Comparing How Effectively Muscle Mass Can Be Built Using Either Animal or Plant Protein

Hypothesis:

A diet rich in animal protein will be more effective for building muscle mass than a diet that mainly consists of plant proteins.

Scientific Explanation of Hypothesis:

Proteins are built up of amino acids. Amino acids are compounds of carbon atoms, nitrogen atoms, oxygen atoms and hydrogen atoms (Sproule, 2012). They all have the same centric structure and a separate side chain. The side chain determines which amino acid it is as each amino acid has its own distinct side chain. This side chain determines the chemical and physical properties of the amino acid. There are 20 amino acids but only 9 of them are needed in our diets. Humans can biosynthesis most of the amino acids (around 10) (BioInfo, 2017) thus only 9 amino acids are required in the diet to build muscle effectively (excluding arginine as that amino acid is usually in diets for small children) (Grimes, Hallick and Williams, 2004) These 9 amino acids are the **essential** amino acids. These essential amino acids are histidine, isoleucine, leucine, lysine, threonine, tryptophan, methionine, phenylalanine, and valine (MedlinePlus, 2019). The quality of a protein in the diet is determined by how many of the essential amino acids it includes. Animal proteins are often high-quality proteins whereas plant proteins are less quality proteins. This is because animal proteins often have much more amino acids than the plant proteins. Most animal protein foods such as meat, dairy, egg and fish contain high amounts of essential amino acids (meat and dairy each contain 6 essential amino acids, fish and eggs each contain 4 essential amino acids). Only few plant protein foods contain high amounts of essential amino acids such as nuts and seeds (nuts contain 5 essential amino acids and seeds contain 4 essential amino acids), (Olsen and Villines ,2019). This implies that the animal protein diet will be more effective for building muscle than the plant protein diet because there are much more high-quality proteins in the animal protein diet than the plant protein diet. Thus, my hypothesis is "A diet rich in animal protein will be more effective for building muscle mass than a diet that mainly consists of plant proteins."

In order to properly test this, I would require a large sample size which would provide sufficient data. I only had one body to test this experiment on, myself, which is a weakness to my experiment because it will lead to a lack of precision and reliability. However, the conclusions and results reached from this experiment could indicate a possible answer to the question. A larger trial would need to be done to verify the outcomes of this experiment.

Variables

Independent Variable

The independent variable in this experiment would be the diet and nutritional change. This is because I am attempting to compare 2 different forms of nutrition which is animal protein and plant protein to see which is more effective for building muscle mass. I will change the diets as I will change my consumption from foods primarily consisting of one protein to foods consisting of the different protein and I will record all my food intake. This is the part of the experiment I will control and change in order to receive data to answer my research question.

Dependant Variable

The dependent variable in this experiment would be the body change and change in muscle mass. This is because I am attempting to compare 2 different forms of nutrition which is animal protein and plant protein to see which is more effective for building muscle mass. In order to test which protein is of higher quality, I must record the muscle mass change and whichever diet leads to most muscle mass gain, then indicates greater efficiency. I will record this data in forms of graphs and tables and will compare body analytics and scans throughout the experimenting process.

Control Variables
   ● Food Intake

The food intake must be controlled in the experiment or that could affect the accuracy of the results. For example, if I was to have a significantly higher food intake during a specific part of my experiment, I might gain muscle more than in the parts of the process which would not allow me to test the quality of the proteins.

→ Protein Intake

The protein intake must be controlled in this experiment because if the intake of protein is not the same during the experiment, I will not be able to test the quality of the protein and compare the animal and plant protein. This is because if there is more protein intake in either the plant or animal protein diet, it may appear that protein is higher quality, but it was because the amount of protein in one diet was higher instead. Thus, the protein intake must be the same so I can compare the results and see which protein is of higher quality. I will manipulate this by making sure that I have an intake of roughly 80g of protein a day.

→ Calories (Energy/kJ)

The calorie intake must be controlled in the experiment or that could affect the accuracy of the results. For example, if I was to have a significantly higher calorie intake during a specific part of my experiment, I would be gaining more nutrition in that part which would affect my muscle mass which is what I am testing. If this was controlled, the food intake would be equal for both diets and will make sure that I test the quality of the proteins rather than the quantity determining the results. I will manipulate this by making my calorie count 1700 calories per day. This is equivalent to 7100 kJ of energy consumption every day. Having 1700 calories (7100 kJ) will be sufficient for 80g of protein consumption.

→ Carbohydrates

The calorie intake must be controlled in the experiment or that could affect the accuracy of the results. This is because if there is not enough carbohydrates consumption, the body will begin to feed off muscles and protein which means that I will be losing muscle mass if I exercise without enough carbohydrates. If this was controlled, there will be no loss of muscles due to lack of carbohydrates. This would strongly impact my results as losing muscle mass would lead to a loss of progress. Thus, this must be controlled. I will manipulate this by making sure that I consume approximately 300g of carbohydrates which will be sufficient enough to sustain my muscle and make sure that I lose no muscle whilst exercising.

→ Other Nutrition

Other nutrition must also be considered whilst doing this diet. Other nutrition will affect the health of my body and if there is a lack of this other important nutrition, my body will face issues such as disorders and digestion issues which would then affect how I work out and my ability to exercise. Other nutrition to consider in this experiment are vitamins, fibres, minerals and water. I must make sure that there is no shortage of this nutrition, so I do not receive any health deficiency whilst dieting. I will make sure I manipulate this variable by making sure that I have at least 1 source of food each every day for vitamins, minerals and fibres. I will make sure that there will be no deficiency of nutrition throughout the experimenting.

- ● Working Out

The working out part of the experiment must also be controlled in order to make sure that the results are accurate. The working out part of the experiment is one of the largest factors of this experiment and if not controlled, it may lead to more/less muscle mass gain due to the exercise rather than the quality of protein. Thus, this must be controlled and kept the same or the quality of the proteins will not be tested accurately.

→ Exercises

One of the control variables under the exercising bracket are the workouts. The workouts must be done with similar intensity throughout the entirety of the 8 weeks. If this is not done, it may seem that there was less/more muscle gained due to the protein, but it was rather the intensity of the workout. The muscle mass gains must depend on the nutrition rather than the intensity of the workout as that is what is being tested in this experiment. The muscle mass gains will determine which protein is more effective if the workout intensity is kept the same. I will make sure that I will manipulate this variable by using the same workout for both of the diets. As well as that, the repetitions will be kept the same throughout and the sets will be kept similar but will adapt to muscle change.

→ Days to Workout

The days I will work out must be kept consistent throughout the experiment. If there is exercise being done more in one diet than the other, there will be an uneven amount of exercise which leads to inaccurate results. As well as that, the days decided must have sufficient rest between them or the muscle will not grow efficiently, lead to injury and might be a health hazard. As well as that, there should not be too much rest between the days or that will limit how much muscle is gained as it will lower the amount of days to work out. More muscle gain will be advantageous as there will be more

detailed result. I will manipulate this variable by working out on Mondays, Tuesdays, Thursdays and Saturdays. Having 4 days of exercise will be sufficient and feasible for this experiment. For the two consecutive days, I will exercise different muscle groups in order to prevent injury. Working out on these days will have sufficient rest and consistent exercise as well.

→ Muscle Groups

The muscle groups I work out must be kept the same in the experiment. I must work out the same muscle groups or the workout cannot be kept the same. As well as that, each of the muscle groups must be worked at least once a week so I can increase muscle in my body overall. In order to make sure that I will work out muscle groups sufficiently and keep them the same, I will work out my abdomen muscles on Monday, my triceps and calf muscles on Tuesday, bicep and forearm muscles on Thursday and thigh muscles on Saturday. If I were to do this, the primary muscle groups in the body will be exercised leading to maximum results. Furthermore, each muscle group will be worked out each week and there are no muscle groups being worked out consecutively.

→ Adapting to Muscle Change

As more muscle is gained, the workout and exercises must adapt to the amount of muscle gained. This is because I will be stronger and have more muscles by the time, I approach my second nutrition workout period. Thus, the workout must be harder when I begin to workout with the animal protein diet in order to sustain a similar intensity for the experiment. If I was to continue using the same workout, there would not be enough resistance to break down muscles as effectively when I have stronger muscles. Thus, this must be manipulated, and I will do so by adding 1 more set for each exercise in the next diet part. Adding 1 more set for each exercise will increase the intensity enough so the workout will remain effective but not too extensive making the muscle building more effective for the second diet. This will maintain a similar intensity throughout the 8 weeks of experimenting and will lead to accurate results.

● Measuring

The final variable which must be manipulated is how the muscles are going to be measured. They must be measured in the same medium(s) and with accuracy. If they are measured differently with various mediums, the overview will not be seen properly and the results cannot be compared, thus making the results unable to answer the research question. Thus, I will make sure that the measurements are taken with accuracy and precision by using a body measurement scale and take measurements of my body if I have the time to do so. I will have no clothing whilst testing on the scale and when I am measuring my body. I will do this before I eat, and my muscles will be not contracted and tight when measuring parts of my body. As well as that, I will stand tall and have proper form whilst testing. If I am to follow through on these requirements whilst testing, I will have accurate and precise results to be able to answer the research question.

Method

Before I began exercising and dieting, I needed to conduct a body analysis in order to find out the changes to my body throughout the experiment. I measured my body using a body composition scale (refer to appendix 1 to see body composition scale in use). I also then measured the diameters of my different body parts using a measuring tape (refer to appendix 1 to see evidence of taking measurements of the body). The measurements were taken using the tape by another adult.

I then exercised for 4 weeks using a weekly exercise program I had designed prior to the experiment (refer to appendix 2 to see evidence of exercise and exercise program). During these 4 weeks, I dieted with a strict plant protein diet ensuring the nutrition intake was sufficient (refer to appendix 3 to see a list of consumed foods whilst following the plant protein diet). After 4 weeks of dieting and exercising, I conducted another body analysis. I measured my body using a body composition scale and measured the diameters of my different body parts using a measuring tape again.

I then exercised for another 4 weeks using the same weekly exercise program I had designed. During these 4 weeks, I followed a strict animal protein diet ensuring the nutrition intake was sufficient (refer to appendix 3 to see a list of consumed foods whilst doing the animal protein diet). I then conducted a final body analysis. I measured my body using a body composition scale and measured the diameters of my different body parts using a measuring tape again. All measurements were written up.

Results

Figure 1.1 Body Analysis from Body Scale Before Plant Protein Diet

Weight (kg)	59.96
BMI:	19.5
Body Fat (%)	5.4
Muscle Percentage (%)	54.4
Water Percentage (%)	68.5
Bone Percentage (%)	5.8

Figure 1.2 Body Parts Diameters Before Plant Protein Diet

Body Parts:	Diameter (cm)
Arms	25
Chest	82
Shoulders	96
Upper Thigh	49
Lower Thigh	37
Upper Calf	33

Figure 2.1 Body Analysis from Body Scale After Plant Protein Diet

Weight (kg)	61.13
BMI:	20.1
Body Fat (%)	5.6
Muscle Percentage (%)	55.2
Water Percentage (%)	67.9
Bone Percentage (%)	5.7

Figure 2.2 Body Parts Diameters After Plant Protein Diet

Body Parts:	Diameter (cm)
Arms	27
Chest	83.5
Shoulders	98
Upper Thigh	51
Lower Thigh	38
Upper Calf	34

Figure 3.1 Body Analysis from Body Scale After Animal Protein Diet

Weight (kg)	62.71
BMI:	20.3
Body Fat (%)	5.7
Muscle Percentage (%)	55.6
Water Percentage (%)	67.9
Bone Percentage (%)	5.7

Figure 3.2 Body Parts Diameters After Animal Protein Diet

Body Parts:	Diameter (cm)
Arms	30
Chest	86
Shoulders	106
Upper Thigh	53
Lower Thigh	39
Upper Calf	37

**Figure 4: Calorie and Protein Consumption in Animal Protein and Plant Protein**

Diets	Calories Consumption (calories)	Protein Intake (g)
Animal Protein	40,950	1690.4
Plant Protein	42,050	1701.2

Figure 5.1 Table Comparing Results Using Data from Figure 1.1-3.2

Body Analysis Features and Measurements	Change from Before Plant Protein to After Plant Protein	Increase:	Change from After Plant Protein to After Plant Protein	Increase:
Weight (kg)	59.96 → 61.13	1.17	61.13→ 62.71	1.58
BMI	19.5 → 20.1	0.6	20.1 → 20.3	0.2
Muscle Mass (%)	54.4 → 55.1	0.7	55.1 → 55.6	0.5
Muscle Mass (kg)	32.62→ 33.68	1.06	33.68 → 34.9	1.22
Arms (cm)	25→ 27	2	27→ 30	3
Chest (cm)	82 → 83.5	1.5	83.5 → 86.	2.5
Shoulders (cm)	96 → 98	2	98→ 106	8
Upper Thigh (cm)	49→ 51	2	51 → 53	2
Lower Thigh (cm)	37→ 38	1	38 → 39	1
Upper Calf (cm)	33→ 34	1	34→ 37	3

Figure 5.2 Graph Comparing Muscle Mass Change Using Data from Figure 1.1, 2.1 and 2.2
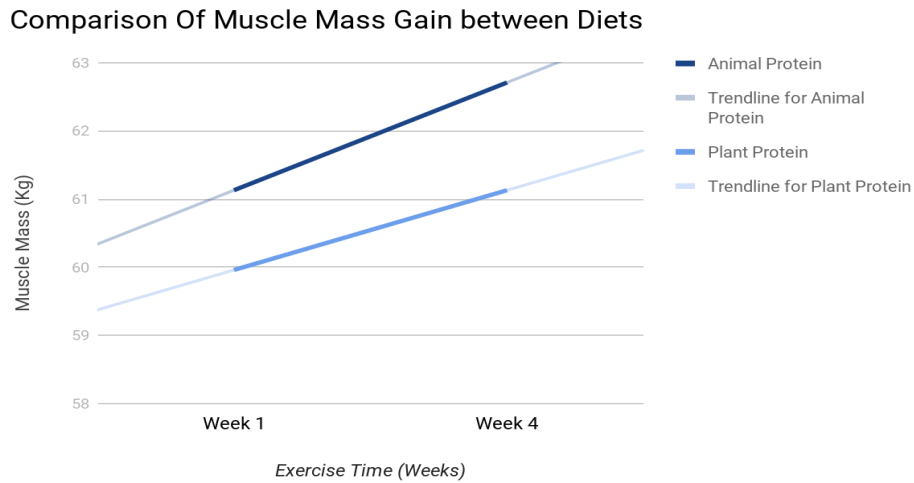
All data collected in this experiment is quantitative data. Figure 1.1 and 1.2 shows the data collected before the plant protein diet, figure 2.1 and 2.2 shows the data collected after the plant protein diet and the figure 3.1 and 3.2 shows the data collected after the animal protein diet. The .1 figures contain measurements from the scale including BMI, weight, muscle percentage, water percentage, bone percentage and body fat percentage. These .2 figures contain body diameters of the following body parts; the arms, legs, chest, shoulders and calves as those were the muscle groups which were being exercised. Of the crucial information gained from the previous figures, Figure 5.1 later compares the data collected within the previous figures to determine whether plant protein or animal protein is more effective and presents the changes from both diets allowing to compare the increments. As the main goal of the experiment is to find out whether animal protein or plant protein is more effective for building muscle mass, Figure 5.2 contains a graph which compares the change in the masses and the increase in muscle mass for each of the diets over 4 weeks. The data used in Figure 5.2 is taken from the data represented in Figure 5.1. The vertical axis on the graph represents the muscle mass which is measured in the unit of kilograms. The horizontal axis on the graph represents the time period which is measured in weeks and the graph contains 8 weeks' worth of data as there are 2 lines in the graph which lasted 4 weeks. The lighter shaded lines are the trend lines for each of the proteins. In this graph, the light purple is the trendline for the animal protein line and the light blue is the trendline for the plant protein line. We can see that the lines and trend lines differ, and the animal protein line has a steeper slope than the plant protein line and the trend lines are at a higher progression meaning that the animal protein line represents more growth than the plant protein line. Figure 4 presents the calorie and protein consumption within both diets.

Discussion of Results

There was a variety of data collected in my experiment. One of the pieces of data that was collected was the body mass index (BMI). The BMI increases by 0.6 from the plant protein diet and then 0.2 from the animal protein diet. When BMI is sustained within 19-25 BMI, that means that my weight distribution is healthy, and I am not overweight or underweight. After plant protein, my BMI was 20.1 and 20.3 after the animal protein diet. This means that I did not consume too much or too little but the right amount to gain weight which is valid because I did not over consume or consume too little through experimenting and kept consistent consumption.

The muscle masses and percentages were the key factors in my experiment to test the quality of the proteins. The muscle mass percentage increased by 0.7% in the plant protein diet and increased by 0.5% in the animal protein diet. Just looking at this piece of information, it can be seen that the plant protein diet was more effective for building muscle mass but that is incorrect. The actual muscle mass needs to be compared and the actual change in the weight rather than the percentage in order to determine which protein is of more quality. I gained 1.06 kilograms of muscle in the plant protein diet and gained 1.22 kilograms of muscle in the animal protein diet. This means that I have gained an average of 305g of muscle per week with the animal protein diet compared to the average of 265g of muscle gained per week with the plant protein diet. This shows I was able to gain 40g more of muscle per week following the animal protein diet. Thus, I have actually gained more muscle mass from the animal protein diet than the plant protein diet even though I gained a higher percentage of muscle mass in the plant protein. Due to having a heavier weight before I began the animal protein diet; the 0.5% increase is of more value than the 0.7% increase in the plant protein diet meaning that I gained more muscle mass in the animal protein diet. As well as that, the higher the weight, the more difficult it becomes to build muscle meaning that it was more difficult to build muscle mass in the animal protein diet than the plant protein diet. If I was to do the animal protein diet first, the change would be significantly better than the increase from the plant protein diet because I would have a lower amount of muscle mass to begin with would lead to a stronger increase. Even though I did the animal protein dieting with a heavier weight, I was able to gain more muscle in the animal protein diet. Thus, it can be determined that the animal protein was significantly more effective at building muscle mass than the plant protein diet. Regarding the data of the body diameters, my muscles grew bigger in the animal protein diet than the plant protein diet. I gained an overall gain of 9.5cm in diameters in the plant protein diet and gained an overall of 19.5cm in diameters in the animal protein diet. This is a significant increase in the animal protein diet compared to the increase in the plant protein. However, diameters are not including muscle but also fat and bones and thus, the bone and fat percentages need to be looked at and compared in order to ensure that the diameter increases do not include fat and bone as much as the muscle. There was an increase in fat throughout the experiment and there was a slight decrease in bone density. There was a decrease because I gained muscle and weight whilst my bones were kept the same meaning that the percentage would decrease. The increase in fat was insignificant and was almost kept at the same weight and percentage. This then means that the increase in diameters was primarily muscle making the diameter test valid. Looking at the overview of all the data, we can see that the animal protein is more effective than the plant protein for building and gaining muscle mass. This is predicted that the animal protein will be more effective because many of the foods which fall under the animal protein bracket contain many essential amino acids than the foods in the plant protein bracket. The nutritional benefits

of animal protein sources should be more effective than the plant protein sources for muscle building. This is further detailed in the explanation of the hypothesis which explains why animal protein is more effective than plant protein for building muscle.

My hypothesis in the beginning of the experiment was the diet mainly consistent of animal protein will be more effective for building muscle mass than the diet mainly consistent of plant protein. The muscle mass gains were higher than the animal protein than the muscle mass gains in the plant protein diet. My body parts with primary muscle groups grow bigger in the animal protein diet than the plant protein diet. I have overall built more muscle in the animal protein part of the experiment, meaning that the data supports my hypothesis. The validity of the hypothesis and the conclusion drawn will depend on the validity of the method and the manipulation of the control variables.

There were variables which needed manipulating in order to ensure accuracy and validity in the experiment. The calorie and protein consumption were effectively managed because the final measures of the calorie and protein is almost equivalent. However, there was still 1100 calories and 10.8g of protein difference where the plant protein had more calories and protein consumption over the animal protein diet. This means that the plant protein was not as effective as the data and graphs present. This makes the data slightly inaccurate whilst comparing. However, the calorie and protein consumption had little difference and does not make a significant impact on the data. Thus, my data is still valid regarding the protein and calorie consumption. As the main nutritional parts of the experiment were calories and protein because that is the main nutrition which affects the muscle mass within the body. However, there may be other nutrition which affects the experiment such as carbohydrates which affects the energy which may affect how the muscle may be affected. As well as that, if there are too few consumption of carbohydrates, the muscle is fed off and thus is important. This may have affected the validity of data but nevertheless, there is no nutrition which affects the muscle data as significantly as the protein or calorie consumption. Thus, my experiment is still valid but slightly inaccurate due to this calculation. As well as that, exercises were not constantly done because there were few days when the exercise was done the next day or there was no working out during specific days. An example of this is the chest inflammation challenge I had whilst exercising which led to me having to take 2 days break. This then leads to inconsistent rest which means muscle repairing may not have been the same throughout the entirety of the experiment which makes the data slightly inaccurate. However, I did make sure that there were 8 weeks' worth of data and there were 32 exercise session done within the 8 weeks ensuring minimum accuracy in my project and results. The measuring was done specifically after 4 weeks for each of the weigh-ins and accuracy was ensured to make sure that it was done on an empty stomach and with no clothes so there will be no extra weight added whatsoever which makes my data more accurate when testing both with the scale and the body measurer. The muscle adaptation was also done accurately as I was able to successfully add 1 more set of exercise after the animal protein diet and follow through on the final parts of the exercise to finish the 8-week experiment. However, there was one exercise where I was not able to do in the first week which I did in the later weeks with stronger muscles meaning that my muscles may have been worked more in the 7 weeks than the beginning week affecting the intensity and thus, the accuracy of data. However, that does not have a significant impact on the data and thus, the validity of the experiment is sustained.

Overall, the data is valid and can be used to validify the hypothesis, but it is slightly inaccurate due to improper manipulation of few variables and the main weakness being the sample size.

This data is overall, fairly accurate and is sufficient enough to support or deny the hypothesis, but it can still be improved. There should be a more thorough manipulation of variables in order to improve the accuracy of the data. Furthermore, the information is limited to quantitative data which can be seen in the figures. In order to improve the data, there should be a stronger variety of data in order to be able to support/deny the hypothesis with more detail and stronger reasoning. This experiment contained 8 weeks' worth of data and was restricted to two specific diets. In order for significantly more information, there should be more diets varied with animal and plant proteins to test the quality of the proteins. As well as that, doing exercise for a longer period of time will give a more detailed response to the hypothesis.

From the experiment, I found that I was able to put on more muscle following the animal protein diet. However, I was still able to gain muscle efficiently using the plant protein diet and the muscle mass gained was close to the gained muscle using the animal protein diet. This shows that people can still put on muscle well mainly consuming plant protein without meat. This is of importance because global eating needs to become more sustainable which means that people should eat less meat. If it is seen that muscle can be gained well whilst consuming plant protein, it may make the global nutritional transition more successful.

References

Grimes, B., Hallick, R., Williams, K., 2004., Amino Acids. [online] University of Arizona. Available at: <http://www.biology.arizona.edu/biochemistry/problem_sets/aa/aa.html> [Accessed 21 July. 2019].

Sproule, J., 2012. Sports, Exercise and Health Science. Oxford: IB Diploma, pp.50-57.

BioInfo., 2017. Amino Acids. [online] Available at: <http://www.bioinfo.org.cn/book/biochemistry/chapt21/bio3.html> [Accessed 25 July. 2019].

Olsen, N., and Villines, Z., 2019. 15 best plant-based protein foods. [online] Medical News Today. Available at: <https://www.medicalnewsto.day.com/articles/321474.php> [Accessed 25 July. 2019].

MedlinePlus., 2019. Amino acids: MedlinePlus Medical Encyclopedia. [online] Available at: <https://medlineplus.gov/ency/article/002222.html> [Accessed 25 July. 2019].

Appendices

Appendix 1

This is evidence of using a body composition scale and measuring body diameters.

Appendix 2

Exercise Program
[20 second break between each exercise]
One extra set is added to each exercise when the second diet begins

Day 1 (Ab Muscles):

1. Side Plank / 60 seconds / 3 sets (10 second break between sets)
2. Plank / 60 seconds / 2 sets (10 second break between sets)
3. Plank Hip Touch / 15 reps / 2 sets (10 second break between sets)
4. Russian V Twists / 16 reps / 3 sets (10 second break between sets)
5. Modified V-Sits / 12 reps / 2 sets (15 second break between sets)
6. 180 Rotations / 60 seconds / 2 sets (10 second break between sets)

Day 2 (Calf Muscles and Triceps):

1. Wall Calf Lifts / 20 reps / 4 sets (10 second break between sets)
2. Singular Calf Lift / 20 reps / 4 sets (10 second break between sets)
3. Step-Ups / 8 reps (each leg) / 2 sets (10 second break between sets)
4. Tricep Dips / 16 reps / 2 sets (10 second break between sets)
5. Diamond Push Ups / 12 reps / 3 sets (20 second break between sets)

Day 3 (Chest and Biceps):

1. Negative Explosive Push Ups / 8 reps / 2 sets (20 second break between s
2. Alternate Push Ups / 12 reps / 3 sets (10 second break between sets)
3. Clap Push Ups / 10 reps / 3 sets (10 second break between sets)
4. Cherry Picking / 60 seconds / 2 sets (10 second break between sets)
5. Inner Wrist curls / 60 seconds / 2 sets (5 second break between sets)

Day 4 (Thigh Muscles):

1. Jumping Squats / 12 reps / 3 sets (10 second break between sets)
2. Deep Side Lunges/ 10 reps / 3 sets (10 second break between sets)
3. Jumping Lunges / 8 reps / 3 sets (10 second break between sets)
4. Reverse Jumping Lunges / 8 reps / 3 sets (10 second break between sets)
5. 180 Jump Switch / 20 reps / 2 sets (10 second break between sets)

This is the workout program used for conducting exercise and designed for the experiment

Evidence and demonstration of exercising

Appendix 3

Animal Protein Food Intake

2/9/19
Eggs and Toasted Bread
Apples
Cheese Sandwiches
Milk
Yoghurt with Muesli

3/9/19
Egg Wraps
Bananas
Egg Sandwiches
Milk
Yoghurt Musli

4/9/19
Oats with milk
Plums
Sandwich with chicken and cheese
Hot dogs with mashed potatoes
Mango Yoghurt

5/9/19
Eggs and Toast
Plums
Rice with mutton
Mashed potatoes
Mango Yoghurt

6/9/19
Oats with milk
Bananas
Chicken sandwiches
Rice with chicken
Yoghurt

7/9/19
Eggs and toast
Oranges
Bread with omlette
Rice with mutton

8/9/19
Oats with milk
Oranges
Chicken sandwiches
Rice with chicken
Yoghurt

9/9/19
Oats with milk
Oranges
Chicken and cheese sandwiches
Rice with mutton
Yoghurt

10/9/19
Oats with milk
Bananas
Chicken sandwiches
Rice with chicken
Yoghurt

11/9/19
Eggs and toast
Mangoes
Bread with omlette
Rice with mutton

12/9/19
Oats with milk
Blueberry Yoghurt
Chicken and cheese sandwiches
Rice with chicken
Apple Juice

13/9/19
Oats with milk
Oranges
Chicken and cheese sandwiches
Rice with mutton
Yoghurt

14/9/19
Oats with milk
Blueberry Yoghurt
Chicken sandwiches
Rice with chicken
Yoghurt

15/9/19
Toast with butter
Blueberry Yoghurt
Chicken and cheese sandwiches
Rice with mutton
Yoghurt

16/9/19
Omlette
Dried Apricots
Hot Dogs
Chicken Breast
Yoghurt

17/9/19
Eggs and Bacon
Breads with lettuce and chicken
Rice with mutton
Blueberry Yoghurt

18/9/19
Oats with milk
Oranges
Chicken sandwiches
Rice with chicken
Yoghurt

19/9/19
Milk with biscuits
Blueberry Yoghurt
Butter sandwiches
Cheese pizza
Greek Yoghurt

20/9/19
Oats with milk
Bananas
Rice with chicken curry
Rice with potatoes
Strawberry Yoghurt

21/9/19
Oats with milk
Bananas
Pasta with chicken
Rice with mutton
Strawberry Yoghurt

22/9/19
Egg Wraps
Bananas
Egg Sandwiches
Milk with Digestive Biscuits
Yoghurt with Musli

23/9/19
Eggs and Bacon
Breads with lettuce and chicken
Rice with mutton
Blueberry Yoghurt

24/9/19
Butter Toast with Milk
Mutton Wraps
Yoghurt with Muesli
Rice with Chicken Curry
Strawberry Yoghurt

25/9/19
Butter Toast with Milk
Yoghurt with Muesli
Rice with Chicken Curry
Strawberry Yoghurt

26/9/19
Eggs with Bread
Mutton Wraps
Yoghurt with Muesli
Rice with Soy Sauce

27/9/19
Oats with milk
Oranges
Chicken sandwiches
Hot Dogs
Yoghurt

28/9/19
Oats with milk
Bananas
Pasta with Cottage Cheese
Rice with chicken
Yoghurt

29/9/19
Eggs with Butter Toast
Bread with Cheese
Cheese Sticks
Hot Dogs
Mango Yoghurt (Biola)

Plant Protein Food Intake

5/8/19
- Wheat Wraps with Potato Curry
- Rice with Dhal
- Almonds and Sunflower Seeds
- Rice with Potato Curry
- Vegan Yoghurt

6/8/19
- Peanut Butter and Bread
- Oranges
- Rice with Potato Curry and Sambar
- Nutrition Drink
- Rice with Dhal
- Almonds

7/8/19
- Wheat Wraps with Potato Curry
- Rice with Dhal and Potato Curry
- Almonds
- Wraps with Lentil Curry

8/8/19
- Wrap with Dhal
- Brown Rice with Dhal
- Almonds and Pistachios
- Veggie Burger
- Pistachios

9/8/19
- Wrap with Dhal
- Rice with lentils
- Almonds
- Rice with Dhal
- Mangoes

10/8/19
- Wrap with Sambar
- Pistachios and sunflower seeds
- Rice with lady finger
- Almonds
- Wrap with lady finger

11/8/19
- Dosa with Chutney
- Lime Rice
- Protein Bar
- Naan with Malai Kofta

12/8/19
- Idlee
- Wrap with Dhal
- Protein Bar
- Rice with Sambar
- Dairy free yogurt

13/8/19
- Idlee
- Rice with Sambar
- Protein Bar
- Ravioli with Tomato Sauce
- Peanut Mix

14/8/19-15/8/19 (Time Zone Change)
- Bread with Lettuce
- Orange Juice
- Vegan Chips
- Protein Bar (2)
- Wrap with Dhal

16/8/19
- Almonds.
- Dosa
- Rice with Dhal
- Protein Bar
- Quinoa

17/8/19
- Musli
- Almonds and peanuts
- Rice with Dhal
- Wadaw Pav

18/8/19
- Musli and Coconut
- Protein Bars
- Dosa with Peanut Chutney
- Rice with Dhal
- Noodles with Peas and Carrots

19/8/19
- Dosa with Peanut Chutney
- Protein Bar
- Pasta with Kidney Beans and Peas
- Musli Bars
- Quinova

20/8/19
- Wrap with Potato
- Musli Bars (2)
- Wrap with Potato
- Almonds
- Rice with Dhal

21/8/19
- Idlee with Peanut Chutney
- Musli Bars
- Rice with Mushrooms and Dhal
- Nuts
- Pav Bhaji

22/8/19
- Dosa with Peanut Chutney
- Musli Bars
- Sandwich with Pav Bhaji
- Nuts
- Protein Bar
- Rice with Dhal

23/8/19
- Idlee with Peanut Chutney
- Protein Bar
- Rice with Dhal
- Nuts
- Rice with Dhal

24/8/18
- Dosa with Peanut Chutney
- Musli Bars
- Rice with Lady Finger
- Protein Bar
- Chia Seeds
- Rice with Beans

25/8/19
- Dosa with Peanut Chutney
- Musli Bars
- Wrap with Beans
- Protein Bar
- Chia Seeds
- Rice with Soya Sauce

26/8/19
- Vegetable Smoothie
- Musli bars
- Orange and Apple
- Rice with Dhal
- Wrap and Kidney Beans

27/8/19
- Vegetable Smoothie
- Musli bars
- Kidney Beans with Rice and Soy Sauce
- Potato Sandwiches
- Pongala

28/8/19
- Dosa with Chutney
- Apples
- Wrap with Potatoes
- Rice with Dhal
- Mushroom and Rice

29/8/19
- Idlee with Chutney
- Musli Bars
- Rice and Soy Sauce
- Rice with lentils
- Apple

30/8/19
- Bread with Peanut Butter
- Cashews
- Rice with Dhal
- Almonds
- Rice with lentils
- Apple

1/9/19
- Oatmeal bars
- Bananas and Oranges
- Rice and Soy Sauce
- Rice with lentils
- Vegan Yoghurt with Rice

This is the list of consumed foods during the animal and plant protein dieting