2014 International Diploma in
Physical Education and Sports Coaching

Performance Data Project Report

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About this report

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Overview

The IDPESC program is designed to improve the quality of physical education taught in Malaysia. There is a shortage of trained physical education teachers resulting in some schools assigning teachers trained in other subject area to teach physical education classes. Malaysia calls these 'non-option' teachers meaning that their option or major area of study and qualification is some subject other than physical education.

The IDPESC was approved by the Ministry of Education as a 10-week course of study designed to improve the ability of non-option physical education teachers to deliver effective and efficient physical education classes in their schools. The first offering of this program was in 2012 and it was offered again in 2013 and 2014. The total number of students reached to date is approximately 2700.

The courses offered in the IDPESC provide a non-option physical educator with information about teaching physical education and sport. Among these courses is CEE 526 Physical Education Testing, Evaluation, and Reporting. As one of the assignments for this course IDPESC students are required to test some of their own students when they return to their schools and submit the results.

The educational and research benefits derived from this testing are twofold:

1. The process of setting up and conducting the tests is a good educational activity for IDPESC students given the content of the CEE 526 course because it offers a hands-on, practical example of how fitness and performance testing is conducted.
2. Collecting fitness data for a large sample of Malaysian schoolchildren will enable percentile norms to be established for the various fitness and/or performance components tested.

Instrument and method

The instrument chosen for the testing was the International Physical Performance Test (IPPT) which was developed by the Academy during the 1980s and has been in use ever since with minor modifications. The test consists of 6 test elements and measures speed, upper- and lower-body strength, aerobic power, and agility.

The following test elements make up the International Physical Performance Test:

- **50-meter run:** speed
- **Seated ball push:** upper body strength
- **T-Test:** agility

- **Standing long jump:** lower body strength
- **Endurance run (600, 800, or 1000 meters):** aerobic capacity or power (depending on distance tested)
- **Flexed arm hang:** upper body strength

The individual tests were chosen to measure both health-related and performance-related fitness. Health-related fitness includes aerobic capacity, flexibility, muscular strength and endurance. Performance-related fitness consists of agility, balance, speed, anaerobic power and motor skills such as throwing and catching.

Supplementary measurements

Three other measurements were collected as part of the project: Height (cm), weight (kg), and arm span (cm). These measurement were recorded so that average BMI could be calculated for age and sex. The arm span was measured in 2014 to compare the height / arm span ratio.

2014 Analysis

This report contains percentile tables for the six elements of the International Physical Performance Test (IPPT) developed by the United States Sports Academy. The Academy designed the IPPT for boys and girls between the ages of 9 and 17 years of age. The individual test elements were selected because they test important components of general physical performance, which are a prerequisite for successful sport participation.

In 2014 Malaysian physical educators who were enrolled in the IDPESC program administered the International Physical Performance Test (IPPT) to over 40,000 Malaysian schoolchildren. This report contains an analysis of that data.

The 2014 data

All test data was submitted online. The tests were conducted at the convenience of the IDPESC students at the schools where they were teaching. The 2014 data was submitted before June 2014.

The age and sex of subjects was calculated from each subject's National Registration Number (NRIC), a 12-digit identifier assigned to each Malaysian citizen and permanent resident. This number is formatted in such a way that age and sex can be easily derived from it during data entry. This number was the only personal identifier collected.

Biometrics

Tables 1 and 2 describe the biometric data that was collected. These include measurements of height, weight, and arm span. The height and weight measurements were used to calculate BMIs for each age and sex.

Arm span was collected to compare it with height. Normal arm span is usually less than height in males under 10 years of age and females under 11. After that the arm span increases to approximately 5 cm greater than height in adult males and 1.2 cm greater than height in adult females.

The ratios calculated from the IDPESC data indicate that Malaysian schoolchildren may not be following this particular growth pattern. The normative values came from

Table 1

FEMALE Biometric measurements

AGE	n	Height (cm)	*SD*	Weight (kg)	*SD*	BMI	Arm span (cm)	*SD*	Arm span ratio
9	1150	130	*9.35*	30.0	*7.98*	17.74	129	*13.12*	0.991
10	2516	135	*10.05*	33.7	*9.26*	18.43	131	*14.06*	0.971
11	3829	139	*9.57*	36.6	*10.18*	18.85	136	*13.33*	0.979
12	3403	143	*10.54*	39.7	*10.92*	19.49	140	*13.60*	0.977
13	2010	150	*9.74*	45.6	*11.91*	20.36	147	*12.72*	0.983
14	1613	153	*7.81*	48.5	*10.61*	20.75	150	*12.66*	0.979
15	1315	154	*7.63*	49.8	*10.52*	20.87	152	*11.54*	0.983
16	1151	156	*8.65*	51.0	*9.96*	21.00	152	*13.34*	0.973
17	561	156	*9.23*	51.4	*12.94*	21.23	152	*17.69*	0.976

Table 2

MALE Biometric measurements

AGE	n	Height (cm)	*SD*	Weight (kg)	*SD*	BMI	Arm span (cm)	*SD*	Arm span ratio
9	1389	132	*9.65*	31.2	*10.45*	18.02	130	*15.36*	0.987
10	2906	135	*9.81*	34.1	*9.98*	18.61	132	*13.88*	0.974
11	4470	139	*10.08*	36.4	*10.46*	18.94	136	*13.41*	0.978
12	3840	142	*11.30*	39.7	*11.20*	19.60	140	*14.69*	0.981
13	2071	151	*10.70*	46.5	*12.55*	20.29	147	*17.67*	0.971
14	1675	161	*9.66*	50.4	*12.97*	19.38	151	*18.59*	0.938
15	1819	160	*9.10*	53.4	*13.11*	20.80	157	*15.46*	0.979
16	1405	163	*9.54*	55.9	*12.03*	21.13	159	*16.64*	0.980
17	790	163	*10.26*	56.6	*12.28*	21.31	158	*19.21*	0.968

Western studies however and thus may not be appropriate for comparison with Asian subjects.

Determining outliers

As with any large data collection project the resulting analysis is only as good as the submitted data. There were several issues with the data set for 2014 including a high number of extreme scores and spurious entries. Since all testing was done without observation and because of the number of extreme scores there is strong reason to suspect that errors in measurement, timing, and recording are present in the data.

To help identify outliers the interquartile range (IQR) was calculated for sex and age categories in each test element. An 'inner fence' (Q1 - 1.5(IQR) and Q3 + 1.5(IQR) was then applied and the data points outside the "fence" were not considered in the construction of the percentile charts.

Component analysis and percentile tables

50 meters run

The 50 meters run is a test of speed. A straight course of 50 meters is measured and subjects are timed as they run as fast as they can over the distance. Times are reported in seconds to one decimal point. Only one trial is allowed per subject.

Table 3 shows the calculations used in determining the number of outliers for each age and sex. It also lists the descriptive statistics for this element's data set.

Table 4 displays the percentile table for the 50 meters run.

Table 3

50m Run **Interquartile and outlier caclulations**

Female	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	10.1	14.0	3.9	4.3	19.9	0	15	1164	1149	2.76	12.2	7.0	19.9
10	9.9	13.8	3.9	4.1	19.7	0	44	2560	2516	2.77	11.9	7.0	19.5
11	9.4	12.8	3.4	4.3	17.9	6	149	3975	3820	2.38	11.0	4.3	17.9
12	9.2	12.4	3.2	4.4	17.2	7	78	3488	3401	2.28	10.8	4.5	17.2
13	9.3	12.4	3.1	4.7	17.1	0	54	2064	2010	2.25	10.9	5.0	17.0
14	9.3	12.7	3.4	4.2	17.8	0	67	1678	1611	2.46	11.0	5.0	17.8
15	9.0	12.4	3.4	3.9	17.4	0	56	1371	1315	2.37	10.6	4.7	17.2
16	8.9	12.0	3.1	4.3	16.7	1	58	1209	1150	2.37	10.3	4.9	16.7
17	9.1	13.2	4.1	3.0	19.3	0	14	575	561	2.93	11.3	6.0	19.3
							Total	**18084**	**17533**				

Male	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	9.7	13.6	3.9	3.9	19.5	0	10	1399	1389	2.74	11.8	7.0	19.4
10	9.2	12.8	3.6	3.8	18.2	0	67	2975	2906	2.49	11.1	7.0	18.1
11	8.9	12.0	3.1	4.3	16.7	13	153	4635	4469	2.14	10.4	4.3	16.7
12	8.7	11.4	2.7	4.7	15.5	9	127	3970	3833	2.01	10.0	4.7	15.5
13	8.3	11.1	2.8	4.1	15.3	2	83	2156	2063	2.03	9.7	4.6	15.3
14	8.2	11.0	2.8	4.0	15.2	0	58	1733	1671	1.96	9.6	5.0	15.2
15	7.8	11.0	3.2	3.0	15.8	0	48	1867	1819	2.18	9.3	4.1	15.5
16	7.5	10.0	2.5	3.8	13.7	0	84	1489	1405	1.75	8.7	3.9	13.7
17	7.5	11.0	3.5	2.3	16.3	0	37	826	789	2.30	9.2	4.0	16.3
							Total	**21050**	**20344**				

Table 4

50m run (seconds)

Female

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	8.1	8.1	7.8	7.4	7.9	7.6	7.0	6.9	7.2
90	8.9	8.7	8.3	8.1	8.2	8.2	7.5	7.4	8.0
85	9.2	9.1	8.8	8.6	8.6	8.6	8.2	8.0	8.5
80	9.8	9.5	9.0	9.0	9.0	8.9	8.8	8.5	8.9
75	**10.1**	**9.8**	**9.3**	**9.2**	**9.3**	**9.2**	**9.0**	**8.9**	**9.1**
70	10.4	10.1	9.6	9.5	9.5	9.5	9.3	9.0	9.4
65	10.8	10.4	9.9	9.8	9.8	9.8	9.6	9.4	9.7
60	11.2	10.7	10.1	10.0	10.0	10.0	9.8	9.7	10.0
55	11.5	11.0	10.3	10.2	10.2	10.2	10.0	9.9	10.2
50	**12.0**	**11.4**	**10.5**	**10.4**	**10.5**	**10.5**	**10.2**	**10.1**	**10.7**
45	12.3	11.9	11.0	10.7	10.7	10.8	10.4	10.2	11.1
40	12.8	12.2	11.3	11.1	11.1	11.2	11.0	10.5	11.5
35	13.1	12.7	11.7	11.4	11.5	11.6	11.2	10.9	12.0
30	13.5	13.1	12.1	11.9	12.0	12.0	11.9	11.2	12.4
25	**14.0**	**13.6**	**12.5**	**12.3**	**12.3**	**12.3**	**12.0**	**11.8**	**13.0**
20	14.5	14.1	13.0	12.9	12.9	13.0	12.7	12.1	13.7
15	15.0	14.9	13.5	13.4	13.3	13.6	13.1	12.9	14.3
10	16.0	16.0	14.2	14.1	14.1	14.7	14.0	14.0	15.5
5	17.4	17.5	15.6	15.0	15.1	16.0	15.0	15.1	17.4
n =	1149	2516	3820	3401	2010	1611	1315	1150	561
Mean	12.2	11.9	11.0	10.8	10.9	11.0	10.6	10.3	11.3
SD	2.76	2.77	2.38	2.28	2.25	2.46	2.37	2.37	2.93

Male

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	8.0	7.9	7.5	7.2	7.0	7.0	6.3	6.4	6.0
90	8.5	8.3	8.0	7.9	7.4	7.4	7.0	7.0	6.6
85	9.0	8.7	8.3	8.1	7.9	7.8	7.2	7.1	7.0
80	9.2	9.0	8.6	8.4	8.0	8.0	7.5	7.3	7.1
75	**9.7**	**9.2**	**8.9**	**8.6**	**8.2**	**8.2**	**7.8**	**7.5**	**7.5**
70	10.0	9.5	9.0	8.9	8.5	8.4	8.0	7.7	7.7
65	10.2	9.8	9.3	9.0	8.7	8.6	8.2	7.9	8.0
60	10.5	10.0	9.5	9.2	8.9	8.9	8.5	8.0	8.1
55	10.9	10.2	9.8	9.5	9.1	9.0	8.7	8.2	8.5
50	**11.4**	**10.5**	**10.0**	**9.7**	**9.3**	**9.2**	**9.0**	**8.4**	**8.9**
45	11.8	10.8	10.2	10.0	9.6	9.5	9.2	8.7	9.1
40	12.1	11.1	10.5	10.2	9.8	9.8	9.5	9.0	9.5
35	12.6	11.6	10.8	10.5	10.1	10.0	9.9	9.1	9.9
30	13.0	12.0	11.2	10.8	10.4	10.3	10.2	9.5	10.1
25	**13.5**	**12.6**	**11.7**	**11.2**	**10.9**	**10.7**	**10.9**	**9.8**	**10.6**
20	14.1	13.0	12.1	11.8	11.3	11.2	11.2	10.0	11.1
15	15.0	13.9	12.8	12.3	12.0	11.8	12.0	10.5	11.8
10	15.8	14.9	13.5	13.0	12.9	12.3	12.5	11.2	12.4
5	17.0	16.2	14.6	14.0	13.8	13.4	13.4	12.3	13.6
n =	1389	2906	4469	3833	2063	1671	1819	1405	789
Mean	11.8	11.1	10.4	10.0	9.7	9.6	9.3	8.7	9.2
SD	2.74	2.49	2.14	2.01	2.03	1.96	2.18	1.75	2.30

Standing long jump

The standing long jump is a measure of lower body strength and power. Subjects are told to stand immediately behind a line on the ground and then jump forward as far as they can. The distance is measured from the jumping line to the heel(s) closest to the jumping line. Each subject is allowed three trials.

Table 5 shows the calculations used in determining the number of outliers for each age and sex. It also lists the descriptive statistics for this element's data set.

Table 6 displays the percentile table for the standing long jump.

Table 5

Long Jump **Interquartile and outlier caclulations**

Female	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	108.0	145.0	37.0	53	201	11	46	1215	1158	27.77	125.5	54.0	201.0
10	112.0	152.0	40.0	52	212	23	70	2630	2527	29.25	131.6	52.0	212.0
11	119.0	162.0	43.0	55	227	35	141	3975	3799	31.20	139.3	55.0	226.0
12	123.0	166.0	43.0	59	231	4	98	3488	3386	30.06	143.5	59.0	231.0
13	124.0	165.0	41.0	63	227	9	98	2064	1957	29.46	142.0	63.0	227.0
14	117.0	165.0	48.0	45	237	2	65	1678	1609	34.80	138.8	45.0	236.0
15	125.0	179.0	54.0	44	260	2	27	1371	1338	38.49	149.2	50.0	260.0
16	129.0	172.0	43.0	65	237	3	42	1209	1164	31.43	149.2	66.0	235.0
17	123.5	177.0	53.5	43	257	0	21	575	554	37.03	145.6	60.0	254.0
							Total	18205	17492				

Male	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	113.0	151.0	38.0	56	208	4	54	1454	1395	27.50	130.4	56.0	205.0
10	120.0	157.0	37.0	65	213	37	85	3069	2947	28.27	137.5	65.0	213.0
11	125.0	169.0	44.0	59	235	27	137	4635	4468	31.08	146.1	59.0	235.0
12	131.0	176.0	45.0	64	244	18	117	3970	3835	31.04	152.7	64.0	243.0
13	132.0	183.0	51.0	56	260	14	101	2156	2041	36.34	155.4	57.0	260.0
14	140.0	192.0	52.0	62	270	5	103	1733	1622	36.55	164.4	62.0	270.0
15	155.0	205.0	50.0	80	280	19	42	1867	1803	36.80	179.7	81.0	280.0
16	154.0	210.0	56.0	70	294	1	53	1489	1435	37.59	179.0	80.0	290.0
17	148.0	211.0	63.0	54	306	2	23	826	801	43.69	179.7	65.0	303.0
							Total	21199	20347				

Table 6

Long jump (cm)

Female

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	178.0	186.0	198.0	195.0	193.0	200.0	211.0	200.0	210.0
90	164.0	170.0	182.0	184.0	184.0	188.0	199.0	189.0	193.0
85	153.2	160.0	172.0	176.0	175.0	176.0	190.0	182.0	187.0
80	146.0	155.0	165.0	169.0	166.4	168.0	185.0	176.0	179.0
75	**142.0**	**150.0**	**160.0**	**165.0**	**161.0**	**161.0**	**177.0**	**169.0**	**169.8**
70	136.0	145.0	154.0	159.0	155.0	155.0	169.0	166.0	160.1
65	133.0	141.0	148.0	154.0	150.0	150.0	162.0	161.0	155.0
60	130.0	137.0	144.0	150.0	146.0	145.0	156.0	157.0	150.0
55	127.0	133.0	140.0	145.0	142.0	140.0	151.0	154.0	145.0
50	**124.0**	**129.0**	**135.0**	**141.0**	**139.0**	**135.0**	**146.0**	**150.0**	**142.0**
45	122.0	126.0	132.0	137.0	135.0	131.0	142.0	145.0	138.0
40	120.0	124.0	129.0	134.0	132.2	127.0	137.0	140.0	134.0
35	115.0	121.0	125.0	130.0	130.0	123.0	132.0	136.0	130.0
30	110.0	117.0	122.0	126.0	126.0	121.0	129.0	132.0	125.9
25	**107.0**	**112.0**	**118.0**	**123.0**	**124.0**	**116.0**	**125.0**	**127.8**	**122.0**
20	102.0	109.0	113.6	119.8	120.0	110.0	120.0	122.0	115.0
15	99.0	103.0	109.0	112.0	112.0	104.0	110.0	116.0	108.0
10	91.0	97.0	102.0	106.4	107.0	98.0	100.0	109.0	100.3
5	79.0	84.0	94.0	99.0	98.0	84.0	88.0	98.0	90.0
n =	1158	2527	3799	3386	1957	1609	1338	1164	554
Mean	125.5	131.6	139.3	143.5	142.0	138.8	149.2	149.2	145.6
SD	27.77	29.25	31.20	30.06	29.46	34.80	38.49	31.43	37.03

Male

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	176.0	187.6	200.0	204.0	99.0	228.0	243.0	240.0	257.0
90	168.0	176.0	188.0	193.0	112.0	210.0	230.0	226.6	242.0
85	160.0	167.0	179.0	186.0	121.0	200.0	220.0	220.0	226.0
80	154.0	160.0	171.0	179.0	126.8	193.0	210.0	211.0	216.0
75	**148.0**	**156.0**	**167.0**	**173.0**	**132.0**	**188.0**	**202.0**	**204.5**	**210.0**
70	143.0	151.0	160.0	168.0	136.0	182.0	198.0	198.0	198.0
65	140.0	148.0	156.0	164.0	140.0	178.0	192.0	191.0	190.0
60	136.0	144.0	152.0	160.0	144.0	174.0	189.0	188.0	187.0
55	134.0	140.0	148.0	155.0	148.0	169.2	184.0	184.0	181.0
50	**130.0**	**136.0**	**144.0**	**151.0**	**153.0**	**165.0**	**179.0**	**180.0**	**176.0**
45	127.0	133.0	140.0	147.0	158.0	160.0	174.0	176.0	170.0
40	124.0	130.0	136.0	143.0	163.0	156.0	170.0	170.0	164.0
35	121.0	126.0	133.0	139.0	167.6	150.0	165.0	165.0	158.0
30	116.5	123.0	129.0	135.0	174.0	145.0	160.0	159.0	153.0
25	**112.0**	**120.0**	**125.0**	**131.0**	**179.0**	**139.0**	**155.0**	**152.0**	**147.0**
20	108.0	115.0	121.0	126.0	185.2	134.0	150.0	145.0	141.0
15	101.0	109.0	116.0	121.0	190.0	127.0	141.0	137.0	135.0
10	96.0	101.0	109.0	115.0	201.0	120.0	133.0	130.0	128.0
5	85.0	90.0	98.0	103.0	220.8	102.0	120.0	120.0	120.0
n =	1395	2947	4468	3835	2041	1622	1803	1435	801
Mean	130.4	137.5	146.1	152.7	155.4	164.4	179.7	179.0	179.7
SD	27.50	28.27	31.08	31.04	36.34	36.55	36.80	37.59	43.69

Seated ball push

The seated ball push is a test of upper body power. The subject is instructed to sit with their back against the wall while pushing a 1.5 kg ball away from their chest. This action is done without moving the shoulders from the wall and without using any throwing motion from the arms. The distance from the wall to the spot where the ball landed is recorded. Each subject is allowed two trials.

Table 7 shows the calculations used in determining the number of outliers for each age and sex. It also lists the descriptive statistics for this element's data set.

Table 8 displays the percentile table for the seated ball push.

Table 7

Ball push **Interquartile and outlier caclulations**

Female	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	128.0	210.0	82.0	5	333	0	26	850	824	55.80	168.0	50.0	332.0
10	130.0	221.0	91.0	-7	358	0	68	2630	2562	62.32	175.3	50.0	355.0
11	134.0	237.5	103.5	-21	393	0	143	3975	3832	69.71	188.1	50.0	393.0
12	150.0	245.0	95.0	8	388	0	162	3488	3326	67.26	198.2	50.0	386.0
13	168.0	300.0	132.0	-30	498	0	20	2064	2043	88.14	236.0	50.0	498.0
14	172.3	290.0	117.8	-4	467	0	33	1678	1645	84.73	232.4	50.0	466.0
15	168.0	275.0	107.0	8	436	0	39	1371	1332	78.40	222.3	50.0	436.0
16	181.0	290.0	109.0	18	454	0	50	1209	1159	78.79	235.0	50.0	450.0
17	175.0	299.0	124.0	-11	485	0	13	575	562	87.16	235.7	58.0	465.0
							Total	17840	17285				

Male	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	133.0	222.8	89.8	-2	357	0	45	1454	1409	61.88	177.0	50.0	356.0
10	134.0	231.0	97.0	-12	377	0	85	3069	2984	66.40	184.8	50.0	377.0
11	145.0	256.5	111.5	-22	424	0	194	4635	4441	61.88	203.8	50.0	423.0
12	160.0	280.0	120.0	-20	460	0	186	3970	3777	61.88	219.7	50.0	460.0
13	187.0	326.0	139.0	-22	535	0	67	2156	2089	61.88	252.3	50.0	535.0
14	211.0	367.0	156.0	-23	601	0	51	1733	1681	61.88	283.3	54.0	601.0
15	220.0	400.0	180.0	-50	670	0	23	1867	1844	61.88	308.4	50.0	668.0
16	234.0	430.0	196.0	-60	724	0	7	1489	1482	61.88	337.4	54.0	723.0
17	216.0	390.0	174.0	-45	651	0	13	826	813	61.88	306.0	87.0	650.0
							Total	21199	20520				

Table 8

Ball push (cm)

Female

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	270.0	298.0	320.0	330.0	384.0	390.8	367.0	386.0	410.0
90	250.0	260.0	287.7	290.0	358.0	348.6	340.0	350.0	370.0
85	230.0	243.0	259.0	267.0	333.0	320.0	310.0	320.0	342.0
80	215.0	230.0	243.0	250.0	315.0	300.0	285.4	300.0	319.0
75	**203.0**	**219.0**	**231.0**	**236.0**	**298.0**	**282.0**	**267.8**	**276.0**	**280.0**
70	195.0	210.0	221.0	230.0	280.0	268.0	251.0	260.0	260.0
65	184.0	198.0	211.0	220.0	261.0	256.0	241.5	250.0	250.0
60	175.0	185.0	202.0	211.0	247.0	247.0	233.0	241.0	243.0
55	165.0	172.0	194.0	200.0	237.0	240.0	228.2	235.0	234.0
50	**156.5**	**161.0**	**180.0**	**190.0**	**231.0**	**233.0**	**216.0**	**231.0**	**230.0**
45	150.0	154.0	170.0	180.0	223.0	225.0	205.0	224.0	216.0
40	143.0	146.0	160.0	174.0	210.0	217.0	200.0	212.0	207.0
35	138.0	140.0	150.0	165.0	192.0	201.0	190.0	201.0	196.7
30	132.0	134.0	142.0	156.0	180.0	187.0	180.0	190.4	184.3
25	**127.0**	**129.0**	**133.0**	**148.0**	**168.0**	**170.0**	**167.0**	**180.0**	**171.3**
20	121.0	122.0	125.0	140.0	154.6	152.0	153.6	170.0	160.0
15	115.0	115.0	118.0	130.0	143.0	135.0	141.0	156.0	140.3
10	105.0	105.0	105.0	121.0	130.0	121.0	130.0	140.0	130.0
5	90.3	89.0	90.0	104.0	110.0	101.0	105.0	120.0	116.1
n =	824	2562	3832	3326	2043	1645	1332	1159	562
Mean	168.0	175.3	188.1	198.2	236.0	232.4	222.3	235.0	235.7
SD	55.80	62.32	69.71	67.26	88.14	84.73	78.40	78.79	87.16

Male

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	300.0	312.0	355.0	372.9	111.5	498.0	543.0	601.0	550.0
90	256.2	278.0	310.0	335.0	134.0	445.9	489.0	540.0	518.6
85	236.8	254.0	289.0	310.0	151.4	410.0	452.0	500.0	456.8
80	230.0	240.0	264.0	284.0	167.0	380.0	421.0	460.0	416.8
75	**220.0**	**228.0**	**248.0**	**265.0**	**182.0**	**355.0**	**394.0**	**427.0**	**388.0**
70	210.0	216.0	235.0	250.0	200.0	337.0	370.0	401.7	357.4
65	198.0	209.0	226.0	238.0	212.2	318.0	349.0	385.0	329.6
60	185.0	198.0	215.0	230.0	223.6	300.0	322.8	363.0	310.0
55	175.0	187.0	207.0	220.0	231.0	279.0	301.0	330.0	288.6
50	**165.0**	**176.0**	**199.0**	**211.0**	**237.0**	**256.0**	**277.5**	**310.0**	**267.0**
45	156.6	164.0	185.0	201.0	246.0	247.0	255.0	283.0	255.0
40	150.0	155.0	174.0	191.0	256.0	240.0	245.0	264.0	245.0
35	142.0	147.0	161.0	180.0	276.0	230.0	235.0	251.0	235.0
30	138.0	140.0	152.0	172.0	297.0	220.0	228.0	241.0	229.6
25	**132.0**	**134.0**	**143.0**	**158.0**	**317.0**	**208.0**	**219.0**	**233.3**	**215.0**
20	127.0	127.0	134.0	150.0	338.0	183.4	206.6	227.0	195.0
15	120.0	120.0	125.0	138.0	363.0	166.2	188.0	212.0	179.8
10	108.8	108.4	115.0	125.0	390.0	145.0	166.0	188.0	165.0
5	90.0	92.2	100.0	107.0	432.1	125.1	145.0	151.2	150.0
n =	1409	2984	4441	3777	2089	1681	1844	1482	813
Mean	177.0	184.8	203.8	219.7	252.3	283.3	308.4	337.4	306.0
SD	61.88	66.40	61.88	61.88	61.88	61.88	61.88	61.88	61.88

Flexed arm-hang

The flexed arm-hang is a measure of static upper body strength. Subjects hang from a bar with arms bent and chin above the bar. The length of time that the subject can hold this position is recorded. Only one trial is allowed. Times are recorded in seconds to one decimal point.

Table 9 shows the calculations used in determining the number of outliers for each age and sex. It also lists the descriptive statistics for this element's data set.

Table 10 displays the percentile table for the flexed arm-hang.

Table 9

Flexed Arm Hang — **Interquartile and outlier caclulations**

Female	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	2.2	12.0	9.8	-13	27	0	58	1119	1061	5.93	6.9	0.5	27.7
10	2.3	11.2	8.9	-11	25	0	98	2440	2342	5.66	6.8	0.5	25.9
11	3.1	12.4	9.3	-11	26	0	158	3687	3529	5.88	7.8	0.5	26.8
12	3.3	13.2	9.9	-12	28	0	121	3246	3125	6.18	8.4	0.5	28.5
13	3.5	15.0	11.5	-14	32	0	46	1949	1903	6.92	9.3	0.5	32.6
14	3.0	12.4	9.4	-11	27	0	28	1625	1597	6.30	7.8	0.5	27.4
15	2.8	14.0	11.2	-14	31	0	42	1262	1220	6.97	8.0	0.5	31.8
16	2.3	12.0	9.7	-12	27	0	13	1076	1063	6.09	7.2	0.5	27.0
17	1.9	12.0	10.1	-13	27	0	7	510	503	6.39	7.0	0.5	26.1
							Total	16914	16343				

Male	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	3.0	12.2	9.2	-11	26	0	61	1361	1300	5.97	7.5	0.5	25.9
10	3.1	13.0	9.9	-12	28	0	114	2889	2775	6.13	8.0	0.5	28.8
11	4.0	14.8	10.8	-12	31	0	169	4376	4204	6.71	9.2	0.5	31.9
12	4.5	16.5	12.0	-14	35	0	164	3785	3617	7.75	10.7	0.5	35.9
13	4.9	17.1	12.2	-13	35	0	94	2081	1986	7.60	11.2	0.5	35.8
14	6.1	18.2	12.1	-12	36	0	69	1706	1637	7.97	12.9	0.5	36.9
15	7.2	19.1	11.9	-11	37	0	115	1827	1712	8.21	13.5	0.5	37.8
16	6.0	20.3	14.3	-15	42	0	88	1407	1319	9.31	13.8	0.5	42.9
17	7.0	21.3	14.3	-14	43	0	51	796	745	9.72	14.4	0.5	43.6
							Total	20228	19295				

Table 10

Flexed arm hang (seconds)

Female

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	19.0	18.4	19.0	19.1	21.9	19.2	21.0	19.0	19.0
90	16.0	15.7	17.1	17.9	18.8	18.0	18.4	17.6	17.4
85	14.0	13.3	15.0	16.0	17.9	16.3	17.3	15.4	15.6
80	12.0	12.0	13.0	14.0	16.0	14.0	15.0	13.4	13.0
75	**10.1**	**10.1**	**11.9**	**12.4**	**14.6**	**12.1**	**12.0**	**11.2**	**11.2**
70	8.9	9.0	10.0	11.1	13.0	10.3	10.1	9.8	9.8
65	7.4	7.1	9.0	10.0	11.4	8.8	8.2	7.7	8.0
60	6.4	6.1	7.9	9.0	10.1	7.0	7.0	6.4	6.4
55	5.7	5.4	6.8	8.0	9.0	6.1	6.0	5.5	5.3
50	**5.0**	**4.9**	**6.0**	**6.8**	**7.5**	**5.5**	**5.0**	**5.0**	**4.5**
45	4.1	4.2	5.4	6.0	6.4	5.0	4.5	4.2	4.0
40	3.6	3.9	4.8	5.1	5.5	4.3	4.0	3.6	3.2
35	3.0	3.1	4.1	4.5	4.8	3.8	3.4	3.1	2.6
30	2.6	2.9	3.7	4.0	4.0	3.2	3.0	3.0	2.1
25	**2.1**	**2.2**	**3.0**	**3.2**	**3.4**	**3.0**	**2.6**	**2.2**	**1.9**
20	2.0	2.0	2.5	2.8	3.0	2.3	2.1	2.0	1.2
15	1.5	1.7	2.0	2.0	2.0	2.0	2.0	1.5	1.0
10	1.0	1.1	1.5	1.4	1.8	1.2	1.4	1.1	1.0
5	1.0	1.0	1.0	1.0	1.1	1.0	1.0	1.0	0.8
n =	1061	2342	3529	3125	1903	1597	1220	1063	503
Mean	6.9	6.8	7.8	8.4	9.3	7.8	8.0	7.2	7.0
SD	5.93	5.66	5.88	6.18	6.92	6.30	6.97	6.09	6.39

Male

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	19.3	20.0	22.0	26.0	25.3	28.6	30.0	31.8	34.2
90	17.1	17.0	19.0	21.0	20.2	23.0	24.2	27.0	27.3
85	14.9	15.0	17.0	18.6	18.6	20.0	21.0	23.8	24.3
80	12.7	13.5	15.3	17.0	17.6	18.9	19.3	20.6	21.7
75	**11.1**	**12.0**	**13.9**	**15.9**	**16.4**	**18.0**	**18.2**	**19.0**	**19.7**
70	10.0	10.5	12.1	14.2	15.4	17.0	17.8	18.0	18.0
65	9.0	9.5	10.9	13.0	14.0	16.0	16.4	16.7	16.5
60	7.6	8.2	9.7	11.7	12.7	15.1	15.4	15.6	15.8
55	6.7	7.0	8.3	10.1	11.3	14.0	14.5	14.3	15.0
50	**5.8**	**6.0**	**7.3**	**9.0**	**10.0**	**12.6**	**13.0**	**13.0**	**13.8**
45	5.0	5.3	6.4	7.9	8.8	11.7	12.0	12.0	12.4
40	4.5	4.9	5.6	6.8	7.1	10.2	11.0	10.2	11.0
35	4.0	4.1	5.0	6.0	6.0	8.7	9.9	9.0	9.6
30	3.1	3.8	4.3	5.0	5.3	7.1	8.1	7.0	8.0
25	2.6	3.0	3.8	4.4	4.7	5.9	7.0	5.6	6.5
20	2.0	2.4	3.0	4.0	4.0	5.0	5.4	5.0	5.0
15	1.5	2.0	2.4	3.0	3.4	4.2	4.3	3.7	4.0
10	1.0	1.5	2.0	2.3	2.6	3.2	3.0	2.6	2.9
5	1.0	1.0	1.0	1.3	1.8	2.0	1.9	1.4	1.0
n =	1300	2775	4204	3617	1986	1637	1712	1319	745
Mean	7.5	8.0	9.2	10.7	11.2	12.9	13.5	13.8	14.4
SD	5.97	6.13	6.71	7.75	7.60	7.97	8.21	9.31	9.72

T-test

The T-test is a measure of agility. Subjects are shown how to run a course that involves sprinting forward and backward, changing direction, and side-shuffling around a series of cones. Only one trial is allowed. Times are recorded in seconds to one decimal point.

Table 11 shows the calculations used in determining the number of outliers for each age and sex. It also lists the descriptive statistics for this element's data set.

Table 12 displays the percentile table for the T-test.

Table 11

T-Test **Interquartile and outlier caclulations**

Female	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	15.0	19.0	4.0	9.0	25.0	0	0	910	910	2.57	16.9	12.0	21.9
10	14.8	19.9	5.1	7.2	27.6	0	95	2505	2410	3.70	17.4	11.0	27.6
11	15.0	19.5	4.5	8.3	26.3	0	129	3843	3714	3.32	17.2	11.0	26.3
12	15.0	19.5	4.5	8.3	26.3	0	130	3420	3290	3.26	17.2	11.0	26.3
13	14.7	19.0	4.3	8.3	25.4	0	84	2010	1926	3.20	16.9	11.0	25.4
14	14.2	19.1	4.9	6.8	26.5	0	70	1642	1572	3.40	16.8	10.6	26.5
15	14.6	19.0	4.4	8.0	25.6	0	49	1358	1308	3.08	16.8	10.6	25.6
16	15.0	19.6	4.6	8.1	26.5	0	36	1202	1166	3.19	17.3	10.6	26.5
17	15.5	19.2	3.7	9.9	24.8	0	33	571	538	2.78	17.2	10.7	24.5
							Total	17461	16834				

Male	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	14.8	20.0	5.2	7.0	27.8	0	39	1349	1310	3.62	17.5	12.0	27.8
10	14.3	19.0	4.7	7.3	26.1	0	161	2923	2762	3.28	16.6	11.0	26.1
11	14.2	18.7	4.5	7.5	25.5	0	173	4412	4239	3.14	16.4	11.0	25.5
12	14.0	18.4	4.4	7.4	25.0	0	139	3855	3707	2.98	16.2	11.0	25.0
13	14.0	17.9	3.9	8.2	23.8	0	71	2109	2038	2.58	15.8	11.0	23.6
14	13.5	17.8	4.3	7.1	24.3	0	41	1697	1656	2.77	15.6	10.6	24.1
15	13.4	17.8	4.4	6.8	24.4	0	68	1835	1767	2.78	15.4	10.6	24.3
16	13.1	17.7	4.6	6.2	24.6	0	47	1454	1404	2.90	15.3	10.6	24.6
17	13.1	17.7	4.6	6.2	24.7	0	31	804	773	2.83	15.5	10.6	24.6
							Total	20438	19656				

Table 12

T-Test (seconds)

Female

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	12.5	12.0	12.1	12.2	12.1	11.5	12.2	12.3	12.3
90	13.3	12.9	13.0	13.1	12.9	12.4	13.1	13.1	13.3
85	14.0	13.5	13.7	14.0	13.5	13.0	13.6	13.7	14.0
80	14.5	14.1	14.3	14.4	14.1	13.5	14.0	14.5	14.6
75	**15.0**	**14.7**	**14.9**	**15.0**	**14.6**	**14.2**	**14.5**	**15.0**	**15.3**
70	15.2	15.1	15.3	15.3	15.0	14.8	15.0	15.4	15.8
65	15.9	15.7	15.8	15.7	15.4	15.2	15.4	16.0	16.2
60	16.1	16.0	16.2	16.0	15.8	15.8	15.8	16.4	16.5
55	16.6	16.4	16.5	16.4	16.1	16.2	16.1	16.9	17.0
50	**17.0**	**17.0**	**17.0**	**16.9**	**16.5**	**16.7**	**16.7**	**17.3**	**17.3**
45	17.3	17.4	17.3	17.3	17.0	17.1	17.0	17.9	17.5
40	17.9	18.0	17.9	17.8	17.4	17.5	17.5	18.0	18.0
35	18.1	18.4	18.2	18.2	17.9	18.0	18.0	18.5	18.0
30	18.6	18.9	18.7	18.7	18.3	18.4	18.3	19.0	18.5
25	**19.0**	**19.4**	**19.2**	**19.2**	**18.9**	**18.9**	**18.9**	**19.2**	**18.9**
20	19.4	20.0	19.9	19.8	19.2	19.4	19.3	19.8	19.2
15	20.0	21.1	20.5	20.5	20.0	20.1	20.0	20.5	20.0
10	20.3	23.0	21.8	21.6	21.1	21.2	21.0	21.2	20.6
5	21.0	25.0	23.7	23.4	23.3	23.0	22.7	23.0	22.0
n =	910	2410	3714	3290	1926	1572	1308	1166	538
Mean	16.9	17.4	17.2	17.2	16.9	16.8	16.8	17.3	17.2
SD	2.57	3.70	3.32	3.26	3.20	3.40	3.08	3.19	2.78

Male

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	12.5	12.0	12.0	12.0	12.0	11.4	11.5	11.5	11.9
90	13.2	12.5	12.6	12.6	12.6	12.0	12.1	12.0	12.2
85	13.8	13.2	13.2	13.1	13.1	12.5	12.6	12.4	12.6
80	14.2	13.7	13.6	13.5	13.6	13.0	13.0	12.8	13.0
75	**14.7**	**14.1**	**14.0**	**14.0**	**13.9**	**13.4**	**13.3**	**13.0**	**13.0**
70	15.0	14.6	14.5	14.3	14.1	13.8	13.6	13.4	13.5
65	15.5	15.0	15.0	14.6	14.5	14.1	14.0	13.7	13.9
60	16.0	15.3	15.3	15.0	14.9	14.4	14.2	14.0	14.0
55	16.7	15.7	15.6	15.3	15.1	14.8	14.6	14.4	14.7
50	**17.0**	**16.0**	**16.0**	**15.7**	**15.5**	**15.3**	**15.0**	**15.0**	**15.0**
45	17.6	16.5	16.4	16.0	15.9	15.7	15.3	15.0	15.5
40	18.1	17.0	16.9	16.5	16.1	16.1	15.9	15.6	16.0
35	18.7	17.5	17.3	17.0	16.6	16.7	16.2	16.0	16.2
30	19.0	18.0	18.0	17.6	17.0	17.0	16.9	16.7	16.9
25	**19.8**	**18.5**	**18.4**	**18.1**	**17.6**	**17.5**	**17.3**	**17.3**	**17.2**
20	20.4	19.0	19.0	18.7	18.0	18.1	18.0	18.0	18.0
15	21.4	20.0	19.8	19.3	18.6	18.7	18.5	18.5	18.6
10	22.9	21.0	20.6	20.1	19.2	19.0	19.0	19.0	19.2
5	24.6	23.2	22.5	22.0	20.3	20.2	20.7	20.9	20.4
n =	1310	2762	4239	3707	2038	1656	1767	1404	773
Mean	17.5	16.6	16.4	16.2	15.8	15.6	15.4	15.3	15.5
SD	3.62	3.28	3.14	2.98	2.58	2.77	2.78	2.90	2.83

Endurance run

The endurance runs included as part of the International Physical Performance Test are conducted in distances of 600, 800, and 1000 meters. The test measures aerobic power or capacity depending on the time achieved. The distance is supposed to be determined by the age of the subject with younger children running the shorter distances. This is not always how the test is conducted however.

Subjects are asked to run the specified distance as fast as they can and then the time is recorded as total seconds with no decimal points.

Table 13, 15, and 17 shows the calculations used in determining the number of outliers for each age and sex. It also lists the descriptive statistics for the 600, 800, and 1000 meter distances.

Table 14, 16, and 18 display the percentile tables for the 600, 800, and 1000 meter distances respectively.

Table 13

600m run **Interquartile and outlier caclulations**

Female	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	213	378	164	-33	624	0	0	1130	1130	109.30	294.0	90.0	600.0
10	213	367	154	-18	598	0	4	2418	2414	108.17	293.0	84.0	596.0
11	208	320	112	40	488	0	155	3604	3447	84.13	262.6	80.0	488.0
12	192	316	124	6	502	0	93	3049	2955	86.69	254.8	81.0	502.0
13	203	312	109	40	476	0	55	1505	1450	83.67	253.3	85.0	476.0
14	195	315	120	15	495	0	45	854	809	85.02	250.4	80.0	493.0
15	199	325	126	10	513	0	8	662	654	91.87	258.0	90.0	510.0
16	182	300	118	4	477	0	15	704	689	84.93	245.6	89.0	462.0
17	184	315	131	-12	510	0	6	399	393	88.95	252.3	82.0	500.0
							Total	14325	13941				

Male	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	201	347	146	-18	566	0	6	1349	1343	107.08	280.6	80.0	565.0
10	196	326	130	1	521	0	66	2814	2747	98.07	263.8	80.0	521.0
11	190	304	114	19	475	0	122	4201	4077	85.10	249.0	80.0	475.0
12	184	288	104	28	444	0	118	3448	3329	76.51	236.4	80.0	444.0
13	184	295	111	18	461	0	58	1590	1532	84.41	240.4	80.0	480.0
14	170	264	94	29	404	0	26	834	808	74.49	222.8	84.0	480.0
15	176	254	78	59	371	0	45	866	820	76.75	223.9	80.0	510.0
16	160	246	86	31	375	0	57	751	694	78.89	216.7	90.0	470.0
17	146	236	90	11	371	0	21	497	476	75.48	201.3	80.0	485.0
							Total	16350	15826				

Table 15

800m run — **Interquartile and outlier caclulations**

Female	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	213	301	88	81	433	0	5	51	46	58.73	246.1	135.0	398.0
10	203	351	148	-19	573	0	1	133	132	96.71	274.9	112.0	514.0
11	191	325	134	-11	526	0	13	228	215	93.83	256.4	100.0	522.0
12	211	373	162	-31	615	0	0	267	267	120.51	297.8	110.0	600.0
13	250	380	130	55	575	0	2	435	433	88.03	316.8	102.0	559.0
14	261	372	111	95	538	0	13	634	621	75.93	312.2	108.0	536.0
15	241	391	150	16	616	0	0	459	459	107.75	326.9	91.0	600.0
16	244	365	121	62	547	0	14	380	366	88.74	305.9	105.0	544.0
17	238	423	185	-40	701	0	0	104	104	118.03	336.6	101.0	590.0
							Total	2691	2643				

Male	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	180	312	133	-19	511	0	1	52	51	94.05	246.5	129.0	503.0
10	200	326	126	10	515	0	3	180	177	86.21	263.7	101.0	475.0
11	180	292	112	12	460	0	16	273	256	82.24	233.5	92.0	460.0
12	175	287	112	7	455	0	16	325	308	76.30	228.6	80.0	455.0
13	185	295	110	20	460	0	8	346	338	72.93	242.4	100.0	459.0
14	193	310	117	18	486	0	19	416	397	79.57	255.4	104.0	473.0
15	178	287	109	15	451	0	22	389	367	75.53	229.3	88.0	450.0
16	174	280	106	15	439	0	8	353	345	69.77	229.9	90.0	416.0
17	148	225	77	33	341	0	2	184	182	56.29	192.0	86.0	340.0
							Total	2518	2421				

Table 17

1000m run — **Interquartile and outlier caclulations**

Female	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	340	444	104	185	599	2	0	35	33	90.90	395.0	210.0	561.0
10	230	353	123	46	536	0	4	79	75	78.12	302.2	128.0	511.0
11	222	323	101	71	473	0	12	143	131	64.02	269.5	121.0	453.0
12	222	440	218	-105	767	0	0	172	172	129.14	331.3	115.0	600.0
13	240	351	111	74	518	0	1	124	123	83.26	300.6	105.0	457.0
14	188	374	186	-90	652	0	0	190	190	132.56	300.8	108.0	600.0
15	290	453	163	46	696	0	0	250	250	116.93	377.6	111.0	600.0
16	279	422	143	65	637	0	0	125	125	111.27	355.6	113.0	600.0
17	250	383	133	50	582	0	0	72	72	92.07	320.2	180.0	540.0
							Total	1190	1171				

Male	Innerquartile ranges					Outliers		Descriptive stats					
Age	Q1	Q3	IQR	Inner fence		Low	High	N	n	SD	Mean	Min	Max
9	378	490	112	210	658	0	0	53	53	81.49	434.1	275.0	574.0
10	233	371	138	26	578	0	2	75	73	102.18	315.2	198.0	575.0
11	228	330	102	75	483	0	4	161	157	75.13	286.2	154.0	480.0
12	248	400	152	20	628	0	0	197	197	109.95	324.5	116.0	587.0
13	288	400	112	120	568	0	3	220	217	76.83	337.5	127.0	520.0
14	255	400	145	38	618	0	0	483	483	99.99	332.1	123.0	600.0
15	243	359	116	69	534	0	16	612	596	78.79	301.8	120.0	526.0
16	250	366	116	76	540	0	9	385	376	77.77	309.4	101.0	530.0
17	255	360	105	98	518	0	5	145	140	69.00	303.2	145.0	480.0
							Total	2331	2292				

Table 14

600m run (seconds)

Female

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	145	149	140	134	130	123	118	134	127
90	180	178	167	155	153	150	149	151	148
85	194	192	183	173	175	167	166	160	156
80	202	202	195	182	189	180	185	170	165
75	**213**	**213**	**204**	**191**	**201**	**190**	**198**	**180**	**184**
70	225	223	214	200	210	202	210	190	194
65	232	234	221	210	216	212	215	200	204
60	245	243	232	220	223	220	220	217	219
55	256	252	240	230	230	224	231	223	225
50	**265**	**265**	**247**	**240**	**237**	**232**	**240**	**230**	**235**
45	275	280	254	248	245	244	250	235	251
40	290	297	262	260	255	256	266	246	272
35	307	311	278	274	267	276	290	260	294
30	333	333	295	292	287	298	305	280	301
25	**378**	**365**	**309**	**308**	**305**	**303**	**322**	**296**	**312**
20	414	410	328	323	320	320	344	313	327
15	431	429	359	350	336	345	365	345	355
10	453	454	400	389	380	362	390	375	376
5	500	500	431	429	423	420	422	426	420
n =	1130	2414	3447	2955	1450	809	654	689	393
Mean	294.0	293.0	262.6	254.8	253.3	250.4	258.0	245.6	252.3
SD	109.30	108.17	84.13	86.69	83.67	85.02	91.87	84.93	88.95

Male

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	136	128	134	130	123	120	120	120	104
90	167	159	154	150	139	130	139	132	114
85	180	174	167	164	155	144	151	142	123
80	193	186	180	176	172	156	162	151	132
75	**201**	**195**	**189**	**182**	**182**	**170**	**176**	**160**	**145**
70	210	201	198	190	194	180	182	169	155
65	219	211	206	200	206	190	189	179	165
60	230	220	213	206	212	200	197	186	180
55	243	231	223	214	219	210	200	196	187
50	**255**	**242**	**233**	**221**	**226**	**215**	**212**	**201**	**196**
45	267	252	242	231	233	220	219	212	200
40	281	264	250	240	240	228	222	220	210
35	300	280	260	251	251	236	231	228	219
30	321	298	278	261	268	247	244	234	226
25	**343**	**320**	**300**	**280**	**288**	**257**	**254**	**245**	**235**
20	384	348	320	300	302	286	280	258	249
15	420	390	349	318	327	300	300	300	268
10	443	428	389	351	368	326	332	345	300
5	489	456	425	400	419	360	371	400	353
n =	1343	2747	4077	3329	1532	808	820	694	476
Mean	280.6	263.8	249.0	236.4	240.4	222.8	223.9	216.7	201.3
SD	107.08	98.07	85.10	76.51	84.41	74.49	76.75	78.89	75.48

Table 19
800m run (seconds)

Female

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	183	134	133	137	183	190	187	186	151
90	188	149	159	164	215	221	199	206	199
85	195	185	179	180	232	238	218	219	213
80	200	196	185	190	243	249	231	231	224
75	**210**	**203**	**190**	**211**	**250**	**261**	**241**	**243**	**238**
70	213	214	197	219	256	272	256	250	250
65	217	220	203	230	268	280	275	258	260
60	225	231	210	240	279	288	288	270	310
55	229	240	223	248	298	295	300	285	322
50	**233**	**248**	**230**	**257**	**311**	**301**	**307**	**300**	**340**
45	239	270	240	286	322	314	320	306	350
40	241	294	250	320	334	323	330	320	367
35	245	301	285	340	349	340	358	332	387
30	257	330	303	350	361	357	377	349	396
25	**267**	**348**	**314**	**373**	**380**	**368**	**391**	**360**	**423**
20	291	375	326	399	396	380	420	374	452
15	303	395	352	436	418	392	447	389	474
10	347	418	412	485	449	403	490	420	484
5	365	447	446	523	470	439	533	503	538
n =	46	132	215	267	433	621	459	366	104
Mean	246.1	302.2	256.4	297.8	316.8	312.2	326.9	305.9	336.6
SD	58.73	78.1	93.83	120.51	88.03	75.93	107.75	88.74	118.03

Male

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	147	139	125	127	140	150	131	132	121
90	149	156	140	134	155	166	140	146	130
85	164	178	150	145	164	177	162	154	138
80	168	188	160	157	175	185	170	163	142
75	**179**	**199**	**180**	**170**	**183**	**189**	**177**	**174**	**148**
70	192	211	188	181	196	200	185	182	154
65	198	220	195	195	207	215	190	192	163
60	212	226	201	202	216	224	196	210	169
55	215	231	210	212	226	238	200	216	172
50	**215**	**245**	**217**	**220**	**240**	**245**	**205**	**221**	**180**
45	222	270	220	229	252	250	219	230	186
40	223	289	234	238	260	260	232	242	200
35	236	297	247	251	271	275	244	251	211
30	254	306	262	265	281	290	260	264	217
25	**302**	**322**	**279**	**279**	**293**	**300**	**274**	**279**	**224**
20	316	350	293	288	304	314	292	289	241
15	375	361	314	305	316	337	310	309	253
10	397	392	355	322	330	374	329	322	277
5	437	403	419	383	365	417	398	350	308
n =	51	177	256	308	338	397	367	345	182
Mean	246.5	263.7	233.5	228.6	242.4	255.4	229.3	229.9	192.0
SD	94.05	86.21	82.24	76.30	72.93	79.57	75.53	69.77	56.29

Table 18

1000m run (seconds)

Female

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	230	206	198	155	138	127	210	152	197
90	307	213	201	181	174	133	216	216	199
85	326	217	212	200	205	136	236	245	213
80	340	224	217	214	213	150	260	263	225
75	**348**	**230**	**220**	**222**	**238**	**188**	**290**	**279**	**250**
70	348	235	225	231	261	214	302	298	256
65	350	267	226	255	290	230	328	310	275
60	364	279	232	275	302	252	350	322	288
55	375	298	247	289	320	285	365	340	300
50	**388**	**313**	**265**	**311**	**328**	**301**	**381**	**356**	**312**
45	388	317	271	321	338	328	400	367	323
40	401	326	275	341	342	332	411	380	339
35	420	330	288	376	345	350	422	404	359
30	434	334	298	402	348	361	432	420	370
25	**452**	**348**	**310**	**440**	**351**	**374**	**453**	**422**	**383**
20	487	357	320	458	355	392	481	443	405
15	501	372	327	487	369	444	502	478	420
10	519	382	348	517	390	504	540	508	450
5	548	425	397	571	424	542	597	526	472
n =	33	75	131	172	123	190	250	125	72
Mean	395.0	302.2	269.5	331.3	300.6	300.8	377.6	355.6	320.2
SD	90.90	78.12	64.02	129.14	83.26	132.56	116.93	111.27	92.07

Male

Percentile	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
95	285	204	199	164	216	200	187	187	186
90	315	210	209	200	238	220	210	216	215
85	345	214	215	210	256	231	224	233	228
80	360	226	220	225	276	240	235	240	240
75	**378**	**233**	**227**	**248**	**288**	**255**	**241**	**247**	**255**
70	386	255	239	260	299	268	252	261	259
65	407	256	252	267	308	279	259	275	280
60	429	267	256	281	320	288	270	291	292
55	435	282	265	305	322	300	281	302	300
50	**447**	**297**	**270**	**313**	**333**	**312**	**297**	**309**	**300**
45	453	299	278	321	344	328	304	312	309
40	458	303	286	328	350	345	318	323	319
35	473	326	292	347	367	360	323	342	331
30	483	347	299	366	380	378	339	354	345
25	**490**	**364**	**320**	**400**	**395**	**400**	**355**	**362**	**355**
20	496	383	343	426	409	422	366	372	363
15	522	422	367	454	420	451	384	382	376
10	546	473	416	480	435	484	420	405	380
5	558	546	442	540	461	520	443	443	420
n =	53	73	157	197	217	483	596	376	140
Mean	434.1	315.2	286.2	324.5	337.5	332.1	301.8	309.4	303.2
SD	81.49	102.18	75.13	109.95	76.83	99.99	78.79	77.77	69.00