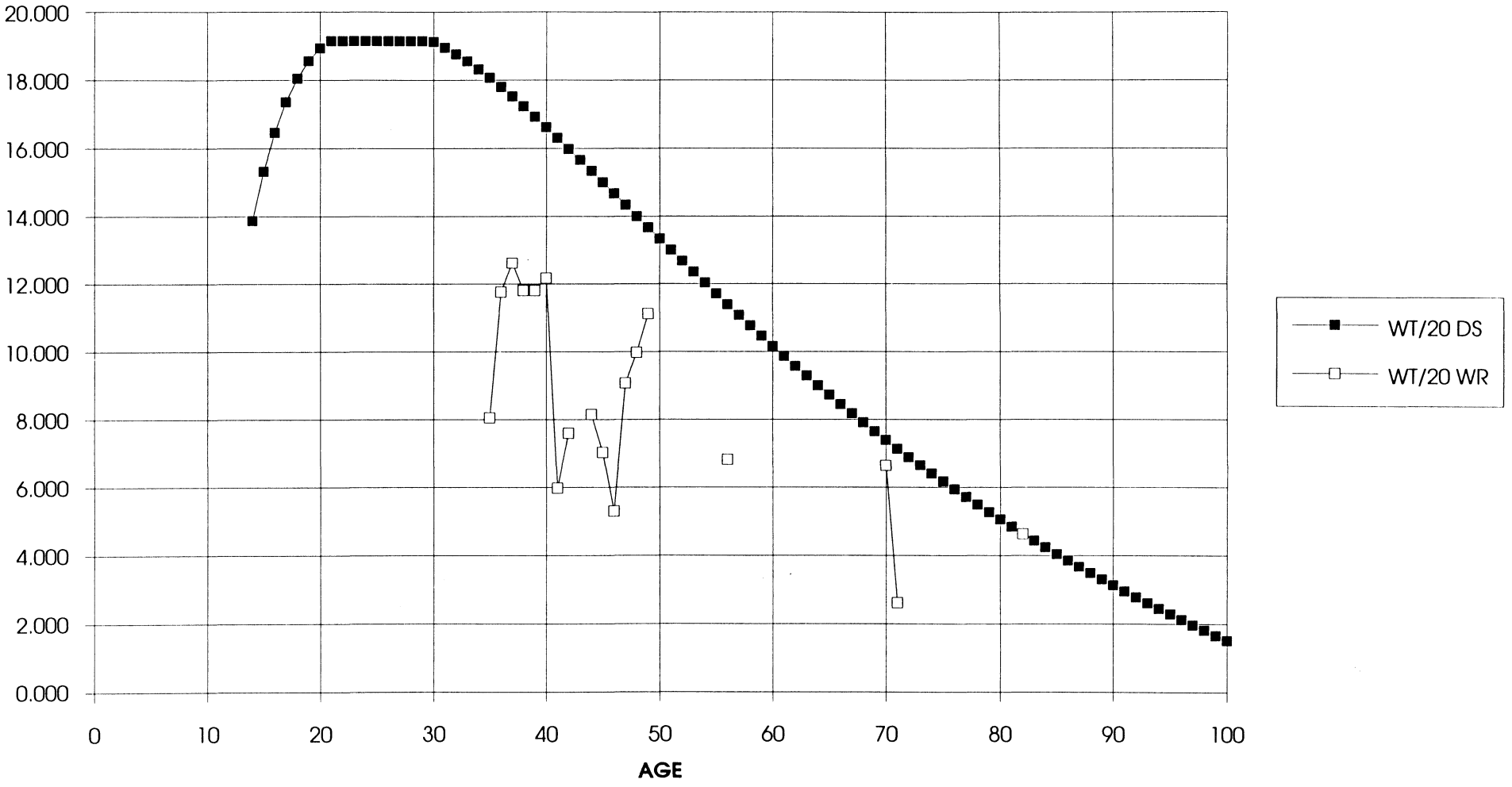


20LB AGE 30-49; 16LB AGE 50-100

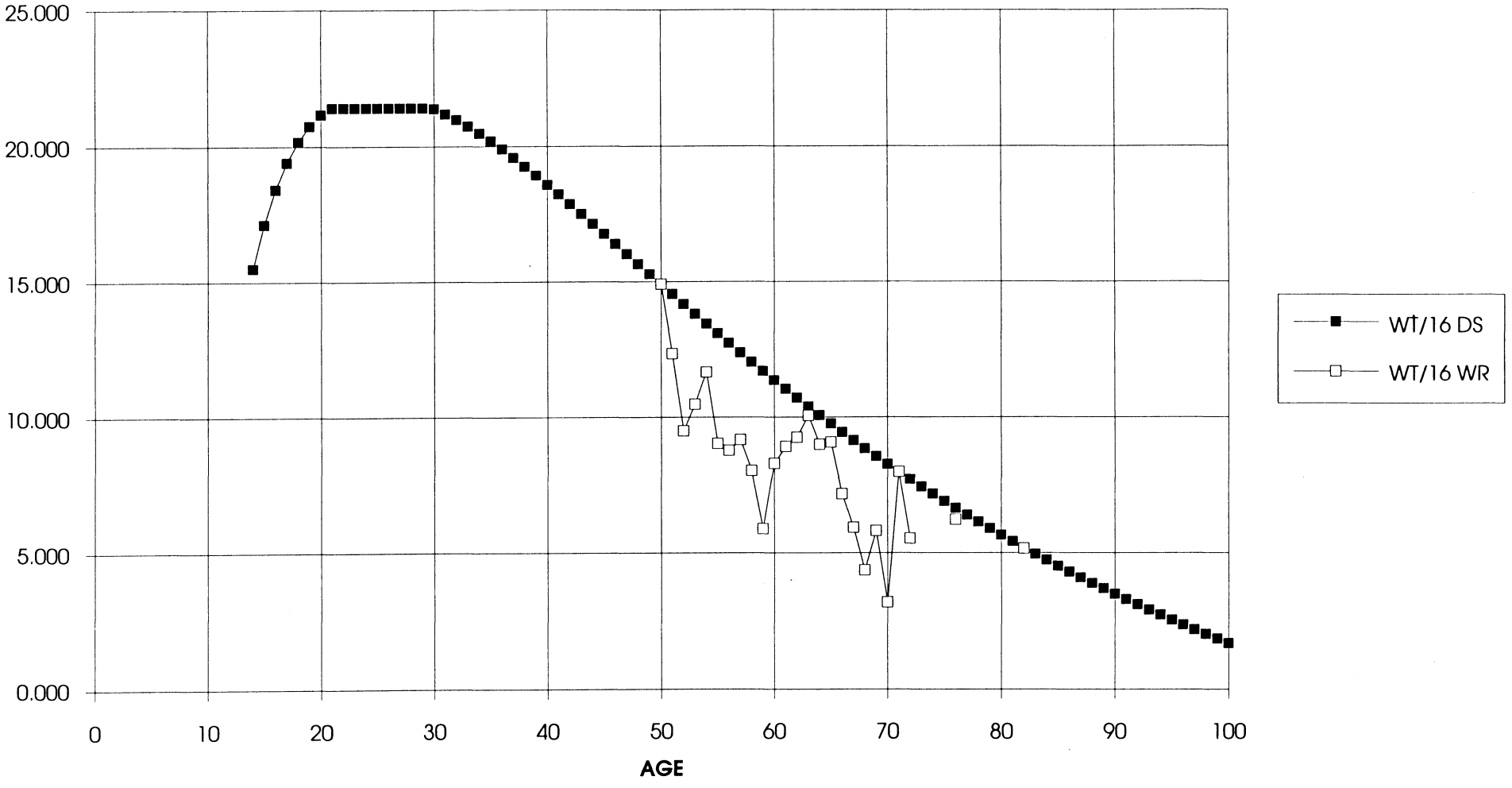
COMPARISON CHART: WOMENS WEIGHT THROW DISTANCE STANDARDS IN METERS



WOMENS DISTANCE STANDARDS AND RECORDS IN METERS



WOMENS DISTANCE STANDARDS AND RECORDS IN METERS



Chapter Four

Race Walk Events

Standards are provided for selected race walk events most frequently included in sanctioned meets. See pages 166 and 167. The standards reflect times walked by world record level walkers. The standards apply to walkers of all ability levels however through application of the performance level percentage concept.

The performance level percentage concept is that a walker's performance level is expressed as a percentage of the world record standard which is found by dividing the event standard by the walker's time for the event. To divide, the standard and the walker's time should both be expressed in seconds. A fifty-seven year old walker uses the standard listed for age 57. Walkers twenty to twenty-nine years old use the standard listed for OC which is the open class standard. An example is given at the end of page 165.

In this chapter the men's events will be presented first being covered in their entirety as a complete package, followed by a similar package of coverage for the women's events. In general, comments will apply to both the men's package and the women's package. The age-factor and performance level charts will contain results for both men and women for comparison purposes as those charts will both fit on one page. The combined charts will be included in the packages for both men and women.

The primary purpose of performance level percentages is to facilitate comparison of performances. An individual walker's performances can be compared against themselves, or performances of many walkers can be compared. Since the standards for all events are adjusted to a world record level, comparison of performances for different events is valid. While this effort does not set standards as such for average walkers, whether competitive or noncompetitive, that doesn't mean the standards aren't applicable to average walkers regardless of what the term average walker may mean. Refer to categories listed on page 1.

The standards are listed in hours, minutes and seconds format (h:m:s), and are also listed in seconds. The listing in seconds is to facilitate calculating performance level percentage.

Following the tables of time standards for walk events, age-factor tables are provided for the same events. See page 168. Age-factors are used to convert the performances of non-open class walkers (also runners and field eventers) to their equivalent performance as an open class effort. Specifically, age-factors for walk events are factors which convert records for non-open class walkers to the value of the open class record. This is to say the age-factor is obtained by dividing the open class world record time by the time of the records for the other ages. The author, for this book, has defined age-factor to be division of the open class time standard by the time standard for the other ages.

These time standards were developed using a unique approach. Rather than simply curve fitting each event separately and independently of other events, the approach here fits a continuous three dimensional time surface over the axes of age and distance. This is actually accomplished in the rate domain with results then transformed to the time domain. There are two primary by-products of the time surface: one being time-age curves for each event giving time as age varies from 5 to 100 years, and another being time-distance curves

for each year of age giving time as distance varies from 1500 meters to 50k. Examples of these curves are included later in the chapter.

Both the time-age and time-distance curve equations must meet certain general requirements. They must be equations that lend themselves to direct parametric solution of coefficient and exponent values, and inherently have the shape or distribution of the data involved so that a minimum number of coefficients or exponents are required to form the curve. The benefit of this requirement is that a minimum number of data points suffice to obtain statistically good curve fits over the entire range of the curve. Curve shaping constants also are employed in the equations. Two time-age points are required to fit the time-age curve for any walk event with ages ranging from 5 to 100. Three time-distance points are required to fit the time-distance curve for any age with distances ranging from 1500 to 5000 meters, and three more time-distance points are required to fit that age for distances ranging from 5000 to 50,000 meters. The time-age and time-distance equations are obviously non-linear and are combined to operate in an interdependent manner within the program.

The time surface is computer generated as follows. Both time-age and time-distance equations are pre-loaded into the walk event portion of the computer program. New youth and master's age records are manually entered into the records data base and the program then identifies all data base records which are better (faster) than the existing time standards. Selected records are manually entered into the program, which then calculates new time-distance curves, from which new time-age curves are calculated for every event, from which the program then produces a new set of time standards for all events, and in addition the program then identifies (if there any) all data base records which are better than the newly generated time standards. This is the completion of the first step. Selected records are again manually entered into the program, which then calculates new time-distance curves, from which new time-age curves are calculated for every event, from which the program then produces a new set of time standards for all events, and in addition the program then identifies (if there any) all data base records which are better than the newly generated time standards. This is the completion of the second step. This iteration process is continued until no records in the data base are identified as being better than the standards generated, and at the same time there are a maximum number of actual records included as standards and those records are suitably distributed over the entire age-distance region of the time surface. The standards are then finalized by ensuring that the walk rate requirements are met for all events.

Refer to the table of page 169 which shows performance level of actual records for a quick view of how many data base records were included in defining the race walk standards. Those listed as 100% made it. Those listed as 99% almost made it, the 98% records were close, and so on. The chart also illustrates the distribution of those records on the time surface, that is across all ages and distances.

The fitting process described above produces its results in both the time domain and the rate domain to ensure that rate requirements are not violated. For example, rate requirements are violated when standards result for an age which would have longer distances walked at faster rates than for shorter distances.

The resulting table of standards will usually "look" good just on the basis of their numerical progression in both the up-down and right-left directions. To get a better feel for how good they really are, refer to the walking rate graphs provided at pages 171 through 173. The graphs must have a smooth continuity for each rate line, and the rate lines must be proportionally spaced among themselves in a reasonable way for the standards to be realistic and hence considered good.

The age-factors are then computer generated by dividing the open class standard by the standard for each age, doing this for every event. Just as the derived time standards form a time surface over the axes of age and distance, so do the resulting age-factor standards form a surface of age-factor values over the axes of age and distance. The resulting age-factors require a brief discussion to assist in gaining an understanding of what they do and do not represent before attempts are made by the reader to analyze whether they have the general continuity and distribution that they should have.

Refer to the age-factor table of page 168 for discussion purposes. It is seen that the factors are not smooth in their progression. For every event, age-factor values decrease continuously as they go from their 1.000 value at open class (OC) ages to their fractional value at age 100. There are, however, other factors in play that prevent age-factors from behaving with perfect arithmetical uniformity as they vary across the distances of all events for a specific age. And as a further complication, the various effects of the factors vary in their amount as age changes. One of the more significant factors is the open class record age phenomenon.

The open class record age phenomenon results from the fact that for 1500 meters, world record level walker ages average at about 26 years, while for the 10k that age is at about 28 years, and for the 50k that age is at about 30 years. Thus, the age-factors for 40 year old walkers would be expected to be very nearly 1.00 for walks in the 50k range since they are nominally only 10 years past the most favorable age for those events, their age-factors would be somewhat less for walk distances in the 10k range since they are nominally 12 years past the prime age for those events, and their age-factors would be even less for events in the 1500 meter range since they are nominally 14 years past the prime age for short distance walking.

From the discussion above, it is seen that there are certain conditions existing which can prevent the resulting age-factor values for walkers from having a perfectly well behaved continuity in the arithmetic or geometric progression sense as one reads age-factors across the table for a specific age.

The rule of precedence for creating or developing time standards and age-factor standards is that time standards are first developed which then determine age-factors; age-factors are not first developed to then determine time standards.

The next table at page 169 is the listing of performance level in percent for actual records. The percentages listed in the table are determined by dividing the time standard by the actual record for every age of every event having a listed record. The percentage values have been rounded off to the nearest whole integer. A percentage of 100 indicates that that record was used in determining the standards that resulted. Records having a percentage of 99 or 98 are also efforts of the very highest calibre. As discussed earlier, the time surface curve fitting process attempts to include as many actual records as possible with their occurrence evenly distributed as much as possible over all of the ages and distances involved.

Following the performance level table for existing records, are graphs displaying the rates in meters per second for the standards generated. It was mentioned earlier that these rate graphs must show a smooth continuity for each rate line, and the rate lines must be proportionally spaced among themselves in a reasonable way for the standards to be realistic and hence considered suitable or good. The first three rate graphs at pages 171, 172 and 173 plot rate versus age for individual events, while the fourth graph at page 174 plots rate versus distance for selected ages. The reader can easily test the validity of not including re-

cords of their choice by calculating the rate in meters per second for that record and plotting it on the two applicable rate graphs.

The next set of graphs at pages 176 through 182 plot standards versus actual records for individual events consisting of the 2 mile, 5k, 10k, 15k, 20k, 25k and 50k. In all of these graphs, the actual existing record is plotted as the open or white square symbol, while the time standard is plotted as the solid black square symbol. These graphs are one of the sets of cross sections mentioned earlier that are produced by the time surface. They do not reflect attempts to curve fit the events on a stand alone basis. For example, the men's 2 mile could have a better curve fit if treated as a stand alone event, but it is not a stand alone event under the time surface concept, and doing the exercise suggested in the paragraph above on rate graphs will demonstrate why it has the curve fit that did result.

While the discussion above referenced only tables and graphs for men, the remarks also apply to women's race walking.

Calculating a walker's performance level percentage. Find the PL% for a 53 year old woman who walks the 10K in 55:55. Refer to the second paragraph on page 162. Convert the 55 minutes and 55 seconds time walked to time in seconds, obtaining 3355 seconds. Find the standard on page 184 for the age 53 women's 10K which is listed as 2852 seconds. Divide 2852 by 3355 obtaining a value of 0.8501 which is a percentage of 85.01%.

AGE	1500	1 MILE	3000	2 MILE	5K	8K	10K	15K	20K	25K	30K	40K	50K
5	8:04	8:43	17:09	18:29	29:27	49:22	1:03:17	1:40:19	2:19:26	3:01:50	3:45:48	5:19:13	6:54:48
6	7:27	8:04	15:49	17:02	27:08	45:24	58:09	1:32:04	2:07:55	2:46:49	3:27:16	4:53:41	6:22:50
7	6:60	7:34	14:49	15:58	25:24	42:26	54:18	1:25:48	1:59:09	2:35:19	3:13:03	4:33:57	5:58:05
8	6:38	7:11	14:03	15:08	24:03	40:08	51:18	1:20:54	1:52:15	2:26:12	3:01:44	4:18:09	5:38:12
9	6:22	6:53	13:27	14:28	22:59	38:17	48:54	1:16:57	1:46:41	2:18:48	2:52:29	4:05:09	5:21:50
10	6:08	6:38	12:57	13:56	22:08	36:48	46:57	1:13:43	1:42:05	2:12:40	2:44:48	3:54:16	5:08:03
11	5:58	6:26	12:33	13:30	21:25	35:34	45:21	1:11:02	1:38:15	2:07:30	2:38:17	3:44:59	4:56:17
12	5:49	6:17	12:13	13:09	20:51	34:33	44:00	1:08:46	1:35:00	2:03:06	2:32:43	3:36:58	4:46:06
13	5:41	6:08	11:56	12:51	20:22	33:42	42:53	1:06:51	1:32:14	1:59:19	2:27:55	3:29:59	4:37:11
14	5:35	6:02	11:42	12:35	19:57	32:59	41:55	1:05:12	1:29:51	1:56:03	2:23:43	3:23:51	4:29:19
15	5:30	5:56	11:30	12:23	19:37	32:22	41:07	1:03:48	1:27:48	1:53:11	2:20:03	3:18:25	4:22:19
16	5:25	5:51	11:20	12:12	19:20	31:51	40:25	1:02:35	1:26:01	1:50:42	2:16:49	3:13:34	4:16:05
17	5:22	5:47	11:12	12:03	19:05	31:25	39:50	1:01:33	1:24:28	1:48:30	2:13:58	3:09:15	4:10:28
18	5:19	5:44	11:05	11:56	18:53	31:03	39:20	1:00:39	1:23:08	1:46:35	2:11:26	3:05:22	4:05:24
19	5:16	5:41	10:59	11:49	18:43	30:44	38:55	59:52	1:21:58	1:44:53	2:09:11	3:01:52	4:00:50
OC	5:12	5:37	10:47	11:36	18:24		37:53	57:54	1:18:35	1:40:03			3:41:38
30	5:12	5:37	10:47	11:36	18:24	30:02	37:53	57:54	1:18:35	1:40:03	2:02:24	2:49:55	3:41:38
31	5:12	5:37	10:47	11:36	18:24	30:02	37:53	57:54	1:18:35	1:40:03	2:02:24	2:49:55	3:41:38
32	5:13	5:38	10:47	11:36	18:24	30:02	37:53	57:54	1:18:35	1:40:03	2:02:24	2:49:55	3:41:38
33	5:15	5:39	10:49	11:38	18:24	30:02	37:53	57:54	1:18:35	1:40:03	2:02:24	2:49:55	3:41:38
34	5:16	5:40	10:52	11:41	18:24	30:02	37:53	57:54	1:18:35	1:40:03	2:02:24	2:49:55	3:41:38
35	5:17	5:42	10:54	11:44	18:28	30:05	37:54	57:54	1:18:35	1:40:03	2:02:24	2:49:55	3:41:38
36	5:19	5:43	10:57	11:47	18:32	30:12	38:03	57:54	1:18:35	1:40:03	2:02:24	2:49:55	3:41:38
37	5:20	5:45	11:00	11:50	18:37	30:20	38:13	58:09	1:18:53	1:40:03	2:02:24	2:49:55	3:41:38
38	5:22	5:47	11:04	11:53	18:42	30:28	38:24	58:27	1:19:19	1:40:25	2:02:34	2:49:55	3:43:10
39	5:24	5:49	11:07	11:57	18:47	30:37	38:35	58:46	1:19:47	1:41:05	2:03:27	2:51:05	3:44:58
40	5:25	5:51	11:11	12:01	18:53	30:47	38:48	59:07	1:20:17	1:41:47	2:04:22	2:52:30	3:46:49
41	5:27	5:53	11:15	12:05	18:59	30:57	39:01	59:29	1:20:48	1:42:31	2:05:19	2:53:58	3:48:43
42	5:29	5:55	11:19	12:09	19:06	31:07	39:15	59:52	1:21:21	1:43:17	2:06:18	2:55:28	3:50:39
43	5:31	5:57	11:23	12:14	19:12	31:19	39:29	1:00:16	1:21:55	1:44:05	2:07:20	2:56:59	3:52:37
44	5:33	5:59	11:27	12:19	19:20	31:30	39:44	1:00:41	1:22:31	1:44:54	2:08:22	2:58:33	3:54:37
45	5:36	6:02	11:32	12:24	19:27	31:43	40:00	1:01:07	1:23:08	1:45:44	2:09:27	3:00:08	3:56:39
46	5:38	6:04	11:37	12:29	19:35	31:56	40:17	1:01:34	1:23:46	1:46:36	2:10:33	3:01:46	3:58:43
47	5:40	6:07	11:42	12:34	19:43	32:09	40:34	1:02:02	1:24:26	1:47:30	2:11:41	3:03:25	4:00:49
48	5:43	6:10	11:47	12:39	19:51	32:23	40:52	1:02:32	1:25:07	1:48:25	2:12:51	3:05:05	4:02:57
49	5:45	6:12	11:52	12:45	19:60	32:37	41:10	1:03:02	1:25:49	1:49:22	2:14:02	3:06:47	4:05:06
50	5:48	6:15	11:57	12:51	20:09	32:52	41:29	1:03:32	1:26:32	1:50:20	2:15:15	3:08:31	4:07:18
51	5:51	6:18	12:03	12:57	20:18	33:07	41:49	1:04:04	1:27:17	1:51:19	2:16:29	3:10:17	4:09:31
52	5:53	6:21	12:09	13:03	20:28	33:23	42:10	1:04:37	1:28:03	1:52:20	2:17:45	3:12:05	4:11:47
53	5:56	6:24	12:14	13:09	20:37	33:40	42:31	1:05:11	1:28:50	1:53:23	2:19:03	3:13:54	4:14:04
54	5:59	6:27	12:21	13:16	20:48	33:57	42:52	1:05:46	1:29:38	1:54:27	2:20:23	3:15:45	4:16:24
55	6:02	6:30	12:27	13:22	20:58	34:14	43:15	1:06:22	1:30:28	1:55:32	2:21:44	3:17:39	4:18:46
56	6:05	6:34	12:33	13:29	21:09	34:32	43:38	1:06:59	1:31:20	1:56:39	2:23:07	3:19:34	4:21:11
57	6:08	6:37	12:40	13:36	21:20	34:51	44:02	1:07:37	1:32:12	1:57:48	2:24:32	3:21:32	4:23:38
58	6:12	6:41	12:47	13:44	21:32	35:10	44:27	1:08:16	1:33:07	1:58:59	2:25:59	3:23:31	4:26:07
59	6:15	6:44	12:54	13:51	21:44	35:30	44:52	1:08:57	1:34:02	2:00:11	2:27:28	3:25:34	4:28:40
60	6:18	6:48	13:01	13:59	21:56	35:51	45:18	1:09:38	1:34:60	2:01:26	2:28:59	3:27:39	4:31:16
61	6:22	6:52	13:08	14:07	22:09	36:12	45:45	1:10:21	1:35:59	2:02:42	2:30:33	3:29:46	4:33:55
62	6:26	6:56	13:16	14:16	22:22	36:34	46:13	1:11:05	1:36:59	2:04:01	2:32:09	3:31:57	4:36:37
63	6:29	6:60	13:24	14:24	22:36	36:56	46:42	1:11:51	1:38:02	2:05:21	2:33:47	3:34:11	4:39:23
64	6:33	7:04	13:32	14:33	22:50	37:20	47:12	1:12:38	1:39:07	2:06:44	2:35:28	3:36:28	4:42:13
65	6:37	7:08	13:41	14:42	23:05	37:44	47:43	1:13:26	1:40:13	2:08:09	2:37:12	3:38:48	4:45:07
66	6:41	7:13	13:50	14:51	23:20	38:09	48:15	1:14:16	1:41:22	2:09:37	2:38:60	3:41:12	4:48:06
67	6:46	7:18	13:59	15:01	23:35	38:35	48:48	1:15:08	1:42:33	2:11:08	2:40:50	3:43:41	4:51:10
68	6:50	7:22	14:08	15:11	23:51	39:02	49:22	1:16:01	1:43:46	2:12:42	2:42:44	3:46:14	4:54:19
69	6:55	7:27	14:18	15:22	24:08	39:29	49:58	1:16:57	1:45:02	2:14:19	2:44:41	3:48:51	4:57:34
70	6:60	7:32	14:28	15:33	24:26	39:58	50:34	1:17:54	1:46:21	2:15:59	2:46:43	3:51:34	5:00:55
71	7:05	7:38	14:38	15:44	24:44	40:28	51:13	1:18:54	1:47:42	2:17:43	2:48:48	3:54:22	5:04:23
72	7:10	7:43	14:49	15:56	25:03	40:60	51:53	1:19:56	1:49:07	2:19:30	2:50:59	3:57:16	5:07:58
73	7:15	7:49	15:00	16:08	25:22	41:32	52:34	1:21:01	1:50:35	2:21:23	2:53:14	4:00:17	5:11:41
74	7:21	7:55	15:12	16:21	25:43	42:06	53:17	1:22:08	1:52:07	2:23:19	2:55:35	4:03:24	5:15:33
75	7:27	8:02	15:25	16:34	26:04	42:42	54:03	1:23:19	1:53:43	2:25:21	2:58:02	4:06:40	5:19:34
76	7:33	8:08	15:38	16:48	26:27	43:19	54:50	1:24:33	1:55:24	2:27:28	3:00:36	4:10:04	5:23:46
77	7:39	8:15	15:51	17:03	26:51	43:58	55:40	1:25:50	1:57:09	2:29:41	3:03:17	4:13:38	5:28:09
78	7:46	8:22	16:05	17:18	27:15	44:39	56:32	1:27:11	1:58:60	2:32:01	3:06:06	4:17:22	5:32:45
79	7:53	8:30	16:20	17:34	27:42	45:23	57:28	1:28:37	2:00:57	2:34:29	3:09:03	4:21:17	5:37:36
80	8:01	8:38	16:36	17:51	28:09	46:09	58:26	1:30:07	2:02:60	2:37:04	3:12:11	4:25:26	5:42:42
81	8:09	8:47	16:53	18:10	28:39	46:57	59:28	1:31:43	2:05:10	2:39:49	3:15:29	4:29:48	5:48:06
82	8:17	8:56	17:11	18:29	29:10	47:49	1:00:34	1:33:25	2:07:29	2:42:44	3:18:60	4:34:28	5:53:50
83	8:26	9:06	17:30	18:50	29:43	48:44	1:01:44	1:35:14	2:09:57	2:45:50	3:22:44	4:39:25	5:59:57
84	8:36	9:16	17:51	19:12	30:19	49:43	1:02:59	1:37:10	2:12:35	2:49:10	3:26:45	4:44:44	6:06:29
85	8:46	9:28	18:13	19:36	30:58	50:47	1:04:20	1:39:15	2:15:25	2:52:45	3:31:03	4:50:26	6:13:32
86	8:58	9:40	18:37	20:01	31:39	51:56	1:05:48	1:41:31	2:18:29	2:56:37	3:35:43	4:56:37	6:21:08
87	9:10	9:53	19:03	20:29	32:25	53:10	1:07:23	1:43:58	2:21:50	3:00:50	3:40:47	5:03:20	6:29:25
88	9:23	10:07	19:31	21:00	33:14	54:32	1:09:07	1:46:39	2:25:29	3:05:26	3:46:21	5:10:42	6:38:29
89	9:38	10:24	20:02	21:34	34:09	56:03	1:11:02	1:49:37	2:29:31	3:10:31	3:52:28	5:18:49	6:48:31
90	9:55	10:41	20:37	22:12	35:10	57:44	1:13:10	1:52:56	2:34:01	3:16:11	3:59:18	5:27:52	6:59:40
91	10:14	11:01	21:17	22:54	36:19	59:37	1:15:34	1:56:38	2:39:04	3:22:34	4:06:58	5:38:04	7:12:15
92	10:35	11:24	22:01	23:42	37:37	1:01:46	1:18:18	2:00:52	2:44:49	3:29:49	4:15:44	5:49:42	7:26:35
93	10:59	11:51	22:53	24:38	39:07	1:04:15	1:21:28	2:05:46	2:51:28	3:38:13	4:25:51	6:03:09	7:43:11
94	11:28	12:22	23:54	25:44	40:53	1:07:11	1:25:11	2:11:31	2:59:18	3:48:07	4:37:48	6:19:03	8:02:48
95	12:03	12:60	25:08	27:03	43:01	1:10:42	1:29:41	2:18:29	3:08:46	4:00:05	4:52:14	6:38:15	8:26:31
96	12:47	13:47	26:39	28:42	45:41	1:15:06	1:35:16	2:27:08	3:20:33	4:14:59	5:10:13	7:02:14	8:56:08
97	13:43	14:48	28:38	30:51	49:08	1:20:49	1:42:32	2:38:23	3:35:53	4:34:23	5:33:39	7:33:30	9:34:45
98	15:02	16:12	31:24	33:49	53:55	1:28:43	1:52:36	2:53:60	3:57:08	5:01:17	6:06:11	8:16:56	10:28:25
99	17:03	18:22	35:37	38:23	1:01:16	1:40:51	2:08:02	3:17:57	4:29:46	5:42:39	6:56:12	9:23:49	11:51:07
100	20:48	22:25	43:31	46:54	1:14:58	2:03:30	2:36:51	4:02:41	5:30:45	7:00:02	8:29:50	11:29:11	14:26:10

MEN'S WALK EVENT STANDARDS

AGE	1500	1 MI	3K	2 MI	5K	8K	10K	15K	20K	25K	30K	40K	50K
5	484	523	1029	1109	1767	2962	3797	6019	8366	10910	13548	19153	24888
6	447	484	949	1022	1628	2724	3489	5524	7675	10009	12436	17621	22970
7	420	454	889	958	1524	2546	3258	5148	7149	9319	11583	16437	21485
8	398	431	843	908	1443	2408	3078	4854	6735	8772	10904	15489	20292
9	382	413	807	868	1379	2297	2934	4617	6401	8328	10349	14709	19310
10	368	398	777	836	1328	2208	2817	4423	6125	7960	9888	14056	18483
11	358	386	753	810	1285	2134	2721	4262	5895	7650	9497	13499	17777
12	349	377	733	789	1251	2073	2640	4126	5700	7386	9163	13018	17166
13	341	368	716	771	1222	2022	2573	4011	5534	7159	8875	12599	16631
14	*335*	*362*	*702*	*755*	*1197*	*1979*	*2515*	*3912*	*5391*	*6963*	*8623*	*12231*	*16159*
15	330	356	690	743	1177	1942	2467	3828	5268	6791	8403	11905	15739
16	325	351	680	732	1160	1911	2425	3755	5161	6642	8209	11614	15365
17	322	347	672	723	1145	1885	2390	3693	5068	6510	8038	11355	15028
18	319	344	665	716	1133	1863	2360	3639	4988	6395	7886	11122	14724
19	316	341	659	709	1123	1844	2335	3592	4918	6293	7751	10912	14450
OC	312	337	647	696	1104		2273	3474	4715	6003			13298
30	312	337	647	696	1104	1802	2273	3474	4715	6003	7344	10195	13298
31	312	337	647	696	1104	1802	2273	3474	4715	6003	7344	10195	13298
32	313	338	647	696	1104	1802	2273	3474	4715	6003	7344	10195	13298
33	315	339	649	698	1104	1802	2273	3474	4715	6003	7344	10195	13298
34	316	340	652	701	1104	1802	2273	3474	4715	6003	7344	10195	13298
35	317	342	654	704	1108	1805	2274	3474	4715	6003	7344	10195	13298
36	319	343	657	707	1112	1812	2283	3474	4715	6003	7344	10195	13298
37	320	345	660	710	1117	1820	2293	3489	4733	6003	7344	10195	13298
38	322	347	664	713	1122	1828	2304	3507	4759	6025	7354	10195	13390
39	324	349	667	717	1127	1837	2315	3526	4787	6065	7407	10265	13498
40	325	351	671	721	1133	1847	2328	3547	4817	6107	7462	10350	13609
41	327	353	675	725	1139	1857	2341	3569	4848	6151	7519	10438	13723
42	329	355	679	729	1146	1867	2355	3592	4881	6197	7578	10528	13839
43	331	357	683	734	1152	1879	2369	3616	4915	6245	7640	10619	13957
44	333	359	687	739	1160	1890	2384	3641	4951	6294	7702	10713	14077
45	336	362	692	744	1167	1903	2400	3667	4988	6344	7767	10808	14199
46	338	364	697	749	1175	1916	2417	3694	5026	6396	7833	10906	14323
47	340	367	702	754	1183	1929	2434	3722	5066	6450	7901	11005	14449
48	343	370	707	759	1191	1943	2452	3752	5107	6505	7971	11105	14577
49	345	372	712	765	1200	1957	2470	3782	5149	6562	8042	11207	14706
50	348	375	717	771	1209	1972	2489	3812	5192	6620	8115	11311	14838
51	351	378	723	777	1218	1987	2509	3844	5237	6679	8189	11417	14971
52	353	381	729	783	1228	2003	2530	3877	5283	6740	8265	11525	15107
53	356	384	734	789	1237	2020	2551	3911	5330	6803	8343	11634	15244
54	359	387	741	796	1248	2037	2572	3946	5378	6867	8423	11745	15384
55	362	390	747	802	1258	2054	2595	3982	5428	6932	8504	11859	15526
56	365	394	753	809	1269	2072	2618	4019	5480	6999	8587	11974	15671
57	368	397	760	816	1280	2091	2642	4057	5532	7068	8672	12092	15818
58	372	401	767	824	1292	2110	2667	4096	5587	7139	8759	12211	15967
59	375	404	774	831	1304	2130	2692	4137	5642	7211	8848	12334	16120
60	378	408	781	839	1316	2151	2718	4178	5700	7286	8939	12459	16276
61	382	412	788	847	1329	2172	2745	4221	5759	7362	9033	12586	16435
62	386	416	796	856	1342	2194	2773	4265	5819	7441	9129	12717	16597
63	389	420	804	864	1356	2216	2802	4311	5882	7521	9227	12851	16763
64	393	424	812	873	1370	2240	2832	4358	5947	7604	9328	12988	16933
65	397	428	821	882	1385	2264	2863	4406	6013	7689	9432	13128	17107
66	401	433	830	891	1400	2289	2895	4456	6082	7777	9540	13272	17286
67	406	438	839	901	1415	2315	2928	4508	6153	7868	9650	13421	17470
68	410	442	848	911	1431	2342	2962	4561	6226	7962	9764	13574	17659
69	415	447	858	922	1448	2369	2998	4617	6302	8059	9881	13731	17854
70	420	452	868	933	1466	2398	3034	4674	6381	8159	10003	13894	18055
71	425	458	878	944	1484	2428	3073	4734	6462	8263	10128	14062	18263
72	430	463	889	956	1503	2460	3113	4796	6547	8370	10259	14236	18478
73	435	469	900	968	1522	2492	3154	4861	6635	8483	10394	14417	18701
74	441	475	912	981	1543	2526	3197	4928	6727	8599	10535	14604	18933
75	447	482	925	994	1564	2562	3243	4999	6823	8721	10682	14800	19174
76	453	488	938	1008	1587	2599	3290	5073	6924	8848	10836	15004	19426
77	459	495	951	1023	1611	2638	3340	5150	7029	8981	10997	15218	19689
78	466	502	965	1038	1635	2679	3392	5231	7140	9121	11166	15442	19965
79	473	510	980	1054	1662	2723	3448	5317	7257	9269	11343	15677	20256
80	481	518	996	1071	1689	2769	3506	5407	7380	9424	11531	15926	20562
81	489	527	1013	1090	1719	2817	3568	5503	7510	9589	11729	16188	20886
82	497	536	1031	1109	1750	2869	3634	5605	7649	9764	11940	16468	21230
83	506	546	1050	1130	1783	2924	3704	5714	7797	9950	12164	16765	21597
84	516	556	1071	1152	1819	2983	3779	5830	7955	10150	12405	17084	21989
85	526	568	1093	1176	1858	3047	3860	5955	8125	10365	12663	17426	22412
86	538	580	1117	1201	1899	3116	3948	6091	8309	10597	12943	17797	22868
87	550	593	1143	1229	1945	3190	4043	6238	8510	10850	13247	18200	23365
88	563	607	1171	1260	1994	3272	4147	6399	8729	11126	13581	18642	23909
89	578	624	1202	1294	2049	3363	4262	6577	8971	11431	13948	19129	24511
90	595	641	1237	1332	2110	3464	4390	6776	9241	11771	14358	19672	25180
91	614	661	1277	1374	2179	3577	4534	6998	9544	12154	14818	20284	25935
92	635	684	1321	1422	2257	3706	4698	7252	9889	12589	15344	20982	26795
93	659	711	1373	1478	2347	3855	4888	7546	10288	13093	15951	21789	27791
94	688	742	1434	1544	2453	4031	5111	7891	10758	13687	16668	22743	28968
95	723	780	1508	1623	2581	4242	5381	8309	11326	14405	17534	23895	30391
96	767	827	1599	1722	2741	4506	5716	8828	12033	15299	18613	25334	32168
97	823	888	1718	1851	2948	4849	6152	9503	12953	16463	20019	27210	34485
98	902	972	1884	2029	3235	5323	6756	10440	14228	18077	21971	29816	37705
99	1023	1102	2137	2303	3676	6051	7682	11877	16186	20559	24972	33829	42667
100	1248	1345	2611	2814	4498	7410	9411	14561	19845	25202	30590	41351	51970

WALK EVENT AGE FACTORS

MEN'S

AGE	1500	1 MI	3000	2 MI	5K	8K	10K	15K	20K	25K	30K	40K	50K
5	0.645	0.644	0.629	0.627	0.624	0.608	0.599	0.577	0.564	0.550	0.542	0.532	0.534
6	0.698	0.697	0.682	0.680	0.678	0.661	0.651	0.629	0.614	0.600	0.590	0.579	0.579
7	0.744	0.742	0.728	0.726	0.724	0.708	0.698	0.675	0.660	0.644	0.634	0.620	0.619
8	0.783	0.782	0.767	0.766	0.765	0.748	0.738	0.716	0.700	0.684	0.674	0.658	0.655
9	0.817	0.816	0.802	0.801	0.800	0.784	0.774	0.752	0.737	0.721	0.710	0.693	0.689
10	0.847	0.846	0.833	0.832	0.831	0.816	0.807	0.785	0.770	0.754	0.743	0.725	0.719
11	0.873	0.872	0.860	0.858	0.858	0.844	0.835	0.815	0.800	0.785	0.773	0.755	0.748
12	0.895	0.895	0.883	0.882	0.882	0.869	0.861	0.842	0.827	0.813	0.801	0.783	0.775
13	0.915	0.914	0.904	0.903	0.903	0.891	0.883	0.866	0.852	0.839	0.827	0.809	0.800
14	0.932	0.931	0.922	0.921	0.922	0.910	0.903	0.888	0.875	0.862	0.852	0.834	0.823
15	0.946	0.946	0.938	0.936	0.938	0.928	0.921	0.907	0.895	0.884	0.874	0.856	0.845
16	0.959	0.959	0.951	0.950	0.952	0.943	0.937	0.925	0.914	0.904	0.895	0.878	0.866
17	0.969	0.970	0.963	0.962	0.964	0.956	0.951	0.941	0.930	0.922	0.914	0.898	0.885
18	0.978	0.979	0.973	0.972	0.974	0.967	0.963	0.955	0.945	0.939	0.931	0.917	0.903
19	0.986	0.987	0.982	0.981	0.983	0.977	0.973	0.967	0.959	0.954	0.947	0.934	0.920
OC	1.000	1.000	1.000	1.000	1.000		1.000	1.000	1.000	1.000			1.000
30	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
31	0.998	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
32	0.995	0.997	1.000	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
33	0.992	0.994	0.996	0.996	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
34	0.988	0.990	0.993	0.993	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
35	0.984	0.985	0.989	0.989	0.996	0.998	0.999	1.000	1.000	1.000	1.000	1.000	1.000
36	0.979	0.981	0.984	0.984	0.992	0.994	0.995	1.000	1.000	1.000	1.000	1.000	1.000
37	0.975	0.976	0.980	0.980	0.988	0.990	0.991	0.996	1.000	1.000	1.000	1.000	1.000
38	0.970	0.971	0.975	0.975	0.984	0.986	0.986	0.991	0.991	0.996	0.999	1.000	0.993
39	0.964	0.966	0.970	0.970	0.979	0.981	0.981	0.985	0.985	0.990	0.991	0.993	0.985
40	0.959	0.961	0.965	0.965	0.974	0.976	0.976	0.979	0.979	0.983	0.984	0.985	0.977
41	0.953	0.955	0.959	0.959	0.969	0.970	0.971	0.973	0.973	0.976	0.977	0.977	0.969
42	0.948	0.949	0.953	0.954	0.963	0.965	0.965	0.967	0.966	0.969	0.969	0.968	0.961
43	0.942	0.943	0.947	0.948	0.958	0.959	0.959	0.961	0.959	0.961	0.961	0.960	0.953
44	0.936	0.937	0.941	0.942	0.952	0.953	0.953	0.954	0.952	0.954	0.953	0.952	0.945
45	0.930	0.931	0.935	0.936	0.946	0.947	0.947	0.947	0.945	0.946	0.945	0.943	0.937
46	0.923	0.925	0.929	0.929	0.939	0.941	0.940	0.940	0.938	0.939	0.937	0.935	0.928
47	0.917	0.918	0.922	0.923	0.933	0.934	0.934	0.933	0.931	0.931	0.929	0.926	0.920
48	0.910	0.912	0.916	0.916	0.926	0.927	0.927	0.926	0.923	0.923	0.921	0.918	0.912
49	0.904	0.905	0.909	0.909	0.920	0.921	0.920	0.919	0.916	0.915	0.913	0.910	0.904
50	0.897	0.898	0.902	0.903	0.913	0.914	0.913	0.911	0.908	0.907	0.905	0.901	0.896
51	0.890	0.891	0.895	0.896	0.906	0.906	0.906	0.904	0.900	0.899	0.897	0.893	0.888
52	0.883	0.884	0.888	0.889	0.899	0.899	0.898	0.896	0.893	0.891	0.888	0.885	0.880
53	0.876	0.877	0.881	0.881	0.892	0.892	0.891	0.888	0.885	0.883	0.880	0.876	0.872
54	0.869	0.870	0.874	0.874	0.884	0.885	0.883	0.880	0.877	0.874	0.872	0.868	0.864
55	0.862	0.863	0.866	0.867	0.877	0.877	0.876	0.872	0.869	0.866	0.864	0.860	0.857
56	0.855	0.856	0.859	0.859	0.870	0.869	0.868	0.864	0.860	0.858	0.855	0.851	0.849
57	0.847	0.848	0.852	0.852	0.862	0.862	0.860	0.856	0.852	0.849	0.847	0.843	0.841
58	0.840	0.841	0.844	0.844	0.854	0.854	0.852	0.848	0.844	0.841	0.838	0.835	0.833
59	0.832	0.833	0.836	0.837	0.846	0.846	0.844	0.840	0.836	0.832	0.830	0.827	0.825
60	0.825	0.826	0.829	0.829	0.838	0.838	0.836	0.831	0.827	0.824	0.821	0.818	0.817
61	0.817	0.818	0.821	0.821	0.830	0.829	0.828	0.823	0.819	0.815	0.813	0.810	0.809
62	0.809	0.810	0.813	0.813	0.822	0.821	0.819	0.814	0.810	0.807	0.804	0.802	0.801
63	0.801	0.802	0.805	0.805	0.814	0.813	0.811	0.806	0.802	0.798	0.796	0.793	0.793
64	0.793	0.794	0.797	0.797	0.805	0.804	0.802	0.797	0.793	0.790	0.787	0.785	0.785
65	0.785	0.786	0.788	0.789	0.797	0.796	0.794	0.788	0.784	0.781	0.779	0.777	0.777
66	0.777	0.778	0.780	0.780	0.788	0.787	0.785	0.780	0.775	0.772	0.770	0.768	0.769
67	0.769	0.770	0.772	0.772	0.780	0.778	0.776	0.771	0.766	0.763	0.761	0.760	0.761
68	0.761	0.762	0.763	0.763	0.771	0.769	0.767	0.762	0.757	0.754	0.752	0.751	0.753
69	0.752	0.753	0.755	0.755	0.762	0.760	0.758	0.752	0.748	0.745	0.743	0.743	0.745
70	0.744	0.745	0.746	0.746	0.753	0.751	0.749	0.743	0.739	0.736	0.734	0.734	0.737
71	0.735	0.736	0.737	0.737	0.744	0.742	0.740	0.734	0.730	0.727	0.725	0.725	0.728
72	0.726	0.727	0.728	0.728	0.734	0.732	0.730	0.724	0.720	0.717	0.716	0.716	0.720
73	0.717	0.718	0.719	0.719	0.725	0.723	0.721	0.715	0.711	0.708	0.707	0.707	0.711
74	0.708	0.709	0.709	0.709	0.715	0.713	0.711	0.705	0.701	0.698	0.697	0.698	0.702
75	0.699	0.700	0.700	0.700	0.705	0.703	0.701	0.695	0.691	0.688	0.687	0.689	0.694
76	0.689	0.690	0.690	0.690	0.695	0.693	0.691	0.685	0.681	0.678	0.678	0.680	0.685
77	0.680	0.680	0.680	0.680	0.685	0.683	0.680	0.675	0.671	0.668	0.668	0.670	0.675
78	0.670	0.671	0.670	0.670	0.675	0.672	0.670	0.664	0.660	0.658	0.658	0.660	0.666
79	0.660	0.660	0.660	0.660	0.664	0.662	0.659	0.653	0.650	0.648	0.647	0.650	0.657
80	0.649	0.650	0.650	0.649	0.653	0.651	0.648	0.642	0.639	0.637	0.637	0.640	0.647
81	0.639	0.639	0.639	0.638	0.642	0.640	0.637	0.631	0.628	0.626	0.626	0.630	0.637
82	0.628	0.629	0.628	0.627	0.631	0.628	0.625	0.620	0.616	0.615	0.615	0.619	0.626
83	0.616	0.617	0.616	0.616	0.619	0.616	0.614	0.608	0.605	0.603	0.604	0.608	0.616
84	0.605	0.606	0.604	0.604	0.607	0.604	0.601	0.596	0.593	0.591	0.592	0.597	0.605
85	0.593	0.594	0.592	0.592	0.594	0.591	0.589	0.583	0.580	0.579	0.580	0.585	0.593
86	0.580	0.581	0.580	0.579	0.581	0.578	0.576	0.570	0.567	0.567	0.567	0.573	0.582
87	0.567	0.568	0.566	0.566	0.567	0.565	0.562	0.557	0.554	0.553	0.554	0.560	0.569
88	0.554	0.555	0.553	0.552	0.553	0.551	0.548	0.543	0.540	0.540	0.541	0.547	0.556
89	0.539	0.540	0.538	0.538	0.539	0.536	0.533	0.528	0.526	0.525	0.526	0.533	0.543
90	0.524	0.525	0.523	0.522	0.523	0.520	0.518	0.513	0.510	0.510	0.511	0.518	0.528
91	0.509	0.509	0.507	0.506	0.507	0.504	0.501	0.496	0.494	0.494	0.496	0.503	0.513
92	0.492	0.492	0.490	0.489	0.489	0.486	0.484	0.479	0.477	0.477	0.479	0.486	0.496
93	0.473	0.474	0.471	0.471	0.470	0.467	0.465	0.460	0.458	0.459	0.460	0.468	0.479
94	0.453	0.454	0.451	0.450	0.450	0.447	0.445	0.440	0.438	0.439	0.441	0.448	0.459
95	0.431	0.432	0.429	0.428	0.428	0.425	0.422	0.418	0.416	0.417	0.419	0.427	0.438
96	0.407	0.408	0.405	0.404	0.403	0.400	0.398	0.393	0.392	0.392	0.395	0.402	0.413
97	0.379	0.380	0.377	0.376	0.374	0.372	0.369	0.366	0.364	0.365	0.367	0.375	0.386
98	0.346	0.347	0.344	0.343	0.341	0.338	0.336	0.333	0.331	0.332	0.334	0.342	0.353
99	0.305	0.306	0.303	0.302	0.300	0.298	0.296	0.292	0.291	0.292	0.294	0.301	0.312
100	0.250	0.250	0.248	0.247	0.245	0.243	0.241	0.239	0.238	0.238	0.240	0.247	0.256

WOMEN'S

AGE	1500	1 MI	3000	2 MI	5K	8K	10K	15K	20K	25K	30K	40K	50K
5	0.554	0.553	0.532	0.530	0.522	0.517	0.512	0.499	0.489	0.480	0.473	0.464	0.458
6	0.621	0.619	0.597	0.594	0.587	0.581	0.575	0.561	0.549	0.540	0.532	0.522	0.515
7	0.679	0.678	0.655	0.652	0.645	0.638	0.632	0.618	0.605	0.595	0.587	0.575	0.568
8	0.731	0.730	0.706	0.704	0.697	0.690	0.684	0.669	0.656	0.646	0.637	0.625	0.617
9	0.777	0.775	0.753	0.750	0.744	0.736	0.730	0.715	0.702	0.692	0.683	0.670	0.662
10	0.817	0.815	0.793	0.791	0.785	0.778	0.772	0.757	0.745	0.734	0.725	0.713	0.704
11	0.851	0.850	0.829	0.827	0.822	0.814	0.809	0.795	0.782	0.772	0.764	0.751	0.743
12	0.881	0.879	0.861	0.859	0.854	0.847	0.841	0.828	0.816	0.807	0.799	0.786	0.778
13	0.906	0.905	0.888	0.886	0.881	0.875	0.870	0.857	0.847	0.838	0.830	0.818	0.810
14	0.928	0.926	0.911	0.910	0.905	0.899	0.895	0.883	0.874	0.865	0.858	0.847	0.839
15	0.946	0.945	0.931	0.930	0.926	0.920	0.916	0.906	0.897	0.889	0.883	0.872	0.865
16	0.961	0.960	0.948	0.947	0.944	0.938	0.934	0.926	0.918	0.911	0.905	0.895	0.888
17	0.973	0.972	0.962	0.962	0.958	0.953	0.950	0.942	0.936	0.930	0.924	0.915	0.909
18	0.983	0.982	0.974	0.974	0.971	0.966	0.963	0.957	0.951	0.946	0.941	0.933	0.927
19	0.991	0.990	0.984	0.983	0.981	0.976	0.974	0.969	0.964	0.960	0.956	0.949	0.943
OC	1.000	1.000	1.000	1.000	1.000		1.000	1.000	1.000	1.000			1.000
30	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
31	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
32	1.000	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
33	0.997	0.996	0.999	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
34	0.993	0.992	0.995	0.996	0.998	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
35	0.988	0.988	0.991	0.992	0.995	0.997	0.998	1.000	1.000	1.000	1.000	1.000	1.000
36	0.983	0.983	0.986	0.987	0.991	0.993	0.994	0.997	0.999	1.000	1.000	1.000	1.000
37	0.978	0.978	0.981	0.982	0.986	0.989	0.990	0.993	0.995	0.996	0.997	0.998	0.999
38	0.972	0.972	0.976	0.976	0.981	0.984	0.986	0.989	0.991	0.992	0.993	0.994	0.994
39	0.966	0.966	0.970	0.970	0.976	0.979	0.981	0.984	0.986	0.987	0.988	0.989	0.990
40	0.959	0.960	0.963	0.964	0.970	0.974	0.976	0.979	0.981	0.982	0.983	0.984	0.984
41	0.953	0.953	0.956	0.957	0.963	0.968	0.970	0.973	0.975	0.976	0.977	0.978	0.979
42	0.945	0.946	0.949	0.950	0.956	0.962	0.964	0.967	0.969	0.970	0.971	0.972	0.972
43	0.938	0.938	0.941	0.942	0.949	0.955	0.957	0.960	0.962	0.963	0.964	0.965	0.966
44	0.930	0.930	0.934	0.934	0.942	0.948	0.950	0.953	0.955	0.956	0.957	0.958	0.959
45	0.922	0.922	0.925	0.926	0.934	0.941	0.943	0.946	0.948	0.949	0.949	0.950	0.951
46	0.913	0.914	0.917	0.918	0.926	0.933	0.935	0.938	0.940	0.941	0.941	0.942	0.943
47	0.904	0.905	0.908	0.909	0.917	0.925	0.927	0.930	0.932	0.933	0.933	0.934	0.935
48	0.895	0.896	0.899	0.900	0.909	0.916	0.919	0.922	0.923	0.924	0.924	0.925	0.926
49	0.886	0.887	0.890	0.891	0.900	0.908	0.910	0.913	0.915	0.915	0.916	0.916	0.917
50	0.877	0.878	0.881	0.881	0.890	0.899	0.901	0.904	0.906	0.906	0.906	0.907	0.908
51	0.867	0.868	0.871	0.872	0.881	0.889	0.892	0.895	0.896	0.897	0.897	0.898	0.899
52	0.858	0.858	0.862	0.862	0.871	0.880	0.883	0.886	0.887	0.887	0.887	0.888	0.889
53	0.848	0.849	0.852	0.852	0.861	0.870	0.873	0.876	0.877	0.877	0.877	0.878	0.879
54	0.838	0.839	0.842	0.842	0.851	0.860	0.863	0.866	0.867	0.867	0.867	0.868	0.869
55	0.828	0.829	0.832	0.832	0.841	0.850	0.853	0.856	0.857	0.857	0.857	0.857	0.858
56	0.818	0.818	0.821	0.822	0.831	0.840	0.843	0.846	0.846	0.846	0.846	0.847	0.848
57	0.807	0.808	0.811	0.811	0.820	0.830	0.832	0.835	0.836	0.836	0.836	0.836	0.837
58	0.797	0.798	0.800	0.801	0.809	0.819	0.822	0.824	0.825	0.825	0.825	0.825	0.826
59	0.786	0.787	0.790	0.790	0.799	0.808	0.811	0.814	0.814	0.814	0.814	0.814	0.815
60	0.776	0.776	0.779	0.779	0.788	0.797	0.800	0.803	0.803	0.803	0.803	0.803	0.804
61	0.765	0.766	0.768	0.769	0.777	0.786	0.789	0.792	0.792	0.792	0.791	0.791	0.791
62	0.754	0.755	0.757	0.758	0.765	0.775	0.778	0.780	0.781	0.780	0.780	0.780	0.781
63	0.743	0.744	0.746	0.747	0.754	0.764	0.767	0.769	0.769	0.769	0.768	0.768	0.770
64	0.733	0.733	0.735	0.736	0.743	0.753	0.755	0.758	0.758	0.757	0.757	0.757	0.758
65	0.722	0.722	0.724	0.725	0.732	0.741	0.744	0.746	0.746	0.746	0.745	0.745	0.746
66	0.711	0.711	0.713	0.713	0.720	0.730	0.732	0.734	0.734	0.734	0.733	0.733	0.733
67	0.699	0.700	0.702	0.702	0.709	0.718	0.721	0.723	0.723	0.722	0.722	0.722	0.722
68	0.688	0.689	0.691	0.691	0.697	0.706	0.709	0.711	0.711	0.710	0.710	0.710	0.711
69	0.677	0.678	0.679	0.680	0.686	0.695	0.697	0.699	0.699	0.698	0.698	0.698	0.699
70	0.666	0.666	0.668	0.668	0.674	0.683	0.685	0.687	0.687	0.686	0.686	0.686	0.687
71	0.655	0.655	0.657	0.657	0.662	0.671	0.673	0.675	0.675	0.674	0.674	0.674	0.674
72	0.643	0.644	0.645	0.645	0.650	0.659	0.661	0.663	0.663	0.662	0.662	0.661	0.661
73	0.632	0.632	0.634	0.634	0.638	0.647	0.649	0.651	0.651	0.650	0.649	0.649	0.649
74	0.620	0.621	0.622	0.622	0.626	0.635	0.637	0.639	0.638	0.638	0.637	0.637	0.637
75	0.609	0.609	0.610	0.611	0.614	0.623	0.625	0.626	0.626	0.625	0.625	0.624	0.625
76	0.597	0.597	0.599	0.599	0.602	0.610	0.613	0.614	0.614	0.613	0.612	0.612	0.613
77	0.585	0.586	0.587	0.587	0.590	0.598	0.600	0.601	0.601	0.600	0.600	0.600	0.600
78	0.574	0.574	0.575	0.575	0.578	0.586	0.588	0.589	0.588	0.588	0.587	0.587	0.587
79	0.562	0.562	0.563	0.563	0.566	0.573	0.575	0.576	0.576	0.575	0.575	0.574	0.574
80	0.550	0.550	0.551	0.551	0.553	0.561	0.562	0.564	0.563	0.562	0.562	0.562	0.563
81	0.538	0.538	0.539	0.539	0.541	0.548	0.550	0.551	0.550	0.550	0.549	0.549	0.550
82	0.526	0.526	0.527	0.527	0.528	0.535	0.537	0.538	0.537	0.537	0.536	0.536	0.537
83	0.514	0.514	0.514	0.515	0.516	0.522	0.524	0.525	0.524	0.524	0.523	0.523	0.523
84	0.501	0.501	0.502	0.502	0.503	0.509	0.511	0.512	0.511	0.510	0.510	0.510	0.510
85	0.489	0.489	0.489	0.489	0.490	0.496	0.497	0.498	0.498	0.497	0.497	0.496	0.496
86	0.476	0.476	0.476	0.477	0.477	0.482	0.484	0.485	0.484	0.484	0.483	0.483	0.484
87	0.463	0.463	0.463	0.464	0.463	0.469	0.470	0.471	0.471	0.470	0.470	0.469	0.470
88	0.450	0.450	0.450	0.450	0.450	0.455	0.456	0.457	0.457	0.456	0.456	0.455	0.455
89	0.436	0.436	0.437	0.437	0.436	0.441	0.442	0.443	0.442	0.442	0.442	0.441	0.441
90	0.422	0.422	0.423	0.423	0.422	0.427	0.428	0.428	0.428	0.428	0.427	0.427	0.427
91	0.408	0.408	0.409	0.409	0.407	0.412	0.413	0.414	0.413	0.413	0.412	0.412	0.413
92	0.394	0.394	0.394	0.394	0.393	0.397	0.398	0.399	0.398	0.398	0.397	0.397	0.398
93	0.379	0.379	0.379	0.379	0.377	0.381	0.382	0.383	0.383	0.382	0.382	0.382	0.382
94	0.363	0.363	0.364	0.364	0.362	0.365	0.366	0.367	0.366	0.366	0.366	0.366	0.366
95	0.347	0.347	0.347	0.347	0.345	0.349	0.350	0.350	0.350	0.349	0.349	0.349	0.349
96	0.330	0.330	0.330	0.330	0.328	0.331	0.332	0.333	0.332	0.332	0.332	0.332	0.332
97	0.312	0.312	0.313	0.313	0.310	0.313	0.314	0.314	0.314	0.313	0.313	0.313	0.314
98	0.293	0.293	0.293	0.293	0.291	0.293	0.294	0.294	0.294	0.294	0.294	0.294	0.294
99	0.273	0.273	0.273	0.273	0.270	0.272	0.273	0.273	0.273	0.273	0.273	0.273	0.273
100	0.250	0.250	0.250	0.250	0.247	0.249	0.250	0.250	0.250	0.250	0.250	0.250	0.250

						MEN											WOMEN				
AGE	1500	1 MI	3000	2 MI	5K	10K	15K	20K	25K	50K		AGE	1 MI	2 MI	5K	10K	15K	20K	25K	50K
5												5								
6												6								
7												7								
8	80											8								
9	82											9								
10	82											10								
11	80		82									11								
12	80		80									12								
13			92									13								
14			91									14								
15			92									15								
16												16								
17												17								
18												18								
19						100		100		100		19				99	99			
40				89	90	97	92	98	84	97		40	83	66	81	84	76	78	66	
41			89	86	93	96	88	95	84	99		41	85	79	85	87	76	80		72
42		83	87	90	89	95	95	97	79	98		42	82	78	86	84	82	82	78	94
43				93	91	87	86	93	81	94		43	78	78	84	88	76	78	81	73
44			85	87	88	95	88	97	87	98		44	83	82	83	84	80	83	82	95
45			86	87	91	89	93	91	85	98		45	84	83	83	83	82	82	80	97
46			87	84	90	95	95	98	81	99		46	87	85	85	84		83	72	75
47			88	84	89	96	89	96	89	100		47	88	87	87	88	82	85	81	99
48			91	87	94	90	88	90	81	94		48	84	81	86	84		83		
49				95	96	94	95	97	97	88		49	84	81	85	82	81	83	69	81
50			82	99	96	98	99	100	92	97		50	83	82	82	80	80	83		87
51			85	86	87	88	82	90	81	86		51	88	76	85	83	83	86	76	88
52				86	87	86	87	92	86	85		52	83	82	81	80	79	80	78	96
53			79	83	85	85	83	93	78	84		53	85	73	83	83	81	81	81	100
54			82	87	86	86	82	85	84	84		54	69	77	83	81	80	83		
55				93	92	88	90	89	86	86		55	86	73	84	83	86	82		
56			87	82	86	87	86	88	80	85		56	85	80	85	82	84	87	80	87
57			87	81	86	88	85	88	80	85		57	87	86	84	82	80	83	86	
58			87	88	88	89	88	90	85	86		58	88	83	83	89	77	81	83	78
59			89	84	89	89	88	89	79	92		59	83	82	80	80	75	74		
60			88	84	88	89	86	88	84	90		60	84	83	79	78	79	78	81	
61			79	79	87	89	81	92	82	83		61	93	85	87	88	82	81	84	
62				85	87	97	88	87	83	81		62	86	84	83	90	82	81	83	
63				90	80	93	90	94	94	89		63	89	85	85	83	83	85	88	
64				82	84	85	86	88	88			64	87	87	87	84	83	84	86	89
65			85	81	84	86	82	88	81	84		65	92	81	87	86	83	87	91	
66			77	81	91	86	86	87	79	83		66	85	83	87	84	79	80		
67			82	81	87	84	86	85	77	76		67	82	90	86	83	80	82		
68			81	84	90	86	80	85	79	75		68	81	77	97	98	81	83	85	
69			83	84	91	86	82	94	82	76		69	77	81	83	78	78	80		
70				85	85	93	94	89	90	89		70	80	63	97	97	79			
71				85	91	84	83	89	82	79		71	81	79	87	86	75			
72				84	86	85	87	89	79	86		72	82	88	100	100	78	79		
73				84	90	92	85	92	90	70		73	83	79	83	75	79			
74				85	92	95	86	95	73	74		74	99	93	82	74	81			
75				85	94	98	94	98	78	100		75	83	84	100	80	82	85		
76				79	92	83	89	96	64			76	80	79	86					
77				82	83	91	85	92	79			77	79	79	93	83				
78				83	92	79	86	91	90			78	65	64	91					
79				77	92	91	90	96				79	86	69	91					
80				79	92	82	84	99				80			96	74				
81			77	79	83	85		90				81			84	83				
82			74	80	90	91	83	84				82			100	66				
83				78	92	93		91				83								
84				79	81	75	64		71			84								
85				78	93			93	74			85			70					
86			75		95	78	70	93				86			90					
87					96	81						87								
88				57	95	82		94				88								
89												89								
90					100			100				90								
91												91								
92												92								
93												93								
94												94								
95												95								
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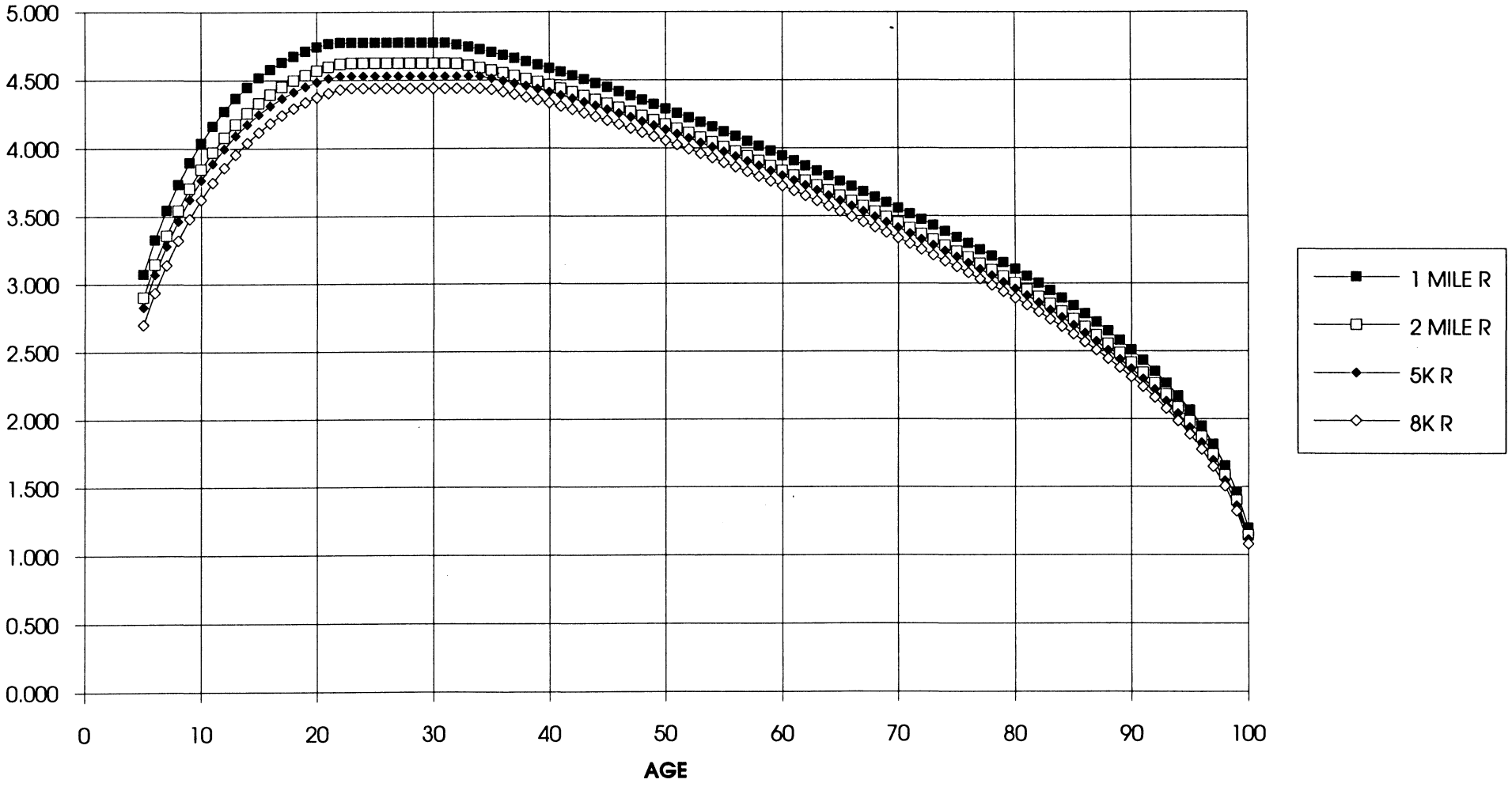
99												99								
100												100								

MENS WALK RATE IN METERS/SECOND



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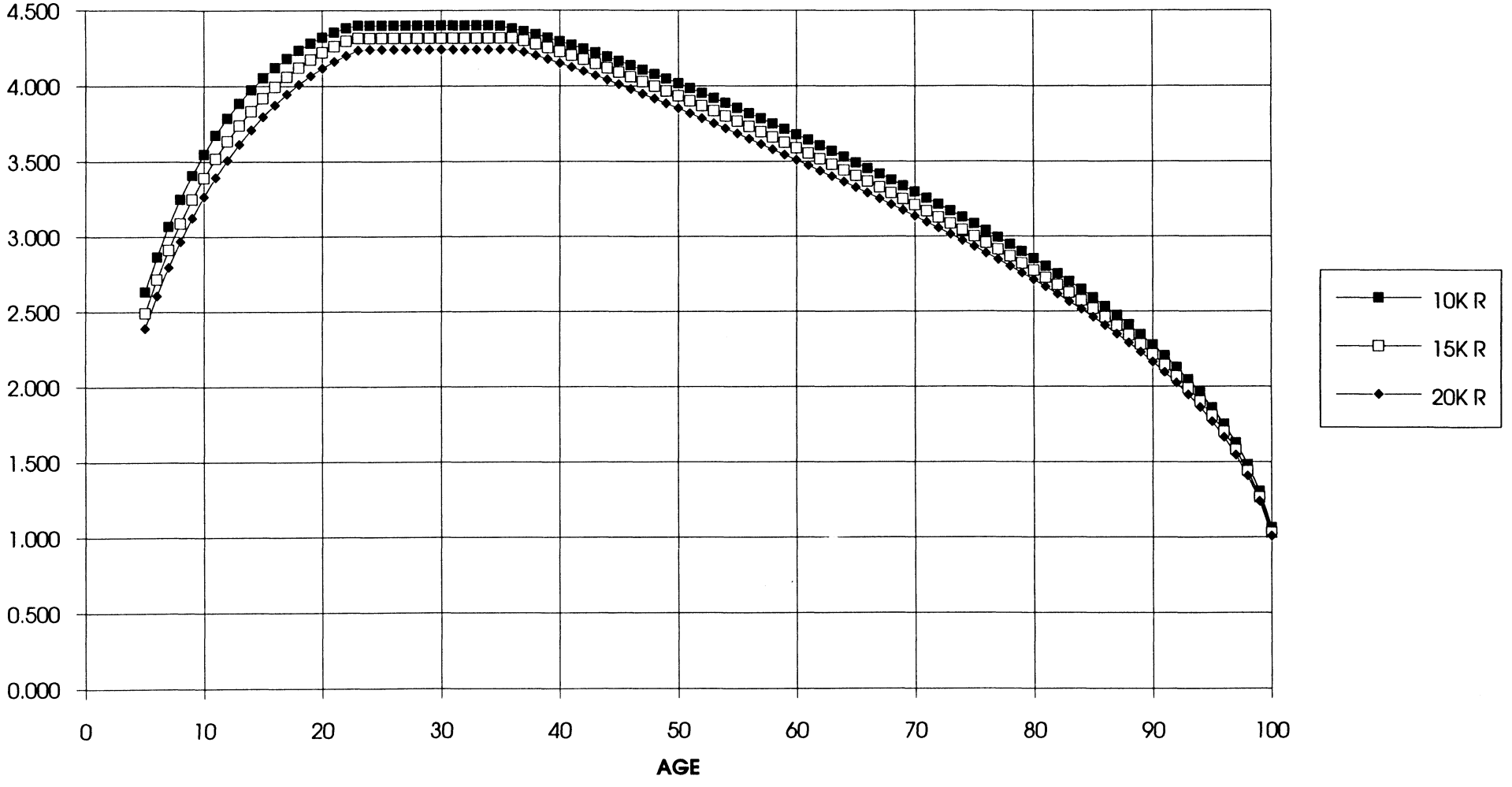

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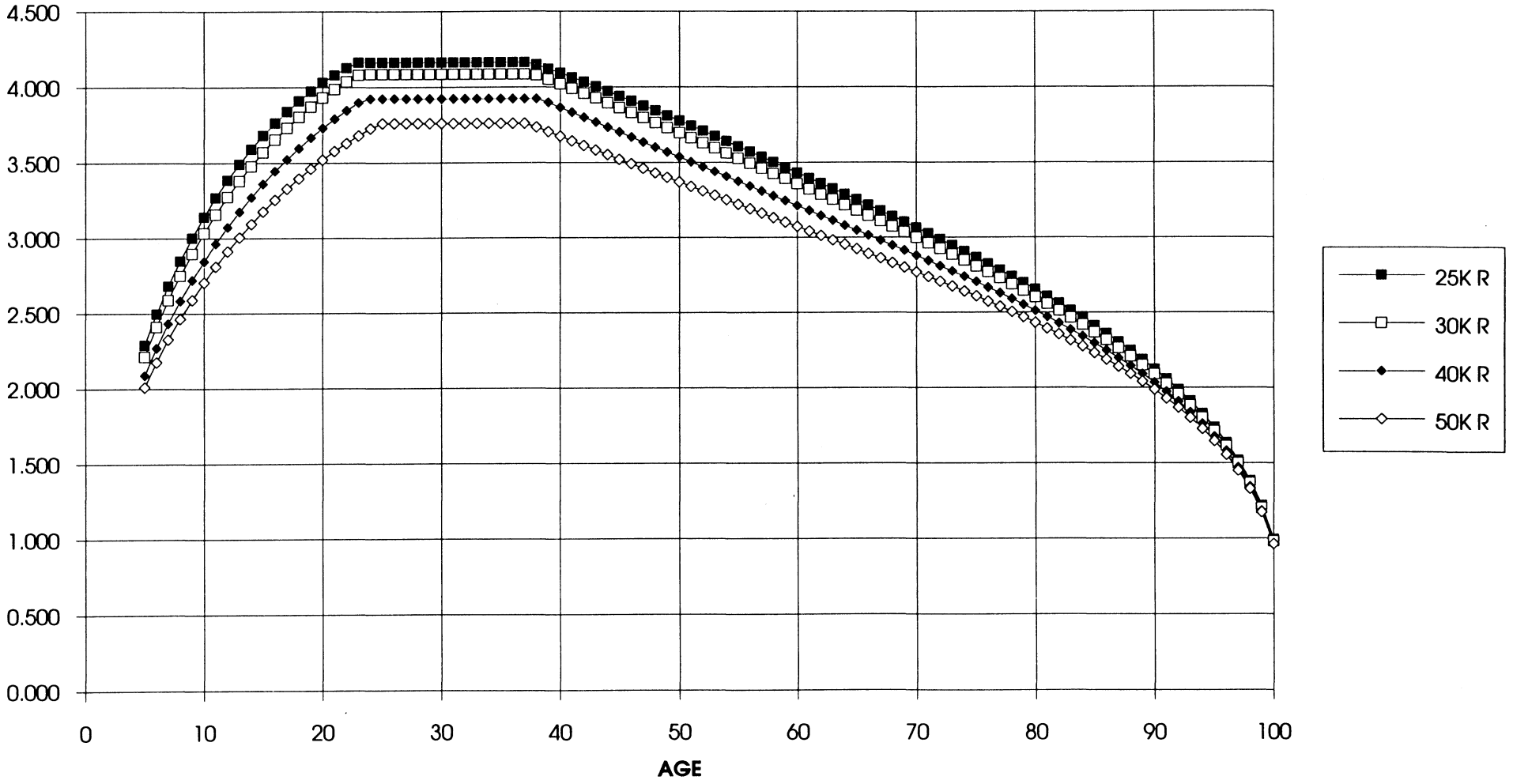

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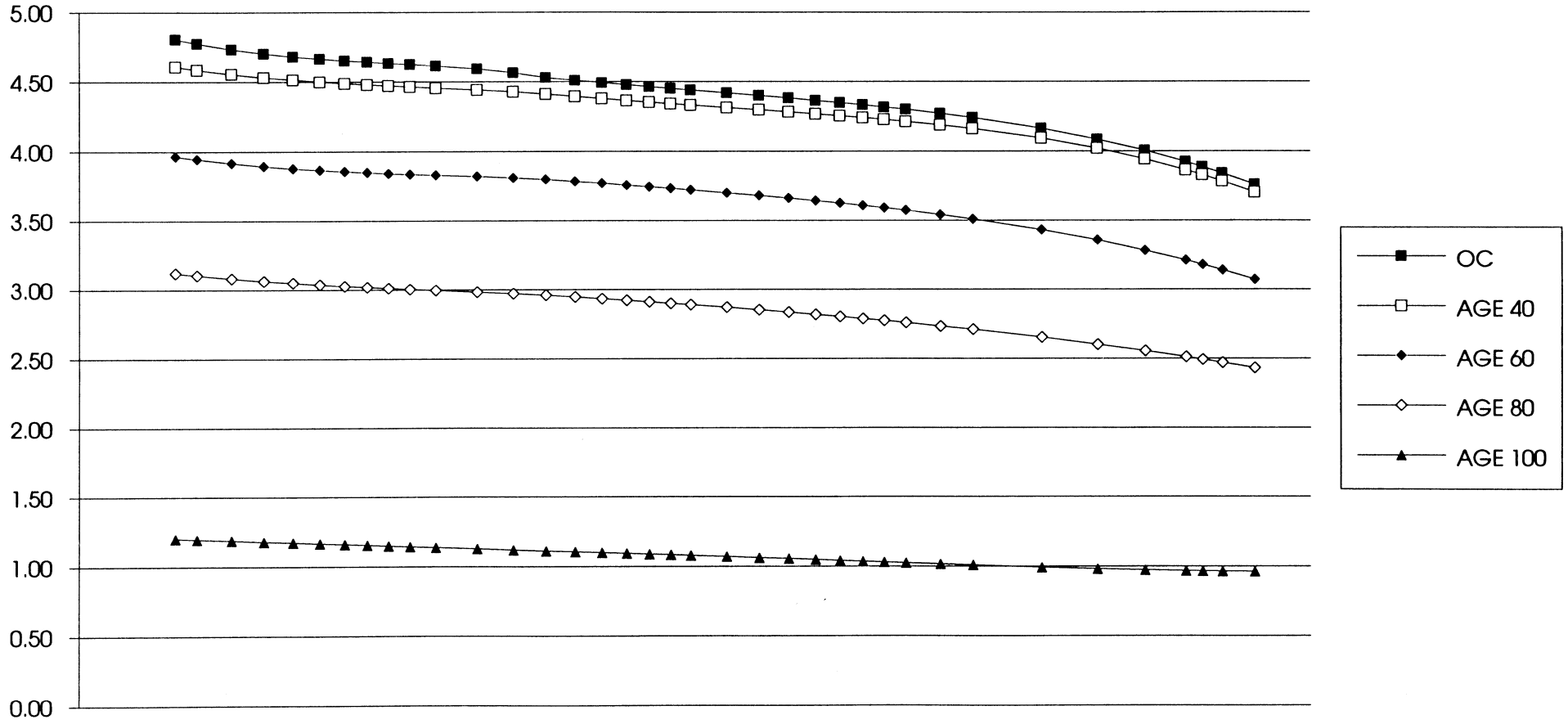
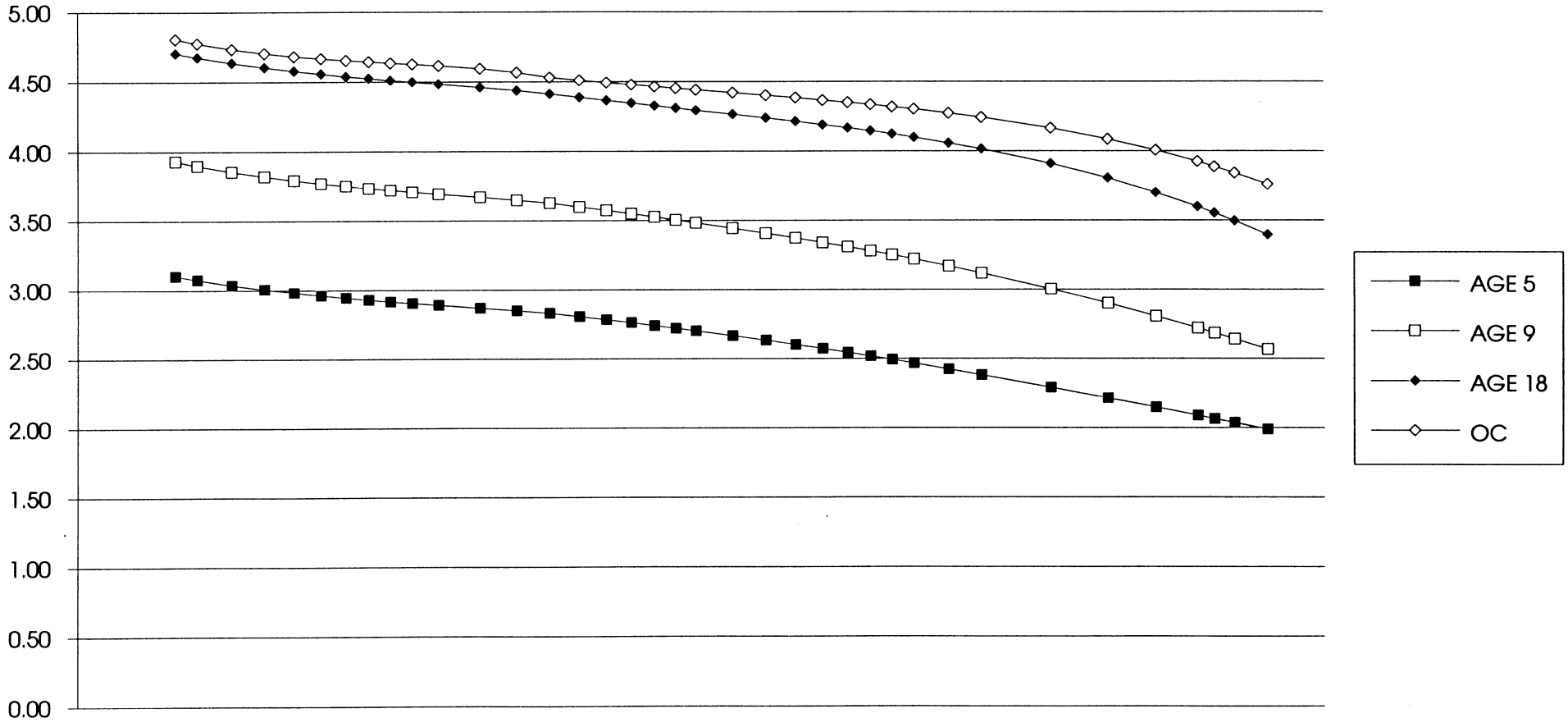


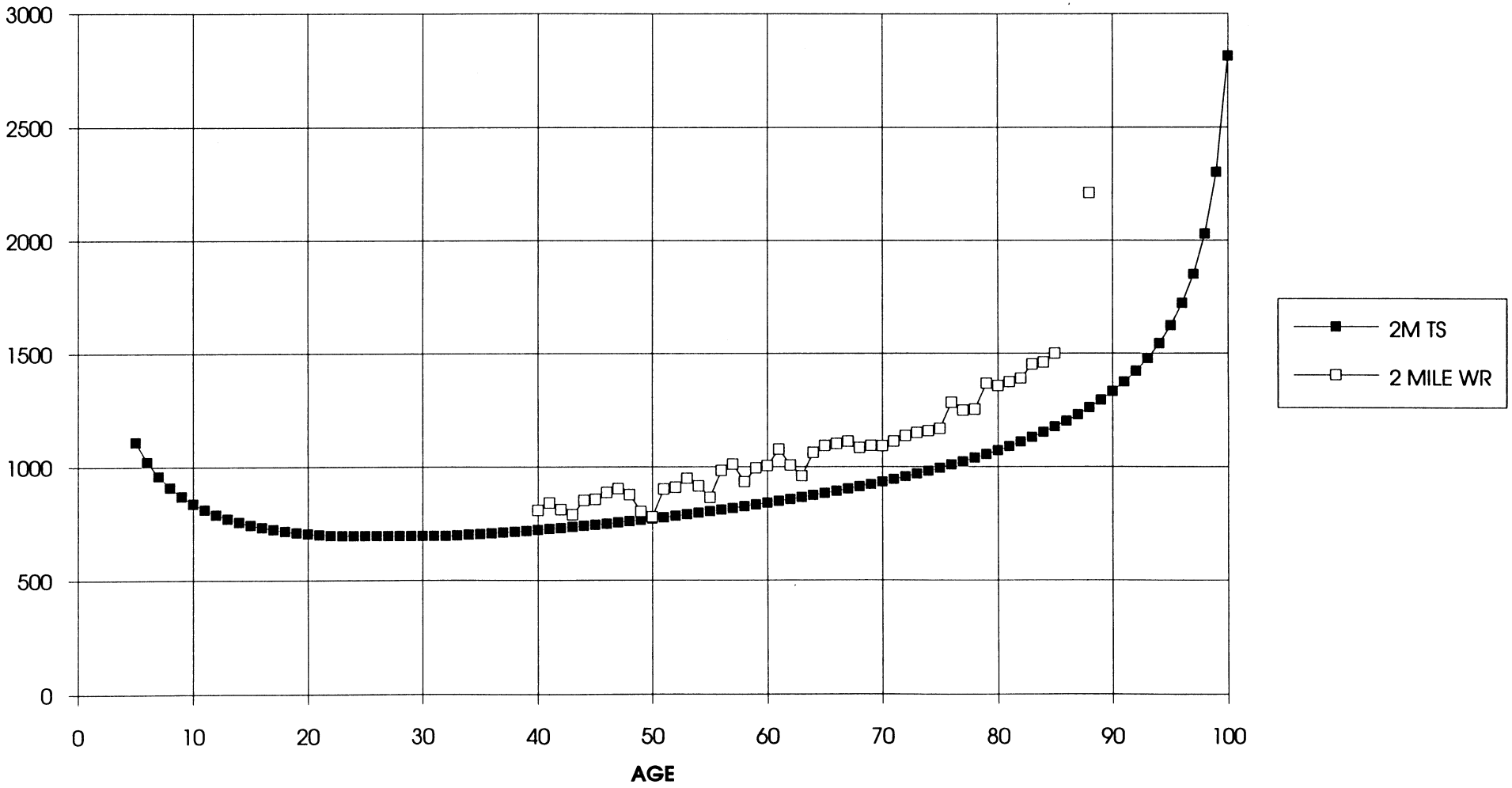
DISTANCES IN METERS : 1500, 1 MILE, 1800, 2000, 2200, 2400, 2600, 2800, 3000, 2 MILE, 3500, 4000, 4500, 5000, 5500, 6000, 6500, 7000, 7500, 8K, 9K, 10K, 11K, 12K, 13K, 14K, 15K, 10 MILE, 18K, 20K, 25K, 30K, 35K, 40K, 42195, 45K AND 50K

BOYS WALK RATE IN METERS/SECOND



DISTANCES IN METERS : 1500, 1 MILE, 1800, 2000, 2200, 2400, 2600, 2800, 3000, 2 MILE, 3500, 4000, 4500, 5000, 5500, 6000, 6500, 7000, 7500, 8K, 9K, 10K, 11K, 12K, 13K, 14K, 15K, 10 MILE, 18K, 20K, 25K, 30K, 35K, 40K, 42195, 45K AND 50K

MENS WALK TIME STANDARDS AND RECORDS IN SECONDS



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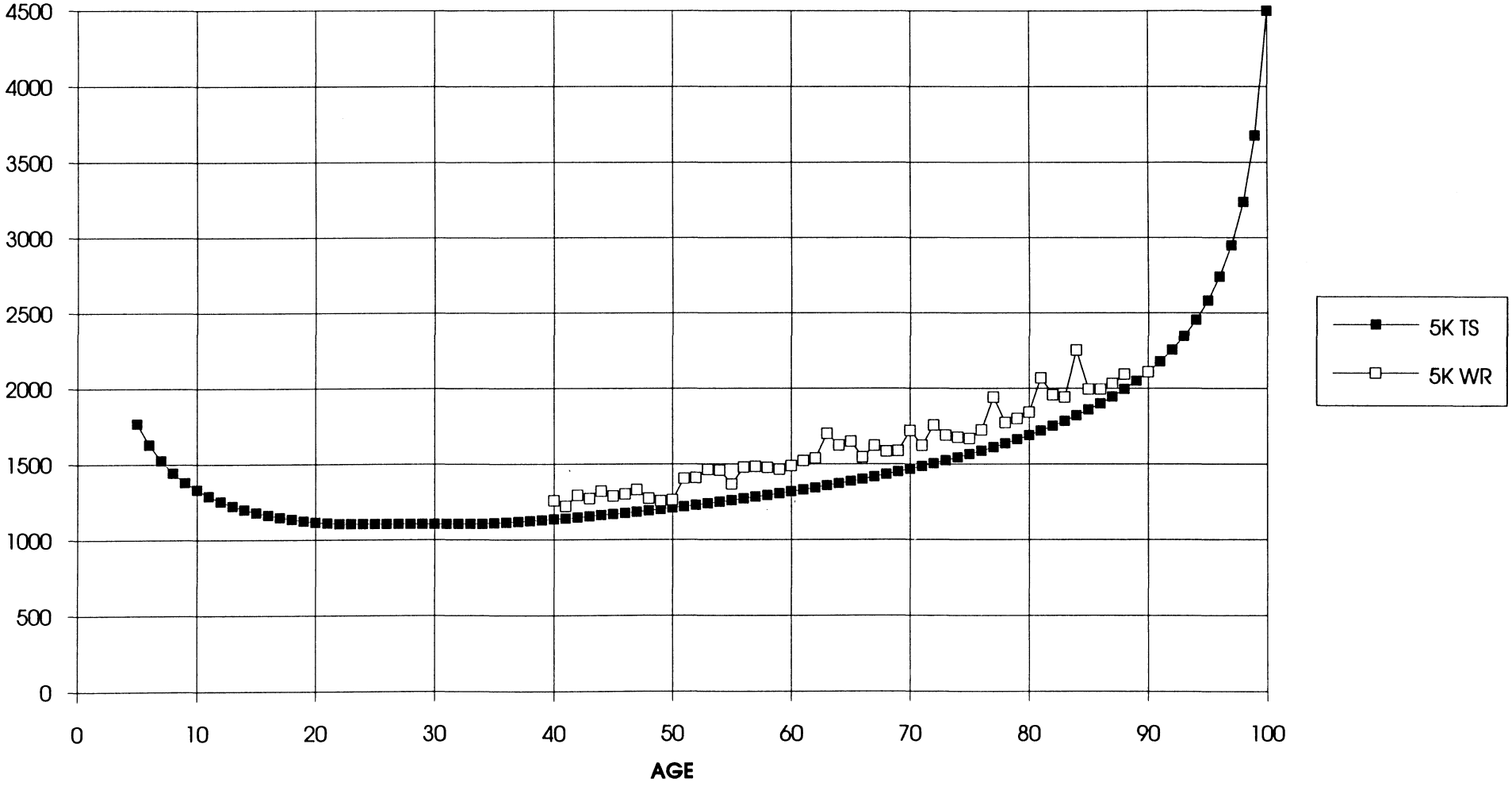

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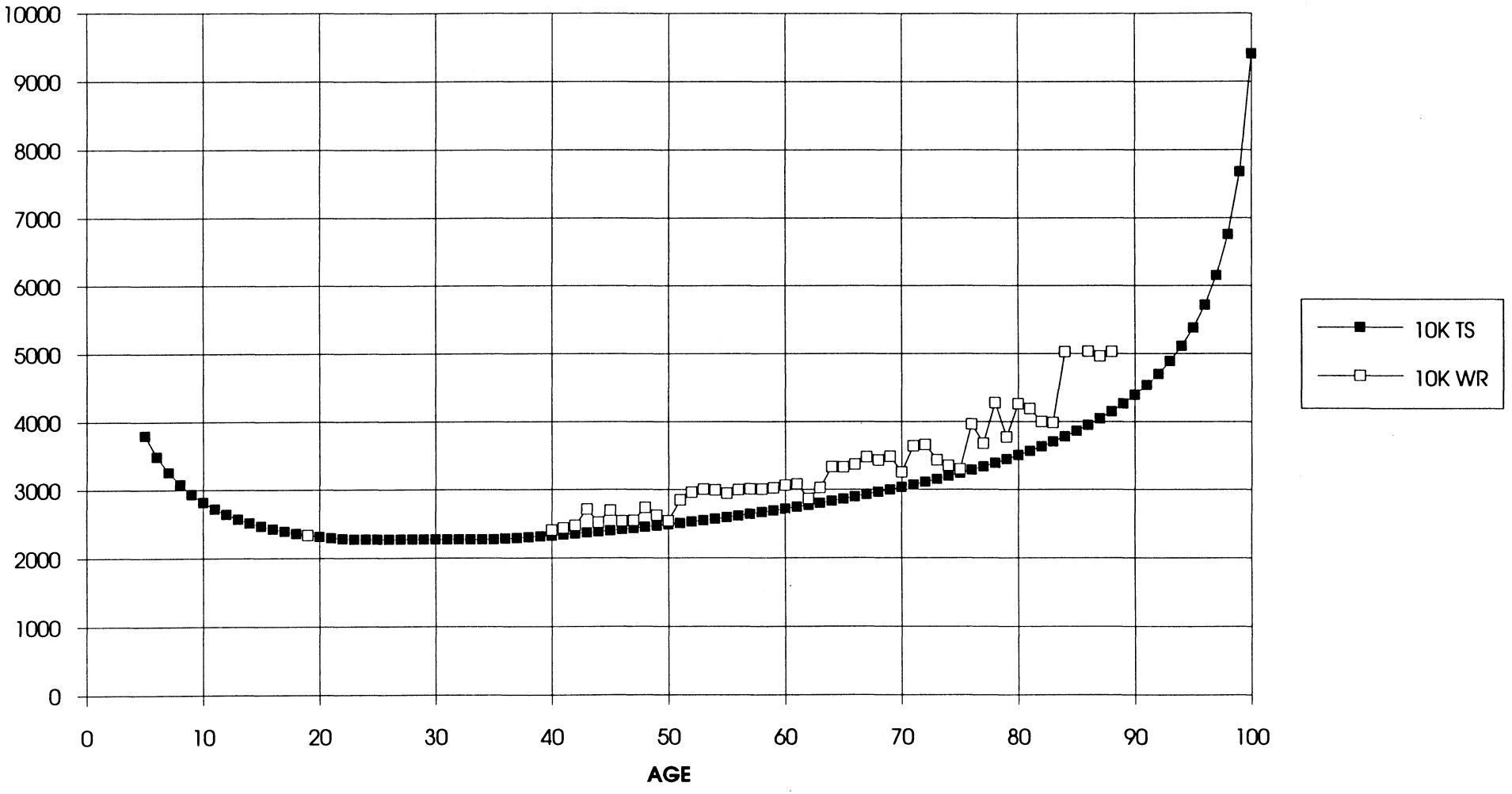
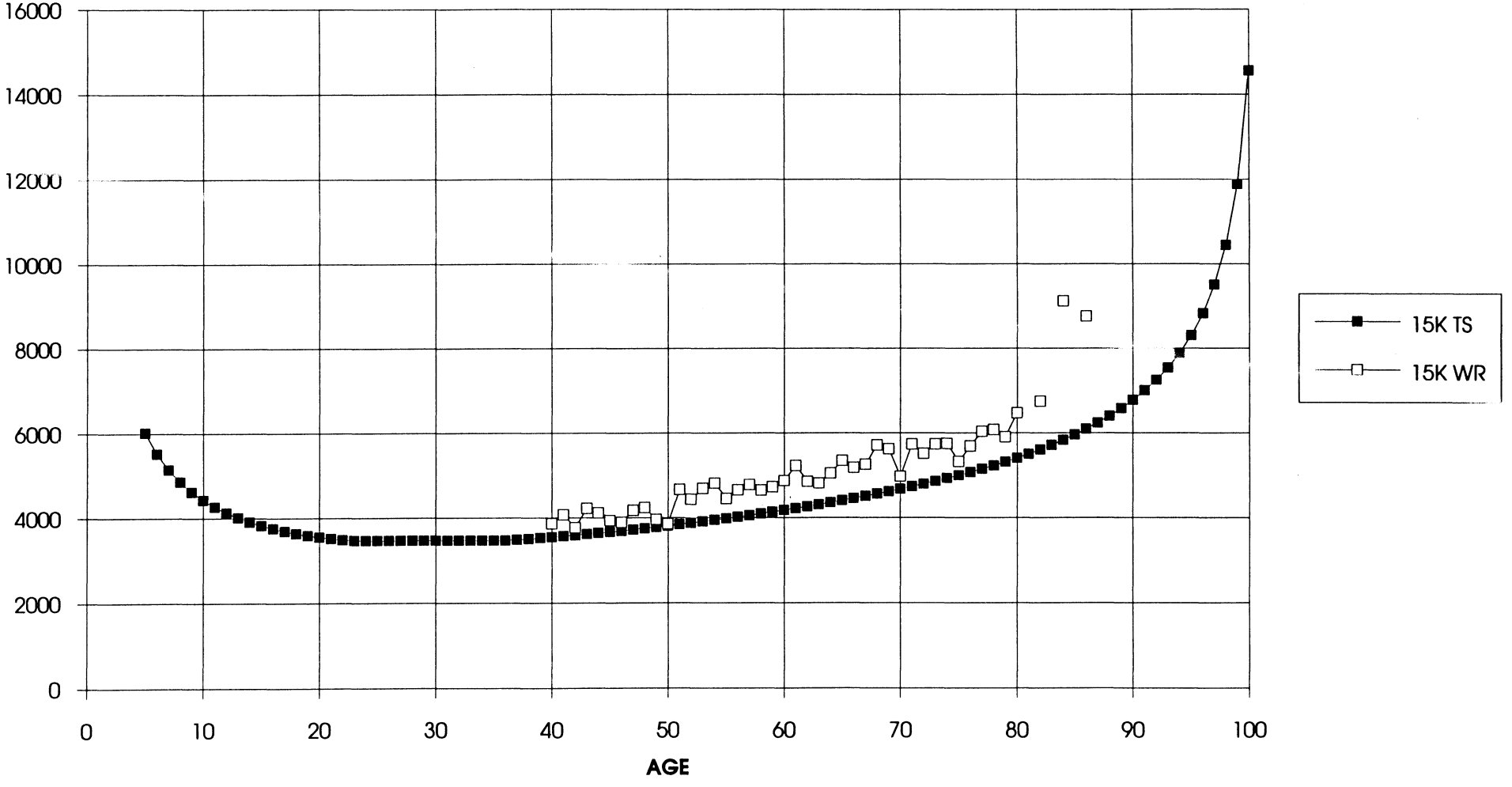


MENS WALK TIME STANDARDS AND RECORDS IN SECONDS



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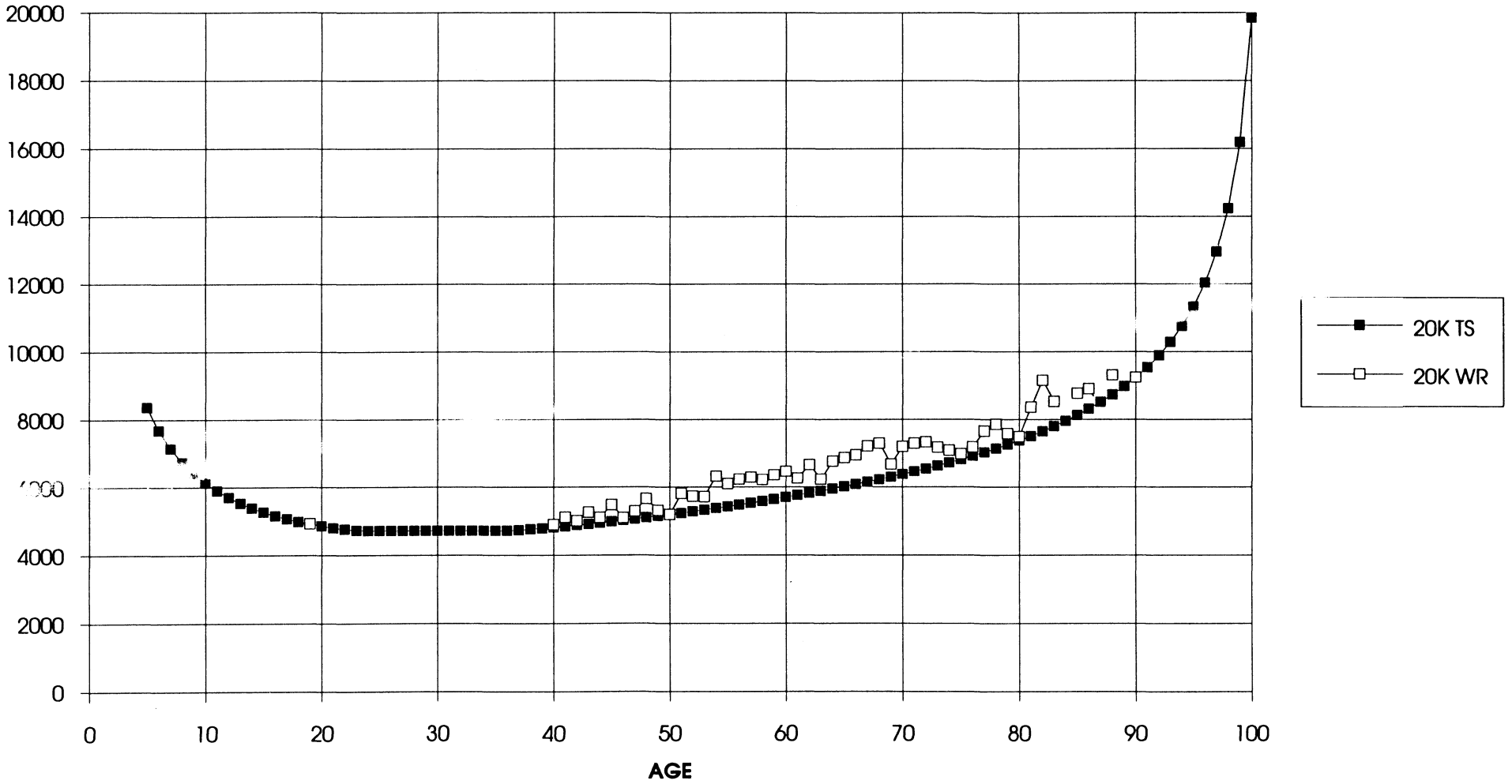

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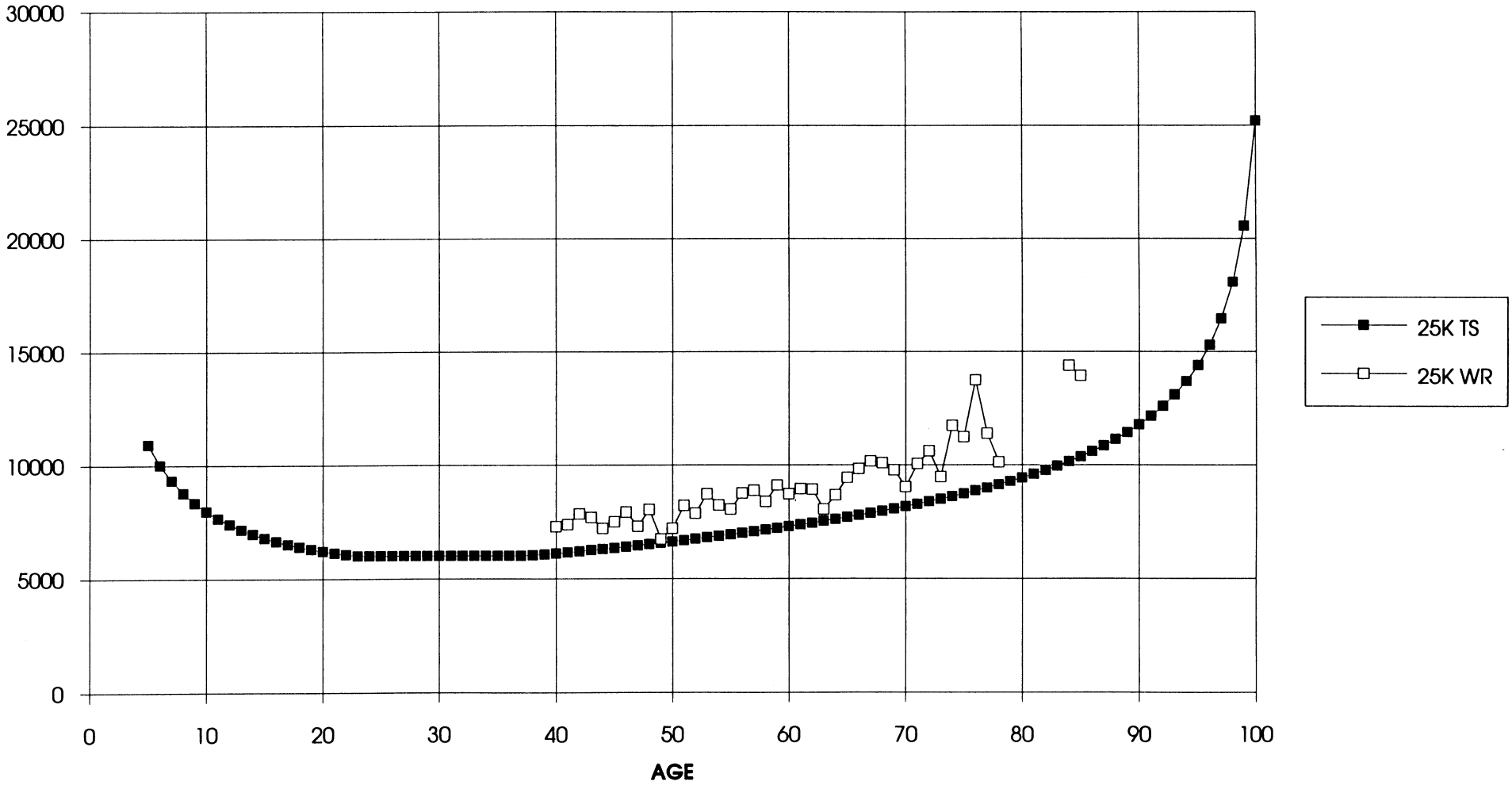
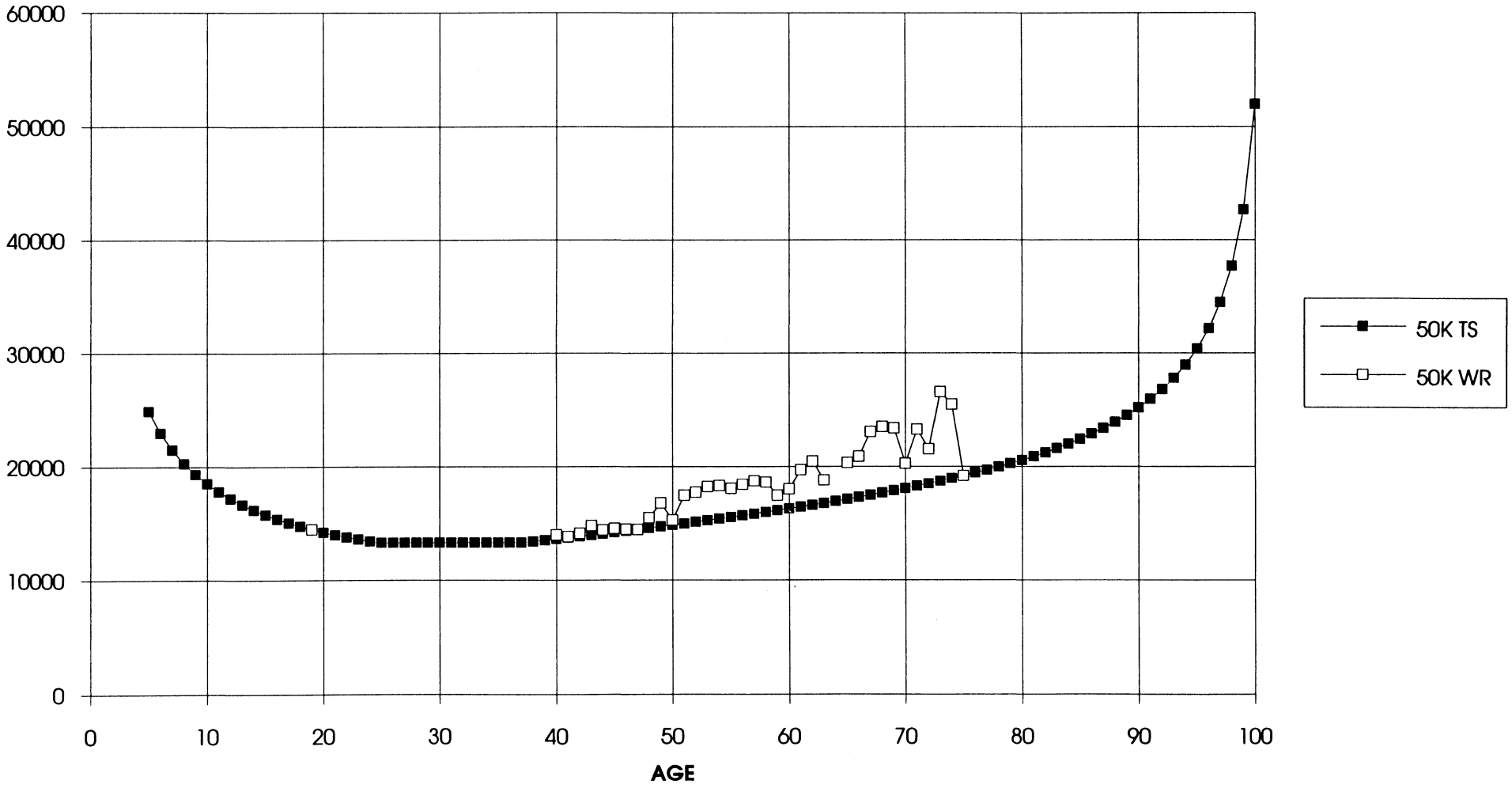


MENS WALK TIME STANDARDS AND RECORDS IN SECONDS



AGE	1500	1 MILE	3000	2 MILE	5K	8K	10K	15K	20K	25K	30K	40K	50K
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WOMEN'S WALK EVENT STANDARDS

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6	565	608	1190	1284	2050	3385	4330	6901	9792	13025	16625	25018	35178
7	516	556	1085	1170	1865	3080	3938	6270	8890	11820	15081	22686	31898
8	479	516	1005	1084	1726	2849	3641	5789	8200	10894	13892	20886	29360
9	451	486	943	1017	1618	2669	3409	5413	7658	10165	12955	19461	27347
10	429	462	895	965	1532	2527	3226	5114	7226	9582	12202	18312	25721
11	412	443	856	923	1464	2414	3079	4873	6876	9108	11588	17373	24389
12	398	428	825	889	1409	2322	2960	4677	6590	8719	11084	16598	23286
13	387	416	800	861	1365	2247	2863	4516	6354	8397	10666	15952	22366
14	378	406	779	839	1329	2186	2784	4384	6159	8130	10317	15412	21594
15	371	399	762	820	1299	2136	2718	4274	5997	7907	10025	14957	20943
16	365	392	749	806	1275	2096	2665	4184	5862	7721	9781	14575	20393
17	360	387	738	793	1255	2062	2621	4109	5750	7566	9576	14253	19927
18	356	383	729	784	1240	2035	2586	4048	5658	7437	9405	13981	19534
19	354	380	722	776	1227	2014	2557	3998	5581	7329	9262	13753	19203
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37	358	385	724	777	1220	1988	2514	3900	5407	7059	8875	13070	18140
38	361	387	728	782	1226	1997	2525	3917	5431	7090	8913	13126	18215
39	363	390	732	786	1233	2007	2538	3936	5457	7124	8957	13190	18301
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47	388	416	782	839	1311	2126	2685	4163	5774	7542	9485	13970	19373
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53	413	444	834	895	1397	2259	2852	4421	6136	8018	10089	14863	20606
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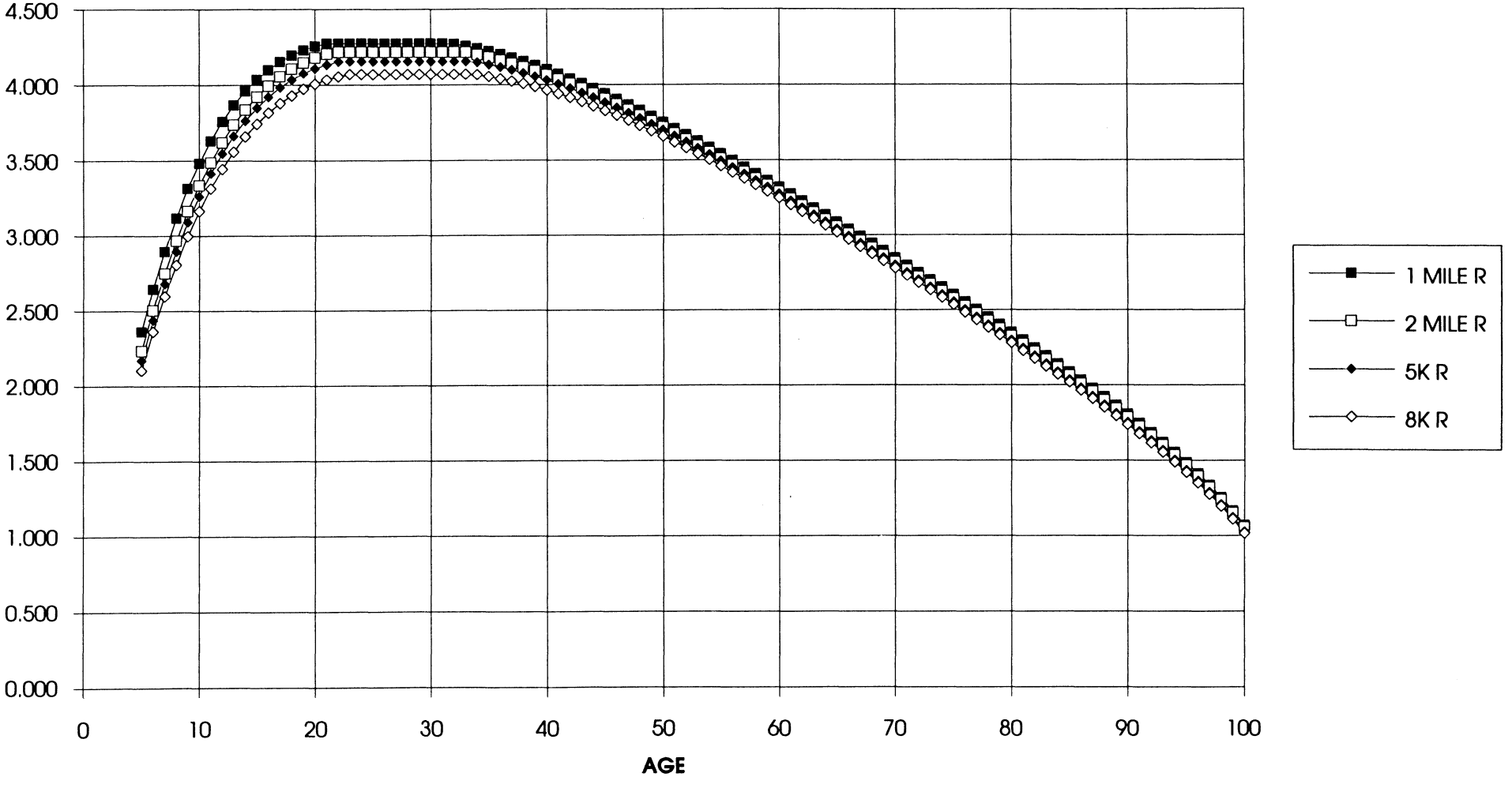
64	478	514	966	1037	1619	2612	3296	5112	7101	9288	11693	17238	23893
65	486	521	980	1053	1644	2652	3347	5191	7211	9433	11876	17509	24268
66	493	529	996	1070	1670	2694	3400	5273	7326	9583	12066	17790	24657
67	501	538	1012	1087	1697	2737	3455	5358	7445	9740	12264	18082	25062
68	509	547	1028	1104	1726	2783	3512	5447	7569	9902	12469	18385	25483
69	518	556	1045	1123	1755	2830	3571	5540	7698	10072	12683	18701	25920
70	526	565	1063	1142	1785	2879	3633	5636	7832	10248	12905	19030	26375
71	535	575	1081	1162	1817	2930	3698	5736	7972	10432	13137	19372	26849
72	545	585	1101	1182	1850	2983	3765	5841	8118	10623	13378	19728	27343
73	555	596	1121	1204	1885	3038	3835	5950	8270	10822	13630	20100	27858
74	565	607	1141	1226	1920	3096	3908	6064	8429	11031	13893	20488	28396
75	576	618	1163	1250	1958	3157	3985	6183	8595	11248	14167	20893	28957
76	587	630	1186	1274	1997	3220	4065	6308	8769	11476	14454	21316	29544
77	599	643	1210	1300	2038	3287	4149	6439	8951	11715	14755	21760	30159
78	611	656	1235	1326	2081	3357	4237	6576	9142	11965	15070	22225	30804
79	624	670	1261	1354	2127	3430	4330	6720	9343	12228	15401	22714	31481
80	637	684	1288	1384	2174	3507	4427	6872	9554	12504	15750	23228	32194
81	652	700	1317	1415	2224	3588	4530	7032	9777	12796	16118	23771	32945
82	667	716	1348	1448	2277	3674	4639	7201	10012	13104	16506	24343	33739
83	683	733	1380	1483	2333	3765	4754	7380	10261	13431	16917	24950	34580
84	699	751	1414	1520	2393	3862	4876	7570	10526	13777	17354	25594	35472
85	717	771	1451	1559	2456	3965	5007	7773	10808	14147	17819	26280	36422
86	737	791	1490	1601	2524	4075	5146	7990	11110	14541	18316	27012	37438
87	757	813	1532	1646	2597	4193	5295	8222	11433	14965	18849	27798	38527
88	779	837	1577	1695	2675	4320	5456	8473	11781	15421	19423	28644	39699
89	803	863	1626	1747	2760	4458	5631	8744	12158	15914	20044	29560	40968
90	830	891	1679	1804	2852	4608	5820	9039	12569	16451	20720	30556	42349
91	858	922	1737	1867	2953	4772	6028	9362	13018	17038	21460	31646	43859
92	890	956	1801	1935	3065	4953	6257	9718	13513	17686	22276	32849	45525
93	925	994	1872	2012	3189	5154	6511	10114	14064	18407	23183	34185	47377
94	964	1036	1952	2098	3328	5380	6797	10559	14682	19216	24201	35686	49456
95	1009	1085	2043	2196	3486	5637	7122	11064	15385	20135	25358	37391	51819
96	1061	1140	2148	2309	3668	5933	7497	11646	16195	21195	26693	39357	54543
97	1122	1206	2272	2441	3882	6281	7937	12330	17145	22438	28258	41664	57739
98	1195	1284	2420	2600	4139	6698	8465	13151	18287	23932	30139	44435	61577
99	1285	1382	2603	2798	4458	7214	9118	14167	19699	25780	32465	47863	66326
100	1402	1507	2840	3052	4868	7880	9960	15476	21520	28162	35464	52282	72448

	MEN'S														WOMEN'S													
AGE	1500	1 MI	3000	2 MI	5K	8K	10K	15K	20K	25K	30K	40K	50K	AGE	1500	1 MI	3000	2 MI	5K	8K	10K	15K	20K	25K	30K	40K	50K
5	0.645	0.644	0.629	0.627	0.624	0.608	0.599	0.577	0.564	0.550	0.542	0.532	0.534	5	0.554	0.553	0.532	0.530	0.522	0.517	0.512	0.499	0.489	0.480	0.473	0.464	0.458
6	0.698	0.697	0.682	0.680	0.678	0.661	0.651	0.629	0.614	0.600	0.590	0.579	0.579	6	0.621	0.619	0.597	0.594	0.587	0.581	0.575	0.561	0.549	0.540	0.532	0.522	0.515
7	0.744	0.742	0.728	0.726	0.724	0.708	0.698	0.675	0.660	0.644	0.634	0.620	0.619	7	0.679	0.678	0.655	0.652	0.645	0.638	0.632	0.618	0.605	0.595	0.587	0.575	0.568
8	0.783	0.782	0.767	0.766	0.765	0.748	0.738	0.716	0.700	0.684	0.674	0.658	0.655	8	0.731	0.730	0.706	0.704	0.697	0.690	0.684	0.669	0.656	0.646	0.637	0.625	0.617
9	0.817	0.816	0.802	0.801	0.800	0.784	0.774	0.752	0.737	0.721	0.710	0.693	0.689	9	0.777	0.775	0.753	0.750	0.744	0.736	0.730	0.715	0.702	0.692	0.683	0.670	0.662
10	0.847	0.846	0.833	0.832	0.831	0.816	0.807	0.785	0.770	0.754	0.743	0.725	0.719	10	0.817	0.815	0.793	0.791	0.785	0.778	0.772	0.757	0.745	0.734	0.725	0.713	0.704
11	0.873	0.872	0.860	0.858	0.858	0.844	0.835	0.815	0.800	0.785	0.773	0.755	0.748	11	0.851	0.850	0.829	0.827	0.822	0.814	0.809	0.795	0.782	0.772	0.764	0.751	0.743
12	0.895	0.895	0.883	0.882	0.882	0.869	0.861	0.842	0.827	0.813	0.801	0.783	0.775	12	0.881	0.879	0.861	0.859	0.854	0.847	0.841	0.828	0.816	0.807	0.799	0.786	0.778
13	0.915	0.914	0.904	0.903	0.903	0.891	0.883	0.866	0.852	0.839	0.827	0.809	0.800	13	0.906	0.905	0.888	0.886	0.881	0.875	0.870	0.857	0.847	0.838	0.830	0.818	0.810
14	0.932	0.931	0.922	0.921	0.922	0.910	0.903	0.888	0.875	0.862	0.852	0.834	0.823	14	0.928	0.926	0.911	0.910	0.905	0.899	0.895	0.883	0.874	0.865	0.858	0.847	0.839
15	0.946	0.946	0.938	0.936	0.938	0.928	0.921	0.907	0.895	0.884	0.874	0.856	0.845	15	0.946	0.945	0.931	0.930	0.926	0.920	0.916	0.906	0.897	0.889	0.883	0.872	0.865
16	0.959	0.959	0.951	0.950	0.952	0.943	0.937	0.925	0.914	0.904	0.895	0.878	0.866	16	0.961	0.960	0.948	0.947	0.944	0.938	0.934	0.926	0.918	0.911	0.905	0.895	0.888
17	0.969	0.970	0.963	0.962	0.964	0.956	0.951	0.941	0.930	0.922	0.914	0.898	0.885	17	0.973	0.972	0.962	0.962	0.958	0.953	0.950	0.942	0.936	0.930	0.924	0.915	0.909
18	0.978	0.979	0.973	0.972	0.974	0.967	0.963	0.955	0.945	0.939	0.931	0.917	0.903	18	0.983	0.982	0.974	0.974	0.971	0.966	0.963	0.957	0.951	0.946	0.941	0.933	0.927
19	0.986	0.987	0.982	0.981	0.983	0.977	0.973	0.967	0.959	0.954	0.947	0.934	0.920	19	0.991	0.990	0.984	0.983	0.981	0.976	0.974	0.969	0.964	0.960	0.956	0.949	0.943
OC	1.000	1.000	1.000	1.000	1.000		1.000	1.000	1.000	1.000			1.000	OC	1.000	1.000	1.000	1.000	1.000		1.000	1.000	1.000	1.000			1.000
30	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	30	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
31	0.998	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	31	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
32	0.995	0.997	1.000	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	32	1.000	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
33	0.992	0.994	0.996	0.996	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	33	0.997	0.996	0.999	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
34	0.988	0.990	0.993	0.993	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	34	0.993	0.992	0.995	0.996	0.998	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
35	0.984	0.985	0.989	0.989	0.996	0.998	0.999	1.000	1.000	1.000	1.000	1.000	1.000	35	0.988	0.988	0.991	0.992	0.995	0.997	0.998	1.000	1.000	1.000	1.000	1.000	1.000
36	0.979	0.981	0.984	0.984	0.992	0.994	0.995	1.000	1.000	1.000	1.000	1.000	1.000	36	0.983	0.983	0.986	0.987	0.991	0.993	0.994	0.997	0.999	1.000	1.000	1.000	1.000
37	0.975	0.976	0.980	0.980	0.988	0.990	0.991	0.996	0.996	1.000	1.000	1.000	1.000	37	0.978	0.978	0.981	0.982	0.986	0.989	0.990	0.993	0.995	0.996	0.997	0.998	0.998
38	0.970	0.971	0.975	0.975	0.984	0.986	0.986	0.991	0.991	0.996	0.999	1.000	0.993	38	0.972	0.972	0.976	0.976	0.981	0.984	0.986	0.989	0.991	0.992	0.993	0.994	0.994
39	0.964	0.966	0.970	0.970	0.979	0.981	0.981	0.985	0.985	0.990	0.991	0.993	0.985	39	0.966	0.966	0.970	0.970	0.976	0.979	0.981	0.984	0.986	0.987	0.988	0.989	0.990
40	0.959	0.961	0.965	0.965	0.974	0.976	0.976	0.979	0.979	0.983	0.984	0.985	0.977	40	0.959	0.960	0.963	0.964	0.970	0.974	0.976	0.979	0.981	0.982	0.983	0.984	0.984
41	0.953	0.955	0.959	0.959	0.969	0.970	0.971	0.973	0.973	0.976	0.977	0.977	0.969	41	0.953	0.953	0.956	0.957	0.963	0.968	0.970	0.973	0.975	0.976	0.977	0.978	0.979
42	0.948	0.949	0.953	0.954	0.963	0.965	0.965	0.967	0.966	0.969	0.969	0.968	0.961	42	0.945	0.946	0.949	0.950	0.956	0.962	0.964	0.967	0.969	0.970	0.971	0.972	0.972
43	0.942	0.943	0.947	0.948	0.958	0.959	0.959	0.961	0.959	0.961	0.961	0.960	0.953	43	0.938	0.938	0.941	0.942	0.949	0.955	0.957	0.960	0.962	0.963	0.964	0.965	0.966
44	0.936	0.937	0.941	0.942	0.952	0.953	0.953	0.954	0.952	0.954	0.953	0.952	0.945	44	0.930	0.930	0.934	0.934	0.942	0.948	0.950	0.953	0.955	0.956	0.957	0.958	0.959
45	0.930	0.931	0.935	0.936	0.946	0.947	0.947	0.947	0.945	0.946	0.945	0.943	0.937	45	0.922	0.922	0.925	0.926	0.934	0.941	0.943	0.946	0.948	0.949	0.949	0.950	0.951
46	0.923	0.925	0.929	0.929	0.939	0.941	0.940	0.940	0.938	0.939	0.937	0.935	0.928	46	0.913	0.914	0.917	0.918	0.926	0.933	0.935	0.938	0.940	0.941	0.941	0.942	0.943
47	0.917	0.918	0.922	0.923	0.933	0.934	0.934	0.933	0.931	0.931	0.929	0.926	0.920	47	0.904	0.905	0.908	0.909	0.917	0.925	0.927	0.930	0.932	0.933	0.933	0.934	0.935
48	0.910	0.912	0.916	0.916	0.926	0.927	0.927	0.926	0.923	0.923	0.921	0.918	0.912	48	0.895	0.896	0.899	0.900	0.909	0.916	0.919	0.922	0.923	0.924	0.924	0.925	0.926
49	0.904	0.905	0.909	0.909	0.920	0.921	0.920	0.919	0.916	0.915	0.913	0.910	0.904	49	0.886	0.887	0.890	0.891	0.900	0.908	0.910	0.913	0.915	0.915	0.916	0.916	0.917
50	0.897	0.898	0.902	0.903	0.913	0.914	0.913	0.911	0.908	0.907	0.905	0.901	0.896	50	0.877	0.878	0.881	0.881	0.890	0.899	0.901	0.904	0.906	0.906	0.906	0.907	0.908
51	0.890	0.891	0.895	0.896	0.906	0.906	0.906	0.904	0.900	0.899	0.897	0.893	0.888	51	0.867	0.868	0.871	0.872	0.881	0.889	0.892	0.895	0.896	0.897	0.897	0.898	0.899
52	0.883	0.884	0.888	0.889	0.899	0.899	0.898	0.896	0.893	0.891	0.888	0.885	0.880	52	0.858	0.858	0.862	0.862	0.871	0.880	0.883	0.886	0.887	0.887	0.887	0.888	0.889
53	0.876	0.877	0.881	0.881	0.892	0.892	0.891	0.888	0.885	0.883	0.880	0.876	0.872	53	0.848	0.849	0.852	0.852	0.861	0.870	0.873	0.876	0.877	0.877	0.877	0.878	0.879
54	0.869	0.870	0.874	0.874	0.884	0.885	0.883	0.880	0.877	0.874	0.872	0.868	0.864	54	0.838	0.839	0.842	0.842	0.851	0.860	0.863	0.866	0.867	0.867	0.867	0.868	0.869
55	0.862	0.863	0.866	0.867	0.877	0.877	0.876	0.872	0.869	0.866	0.864	0.860	0.857	55	0.828	0.829	0.832	0.832	0.841	0.850	0.853	0.856	0.857	0.857	0.857	0.857	0.858
56	0.855	0.856	0.859	0.859	0.870	0.869	0.868	0.864	0.860	0.858	0.855	0.851	0.849	56	0.818	0.818	0.821	0.822	0.831	0.840	0.843	0.846	0.846	0.846	0.846	0.847	0.848
57	0.847	0.848	0.852	0.852	0.862	0.862	0.860	0.856	0.852	0.849	0.847	0.843	0.841	57	0.807	0.808	0.811	0.811	0.820	0.830	0.832	0.835	0.836	0.836	0.836	0.836	0.837
58	0.840	0.841	0.844	0.844	0.854	0.854	0.852	0.848	0.844	0.841	0.838	0.835	0.833	58	0.797	0.798	0.800	0.801	0.809	0.819	0.822	0.824	0.825	0.825	0.825	0.825	0.826
59	0.832	0.833	0.836	0.837	0.846	0.846	0.844	0.840	0.836	0.832	0.830	0.827	0.825	59	0.786	0.787	0.790	0.790	0.799	0.808	0.811	0.814	0.814	0.814	0.814	0.814	0.815
60	0.825	0.826	0.829	0.829	0.838	0.838	0.836	0.831	0.827	0.824	0.821	0.818	0.817	60	0.776	0.776	0.779	0.779	0.788	0.797	0.800	0.803	0.803	0.803	0.803	0.803	0.804
61	0.817	0.818	0.821	0.821	0.830	0.829	0.828	0.823	0.819	0.815	0.813	0.810	0.809	61	0.765	0.766	0.768	0.769	0.777	0.786	0.789	0.792	0.792	0.792	0.791	0.791	0.793
62	0.809	0.810	0.813	0.813	0.822	0.821	0.819	0.814	0.810	0.807	0.804	0.802	0.801	62	0.754	0.755	0.757	0.758	0.765	0.775	0.778	0.780	0.781	0.780	0.780	0.780	0.781
63	0.801	0.802	0.805	0.805	0.814	0.813	0.811	0.806	0.802	0.798	0.796	0.793	0.793	63	0.743	0.744	0.746	0.747	0.754	0.764	0.767	0.769	0.769	0.769	0.768	0.768	0.770
64	0.793	0.794	0.797	0.797	0.805	0.804	0.802	0.797	0.793	0.790	0.787	0.785	0.785	64	0.733	0.733	0.735	0.736	0.743	0.753	0.755	0.758	0.758	0.757	0.757	0.757	0.758
65	0.785	0.786	0.788	0.789	0.797	0.796	0.794	0.788	0.784	0.781	0.779	0.777	0.777	65	0.722	0.722	0.724	0.725	0.732	0.741	0.744	0.746	0.746	0.746	0.745	0.745	0.746
66	0.777	0.778	0.780	0.780	0.788	0.787	0.785	0.780	0.775	0.772	0.770	0.768	0.769	66	0.711	0.711	0.713	0.713	0.720	0.730	0.732	0.734	0.734	0.734	0.733	0.733	0.735
67	0.769	0.770	0.772	0.772	0.780	0.778	0.776	0.771	0.766	0.763	0.761	0.760	0.761	67	0.699	0.700	0.702	0.702	0.709	0.718	0.721	0.723	0.723	0.722	0.722	0.722	0.723
68	0.761	0.762	0.763	0.763	0.771	0.769	0.767	0.762	0.757	0.754	0.752	0.751	0.753	68	0.688	0.689	0.691	0.691	0.697	0.706	0.709	0.711	0.711	0.710	0.710	0.710	0.711
69	0.752	0.753	0.755	0.755	0.762	0.760	0.758	0.752	0.748	0.745	0.743	0.743	0.745	69	0.677	0.678	0.679	0.680	0.686	0.695	0.697	0.699	0.699	0.698	0.698	0.698	0.699
70	0.744	0.745	0.746	0.746	0.753	0.751	0.749	0.743	0.739	0.736	0.734	0.734	0.737	70	0.666	0.666	0.668	0.668	0.674	0.683	0.685	0.687	0.687	0.686	0.686	0.686	0.687
71	0.735	0.736	0.737	0.737	0.744	0.742	0.740	0.734	0.730	0.727	0.725	0.725	0.728	71	0.655	0.655	0.657	0.657	0.662	0.671	0.673	0.675	0.675	0.674	0.674	0.674	0.675
72	0.726	0.727	0.728	0.728	0.734	0.732	0.730	0.724	0.720	0.717	0.716	0.716	0.720	72	0.643	0.644	0.645	0.645	0.650	0.659	0.661	0.663	0.663	0.662	0.662	0.661	0.662
73	0.717	0.718	0.719	0.719	0.725	0.723	0.721	0.715	0.711	0.708	0.707	0.707	0.711	73	0.632	0.632	0.634	0.634	0.638	0.647	0.649	0.651	0.651	0.650	0.649	0.649	0.650
74	0.708	0.709	0.709	0.709	0.715	0.713	0.711	0.705	0.701	0.698	0.697	0.698	0.702	74	0.620	0.621	0.622	0.622	0.626	0.635	0.637	0.639	0.638	0.638	0.637	0.637	0.638
75	0.699	0.700	0.700	0.700	0.705	0.703	0.701	0.695	0.691	0.688	0.687	0.689	0.694	75	0.609	0.609	0.610	0.611	0.614	0.623	0.625	0.626	0.626	0.625	0.625	0.624	0.625
76	0.689	0.690	0.690	0.690	0.695	0.693	0.691	0.685	0.681	0.678	0.678	0.680	0.685	76	0.597	0.597	0.599	0.599	0.602	0.610	0.613	0.614	0.614	0.613	0.612	0.612	0.613
77	0.680	0.680	0.680	0.680	0.685	0.683	0.680	0.675	0.671	0.668	0.668	0.670	0.675	77	0.585	0.586	0.587	0.587	0.590	0.598	0.600	0.601	0.601	0.600	0.600	0.600	0.601
78	0.670	0.671	0.670	0.670	0.675	0.672	0.670	0.664	0.660	0.658	0.658	0.660	0.666	78	0.574	0.574	0.575	0.575	0.578	0.586	0.588	0.589	0.588	0.588	0.587	0.587	0.588
79	0.660	0.660	0.660	0.660	0.664	0.662	0.659	0.653	0.650	0.648	0.647	0.650	0.657	79	0.562	0.562	0.563	0.563	0.566	0.573	0.575	0.576	0.576	0.575	0.575	0.574	0.575
80	0.649	0.650	0.650	0.649	0.653	0.651	0.648	0.642	0.639	0.637	0.637	0.640	0.647	80	0.550	0.550	0.551	0.551	0.553	0.561	0.562	0.564	0.563	0.562	0.562	0.562	0.563
81	0.639	0.639	0.639	0.638	0.642	0.640	0.637	0.631	0.628	0.626	0.626	0.630	0.637	81	0.538	0.538	0.539	0.539	0.541	0.548	0.550	0.551	0.550	0.550	0.549	0.549	0.550
82	0.628	0.629	0.628	0.627	0.631	0.628	0.625	0.620	0.616	0.615	0.615	0.619	0.626	82	0.526	0.526	0.527	0.527	0.528	0.535	0.537	0.538	0.537	0.537	0.536	0.536	0.537
83	0.616	0.617	0.616	0.616	0.619	0.616	0.614	0.608	0.605	0.603	0.604	0.608	0.616	83	0.514	0.514	0.514	0.515	0.516	0.522	0.524	0.525	0.524	0.524	0.523	0.523	0.524
84	0.605	0.606	0.604	0.604	0.607	0.604	0.601	0.596	0.593	0.591	0.592	0.597	0.605	84	0.501	0.501	0.502	0.502	0.503	0.509	0.511	0.512	0.511	0.510	0.510	0.510	0.511
85	0.593	0.594	0.592	0.592	0.594	0.591	0.589	0.583	0.580	0.579	0.580	0.585	0.593	85	0.489	0.489	0.489	0.489	0.490	0.496	0.497	0.498	0.498	0.497	0.497	0.496	0.497
86	0.580	0.581	0.580	0.579	0.581	0.578	0.576	0.570	0.567	0.567	0.567	0.573	0.582	86	0.476	0.476	0.476	0.477	0.477	0.482	0.484	0.485	0.484	0.484	0.483	0.483	0.484
87	0.567	0.568	0.566	0.566	0.567	0.565	0.562	0.557	0.554	0.553	0.554	0.560	0.569	87	0.463	0.463	0.463	0.464	0.463	0.469	0.470	0.471	0.471	0.470	0.470	0.469	0.470
88	0.554	0.555	0.553	0.552	0.553	0.551	0.548	0.543	0.540	0.540	0.541	0.547	0.556	88	0.450	0.450	0.450	0.450	0.450	0.455	0.456	0.457	0.457	0.456	0.456	0.455	0.456
89	0.539	0.540	0.538	0.538	0.539	0.536	0.533	0.528	0.526	0.525	0.526	0.533	0.543	89	0.436	0.436	0.437	0.437	0.436	0.441	0.442	0.443	0.442	0.442	0.442	0.441	0.442
90	0.524	0.525	0.523	0.522	0.523	0.520	0.518	0.513	0.510	0.510	0.511	0.518	0.528	90	0.422	0.422	0.423	0.423	0.422	0.427	0.428	0.428	0.428	0.428	0.427	0.427	0.428
91	0.509	0.509	0.507	0.506	0.507	0.504	0.501	0.496	0.494	0.494	0.496	0.503	0.513	91	0.408	0.408	0.409	0.409	0.407	0.412	0.413	0.414	0.413	0.413	0.412	0.412	0.413
92	0.492	0.492	0.490	0.489	0.489	0.486	0.484	0.479	0.477	0.477	0.479	0.486	0.496	92	0.394	0.394	0.394	0.394	0.393	0.397	0.398	0.399	0.398	0.398	0.397	0.397	0.398
93	0.473	0.474	0.471	0.471	0.470	0.467	0.465	0.460	0.458	0.459	0.460	0.468	0.479	93	0.379	0.379	0.379	0.379	0.377	0.381	0.382	0.383	0.383	0.382	0.382	0.382	0.382
94	0.453	0.454	0.451	0.450	0.450	0.447	0.445	0.440	0.438	0.439	0.441	0.448	0.459	94	0.363	0.363	0.364	0.364	0.362	0.365	0.366	0.367	0.366	0.366	0.366	0.366	0.366
95	0.431	0.432	0.429	0.428	0.428	0.425	0.422	0.418	0.416	0.417	0.419	0.427	0.438	95	0.347	0.347	0.347	0.347	0.345	0.349	0.350	0.350	0.350	0.349	0.349	0.349	0.350
96	0.407	0.408	0.405	0.404	0.403	0.400	0.398	0.393	0.392	0.392	0.395	0.402	0.413	96	0.330	0.330	0.330	0.330	0.328	0.331	0.332	0.333	0.332	0.332	0.332	0.332	0.332
97	0.379	0.380	0.377	0.376	0.374	0.372	0.369	0.366	0.364	0.365	0.367	0.375	0.386	97	0.312	0.312	0.313	0.313	0.310	0.313	0.314	0.314	0.314	0.313	0.313	0.313	0.314
98	0.346	0.347	0.344	0.343	0.341	0.338	0.336	0.333	0.331	0.332	0.334	0.342	0.353	98	0.293	0.293	0.293	0.293	0.291	0.293	0.294	0.294	0.294	0.294	0.294	0.294	0.294
99	0.305	0.306	0.303	0.302	0.300	0.298	0.296	0.292	0.291	0.292	0.294	0.301	0.312	99	0.273	0.273	0.273	0.273	0.270	0.272	0.273	0.273	0.273	0.273	0.273	0.273	0.273
100	0.250	0.250	0.248	0.247	0.245	0.243	0.241	0.239	0.238	0.238	0.240	0.247	0.256	100	0.250	0.250	0.250	0.250	0.247	0.249	0.250	0.250	0.250	0.250	0.250	0.250	0.250

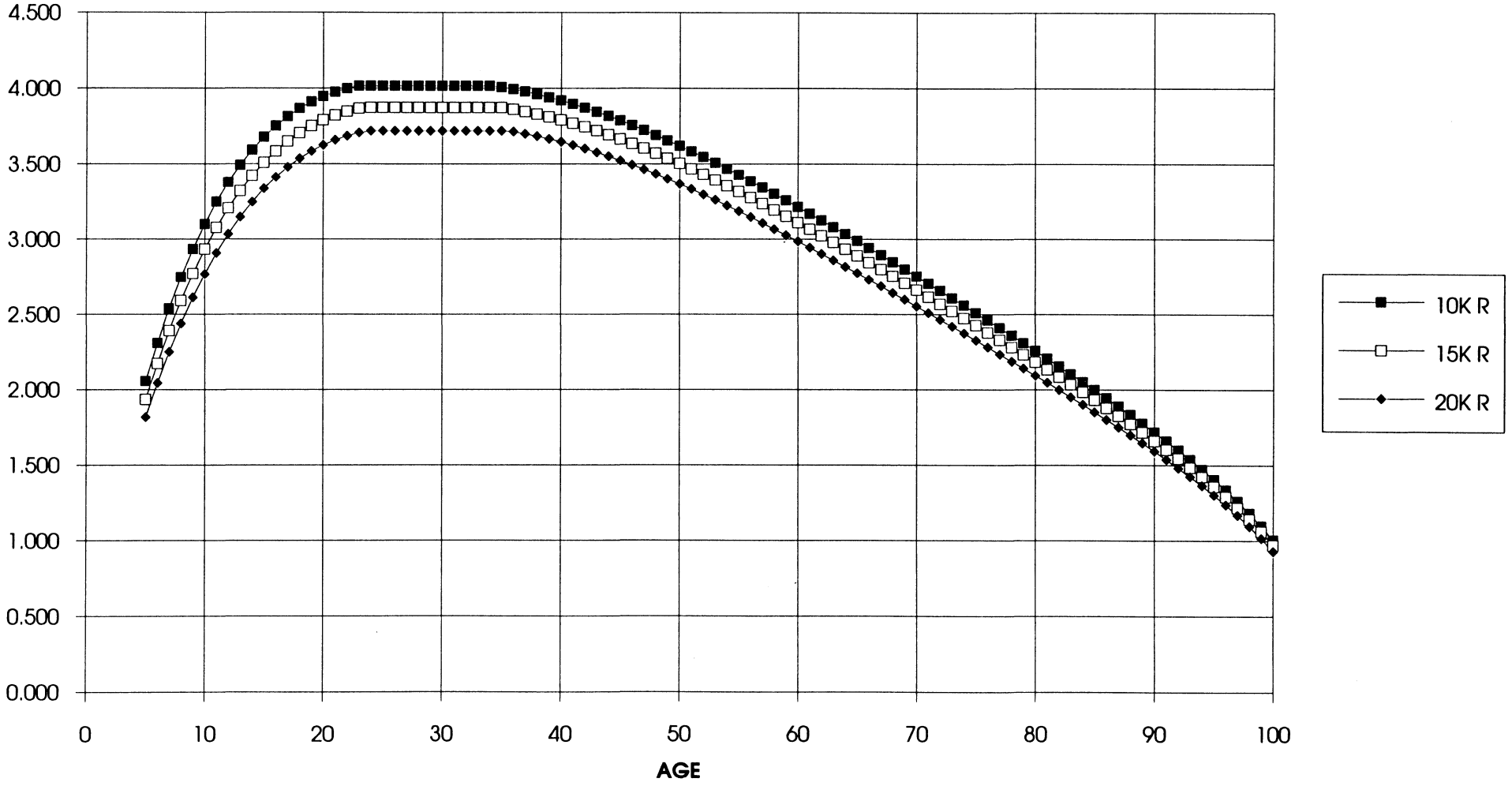
WALK EVENT PERFORMANCE LEVEL OF ACTUAL RECORDS

						MEN											WOMEN				
AGE	1500	1 MI	3000	2 MI	5K	10K	15K	20K	25K	50K		AGE	1 MI	2 MI	5K	10K	15K	20K	25K	50K
5												5								
6												6								
7												7								
8	80											8								
9	82											9								
10	82											10								
11	80		82									11								
12	80		80									12								
13			92									13								
14			91									14								
15			92									15								
16												16								
17												17								
18												18								
19						100		100		100		19				99	99			
40				89	90	97	92	98	84	97		40	83	66	81	84	76	78	66	
41			89	86	93	96	88	95	84	99		41	85	79	85	87	76	80		72
42		83	87	90	89	95	95	97	79	98		42	82	78	86	84	82	82	78	94
43				93	91	87	86	93	81	94		43	78	78	84	88	76	78	81	73
44			85	87	88	95	88	97	87	98		44	83	82	83	84	80	83	82	95
45			86	87	91	89	93	91	85	98		45	84	83	83	83	82	82	80	97
46			87	84	90	95	95	98	81	99		46	87	85	85	84		83	72	75
47			88	84	89	96	89	96	89	100		47	88	87	87	88	82	85	81	99
48			91	87	94	90	88	90	81	94		48	84	81	86	84		83		
49				95	96	94	95	97	97	88		49	84	81	85	82	81	83	69	81
50			82	99	96	98	99	100	92	97		50	83	82	82	80	80	83		87
51			85	86	87	88	82	90	81	86		51	88	76	85	83	83	86	76	88
52				86	87	86	87	92	86	85		52	83	82	81	80	79	80	78	96
53			79	83	85	85	83	93	78	84		53	85	73	83	83	81	81	81	100
54			82	87	86	86	82	85	84	84		54	69	77	83	81	80	83		
55				93	92	88	90	89	86	86		55	86	73	84	83	86	82		
56			87	82	86	87	86	88	80	85		56	85	80	85	82	84	87	80	87
57			87	81	86	88	85	88	80	85		57	87	86	84	82	80	83	86	
58			87	88	88	89	88	90	85	86		58	88	83	83	89	77	81	83	78
59			89	84	89	89	88	89	79	92		59	83	82	80	80	75	74		
60			88	84	88	89	86	88	84	90		60	84	83	79	78	79	78	81	
61			79	79	87	89	81	92	82	83		61	93	85	87	88	82	81	84	
62				85	87	97	88	87	83	81		62	86	84	83	90	82	81	83	
63				90	80	93	90	94	94	89		63	89	85	85	83	83	85	88	
64				82	84	85	86	88	88			64	87	87	87	84	83	84	86	89
65			85	81	84	86	82	88	81	84		65	92	81	87	86	83	87	91	
66			77	81	91	86	86	87	79	83		66	85	83	87	84	79	80		
67			82	81	87	84	86	85	77	76		67	82	90	86	83	80	82		
68			81	84	90	86	80	85	79	75		68	81	77	97	98	81	83	85	
69			83	84	91	86	82	94	82	76		69	77	81	83	78	78	80		
70				85	85	93	94	89	90	89		70	80	63	97	97	79			
71				85	91	84	83	89	82	79		71	81	79	87	86	75			
72				84	86	85	87	89	79	86		72	82	88	100	100	78	79		
73				84	90	92	85	92	90	70		73	83	79	83	75	79			
74				85	92	95	86	95	73	74		74	99	93	82	74	81			
75				85	94	98	94	98	78	100		75	83	84	100	80	82	85		
76				79	92	83	89	96	64			76	80	79	86					
77				82	83	91	85	92	79			77	79	79	93	83				
78				83	92	79	86	91	90			78	65	64	91					
79				77	92	91	90	96				79	86	69	91					
80				79	92	82	84	99				80			96	74				
81			77	79	83	85		90				81			84	83				
82			74	80	90	91	83	84				82			100	66				
83				78	92	93		91				83								
84				79	81	75	64		71			84								
85				78	93			93	74			85			70					
86			75		95	78	70	93				86			90					
87					96	81						87								
88				57	95	82		94				88								
89												89								
90					100			100				90								
91												91								
92												92								
93												93								
94												94								
95												95								
96												96								
97												97								
98												98								
99												99								
100												100								

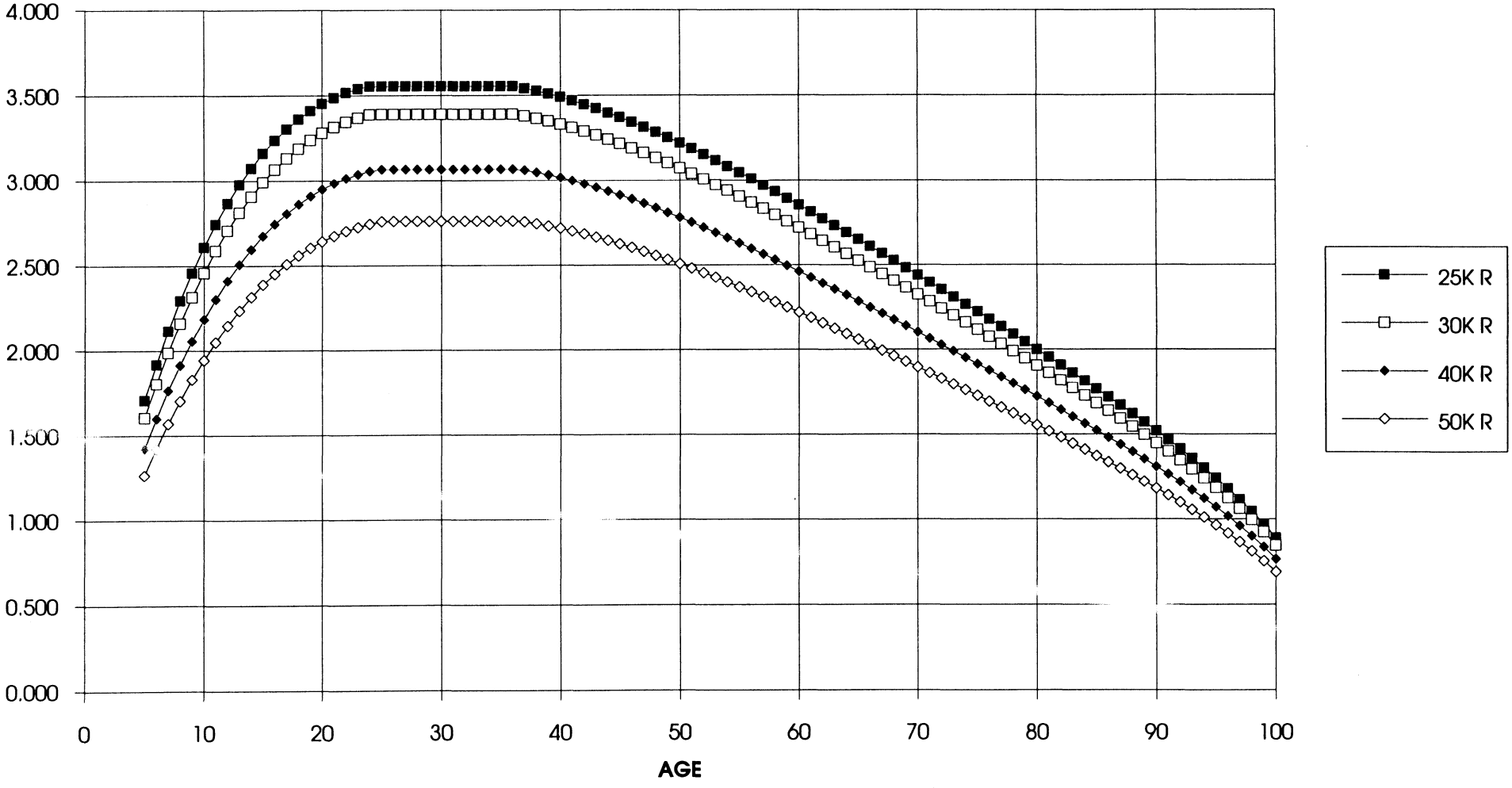
WOMENS WALK RATE IN METERS/SECOND



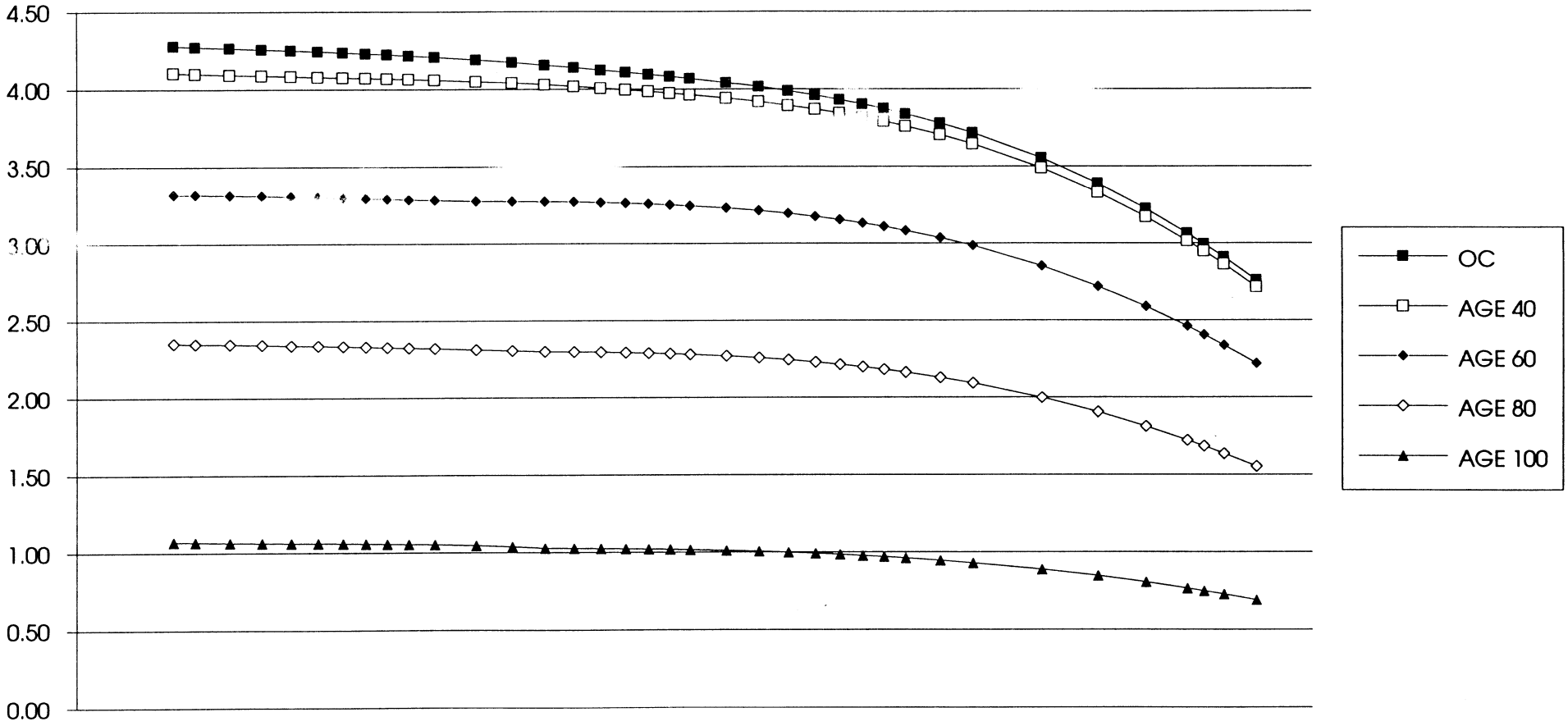
WOMENS WALK RATE IN METERS/SECOND



WOMENS WALK RATE IN METERS/SECOND



WOMENS WALK RATE IN METERS/SECOND



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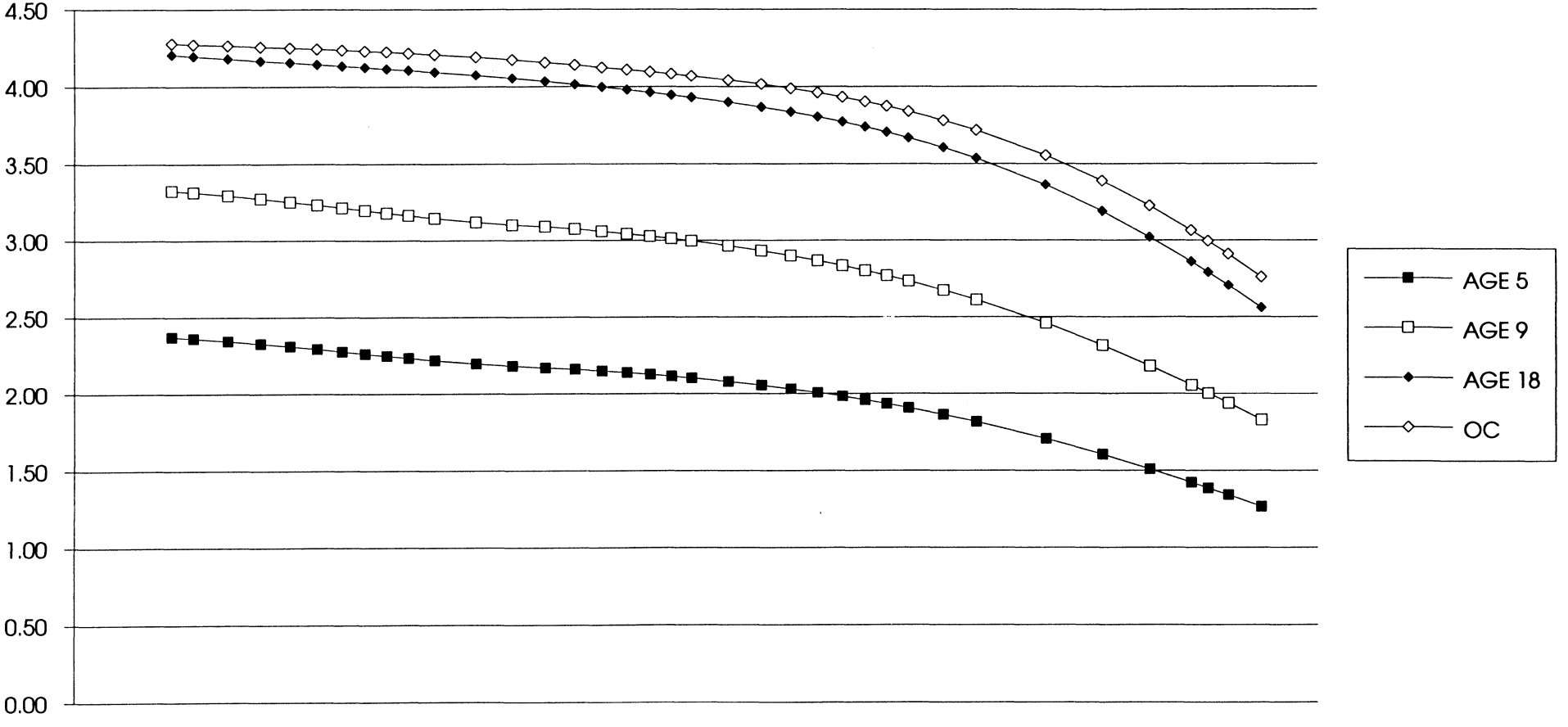
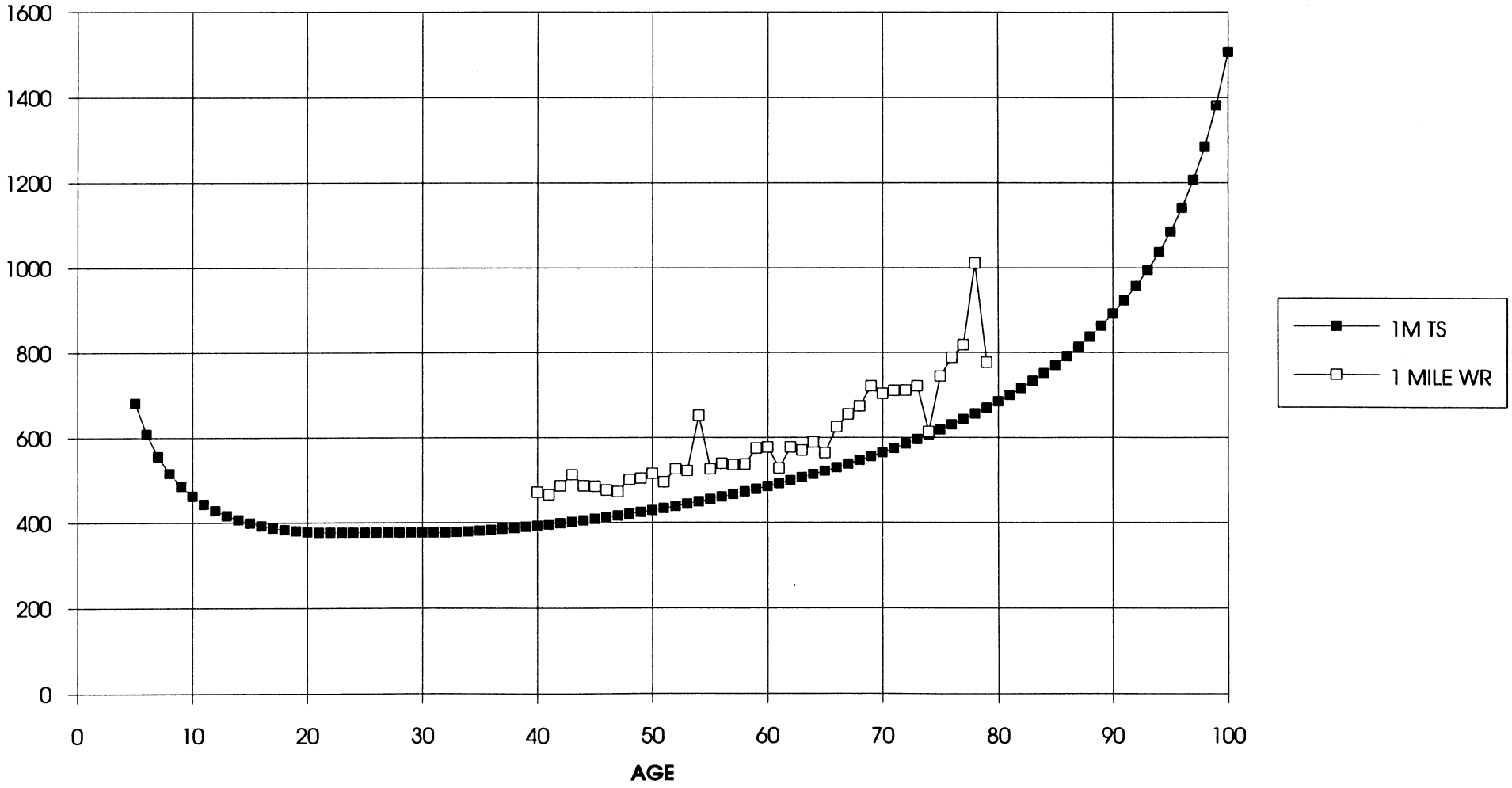
GIRLS WALK RATE IN METERS/SECOND



DISTANCES IN METERS : 1500, 1 MILE, 1800, 2000, 2200, 2400, 2600, 2800, 3000, 2 MILE, 3500, 4000, 4500, 5000, 5500, 6000, 6500, 7000, 7500, 8K, 9K, 10K, 11K, 12K, 13K, 14K, 15K, 10 MILE, 18K, 20K, 25K, 30K, 35K, 40K, 42195, 45K AND 50K

WOMENS WALK TIME STANDARDS AND RECORDS IN SECONDS



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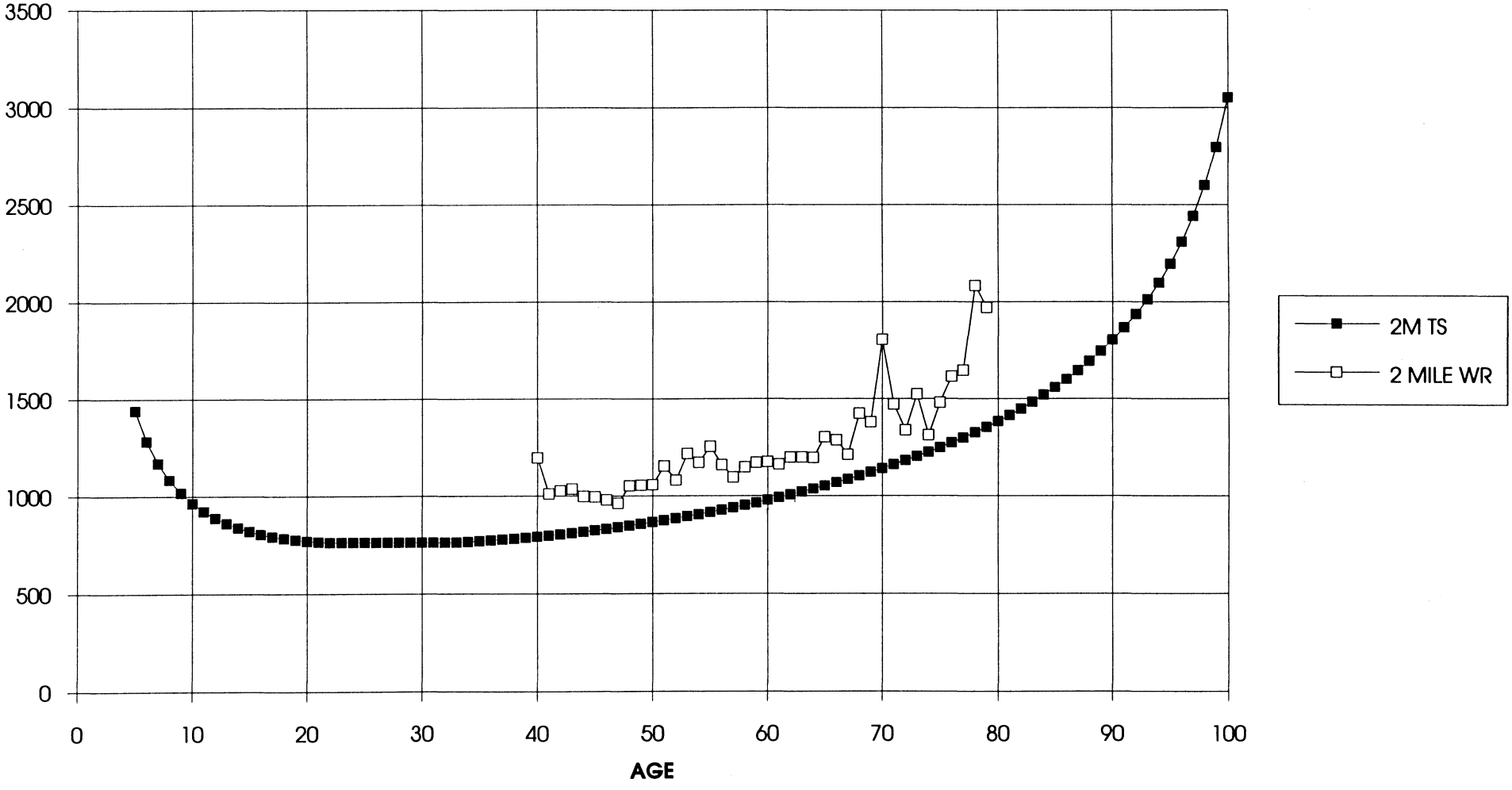

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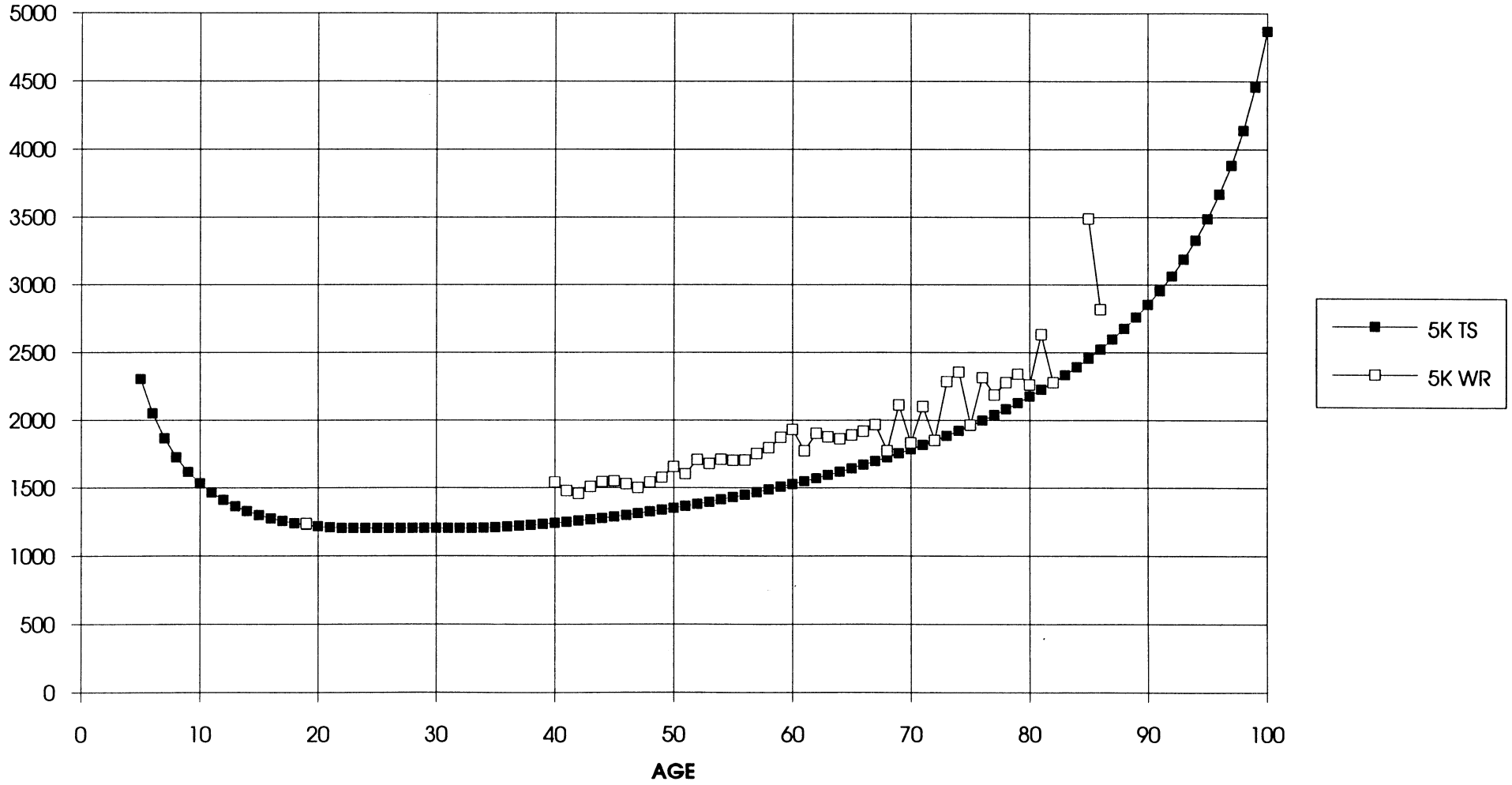

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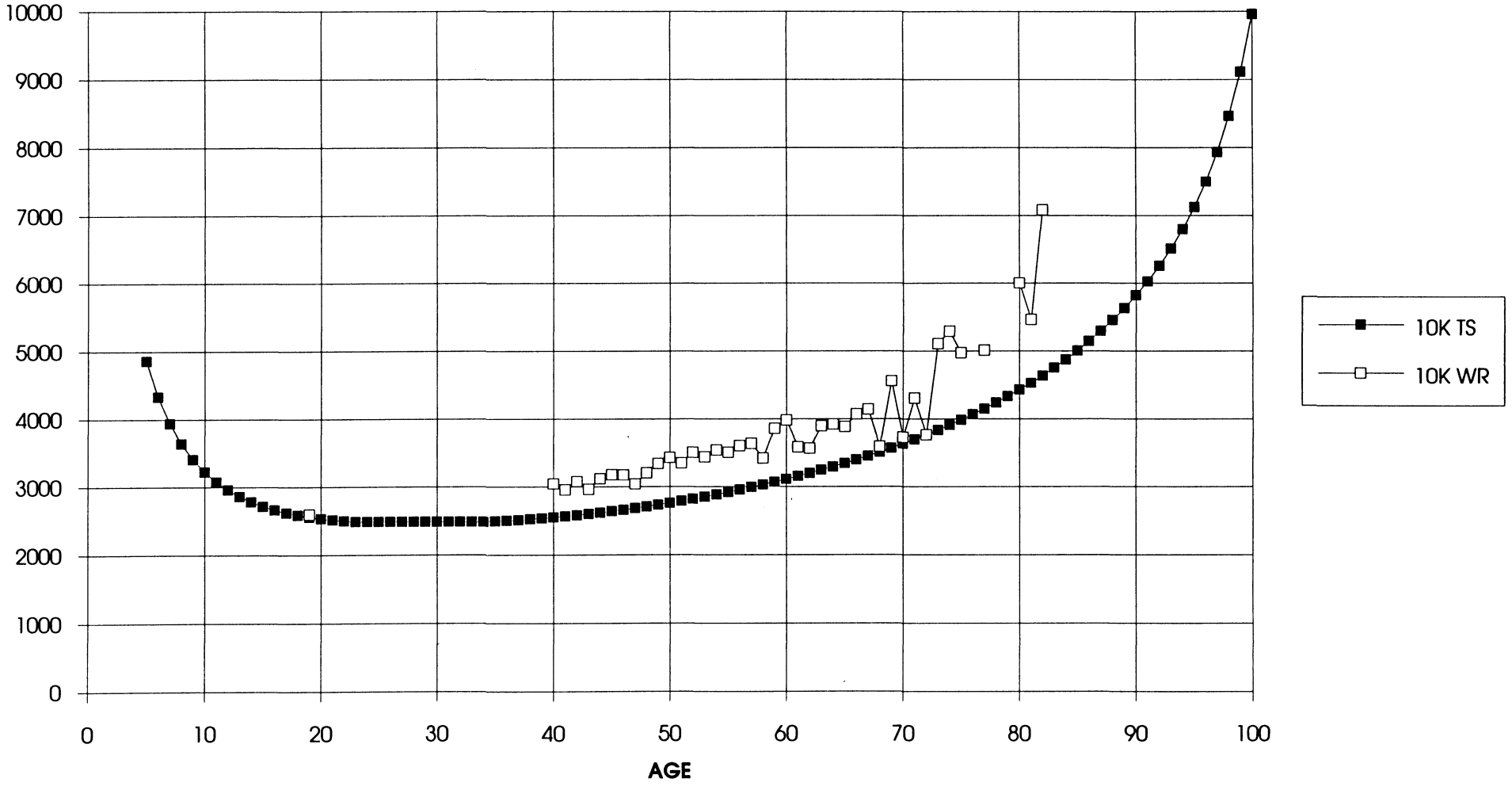

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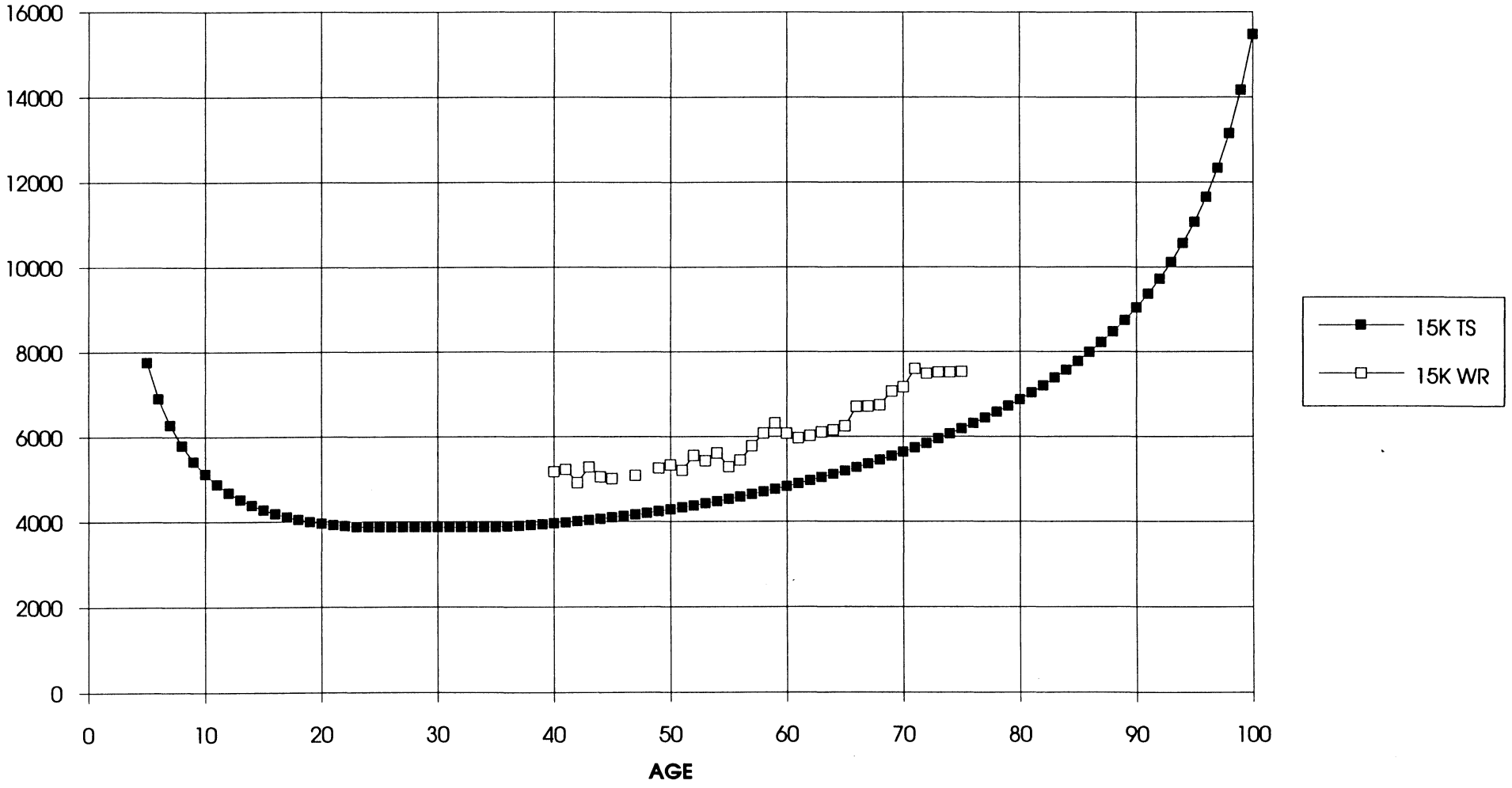

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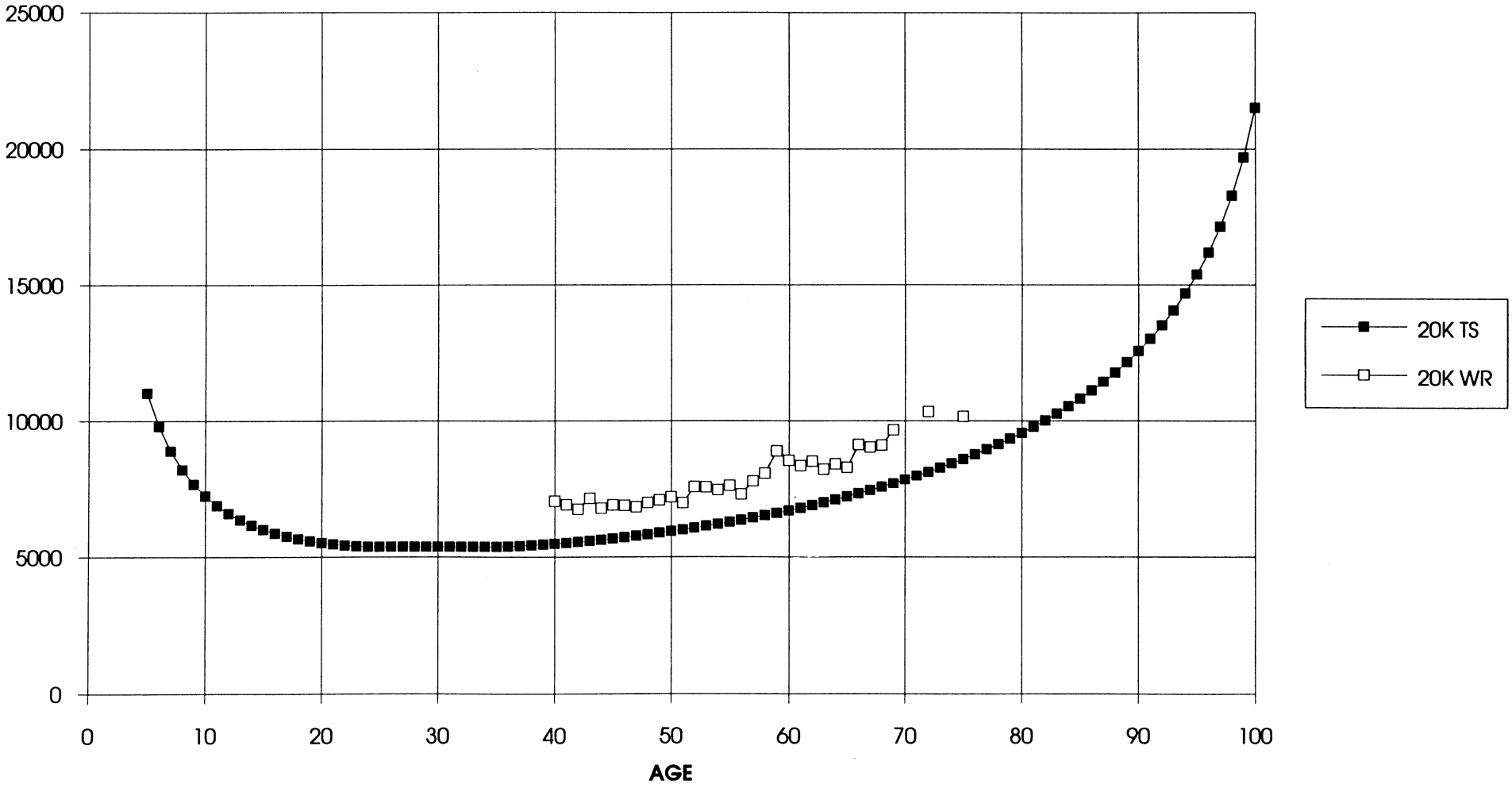

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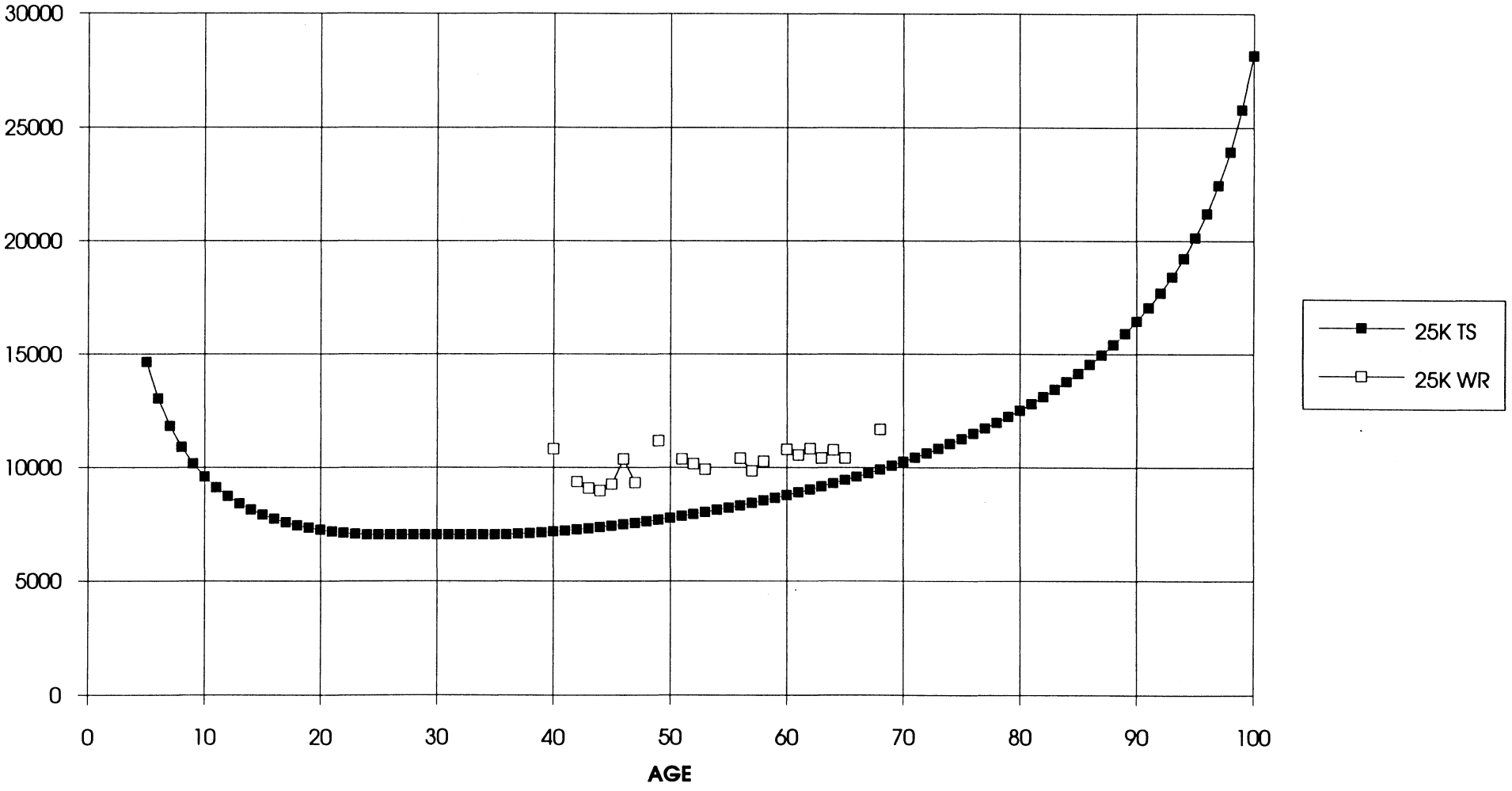

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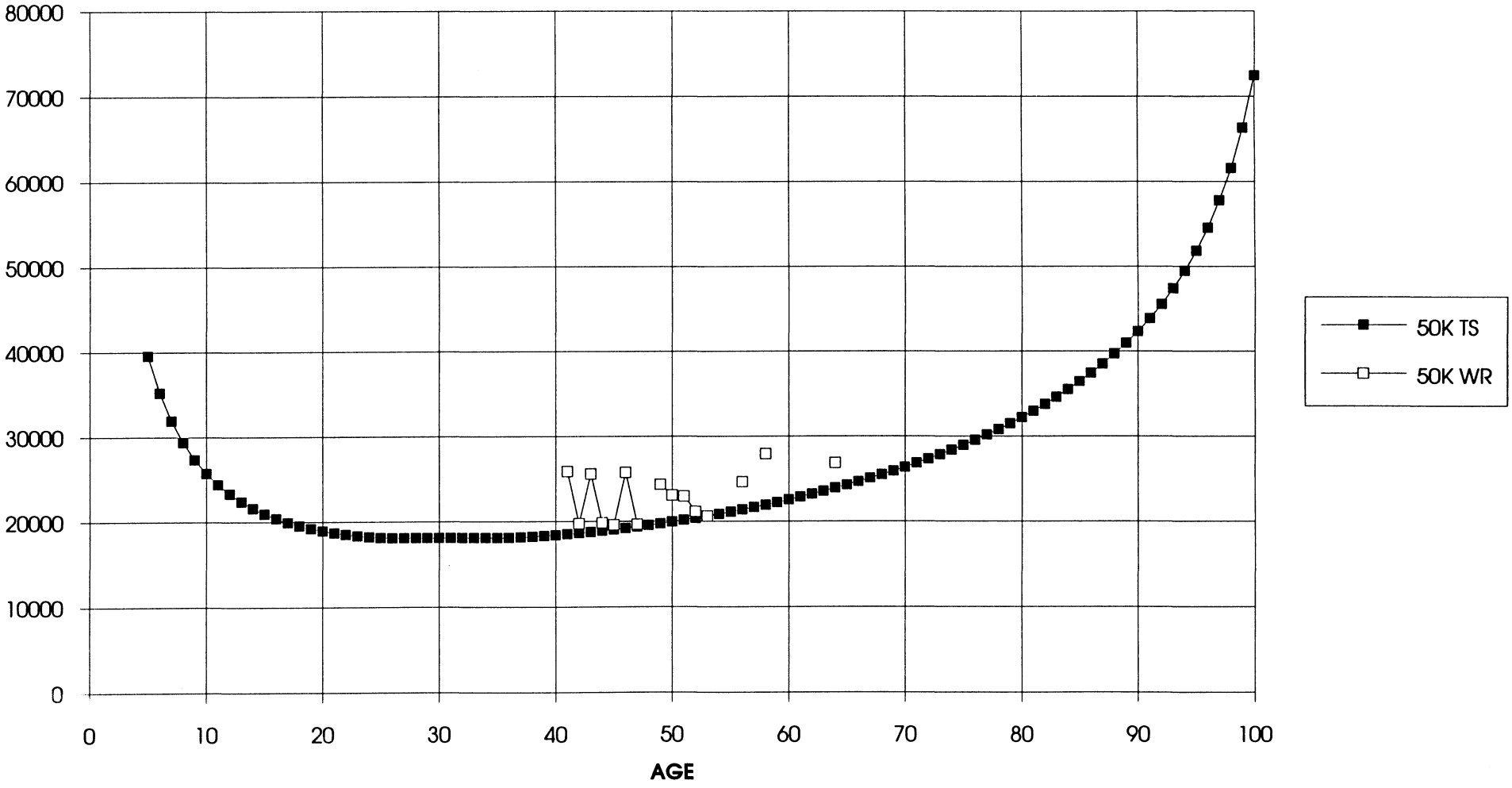


Chapter Five

Summary Of Overall Effort

This chapter will present generalizations or material pertaining to the overall effort. The first four chapters were arranged to address running events, hurdle events, field events and race walk events as separate entities. Each of those chapters deal with the development of the standards and age factors for those families of events with discussions of the various peculiarities involved and presentation of graphical material supporting those standards and factors that resulted. This chapter discusses the relationship of those families of events to each other and ties the effort together.

As previously mentioned, the standards represent world record level performances, but are applicable to individuals of all ability levels through use of the performance level percentage concept.

The performance level percentage concept for runners, hurdlers and walkers is that an individual's performance level is expressed as a percentage of the age record standard which is found by dividing the event standard by the individual's time for the event.

The performance level percentage concept for field event competitor's is that an individual's performance level is expressed as a percentage of the age record standard which is found by dividing the individual's distance for the event by the event standard.

To divide, the standard and the individual's performance should both be expressed in the same units, seconds for time and meters for field events. Individuals twenty to twenty-nine years old use the standard listed for OC which is the open class standard, all other individuals enter the tables using their age.

For masters age performers, international records are used for all running, hurdle, walk and field events. For boys, international records are used for ages 8 and above for running, hurdle, walk and field events, while only American records were used for ages 5, 6 and 7. For girls, only American records were available and only running events were included.

The men's masters and youth running standards and age factors have very high levels of statistical confidence. These are the events which have previously had the highest degree of participation worldwide over the years, and now have the least amount of variation of standards versus records across all ages and events. These events apparently are popular with performers for a variety of reasons including the important consideration that other than a track, no special devices are required for performance such as hurdles, jumping pits or throwing implements.

Men's masters and youth field events and hurdling have high levels of statistical confidence, but are not as consistent yet as running is in terms of the amount of variation between the standards and the records. This is probably largely attributable to the logistical difficulties imposed by the requirements of the "special devices" involved. In addition, the WAVA/TAC event specifications for hurdle heights and throwing event implement weights and their associated ages of authorization have been changed on occasion over the past several years. While the changes have improved the sport for the participants which is all to the good, such changes unfortunately introduce new events which are very thin in the amount of com-

petitive attention they have received. Youth results for the jumps is strong and well documented for ages 8 and up. Youth results are also strong and well documented for the throwing events, but their records are limited to use of the open class implement for ages 14 and up.

The women's masters and youth running standards and age factors have good levels of statistical confidence. These are the events which have previously had the highest degree of women's participation worldwide over the years, and now are attaining acceptable levels in the amount of variation of standards versus records across most ages and events. These events apparently are the more popular events with women for a variety of reasons including the important consideration that other than a track, no special devices are required for performance such as hurdles, jumping pits or throwing implements. The women's records are less competitively mature than the men's simply because participation has been less for women than for men over the years, but their better records fully define and support the standards and age factors that have resulted. Their standards are based solely on their records as a completely separate effort and are not adjusted or otherwise modelled on the men's standards.

Women's masters field events and hurdling have good levels of statistical confidence, being similar to their running events in terms of the amount of variation between the standards and the records. The WAVA/TAC event specifications for hurdle heights and throwing event implement weights and their associated ages of authorization have been changed on occasion over the past several years. While the changes have improved the sport for the participants which is all to the good, such changes unfortunately introduce new events which are very thin in the amount of competitive attention they have received. Introduction of the pole vault, hammer throw and weight throw for women in 1993 are good examples of this effect. Youth results for women in this study are limited to the incorporation of only world junior records.

Race walk standards require special consideration. It would appear that compared to the other events, men's walk standards and age factors would have to be rated as fair with the women's rated as poor. The standards and age factors themselves are very good, what is really only rated fair and poor is how well the men's and women's records reflect the derived standards. The walk standards include use of their open class records in their derivation as do the standards for all other events. As measures of performance, all world records for open class events are considered equal in terms of achievement and meritorious recognition. The resulting walk standards appear to be overly demanding compared to their existing records, but are in fact equivalent and directly comparable to the standards of any and all running, hurdling and field events. The rate curves (walk rate in meters per second) are the baseline measure which ultimately determines the standards derived the same as for running and hurdle events.

The resulting walk standards are not meant to denigrate in any way the existing records or be critical of any competitors or any performances. These standards are meant to set the performance requirements necessary if race walk performances are to be assessed and rated against the same criteria as are all other running, hurdling and field event performances. As a result, the standards are not attempting to be simply a best curve fit of the existing records for each event or to reflect the performances which are most likely to be expected of today's race walkers. On the other hand, those walk records that presently have a performance level percentage of 100 are equivalent in all regards to records in running, hurdling and field events which have performance levels of 100 percent.

As can be imagined, records of all degrees of quality have been gathered together to form the records database, and it is therefore important to both characterize the database quality

and explain what, if anything, was done with records that were deemed to be undesirable for use.

A large portion of the records are of the highest quality having come from sanctioned competitions with the resulting records ratified by a governing body as having met their demanding criteria, assuring such things as favoring wind within limits, times run and distances jumped/thrown certified and verified, course measurement certified, implement weights verified, lap time/lap count verification, foul free jump/throw verification, and so on. Unfortunately not all of the records used could be of such highly assured quality, but they are used nonetheless because without them not enough data points would exist over the entire range of ages for all events to allow fitting curves with any acceptable level of confidence statistically.

Two kinds of master's age records were identified during the study that are characterized as unusable. Both will be discussed including their disposition.

The first kind is the "too good" record. While these records could be incorporated into the standards mathematically, it was usually obvious they were so much better than all other records within plus or minus five years of age that in all probability an unintended mistake of some kind had occurred. The item of critical importance here is that these records were left in the data base. While they were not used for derivation of the standards, they are included in the tables listing Performance Level Percentage For Actual Records and in the charts plotting standards versus actual records. In this way it can be readily seen what their effect would be if they were to be included in the standards. Two such too good records are the women's long jump for age 66 and the women's 400 hurdles for age 36. A third too good record selected out is the men's 100 meters for age 74, but in this case the cause is authoritatively attributed to be a favoring wind far in excess of allowable limits.

The second kind of unusable record is the "not good enough" record. These records have no impact whatsoever on the standards derivation. The too slow records were removed only from the masters track running events for men and women. To be selected for removal, the records had to be for ages above 70, they had to be dramatically slower than their standards, and there also had to be records for older aged runners that were faster. The purpose in removing those few records was to improve the eye integration clarity of the charts for running events which plot the standards versus the actual records. Inclusion of the too slow records resulted in a confusion of the rather orderly progression of record degradation with age that actually occurs. This was done only where absolutely necessary since the purpose was to enhance clarity not mislead by withholding data.

In addition to the records data discussed above, the several running and field event master's age records for one other individual were not used as of this date pending verification of his age.

In summary, it is to be noted that the purpose of this effort and the book which has resulted is to determine standards for track and field events applicable to people of all ages and all levels of ability. This has been done. It was not a purpose of the book to attempt to explain the causes of the observed changes in performance ability as a result of aging, or extrapolate other meanings that such results might imply. That is best left to experts having professional competence or experience in those areas.

Throughout the entire process of developing the standards and their associated age factors, a conscious effort has been made to be bias free and let the data produce its own results. Thus work was frequently reviewed to ensure that biases were not arising and evaluations were made where mathematically feasible to test against such biases. On occasion, the

same data was fitted using different mathematical approaches to see if results were the same or different from the bias aspect. The various biases possible are many and varied, and even the truly unbiased work will be criticized by some as biased. Among the biases that efforts were taken to avoid are: favoring records or performers from one country over another; favoring one event community over another such as making standards for running events easier than other standards, making field event standards more demanding than other standards, or somehow favoring or disadvantaging hurdle or walk events; favoring jumps over throws, or vice versa; favoring the steeplechase over hurdles, or vice versa; favoring short distances over long distances or vice versa for walks or runs; favoring young masters over older masters, or vice versa; favoring youths over masters, or the reverse; favoring women by being easy on their standards while being more demanding on the standards for men, or vice versa; favoring any one or two events over all others; favoring well known or highly regarded competitors over those of lesser stature, or the reverse; or finally, introduce biases by favoring the use of highly limited curve fitting techniques because of their ease and simplicity over the use of more complex techniques which better fit the data in its overall context.

The standards and age factors produced here are of course limited by the quality of the database records including how well all age extremes are represented. In addition, such time and distance standards will continue to change in the future as new records are set and be ever more improved as records are set where none now exist. *The age factors, on the other hand, are not as perishable and will remain valid on into the future for a considerable period of time.*

Chapter Six

Summary Of Age-Factor Graphics For All Events

This chapter presents a graphical summary of the Age-Factors that apply for running events, hurdle events, field events and race walk events. The graphs presented here are selected plots of the age-factor tables which are included in the first four chapters.

Age-factor tables are included in each of the chapters for running events, hurdle events, field events and walk events, including a discussion of what age-factors represent for those events, how they are derived and what some of the peculiarities are that characterize the derived results. While the explanations and tabulations are in each chapter, it is not easy to visualize what it all means. The purpose of this chapter is to present the tabulated age-factor values in graphical plots which can be more easily comprehended and evaluated.

The age-factor tables are plotted as graphs of *age-factor value versus age* for all of the events. In addition, for the running events and walk events a second plot is provided which graphs *age-factor value versus distance* for the selected ages of 5, 9, 18, 40, 60, 80 and 100 years of age. This is important when evaluating the age-factors for running and walk events whose time standards form a time surface over both age and distance. As previously discussed, the resulting age-factor values for running and walk events also form a surface over both age and distance. The two sets of graphs are cross-sections of the age-factor surface, one set sectioning parallel to the age axis and the other set sectioning parallel to the distance axis.

For the running events refer to pages 5 and 6 for the discussion of age-factors and to pages 10 and 11 for the age-factor tables. Four graphs for men and four graphs for women are then presented here in chapter 6. On page 206 for men and page 210 for women graphs are shown which plot *age-factor value versus age* for the distances of 100, 200, 400, 800 and 1500 meters. On page 207 for men and page 211 for women graphs are shown which plot *age-factor value versus age* for the distances of mile, 3k, 5k, 10k and marathon. Next, on page 208 for men and page 212 for women graphs are shown which plot *age-factor value versus distance* for the ages of 40, 60, 80 and 100 years of age. And lastly, on page 209 for men and page 213 for women graphs are shown which plot *age-factor value versus distance* for the ages of 5, 9 and 18 years of age. Considering the impacts of the various phenomena involved, the resulting age-factor surfaces depicted in the graphs are really quite well behaved.

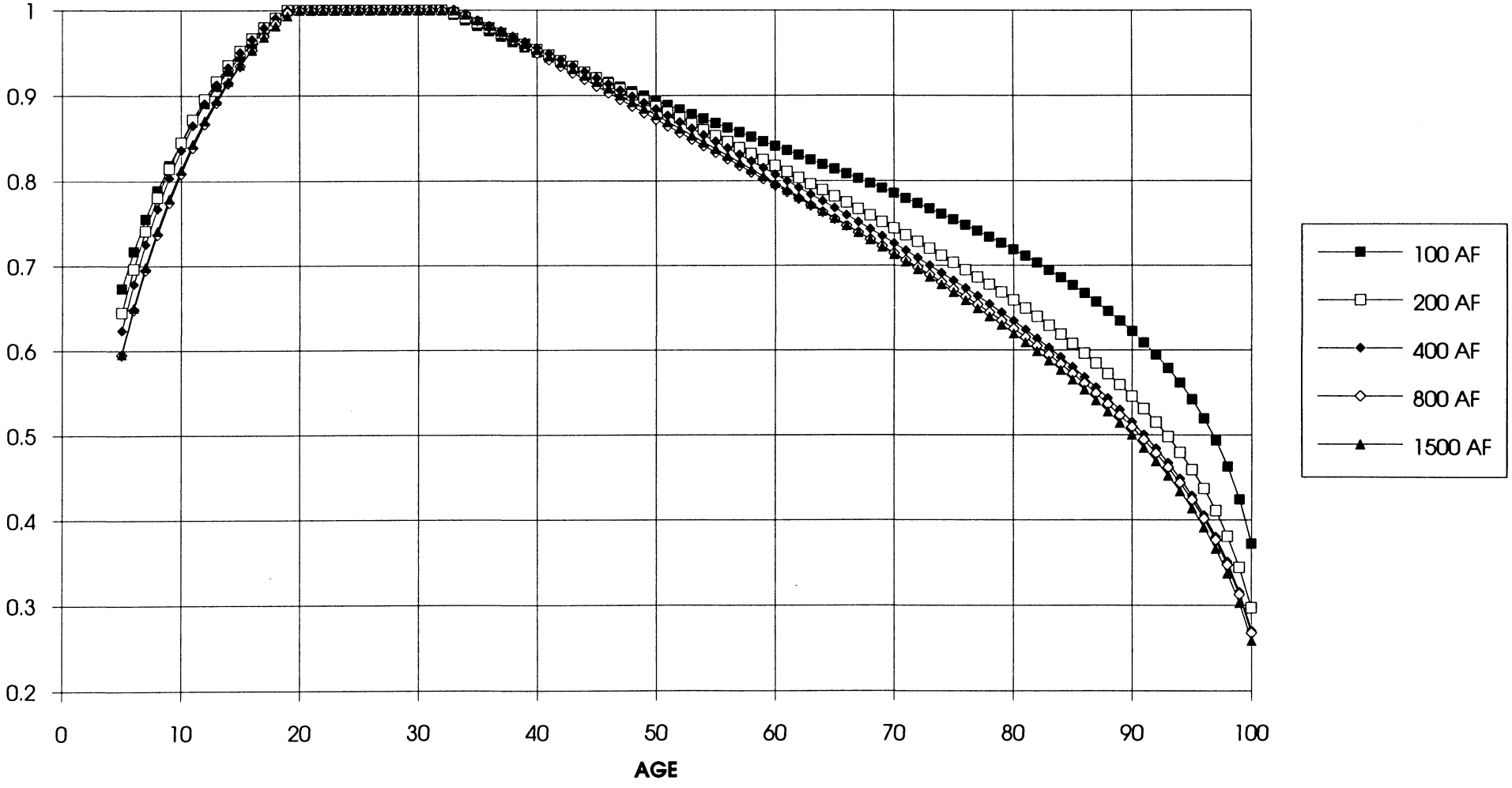
For the hurdle events refer to page 50 for the discussion of age-factors and to page 54 for the age-factor tables. Three graphs for men and three graphs for women are then presented here in chapter 6. On page 214 for men and page 217 for women graphs are shown which plot *age-factor value versus age* for the sprint hurdles (80, 100 and 110 meters). On page 215 for men and page 218 for women graphs are shown which plot *age-factor value versus age* for the intermediate hurdles (300 and 400 meters). On page 216 for men and page 219 for women graphs are shown which plot *age-factor value versus age* for the steeplechase (2000 and 3000 meters). These graphs are not restricted to age-factor values for only the age sanctioned TAC/WAVA hurdle events, instead they depict the age-factor values versus age over the entire age range. This is done to ensure that curve cross-over does not occur. The resulting age-factors are seen to be quite well behaved in all regards.

For the field events refer to page 101 for the discussion of age-factors and refer to page 106 for men's age factors and to page 140 for women's age-factor tables. Seven graphs for men

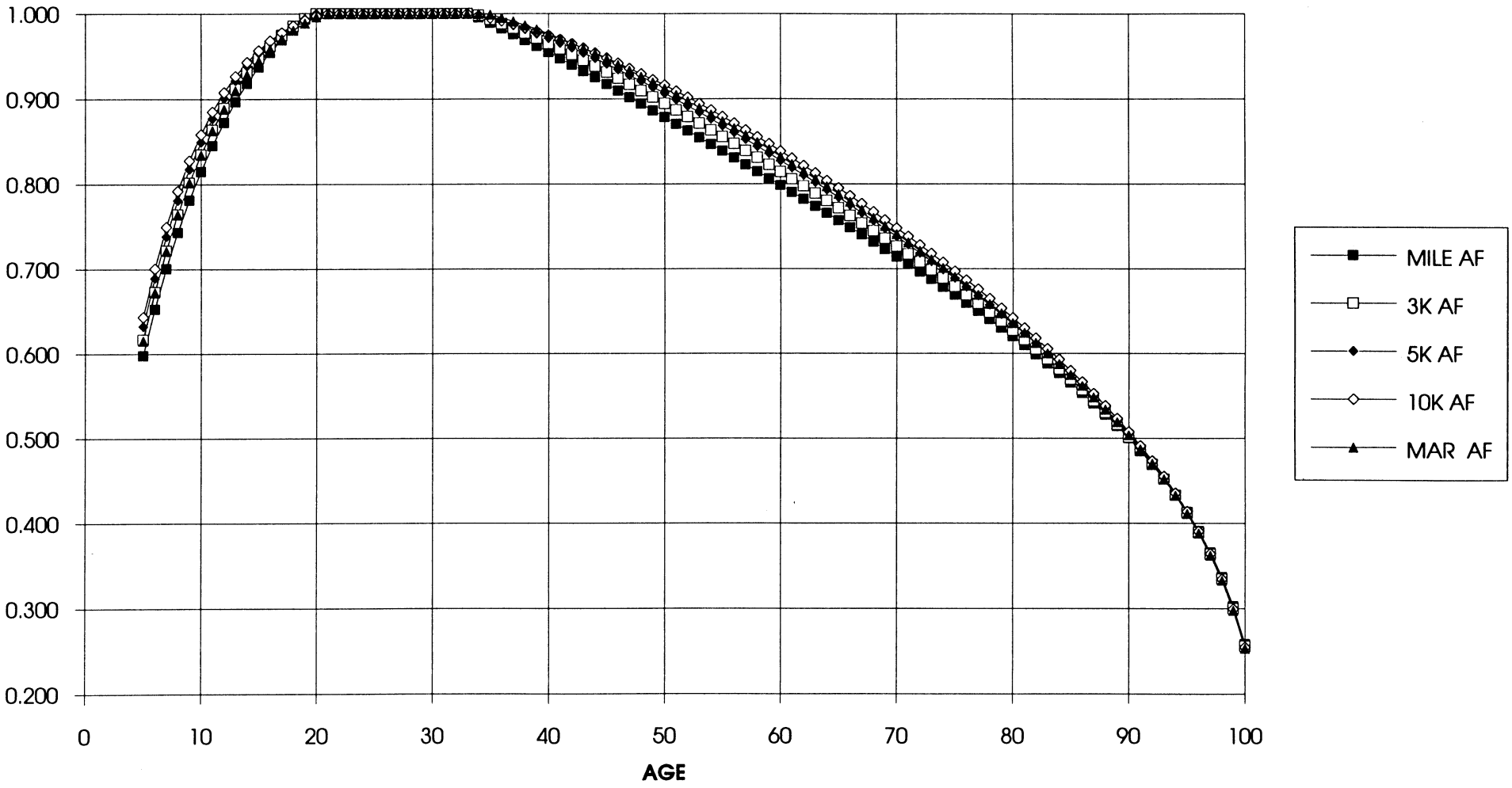
and seven graphs for women are then presented here in chapter 6. On page 220 for men and page 227 for women graphs are shown which plot *age-factor value versus age* for the field event jumps (pole vault, high jump, long jump and triple jump). On page 221 for men and page 228 for women graphs are shown which plot *age-factor value versus age* for the open class field event throws (shot put, hammer throw, discus throw, javelin throw and weight throw). Next on pages 222 through 226 for men and pages 229 through 233 for women separate graphs of *age-factor value versus age* are shown for the shot put, hammer throw, discus throw, javelin throw and weight throw which include all of the specified implements for each event. These graphs are not restricted to age-factor values for only the age sanctioned TAC/WAVA throw events, instead they depict the age-factor values versus age over the entire age range. This is done to ensure that curve cross-over does not occur. The resulting age-factors are seen to be quite well behaved in all regards except that for men the shot put and discus throw appear to be "too good" in the 40 to 50 year age range. While this suggests that performance enhancing substances may be involved for some performers, no such records have yet been excluded from the data base or not used in calculating the standards.

For the race walk events refer to page 164 for the discussion of age-factors and to page 168 for the age-factor tables. Four graphs for men and four graphs for women are then presented here in chapter 6. On page 234 for men and page 238 for women graphs are shown which plot *age-factor value versus age* for the distances of 1 mile, 2 miles, 5k and 10k meters. On page 235 for men and page 239 for women graphs are shown which plot *age-factor value versus age* for the distances of 15k, 20k, 25k and 50k meters. Next, on page 236 for men and page 240 for women graphs are shown which plot *age-factor value versus distance* for the ages of 40, 60, 80 and 100 years of age. And lastly, on page 237 for men and page 241 for women graphs are shown which plot *age-factor value versus distance* for the ages of 9 and 18 years of age. Considering the impacts of the various phenomena involved, the resulting age-factor surfaces depicted in the graphs are reasonably well behaved.

MENS AND BOYS AGE-FACTORS FOR RUNNING EVENTS



MENS AND BOYS AGE-FACTORS FOR RUNNING EVENTS



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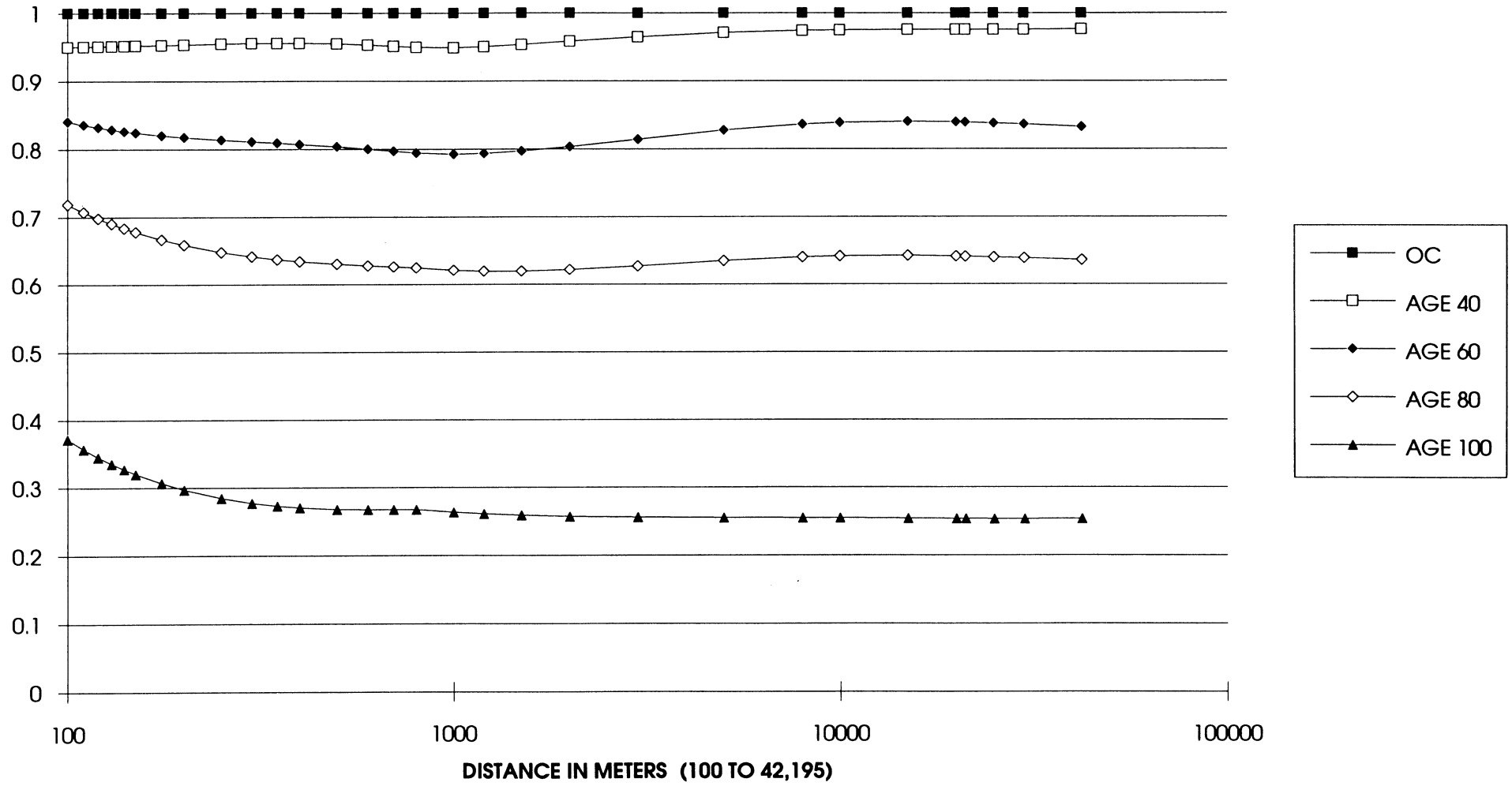
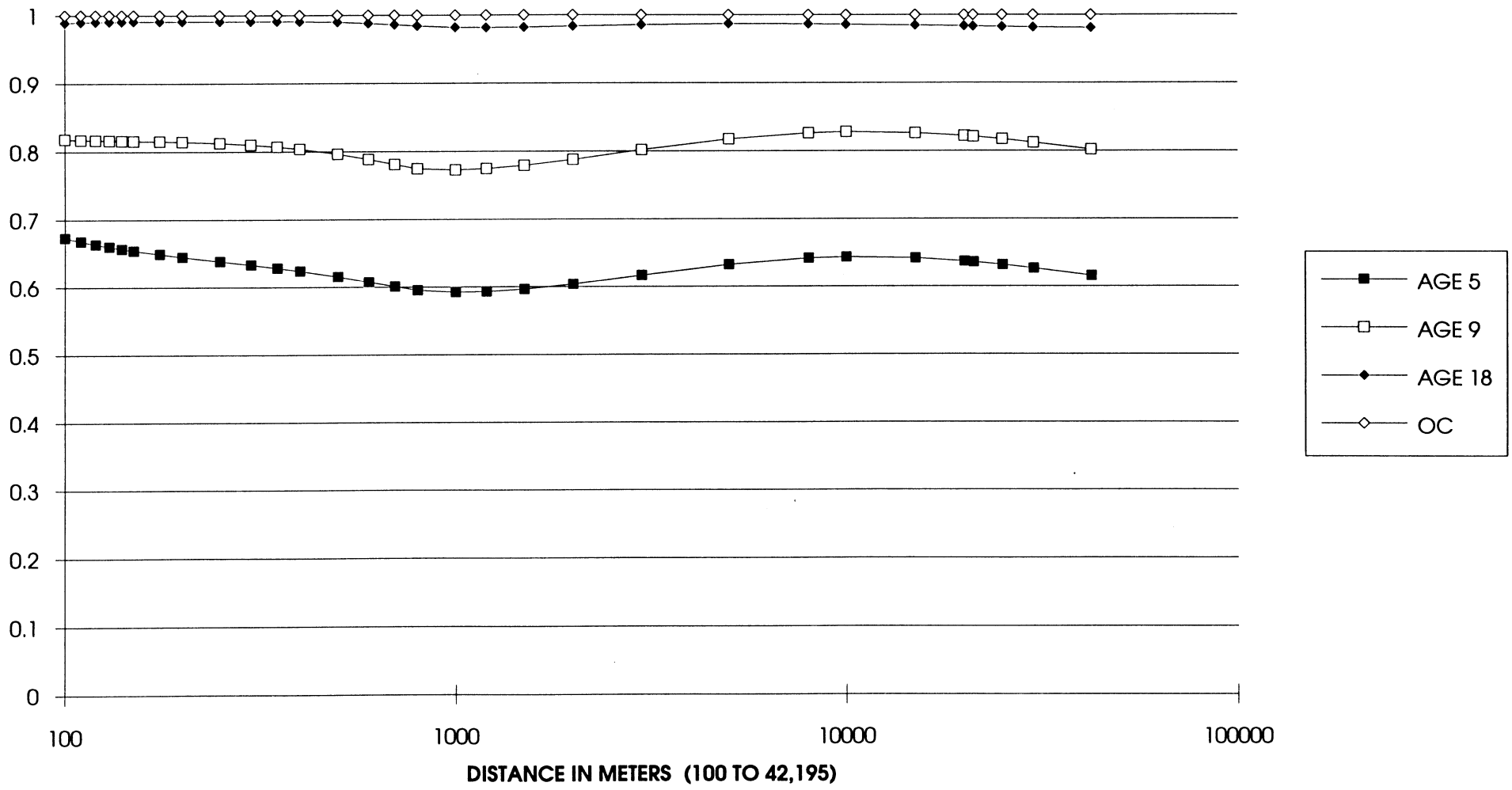


BOYS AGE-FACTORS FOR RUNNING EVENTS



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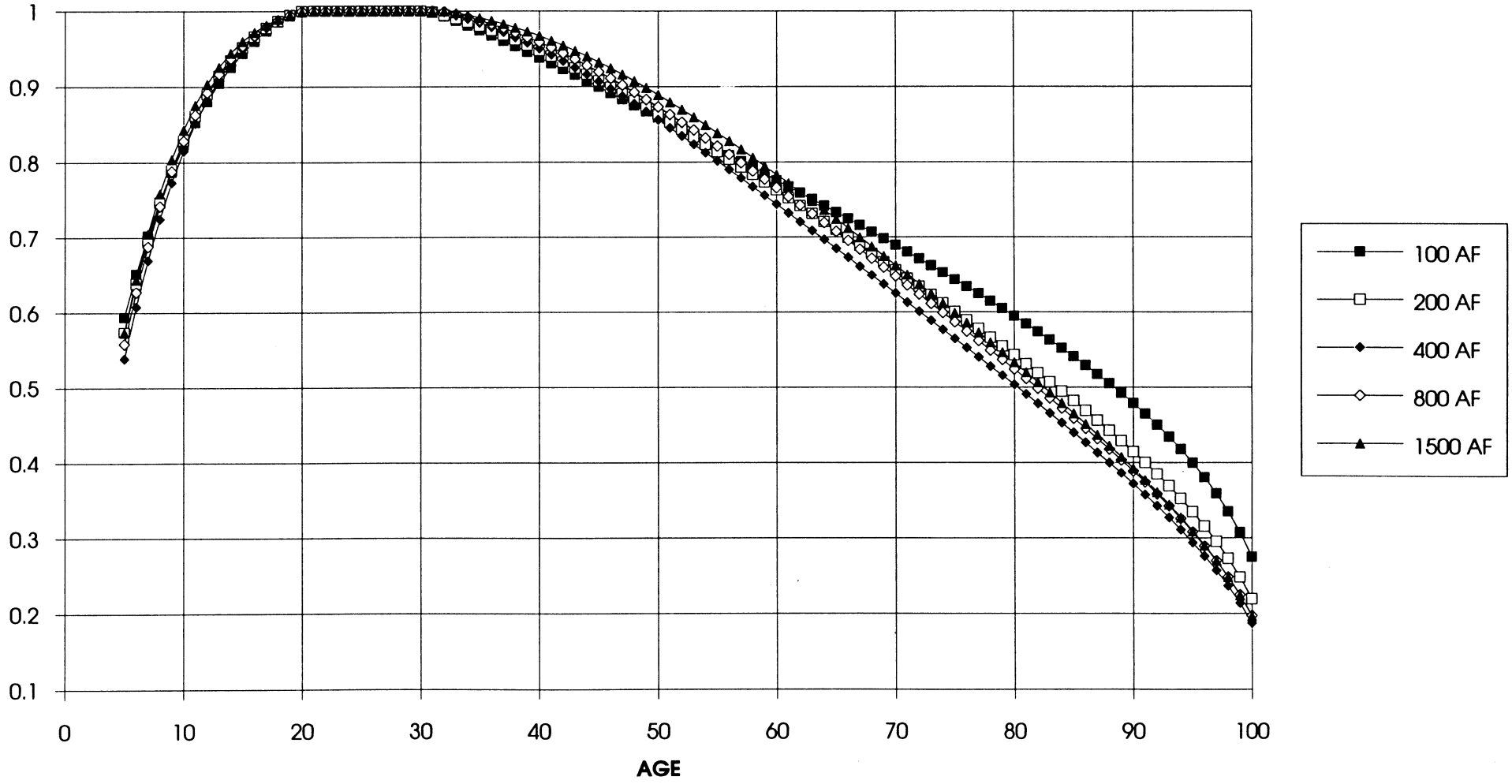

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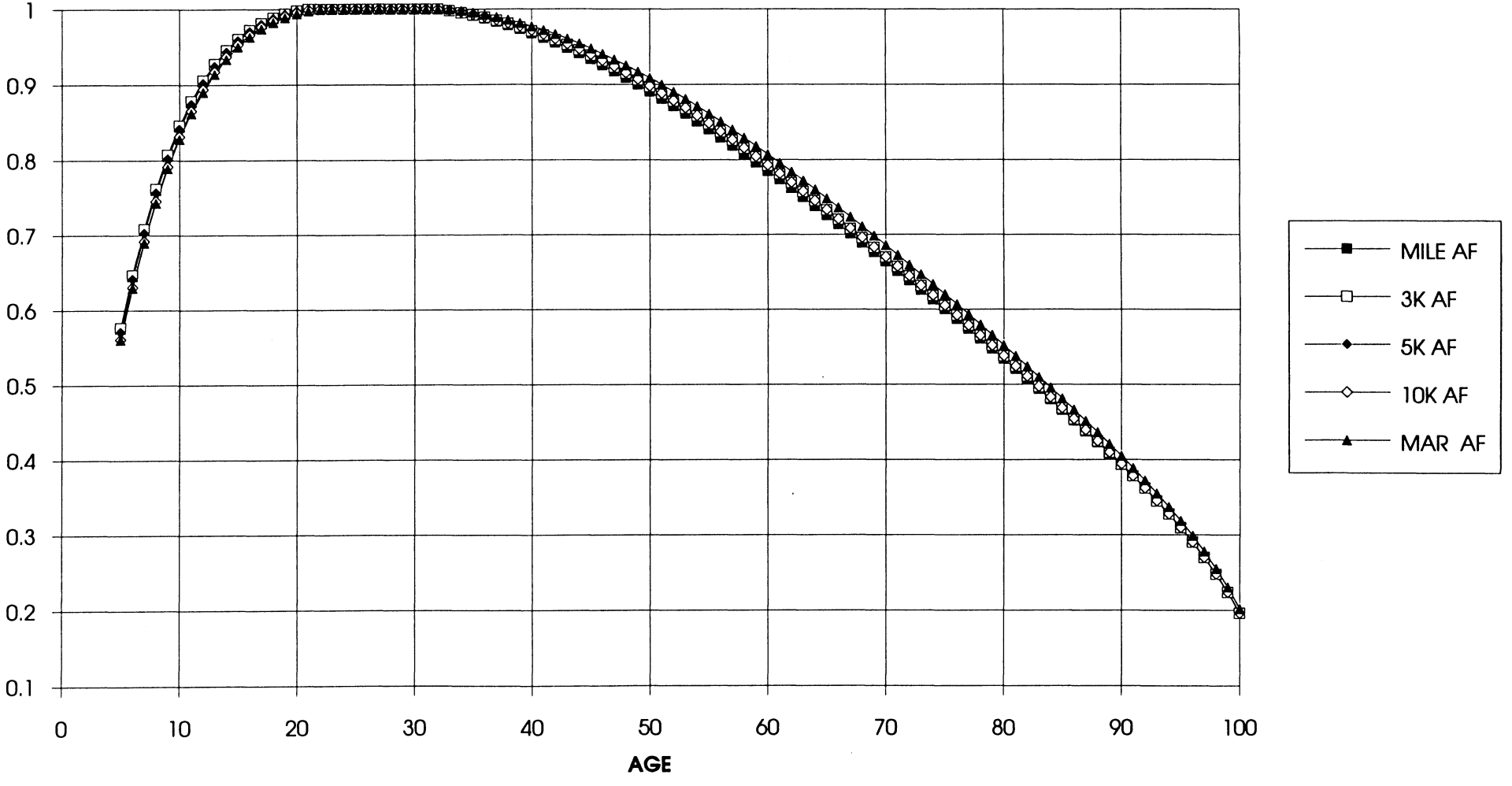
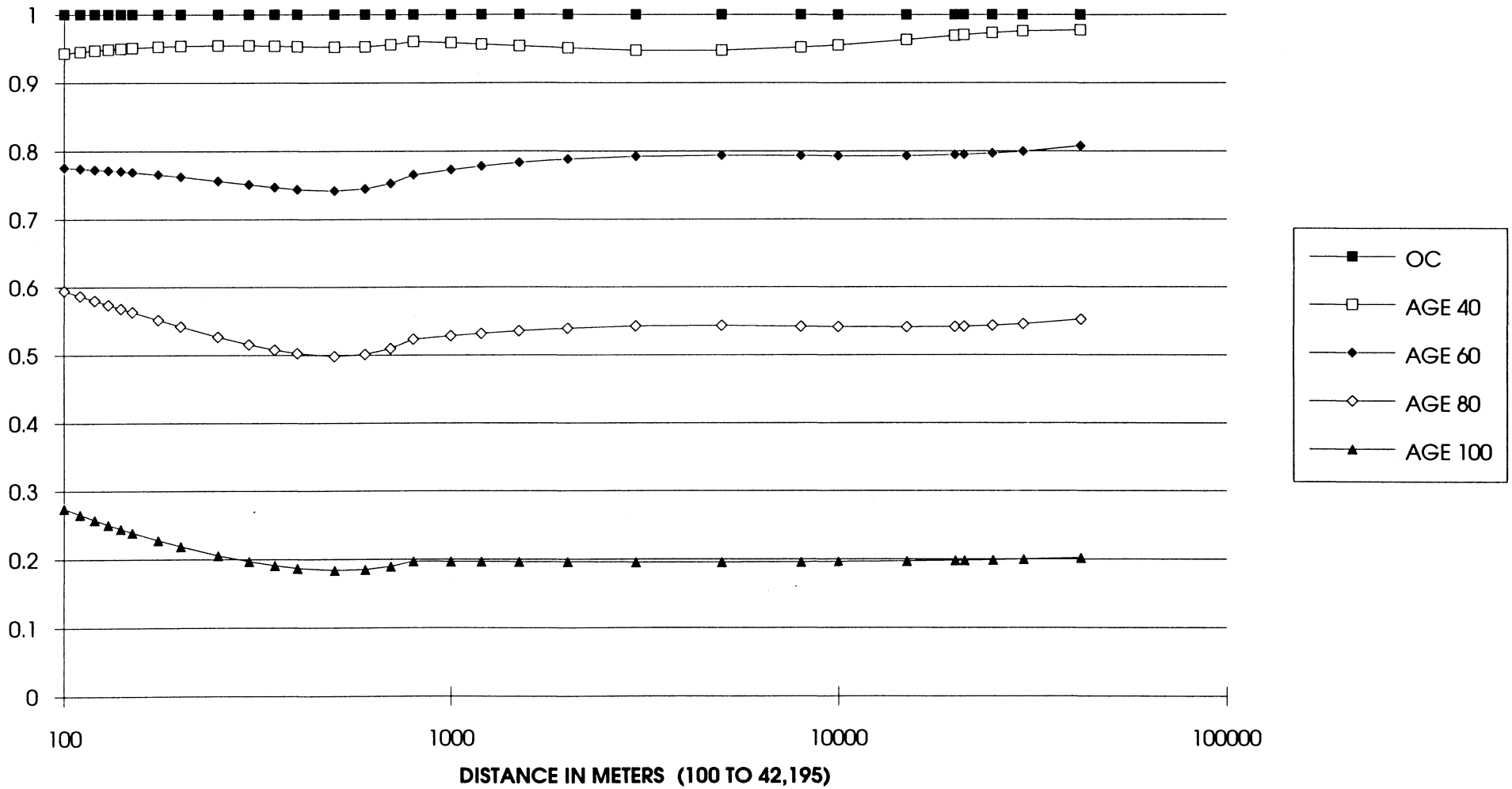
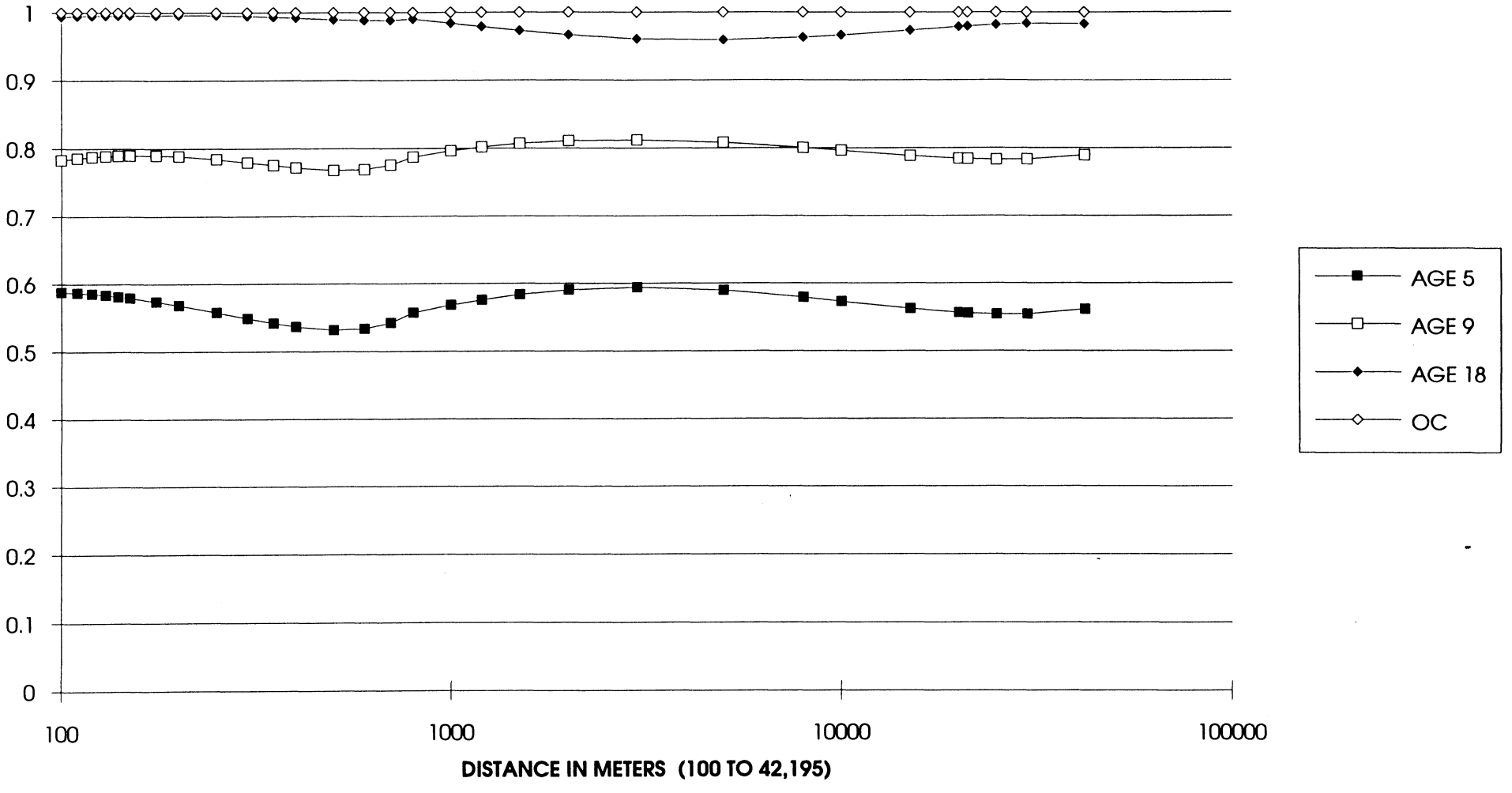


WOMENS AGE-FACTORS FOR RUNNING EVENTS



GIRLS AGE-FACTORS FOR RUNNING EVENTS



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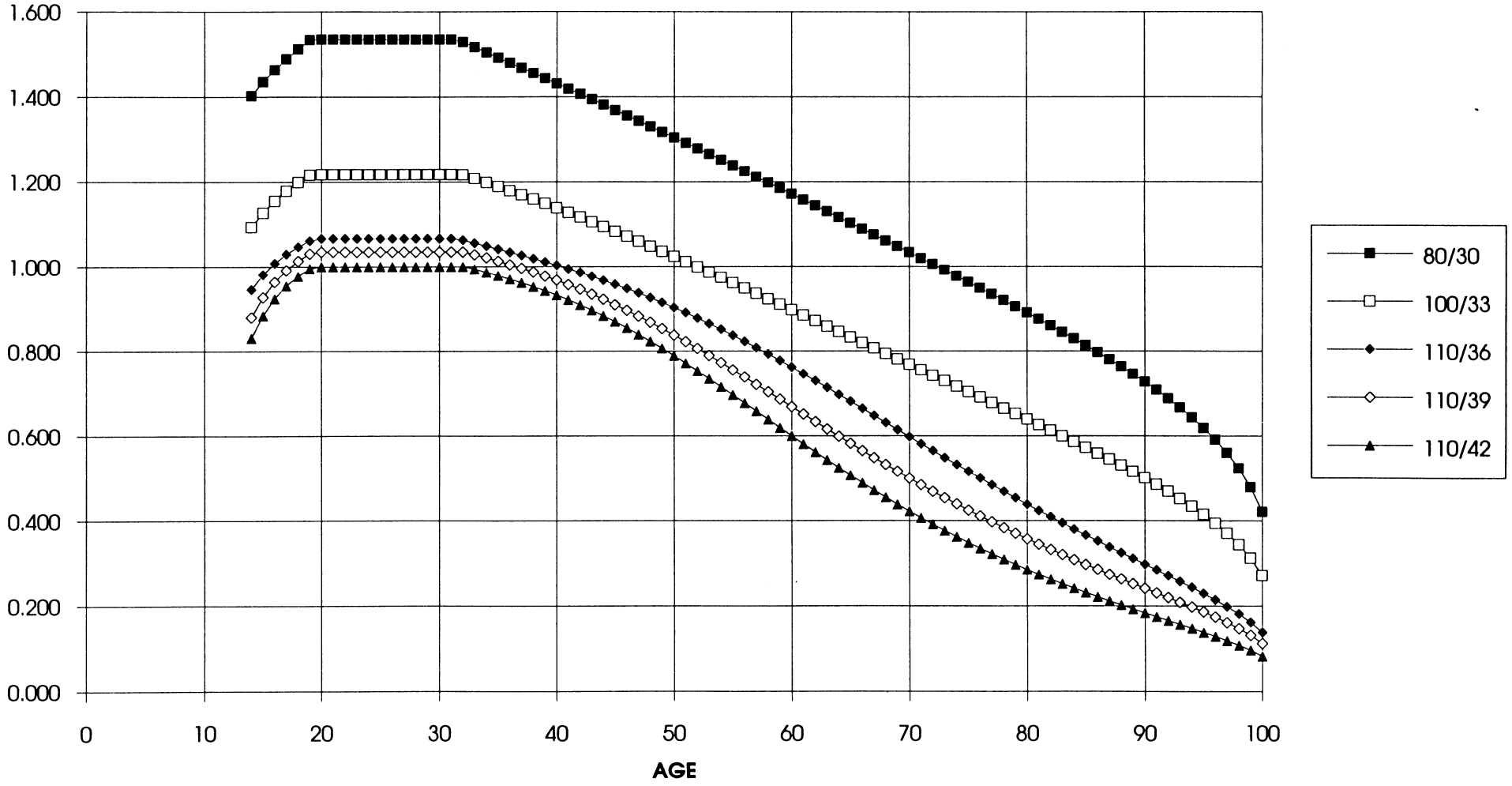
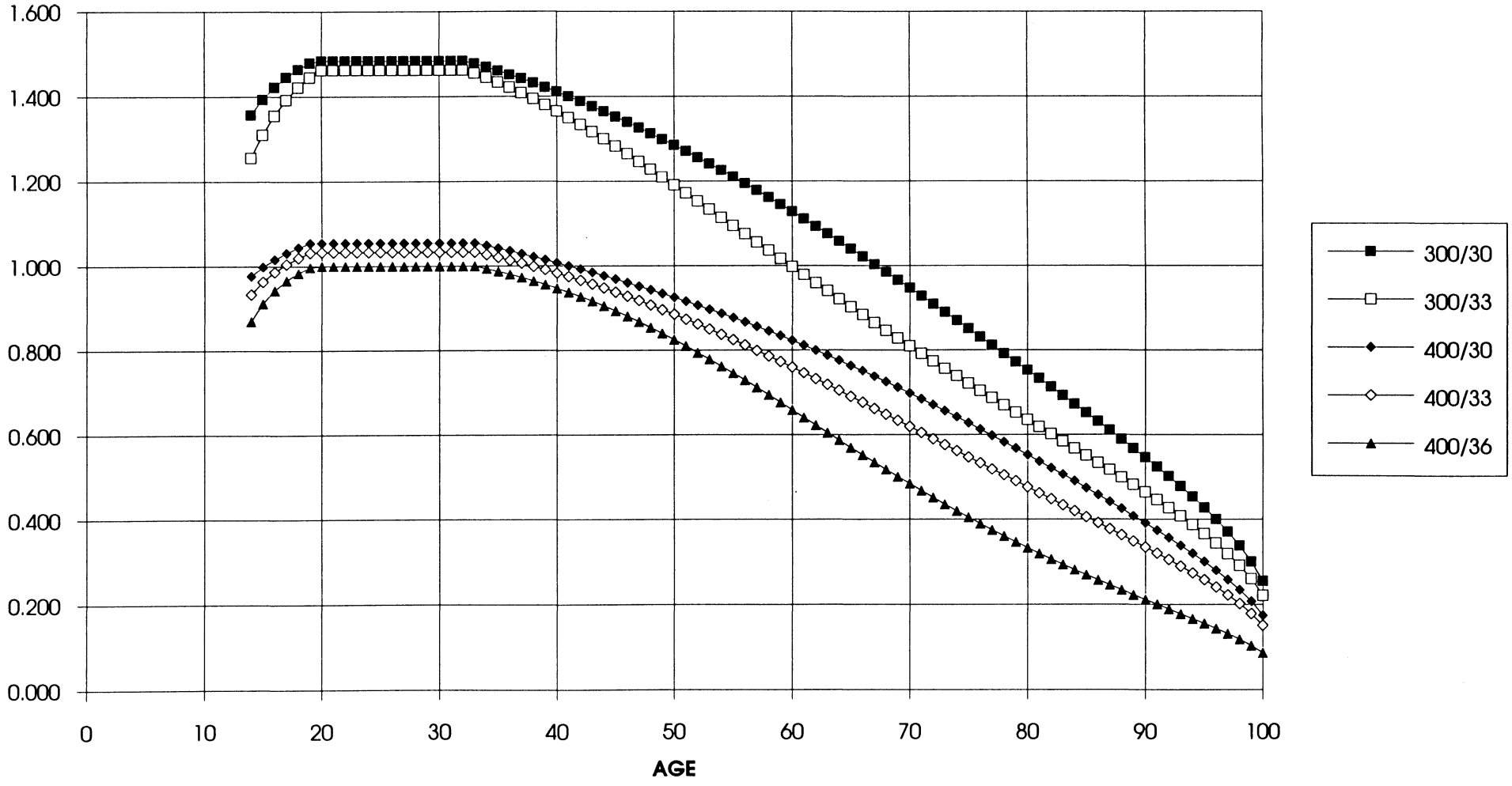
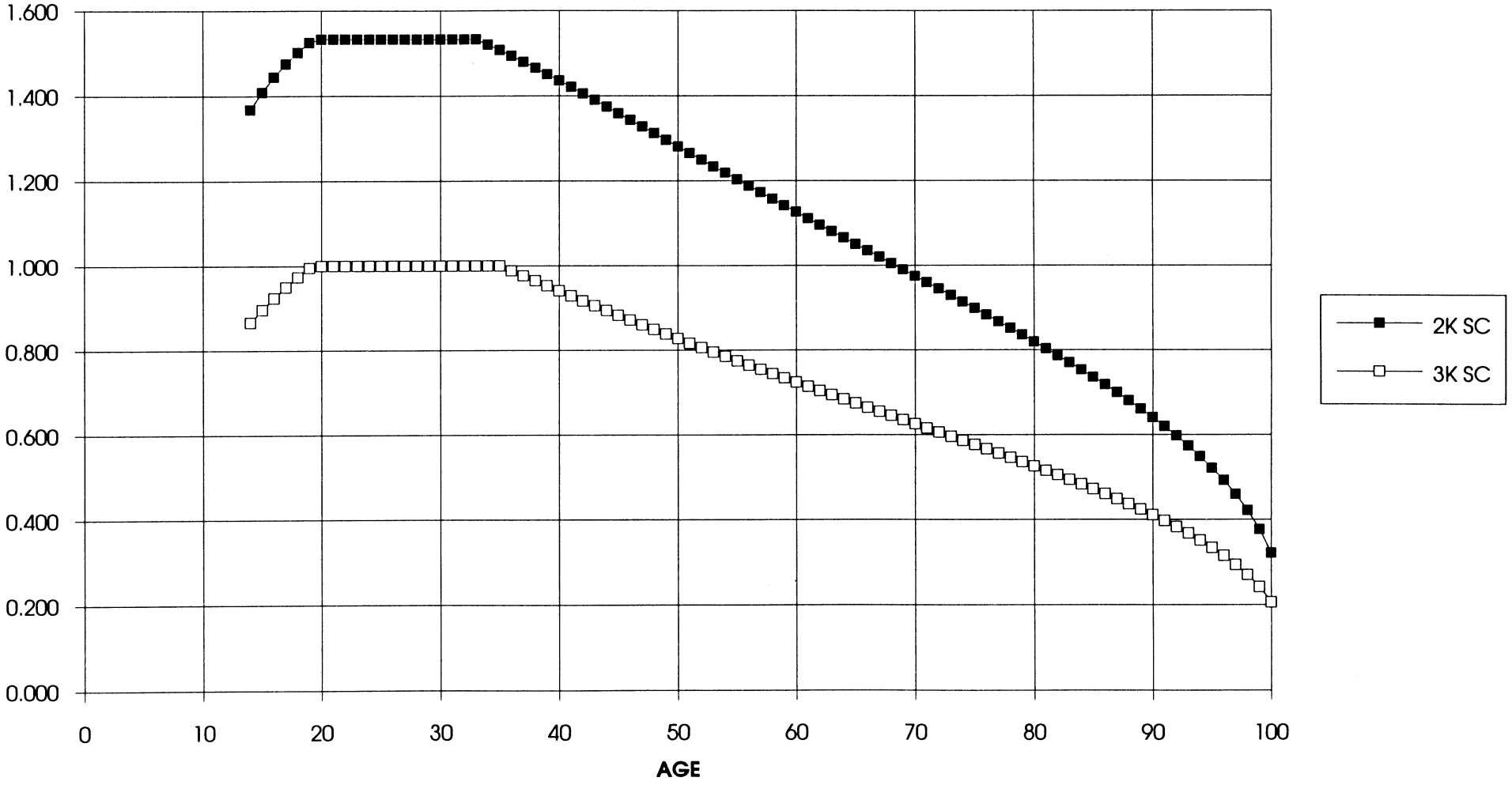


MENS AND BOYS AGE-FACTORS FOR INTERMEDIATE HURDLES



MENS AND BOYS AGE-FACTORS FOR STEEPLECHASE



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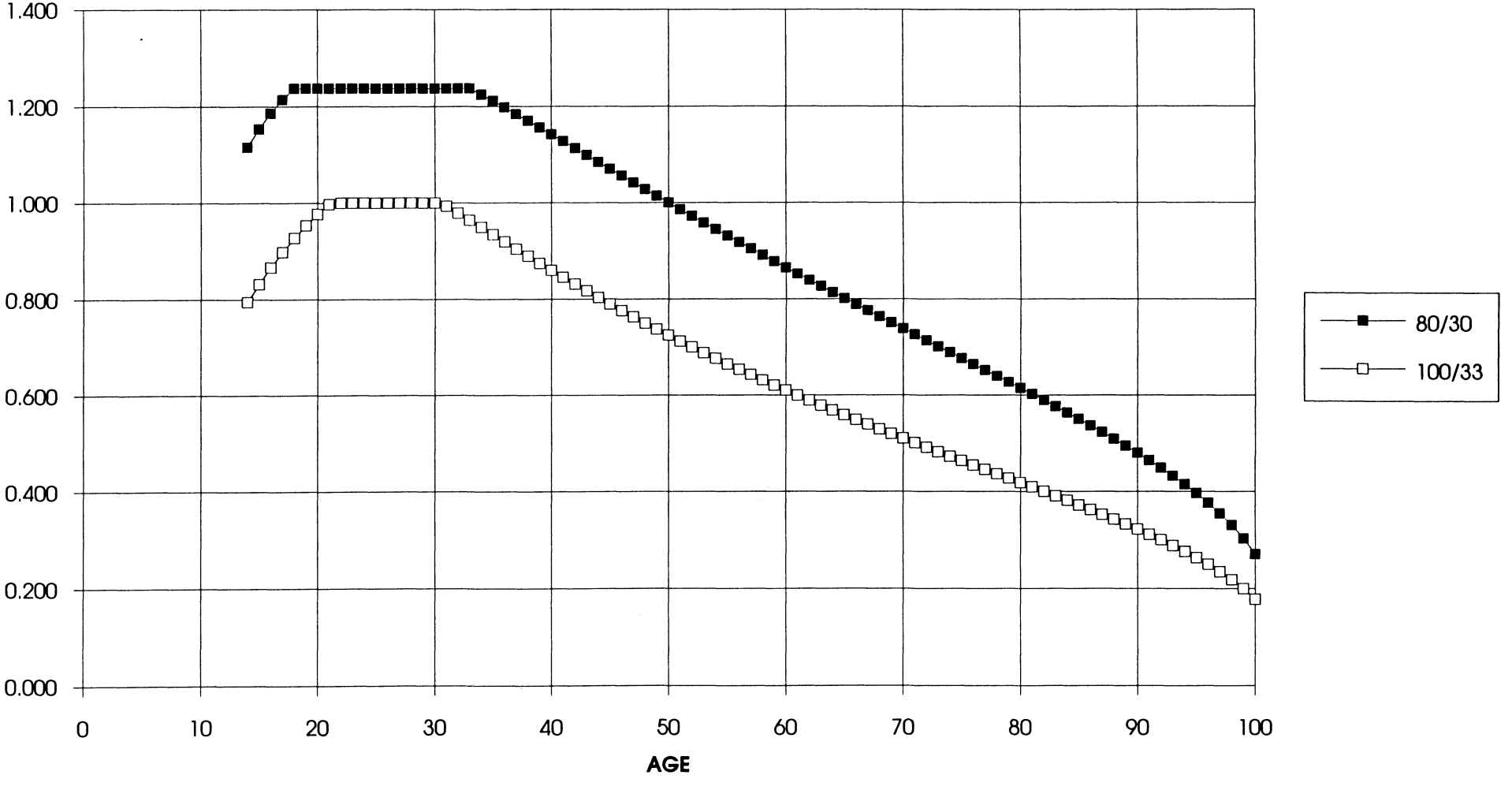

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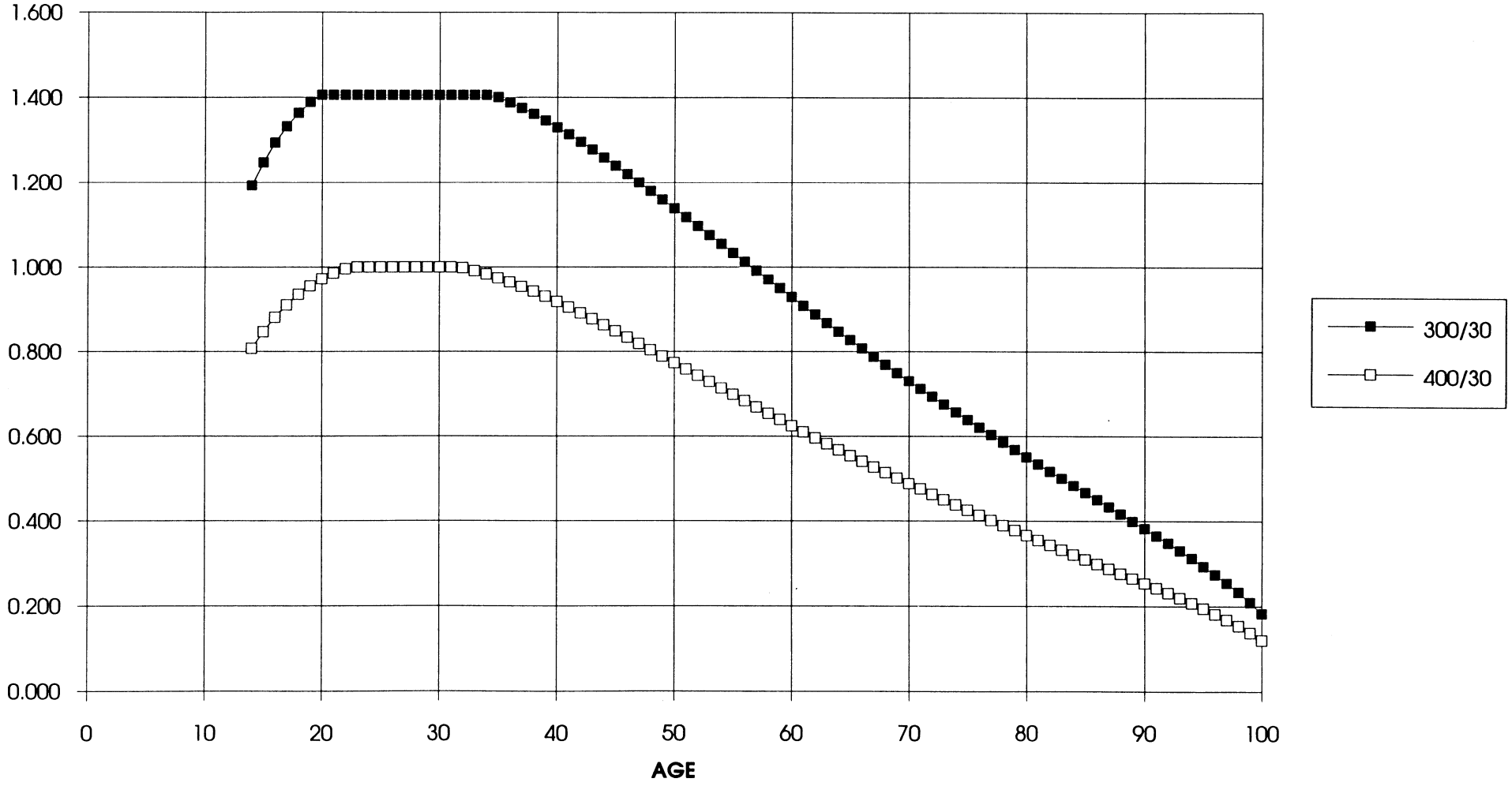

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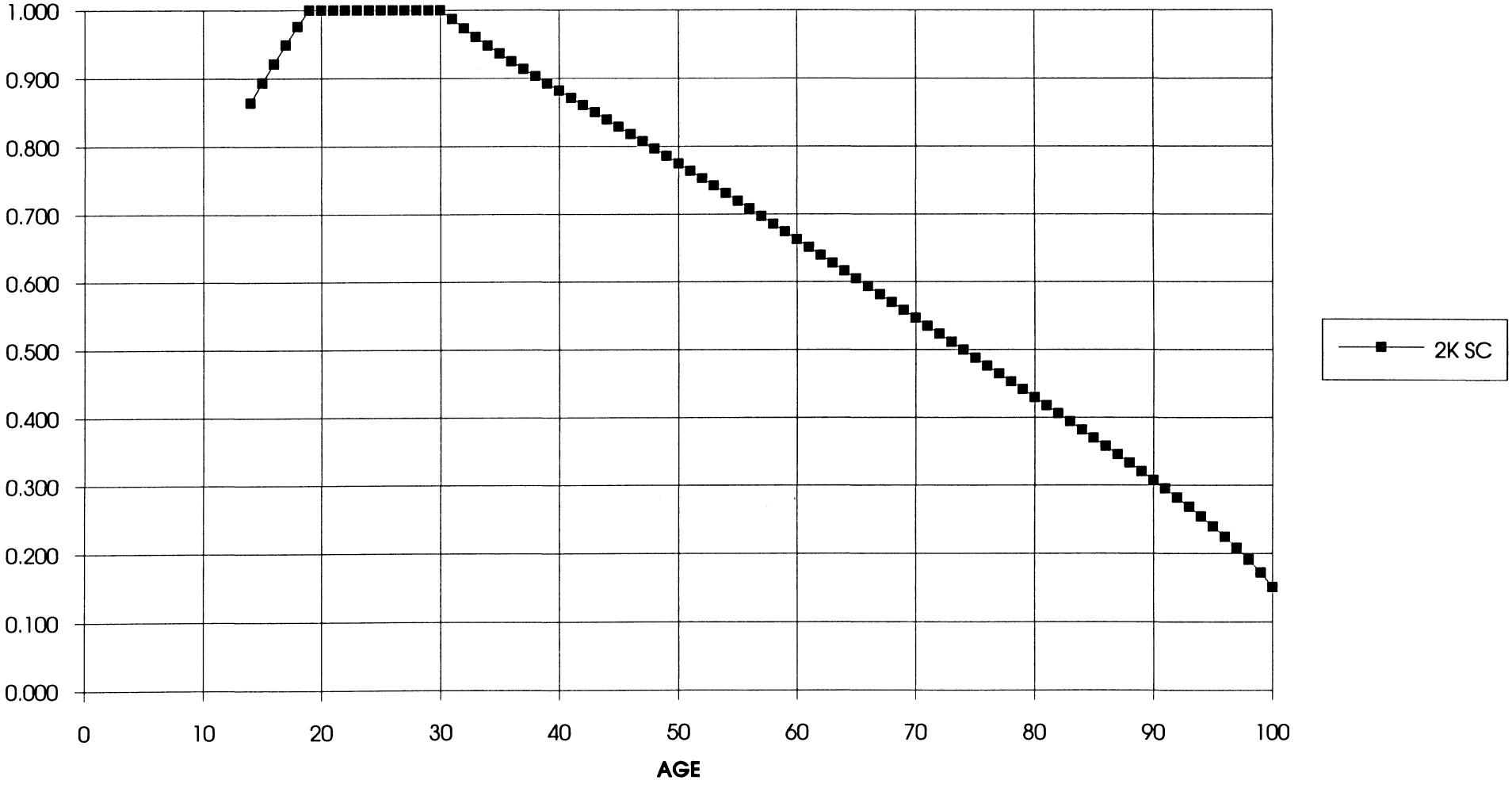
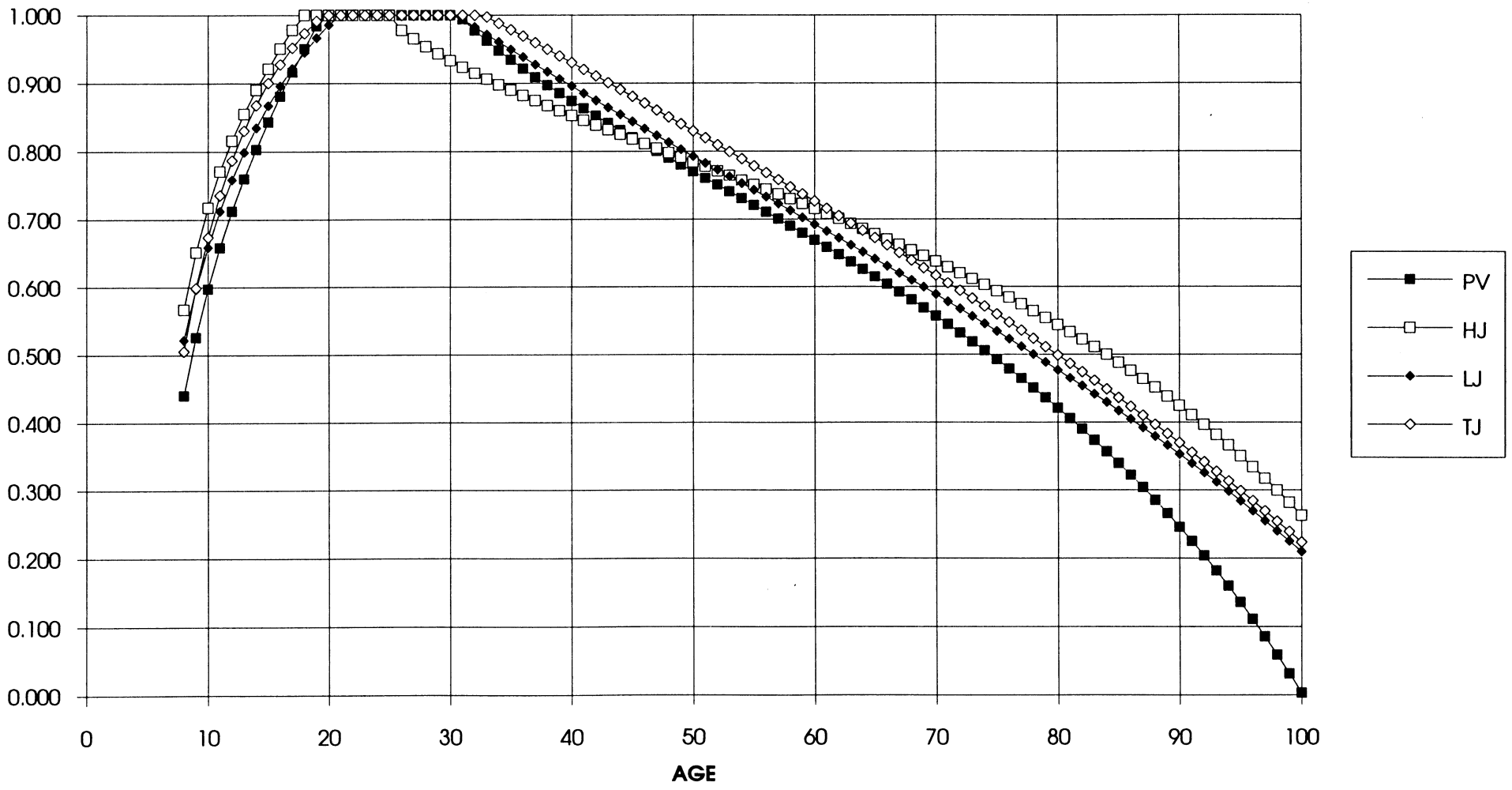
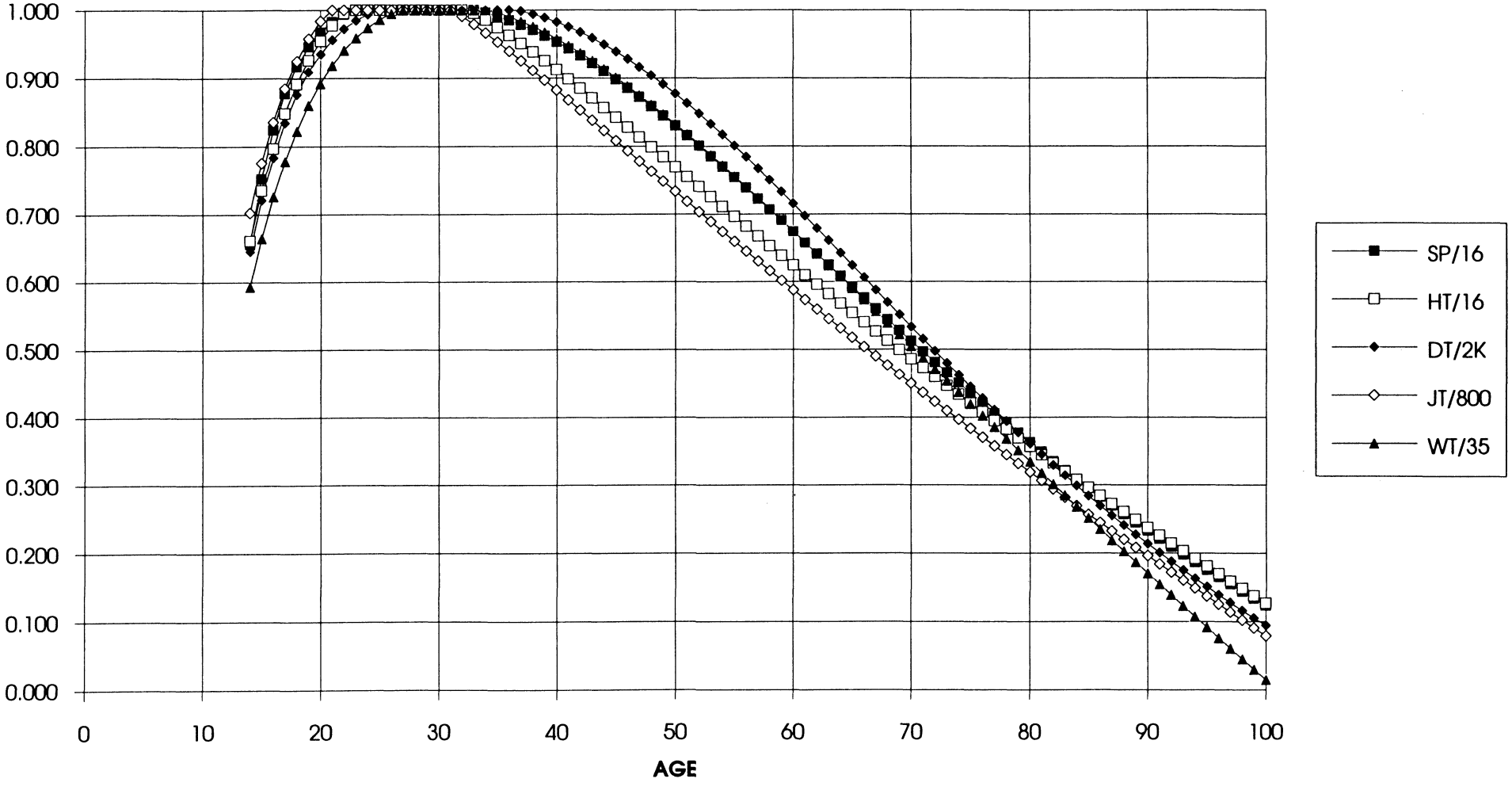


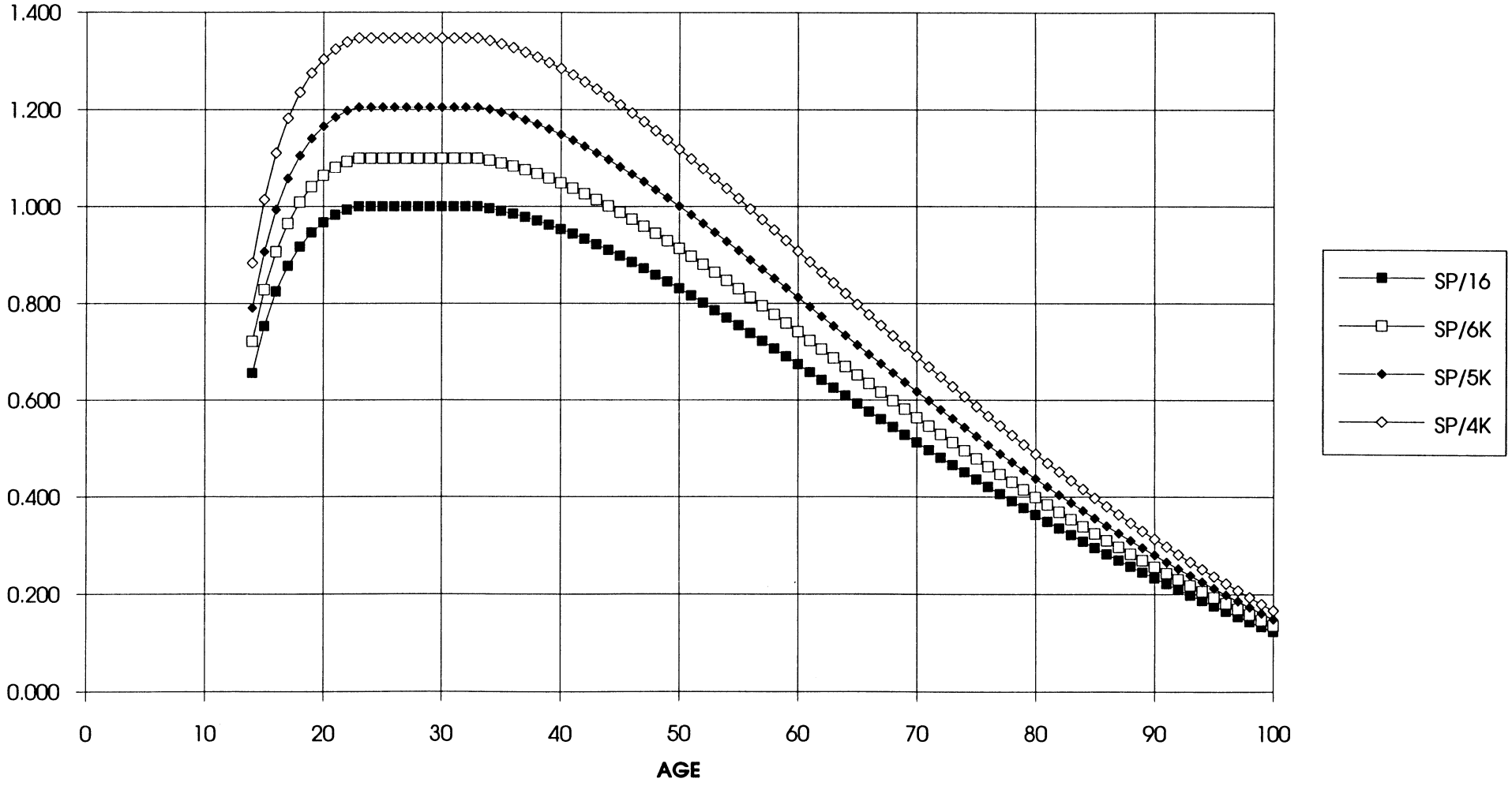
MENS AND BOYS AGE-FACTORS FOR JUMP FIELD EVENTS



MENS AND BOYS AGE-FACTORS FOR THROW FIELD EVENTS



MENS AND BOYS AGE-FACTORS FOR SHOT PUT



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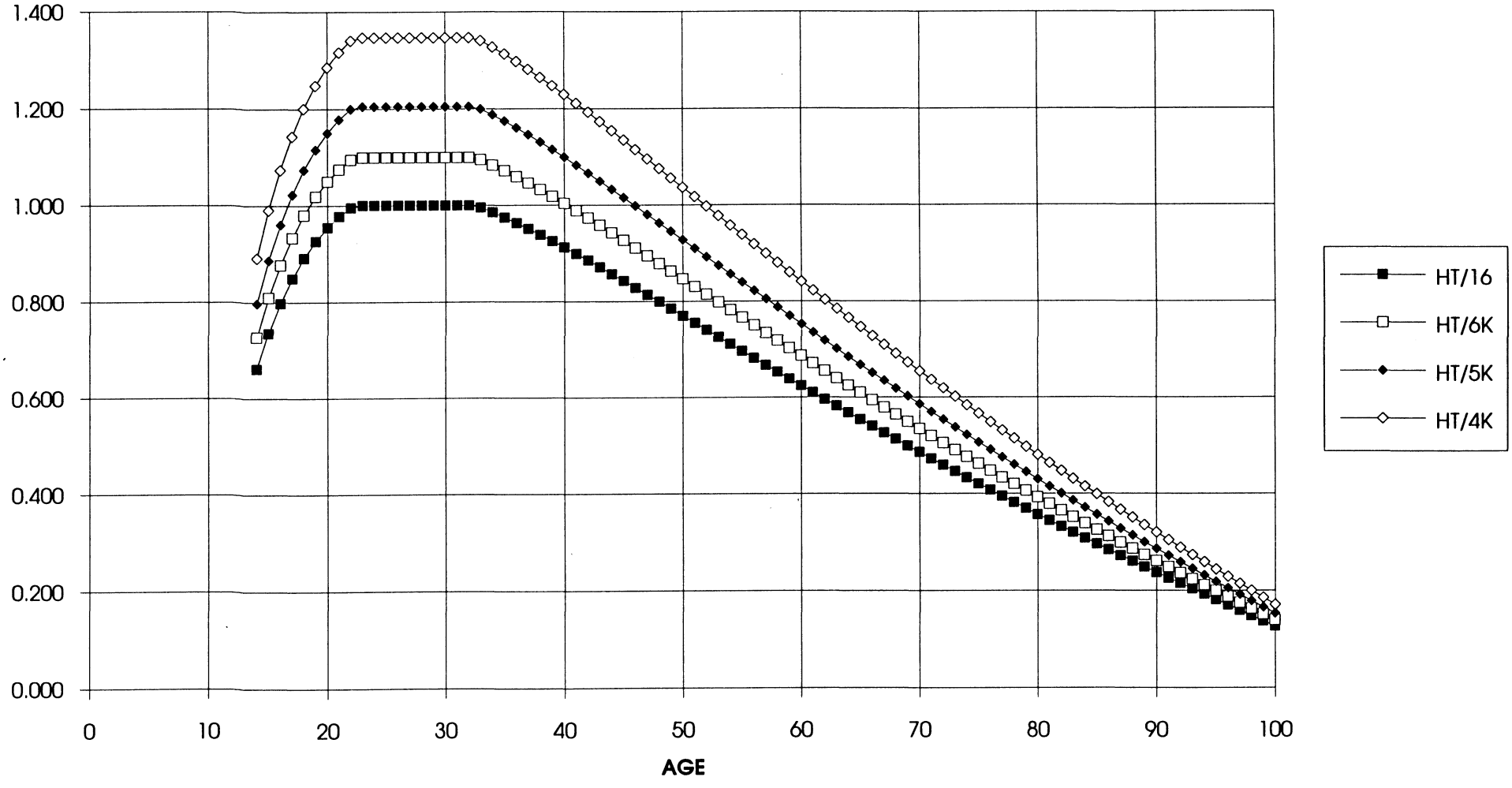

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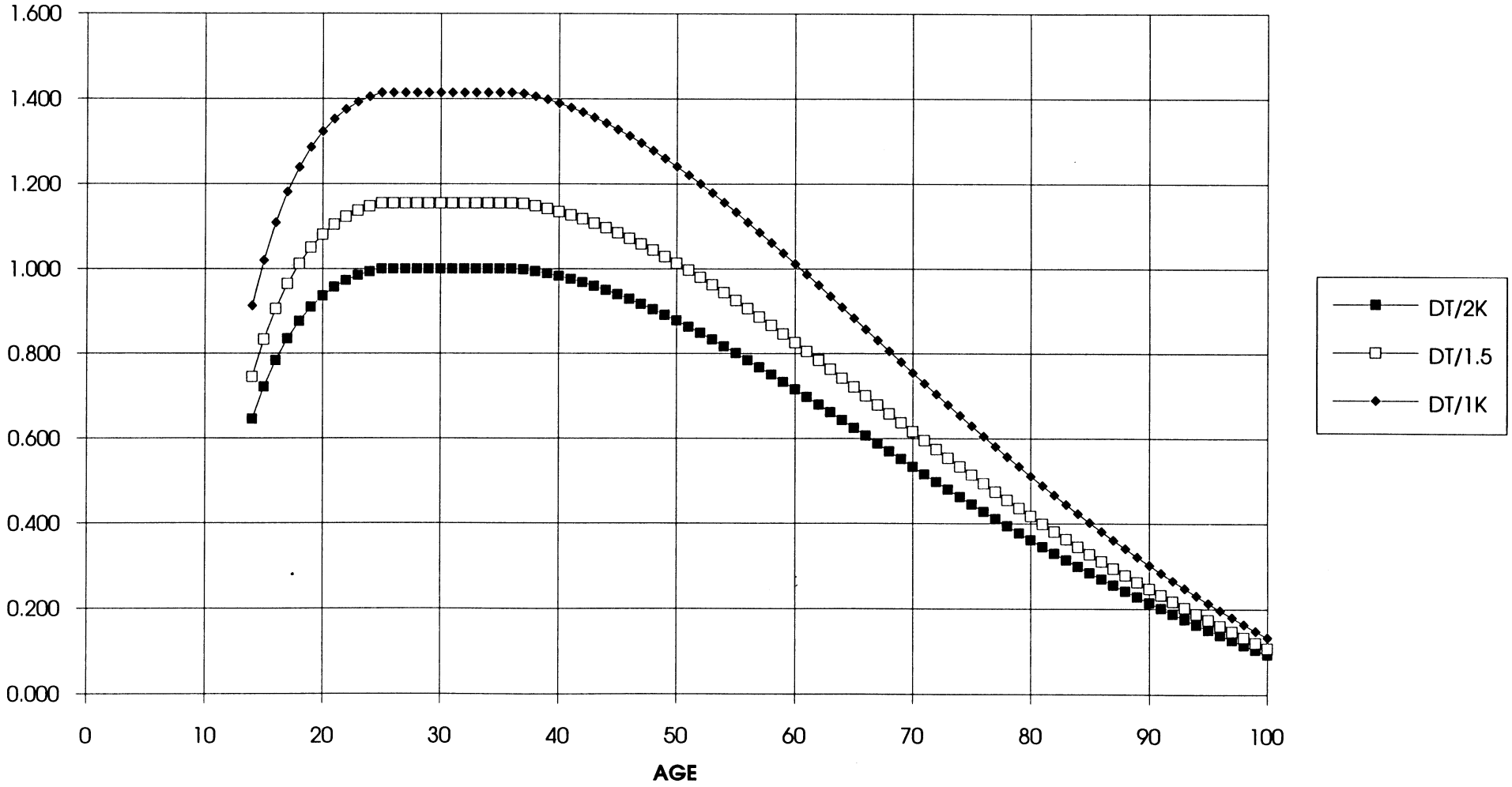
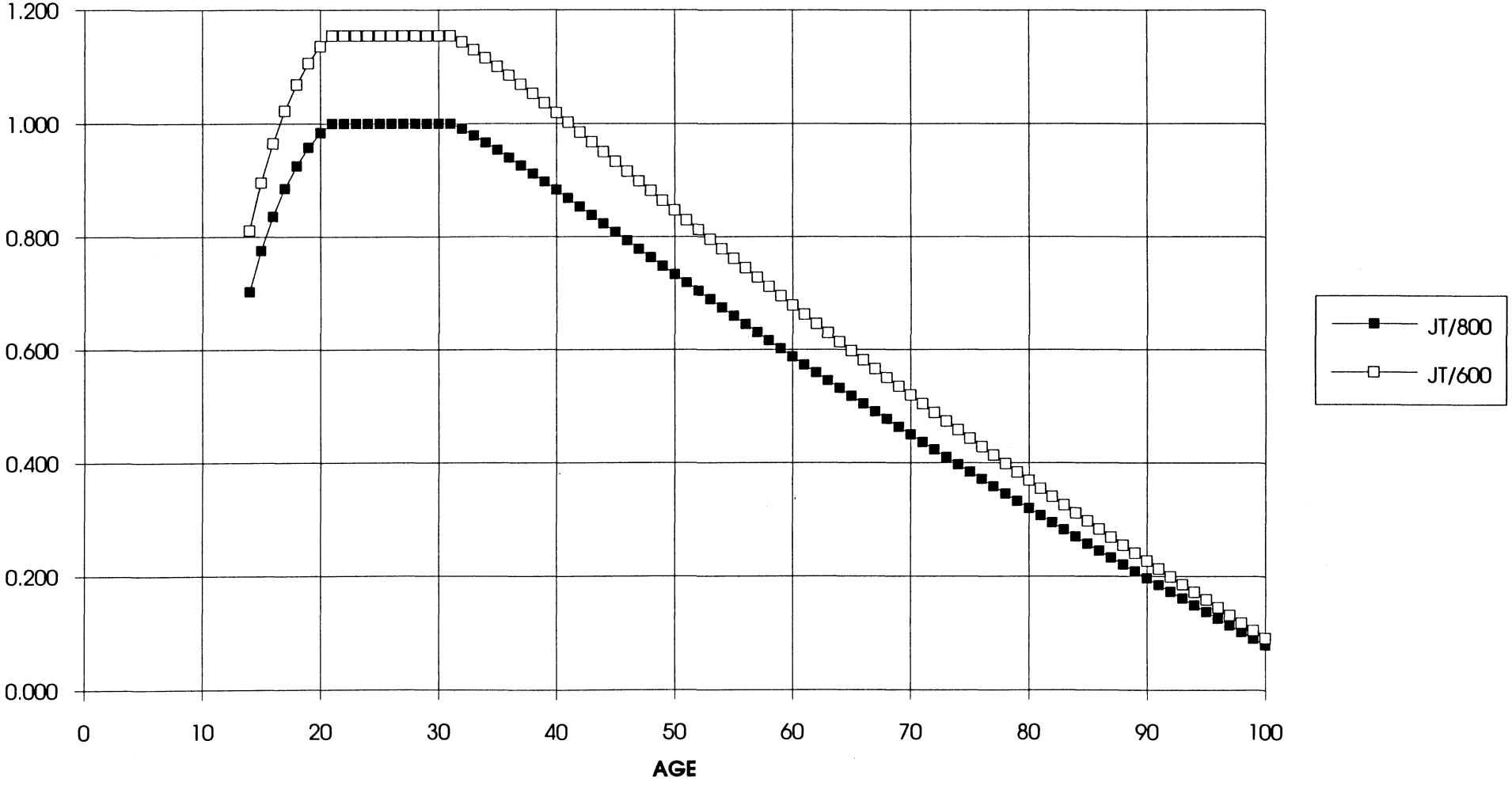
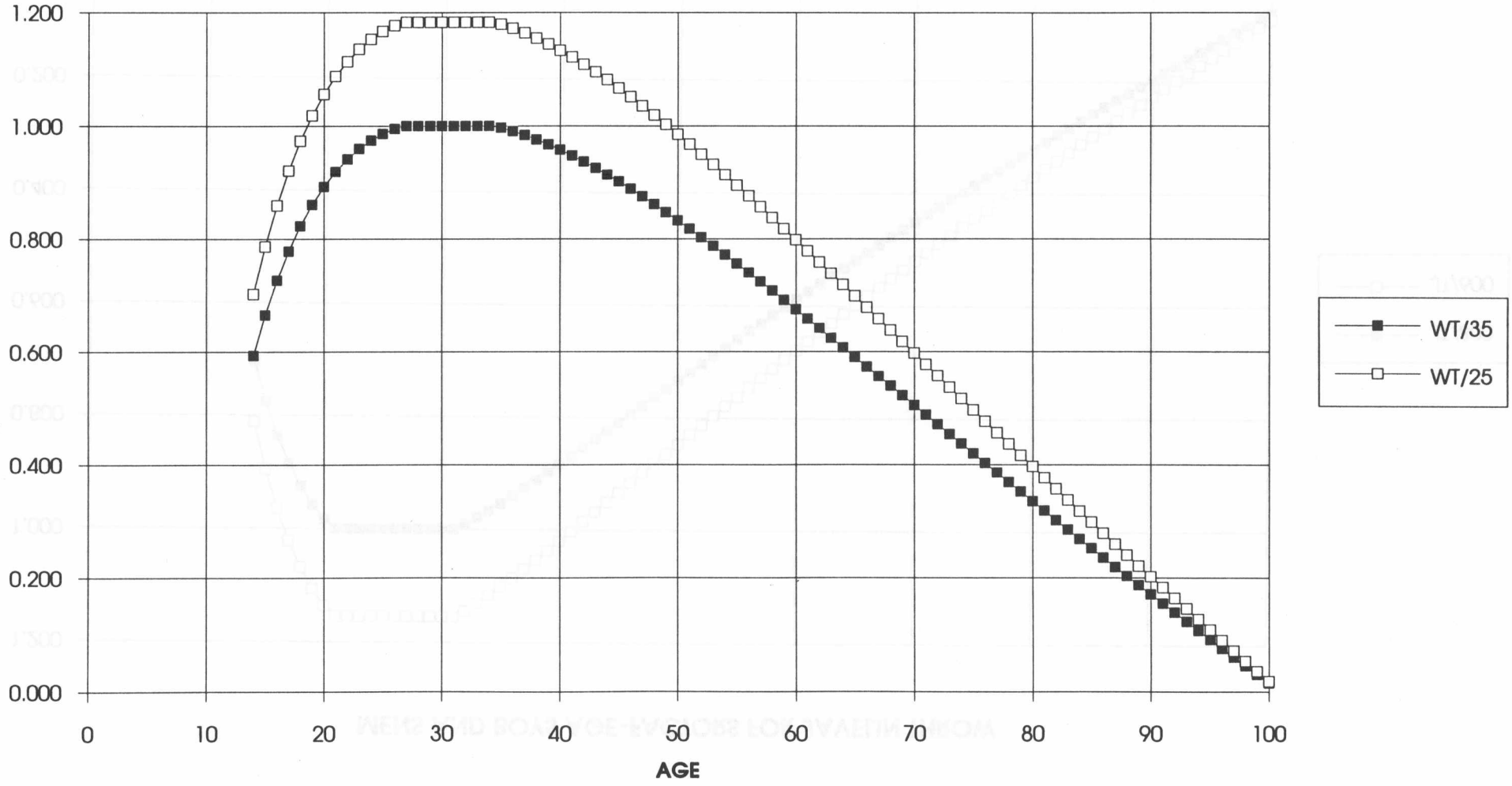


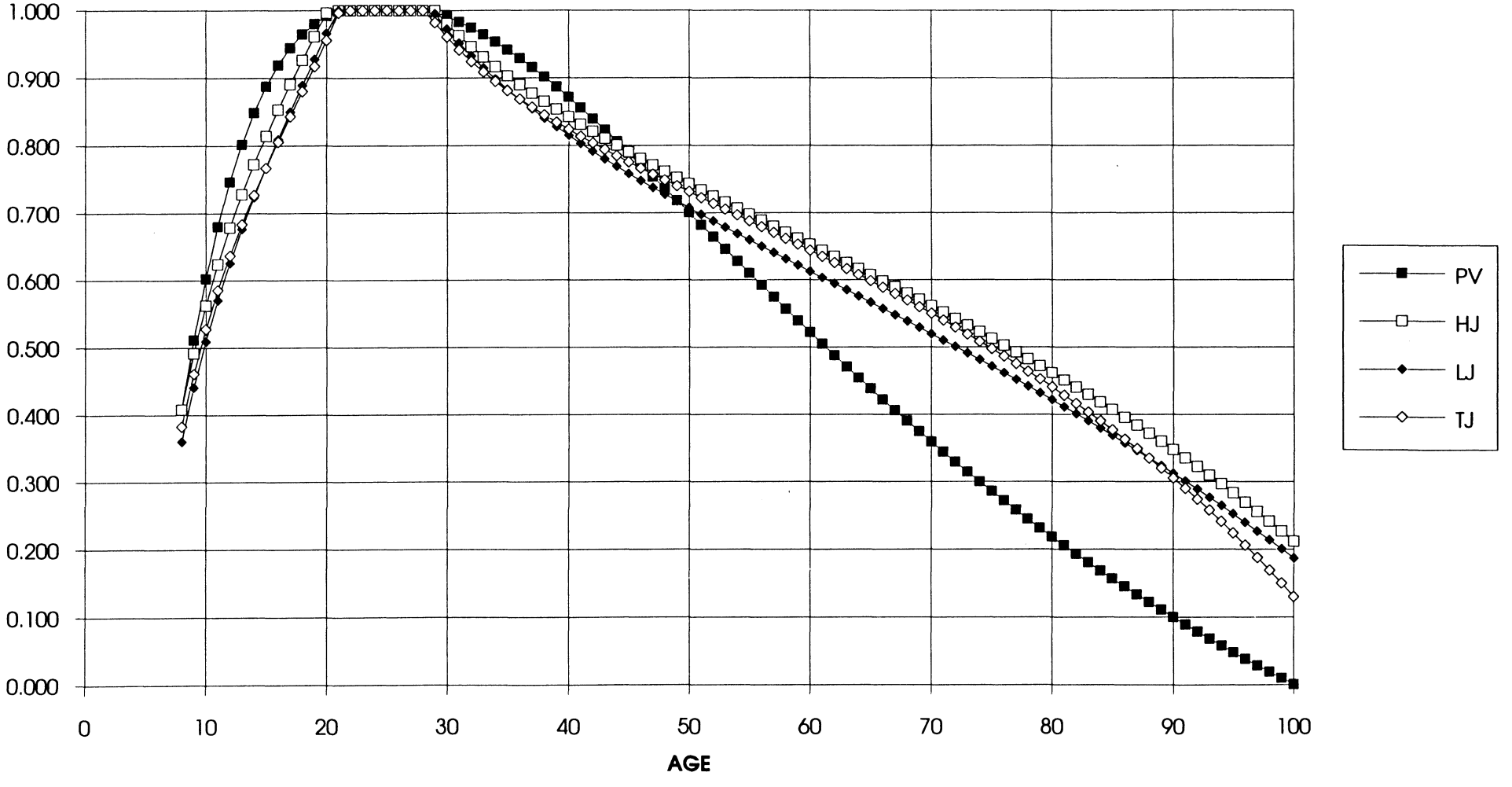
MENS AND BOYS AGE-FACTORS FOR JAVELIN THROW



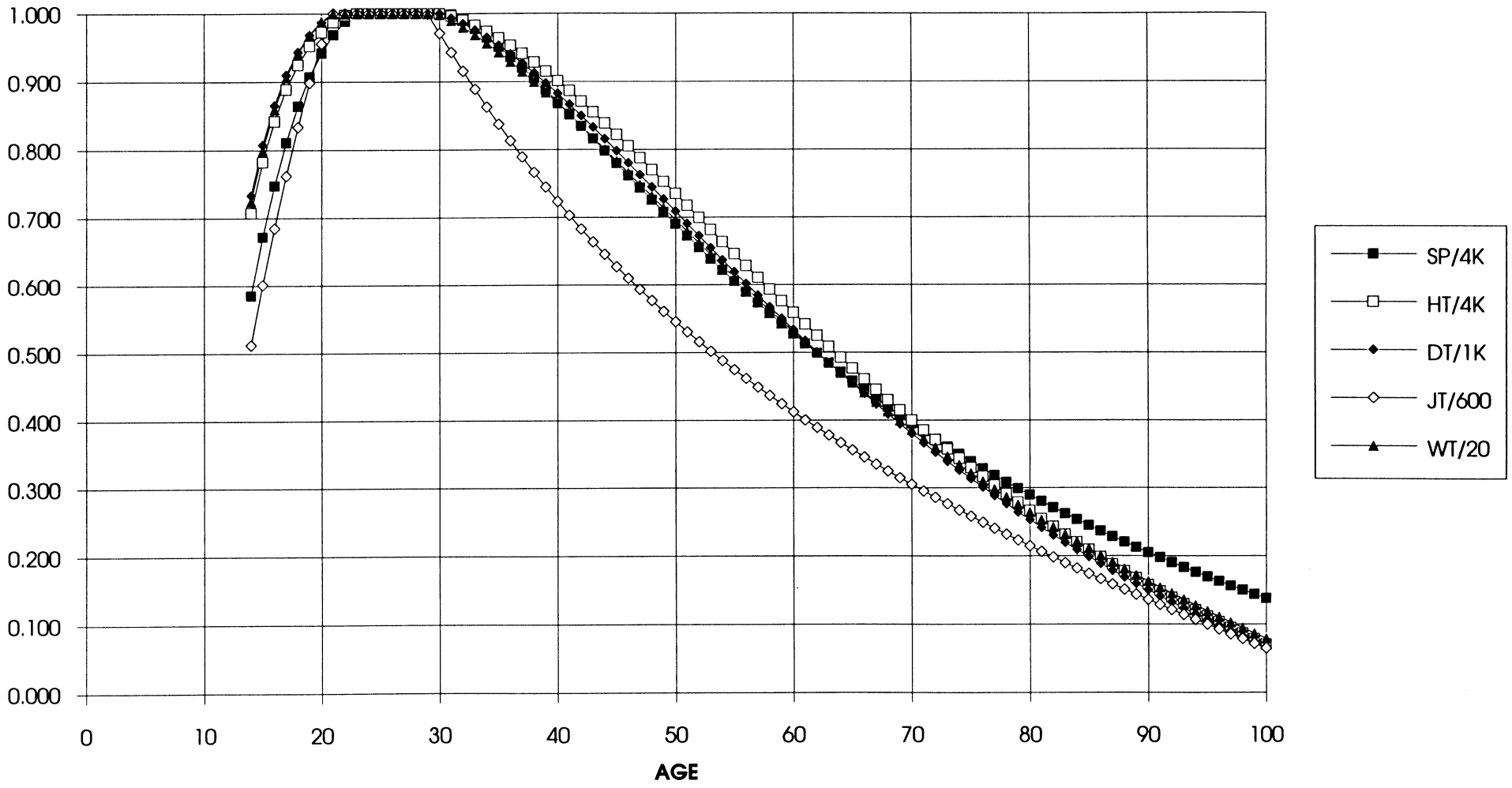
MENS AND BOYS AGE-FACTORS FOR WEIGHT THROW



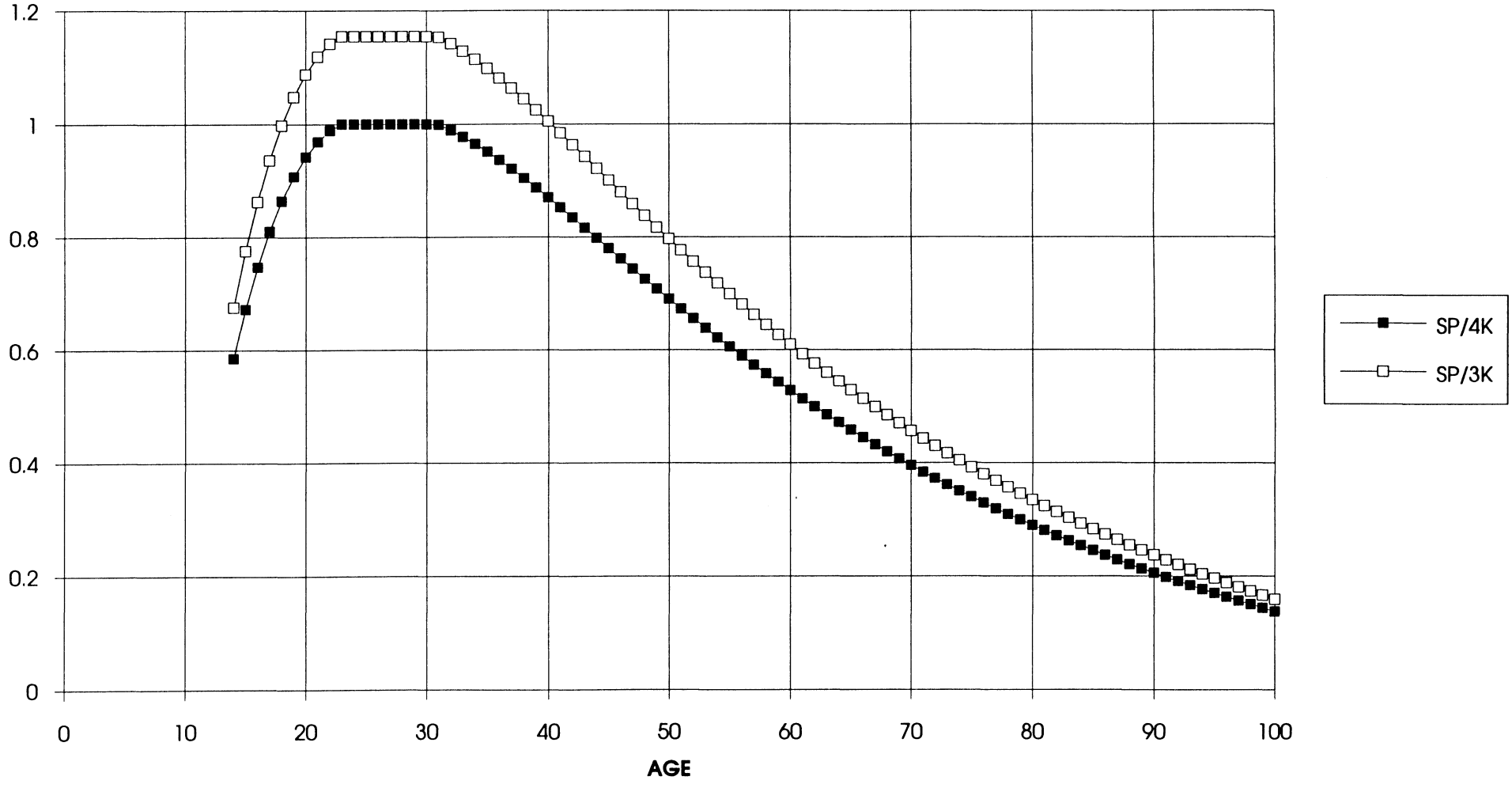
WOMENS AND GIRLS AGE-FACTORS FOR JUMP FIELD EVENTS



WOMENS AND GIRLS AGE-FACTORS FOR THROW FIELD EVENTS



WOMENS AND GIRLS AGE-FACTORS FOR SHOT PUT



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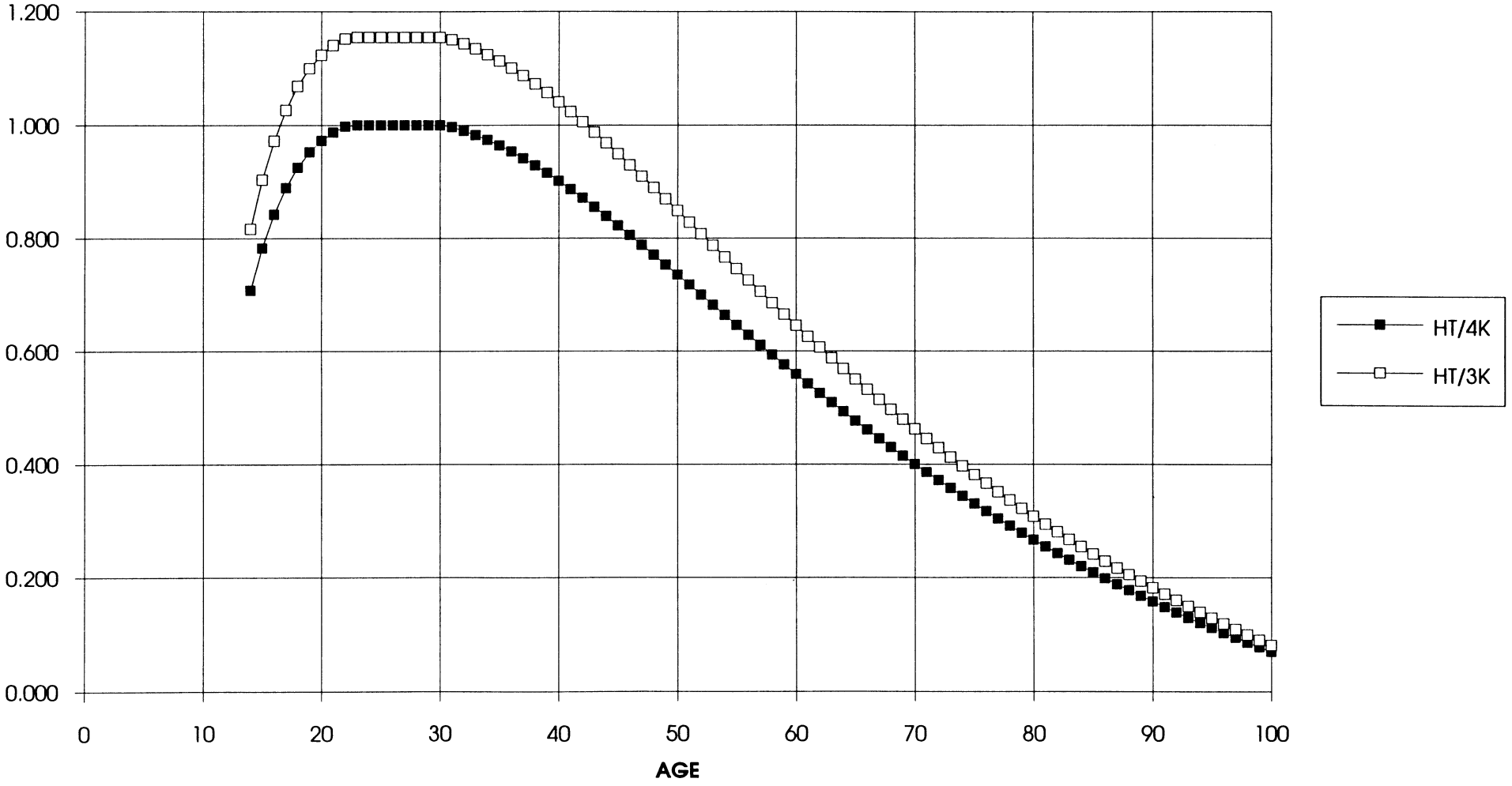

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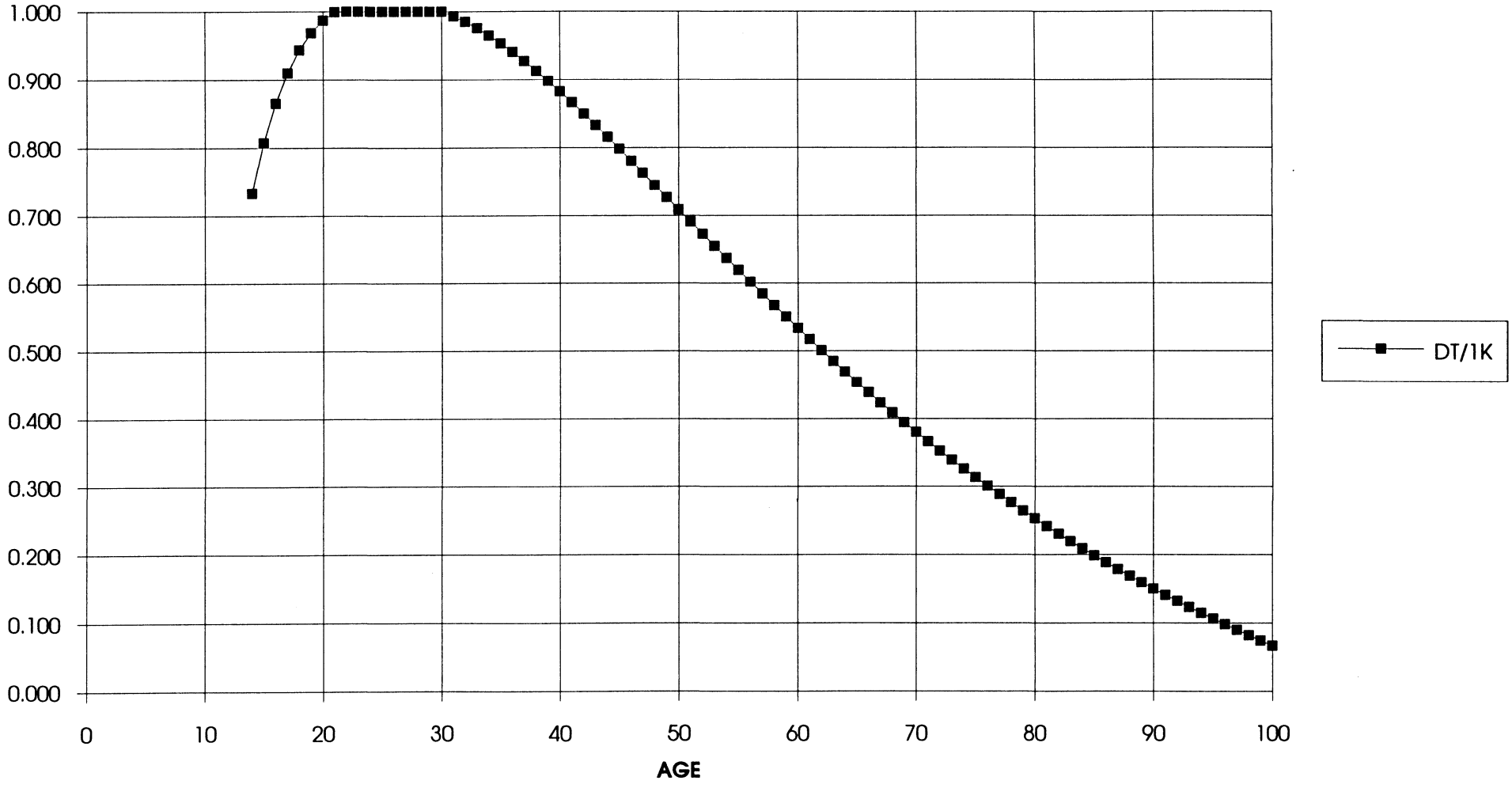

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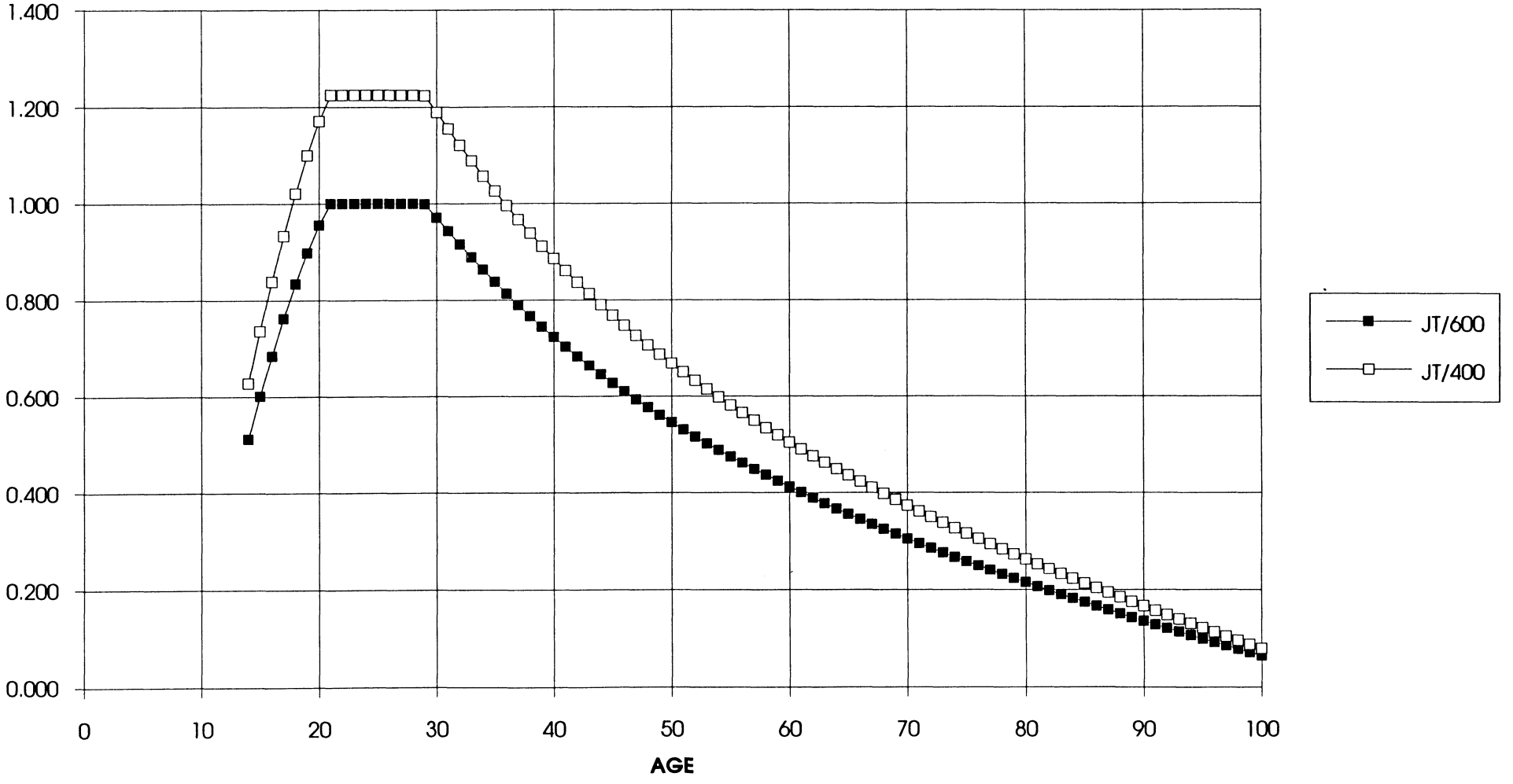

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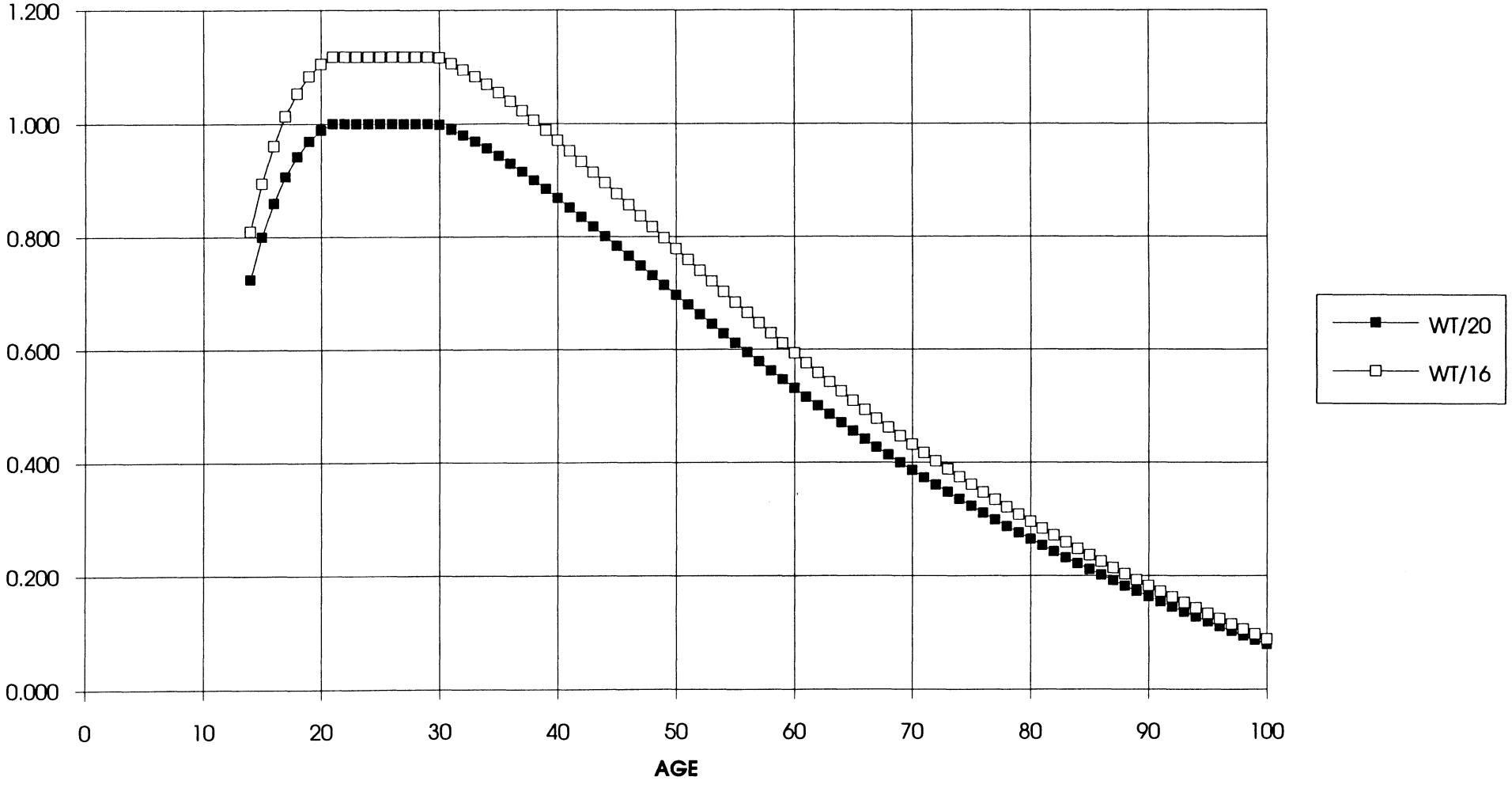
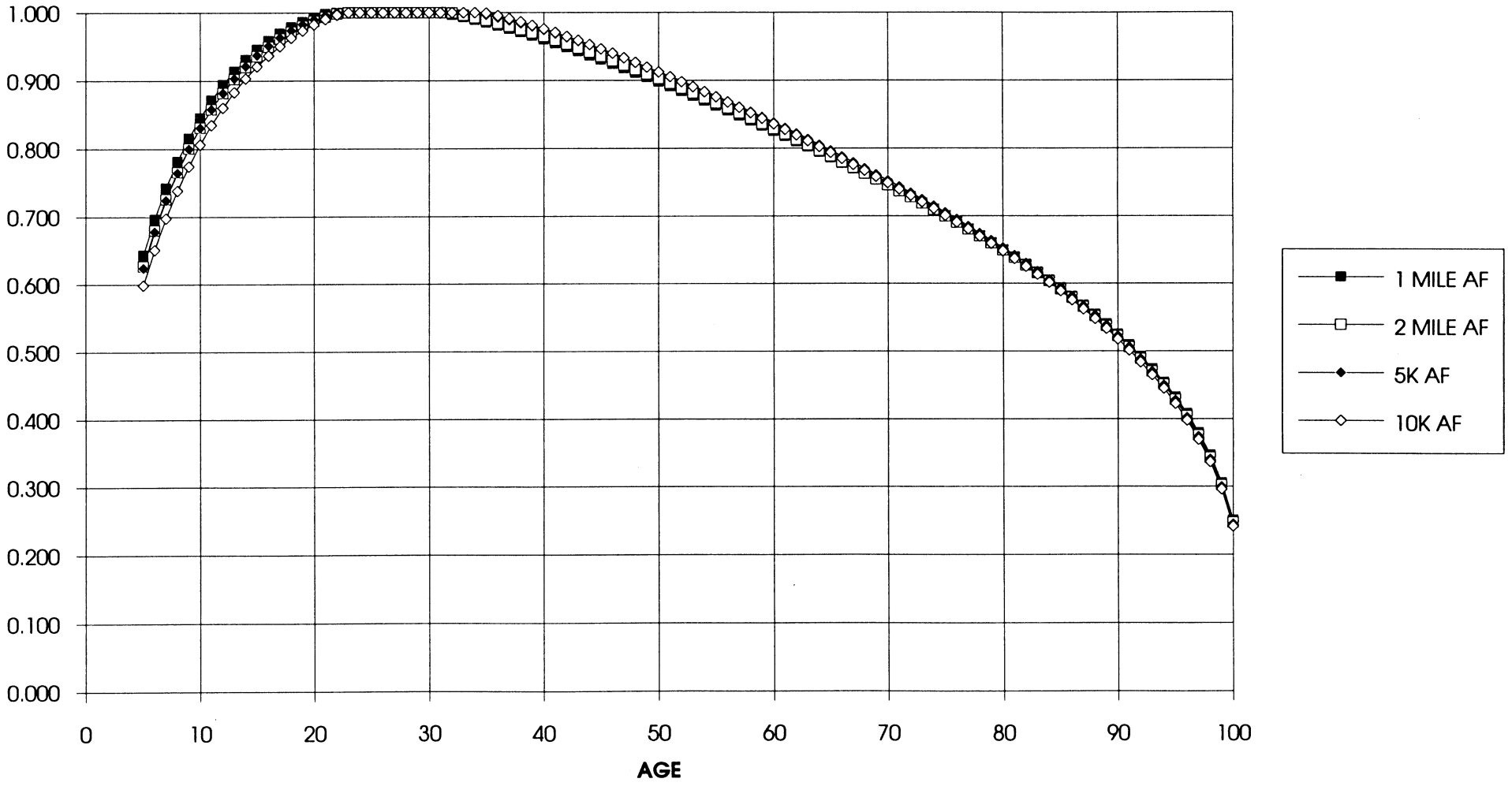


MENS AND BOYS AGE-FACTORS FOR WALK EVENTS



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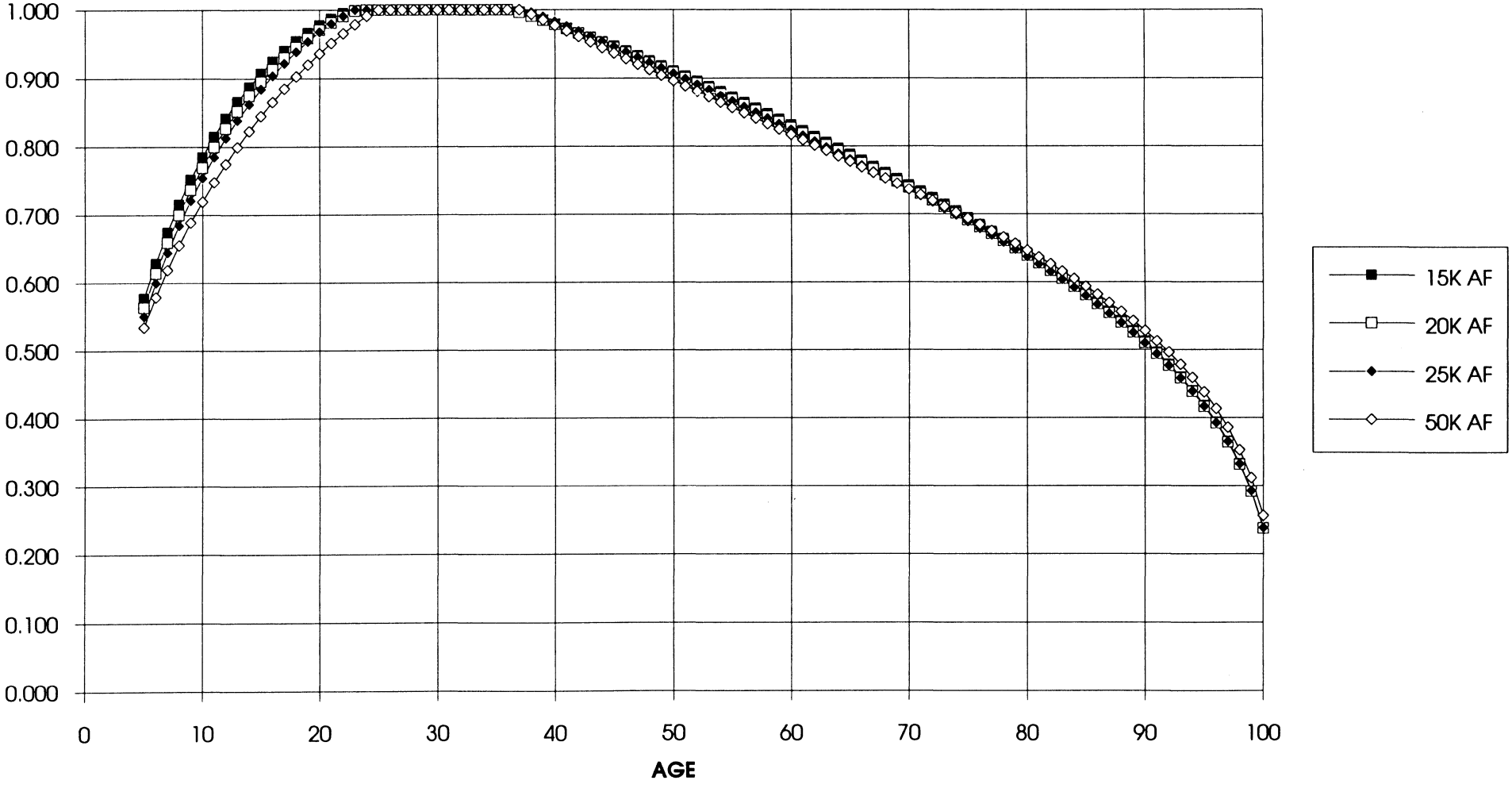

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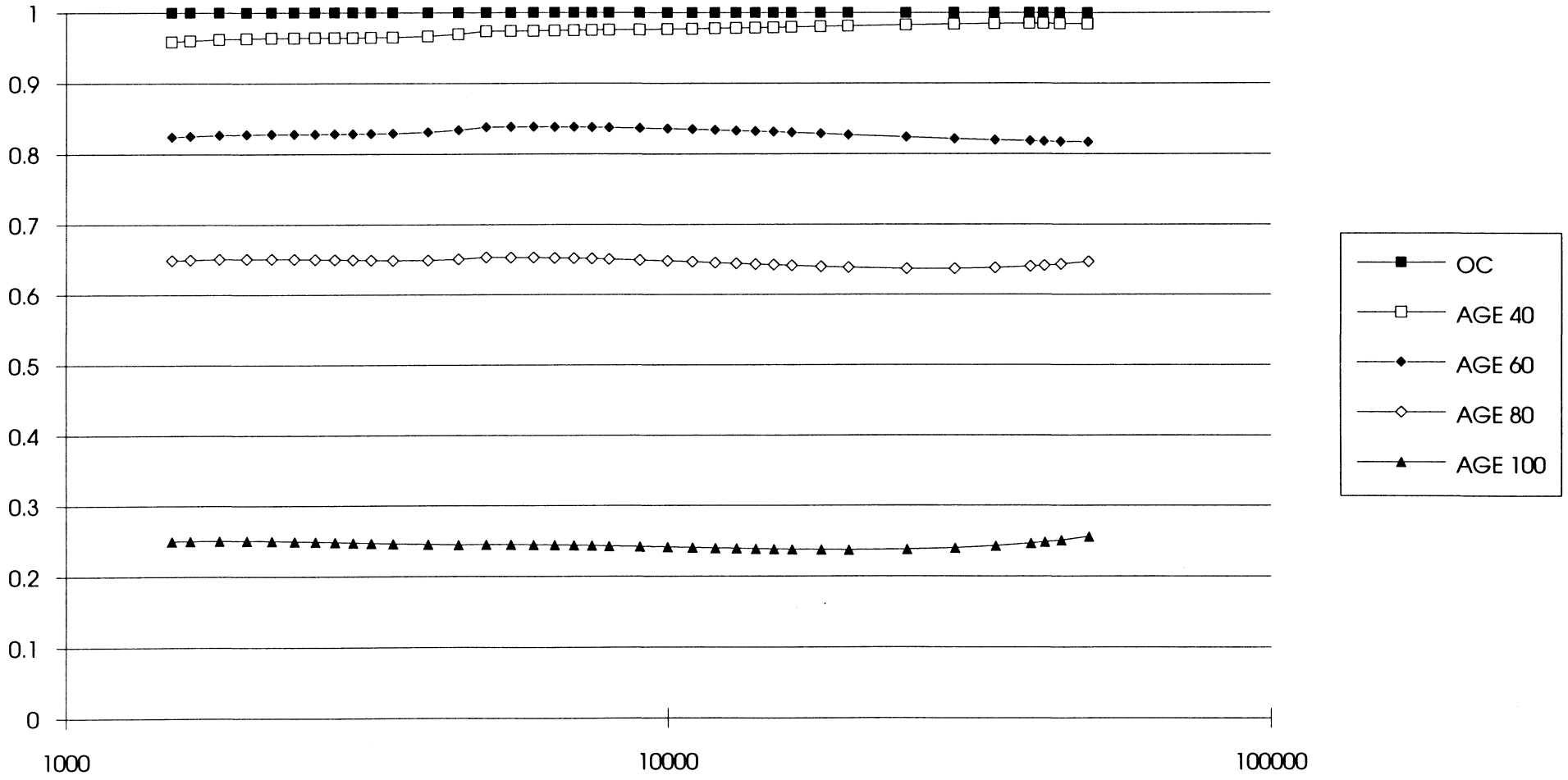
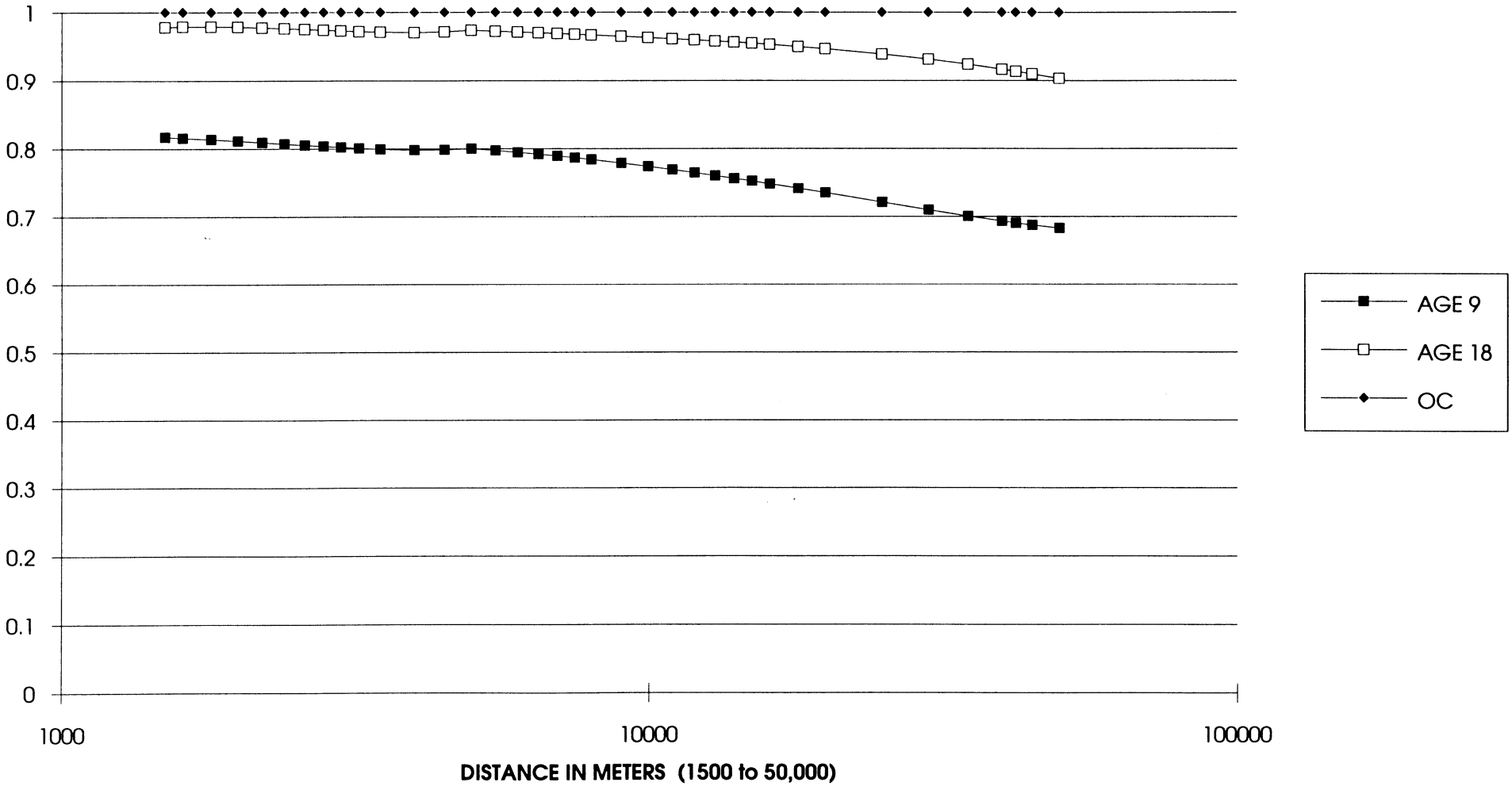
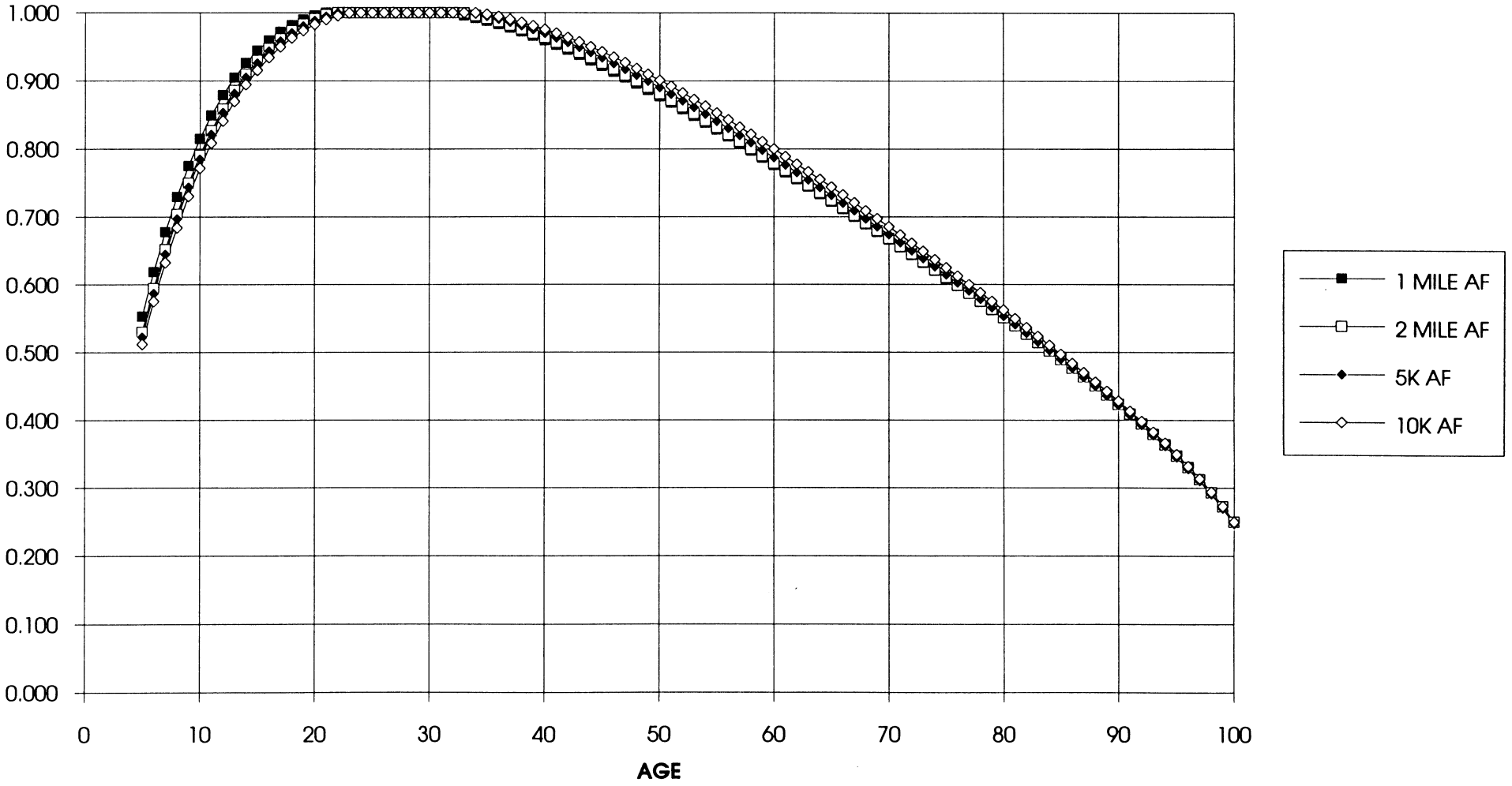


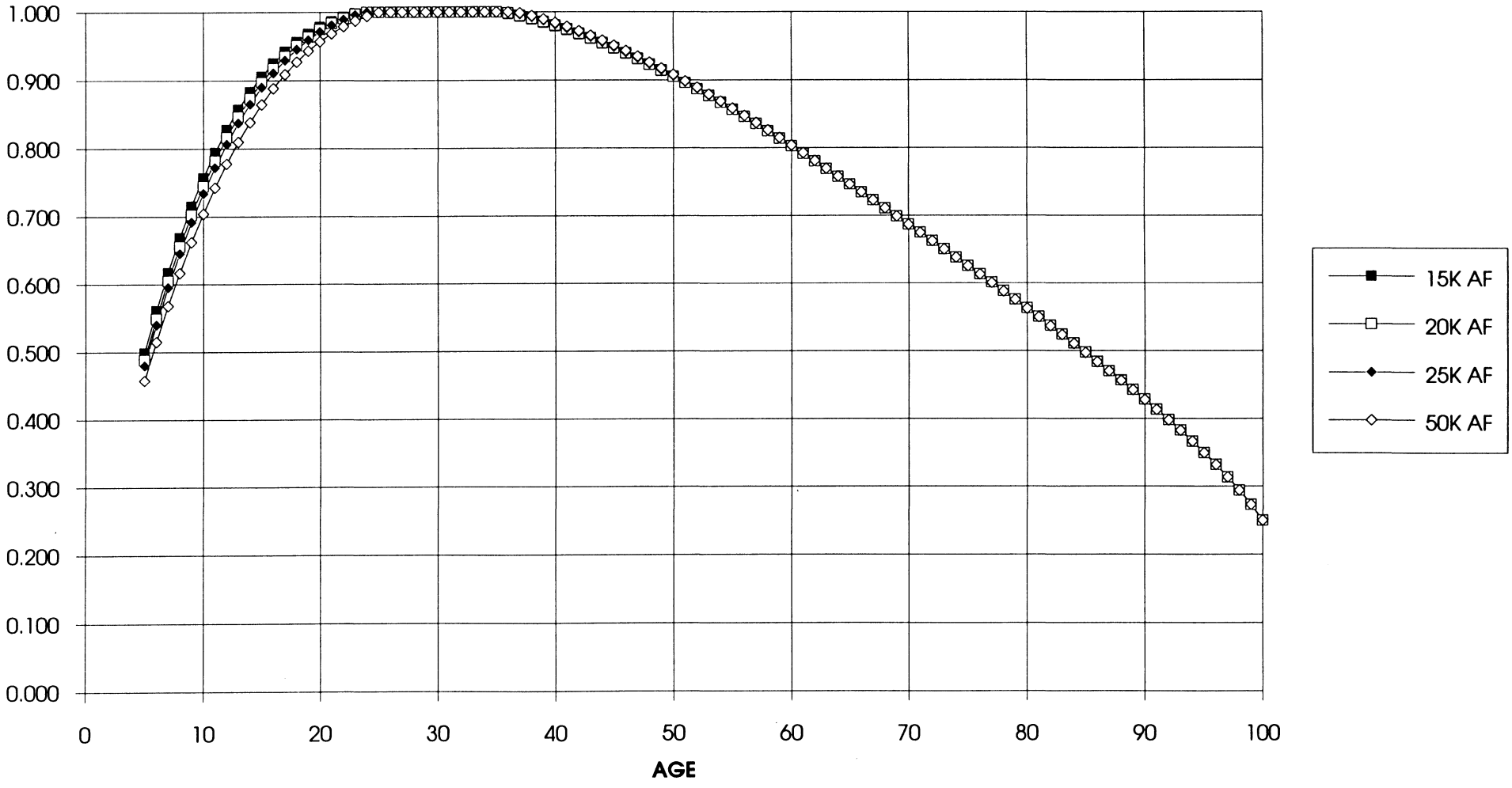
BOYS AGE-FACTORS FOR WALK EVENTS



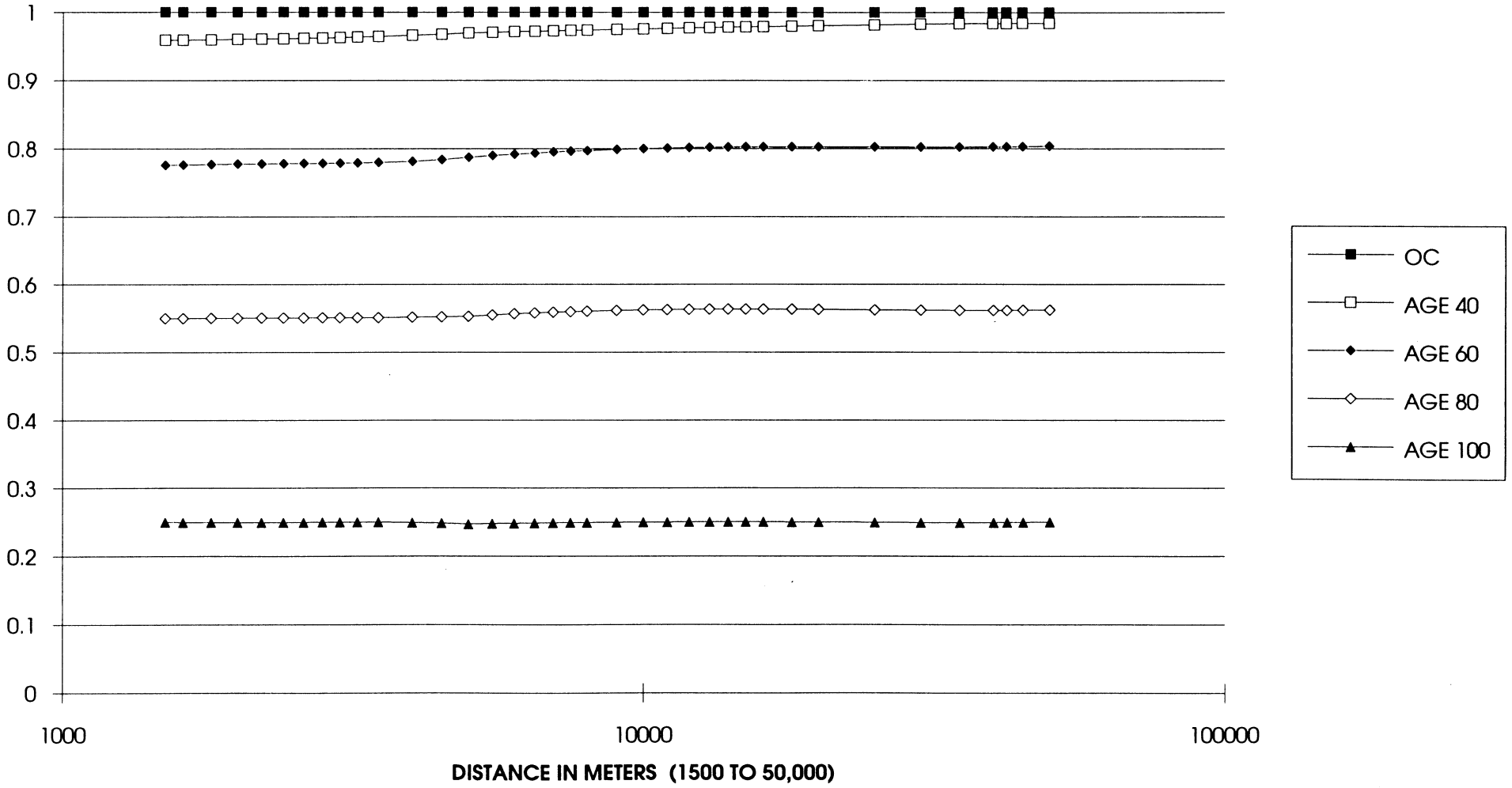
WOMENS AND GIRLS AGE-FACTORS FOR WALK EVENTS



WOMENS AND GIRLS AGE-FACTORS FOR WALK EVENTS



WOMENS AGE-FACTORS FOR WALK EVENTS



GIRLS AGE-FACTORS FOR WALK EVENTS