

MUSHROOM SWAP DIET: WEIGHT LOSS PROGRAMME



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SUBSTITUTING MEAT WITH MUSHROOMS FOR FOUR MEALS A WEEK OVER SIX WEEKS ASSISTS MEN WITH WEIGHTLOSS.

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ABSTRACT

Background & aims: *Mushrooms are packed with essential nutrients for the body. They contain considerable amounts of proteins while low in energy. Mushrooms are an ideal meal substitute to help achieve a low calorie diet. Low calorie diets have been known to help with weight loss. The main aim of the study was to observe the weight loss effect of swapping meat dishes with mushroom dishes. The effect was measured using anthropometric measures.*

Study outcome: *Twenty black overweight men, employed and aged 30 to 40 years were originally recruited to trial a mushroom swap diet. Thirteen men completed the 6 week period of the study. Ten men had a significant weight with a total weight loss of 25.8kg. The participant who lost the most weight, lost 6kg over the period of 6 weeks. There were also significant changes in body mass index (BMI) as well as waist circumference (waist line) measurement were recorded. Three men who did not lose weight were excluded from final analysed results to avoid discrepancies. The main possible reasons that contributed to weight gain or no weight loss include the following; not being fully compliant with the diet and inconsistency with physical exercise*

Conclusion: *The preliminary data show that swapping meat with mushroom can help with weight loss due to the consumption of fewer calories. The factors that also contribute to weight loss were keeping to the prescribed diet, consistent exercise and total commitment.*

Table of Contents

| | | |
|----|----------------------|----|
| 1. | INTRODUCTION | 5 |
| 2. | OVERALL RESULTS | 7 |
| | 2.1 PARTICIPANTS | 7 |
| | 2.2 MEASUREMENTS | 8 |
| 3. | THE BIGGEST LOOSER | 11 |
| 4. | NUTRITIONAL ANALYSIS | 13 |
| | 4.1 RECIPES | 13 |
| 5. | PALATIBILITY SURVEY | 16 |
| 6. | CONCLUSION | 17 |
| 7. | LIMITATIONS | 17 |
| 8. | ACKNOWLEDGEMENTS | 18 |

| Tables | Page |
|--|-------------|
| 1. Weight Changes | 9 |
| 2. BMI changes | 10 |
| 3. Waist circumference | 11 |
| 4. Mushroom recipes nutritional analysis | 14 |
| 5. Meat recipes nutritional analysis | 15 |
| 6. Palatability scoring | 16 |

APPENDIX LIST

APPENDIX A: Weekly anthropometric changes

APPENDIX B: Personal Information

APPENDIX C: Food diary

APPENDIX D: Indemnity form

APPENDIX E: Palatability survey form

INTRODUCTION

South Africa has the highest overweight and obesity rate in the sub-Saharan Africa. According to the World Health Organisation 2010, 4 out of 10 men carry significantly more fat than is considered normal (WHO, 2010). This raised the need to conduct a study that involves foods that are low in energy but high in nutrients to assist with weight loss thereby providing a convenient and delicious way to assist in reducing the WHO statistics.

Mushrooms fit the bill perfectly as they are low in calories, high in nutrients and have a meaty flavour. The Mushroom Swap Diet was developed whereby meat is replaced by mushrooms in a number of weekly meals. The Mushroom Swap Diet was adopted and accepted by the South African Mushroom Farmers Association (SAMFA).

A total of 20 black men in Johannesburg were found eligible during the recruitment process to trial this diet for 6 weeks. As the study progressed, a total of 8 men were either excluded or dropped out due to non-compliance and other personal problems. Therefore, 13 men were able to complete the 6 week period of the mushroom swap diet. The inclusion criterion was that they had to be black men who are employed, between the ages of 30 to 45 years and overweight with body mass index (BMI) above 25kg.m^{-2} . They all had not seen a dietician before and most of them had not intention to lose weight or to be on any weight loss diet.

For the purpose of the study the dietician received fresh mushrooms for the participants weekly from mushroom farmers who are members of the South African Mushroom Farmers' Association. Also for the purpose of the study, all participants perated under pseudonyms that related to either mushroom names or mushroom farm names.

Key Objectives

1. The first objective was to measure the weight loss over a six week period if the participants simply replaced/swapped **four** meat meals a week with mushroom meals with a choice to choose either to swap lunch or supper. The weight loss progress was recorded using the weekly changes in anthropometric parameters such as weight, waist circumference and

body mass index (BMI) over the period of 6 weeks. The Mushroom Swap Diet was structured in a way that made it easy to follow, sustainable and still within normal household budget.

2. The second objective was to measure the palatability (acceptability) of the mushroom meals vs meat based meals which is the norm. An important factor to highlight is that mushrooms were a completely new ingredient to most of the participants. Many had not even tried mushrooms before embarking on the diet and even those familiar with mushrooms, acknowledged that mushrooms were not part of their day-to-day diet.

This report focuses on the results obtained from study with the main focus on the overview results showing changes in anthropometric parameters for all participants, the story of the winner, nutritional intervention and recipe analysis, as well as the results of the overall palatability scoring of the mushroom recipes by participants.

2. Overall results

2.1 Participants

There were a total of 13 participants that completed the mushroom diet. However, data for 10 participants that lost weight was analysed to help minimize huge data discrepancies. Three men who did not lose weight did not lose weight possibly due to the following reasons; not being fully compliant with the diet and inconsistency with physical exercise. They reported that they had work commitments; hence sometimes they also could not be available to meet with the dietician. These men actually did lose weight at some point during the 6 week period. However, they had weight gain at the end and that affected final weight gain.

They might have not lost weight but they definitely took a lesson out this and that is now they know mushrooms much better and they accept them well as much as the other ten men who lost weight do. Unlike the other eight men that were excluded by the dietician, these men did not resent the Mushroom Swap Diet at all. Basically, they did not fit a formal exclusion criterion at all.

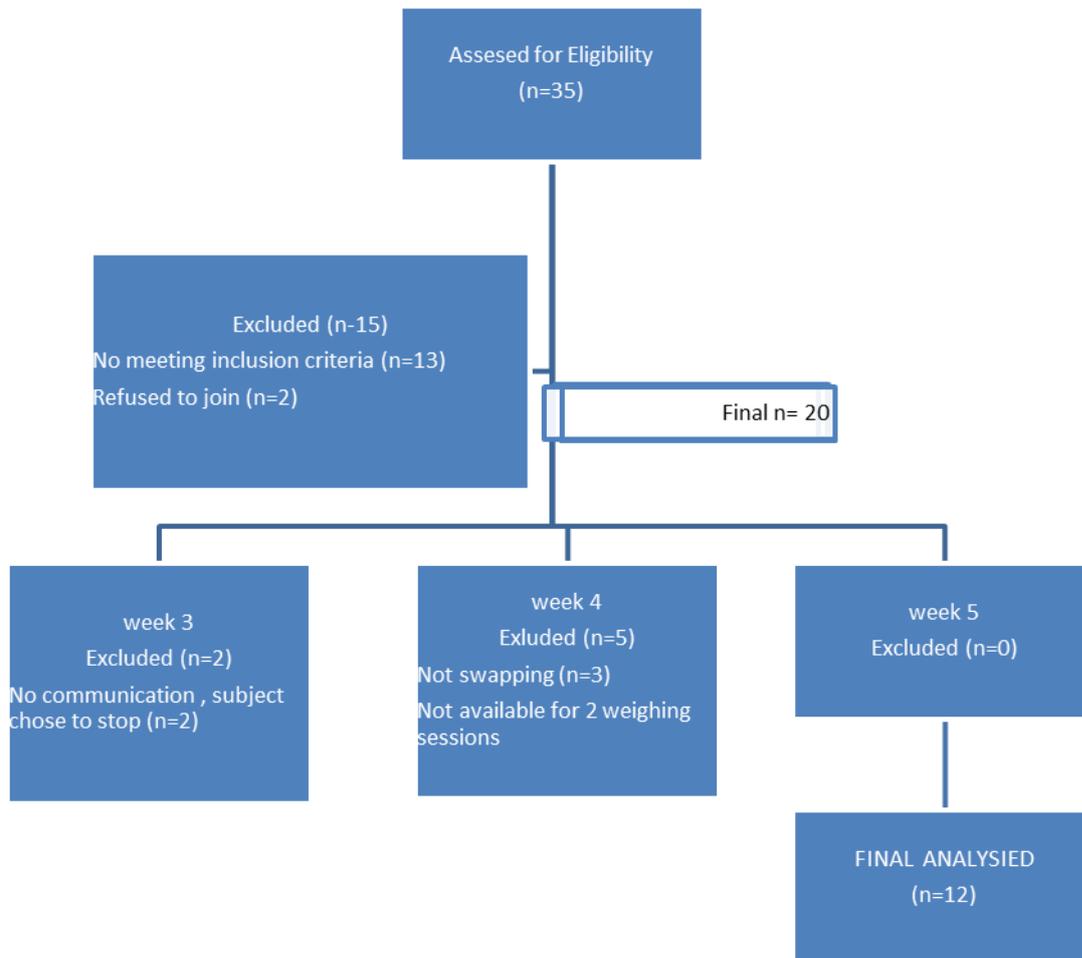


Figure 1: Flow diagram showing participants’ journey in the study.

The figure 1 above shows the journey of participants from recruitment to the final results analysed. A total of thirty-five men were screened for eligibility before the study commenced. Unfortunately, fifteen of these men were not eligible as they did not fit the inclusion criteria. The study then commenced with twenty qualifying participants of whom seven dropped out at different stages before the end of the 6-week period. The results analysed were for ten participants as three were excluded because they did not lose weight with the reasons given above.

At the beginning of the study participants were given a food diary and a palatability survey book to keep for the entire 6-week period. For motivation SAMFA gave participants a goodie bag with a mushroom branded apron, a t-shirt ,wooden spoon and a cap. This was meant to serve mementos of their participation in The Mushroom Swap Diet study.

2.2. Measurements

The dietician saw participants on a weekly basis to record anthropometric changes by both weighing them and measuring their waist circumference in centimetres (cm). Weight measurements were taken using the physician scale with BMI and height rod Model: pts3BMI. Weekly anthropometric measurements were recorded in a sheet that the dietician kept (included as Appendix A).

To calculate the final weight loss at the end of the study this formula was used: Weight loss (kg) = Final weight (kg) - initial weight (kg). If the final value is negative that would be weight lost and if it was positive that would be weight gained.

The total weight loss was 21,3kg over the period of 6 weeks for 10 participants as presented in Table 1 below. Weight loss averaged from 0.7 to 6kg lost in 6 weeks.

Table 1: Weight changes for men on a mushroom swap diet, total weight lost and percentage weight lost over 6 weeks period.

| No | Names | Weekly Weight (kg) | | | | | | | |
|----|-------------------|--------------------|------|------|------|------|-----------|-------------|---------------|
| | | wk 1 Initial | wk2 | wk3 | wk4 | wk5 | wk6 Final | Weight lost | % weight loss |
| 1 | Bisporus | 76.5 | 73.4 | 73.4 | 70.2 | 74.2 | 70.5 | -6kg | 13% |
| 2 | Reese | 96.5 | 94.3 | 95.3 | 94.2 | 94.0 | 93.5 | -3.0 | 7% |
| 3 | Big brown | 80.7 | 81.9 | 81.8 | 82.7 | 80.7 | 78.0 | -2.7 | <5% |
| 4 | Portabellini | 95.6 | 95.7 | 95.7 | 96.2 | 95.0 | 93.0 | -2.6 | <5% |
| 5 | Highveld | 92.0 | 93.0 | 93.0 | 93.7 | 90.5 | 90.2 | -1.8 | <5% |
| 6 | Country | 77.3 | 74.9 | 74.6 | 76.3 | 75.9 | 75.8 | -1.5 | <5% |
| 7 | Forest Fresh | 80.5 | 76.5 | 81.9 | 78.6 | 80.0 | 79.1 | -1.4 | <5% |
| 8 | Portabella | 64.0 | 62.0 | 62.4 | 61.2 | 61.5 | 63.0 | -1.0 | <5% |
| 9 | Meadow | 78.0 | 78.0 | 78.2 | 78.6 | 78.2 | 77.3 | -0.7 | <5% |
| 10 | Denny | 90.6 | 90.5 | 92 | 91.9 | 92.1 | 90.0 | -0.6 | <5% |
| | Total weight loss | 21,3kg | | | | | | | |

Weight was not only used as a direct measure of the diet efficacy, it was also used in conjunction with height measurements to calculate Body Mass Index (BMI). BMI how big a person is as compared to their height and the normal BMI is 20 to 24.9 kg.m⁻².

The participants' initial BMI was above normal (overweight) hence their expected (ideal) BMI had to at least be on the upper BMI range. Table 2 below shows that there were significant changes in BMI for all men. About 40 % of participants moved from being overweight to the healthy BMI range and this is encouraging as to the efficacy of the Mushroom Swap Diet. The participant who lost the most weight for example also reported significant changes in his clothing size to the dietician. Other participants also commented that clothes that were tightfitting prior to the commencement of the diet, fitted them well at the end of the 6-week period.

Moreover, changes in weight contributed to this observation but also changes in the waist circumference contributed to changes in clothing size especially buttoned up trousers.

Table 2: Body Mass Index changes and percentage weight loss for participants over 6 week period.

| Participants | | BMI (kg.m ⁻²) | | Performance |
|--------------|--------------|---------------------------|-------|-------------|
| No. | Name | Initial | Final | 😊 |
| 1 | Bisporus | 27.0 | 25.1 | 😊 |
| 2 | Reese | 26.8 | 24.6 | 😊 |
| 3 | Big brown | 27.9 | 26.9 | 😊 |
| 4 | Portabellini | 28.5 | 27.8 | 😊 |
| 5 | Highveld | 30.0 | 29.4 | 😊 |
| 6 | Country | 26.2 | 25.6 | 😊 |
| 7 | Forest Fresh | 24.8 | 24.4 | 😊 |
| 8 | Portabella | 28.4 | 28.0 | 😊 |
| 9 | Meadow | 25.0 | 24.9 | 😊 |
| 10 | Denny | 28.0 | 27.5 | 😊 |

Waist circumference is used to measure fat distribution around the abdominal area. It is useful information to have in people who are categorized as normal or overweight in terms of BMI because BMI may overestimate body fat in those who are muscular and underestimate body fat in those who are less muscular. This means that if an individual has a BMI in the healthy range and a high waist circumference he carries a greater health risk as compared to an individual with a high BMI and a lower waist circumference. The waist circumference at which there is an increased health risk is defined as above 102cm for men.

Table 3 below shows the changes in the waist circumference over the period of the study and total centimetres lost per participant. The results show a significant centimetre loss with 9 out of 10 participants proving again that mushrooms with their low calorie content and their high nutrient content assist in reducing health risks by reducing centimetres in the waist line when they replace meat in a meal plan.

Table 3: Waist circumference changes over 6 weeks in the mushroom swap diet.

| Position | Participants | Waist Circumference(cm) | | Total centimetres lost(cm) |
|------------|--------------|-------------------------|-------------|----------------------------|
| | | Initial | Final | |
| No. | Name | | | |
| 1 | Bisporus | 92.5 | 80.0 | 12.5 |
| 2 | Reese | 102.0 | 98.0 | 4.0 |
| 3 | Big brown | 97.0 | 90.0 | 7.0 |
| 4 | Portabellini | 97.7 | 94.0 | 3.7 |
| 5 | Highveld | 98.0 | 95.5 | 2.5 |
| 6 | Country | 90.6 | 91.0 | 0.4 |
| 7 | Forest Fresh | 90.5 | 91 | 0.5 |
| 8 | Portabella | 85.5 | 84.0 | 1.5 |
| 9 | Meadow | 89.0 | 86.5 | 2.5 |
| 10 | Denny | 90.8 | 85.0 | 3.8 |

If an individual aims to reduce their health risks due to high abdominal fat “pear shape” around the belly, they can achieve that with the Mushroom Swap Diet. Factoring an individual’s waist circumference into the BMI equation gives a more accurate picture of health risk than BMI alone.

Adding exercise into the Mushroom Swap Diet

Assessing the health risk even while on the diet is important because healthy weight loss is not just about a “diet”. It is about an ongoing lifestyle that includes long term changes in daily eating and exercise habits. Hence, participants had to be physically active. The dietician advised the participants to do at least 45 min of exercise 3 times a week. They could jog, walk, do aerobics, strenuous activities or do any other forms of exercise.

The Mushroom Swap Diet is simple, and was made as normal as possible because participants could still eat what they would eat on day-to-day basis. This was applicable to even the mushroom recipes that the dietician gave to

the participants. This is evident in the case of *Bisporus*, the participant who recorded the biggest weight loss over the 6 week period.

3. The Winner

This was an ordinary man working a 8:00 to 5:00pm job who had not been exposed to mushrooms to this extent. He used to jog 5 times a week but increased intensity of exercise and joined the gym when he started with the Mushroom Swap Diet. His personal information, and that of the other participants, was captured. (For an example see Appendix B). At recruitment the biggest loser was one of the participants who showed a lot of enthusiasm and told the dietician that they would finish the 6-week period and would definitely lose weight. The winner was given a pseudonym *Bisporus* which is the name of one of the mushrooms.

Bisporus was included in the study because he met the prescribed inclusion criteria. His initial weight week beginning was 76.5kg. His Ideal Body Weight (IBW) was 70kg based on the normal BMI of $25\text{kg}\cdot\text{m}^{-2}$. *Bisporus* total weight loss in 6 weeks was 6kg which is excellent and in line with the recommended healthy weight loss of 0.5 to 1 kg a week. This means that his final weight week ending was 70.5kg, placing him right at his ideal body weight as previously calculated. His BMI dropped from $27.3\text{kg}\cdot\text{m}^{-2}$ to $25.1\text{ kg}\cdot\text{m}^{-2}$ which is the normal BMI. He also had a 13% total weight loss over the period of 6 weeks.

Just like other participants *Bisporus* had to keep a food diary for the entire 6-week period as seen in Appendix C. The purpose of the food diary was to provide a control for the dietician to ensure that the participants were swapping meat with mushrooms four times a week and also to see if they were keeping healthy eating guidelines. *Bisporus's* food diary showed that he was compliant with the diet conditions and swapped meat dishes with mushroom dishes four times a week. As part of the study all participants signed an indemnity form as seen in Appendix D.

Today *Bisporus* is a different man; he looks thinner and is more active. His experience on the Mushroom Swap Diet was great; he told the dietician that he enjoyed mushrooms at the start of the study but even more when he started to notice some significant weight changes. *Bisprorus* lives with is

fiancée and he reported that as soon as his fiancée noticed his significant weight changes, she joined him on the diet and lost some weight herself!

The BIG question is: What made the Mushroom Swap Diet such a success? The secret answer lies in the nutritional composition of mushrooms and the mushroom recipes developed specifically for the Mushroom Swap Diet.

4. Nutritional Analysis

4.1 Mushroom recipes

Participants were given twelve nutritionally analysed mushroom recipes to use when swapping with meat. These recipes were analysed to identify specifically the difference in energy, fat, and carbohydrate as well as protein intake between the meat recipes and the mushroom recipes. Calories were defined as the measure of energy contained and measured in kilocalories (kcal). Fat was measured in grams and main focus was on saturated fat which is the “bad fat” or “unhealthy fat”. The amount of carbohydrate or commonly known as starch was measured in grams as well protein.

Generally, mushroom meals are low in calories, low in saturated fat, high in fibre and higher in protein. Table 4 below show that all mushroom recipes had less than 500 calories and very low saturated fat (lower than 5g per recipe). These mushroom recipes also contained considerably higher amounts of dietary fibre. Dietary fibre content varies slightly due depending on the mushroom type. A cup cooked white button mushrooms have about 3.4 g fibre and about 40 calories. This means that you feel fuller for longer with lower calories. This type of dietary fibre in mushroom is called beta-glucan similar to the one found in oats. The benefits of this dietary fibre are that it helps lower blood sugar levels and control blood cholesterol. Overall, mushroom recipes had lower calories, low saturated “bad” fat, while reasonably high in dietary fibre. All this contributed to the success of the Mushroom Swap Diet.



Table 4: Nutritional analysis of Mushroom recipes and meat recipes

| Recipe | Macronutrients | | | | | |
|--------------------------------|----------------|--------|-------------------|------------------|-------------------|-------------|
| | Energy(kcal) | Fat(g) | Saturated fat (g) | Carbohydrate (g) | Dietary fibre (g) | Protein (g) |
| Mushroom chilli | 311.9 | 10.0 | 5.0 | 34.3 | 9.1 | 10.0 |
| Mushroom & pepper stir-fry | 208.0 | 16.2 | 2.2 | 11.5 | 3.3 | 15.1 |
| Bean & Mushroom stew | 196 | 17.7 | 3.5 | 43.5 | 21.5 | 28.5 |
| Mushroom Kebabs | 164 | 6.0 | 1.0 | 20.0 | 5.0 | 10.0 |
| Mushroom Risotto | 150 | 3.0 | 1.0 | 28.0 | 3.4 | 6.0 |
| Mushrooms with chickpeas curry | 145 | 4.0 | 0.8 | 44.0 | 6.0 | 11.0 |
| Roasted Mushroom Medley | 165 | 5.0 | 1.0 | 4.0 | 1.0 | 3.0 |
| Mushroom hotpot | 230 | 7.0 | 1.0 | 26.0 | 5.0 | 1.0 |
| Creamy mushroom | 223 | 10.7 | 4.6 | 42.3 | 2.6 | 13.7 |
| Mushroom & potato bake | 380 | 22.0 | 8.0 | 27.0 | 2.0 | 18.0 |
| Mushroom & green beans | 80 | 5.0 | 0.0 | 11.5 | 3.0 | 4.0 |
| Spinach stuffed portabello | 147.6 | 6.6 | 3.2 | 12.3 | 4.4 | 12.7 |

Twelve meat recipes similar to the mushroom recipes were also nutritionally analysed and provided to the participants. Analysis of these recipes is shown in table 5 below. Table 5 shows that meat recipes were higher in calories, higher in saturated fat, high protein and lower in dietary fibre as compared to mushroom recipes.

Table 5: Nutritional analysis of meat recipes used in the study.

| Recipe | Macronutrients | | | | | |
|----------------------------------|----------------|--------|-------------------|------------------|-------------------|-------------|
| | Energy(kcal) | Fat(g) | Saturated fat (g) | Carbohydrate (g) | Dietary fibre (g) | Protein (g) |
| Mince Chilli | 387 | 17 | 6 | 25 | 6 | 36 |
| Chicken & pepper stir-fry | 451 | 15 | 8 | – | 4 | 29 |
| Bean & meat stew | 220 | 12.5 | 5.2 | 15.7 | 3.5 | 11.5 |
| Meat kebabs | 447 | 12.9 | 4.3 | – | – | 40.0 |
| Meat risotto | 590 | 22 | – | 83 | 4.0 | – |
| Chicken with chickpeas curry | 455 | 23 | 12 | 7 | 1.0 | 41 |
| Roasted chicken | 287 | 7.0 | 2.0 | 6.0 | 2 | 52 |
| Beef hot-pot | 369 | 12.0 | – | 37.0 | – | – |
| Creamy Chicken (Chicken Alfredo) | 260 | 7.0 | 4.0 | 32.0 | 4.0 | 18.0 |
| Cottage pie | 455 | 29 | 12.0 | 23.0 | – | 45.0 |
| Chicken & green beans | 256 | 18.3 | 3.8 | 9.2 | 2.3 | 14.5 |
| Chicken stuffed with spinach | 269.9 | 14.7 | – | 2.9 | 0.0 | 30.4 |

From table 4 and table 5 above it is evident that swapping meat with mushrooms worked because participants consumed fewer calories and that contributed to weight loss and drop in waist line measurement. Mushroom only meals were foreign to the participants; therefore there was a need to measure acceptance and palatability. Hence, a palatability survey was conducted where each participant scored each mushroom recipe.

5. Palatability survey

Using the qualitative method, subjects had to rate the palatability of the mushroom recipes as compared to the meat recipes. Participants were given the palatability survey questionnaires to rate the recipes every time they tried one of the Mushroom Diet Swap recipes they received from the dietician. Recipes were rated according to five important levels of acceptability: taste, flavour, cost of recipe, level of difficulty to prepare and overall appearance. Each level of acceptability was measured based on three criteria i.e. was it

good all the time, some of the time or none of the time as shown in Appendix E.

Results of the palatability study are illustrated in the table 6 below. Each participant’s recipe scores had to be more than 50% (66 points) on the first measure i.e. favoured all of the time. This would mean that the participant generally liked the mushroom recipes.

Table 6: Palatability scoring feedback.

| Participants | 12 Mushroom recipes level of acceptability | | |
|---------------------|--|------------------|-------------------|
| | All the time | Some of the time | None of the time. |
| Bisporus | 84 | 48 | 0 |
| Reese | 132 | 0 | 0 |
| Big brown | 108 | 24 | 0 |
| Portabellini | 132 | 0 | 0 |
| Highveld | 120 | 0 | 12 |
| Country | 132 | 0 | 0 |
| Forest Fresh | 108 | 24 | 0 |
| Portabella | 120 | 12 | 0 |
| Meadow | 120 | 12 | 0 |
| Denny | 132 | 0 | 12 |
| Total | 1188 (90%) | 98 (7,4%) | 24 (2,8%) |

Results showed that the mushroom recipes were acceptable to the participants 90% of the time and scoring 1188 points over 1320. The overall views were that the mushroom recipes tasted good; had good flavour, were easy to prepare and not as costly as they imagined they would be especially when compared to the meat recipes.

Verbal responses and comments from the participants to the dietician indicated that although the participants would not convert to vegetarians and eat mushrooms daily, they would definitely incorporate mushrooms more in their meals. The Mushroom Swap Diet was mostly aimed at weight loss. However, exposing the black community to mushrooms especially males was another great achievement. Black men are known to love meat and to hear them say they will eat a mushroom meal even when the study was completed was another indication of the success of the Mushroom Swap Diet and the ease with which mushrooms can be introduced to a predominantly meat-based diet.

6. Conclusion

The Mushroom Swap Diet illustrated mushrooms as a powerful ally for weightloss. Ten out of thirteen participants lost weight and had positive changes in their BMI and waist circumference. The results seen were due to the fact that mushroom meals have fewer calories as compared to meat meals. Exercise was also part of the study regimen and it also helped with weight loss. Participants had not been exposed to mushrooms to this big extent before but the palatability study showed that they liked mushroom recipes 90% of the time. The mushroom swap diet greatly introduced these men to mushrooms. Observations made to the dietician indicate that participants would now eat mushrooms more than before. The objectives of the study were achieved and the Mushroom Swap Diet can be deemed to be seen as successful.

7. Limitations to the study

- ✚ Commitment was a huge limitation to the study. The participants recruited had no intention of losing weight, had never been on a weight loss programme and have never seen a dietician professionally. Participants with previous weightloss experience would have been more committed and would have adhered better to the given instructions. Lack of commitment even forced the dietician to visit participants in their homes after hours which became costly and not viable and because potential participants could not fully commit to the 6-week period, there were quite a few drop-outs
- ✚ Time was another imitation to the study, there was not enough time for weight loss to be observed well. A 12-week study might be better than 6 weeks.
- ✚ Lack of field assistance limited the study, the dietician tried to cover everyone in a short space of time. If there were enough funds, the dietician would have hired more field assistants and trained them to do assessments on her behalf as opposed to the one she had.

8. Acknowledgements

The author feels indebted to the participants who accepted to participate in the Mushroom Swap Diet. She is grateful to the members of the South African Mushroom Farmers' Association (SAMFA) who provided the fresh mushrooms over the 6-week period. Riana Greenblo Communications, especially Riana Greenblo and Thuto Thiheli, for their constant support throughout the study. The author is also appreciating noble support received from a good friend Mpolokeng Mudau, for a helping hand in those hard data capturing days. Last but not least is to thank Musiiwa Mapholi (CEO of MiNutrition) and her loving husband for support and encouragement throughout the study.

Appendix A

ANTHROPOMETRIC MEASUREMENTS CHART

NAME: _____

| PERIOD | WEIGHT | WEIGHT DIFFERENCE | HEIGHT | BMI | WAIST CIRCUMFERENCE | WC DIFFERENCE |
|--------------------|--------|-------------------|--------|-----|---------------------|---------------|
| INITIAL ASSESSMENT | | | | | | |
| WEEK 1 | | | | | | |
| WEEK 2 | | | | | | |
| WEEK 3 | | | | | | |
| WEEK 4 | | | | | | |
| WEEK 5 | | | | | | |
| WEEK 6 | | | | | | |

Appendix B

MUSHROOM SWAP WEIGHT LOSS STUDY

Completed by participant

Name: _____ Date of birth: _____

E-mail: _____ Phone: _____

Address: _____

Emergency contact

Name: _____ Phone: _____

Relationship: _____

Gender: _____ Drivers license: Yes/No Own Vehicle: Yes/No

Current weight: _____ Height _____

Race: _____ Age: _____ Marital status: _____

Primary physician: _____ Occupation: _____

List any medications you take below:

Medications:

| Medication | Dosage | Frequency | Time taken |
|------------|--------|-----------|------------|
| | | | |
| | | | |
| | | | |
| | | | |

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Please circle any of the following conditions that you have:

- | | | |
|--------------------------|-------------------------------------|-----------|
| Hypertension | Heart palpitations/irregular rhythm | Stroke |
| Angina | Dizziness/syncope | Cancer |
| Heart disease | High cholesterol | Arthritis |
| Congestive heart failure | Blood clots | |
| Osteoporosis | | |
| COPD/emphysema | Swelling of feet and hands | Leg |
| cramps | | |
| Kidney disease | Vision problems | |
| Neuropathy | | |

Other medical problems not listed above:

Do you exercise regularly? (Circle one): Yes No
 If yes, how often, where and for how long?

Do you use tobacco products? (circle one): Yes No
 If yes, how much/day and for how long?

Frequency of alcohol consumption: _____ Amount of alcohol consumed:

Have you seen a registered dietitian in the past? (circle one): Yes No
If yes, for what:

Have you been a part of any weight loss programme or diet in the past?

Do you prepare your own meals or somebody else does?

Please circle any of the following that you have:

Illiteracy Visual deficit Hearing problems Memory problems

What language(s) do you speak:

I, the undersigned, hereby authorize this program to allow my name and information to be used for the purposed of the study. I am satisfactorily oriented to the program and we commit to participate for the entire 6 week period.

Participant's signature: _____ Date:

Witness's signature: _____

Appendix D

INDEMNITY FORM

1. I, _____, entered willingly into the 6 week Mushroom Swap Diet Programme (“**the Mushroom Diet**”) conducted by Mbali Mapholi (a qualified dietician and director of *Mi Nutrition*) appointed by the South African Mushroom Farmers’ Association (“**SAMFA**”).
2. I intend to continue on “the Mushroom Diet” until its completion on July 8, 2015.
3. I confirm that I am fit and healthy to partake in “the Mushroom Diet” and that I do not suffer from any chronic disease.
4. I hereby assume all risk of injury, harm or loss arising from, or in connection with, any negligent act and/or omission by the employees, members and/or contractors of “SAMFA”, including the use of any information, advice, training and/or tips which I receive during “the Mushroom Diet”.
5. I further indemnify “SAMFA” and any/all of its employees, members, agents or contractors against any claims, actions, judgments or proceedings and reasonable attorneys fees arising from any direct, indirect or consequential loss and/or damage arising during my participation in “the Mushroom Diet”.
6. I further indemnify “SAMFA” and any/all of its employees, members, agents or contractors against any claim or demand made by a third party by reason of my participation in “the Mushroom Diet”.

PRINT NAME:

SIGNATURE:

DATE:

Always seek advice from your physician or other qualified health provider with any questions you may have regarding a medical condition. You should seek medical attention before undertaking any exercise or other health programme or procedure. Reliance on any information provided by Mi Nutrition and/or by “SAMFA”, its employees, members or contractors during the course of “the Mushroom Diet” is solely at your own risk.

Appendix E

Recipe: _____

Mushroom Dish Satisfaction Survey

Name: _____

Please rate the mushroom dish you ate as compared to the same meat version.

| | All of the Time | Some of the Time | None of the Time |
|--|-----------------|------------------|------------------|
| Did a mushroom dish take more time to prepare compare to meat dish? | | | |
| Was the mushroom dish tastier then the meat version? | | | |
| Are you the one involved in meal preparation at home? | | | |
| Did you enjoy the texture of the mushrooms in recipe? | | | |
| Was the mushroom dish flavor pleasant to you? | | | |
| Would you cook this mushroom recipe again in future? | | | |
| Was the total cost of mushroom recipe cheaper for you compared to meat dish? | | | |
| Did the overall appearance of the mushroom dish meet your expectations? | | | |
| Did the overall taste of the mushroom dish meet your expectations? | | | |

| | Yes | No | Not Sure |
|--|-----|----|----------|
| Was the mushroom dish familiar to you or it was your first time eating it? | | | |
| Would you recommend such a meal to be cooked at your modernized functions? | | | |

Please add any comments you may have in the space provided below.
