PEP

2017/2018

GCSE Physical Education

Physical Activity Readiness Questionnaire (PAR-Q)

NAME: _____   DATE: _____

PAR-Q is designed to help you help yourself. Many health benefits are associated with regular exercise, and the completion of PAR-Q is a sensible first step to take if you are planning to increase the amount of physical activity in your life.

For most people, physical activity should not pose any problem or hazard. PAR-Q has been designed to identify the small number of adults for whom physical activity might be inappropriate or those who should have medical advice concerning the type of activity most suitable for them.

Common sense is your best guide in answering these few questions. Please read them carefully and check the "yes" or "no" box opposite the question if it applies to you.

	YES	NO
1. Has your doctor ever said you have heart trouble?	☐	☐
2. Do you frequently have pains in your heart and chest?	☐	☐
3. Do you often feel faint or have spells of severe dizziness?	☐	☐
4. Has a doctor ever said your blood pressure is too high?	☐	☐
5. Has your doctor ever told you that you have a bone or joint problem, such as arthritis, that has been aggravated by exercise or might be made worse with exercise?	☐	☐
6. Is there a good physical reason not mentioned here why you should not follow an activity program even if you wanted to?	☐	☐
7. Are you over the age of 65 and not accustomed to vigorous exercise?	☐	☐

IF YOU ANSWERED YES TO ONE OR MORE QUESTIONS

If you have not recently done so, consult with your personal physician by telephone or in person BEFORE increasing your physical activity and/or taking a fitness appraisal. Tell your physician what questions you answered yes to on PAR-Q, or present your PAR-Q copy.

After medical evaluation, seek advice from your physician as to your suitability for:

• unrestricted physical activity starting off easily and progressing gradually

• restricted or supervised activity to meet your specific needs, at least on an initial basis (Check in your community for special programs or services.)

IF YOU ANSWERED NO TO ALL QUESTIONS

If you answered PAR-Q accurately, you have reasonable assurance of your present suitability for:

• a graduated exercise program (A gradual increase in proper exercise promotes good fitness development while minimizing or eliminating discomfort.)

• a fitness appraisal

Postpone exercise if you have a temporary minor illness, such as a common cold.

IDEA
HEALTH & FITNESS ASSOCIATION

Analysis of fitness in Swimming

Swimming is a sport with a variety of distances ranging from 50 metres to 10km Open Water swims. The sport also has different strokes - butterfly, backstroke, breaststroke and freestyle. Each stroke and distance require different components of fitness in order to be successful in completing your event in the quickest time possible. I usually swim the 50m backstroke, 100m backstroke, 200m backstroke and 200m Individual Medley in a swim meet.

Over the course of a swim meet and in the majority of the events, Cardiovascular Endurance, also known as stamina, is the most important aspect of fitness in a performer. A good example for cardiovascular endurance is when swimming the 1500m freestyle or 200 IM. This is important because you need to maintain a consistent pace without fatigue over the duration of the race and be able to swim at higher intensity over a period of time than your competitors. **(150 words)**

Area for improvement

Component: Cardiovascular Endurance

Cardiovascular endurance is important in all the strokes in swimming because of the repeated concentric muscle actions of the arms and legs over the the duration of the race event. My cardiovascular endurance should be at a level where I feel comfortable swimming and be able to complete the race distance in the quickest time possible. Improving my cardiovascular endurance through training will be beneficial for me during a race because I can swim at a higher intensity for a longer period of time without fatigue. Improving my cardiovascular endurance will also increase the amount of available oxygen to the working muscles allowing for improved aerobic capacity. If I had poor cardiovascular endurance, I would not be able to maintain a good pace in the pool and can get fatigued, especially during the latter stages of the race. My recovery between events would also be poor leading to worsening performances throughout a swim meet.

I have chosen to assess my CV endurance by using the 12 minute Cooper swim so as to give me the most valid assessment of my current fitness levels and comparative ratings against the norm.

(189 words)

Test for Cardiovascular endurance: 12 minute Cooper Swim Ratings

	Excellent	Above Average	Average	Below Average	Poor
Male	**>725m**	640-724m	550-639m	460-549m	<460m
Female	>640m	550-639m	460-549m	356-459m	<365m
I have chosen the 12 minute Cooper swim test as its the most valid and sport specific way of measuring my CV endurance and I can assess my performance / rating against standard norms and compare against other swimmers in my age category					

12 minute Cooper Swim Results

Area of fitness	Resting heart rate (bpm)	Pre-program score (metres)	Rating	Post-program score (metres)	Rating
CV Endurance	69	**875**	**Excellent**	950	Excellent

My rating of 'excellent' in the 12 minute Cooper swim could still be improved upon as it's a key component of swimming and improved CV endurance would benefit my swimming performance.

Improving my CV endurance will improve the delivery of oxygen, which is transported by the circulatory system to the active skeletal muscle. This is then used as fuel for the muscles. The cardiorespiratory system and muscles work together to deliver oxygen to the body allowing for improved speeds of swimming over a specific distance. Improving my VO$_2$ max rating would also allow me to exercise for a longer period of time to correct errors and improve my technique without fatigue and improve my recovery during breaks between sets of repetitive training. **(122 words)**

Types of Training considered

Continuous Training is taking part in a physical activity for an extended period of time without rest. This will help improve my cardiovascular endurance by enabling me to swim for longer distances.

Interval Training consists of periods of work followed by periods of active recovery. This will help me to improve my recovery time which will be important for swim meets where I swim a lot of events.

I will choose interval training in the swimming pool for my PEP as this is the most effective method at improving cardiovascular endurance at higher intensities and will also allow me to more effectively gather the relevant data required to monitor and evaluate my training. The added rest and recovery will also allow me to maintain proper stroke technique and form throughout the set.   **(132 words)**

Principles of Training

All fitness training programmes should follow the Principles of Training. These include:

Specificity: My training needs to match the sport I'm doing. For example, in my Personal Exercise Plan, I am going to be doing training that is necessary to swimming and working the specific muscle groups, such as quadriceps, hamstring, gastrocnemius, tibialis anterior, latissimus dorsi, deltoid, pectoralis major and abdominals that are involved in the specific actions of my chosen stroke.

Progressive Overload: The frequency, intensity, time and the type of exercise will be gradually increased to ensure that my levels of fitness continue to improve. I will aim to swim each interval more quickly.

Rest and Recovery: This allows my body to adapt and prevent overtraining which may cause injury.

Individual needs: My swim programme and training regime is based in the pool to match my specific needs in relation to muscle actions and energy systems used and my plan is based around improving my cardiovascular endurance and recovery rate.

(162 words)

SMART Targets

- By the end of my 6 week training programme I want to increase my 12 minute Cooper Swim distance by at least 50m

- By Feb 15th 2018 I would like to achieve a time of 2 min 25 secs for my 200 IM, an improvement of 2 seconds.

(48 words)

Training Session Plan

Week	Mon	Tue	Weds	Thurs	Fri	Sat	Sun
1	**Interval Training 50m x 10 Descending on 2 minutes**	**Rest**	**Rest**	**Interval Training 50m x 10 Descending on 2 minutes**	**Rest**	**Rest**	**Interval Training 50m x 10 Descending on 2 minutes**
2	**Interval Training 50m x 10 Descending on 2 minutes**	**Rest**	**Rest**	**Interval Training 50m x 10 Descending on 2 minutes**	**Rest**	**Rest**	**Interval Training 50m x 10 Descending on 2 minutes**
3	**Interval Training 50m x 10 Descending on 1 minutes 45 seconds**	**Rest**	**Rest**	**Interval Training 50m x 10 Descending on 1 minutes 45 seconds**	**Rest**	**Rest**	**Interval Training 50m x 10 Descending on 1 minutes 45 seconds**
4	**Interval Training 50m x 10 Descending on 1 minutes 45 seconds**	**Rest**	**Rest**	**Interval Training 50m x 10 Descending on 1 minute 45 seconds**	**Rest**	**Rest**	**Interval Training 50m x 10 Descending on 1 minutes 45 seconds**
5	**Interval Training 50m x 10 Descending on 1 minute 30 seconds**	**Rest**	**Rest**	**Interval Training 50m x 10 Descending on 1 minute 30 seconds**	**Rest**	**Rest**	**Interval Training 50m x 10 Descending on 1 minute 30 seconds**
6	**Interval Training 50m x 10 Descending on 1 minute 30 seconds**	**Rest**	**Rest**	**Interval Training 50m x 10 Descending on 1 minute 30 seconds**	**Rest**	**Rest**	**Interval Training 50m x 10 Descending on 1 minute 30 seconds**

Data Collection

Week 1					
Session 1		**Session 2**		**Session 3**	
Time (s)	**HR (bpm)**	**Time (s)**	**HR (bpm)**	**Time (s)**	**HR (bpm)**
N/A (RHR)	69	N/A (RHR)	68	N/A (RHR)	68
45.54	89	45.32	88	45.50	88
43.35	99	44.41	94	43.98	97
40.02	115	42.87	105	41.87	110
39.41	120	40.42	114	39.98	118
38.45	124	37.23	128	37.76	125
37.20	132	35.87	136	36.34	133
35.08	144	33.60	144	34.65	141
34.15	148	31.90	155	32.42	150
31.03	156	30.62	160	29.98	162
28.48	168	28.10	170	27.98	172
Recovery (2min)	132	**Recovery (2min)**	128	**Recovery (2min)**	130
Recovery (4min)	116	**Recovery (4min)**	118	**Recovery (4min)**	108
Recovery (6min)	96	**Recovery (6min)**	94	**Recovery (6min)**	92
Recovery (8min)	**87**	**Recovery (8min)**	**87**	**Recovery (8min)**	**88**

My mean average resting heart rate for week 1 is **68.33 bpm**.

My target HR zone is 60-80% and out of the 10 intervals for each session, I was within my **aerobic zone for only 5**, suggesting I need to adjust my intensity if I am going to achieve my SMART targets.

My **mean average recovery rate** after 8 minutes was 84% of my RHR, highlighting my body's quick RR. This indicates my muscles are able to repay the oxygen debt quickly and I am able to recover from fatigue.

Week 1: Time Taken 50m Interval Training Descending @ 2:00 (s)

Session 1
Session 2
Session 3

Week 1: Interval Training Heart rate and recovery rate (bpm)

Session 1
Session 2
Session 3

Week 2					
Session 4		**Session 5**		**Session 6**	
Time (s)	**HR (bpm)**	**Time**	**HR (bpm)**	**Time (s)**	**HR (bpm)**
N/A (RHR)	70	N/A (RHR)	69	N/A (RHR)	69
46.04	86	45.56	88	45.40	88
44.00	97	44.61	93	43.87	99
41.84	110	41.98	108	41.57	112
39.51	116	40.22	115	39.79	119
38.24	126	38.23	126	37.66	126
37.03	132	35.87	138	36.04	135
35.38	139	33.60	144	34.25	142
33.15	149	31.90	155	32.72	149
30.99	158	30.42	162	29.76	164
28.87	167	28.30	170	28.21	171
Recovery (2min)	130	**Recovery (2min)**	131	**Recovery (2min)**	129
Recovery (4min)	114	**Recovery (4min)**	112	**Recovery (4min)**	113
Recovery (6min)	98	**Recovery (6min)**	96	**Recovery (6min)**	99
Recovery (8min)	**85**	**Recovery (8min)**	**82**	**Recovery (8min)**	**84**

Similar to week 1, my mean average RHR is **69.33 bpm**.

With my target HR zone (60-80%) being between 123-164 bpm, you can see that for each session, I was within my **aerobic zone for only 5 interval sets**. As with week 1, this is an aspect of training I need to improve on and ensure that I do a thorough pulse raiser as part of my warm-up.

My **mean average recovery rate** after 8 minutes (84 bpm) was 90% of my RHR, once again highlighting my body's quick recovery rate.

Week 2: Time Taken 50m Interval Training Descending @ 2:00 (s)

Legend: Session 4, Session 5, Session 6

Week 2: Interval Training Heart rate and recovery rate (bpm)

Legend: Session 4, Session 5, Session 6

Week 3					
Session 7		**Session 8**		**Session 9**	
Time (s)	**HR (bpm)**	**Time (s)**	**HR (bpm)**	**Time (s)**	**HR (bpm)**
N/A (RHR)	69	N/A (RHR)	68	N/A (RHR)	66
45.82	87	45.13	89	44.21	90
43.53	97	44.21	95	42.75	101
40.35	113	42.91	103	41.87	111
38.21	121	40.56	113	39.45	120
37.24	127	37.53	126	37.24	127
36.38	133	35.65	135	34.72	136
35.38	137	33.86	145	32.65	144
33.96	146	31.75	150	30.97	156
31.14	152	30.34	169	29.76	163
28.98	166	28.24	170	28.01	173
Recovery (2min)	128	**Recovery (2min)**	129	**Recovery (2min)**	128
Recovery (4min)	112	**Recovery (4min)**	114	**Recovery (4min)**	113
Recovery (6min)	95	**Recovery (6min)**	99	**Recovery (6min)**	97
Recovery (8min)	**84**	**Recovery (8min)**	**86**	**Recovery (8min)**	**85**

Slightly lower than previous weeks, my mean average RHR is **67.67 bpm**. A lower RHR is an indicator that my cardiorespiratory system is adapting as a result of effective training.

With my target HR zone (60-80%) you can see that for 1 of the sessions, I was only within my **aerobic zone for 4 out of 10 interval sets** despite incorporating a longer warm up. As with previous weeks, this is an area for improvement if I am going to achieve my SMART target (1) which requires me to develop my CV fitness. I do however go slightly above this zone in the later swims where I begin to work more anaerobically.

My **mean average recovery rate** after 8 minutes (85 bpm) was 87% of my RHR, which is slightly slower than previous weeks. As the weeks progress, I would expect my recovery rate to improve further as my body begins to adapt as a result of progressive overload applied during my training sessions.

Week 3: Time taken 50m Interval Training Descending @ 1:45 (s)

Session 7
Session 8
Session 9

Week 3: Interval Training heart rate and recovery rate (bpm)

Session 7
Session 8
Session 9

Week 4					
Session 10		Session 11		Session 12	
Time (s)	HR (bpm)	Time (s)	HR (bpm)	Time (s)	HR (bpm)
N/A (RHR)	67	N/A (RHR)	67	N/A (RHR)	67
45.23	88	44.63	91	44.21	90
43.73	97	42.81	100	42.45	104
41.21	109	41.00	110	41.57	112
39.65	118	39.61	117	39.12	123
37.54	125	37.53	126	36.99	130
35.38	137	35.11	139	34.45	138
34.28	141	33.43	146	32.81	147
32.53	152	31.45	155	30.57	158
30.65	157	29.99	164	29.56	168
28.21	169	28.03	171	27.76	174
Recovery (2min)	130	Recovery (2min)	131	Recovery (2min)	132
Recovery (4min)	116	Recovery (4min)	118	Recovery (4min)	119
Recovery (6min)	99	Recovery (6min)	100	Recovery (6min)	98
Recovery (8min)	**84**	Recovery (8min)	**85**	Recovery (8min)	**84**

Slightly lower than previous weeks, my mean average RHR is **67 bpm**. A lower RHR is an indicator that my cardiorespiratory system is adapting as a result of effective training.

With my target HR zone (60-80%) you can see that for 1 of the sessions, I was only within my **aerobic zone for 4 out of 10 interval sets** despite incorporating a longer warm up. As with previous weeks, this is an area for improvement if I am going to achieve my SMART target (1) which requires me to develop my CV fitness. I do however go slightly above this zone in the later swims where I begin to work more anaerobically.

My **mean average recovery rate** after 8 minutes (84.3 bpm) was 89% of my RHR, which is slightly slower than previous weeks. As the weeks progress, I would expect my recovery rate to improve further as my body begins to adapt as a result of progressive overload applied during my training sessions.

Week 4: Time Taken 50m Interval Training Descending @ 1:45 (s)

Week 4: Interval Training Heart rate and recovery (bpm)

Week 5					
Session 13		Session 14		Session 15	
Time (s)	HR (bpm)	Time (s)	HR (bpm)	Time (s)	HR (bpm)
N/A (RHR)	67	N/A (RHR)	68	N/A (RHR)	65
44.98	90	44.47	91	44.11	92
43.12	98	42.51	102	42.25	106
40.98	111	40.67	114	41.31	114
38.86	120	38.83	119	38.95	120
37.14	127	37.04	128	36.53	133
35.12	138	34.99	140	34.15	139
33.97	144	32.93	147	32.21	150
31.89	154	30.98	157	30.41	158
30.23	160	29.42	163	29.46	166
28.09	170	27.92	172	27.81	173
Recovery (2min)	128	Recovery (2min)	129	Recovery (2min)	130
Recovery (4min)	114	Recovery (4min)	115	Recovery (4min)	116
Recovery (6min)	96	Recovery (6min)	99	Recovery (6min)	100
Recovery (8min)	84	Recovery (8min)	83	Recovery (8min)	84

Slightly lower than previous weeks, my mean average RHR is **66.6 bpm**. A lower RHR is an indicator that my cardiorespiratory system is adapting as a result of effective training.

With my target HR zone (60-80%) you can see that for 1 of the sessions, I was only within my **aerobic zone for 4 out of 10 interval sets** despite incorporating a longer warm up. As with previous weeks, this is an area for improvement if I am going to achieve my SMART target (1) which requires me to develop my CV fitness. I do however go slightly above this zone in the later swims where I begin to work more anaerobically.

My **mean average recovery rate** after 8 minutes (83.6 bpm) was 90% of my RHR, which is slightly slower than previous weeks. As the weeks progress, I would expect my recovery rate to improve further as my body begins to adapt as a result of progressive overload applied during my training sessions.

Week 5: Time Taken 50m Interval Training Descending @ 1:30 (s)

- Session 13
- Session 14
- Session 15

Week 5: Interval Training Heart rate and recovery (bpm)

- Session 13
- Session 14
- Session 15

Week 6					
Session 16		Session 17		Session 18	
Time (s)	HR (bpm)	Time (s)	HR (bpm)	Time (s)	HR (bpm)
N/A (RHR)	67	N/A (RHR)	66	N/A (RHR)	65
44.76	89	44.39	92	44.00	93
43.15	99	41.99	107	41.76	108
40.65	113	40.87	113	39.94	117
38.81	122	38.53	121	37.85	124
36.52	130	36.34	130	35.83	136
34.97	139	34.69	142	33.86	141
33.27	145	32.73	148	31.98	152
31.65	155	31.18	156	30.81	157
30.05	161	29.42	163	29.66	164
27.97	172	27.84	173	27.69	175
Recovery (2min)	129	Recovery (2min)	130	Recovery (2min)	132
Recovery (4min)	115	Recovery (4min)	116	Recovery (4min)	117
Recovery (6min)	97	Recovery (6min)	98	Recovery (6min)	101
Recovery (8min)	82	Recovery (8min)	83	Recovery (8min)	84

Slightly lower than previous weeks, my mean average RHR is **66 bpm**. A lower RHR is an indicator that my cardiorespiratory system is adapting as a result of effective training.

With my target HR zone (60-80%) you can see that for 1 of the sessions, I was only within my **aerobic zone for 5 out of 10 interval sets** despite incorporating a longer warm up. As with previous weeks, this is an area for improvement if I am going to achieve my SMART target (1) which requires me to develop my CV fitness. I do however go slightly above this zone in the later swims where I begin to work more anaerobically.

My **mean average recovery rate** after 8 minutes (83 bpm) was 91% of my RHR, which is slightly slower than previous weeks. As the weeks progress, I would expect my recovery rate to improve further as my body begins to adapt as a result of progressive overload applied during my training sessions.

Week 6: Time Taken 50m Interval Training Descending @ 1:30 (s)

Week 6: Interval Training Heart rate and recovery (bpm)

Evaluation of the PEP

	RHR (bpm)	12 min. Cooper Swim	200 IM Time
Pre-programme	69	875m	2:27.00
Post-programme	66	**950m**	**2:23.57**

SMART Targets	Progress
1) By the end of my 6 week training programme I want to increase my 12 minute Cooper Swim distance by at least 50m	Increased by **75 m** representing an **8.5% improvement** in performance.
2) By Feb 15th 2018 I would like to achieve a time of 2:25.00 for my 200 IM, an improvement of 2 seconds.	Competed in 200 IM event on 02/03/13 and achieved **2:23.57**, representing a **3.43 second improvement.**

I used the 12 minute Cooper Swim fitness test as a performance indicator. My test result **improved by 75m** over the duration of the programme which indicates an **improved level of cardiovascular endurance by 8.5%**. As a result of my gradual increase in work rate over the 6 week period my circulatory system has made adaptations to accommodate this increase. As a result, I have also been able to meet my 2nd **S.M.A.R.T** Target of '*By Feb 15th 2018 I would like to achieve a time of 2 min 25 secs for my 200 IM, an improvement of 2 seconds*' - swimming **2 min 23.57 secs** in the 200m IM at Bangkok Patana School on the Saturday 3rd February.

I am able to **work longer aerobically,** because:-

- My heart muscle has increased in size (hypertrophy of the myocardium) which increases stroke volume.
- More red cells have been produced which results in more haemoglobin to carry more O_2 to the muscles.
- Increase in capillaries around active skeletal muscle.
- Activated more slow twitch fibres.
- Increased myoglobin content in the muscle fibres.
- Increased blood volume

This has the effect of more oxygenated blood being available to my working muscles, therefore increasing my aerobic capacity and helping delay the onset of producing lactic acid. This enables my muscles to work longer / harder before they suffer fatigue, thus improving my swimming performance.

(232 words)

Recommendations for further improvements

I will continue to progress with interval training as it was an effective method of training and brought clear benefits to my performance. Over time I will increase the number of sets to follow the FITT principle or reduce the rest period. To improve my swimming further, I could also include dry-land based strength training to improve my muscular endurance, strength and power through the use of resistance machines and free weights, focusing on specific muscle groups and actions used in my swim strokes. This would allow me to apply more force in the water and swim a greater distance per stroke. I would also include distance swims to further monitor and improve my CV endurance such as a continuous swim of >1500m at 75% of race pace.

(128 words)

Appendices 1

Components of Fitness in relation to Swimming

Muscular Endurance is '*a measure of the length your voluntary muscles can contract without getting tired. This can be repeated muscle contractions, or one contraction held for a long period of time,*' which could be seen in the movement of the arms and legs in all strokes. This is important as all strokes must be performed continuously throughout the duration of the race.

Cardiovascular Endurance, also known as stamina is '*the measure of how efficiently your body can deliver oxygen and nutrients, such as glucose to your working muscles during exercise.*' A good example for cardiovascular endurance is in swimming 1500m freestyle. This is important because you need to maintain a consistent pace without fatigue over the duration of the race.

Strength is '*the amount of force a muscle can generate when it contracts to overcome resistance,*' which can be seen in the arm movement when swimming butterfly. Pulling through the water harder will enable you to swim further which each stroke and gain an advantages against your opponents

Flexibility is '*the ability of your joints to move through their range of movement.*' A good example of this is the arm action in butterfly. Improved flexibility in the shoulder joint improves the range of motion which improves stroke length.

Body Composition is '*a measure of the percentage of fat, muscle, bone, water and vital organs that make up your body weight.*' Most swimmers are lean which makes you more streamline in the water. You cannot be overweight because fat will weigh you down and make you slower and fat is only beneficial for buoyancy.

Agility is '*a measure of how quickly you can change the position of your body, while keeping your entire body under control.*' Agility is not that vital in swimming, but it is used frequently in turns, in particularly breaststroke. Having quick turns will enable you to turn more effectively.

Balance is '*your ability to keep your body steady when in a static position and when moving,*' which could be seen during a start in swimming. It is crucial to stay balanced during a start as slight moving can make you disqualified. Therefore, it is important to be still during a start of a race.

Coordination is '*the ability to move two or more body parts together accurately and smoothly.*' An example of coordination in swimming breaststroke in both arms and legs. Good coordination will allow you to glide further with each stroke because of the improved timing of the movement in both arms and legs.

Power is *'the ability to combine strength with speed to perform to perform a strong muscular contraction very quickly,'* which can be seen when pushing off a wall during a turn. A powerful push off the wall will enable to have more momentum to streamline to the surface quicker.

Reaction Time is *'the amount of time it takes you to respond to a stimulus.' One clear example of reaction time is in the start. Having a good reaction time will enable you to jump into the water ahead of everyone and start your streamline quicker than everyone else.*

Speed is *'the rate at which your body, or part of your body, is able to perform a movement,'* which could be seen in a 50m race. Having speed in a 50m race is very crucial because it will allow you to finish the race before anyone.

Appendices 2

Types of Training

Weight Training is using weights as a resistance to perform a number of repetitions and is used to improve strength, power and muscular endurance.

Plyometrics is high-impact exercises that teaches muscles to perform faster and more powerful muscle contractions which improves power and strength.

Fartlek Training is a form of interval training which improves speed by running at different speeds and often on different terrains.

Circuit training involves a series of stations designed to meet the needs of the performer which can be used to improve a variety of fitness components

Fitness Tests Normative Tables

One-minute Press-up Test – muscular endurance

Gender	Excellent	Above average	Average	Below average	Poor
Male	>45	**39-44**	31-38	19-30	<20
Female	>35	28-34	20-27	6-19	<5

Sit and Reach Test (cms) - flexibility

Gender	Excellent	Above average	Average	Below average	Poor
Male	**>41**	33-41	25-32	13-24	<13
Female	>46	38-46	29-37	19-28	<19

30-metre Sprint Test - speed

Gender	Excellent	Above average	Average	Below average	Poor
Male	<4.0 seconds	**4.2-4.0 seconds**	4.4-4.3 seconds	4.6-4.5 seconds	>4.6 seconds
Female	<4.5 seconds	4.6-4.5 seconds	4.8-4.7 seconds	5.0-4.9 seconds	>5.0 seconds

Illinois Agility Test - agility

Gender	Excellent	Above average	Average	Below average	Poor
Male	>15.2	**16.1-15.2**	18.1-16.2	19.3-18.2	<19.3
Female	>17	19.9-17	21.7-20	23-21.8	<23