



Aim

To improve my shooting accuracy in basketball by improving my lower body power.

GCSE PE PEP

Candidate: [REDACTED]
Centre: [REDACTED]
Candidate number: [REDACTED]

Aims and Planning

Introduction

Basketball is characterised by frequent starts, stops, and changes of direction, all maintained over a period of 12-minute quarters. Players have been found to cover about 4500–5000m (2.8–3.1 mi) during a 48-minute game. Also, in a simulated practice game, players were found to spend only 34.1% of the time playing, 56.8% walking, and 9.0% standing (1).

As a shooting guard there are numerous components of fitness that are important in maintaining a high level of performance. In order for me to quantify my aim for this PEP, I need to consider the following:

1. Impact of fitness on performance
2. Pre- fitness test results
3. Strengths & weaknesses

Performance Analysis

To fully analyse the impact of my fitness on performance, I am going to conduct a notational analysis and compare the same criteria to that of an elite player to help identify areas of strength & weakness.

Player: [REDACTED]

Team: [REDACTED]

Opposition: [REDACTED]

Venue: [REDACTED]

Date: 05/11/2021

Type of Game: [REDACTED]

Shots	Shots Successful	Rebounds	Blocks	Steals	Assists	Turnovers	Points
10	3	5	2	1	5	9	6

Elite performer: DeMar DeRozan

Team: Los Angeles Lakers

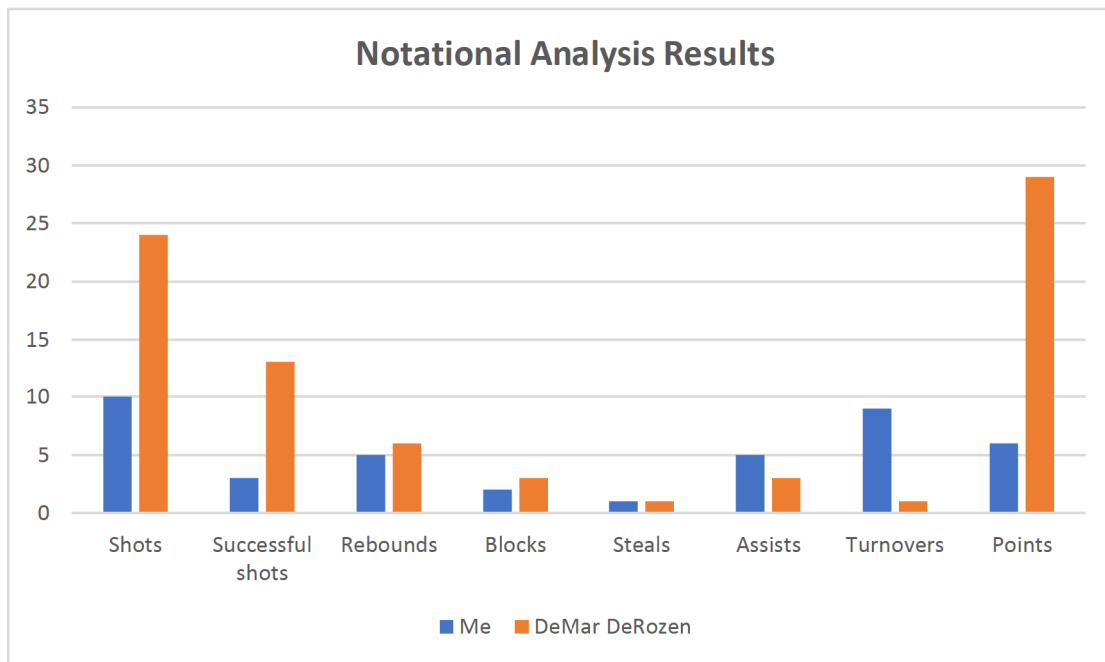
Venue: United Centre, Chicago, Illinois, USA

Date: 05/12/2021

Type of Game: NBA game

Shots	Shots Successful	Rebounds	Blocks	Steals	Assists	Turnovers	Points
24	13	6	3	1	3	1	29

Cumulative Word Count: 148



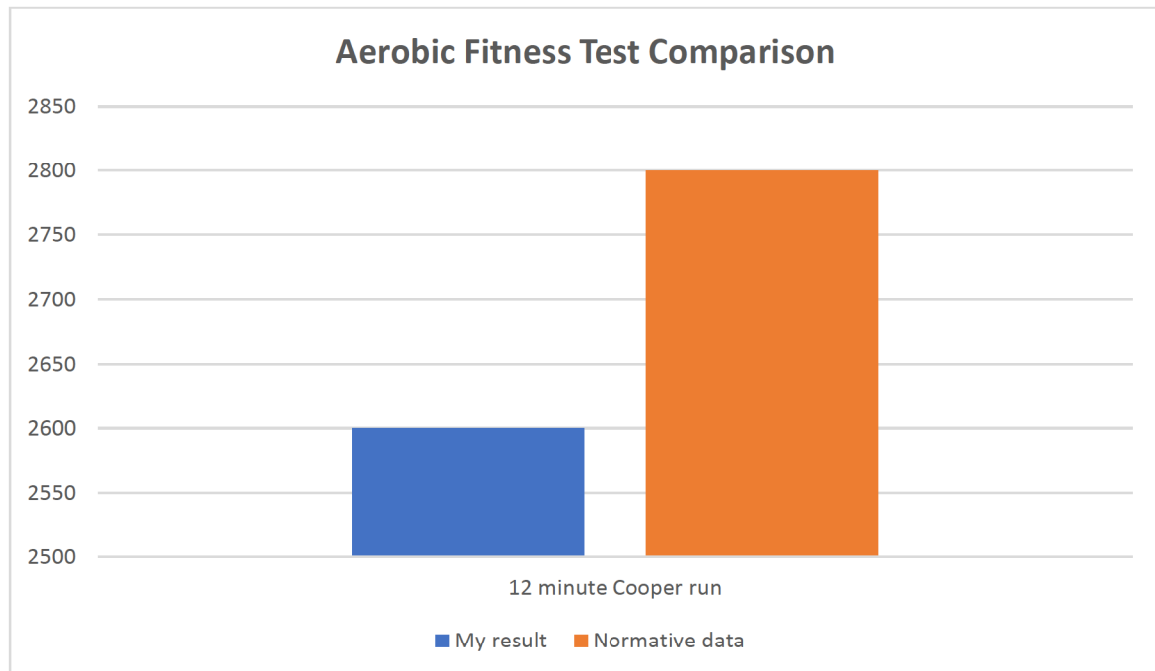
Although I had more assists than Demar DeRozen and the same number of steals, I was not able to help the team out on with the rebounds and I also turned over the ball too much. The key statistic that stands out from the notational analysis is the shooting percentage. My contribution on the offensive end with my shooting was at a low 30%, whereas Demar DeRozen's was at 80%. This is a massive difference and a hindrance for me in order to progress in basketball.

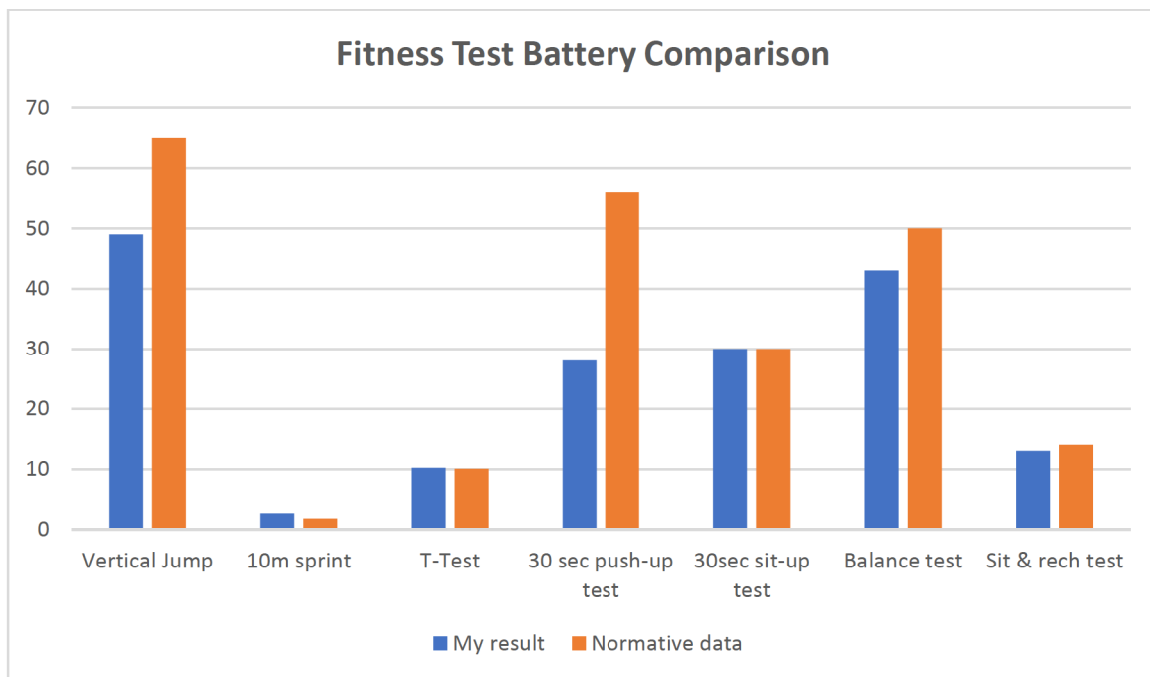
I felt that I was not getting into position quicker enough, off balance at times, lacking the power in the lower extremities to execute the jump shot. This is important as the quadriceps, gastrocnemius and gluteals are important muscles to help generate power when elevating into the shot.

Pre-PEP Fitness Test Battery

Fitness Test	Component of fitness	Score	Compared to national averages
12-minute Cooper test	Aerobic Endurance	2600m	Above average
Vertical Jump test	Power	49cm	Below average
10m sprint test	Speed	2.62 secs	Average
T-Test	Agility	10.21 secs	Average
30-second push-up test	Muscular endurance	28 reps	Above average
30 second sit-up test	Muscular endurance	30 reps	Above average
Stork balance test	Balance	43 secs	Above average
Sit and reach test	Flexibility	13cm	Above average

(3)





The test results above indicate that my aerobic and muscular endurance is above average and is a strength within my fitness profile, however it is the anaerobic-based components of fitness that are my weakness. Speed, agility and power are important components of fitness for a basketball player, and these components are either at the average or below average level in comparison to the normative data. My lower body/leg power is especially an issue, and this could be one reason why I am not getting enough elevation on the jump shot, ultimately affecting my rhythm and accuracy.

PEP Aim

To improve my shooting accuracy in basketball by improving my lower body power.

SMART targets

In order to achieve my aim, I will use specific targets through the SMART principle.

Specific- One of my main weaknesses from my initial fitness test battery was power. This is the reason why I am not getting enough elevation in my jump shot, therefore the accuracy is low.

Targets:

- 1. Increase my lower body power by increasing the height of the VJ test (15%)**
- 2. Increase field goal percentage from 30% to 50%**

Measurable- in order to measure the progress & success of my PEP, I will re-do the VJ test midway through and at the end of the 6-weeks. I will also conduct another notational analysis in a competitive game to measure the accuracy of my shooting.

Achievable- the overall aim and specific targets have been with agreed with consultation with my coach. My shooting needs to improve, especially as it is a pivotal skill required for a shooting guard, and by applying the principles of training correctly, this aim will be achievable.

Realistic- my fitness targets are to achieve a 15% increase within a 6-week PEP. Likewise, I need to improve my shooting accuracy by 20% to help my team win within the same 6-week period. By applying the principles of training correctly and by utilising the correct methods of training (plyometrics) and intensities, it is not unrealistic to achieve this within 6 weeks.

Time-bound- I will initially train for the first three weeks at a lower intensity and gradually apply progressive overload throughout the 6-weeks. Re-testing will occur in the transition week after week 3, in order to re-set intensities with the aim of achieving my targets at the end of the PEP.

Methods of training

Plyometric training is used to increase power (strength x speed) and strength, this translates to higher jumps and faster sprint times. Plyometric training involves an eccentric (lowering and landing) contraction where muscles lengthen under tension (downwards phase of a squat) followed by a concentric contraction, where muscles shorten under tension (upwards phase of a squat) (2).

I will use plyometric training in my PEP to develop power that is specific to the actions within basketball and more specifically for a jump shot. I will use the following exercises:

- **Depth jumps**



- **Box jumps**



- Single leg bounding



- Squats



Cumulative Word Count: 738

Principles of Training

In order for me to structure the PEP appropriately in order to achieve my aim, I need to utilise the principles of training properly.

Frequency: I will initially start by training twice a week for the first 3 weeks. After I re-test, I will then apply **progressive overload** by either increasing the frequency of training to three times per week or increase the intensity. In this way, my training will be progressive, therefore reducing the effects of **over training** that could lead into possible injury or lack of motivation, therefore reducing the possibility of **reversibility**.

Intensity: maximum power can be developed through plyometric training that is performed at 80%+ of my 1RM. In order to identify the correct intensity, I will work out my % of 1RM for the squat exercise and progressive to that level throughout the 6-weeks.

The intensity of the bounding plyometric exercises will be monitored by the height of the hurdles, boxes and benches. Rest periods of 3-5 minutes for these intense exercises will be applied between each set.

Time: each training session will last no longer than 45 minutes. This is to keep the intensity high, reduce time wasting and to stay motivated.

Type: the type of exercises that will be used for this PEP will be power-based plyometric style exercises that are mimic the actions I am targeting (specificity with a jump shot in basketball).

Physical Activity Readiness Questionnaire

Name	
Gender	Male
Age	16
Weight (kg/st.)	75kg
Height (cm/ft)	1.85m
Medical Info	Slight asthma
Past Injuries	Broken left ankle 8 years ago (simple fracture)
Smoke (Y/N)	N
Activities Currently Undertaken	Currently play representative basketball, rugby union and cricket.
Frequency of exercise/training	I train and play sport 6 days per week
Describe your current level of fitness	I have a high level of fitness.
Additional Comments about health and fitness	

GCSE PE Circuit Training Record Sheet

Week: 1

Session: 1

Station	Sets	Reps	Load	Rest period
Squats	3	10	40kg	3 minutes
Box jumps	3	10	30cm height	3 minutes
Depth jumps	3	10	30cm height	3 minutes
Single leg bounding (2 x each leg)	4	8	Mini hurdles	3 minutes

Week: 1

Session: 2

Station	Sets	Reps	Load	Rest period
Squats	3	10	40kg	3 minutes
Box jumps	3	10	30cm height	3 minutes
Depth jumps	3	10	30cm height	3 minutes
Single leg bounding (2 x each leg)	4	8	Mini hurdles	3 minutes

GCSE PE Circuit Training Record Sheet

Week: 2

Session: 1

Station	Sets	Reps	Load	Rest period
Squats	3	10	40kg	3 minutes
Box jumps	3	10	30cm height	3 minutes
Depth jumps	3	10	30cm height	3 minutes
Single leg bounding (2 x each leg)	4	8	Mini hurdles	3 minutes

Week: 2

Session: 2

Station	Sets	Reps	Load	Rest period
Squats	3	10	40kg	3 minutes
Box jumps	3	10	30cm height	3 minutes
Depth jumps	3	10	30cm height	3 minutes
Single leg bounding (2 x each leg)	4	8	Mini hurdles	3 minutes

GCSE PE Circuit Training Record Sheet

Week: 3

Session: 1

Station	Sets	Reps	Load	Rest period
Squats	3	10	45kg	3 minutes
Box jumps	3	10	30cm height	3 minutes
Depth jumps	3	10	30cm height	3 minutes
Single leg bounding (3 x each leg)	6	8	Mini hurdles	3 minutes

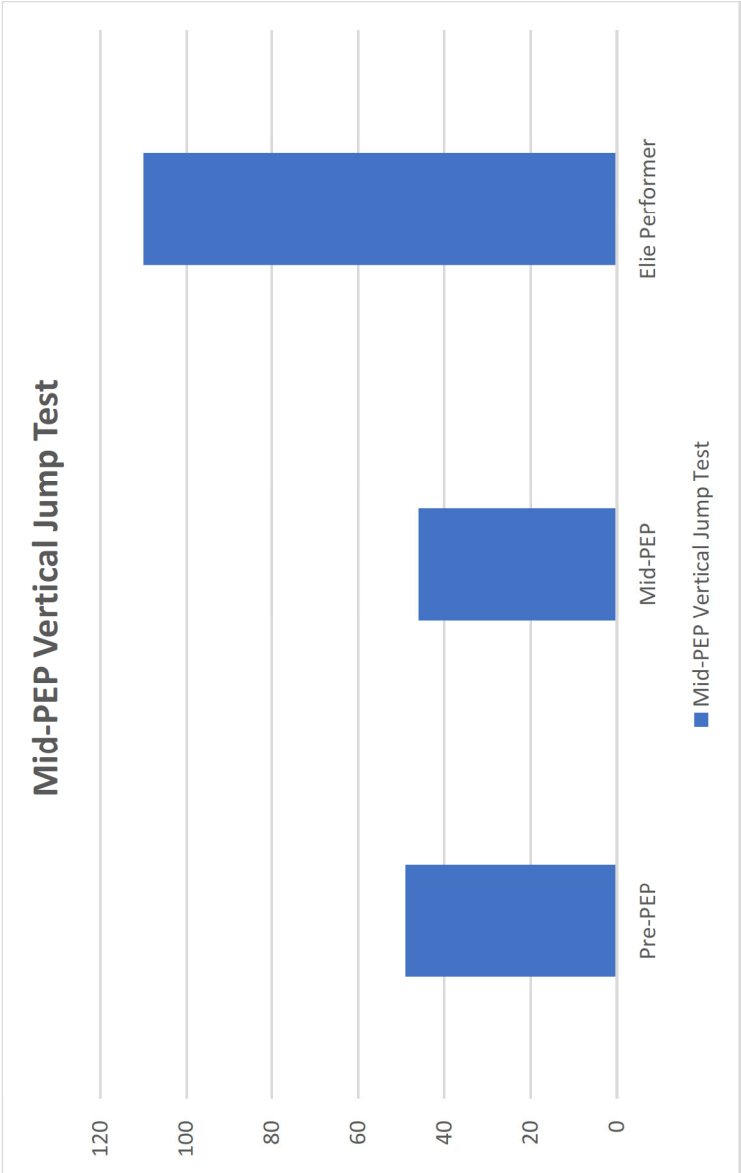
Week: 2

Session: 2

Station	Sets	Reps	Load	Rest period
Squats	3	10	45kg	3 minutes
Box jumps	3	10	30cm height	3 minutes
Depth jumps	3	10	30cm height	3 minutes
Single leg bounding (3 x each leg)	6	8	Mini hurdles	3 minutes

Mid-PEP Testing

Fitness Test	Score
Pre-PEP: Vertical Jump	49cm
Mid-PEP: Vertical Jump	51cm
Elite performer (Michael Jordan)	1.1m



GCSE PE Circuit Training Record Sheet

Week: 4

Session: 1

Station	Sets	Reps	Load	Rest period
Squats	3	8	50kg	4 minutes
Box jumps	3	10	40cm height	4 minutes
Depth jumps	3	8	40cm height	4 minutes
Single leg bounding (3 x each leg)	6	8	Mini hurdles	3 minutes

Week: 4

Session: 2

Station	Sets	Reps	Load	Rest period
Squats	3	8	50kg	4 minutes
Box jumps	3	10	40cm height	4 minutes
Depth jumps	3	8	40cm height	4 minutes
Single leg bounding (3 x each leg)	6	8	Mini hurdles	3 minutes

GCSE PE Circuit Training Record Sheet

Week: 5

Session: 1

Station	Sets	Reps	Load	Rest period
Squats	3	8	50kg	4 minutes
Box jumps	3	10	40cm height	4 minutes
Depth jumps	3	8	40cm height	4 minutes
Single leg bounding (3 x each leg)	6	8	Mini hurdles	3 minutes

Week: 5

Session: 2

Station	Sets	Reps	Load	Rest period
Squats	3	8	50kg	4 minutes
Box jumps	3	10	40cm height	4 minutes
Depth jumps	3	8	40cm height	4 minutes
Single leg bounding (3 x each leg)	6	8	Mini hurdles	3 minutes

GCSE PE Circuit Training Record Sheet

Week: 6

Session: 1

Station	Sets	Reps	Load	Rest period
Squats	3	6	60kg	4 minutes
Box jumps	3	4	50cm height	4 minutes
Depth jumps	3	4	50cm height	4 minutes
Single leg bounding (3 x each leg)	6	8	Mini hurdles	3 minutes

Week: 6

Session: 2

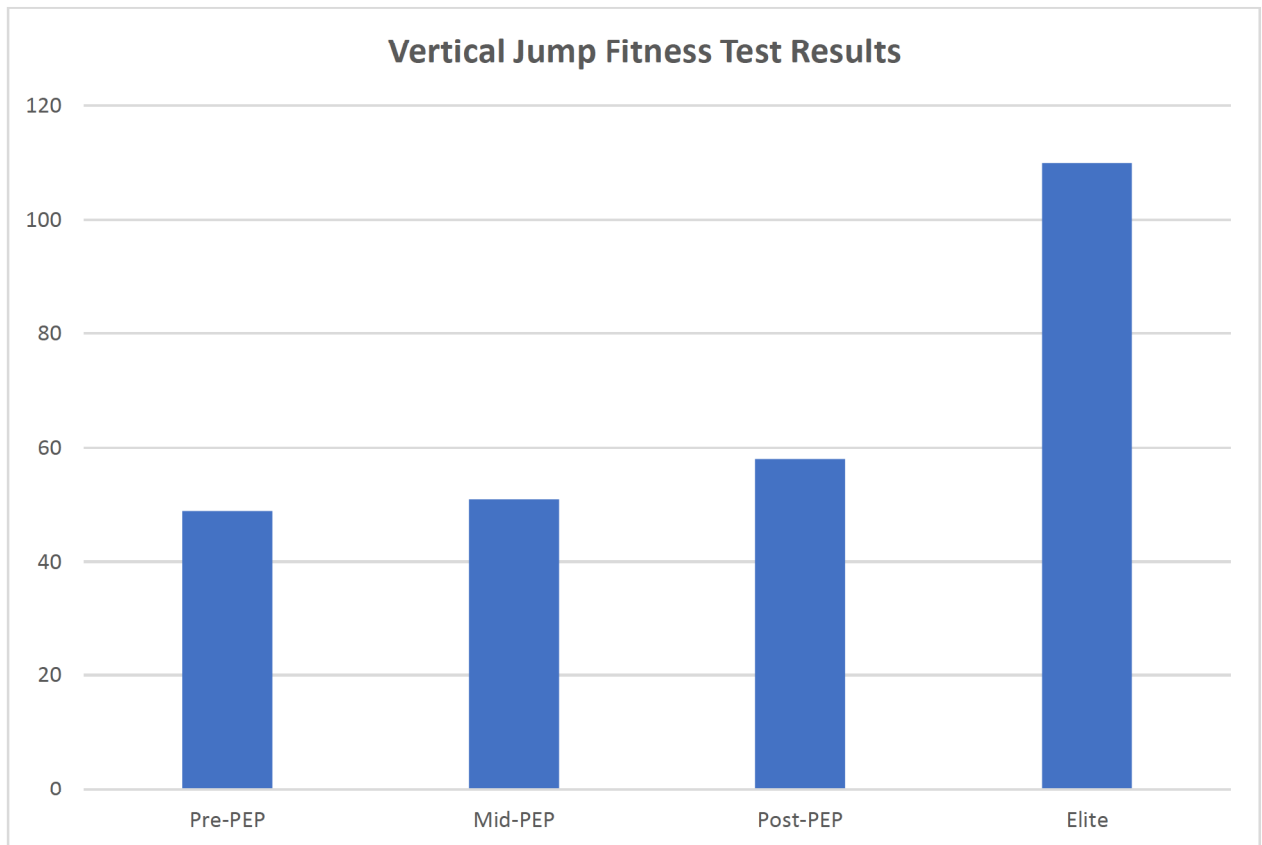
Station	Sets	Reps	Load	Rest period
Squats	3	6	60kg	4 minutes
Box jumps	3	4	50cm height	4 minutes
Depth jumps	3	4	50cm height	4 minutes
Single leg bounding (3 x each leg)	6	8	Mini hurdles	3 minutes

PEP Evaluation

In order to evaluate the effectiveness of my 6-week PEP, I need to consider the results of my fitness tests and the impact my PEP has had on my performance. This will allow me to make a full evaluation.

Fitness Test Analysis

Fitness Test	Score
Pre-PEP: Vertical Jump	49cm
Mid-PEP: Vertical Jump	51cm
Post-PEP: Vertical Jump	58cm
Elite performer (Michael Jordan)	1.1m



Cumulative Word Count: 1017

Test: Vertical Jump Test

Component of fitness: Power

Improvement amount: 9cm

% improvement: 18%

The results in my vertical jump test indicates that I improved by 9cm or 18%. This means I have exceeded one of my SMART targets of improving my lower body power by 15% (exceed target by 3%).

The effect of plyometric and strength training through the application of progressive overload over the 6 weeks may have caused possible physiological adaptations that explain the success of my power improvement. These adaptations could include: muscular hypertrophy and an increase force production from my muscles (evident from test results).

These adaptations have not only improved my overall aim and helped me gain greater elevation when performing the jump shot but has improved my confidence and motivation as a result of the positive effects caused by the training programme.

Impact on Performance

Player: XXXXXXXXXX

	Shots	Shots Successful	Rebounds	Blocks	Steals	Assists	Turnovers	Points
Pre-PEP	10	3	7	2	1	5	9	6
Post-PEP	12	8	7	2	2	6	3	16

Elite performer: DeMar DeRozan

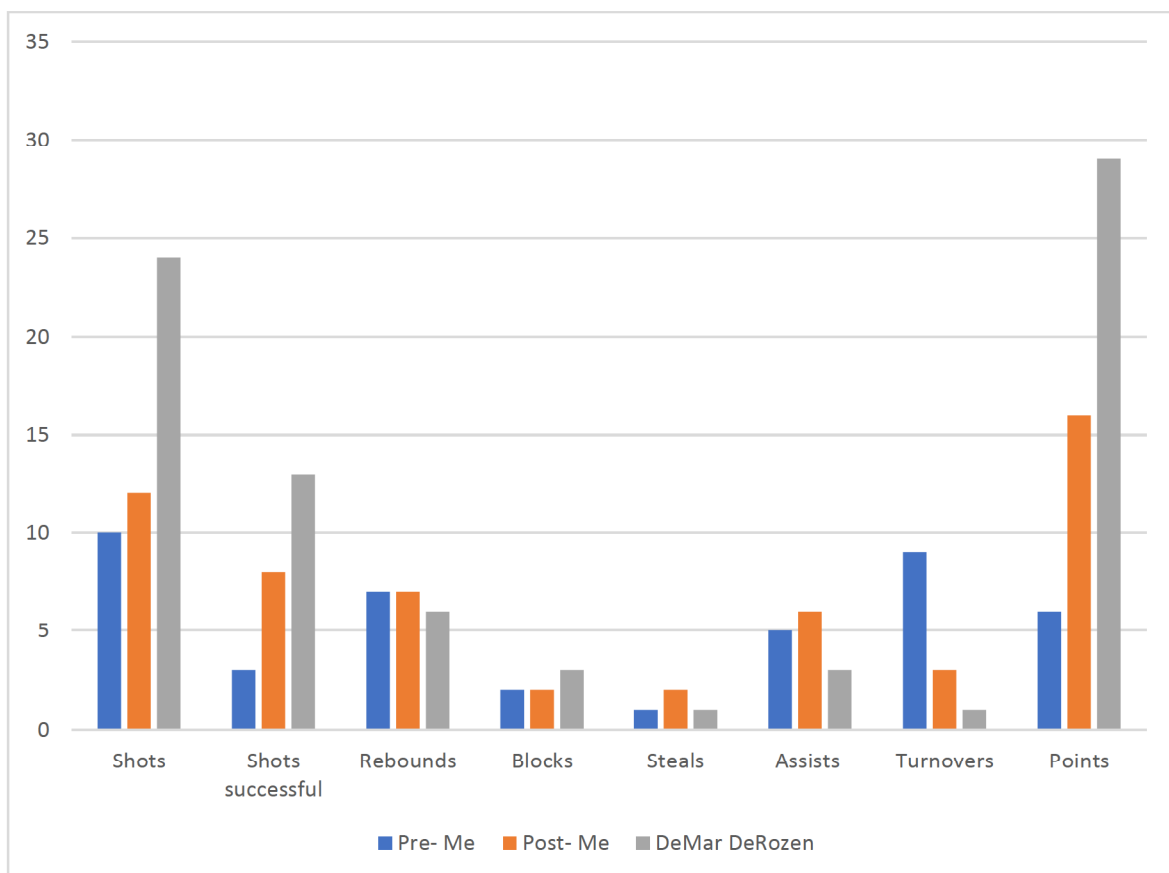
Team: Los Angeles Lakers

Venue: United Centre, Chicago, Illinois, USA

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The results of my notational analysis indicate that my performance improved over the 6-week programme. I was able to improve the height of my vertical jump through the use of plyometric training. This in turn gave me more height when executing the jump shot, and as a result I had a better look at the basket as I was able to jump higher than my opponent. Furthermore, my shooting percentage increased by 37%, as I am now shooting at 67% from the field as opposed to 30% prior to the PEP.

The increase in both power and productivity on the basketball court also increased my confidence and as a result I have slightly improved other aspects of my game such as reducing the number of turnovers and improving the number of assists and steals.

Throughout the 6 weeks I have been able to improve my lower body power that has allowed me to exceed my aim and the specific targets I set. The success of my PEP can be attributed to numerous factors, with one major factor being the appropriate application of the SMART targets. My targets were appropriate, specific and were easily measurable that allowed me to directly plan my PEP in line with what I needed to improve on.

The application of the principles of training was also a strength of the PEP. I was able to target the specific types of exercises needed to improve my power for basketball and the correct progression of intensity of my training allowed me to continue to make improvements in both fitness and with my motivation.

However, in reflection, an area for improvement for future training would be to structure the training days for this aim further apart. Due to the impact of plyometric training on the body caused by excessive eccentric loading, I suffered from DOMS due to microtears in my muscles that I was training. Initially I did not leave enough days in between sessions for recovery, which made training difficult and painful during the first few weeks.

Bibliography

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2. <https://www.teachpe.com/training-fitness/training-theory/training-methods>
3. www.brianmac.co.uk