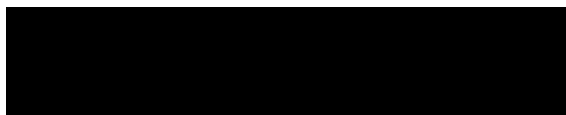


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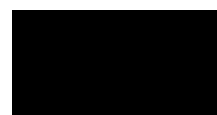
School:



Centre Number:



Candidate Number:



Sport for PEP: 800m



Introduction

I'm a 800m runner and compete at an inter-club level for Macclesfield Harriers, training twice-weekly. My PB is 2:08.9 (post PEP). I completed a PAR-Q (**appendix 1**) to ensure I was physically fit enough to participate in the exercise.

Fitness Table of results - Pre PEP

<u>Fitness Test</u>	<u>Component of fitness</u>	<u>My score</u>	<u>Normative data rating</u>	<u>Relevance to sport</u> <u>See appendix 2</u>
12 Minute Cooper Run	Cardiovascular-fitness	3040m	Excellent	
Harvard Step Test	Cardiovascular-fitness	97	Excellent	
Hand-Grip Dynamometer Test	Strength	30	Poor	
30m Sprint Test	Speed	4.1	Above Average	
One Minute Sit up Test	Muscular Endurance	85	Excellent	
One Minute Press-up Test	Muscular Endurance	30	Above Average	
Illinois Agility Test	Agility	15.3 seconds	Above Average	
Vertical Jump Test	Power	42cm	Average	
Sit and Reach	Flexibility	25	Average	

Evaluation/Interpretation of Fitness

Table of Results

The only fitness component I scored poor on was the Hand-Grip Test which measures strength in the forearm. I'm ultimately not going to work on this as it is not a priority in an 800m. **I am going to work on my cardiovascular-fitness** as I feel that this is the most important component of fitness for 800m. Despite getting excellent scores compared to normative data for the Cooper Run (3040m) and Step Test (97), my score for the latter was below average compared to the class data (**appendix 3**).

Furthermore, though my cardiovascular-fitness is very strong, my PB is 2:14.3 (pre PEP) which wasn't ranked on thepoweroften.info. In addition, my split times for the 800m are negative splits (first 400m slower than 2nd 400m - see below). Tactically, runners should aim to run the first lap faster (positive split) and 'hang on' for the second lap. With an improved cardiovascular-fitness, I would hope to have more confidence to do this and improve my PB. Cardiovascular-fitness is crucial for an 800m runner as this will enable me to delay the onset of fatigue. **I have therefore picked the Harvard Step Test as well as the 12 Minute Cooper Run to monitor my cardiovascular-fitness before, during and after the PEP.**

SPLIT times for 800m races pre PEP (rounded to nearest second)

1st 400m	2nd 400m	Finish time
1.09	1.07	2.16
1.08	1.06	2.14
1.09	1.08	2.17

SMART Targets

① **Fitness based goal:**

- Improve cardiovascular-fitness performance for Harvard Step Test by 10 points to reach 107 (10.3% increase).

① **Second fitness based goal:**

- improve my cardiovascular-fitness performance for 12 minute Cooper Run and run an extra 200m. (6.6% increase).

② **Performance based goal:**

- run 800m with more positive split times, to improve my pacing consistency and PB.

- All are **time-bound**: 6 weeks to achieve these goals.
- All are **specific** to the sport as cardiovascular-fitness is essential in an 800m.

- All are **measurable** as I can complete the tests/runs and compare my scores during and after training. I will use heart rate and time (seconds) data to calculate scores and percentages.
- All are **realistic** because I can improve cardiovascular-fitness by running effective routes and have access to an athletics track.
- All are **achievable** because I know what percentage I need to improve by, and these are challenging but not too far out of reach as the fitness goals are around a 6-10% increase.

Methods/Principles of training

I intend to use a mix of interval/continuous/fartlek training (3 or 4 times a week) to work my cardiovascular-fitness because this will develop my type 2a muscle fibres in a range of paces and distances. I would expect my Type IIb muscles fibres to improve in their efficiency too due to the fartlek and interval training. I will do most of my training at my athletics club (**appendix 4c**). However, interval and continuous training can be unmotivational but doing the training at my club with other runners will drive me to work harder and make it more enjoyable. I will also complete one or two relaxed runs a week (**appendix 4b**).

Overall Plan: appendix 4a.

<u>Principle of Training</u>	<u>How it's applied</u>	<u>Example in PEP</u>
Individual Needs	Completed a PAR-Q, fitness tests	Completed around 1-2 relaxed runs a week, ran in a pace suitable to my ability. (Appendix 4a).
Progressive overload (FITT principles)	Running either more frequently (F), harder (I), longer (T), or changing the type of running (T) eg continuous or interval.	F - Training 3-4 days a week, allowing rest days to prevent overtraining (Appendix 4a) I - Running faster at training sessions, for example increasing my average 300m time during interval training from 52s to 50s. T- Gradually increasing distance ran in runs during the PEP from 3km to 5km. (Appendix 4a). T - Change the type of running training. (Appendix 4c).
Specificity	I chose relevant training methods and ran distances similar to 800m to mimic speed stamina and cardiovascular-fitness.	Used interval training of 200m repeated splits to mimic 800m. Completed longer runs to increase cardiovascular-fitness, essential for the race. (Appendix 4a)
Overtraining/	Using warmups to prevent	A thorough warm up was always

reversibility	injury. Having rest days to prevent injury.	carried out (Appendix 4c) 3-4 rest days made sure I wasn't overtraining. (Appendix 4a)
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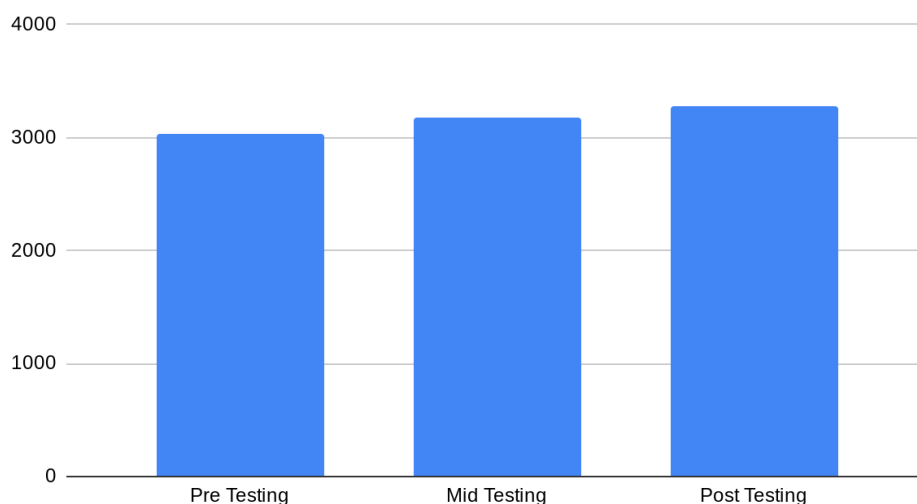
Interpretation of Data and Results

Harvard Step Test



My score before the training plan was 97, which rated excellent compared to normative data. Midway, it increased by 9 points to 106 (+8.5%). After 6 weeks it increased by 5 points to 111 (5%). Overall I increased my cardiovascular-fitness on this test by 14%. This excellent improvement was due to high motivation levels throughout my training, no injuries and hard work. In fact, my running coach commended me on progression of fitness, as I had a string of successful training sessions. Furthermore, the fact that I had included several additional runs over the 6 weeks really helped with increasing my cardiovascular-fitness.

12 Minute Cooper Run



My score pre PEP was 3040m rated excellent to normative data (**appendix 5a**) and class data (**appendix 5b**). Midway, I increased the distance by 140m (+4.6%) and from mid - post PEP I ran a further 100m (+3.1%). Overall, a further 240m (+7.9%), meaning I had also achieved my second fitness smart target. However, improvement wasn't as great as the Step Test, probably because it involves running for significantly longer than 800m and the majority of my training was tailored to my set distance.

SPLIT times for 800m races pre PEP/season (rounded to nearest second)

1st 400m	2nd 400m	Finish time
1.09	1.07	2.16
1.08	1.06	2.14
1.09	1.08	2.17

SPLIT times for 800m races post PEP/season (rounded to nearest second)

1st 400m	2nd 400m	Finish time
1.00	1.08	2:08
1.04	1.07	2:11
1.05	1.08	2:13

This performance data shows that post PEP my 800m were significantly quicker due to an increase in cardiovascular-fitness. Also, I was running most of my races with positive splits which evidently improved the times, and was something I wanted to develop. My PB after (2.08) was 4.7% faster than pre PEP (2.14). Even though I have improved noticeably more in the fitness tests, my increase in performance data was still beneficial as I am now ranked 435th in the country for 800m (post PEP), on thepoweroften.info, whereas I wasn't ranked pre-PEP.

Evaluation of PEP

My **smart targets** were effective and I was able to see how much I have improved both in fitness and performance. The 6 week **time** period was long enough to achieve viable results but short enough to remain motivated. Furthermore, the goals were accurately **measurable** (clear HR scores in the fitness tests and time - seconds in the 800m race) and comparable to normative/class data. I had regular access to an athletics track throughout the PEP (**realistic**). Even though my goals were achievable, I think next time I should aim higher, eg Cooper Run - I ran an extra 40m on top of my goal. Next time I should re-evaluate the **achievability** of the goals and ensure that they're more challenging.

Managing to achieve my goals securely shows a mix of **interval, continuous and fartlek** training was successful for me. Interval training has allowed me to develop both type 2x and 2b muscle fibres for effective starts and finishes and has delayed fatigue which is crucial in an 800m race, ensuring my positive split pacing allowed my times to improve. On the other hand, continuous and fartlek training greatly increased my cardiovascular-fitness which is evident in my improvement in the Harvard Step Test (+14%) and 12 Minute Cooper Run (7.9%). Ultimately, this is what I set out to improve and my ability to work harder for the full duration of the 800m run has increased as a result.

Individual needs ensured my training plan was appropriate to my ability as I designed a plan in keeping with my current weekly training. My training was **specific** to 800m: from interval training of 200m ensuring speed stamina and pacing technique development, to longer and more relaxed 5km runs that improved my cardiovascular-fitness. And as a result, my 800m times improved during the PEP.

I applied measures to reduce **overtraining** and prevent **reversibility** by creating rest days (appendix 4a) and warm-ups to counteract these. There were only 2 instances where training was on two consecutive days so my muscles had time to recover. As a result, I didn't acquire an injury which would've jeopardised the PEP. I used **progressive overload (FITT)**. **Frequency** was 3-4 times a week. Going forward I would ensure I train more times a week as the PEP progressed (even if subtle) just to get my body used to running more. **Intensity** also increased as I recorded some of my times in interval training sessions when we did 15 x 300m as an interval session and I reduced my average time from 52 to 50 seconds. I increased the amount of **time** ran as I ran more 5kms than 3kms towards the end of the 6 weeks. However I found this difficult and didn't run these very fast, so going forward I would remove some longer runs. Finally I varied the **type** of running I did, however training at my club was out of my control and if it was up to me I would've done less continuous training and more interval to maximise on **specificity**.

Future recommendations

- Focus on medium length interval training as this is more specific to an 800m.
- Fewer rest days. Even though this helps prevent reversibility I didn't always feel completely challenged.
- Remove some longer 5km runs as this isn't very specific to an 800m
- Specific focus on one method of training for a 6 week period with the intention of seeing better results in specific areas of fitness.

Total Word Count (excluding titles and data/tables/appendix): 1524

Appendix 1: PARQ

Height:

Weight:

Physicians Name:

Phone:

Physical Activity Readiness Questionnaire(PAR-Q)

#	Questions	Yes	No
1	Has your doctor ever said that you have a heart condition and that you should only perform physical activity recommended by a doctor?	<input type="radio"/>	<input checked="" type="radio"/>
2	Do you feel pain in your chest when you perform physical activity?	<input type="radio"/>	<input checked="" type="radio"/>
3	In the past month, have you had chest pain when you were not performing any physical activity?	<input type="radio"/>	<input checked="" type="radio"/>
4	Do you lose your balance because of dizziness or do you ever lose consciousness?	<input type="radio"/>	<input checked="" type="radio"/>
5	Do you have a bone or joint problem that could be made worse by a change in your physical activity?	<input type="radio"/>	<input checked="" type="radio"/>
6	Is your doctor currently prescribing any medication for your blood pressure or for a heart condition?	<input type="radio"/>	<input checked="" type="radio"/>
7	Do you know of any other reason why you should not engage in physical activity?	<input type="radio"/>	<input checked="" type="radio"/>

Appendix 2: components explained

<u>Relevance to sport</u>
I need excellent cardiovascular-fitness for track athletics as this will enable me to run more quickly and efficiently.
Strength is important for an 800m race as it can be used for quick bursts of speed for example starting, a sprint finish and escaping being boxed in.
Speed is important for an 800m race for quick starts and a sprint finish.
Muscular Endurance is crucial for fast running for a prolonged time period.
There are some incidences where I might need agility but it not as important as the other components of fitness.
Quick bursts of power can be useful when overtaking runners.
Good flexibility allows for more movement in legs and hips and longer strides.

Appendix 3 (step test class scores)

Name	core	
Jake	101	
Eddie	130	
Zach	126	
Laure	116	
Josh	85	
Max I	96	
Will V	101	
Matt ,	96	
Jake	97	
Will M		
Aidan	93	
Myles		
Xav c	95	
Average	103.2727273	

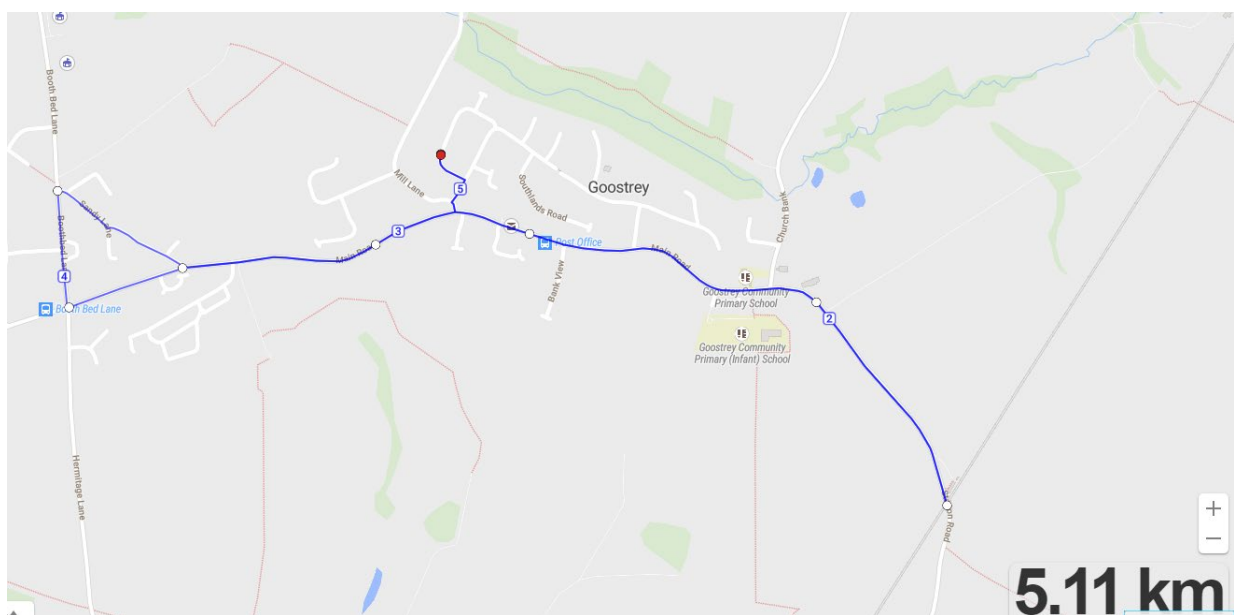
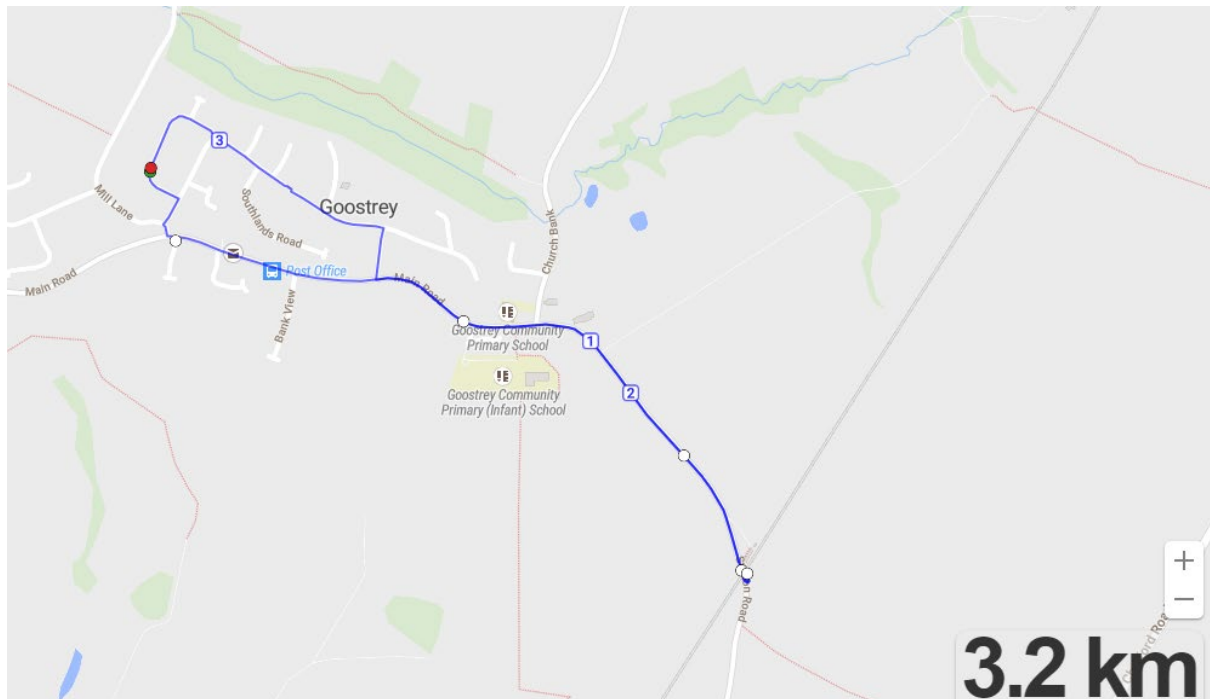
Appendix 4a: Training Plan

Overview of 6 week training plan

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1 20/5/19	Rest	Athletics Training	Rest	Athletics Training	Rest	Run (Relaxed) 3km	Rest
2 27/5/19	Rest	Athletics Training	Rest	Athletics Training	Rest	Run (Relaxed) 3km	Run (Relaxed) 3km
3 3/6/19	Rest	Athletics Training	Rest	Athletics Training	Rest	Rest	Run (Relaxed) 5km
4 10/6/19	Rest	Athletics Training	Rest	Athletics Training	Rest	Rest	Run (Relaxed) 5km
5 17/6/19	Rest	Athletics Training	Rest	Athletics Training	Rest	Rest	Run (Relaxed) 5km
6 24/6/19	Rest	Athletics Training	Rest	Athletics Training	Rest	Run (Relaxed) 3km	Run (Relaxed) 5km

Appendix 4b: Running Routes

Relaxed Running Routes (just over 3km and 5km)



Appendix 4c: Training Examples

Athletics Training Session Example

Example Warm Up

Exercise/Drill	Rep (distance/time)
Run Arm swings, hips, leg swings, arm rotations and back rotations. Knee Lifts Heel Flicks Side Stepping A skips B skips Alternatives to the front Alternatives to the back Strides Jumping for height Acceleration Walking on toes Walking on heels	5 x outside lap (500m) = 2.5k 10-15 minutes All roughly 30-40m and done consecutively.
(may do strength/core work within warm up)	5-10 minutes

Session Example 1	Session Example 2	Session Example 3
400m x 1 800m x 1 1200m x 1 1600m x 1 1200m x 1 800m x 1 400m x 1 (3 minutes recovery in between)	4 x 200m (1 minute rest in between) 1 lap recovery jog 4 x 200m (1 minute rest in between) 1 lap recovery jog 4 x 200m (1 minute rest in between) 1 lap recovery jog	15 minute hill work including varied terrain, speeds and inclines. This may be repeated twice. Continuous 200m relays or core may be completed after as a cool down/strength work for up to 20 minutes.

This session reflects the pyramid training in which up to 10km can be ran in one night (inc. warm up).	This session reflects faster paced interval training that focuses on speed stamina (ideal for 800m).	This session reflects fartlek and muscular endurance training used to increase cardiovascular-fitness.
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All sessions end with stretches and a two lap jog cool down.

Appendix 5a

Male Athletes

Age	Excellent	Above Average	Average	Below Average	Poor
13-14	>2700m	2400-2700m	2200-2399m	2100-2199m	<2100m
15-16	>2800m	2500-2800m	2300-2499m	2200-2299m	<2200m
17-19	>3000m	2700-3000m	2500-2699m	2300-2499m	<2300m
20-29	>2800m	2400-2800m	2200-2399m	1600-2199m	<1600m
30-39	>2700m	2300-2700m	1900-2299m	1500-1999m	<1500m
40-49	>2500m	2100-2500m	1700-2099m	1400-1699m	<1400m
>50	>2400m	2000-2400m	1600-1999m	1300-1599m	<1300m

Appendix 5b: Cooper run class scores

Score		Name
3040		Jake R
2960		Dan Ya
2480		Zach T
2640		Jake B
3240		Lauren
2520		Max M
3040		Eddie M
2440		Aidan E
2400		Matt Al
1920		Josh B
2600		Myles C
2370		Xav de
2120		Will Wc
2560		Will Ma
2661.818182		Averag