

# EVALUATION OF THE 5 A DAY PROGRAMME Final Report

April 2006



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**Final Report**

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# 1 EXECUTIVE SUMMARY

## 1.1 Background

The 5 A DAY local community initiative aims to encourage people in 66 programme areas to eat at least five portions of fruit or vegetables a day. The Big Lottery Fund made available £150,000 over two years to 66 Primary Care Trusts (PCTs). These PCTs work across local communities and use the evidence base to address local barriers and contribute to:

- Increasing consumption of fruit and vegetables
- Increasing awareness or knowledge
- Changing attitudes and beliefs
- Increasing access to fruit and vegetables

Activities include home delivery services, improving transport to local markets, voucher schemes, media campaigns, growing and cookery skills, and promoting networking among existing healthy food groups.

## 1.2 Research aims

The aims of the evaluation are to:

### Consumption

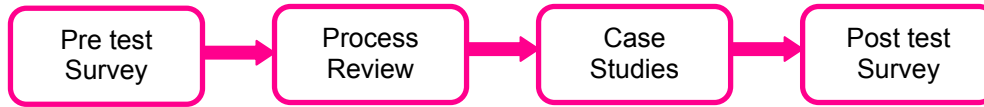
- Measure change in consumption (intake) of fruit and vegetables in representative samples of the adult private household population targeted for intervention in each of the participating 66 programme areas both pre-intervention and post-intervention.
- Simultaneously measure intake pre-and post-intervention in controls from matched areas.
- Assess the change in consumption of fruit and vegetables as a result of the 5 A DAY Programme for each programme area and for the 66 areas as a whole.

### Access, Awareness and knowledge

- Measure changes in access, awareness and knowledge relating to the benefits of increased fruit and vegetable consumption in representative samples of adults drawn from each of the participating 66 programme areas both pre-intervention and post-intervention.
- Measure changes in access, awareness and knowledge in matched area controls simultaneously with the pre and post interventions.
- Assess changes in access, awareness and knowledge relating to the benefits of fruit and vegetables as a result of the 5 A DAY Programme for each programme area and for the 66 areas as a whole.

### 1.3 Overview of the evaluation

The evaluation is multi-faceted, involving four stages and collecting a combination of qualitative and quantitative data.



The evaluation commenced in 2003 with a **Pre Test Survey**. The survey was a pre-intervention survey to collect baseline quantitative data before the commencement of the local activities. The methodology was designed to provide a national measurement of consumption of fruit and vegetables as well as changes in attitudes and knowledge about eating more fruit and vegetables. The results were analysed with the post test data, collected in 2005.

The **Process Review** in 2004 was a survey of the 66 funded PCTs. The aim of the Review was to develop a detailed picture of the 5 A DAY activities and to assess lessons learnt from the experience. The methodology was designed to collect qualitative and quantitative data that would profile PCT activities and implementation.

From the results of the Process Review, programme areas were selected to take part in qualitative research to better understand the activities and to observe and interview participants. The **Case Studies** were conducted during late-2004 and early-2005.

The evaluation concluded with a **Post Test Survey**, a post-intervention survey to collect data after the conclusion of local activities. Involving respondents of the Pre Test Survey, the 'repeat' survey provides results that measure change in consumption, attitudes and knowledge about eating more fruit and vegetables.

### 1.4 Key findings

The key findings for each element of the evaluation are as follows.

#### **Process Review**

Most PCTs (67%) worked in partnership with other neighbouring PCTs and offered a range of activities in their local programme. The most popular activities were work with school age children (82%); cook and eat activities (75%); and media campaigns (70%).

All PCT respondents reported working with at *least* one local partner and that partnership working was beneficial to their programme. At the time of conducting the Review, only 8 PCTs (14%) had secured funding to continue their 5 A DAY and other healthy eating activities beyond the lifetime of the 5 A DAY initiative funding.

A number of key lessons were identified concerning planning and funding activities, liaison with others and communication. A range of possible solutions are offered to address these; lessons and solutions are reported more fully in Chapter 3.

## **Case Studies**

Staff had varying degrees of success at recruiting participants and activities. Activities offering tangible and instant benefits tended to be the easiest to recruit.

There was evidence from every case study area visited that benefits have been experienced by participants. The evidence was a general change in attitude towards healthy eating and it appeared that early claims of increased consumption of fruit and vegetables were being maintained.

A number of key lessons were identified related to inspiring participants and providing a reason for increasing fruit and vegetable consumption. Managing the dissemination of information about healthy eating was also recommended; staff should be inventive and adopt a multi-pronged approach to activity and message promotion. A range of possible solutions identified to address these are reported more fully in Chapter 4.

## **Pre and Post Test Survey**

The 5 A DAY Index for respondents in the programme areas increased from 3.36 to 3.64. The 5 A DAY Index for the control area increased from 3.49 to 3.64. Whilst this increase across the groups is statistically significant, there is no statistically significant difference between the groups, that is, the programme area did not show a greater improvement than the control area.

Whilst lower levels of consumption were reported amongst men, younger people, those on low income and those living in areas of disadvantage, these demographic groups have reported enhanced improvement. Indeed, respondents living in areas of deprivation were amongst the largest improvers over the survey period. The influence of deprivation on change is statistically significant.

The factors affecting consumption remained virtually unchanged over the survey period. The quality of the produce was the most important factor to respondents when deciding how much fruit and vegetables they eat. Knowledge of the recommended level of consumption has increased substantially over the survey period. Improvements were also made in terms of identifying the number of fruit and vegetable portions in a range of foods and understanding the health implications of increased fruit and vegetable consumption.

Chapter 5 examines the results of the Pre and Post Test Survey in considerable detail.

## **1.5 Conclusions**

Much of the work that has been developed by the 5 A DAY coordinators and their teams has been about trying to deliver a service that acknowledges the difficulties and special circumstances of the people in the groups they have targeted. To that end, many of the specific activities implemented in the 5 A DAY Programme have been innovative in terms of developing new approaches. Similarly, efforts have been made to ensure that approaches that have been successful elsewhere are extended to new locations and different groups. To do this, it has been necessary for the 5 A DAY co-ordinators to involve other local partners and many of these partnerships have been across agencies. Working in this way has been critical to the success of the wide range of initiatives that have been undertaken.

The process of undertaking this work has often been hugely rewarding for those running the various programmes but as we have seen it has not been without its share of difficulties and problems, particularly around planning, recruiting participants, and managing effective communications. Throughout the 5 A DAY Programme there has been a strong sense of co-operation and collaboration. The 5 A DAY co-ordinators have been keen to learn from best practice and the Big Lottery Fund has supported the requirement to share and to learn from experiences, facilitating opportunities to meet regularly and discuss progress. From those who attended activities, there has been a strong sense of support and many attendees feel they have benefited from attending.

The evidence from this evaluation suggests that there have been substantial improvements in the awareness of the recommended number of fruit and vegetable portions, the assessment of fruit and vegetable portion size and the health implications associated with fruit and vegetable consumption.

The evaluation also suggests an overall increase in fruit and vegetable consumption and although this is area-wide, change in consumption is particularly powerful in the programme areas. Improvements in consumption are particularly evident amongst programme area respondents who started from a lower base, that is, amongst males, younger people and those classified as living in areas of deprivation. Statistical testing of the change in consumption revealed that there is in fact no statistical evidence to support the enhanced increase in the programme areas, however, testing of the entire group of respondents revealed important findings. The positive change in consumption overall *is* statistically significant and can also be associated with deprivation.

Caution must be afforded to the impact of the 5 A DAY Programme; whilst respondents in the programme area report larger increases, this is not statistically significant nor can the cause of any reported increases be isolated to any particular influence and therefore cannot be wholly attributed to the 5 A DAY initiatives. There are undoubtedly wider influences.

Tackling health inequalities is a key government commitment supported by PSA targets set to narrow this gap<sup>1</sup>. Many of the initiatives have been developed specifically to tackle those groups that have the poorest levels of consumption of fruit and vegetables: younger people, men, those with low incomes and those living in areas of deprivation.

This report highlights that these groups continue to present challenges but there is evidence of improvement in some of these targeted groups. For example, while overall levels of consumption as measured by the 5 A DAY Index have increased marginally, there is evidence that more improvement has been seen amongst younger people and those on the lowest income levels.

Overall, this evaluation has found that there have been greater levels of improvement in awareness and understanding of the issues and implications of eating fruit and vegetables than improvements in overall consumptions levels. Consumption is showing signs of improvement but this is not equalled by knowledge and awareness of the issues surrounding 5 A DAY and health eating in general. This finding is

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<sup>1</sup> Tackling Health Inequalities: Status Report of the Programme for Action. London: HMSO.

common in the area of health evaluation; change in knowledge and attitudes seem to show more impact than change in behaviour.

The results reported in the programme areas often appear to show that these areas started with lower levels of awareness and consumption compared to the control group, which was matched where possible for deprivation and rurality. Where this has been the case there appears to be some evidence of a 'catch-up effect' where these groups have improved alongside the control group and ended up at the same level or in some cases, exceeding the control group. This is the case for the 5 A DAY Index, as well as some aspects of awareness.

It would be tempting to conclude that this slight 'catch-up effect' was due to the impact of the 5 A DAY Programme but we reiterate that it cannot be asserted that there is a direct relationship between these circumstances. Knowledge is limited by the fact that it is not known whether Pre and Post Test Survey respondents in the programme areas had any exposure to the specific activities. It was not possible to ask Survey respondents to comment on attendance because they would not be able to differentiate activities that were part of the local initiative and those that had other sponsorship.

There has been extensive coverage of the 5 A DAY message throughout the duration of the 5 A DAY Programme. This has included considerable central and local health communications on this topic and widespread coverage of the message on TV and other media. The role of supermarkets in promoting the message in-store has not been insubstantial. The evidence is clear that the control group made substantial improvements in both knowledge and awareness of the message and that this was almost certainly a result of the widely disseminated public health message on 5 A DAY. Certainly, attempts have been made to ensure that this message reaches the target groups and this is where the largest improvements amongst both the programme areas and amongst the control group have been reported.

Taking forward this message as well as disseminating the learning from the programme are the immediate challenges ahead and it is the view of TNS Social that the programme areas are well placed to do this.

## 2 INTRODUCTION

### 2.1 Background

The 5 A DAY Programme builds on the existing evidence base of effective interventions to promote increased fruit and vegetable consumption through a community health promotion approach. It is based on the experience of a pilot programme of community interventions undertaken and evaluated by the Department of Health in five areas<sup>2</sup>

The 5 A DAY Programme initiative aims to encourage people in 66 programme areas to eat at least five portions of fruit or vegetables a day. At the time of funding, the 66 (former) health authorities with the highest levels of deprivation and poorest health status were requested by the New Opportunities Fund, now the Big Lottery Fund, to nominate a PCT to lead on the delivery of a 5 A DAY local community initiative in their area. All 66 Primary Care Trusts applied.

PCTs defined the area in which the interventions were planned. In some cases, this extended beyond the PCT boundaries into neighbouring PCTs. Throughout this report, the 66 areas are referred to as the programme areas to make clear this distinction.

The Big Lottery Fund made available £150,000 over two years in each of the 66 areas. These partnerships work across local communities and use the evidence base to address local barriers and contribute to:

- Increasing consumption of fruit and vegetables
- Increasing awareness or knowledge
- Changing attitudes and beliefs
- Increasing access to fruit and vegetables

Activities include home delivery services, improving transport to local markets, voucher schemes, media campaigns, growing and cookery skills, and promoting networking among existing healthy food groups.

The Big Lottery Fund specified that it was important that all sections of the community should be able to benefit from the services provided under the programme, including people with disabilities, people from minority ethnic groups and people who face barriers to exercising choice over consuming a healthy diet. Each programme area was charged to address the needs of the following groups:

- People who are socially and economically disadvantaged
- People without access to affordable food for a healthy diet
- People with poor diet
- People who lack the opportunity to make choices about healthy eating
- People in manual labour/low socio-economic groups
- Children

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<sup>2</sup> Five-a-day Community Pilot Initiatives: Key Findings. Department of Health. Available at: <http://www.dh.gov.uk/assetRoot/04/01/92/31/04019231.pdf>

- People at high risk of developing coronary heart disease due to other factors such as ethnicity

## 2.2 Research aims

The aims of the evaluation programme are to:

### Consumption

- Measure change in consumption (intake) of fruit and vegetables in representative samples of the adult private household population targeted for intervention in each of the participating 66 programme areas both pre-intervention and post-intervention.
- Simultaneously measure intake pre-and post-intervention in controls from matched areas.
- Assess the change in consumption of fruit and vegetables as a result of the programme for each programme area and for the 66 areas as a whole.

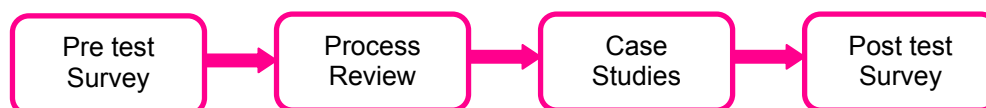
### Access, Awareness and knowledge

- Measure changes in access, awareness and knowledge relating to the benefits of increased fruit and vegetable consumption in representative samples of adults drawn from each of the participating 66 programme areas both pre-intervention and post-intervention.
- Measure changes in access, awareness and knowledge in matched area controls simultaneously with the pre and post interventions.
- Assess changes in access, awareness and knowledge relating to the benefits of fruit and vegetables as a result of the programme for each programme area and for the 66 areas as a whole.

Detailed changes in consumption and access, awareness and knowledge by programme area are reported separately.

## 2.3 Overview of the evaluation programme

The evaluation is multi-faceted, involving four stages and collecting a combination of qualitative and quantitative data.



The evaluation commenced in 2003 with a **Pre Test Survey**. The survey was a pre-intervention survey to collect baseline quantitative data before the commencement of the local initiatives. The methodology was designed to provide a measurement of consumption of fruit and vegetables as well as changes in attitudes and knowledge

about eating more fruit and vegetables. The results were analysed with the post test data, collected in 2005.

The **Process Review** in 2004 was a survey of the 66 funded programme areas. The aim of the Review was to develop a detailed picture of the 5 A DAY programmes underway or planned and to assess lessons learnt from the experience. The methodology was designed to collect qualitative and quantitative data that would profile programme area activities and implementation.

From the results of the Process Review, programme areas were selected to take part in qualitative research to better understand the activities and to observe and interview participants. The **Case Studies** were conducted during late-2004 and early-2005.

The evaluation programme concluded with a **Post Test Survey**, a post-intervention survey to collect data after the conclusion of local initiatives. Involving respondents of the Pre Test Survey, the 'repeat' survey provides results that measure change in consumption, attitudes and knowledge about eating more fruit and vegetables.

## **2.4 Structure of this report**

This report starts by presenting the key findings from the Process Review and Case Study components of the evaluation programme, focussing on lessons to be learned.

Of primary importance in this report are the results of the Pre and Post Test Survey. A thorough analysis of Survey results are provided with measurement reported for the Pre Test period 2003 and Post Test period 2005. Discussion of the results focuses on change in the results over the survey period.

Finally, findings from the evaluation are then put into context with findings from other national surveys and general commentary before conclusions are drawn on the 5 A DAY Programme.

## 3 5 A DAY PROCESS REVIEW

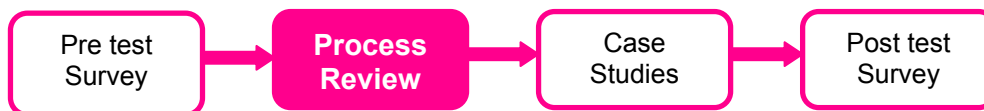
### Key findings

- Few of the funded PCTs operated as single entities. A total of 67% of respondents reported that there had been at least some direct involvement from other PCTs.
- Most programme areas offered a range of activities. The most popular activities were work with school age children (82%); cook and eat activities (75%); and media campaigns (70%).
- All respondents reported working with at *least* one local partner, typically these partners were the Local Education Authority, schools, councils, businesses and voluntary organisations.
- At the time of conducting the Review, only 8 PCTs (14%) had secured funding to continue their 5 A DAY and other healthy eating activities beyond the lifetime of the 5 A DAY initiative funding. Almost half (46%) were intending to apply to other funding sources whilst 30% reported that they did not intend to apply for more funding.
- A number of key lessons were identified concerning planning and funding activities, liaison with others and communication.

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### 3.1 Introduction

This chapter reports on the second component of the 5 A DAY evaluation. The Process Review was a survey of PCTs, collecting data about the 5 A DAY activities they had implemented with the monies received from the Big Lottery Fund.



### 3.2 Process Review objectives

The Process Review had the following principal objective:

- **To develop a detailed picture of the 5 A DAY activities in the programme areas.**

In meeting this objective, the Review sought to explore the following issues:

- The ways in which the PCTs had allocated their funds.
- The types of activities that were funded and where they were located.
- The extent to which the programme areas felt that activities were, or were not, successful.
- The extent to which programme areas felt that the activities adequately covered the groups they were specifically targeting.
- The aspects of the implementation that programme areas thought had worked well and what they thought could be improved.
- The extent to which the programme areas felt that other activities should have been included in their initiatives.
- The support the programme areas received from other local organisations and the opportunities that were created, or could be created in the future, for joint working.
- Programme areas knowledge of other initiatives that were running in their area that might also be promoting the 5 A DAY message.
- The advice programme areas would give to other areas trying to launch similar initiatives.
- The materials and documentation the programme areas had developed to support their initiatives and which they believed would be useful to share with other areas.
- The plans programme areas had for the period beyond the funded initiatives and what they see as future priorities.

### **3.3 Methodology**

#### *3.3.1 Population and sampling*

It was agreed that the Review would incorporate each and every programme area in receipt of funding, as opposed to selecting a sample of programme areas. The reasons for this were two-fold: firstly, the number of programme areas was only 66 and so selecting a sample was deemed unnecessary and secondly, it was felt that the diversity of the activities the programme areas were expected to run warranted a survey of the full population.

#### *3.3.2 Data collection method and questionnaire design*

The data collection method was a self-completed questionnaire, which was mailed to each host programme area.

Developed in full collaboration with the Big Lottery Fund, the questionnaire was designed to address the Review's primary objective and cascade of issues. The questionnaire collected a combination of quantitative and qualitative data.

Comprising fifteen sections, information was collected about the staffing of 5 A DAY initiatives and the scheduling of activities. The activities were categorised into 'types' e.g. home delivery schemes, work with school age children and voucher schemes and PCTs were invited to explain the purpose, activities, benefits and successes of the types of initiatives they were implementing. Each PCT was then asked to provide information about partnership working, to comment on finance and funding and finally to offer comment on successes and lessons learnt from their experience.

The Process Review questionnaire is provided as Appendix 1.

### *3.3.3 Fieldwork schedule*

The postal questionnaire was mailed to named PCT contacts, primarily 5 A DAY coordinators, in each of the 66 programme areas in mid-May 2004.

Co-ordinators received a letter inviting them to participate in the Review and were asked to complete and return the enclosed questionnaire by 11 June 2004. During the fieldwork period, TNS Social received a number of telephone queries regarding both the content of the questionnaire and the timing of the returns. Two email reminders were sent to 5 A DAY coordinators who had not responded and these were followed up by a telephone reminder in the final week before the deadline.

The deadline for returns was extended to 16 July 2004 to take into account the fact that many of the 5 A DAY coordinators were also fulfilling other roles within their PCT and were therefore extremely busy.

### *3.3.4 Data processing*

The numerical results were entered into an electronic database, which was used to process the data. Written comments were read by members of the research team and used to develop key themes.

### *3.3.5 Response rate*

Each of the 66 funded PCTs was invited to participate in the Review. On reaching the extended deadline of 16 July 2004, 57 PCTs had participated producing a response rate of 86 per cent.

TNS Social had hoped to achieve a 100 per cent response rate and so invited non-responders to comment on why they did not participate. Of the 9 non responders, 5 co-ordinators did not respond to email reminders or phone calls, 2 were on long-term sick and one was too busy. The final non-responder worked in a programme area where the 5 A DAY initiatives had not yet started.

### 3.3.6 *Reporting*

On 27 August 2004, a full written report was prepared by TNS and was subsequently published by the Big Lottery Fund<sup>3</sup>. This chapter does not repeat the full report but summarises the key findings focussing on lessons learned.

### 3.3.7 *Limitations*

The Process Review was conducted whilst the initiatives were in operation and so concluding comments on the success of the initiatives and the lessons learnt were limited.

This limitation was addressed in the subsequent Case Study component of the evaluation programme. The findings from the Process Review were used to select a range of case studies that would be followed up in more detail. The follow up case studies addressed any outstanding issues about concluding comments and lessons learnt.

## 3.4 **Findings**

### 3.4.1 *Setting up the initiatives*

Few of the PCTs operated as single entities. A total of 67% of respondents reported that there had been at least some direct involvement from other PCTs.

Most PCTs received confirmation of their Big Lottery Fund funding during 2003 (74%) and at the point of this confirmation, only 6 of the PCTs had a local co-ordinator in position. The funding covered full funding for at least one full-time staff member, with many PCTs able to partially fund other members of staff. Recruiting however was perceived to be 'easy' for most PCTs (57%).

Only one-fifth of respondents reported that their 5 A DAY programme had started on the scheduled date. It was common for PCTs to experience a delay of between two and four months (45%). Some PCTs, albeit a minority (14%), reported delays of more than 6 months. Of the 6 PCTs with a co-ordinator in place, 4 of them started on time.

### 3.4.2 *5 A DAY activities*

Respondents were asked to provide details of the activities they had planned or in some cases, were already underway. The types of activities and the groups they were targeting are presented in Table 1:

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<sup>3</sup> TNS (2004) 5 A DAY Process Review. London: Big Lottery Fund

**Table 1: Reported activities and target groups**

Activity	% of programme areas running activity	Activity target group
Work with school age children	82	School age children Parents
Cook & Eat	75	School age children Low income groups Parents/parents of babies Black and ethnic minority women Men
Other key projects	72	Various, depending on activity
Media campaigns	70	All
Sow & Grow	60	General population School age children Older people Men
Food co-ops	44	General population Low income groups
Work with men	23	Men Low income groups
Voucher schemes	19	General population Low income groups
Home delivery schemes	12	General population Low income groups Men
Transport schemes	12	General population Low income groups

Work with school age children was a particularly popular activity with 82% of programme areas reporting this as part of their 5 A DAY initiative. One of the main perceived benefits of this work was that the healthy eating message reached beyond its target group: by getting the healthy eating message to children, the children would then pass this message on to their parents. At this early stage, 75% of programme areas already judged their work with school age children as successful. The criterion for this success was not explored.

There was a reported high demand for Cook & Eat activities, the second most popular activity. Among the challenges of this type of activity was that whilst demand was high, the sessions themselves worked better in small groups. There was also an issue about how the sessions should be positioned, with some programme areas reporting that the lack of basic cooking skills meant that sessions became longer and more time-consuming than planned. The perceived main benefit of Cook & Eat activities was that through teaching and improving skills, they managed to improve the confidence levels of those who attended whilst simultaneously promoting healthy eating messages.

Among the least popular activities were transport schemes where those providing the service report a 'stigma' of using shuttle buses and concern about creating competition with existing local traders.

### 3.4.3 Local partnerships

All respondents reported working with at *least* one local partner, typically these partners were the Local Education Authority, schools, councils, businesses and voluntary organisations. Overwhelmingly, the respondents reported that partnership working was proving to be successful. In total, 82% reported successful partnership working of which 40% reported very successful partnership working.

The main benefits of partnership working were considered to be the pooled knowledge base that it creates and a more effective and efficient use of resources. Working together in a non-competitive environment was also cited as a benefit.

PCTs reported that to be successful, their partnerships benefited from all-party decision making and regular briefings. Allocating a partnership 'champion' was advocated as a means of co-ordinating strategy and communication.


### 3.4.4 The future

At the time of conducting the Review, only 8 programme areas (14%) had secured funding to continue their 5 A DAY and other healthy eating activities beyond the lifetime of the 5 A DAY initiative funding. Almost half (46%) were intending to apply to other funding sources whilst 30% reported that they did not intend to apply for more funding. It is not clear whether this would mean that activities would cease. Concerns were expressed about losing momentum if funding could not be maintained.

## 3.5 Lessons to be learned

Whilst the majority of PCTs believed their activities were adequately reaching their target groups, most also felt that lessons could be learned from their experiences. Discourse was dominated by issues of time, finance, recruitment and communication. Figure 1 presents the concerns of respondents with suggested solutions.

**Figure 1: Lessons to be learned**

<b>Lesson</b>		<b>Solution</b>
It takes longer than expected to organise and set up the initiative.		Take time to develop a focused action plan.  Take time to decide on which activities are best for the local area and promote them locally. A needs assessment may be helpful.

Funding activities can be problematic and there is a need for continued funding.



Funding for 3-4 years would allow a better grounding on which projects could be built.

All participants need to be realistic about what can and cannot be achieved.

Liaison with other projects and partners is important.



Liaise with other programme areas on good practice and pitfalls.

Research what worked well and not so well in areas with similar demographics.

Ensure that the project has access to skilled food and health workers, as well as nutritionist/dietician support.

Cut down on the number of co-ordinators and line managers and identify a single influential person for each initiative who can act as a 'champion'.

Good communications are essential. There is a need for a nationwide, centralised campaign.



It would be useful to have bespoke resources for particular groups and for these resources to be designed to suit the target participants. Examples include the availability of Cook & Eat recipes specifically designed for children or for the black and ethnic minority population.

Continued availability of 5 A DAY materials would be helpful.

Co-ordinate local and national strategies to reinforce messages.

## 4 5 A DAY CASE STUDIES

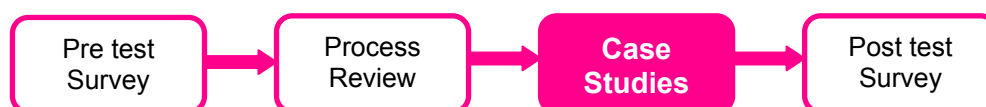
### Key findings

- Staff had varying degrees of success at recruiting participants and activities. Activities offering tangible and instant benefits tended to be the easiest to recruit
- Some staff successfully recruited participants by approaching existing groups such as parenting classes or weight loss clubs.
- Attendance at activities was dominated by females. The exception to this was Sow & Grow activities, these activities manage to attract men and women but are biased in terms of attracting older and more experienced growers.
- There was evidence from every case study area visited that benefits have been experienced by participants. The evidence was a general change in attitude towards healthy eating and it appeared that early claims of increased consumption of fruit and vegetables were being maintained.
- The most common change reported was to reduce unhealthy foods from the participant's diet and in turn, to increase consumption of fruit and vegetables
- In addition to the 5 A DAY benefits, many participants benefited socially from attending activities. The results from the case studies show the potential for 5 A DAY initiatives to be run alongside other projects in the health and social care field.
- A number of key lessons were identified related to inspiring participants and providing a reason for increasing fruit and vegetable consumption. Managing the dissemination of information about healthy eating was also recommended; staff should be inventive and adopt a multi-pronged approach to activity and message promotion.

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### 4.1 Introduction

This chapter reports on the third component of the 5 A DAY evaluation. The Case Studies were designed to better understand the 5 A DAY activities and to observe and interview participants.



## 4.2 Case Study objectives

The Case Studies had the following principal objective:

- **To evaluate in greater detail a cross section of 5 A DAY activities.**

In meeting this objective, the Case Studies sought to explore the following issues:

- To understand what motivates targeted groups to get involved in 5 A DAY projects.
- To explore how projects have improved access and availability of fruit and vegetables.
- To explore participant attitudes towards fruit and vegetables and to establish if and how these have changed.
- To understand what has helped sustain increased consumption in fruit and vegetables.

## 4.3 Methodology

### 4.3.1 Case Study Selection

Selection of case study activities was based primarily on the information obtained in the Process Review. The information was examined to select 14 activities that met the following criteria:

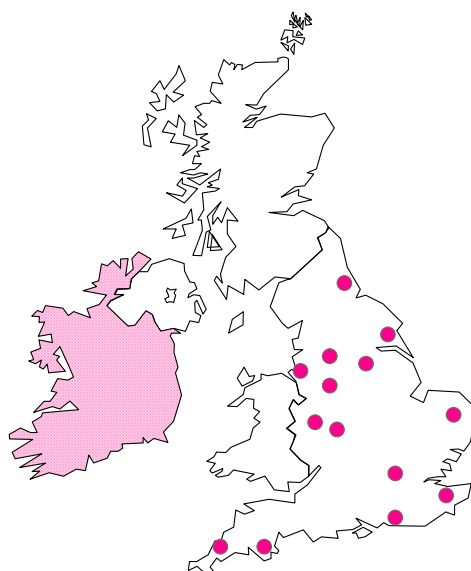
- Activities were taking place during the fieldwork period.
- A variety of different types of activity were represented, in particular those with interesting themes or delivery methods.
- Activities are particularly successful or provide lessons to be learned.
- Activities have sufficient participants and a range of ages and ethnic backgrounds.
- Activities reflect a mix of one-off and rolling/ongoing projects.
- Activities reflect a geographical spread.

The following 14 case studies areas were selected, each unique and each meeting selection criteria. Table 2 and Figure 2 present the selected areas.

**Table 2: The 14 case study areas**

No.	Programme area	Activity type
1	Central Cornwall	Sow & Grow
2	East Kent Coastal	Food co-op
3	Norfolk	Work with school age children
4	South East Sheffield	Cook & Eat
5	North Stoke	Voucher/primary care
6	South Tyneside	Food co-op
7	West Hull	Cook & Eat (just eating)
8	Oldham	Work with school age children
9	Camden	Cook & Eat
10	Eastbourne	Retail/vouchers – collectable
11	Walsall	Work with men
12	Torbay	Sow & Grow
13	Bebington & Wirral	Retail/vouchers
14	Wolverhampton	Transport

**Figure 2: Geographical spread of case studies**



#### **4.3.2 Data collection method and design**

Consultation took place between TNS Social, the 5 A DAY Co-ordinators and other project staff responsible for the activity to determine the most appropriate methodology for evaluating each activity.

The evaluation and subsequent methodology was therefore tailored to suit the activity and the participants – the type of participant the activity was targeting and the length of time the research team could spend with each participant. A combination of depth interviews and focus groups were used, often combined with ethnographic techniques such as observation.

A discussion guide was compiled for participant and staff data collection and a five-minute questionnaire created for participants where time was limited. The discussion

guide is provided as Appendix 2 and the questionnaire as Appendix 3. In addition to interviewing the 5 A DAY Co-ordinator for each activity, the aim was to also interview at least six participants. The number of participants interviewed varied according to the number in attendance and their availability for interview. In most cases, the member of staff responsible for the activity (usually a project manager) was also interviewed.

Following completion of the activity or between 2-6 months after the activity, follow up interviews were conducted by telephone to gather post-attendance information from previously interviewed participants and staff. The interview guide is provided with the discussion guide in Appendix 2.

#### *4.3.3 Fieldwork schedule*

The fieldwork took place between September 2004 and February 2005. The visit lasted one day (including travel time) and was distributed across the 6-month period to accommodate a team of four researchers from TNS Social. The researcher allocated to a case study area took responsibility for arranging their visit and planning the day to ensure that all interviews and observations were completed.

#### *4.3.4 Analysis of data*

The researcher compiled a written report for each activity to create a profile for the case study area. These reports were reviewed and themes identified. A number of quotes and anecdotes were selected to enhance the analysis.

#### *4.3.5 Reporting*

On 11<sup>th</sup> October 2005, a full written report was prepared by TNS Social and subsequently published by the Big Lottery Fund<sup>4</sup>. Presentations have also been made to the Steering Group. This chapter does not repeat the full report but summarises the key findings focussing on lessons learned.

#### *4.3.6 Limitations*

The Case Studies provide an insight into the 5 A DAY local initiatives but cannot be relied on to be representative of a category or the initiatives as a whole. One must be mindful of this when making any kind of comparison of activities within a category and between categories.

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<sup>4</sup> TNS (2005) 5 A DAY Case Study Research Findings: Final Report. Big Lottery Fund: London

## **4.4 Findings**

### *4.4.1 Recruitment and attendance*

Staff had varying degrees of success at recruiting participants for activities. Activities offering tangible and instant benefits tended to be the easiest to recruit. In particular, Cook & Eat sessions were popular and participants were easy to find. The opportunity to socialise and the free food was a motivating factor. A specific motivating factor for young mothers was the provision of a crèche facility or other planned entertainment for young children.

Some staff successfully recruited participants by approaching existing groups such as parenting classes or weight loss clubs. The 5 A DAY activity was then 'tagged on' to the group's usual meeting. Likewise, attendees at 5 A DAY activities were often used to recruit for other local activities, either PCT run or community related. The idea being that once participants were recruited, they could be encouraged to attend other events.

Attendance at activities was dominated by females. The exception to this was Sow & Grow activities, these activities manage to attract both men and women although largely from older and more experienced growers.

Males appear reluctant to get involved in activities where they risk being the only man present. In general, they prefer to be part of an exclusively male group or one that appeals to both sexes such as family sessions or activities.

Once recruited on to an activity there were rarely many 'drop outs' suggesting that participants appreciated and benefited from the activity. Many respondents were keen for activities to keep going beyond the funding period.

### *4.4.2 Impact of activities*

There was evidence from every key study area visited that benefits have been experienced by participants. The evidence was a general change in attitude towards healthy eating and it appeared that early claims of increased consumption of fruit and vegetables were being maintained.

Participants were already aware of the 5 A DAY name and basic premise before they attended the activity. It was thought that most learned the 5 A DAY name and message via national campaigns. Most activities incorporated an educational element, in some cases this was deliberately subtle and this element is believed to have enhanced knowledge of what 5 A DAY represents.

The most common change reported was to reduce unhealthy foods from the participant's diet and in turn, to increase consumption of fruit and vegetables. Participants described counting portions and some had bought equipment to facilitate making healthier food and drinks. Increases in consumption appeared to be related to participants' attitudes though it is difficult to accurately isolate the catalyst for change.

Access to fruit and vegetables was enhanced and in particular, access and awareness of different types of fruit and vegetables was reported. Participants were



generally more aware of the range of fruit and vegetables as a result of the activities and some continued to eat 'new' fruit and vegetables after attending the activity.




In addition to the 5 A DAY benefits, many participants benefited socially from attending activities. The results from the case studies show the potential for 5 A DAY initiatives to be run alongside other projects in the health and social care field.

#### 4.5 Lessons to be learned: increasing and sustaining consumption

Five guiding principles were identified and regardless of area, activity or location, successful 5 A DAY co-ordinators appeared to embrace these principles. Figure 3 presents these guiding principles.

**Figure 3 Guiding principles**

Principle	Recommended action
<ul style="list-style-type: none"> <li>▪ <b>Inspire</b></li> </ul>	<div style="display: flex; align-items: center; margin-bottom: 10px;">  <div> <p>Staff enthusiasm must be maintained – Co-ordinators should keep in regular contact with project managers and other team members to keep enthusiasm levels high.</p> <p>Repeating one-off activities – this may help refresh knowledge and interest. It also offers an opportunity to check up on the progress of former participants. This could involve inviting former participants to refresher courses or inviting them to progress from a beginner-level event to an intermediate-level event.</p> </div> </div>
<ul style="list-style-type: none"> <li>▪ <b>Give me a reason</b></li> </ul>	<div style="display: flex; align-items: center; margin-bottom: 10px;">  <div> <p>It is important to explain <b>why</b> it is important to eat fruit and vegetables. Create opportunities to interact with participants such as Q&amp;A sessions or run breakfast clubs to disseminate vouchers that would otherwise be simply handed out to recipients.</p> <p>Create opportunities to offer tangible benefits to participants – think about promotions, schemes, discounts and giveaways.</p> </div> </div>

- **Slowly but surely**  Participants should be informed and empowered but not overwhelmed.  
  
Be realistic with aims and be practical with advice – e.g. stress that any increase will benefit them (does not have to be from zero portions to five portions immediately), make sure that recommended outlets are accessible and within the resource limits of participants.  
  
Plan for sustainability – help participants plan for the period after the activity e.g. help prepare them for organising a different, publicly available food delivery service.
  
- **Multi pronged attack**  Objectives must be communicated to all relevant parties e.g. incorporate parents into work with school children.  
  
Opportunities to communicate and promote should be seized upon – distributing recipes, cookbooks, informative leaflets, access to equipment to facilitate healthy living and cross-promotions are all examples where activities can extend beyond an activity.  
  
Seek to raise activity profile – increase exposure by incorporating local media and other local publicity opportunities when launching events or recruiting participants. Be inventive!
  
- **Make it a habit**  Encourage making fruit and vegetable consumption a habit – help children already exposed to fruit via the National School Fruit Scheme to maintain the 'habit'.  
  
Encourage regular attendance at activities.  
  
Encourage participants to have fruit and vegetables in the home, have regular deliveries, and try different types of produce.

## 5 5 A DAY PRE AND POST TEST SURVEY

### Key findings

- Overall consumption of fruit and vegetables increased marginally in the programme areas (the Experimental Group) and in the control areas (the Control Group). The increase was higher in the programme areas. The 5 A DAY index for the programme areas increased from 3.36 to 3.64. The 5 A DAY Index for the control area increased from 3.49 to 3.64.
- Analysis by demographic variable revealed a number of areas where change in consumption in the programme areas was higher than in the control areas. In the programme areas, increases were made in each demographic variable.
- Although lower levels of consumption were reported amongst men, younger people, those on low income and those living in areas of disadvantage, these demographic groups in the programme areas reported enhanced improvement.
- The factors affecting consumption remained virtually unchanged at the Pre and Post Test periods. The quality of the produce and the like and dislikes of the household members were the two most important factors respondents consider when deciding how much fruit and vegetables they eat.
- Knowledge of the recommended level of consumption had increased substantially between the Pre and Post Test periods. This increase is virtually the same in both the programme and the control areas.
- Improvements were also seen in the proportion of respondents who accurately identified the number of fruit and vegetable portions in a range of foods. Again, this increase is the same in the programme areas and the control areas.
- Understanding of the health implications of fruit and vegetable consumption has also improved in the five areas that were examined. Again the improvement is similar to that in the control group.
- Although greater change is reported in the programme areas, the difference in the 5 A DAY Index change between the programme and control groups is not statistically significant. Of importance however is that finding that the overall positive change, across the entire group of respondents, is statistically significant.

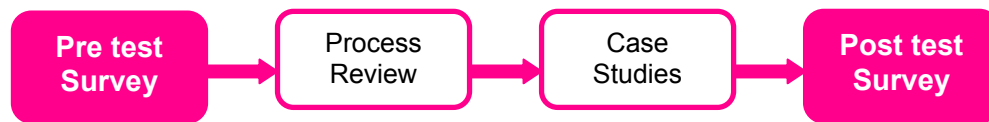
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### 5.1 Introduction

This chapter reports on the first and final components of the 5 A DAY evaluation. The Pre and Post Test Surveys collected information from the general population within each of the 66 programme areas about their fruit and vegetable consumption, about factors influencing their consumption and about their knowledge and

understanding of number of portions and the health implications of increasing fruit and vegetable consumption.

The Survey collected data in the periods before and after programme area intervention.



## 5.2 Use of experimental and control groups

The 5 A DAY Programme was conducted in 66 programme areas, each of which was led by a PCT. The PCTs received funding for local initiatives aimed at encouraging local people to increase consumption of fruit and vegetables. For the purpose of this research, residents in the 66 funded PCTs are referred to as the **experimental group**.

So as to assess whether or not any change in consumption is attributable to the local initiatives, a **control group** was simultaneously surveyed. The control group was broadly matched to the experimental group in that the majority of the sample was in the average to most deprived categories<sup>5</sup>.

## 5.3 Research objectives

The survey has a number of objectives, each pertaining to the experimental and control groups:

- to measure pre-test and post-test consumption of fruit and vegetables
- to assess the change in consumption of fruit and vegetables from the pre test period to the post test period
- to measure pre test and post test awareness, understanding and knowledge relating to the benefits of increased fruit and vegetable consumption

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<sup>5</sup> 91% of the Experimental Group was of average to most deprived, 78% of the Control Group was of average to most deprived (IMD Quintiles).

## 5.4 Methodology

This section provides an overview of the issues and considerations of the survey methodology, including sampling technique, sample frames and sample size and data collection method, administration and design.

### 5.4.1 Population

The population for the survey was as follows:

- 'Adults registered on the Electoral Roll living in the electoral wards in which 5 A DAY activities were planned' defined as an Experimental Group AND 'adults registered on the Electoral Roll living in electoral wards matched where possible to those of the Experimental Group in terms of indices of multiple deprivation and urban-rurality' defined as a Control Group.

### 5.4.2 Sampling

A random sampling approach was used to generate a sample of named individuals. Each of the PCTs was asked to provide TNS Social with a list of the Electoral Wards in which activities were planned. If unable to provide this information, the Electoral Wards included within the programme area were used. The Electoral Roll was used to generate a list of all residents registered that lived within this area and named individuals were selected using a '1 in n' sample. Checks were carried out to ensure that no more than one person per household was selected. Using this approach it was then possible to have letters addressed to named individuals rather than just households.

### 5.4.3 Sample size

At the Pre Test stage, the total sample size was 98640: 83160 (1260 per PCT) Experimental Group individuals and 15480 Control Group individuals were selected.

The respondents at the Pre Test stage become the sample for the Post Test Survey. For the Post Test Survey, the total sample size was 30512: 25550 for the Experimental Group and 4962 for the Control Group.

### 5.4.4 Data collection method and questionnaire design

Data was collected using a self-completed postal questionnaire. The questionnaire is titled the Five A Day Consumption Evaluation Tool, hereinafter referred to as the FACET questionnaire. The FACET questionnaire was used for the Pre and Post Test Survey. A copy of the questionnaire is provided as Appendix 4.

The FACET questionnaire was developed and piloted by the MRC Dunn Nutrition Unit, Cambridge and the University of Dundee. This short questionnaire (4 A4 sides) comprises of only pre-coded questions.

TNS requested minor alterations to the questionnaire before commencing the pre test survey, primarily aimed at collecting information that would have assisted the evaluation process. Given that the questionnaire had already been piloted, the Steering Group did not wish to make any adjustments to the agreed document.

#### 5.4.5 *Response rates*

Although the sample was representative of the adult population in the programme and control areas, more responses were received from older people and women. This was corrected for in the weighting (see Appendix 8).

There are a number of methods for calculating response rates, including simply dividing the number of completed questionnaires by the number of questionnaires distributed. This method is rather simplistic however as it does not consider the complexities of the sampling process: it does not acknowledge ineligibility, for example, Pre Test respondents moving home or the difficulties of assessing eligibility amongst non-responders.

To calculate response rates, TNS Social applies the method developed by the American Association for Public Opinion Research (AAPOR)<sup>6</sup>. This approach attributes an outcome code to each sampled case. These outcome codes identify whether or not contact has been made i.e. a known outcome has been established and from these known outcomes, whether or not eligibility has been established. The premise of the approach is that with the knowledge of known outcomes, the number of eligible respondents from the unknown outcomes can be estimated. The response rate is then calculated using the estimate of eligibility.

Using the AAPOR model, a response rate of 56% has been calculated for the Post Test Survey. This response rate relates to respondents who participated in the post test survey in 2005. The full calculation is provided as Appendix 7.

#### 5.4.6 *Reporting*

The Big Lottery Fund received a report on Pre test findings in March 2004. The report summarised un-weighted data, focussing on the Experimental Group.

At this final stage of reporting, in addition to receiving this full report, three sets of tables and two SPSS datasets are provided.

The tables provide a set of distribution tabulations for each of the questions with a number of cross-breaks. The sets of tables are:

- 2005 data for respondents who also completed the 2003 survey  
(a) un-weighted and (b) weighted by age x gender
- 2003 data for respondents who also completed the 2005 survey  
(a) un-weighted and (b) weighted by age x gender

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<sup>6</sup> The American Association for Public Opinion Research (2004) *Standard Definitions* Final Dispositions of Cases Codes and Outcome Rates for Surveys

- 2003 data for all respondents who took part in the 2003 survey
  - (a) un-weighted and (b) weighted by age x gender

The SPSS datasets are:

- 2005\_2003 data providing the full record of results for 2005 and 2003 for each respondent who took part in both surveys
  - (a) with weight factor for 2003 data
  - (b) with weight factor for 2005 data
- 2003 data for all respondents who took part in the 2003 survey
  - (a) with weight factor for 2003 data

PCT reporting will be done at a later stage. Each PCT will receive a bespoke summary of their results.

#### 5.4.7 *Limitations*

There are a number of limitations regarding this element of the evaluation, which need to be noted.

The design only allows comparison of the pre- and post intervention results for the population within the Electoral Wards used for each programme area. It was agreed with the Big Lottery Fund that this should be the level of analysis, in order to identify whether there has been any significant impact within the PCT programme areas.

The sampling frame included only those registered on the Electoral Roll. Not every resident would have been registered.

Clearly not all the individuals who responded to the survey would have taken part directly in one of the interventions. A number of local evaluations were conducted to examine the outcome of individuals who participated and these are reported elsewhere. It is important to acknowledge that it is not known whether any of the respondents taking part in the Pre and Post Test Survey attended local programmes, therefore, all that can be tested is whether activities had a wider impact on the local population.

Self-reporting of consumption of fruit and vegetables is open to a number of sources of error, including inaccuracies in recording consumption, misunderstandings about portion size and daily variations. In the main, these sources of error are managed through the comparison with a control group. A further factor is the tendency to over-report consumption. This was identified in the pilot when comparisons were made with food diaries and as will be discussed later, a factor has been used to correct for this effect.

Finally, as is typical of postal surveys, completed questionnaires are more likely to be returned by certain groups of individuals (typically older females). To correct for this the data need to be weighted to population statistics.

#### 5.4.8 *Further information*

Further information about the Survey methodology is provided as Appendix 5.

## 5.5 Pre Test and Post Test Survey results

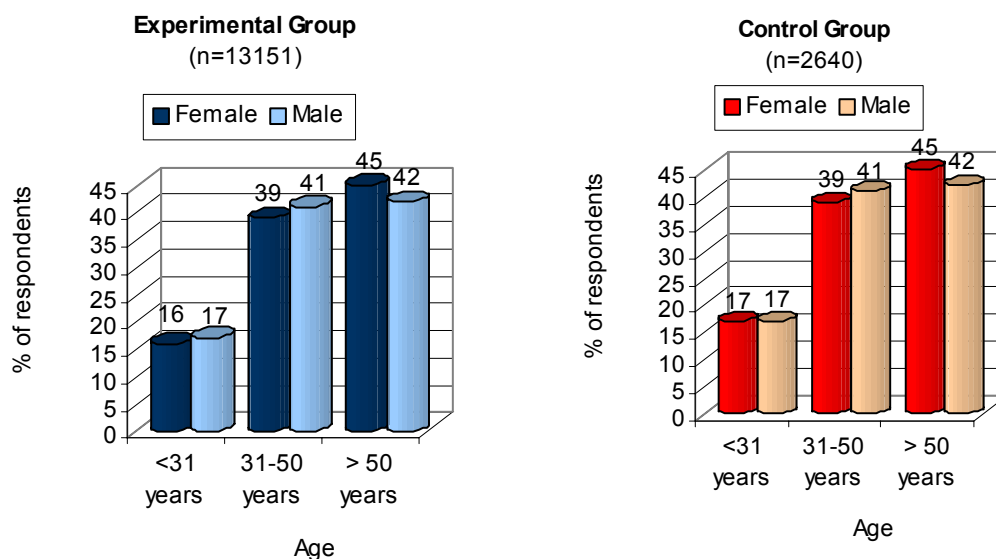
The results presented and discussed throughout this section, refer to data collected for the 'complete' survey. Only data for individuals who completed a questionnaire in the pre test survey in 2003 *and* the post test survey in 2005 are included. The aim of the survey is to measure change and so the data collected in 2003 for respondents who did not follow up in 2005 is excluded from this reporting stage<sup>7</sup>.

The Experimental and Control Group results are discussed simultaneously to assist with comparisons and in doing so, highlight similarities and differences. The Pre Test and Post Test results are also presented simultaneously to highlight change from one period to another: from 2003 to 2005.

### 5.5.1 The sample

In terms of age and gender, Figure 4 confirms that the Experimental and Control Groups are matched.

**Figure 4: Sample, Age by gender**



The Groups are closely matched in terms of ethnicity. In the Experimental Group, 91% are of White ethnicity, 4% are of Asian ethnicity and approximately 1% is of Black ethnicity. The Control Group ethnicity structure is 92% White, 3% Asian and 1% Black.

The Groups are also closely matched in terms of household composition. The number of adults<sup>8</sup> in the household as reported in 2003 and 2005 are very similar; in both Groups there is less than 1% movement in the percentage of households with 1, 2, 3 and 4 or more adults and up to 3% movement (typically 1%) in the percentage of

<sup>7</sup> The results previously reported included all respondents at the Pre Test stage and were un-weighted. Although broadly similar, the Pre Test 2003 results presented in this report are not identical to those reported in 2003 (due to reduced sample size and weighting factors)

<sup>8</sup> Adults are defined as being aged 16 years or more.

households with children. The household composition for both Groups is presented in Table 4<sup>9</sup>.

**Table 4: Sample, By household composition**

Experimental Group (n=13151)			Control Group (n=2640)		
Number of people living in the household	Percentage of households with this number of people aged 16 years or more	Percentage of households with this number of people aged under 16 years	Number of people living in the household	Percentage of households with this number of people aged 16 years or more	Percentage of households with this number of children aged under 16 years
None	n/a	25	None	n/a	25
1	19	11	1	19	11
2	51	10	2	52	11
3	17	3	3	16	4
4 or more	11	1	4 or more	12	1

In terms of Income (household annual income before tax), the Experimental and Control Groups are broadly similar. Again, there is little movement in either Group from 2003 to 2005 with up to 2% difference in the percentage of respondents within each income category. Income by Group is presented in Table 5<sup>10</sup>.

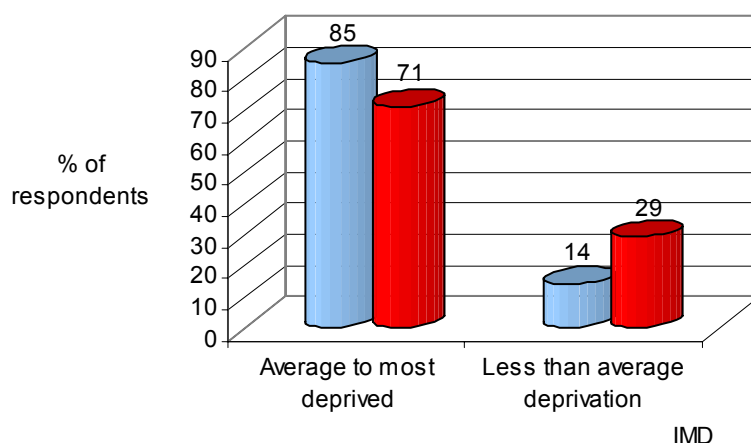
**Table 5: Sample, By household annual income (before tax)**

Experimental Group (n=13151)		Control Group (n=2640)	
Income	%	Income	%
Up to £10k	18	Up to £10k	18
£10-£15.5k	14	£10-£15.5k	11
More than £15.5k	38	More than £15.5k	42

As illustrated in Figure 5, 85% of the completed questionnaires in the Experimental Group and 71% in the Control Group came from the lowest ranking IMD areas (From average to most deprived).

**Figure 5: Sample, By IMD Category**

■ Experimental Group (n=13151) ■ Control Group (n=2640)



<sup>9</sup> 49% of Experimental and 48% of Control Group respondents did not provide a response regarding children.

<sup>10</sup> 30% of Experimental and 28% of Control Group respondents did not provide a response.

This variation in IMD between the Experimental and Control Groups existed in the original sample: The Experimental sample had higher levels of deprivation compared to the Control sample. When selecting the sample source, there were limitations regarding the areas available for selection. In selecting the Control sample, it was essential that the areas were not implementing 5 A DAY related activities funded by others sources. With this consideration and the fact that the programme areas were amongst the most deprived areas in England, an exact match could not be made. The sample was matched where possible. Ideally, the IMD for the two Groups would have been more closely matched.

Another variation concerns the Region in which the respondents live. The aforementioned limitations when selecting the sample source also apply to this variable. Respondents were categorised into three Regions, on the basis of their local health authority. In the Experimental Group, 51% of respondents live in the North, 24% in the Midlands and 26% in the South. In the Control Group, 13% live in the North, 27% in the Midlands and 60% in the South.

Respondents were asked about whether they smoked. In the Experimental Group, 16% are current smokers, 32% are ex smokers and 52% have never smoked. In the Control Group, 15% have never smoked, 31% are ex smokers and 54% have never smoked.

### 5.5.2 Current consumption

Respondents were provided with a list of different items and asked whether they had eaten foods from the list in the previous 24 hours. They were also asked to provide the number of portions they had consumed for each item.

There are important methodological issues surrounding the reporting of consumption levels. During the pilot study, conducted prior to TNS Social involvement and the period in which the FACET questionnaire was designed, it was found that FACET overestimated consumption by a total of 1.5 portions. Furthermore, concerns exist regarding the highest consumption claims. It was agreed that to make best use of survey results, unadjusted consumption should be reported but it should not be the sole measurement nor should it be the primary measurement of consumption. An adjusted fruit and vegetable index of portions consumed should be presented to reflect overestimating and unrealistic claims. The adjusted consumption is referred to as the 5 A DAY Index and the formula for this Index is provided as Appendix 9.

To clarify, in this section, consumption is first discussed in terms of unadjusted consumption with fruit and vegetable consumption reported separately. The unadjusted consumption refers to the actual number of portions the respondents have claimed to have eaten. Consumption is then discussed in greater detail in terms of the adjusted level and with fruit and vegetables combined, that is, it is expressed in terms of the 5 A DAY Index. **The 5 A DAY Index is the primary analytical tool**; it makes allowances for overestimation and unrealistic claims.

#### Fruit consumption – unadjusted

Table 6 presents the number of portions Experimental Group respondents report to have consumed in the previous 24-hour period.

**Table 6: Fruit consumption. Percentage of respondents reporting that they had eaten portions of fruit in the previous 24 hour period**

	Experimental Group (n=13151)									
	2003					2005				
	Number of portions					Number of portions				
	0	1	2	3	4+	0	1	2	3	4+
Fruit for breakfast	49	22	3	1	0	50	25	4	1	1
Fruit as a between meal snack	23	33	20	6	3	22	34	21	8	4
Glass of pure unsweetened fruit juice	38	30	10	3	1	38	32	11	3	2
Fruit as a starter to a meal	63	8	1	0	0	68	8	1	0	0
Fruit as a dessert	37	35	9	2	1	39	36	9	2	1

This total response shows that respondents are more likely to consume fruit as a between meal snack with 62% of respondents in 2003 rising to 67% in 2005 consuming at least one portion of fruit in this manner. Respondents are least likely to consume fruit as a starter to a meal with only 9% in both years claiming to have consumed fruit in this manner during the previous 24 hours.

These results can be compared with the Control Group respondents, as presented in Table 7.

**Table 7: Fruit consumption, Percentage of respondents reporting that they had eaten portions of fruit in the previous 24 hour period**

**Control Group**  
(n=2640)

	2003					2005				
	Number of portions					Number of portions				
	0	1	2	3	4+	0	1	2	3	4+
Fruit for breakfast	49	24	4	1	0	48	25	5	1	1
Fruit as a between meal snack	24	33	20	6	4	23	33	23	7	3
Glass of pure, unsweetened fruit juice	37	32	10	3	1	39	31	13	3	2
Fruit as a starter to a meal	65	7	1	0	0	68	8	1	0	0
Fruit as a dessert	35	38	10	2	1	37	38	10	2	1

The same pattern is evident, with respondents more likely to consume fruit as between meal snack with 63% of respondents in 2003 rising to 66% in 2005 consuming at least one portion of fruit in this manner. Respondents are again least likely to consume fruit as a starter to a meal with only 8% in 2003 and 9% in 2005 claiming to have consumed fruit in this manner during the previous 24 hours.

**Vegetable consumption – unadjusted**

Table 8 presents the number of portions Experimental Group respondents report to have consumed in the previous 24-hour period.

**Table 8: Vegetable consumption, percentage of respondents reporting that they had eaten portions of vegetables in the previous 24 hour period**

**Experimental Group**  
(n=13151)

	2003					2005				
	Number of portions					Number of portions				
	0	1	2	3	4+	0	1	2	3	4+
A bowlful of home-made style vegetable soup	61	10	1	0	0	63	14	2	1	0
Portion of vegetables with main meals	11	30	26	15	7	10	28	28	18	9
A vegetable based meal	46	20	4	1	1	50	22	4	1	1
A bowlful of salad	37	36	6	1	1	42	34	5	1	1

This total response shows that respondents are more likely to consume vegetables as portions with main meals with 78% of respondents in 2003 rising to 83% in 2005 consuming at least one portion of vegetables in this manner. Respondents are least likely to consume vegetables as key ingredients in home-made style vegetable soup, with 11%, increasing to 17% in 2005 claiming to have consumed vegetables in this manner during the previous 24 hours.

These results can be compared with the Control Group respondents, as presented in Table 9.

**Table 9: Vegetable consumption, percentage of respondents reporting that they had eaten portions of vegetables in the previous 24 hour period**

**Control Group**  
(n=2640)

	2003					2005				
	Number of portions					Number of portions				
	0	1	2	3	4+	0	1	2	3	4+
A bowlful of home-made style vegetable soup	65	9	1	0	0	67	10	2	0	0
Portion of vegetables with main meals	12	29	27	17	8	12	26	28	18	10
A vegetable based meal	47	22	3	0	0	50	23	4	1	0
A bowlful of salad	34	40	7	1	1	42	36	6	1	1

As before, the same pattern is evident with respondents more likely to consume vegetables as an accompaniment to main meals with 82% of respondents in 2003 increasing to 83% in 2005 consuming at least one portion of vegetables in this manner. Respondents are least likely to consume vegetables as a key ingredient of home-made style vegetable soup with only 10% in 2003 and 12% in 2005 claiming to have consumed vegetables in this manner during the previous 24 hours.

**Other food types consumption – unadjusted**

Respondents were also asked about consumption of other types of food, results of which are presented for reference in Appendix 10.

**5 A DAY Index**

The 5 A DAY Index is the indicator for daily consumption of fruit and vegetables. The Index represents the number of portions consumed in a typical day.

Table 10 presents the 5 A DAY Index for all respondents, the 5 A DAY Index by demographic variable and the change in the 5 A DAY Index over the survey period. Results are provided for the Experimental Group and the Control Group.

Following Table 10, the 5 A DAY Index results presented in the Table are discussed for each Group with a focus on the extent to which these results have changed from 2003 to 2005. The similarities and differences between the results are then identified. Charts and tables are used to enhance the discussion.

**Table 10: 5 A DAY Index****Experimental (n=13020) and Control (n=2614)**

		Experimental		Control		Change in Experimental Index	Change in Control Index
		2003	2005	2003	2005	2003-2005	2003-2005
	<b>All</b>	<b>3.36</b>	<b>3.64</b>	<b>3.49</b>	<b>3.64</b>	<b>0.28</b>	<b>0.15</b>
Gender	Male	3.09	3.37	3.25	3.36	0.28	0.11
	Female	3.61	3.88	3.71	3.89	0.27	0.18
Age	<31 years	2.85	3.19	2.87	3.10	0.34	0.23
	31-50 years	3.27	3.52	3.38	3.46	0.25	0.08
	>50 years	3.65	3.91	3.83	4.00	0.26	0.17
Ethnicity	White	3.36	3.62	3.49	3.65	0.26	0.16
	Black	3.39	3.92	*	*	0.53	*
	Asian	3.19	3.75	*	*	0.56	*
Household composition	With children	3.24	3.50	3.37	3.38	0.26	0.01
	No children	3.45	3.67	3.54	3.74	0.22	0.20
Household income (before tax)	Up to £10k	3.27	3.60	3.40	3.68	0.33	0.28
	£10k-£15.5k	3.19	3.60	3.20	3.66	0.41	0.46
	Over £15.5k	3.50	3.73	3.54	3.63	0.23	0.09
IMD Quintile	Most deprived	3.13	3.46	3.21	3.41	0.33	0.20
	More than average	3.41	3.66	3.28	3.47	0.25	0.19
	Average	3.59	3.78	3.72	3.81	0.19	0.09
	Less than average	3.63	3.90	3.64	3.89	0.27	0.25
	Least deprived	3.80	4.11	3.68	3.68	0.31	0.00
Region	North	3.30	3.60	3.32	3.47	0.30	0.15
	Midlands	3.29	3.60	3.43	3.56	0.31	0.13
	South	3.57	3.75	3.55	3.71	0.18	0.16

### Experimental Group

The Experimental Group 5 A DAY Index has increased by 0.28 over the survey period, from 3.36 to 3.64.

In terms of gender, whilst females have a higher Index in both years, the increase has been broadly consistent with males and females increasing their Index by 0.27 and 0.28 respectively.

Respondents in the oldest age category, aged over 50 years, have a notably higher Index score than those in the 31-50 years category and a considerably higher Index than the under 31 years category. The scores at 2005 from oldest to youngest are 3.91, 3.52 and 3.19. Notwithstanding, the increase among respondents in the youngest group is higher with an increase of 0.34 compared to 0.25 (31-50 years) and 0.26 (over 50 years).

In 2005, of the three main ethnic groups, White respondents had the lowest Index. This was not the case in 2003; it reflects the sizeable change in Index from 2003 and 2005 amongst Black and Asian respondents. White respondents increased their consumption from 3.36 to 3.62, an increase of 0.26. Black respondents meanwhile increased from 3.39 to 3.92, an increase of 0.53 whilst Asian respondents increased

from 3.19 to 3.75, an increase of 0.56. The increases in the Indices for Black and Asian respondents are higher than the increases in all other demographic groups.

Respondents in households with children have a lower Index than those with no children, however, there is a larger increase in households with children. The increase in the Index for respondents in households with children is 0.26, compared to an increase of 0.22 in households with no children.

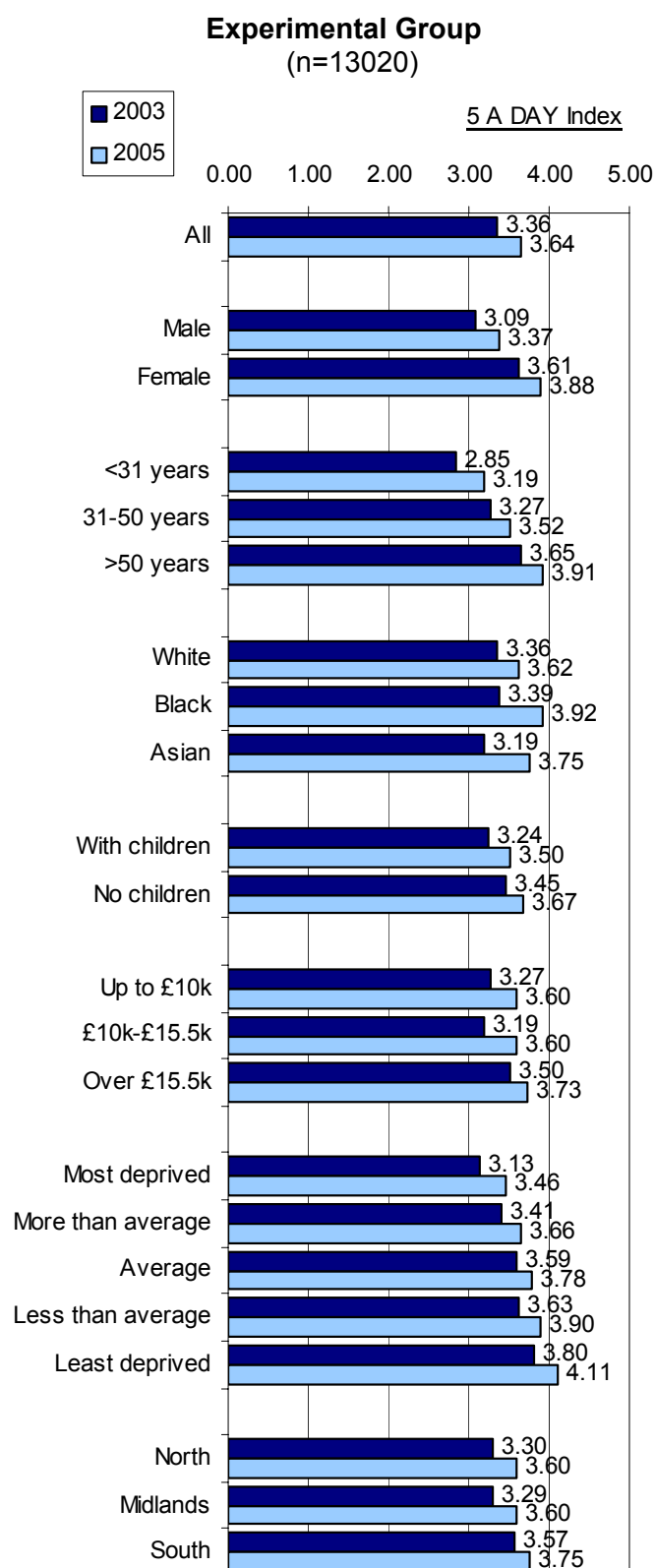
Respondents in households with a pre-tax income of over £15.5k have the highest Index in 2003 and 2005, increasing by 0.23 from 3.50 to 3.73. The largest increase however is in the middle income bracket of £10k-£15.5k where the Index has risen by 0.41 from 3.19 to 3.60. Respondents in the lowest income bracket also have a 2005 Index of 3.60 and although the increase in this instance is less, it is a notable 0.33 increase.

Considering results by Indices of Multiple Deprivation (IMD), results show that as deprivation decreases, the 5 A DAY Index increases. There is little change in the range between the most and the least deprived over the survey period: 0.67 separates the Quintiles at 2003 and 0.65 separates them at 2005. The IMD Quintiles at the extremities, the least and the most deprived, have the highest increase. The least deprived respondents have an increased Index of 0.31 (from 3.80 to 4.11) compared to the most deprived who have increased by 0.33 (from 3.13 to 3.46). Those in the average IMD Quintile have made relatively less progress with an increase of 0.19.

The interest in the IMD Quintile variable concerns the pattern of change. The progress made in the Quintile categories displays a u-shaped distribution with those in the centre Quintile, those of average IMD, generating the lowest improvement.

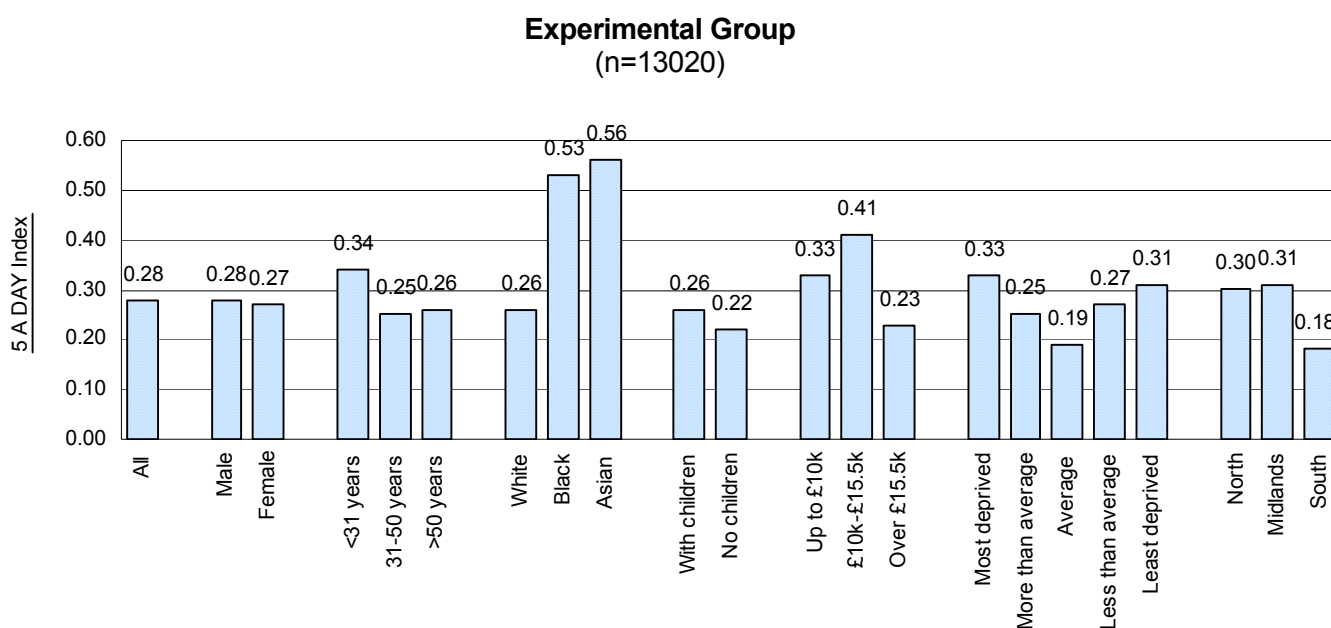
Respondents living in the South have the highest Index at 2005; their Index has increased by 0.18 from 3.57 to 3.75. The North and Midlands Indices have increased by 0.30 and 0.31 respectively, to generate an Index of 3.60 in 2005.

**Figure 6: 5 A DAY Index**



As regards change from 2003 to 2005, in the Experimental Group, 5 A DAY Index increases have been made in every demographic category. Furthermore, in each demographic category, the groups starting from the lowest base have generated the highest increase between the Pre Test and the Post Test Surveys. Change in the 5 A DAY Index from 2003 to 2005 is illustrated in Figure 7.

**Figure 7: Change in 5 A DAY Index from 2003-2005**



### Control Group

The Control Group 5 A DAY Index has increased by 0.15 over the survey period, from 3.49 to 3.64.

Females had a higher Index than Males in the Pre Test and Post Test periods. The increase in the Index over the survey period is higher amongst Females. The Female Index in 2003 was 3.71, rising by 0.18 to 3.89 in 2005 whilst the Male Index in 2003 was 3.25, increasing by 0.11 to 3.36 in 2005.

The older respondents have a notably higher Index. Respondents aged over 50 years had an Index of 3.83 in 2003, rising by 0.29 to 4.00 at 2005. This contrasts with the youngest group where the 2003 Index is only 2.87, increasing by 0.23 to 3.10 in 2005.

The number of respondents of Black and Asian ethnicity is considered too low to report. In terms of White respondents, the Index increased by 0.16, from 3.49 in 2003 to 3.65 in 2005.

Respondents in households with children have a lower Index than households with no children in both the Pre test and Post test periods. Respondents in households with children also display a greater increase; their Index has risen by 0.20 over the survey period, from 3.54 to 3.74, whilst those in households with no children scarcely increased at all. The Index change in this latter group was only 0.01.

In 2003, respondents in households with a pre-tax income of over £15.5k had the highest Index whilst respondents in the middle income bracket had the lowest Index. By 2005, this relationship had changed.

Due to larger increases in both the middle and the younger aged respondents, by 2005, the oldest respondents had become the group with the lowest Index. The over 50 respondents had increased by only 0.09 over the survey period to produce a 2005 Index of 3.63. The 31-50 aged respondents had increased by 0.46 (the largest increase in terms of income) to 3.66 and the under 31 years respondents had increased 0.28 to 3.68.

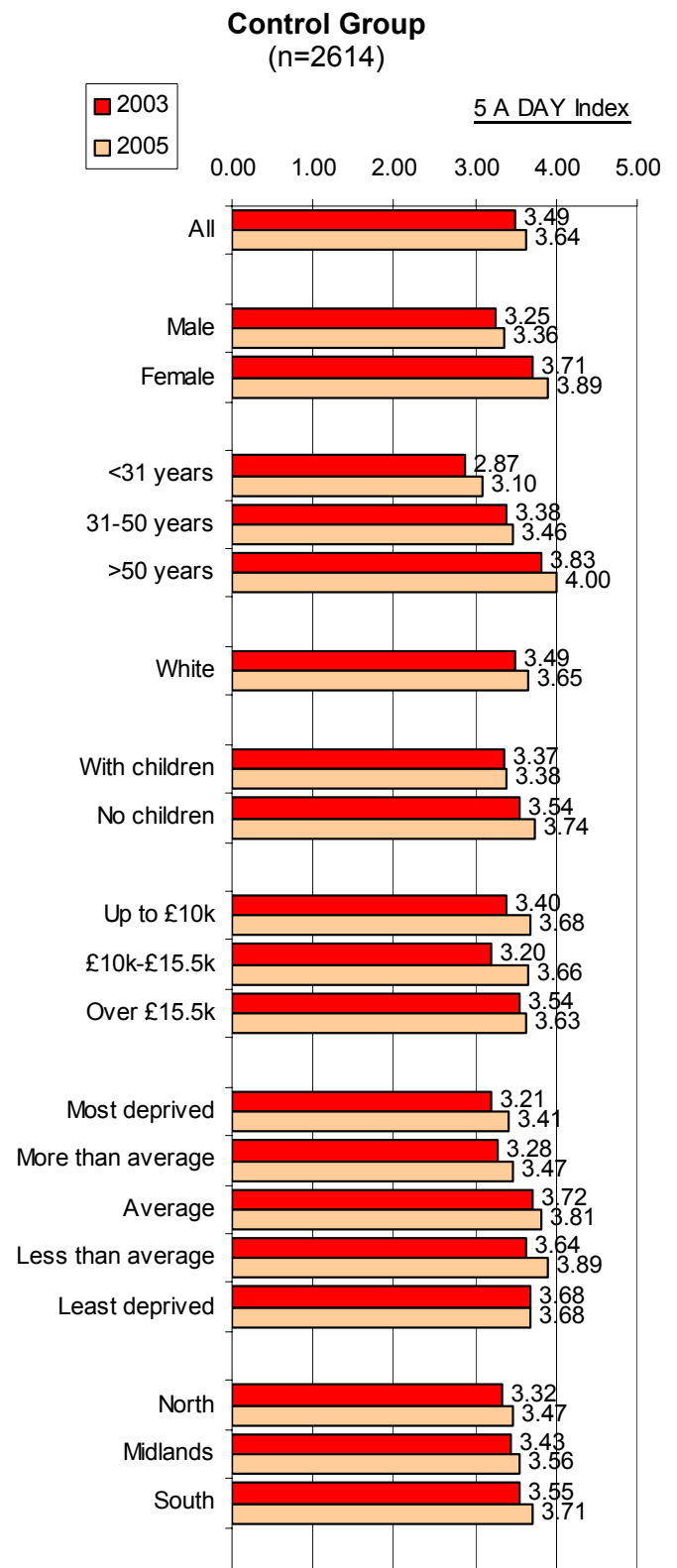
Considering results by Indices of Multiple Deprivation (IMD), results in 2003 showed that as deprivation decreased, the 5 A DAY Index generally increased. Whilst progress was reported in four of the IMD Quintiles over the survey period, those in the least deprived Quintile reported no increase at all and by 2005, it was respondents in the less than average Quintile that reported the highest Index.

Respondents living in the South had the highest Index in 2003 and 2005; their Index has increased by 0.16 from 3.55 to 3.71. Those in the North had the lowest Index at both periods, reporting an Index of 3.32 in 2003, increasing by 0.15 to 3.47 in 2005. In the Midlands, the Index increased by 0.13 from 3.43 to 3.56 in 2005.

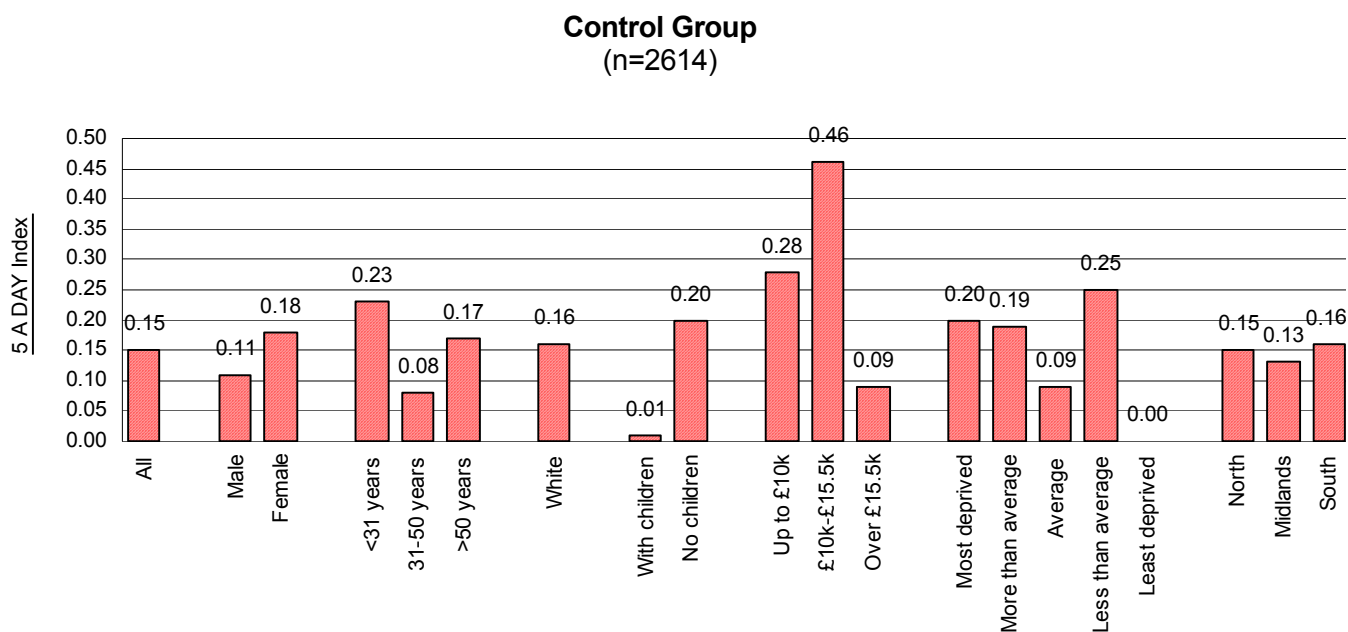
As regards change from 2003 to 2005, in the Control Group, 5 A DAY Index increases have been made in every demographic category. There is no clear pattern in the groups regarding the extent to which groups have increased.

Change in the 5 A DAY Index from 2003 to 2005 is illustrated in Figure 9.

**Figure 8: 5 A DAY Index**



**Figure 9: Change in 5 A DAY Index from 2003-2005**



**Comparing the Experimental and Control Group 5 A DAY Index results**

- The Experimental and Control Groups both marginally increased their 5 A DAY Index over the survey period although the increase in the Experimental Group was almost twice that of the Control Group.
- In 2003, whilst the Male and Female Indices for the Experimental Group were notably lower than those of the Control Group, by 2005, enhanced increases in the Experimental Group led to both Groups producing similar Indices by 2005.
- The Experimental Group 5 A DAY Index by age was lower in each category in 2003. The patterns within both Groups were similar in that as age increased, so too did the 5 A DAY Index. By 2005, however, an enhanced increase in the Experimental Group has led to two of the age categories producing higher results than the Control Group. The Experimental Group younger age (below 31 years) and middle age categories (31-50 years), have a higher Index in 2005 than their counterparts in the Control Group.
- Comparisons can only be drawn on the White ethnicity respondents. In the Pre Test and Post Test periods, the Control Group has a higher Index. The increase in the Index is higher in the Experimental Group.
- Similarly, as regards households with or without children, in both survey periods the Control Group has a higher Index. The pattern of households with no children producing a higher Index is common to both Groups. Once again though, the Experimental Group increases are higher than the Control Groups.
- Experimental Group Indices relating to household income are all lower than those of the Control Group. The increases in both Groups for the categories for respondents in households with a pre-tax income of less than £10k and from

£10k-£15.5k are broadly similar. In the highest income category, £15.5k or more, although the increase is less prolific than the other categories, the Experimental Group has increased. The increase in the highest category for the Control Group is negligible.

- The relationship between IMD Quintile and 5 A DAY Index was similar in both Groups in 2003; as deprivation decreased, the 5 A DAY Index increased. In each Quintile, the 2003 Group had a higher Index in 2003 and the range between the least and most deprived was less in the Control Group. The increases in the Experimental Group were notably higher during the survey period and so by 2005, four of the Quintiles had produced a higher Index than those in the Control Group.
- In 2003, respondents in the North and South regions in the Experimental and Control Groups had a similar Index. As a result of enhanced increases in the Experimental Group, by 2005, the Index in all three regions for Experimental Groups was higher than the Control Groups. Increases in the North and Midlands in the Experimental Group were twice that of the same regions in the Control Group.
- In terms of the 5 A DAY Index, for the majority of demographic variables, the Indices in the Experimental Group in 2003 were lower than those of the Control Group. As a result of enhanced increases however, by 2005, this situation had changed dramatically, with more than half of the Experimental Group categories reporting Indices higher than the Control Group. Furthermore, in the categories where the Control Group continued to report a higher Index, the disparity between the Experimental and Control Groups had reduced.
- In terms of change, there is a clear pattern regarding change in the Experimental Group: within demographic variables, the categories with the lowest baseline Index have made the largest increases. In the Control Group there is no such pattern: changes within demographic variables are sporadic.

### 5.5.5 Factors affecting consumption

Respondents were presented with a series of statements and asked to report how important each statement is when deciding how much fruit and vegetables they eat.

The issue of personal consumption was stressed: the research sought to understand the factors affecting their own consumption and not their overview of their household's consumption or a generalist view on public consumption.

The statements and results for the Experimental Group are presented in Table 11 where the % of responses to each statement are detailed for the pre test survey of 2003 and post test survey of 2005:

**Table 11: Factors affecting consumption, percentage of respondents and mean scores**

**Experimental Group**  
(n=13151)

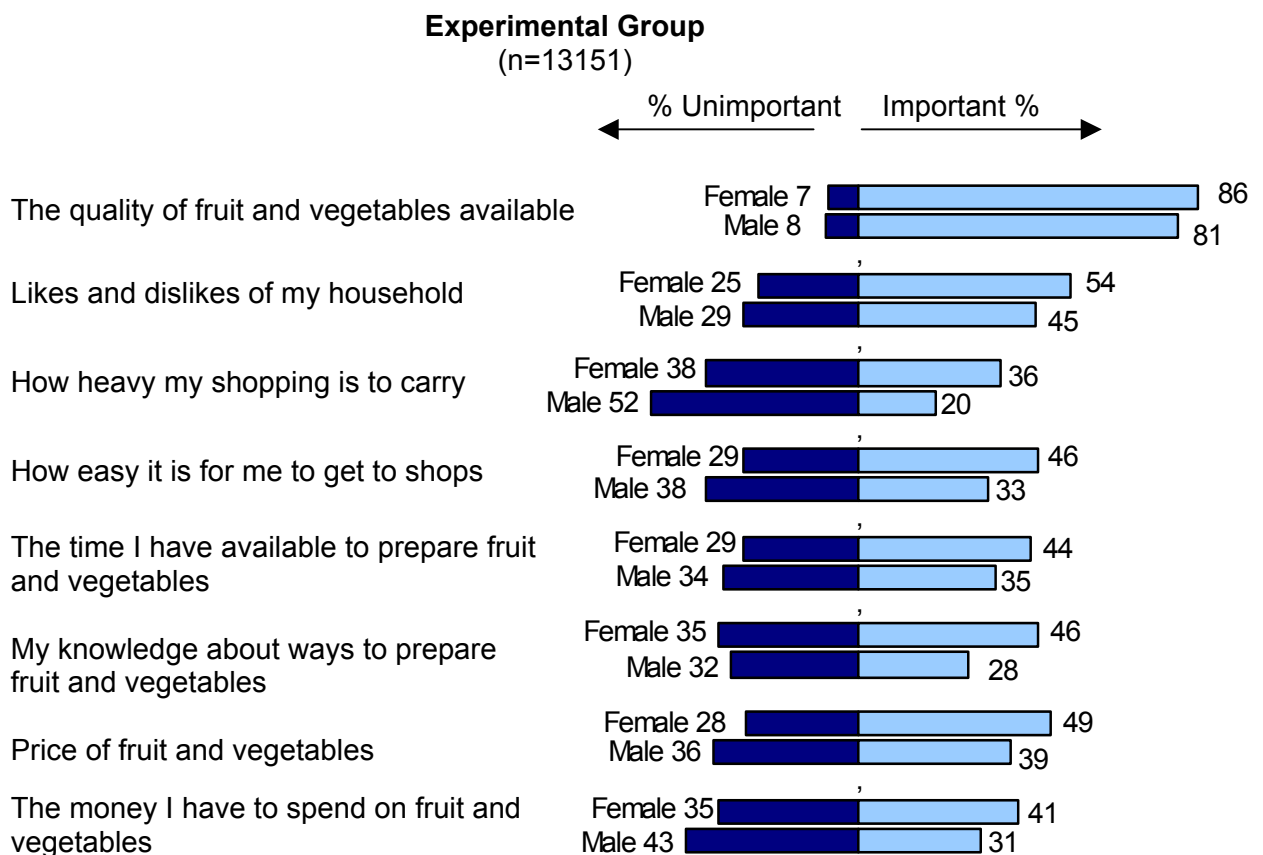
How important are the following factors to you in deciding how much fruit and vegetables that <b>you eat</b> ...	Very Important		Important		Neither Important nor Un-important		Un-important		Very Un-important		Mean score	
	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005
The money I have available to spend on fruit and vegetables	9	9	24	26	22	22	23	23	18	16	2.84	2.90
Price of fruit and vegetables	10	10	32	34	20	21	21	21	12	11	3.06	3.12
My knowledge about ways to prepare fruit and vegetables	9	9	30	32	22	24	21	19	12	10	3.03	3.11
The time I have available to prepare fruit and vegetables	8	8	30	32	23	24	24	23	10	9	3.02	3.08
How easy it is for me to get the shops (within walking distance)	11	10	28	30	21	23	24	22	11	11	3.03	3.06
How heavy my shop is to carry	11	10	17	18	20	22	29	28	17	17	2.74	2.76
Likes and dislikes of my household for fruit and vegetables	13	11	37	39	16	18	18	17	10	10	3.27	3.26
The quality of fruit and vegetables available	39	37	42	46	6	6	4	4	5	4	4.09	4.12

Viewing the results in this manner reveals that over the survey period, very little has changed in terms of the importance placed on each of the listed factors and the attitudes of respondents. It also reveals that of most importance, overall, is the issue of quality of available fruit and vegetables. In both the Pre and Post Test Survey, at least 81% of respondents considered the quality of the fruit and vegetables available to them as important when deciding how much to buy (at least 37% in both periods considered it very important and at least 42% in both periods considered it important). The second most important issue concerns the likes and dislikes of the household. This factor is important to 50% of all respondents, a response consistent across the survey period. These overall results are consistent with the Control Group.

When assigning a mean score to the results, where very important = 5, important = 4, neither important nor unimportant = 3, unimportant = 2 and very unimportant = 1, the issue of quality of available fruit and vegetables is notably higher. It is the only factor that produces a mean score exceeding 4, with a score of 4.09 in 2003 and 4.12 in 2005.

Each statement will now be interrogated to ascertain whether or not responses are dependent on respondent characteristics. Responses from the Pre Test to Post Test Survey reveal differences between genders. Figure 10 presents the response to each statement by gender<sup>11</sup>.

**Figure 10: Factors affecting decisions about how much fruit and vegetables are consumed by gender, percentage of respondents**



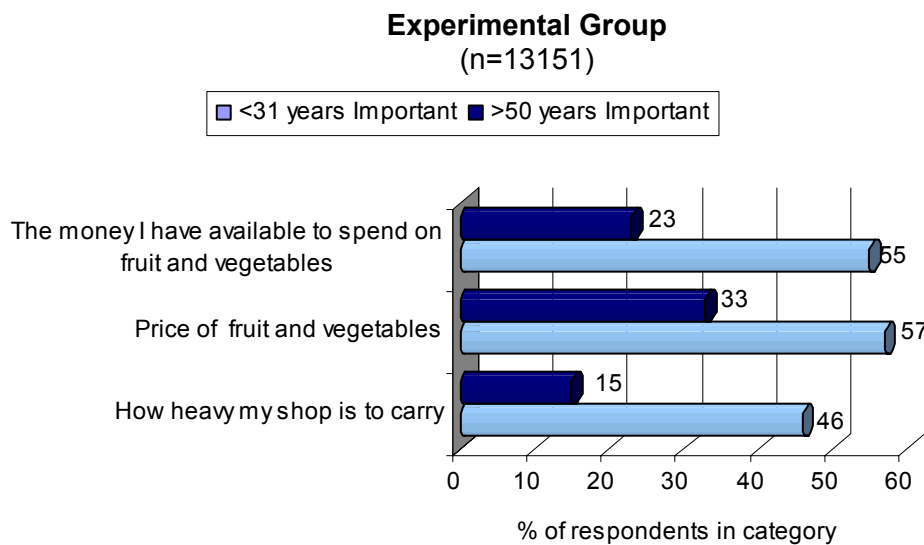
<sup>11</sup> Categories have been collapsed into Unimportant (very unimportant and unimportant) and Important (very important and important). Those responding neither are not illustrated in Figure 10. Responses are for 2005.

In terms of factors being important, those with the highest levels of variance between males and females are the statements about how easy it is to get to the shops and how heavy shopping is to carry. Males find these factors less important than females. Females also place notably more importance on the issue of knowing ways to prepare fruit and vegetables.

The differences between the responses of those aged less than 31 years and those aged 31-50 are generally of no consequence. There are differences, albeit slight, between these groups and the oldest group, those aged over 50 years. The most sizeable difference is the issue of how heavy shopping is to carry. A total of 24% of those aged less than 31 years and 20% of those aged 31-50 years rated the statement 'how heavy my shopping is to carry' in relation to them deciding how much fruit and vegetables they eat as very unimportant. Only 11% in the over 50 years considered this very unimportant. At the other end of the scale, only 5% and 6% in the youngest and middle age category considered the statement as very important, whilst 16% of those aged over 50 years considered it very important.

Generally, ethnicity and region have minimal impact on results, however, income appears to affect responses to the statements. In particular, the statements about the money available to spend, the price and how heavy shopping is to carry have variances between ages. As illustrated in Figure 11, these factors are more important to those in households with a pre-tax income of up to £10k per annum compared to those with a pre-tax income of more than £15.5k.

**Figure 11: Factors considered important when deciding how much fruit and vegetables the respondents eat, percentage of respondents by age**



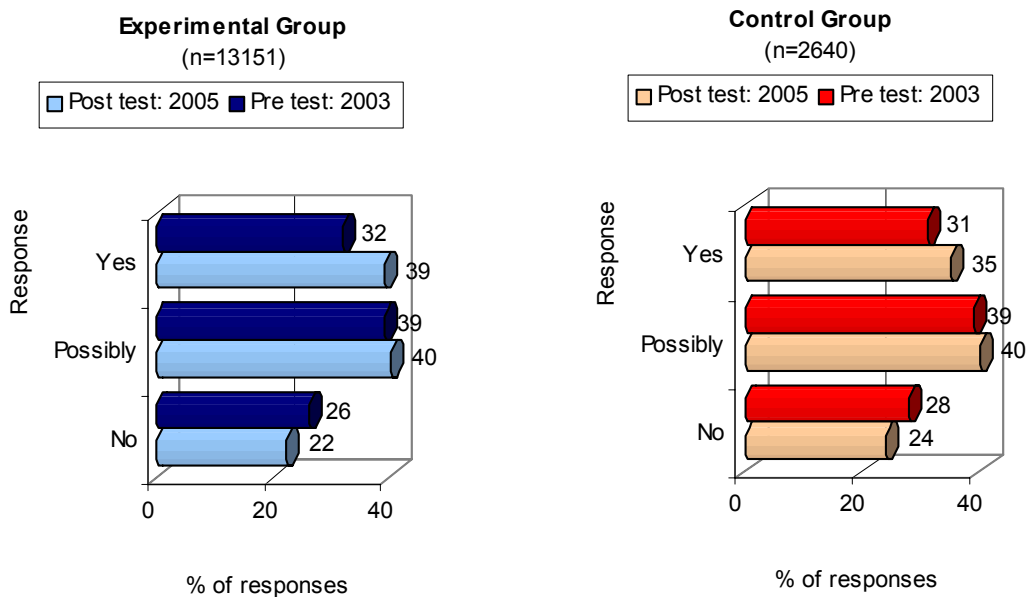
IMD affects respondents marginally in the statements for available money and price but even here, the differences are slight compared to the aforementioned income disparities.

The results for the Control Group are very similar with the total response varying no more than 3% (typically 1%) for any level of importance across each of the statements.

### 5.5.6 Future consumption

Respondents were asked if they thought they would increase the amount of fruit and vegetables they eat in the next year. The responses to this question are presented in Figure 12. The results are very similar in the Experimental and Control Groups with a minority of respondents believing that they would not increase their consumption. Notwithstanding, these results are not overwhelmingly positive: 39-40% of all respondents replied with an indecisive 'possibly' response.

**Figure 12: Respondents who think they will increase the amount of fruit and vegetables they consume in the next year, percentage of respondents**



Further analysis of Experimental Group data reveals that there is little discernible difference between males and females in this regard.

In terms of age, however, younger respondents believe they are more likely to increase consumption in the next year, a pattern in both the 2003 and the 2005 surveys. In 2003, 40% of those aged under 31 years thought they would increase consumption of fruit and vegetables compared to 26% of those aged over 50 years. In 2005, the under 31 respondents who expect to increase consumption had risen to 53%. Of the over 50s, 31% expected to increase consumption in the next year. The expectations of the younger respondents are higher than those of their counterparts in the Control Group. In the older age category in the Control Group, 23% expected to increase consumption in 2003, rising to 26% in 2005. In the younger age category in the Control Group, the difference is considerable with 35% in 2003 expecting to increase consumption and 40% in 2005.

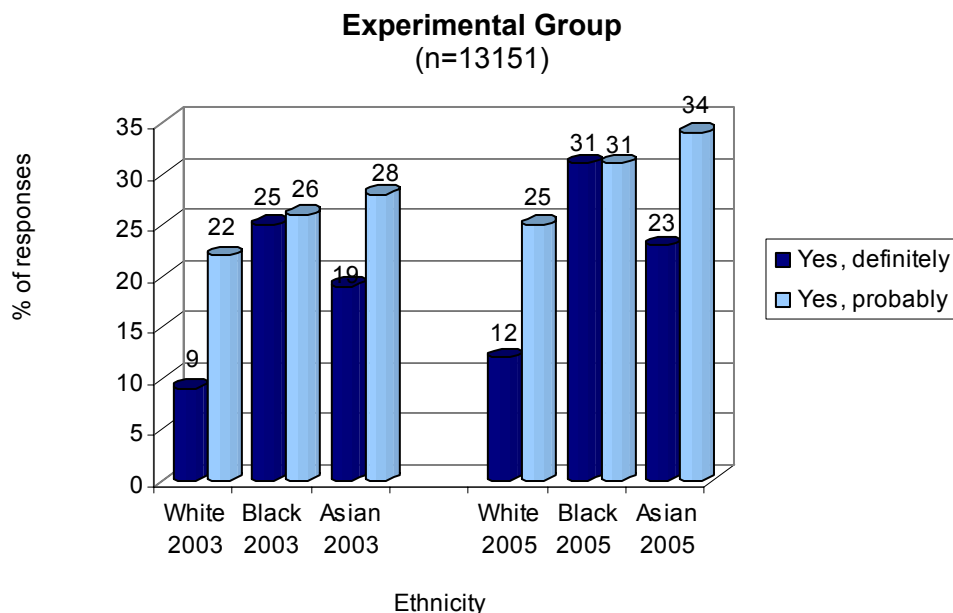
In the Experimental Group, respondents with children in the household are more likely to indicate that they will increase consumption of fruit and vegetables. In 2003, 37% of those with children in the household expected to increase consumption, rising to 46% in 2005. Respondents with no children in the household are still expecting to increase consumption but not with the same conviction. In 2003, 30% with no

children in the household expected to increase consumption, rising to 36% in 2005. Similar results were reported from the Control Group.

Income has an impact on the respondent's belief that they will increase consumption. In 2003 in the Experimental Group, 28% in the lowest income bracket expected to increase consumption, rising to 34% in 2005. In the largest income bracket, 34% expected to increase consumption in 2003, rising to 42% in 2005. Interestingly, the converse exists when analysing by IMD. Respondents in the most deprived IMD Quintile, expect to increase consumption by 33% in the 2003 survey, rising to 43% in 2005. In the least deprived IMD quintile, 25% expected to increase consumption in the 2003 survey, rising to 33% in 2005. The results relating to income are broadly similar in the Control Group. As regards the IMD Quintile however, in the Control Group, the most and the least deprived share similar levels of expectation. In the Control Group, the most deprived Quintile expected to increase consumption by 31% in 2003 and 36% in 2005. The least deprived Control Group expected to increase by 33% in 2003 and 39% in 2005.

Analysis by ethnicity highlights the biggest difference in respondents. In the Experimental Group in 2003, over a quarter (26%) of White respondents did not expect to increase consumption of fruit and vegetables, reducing by only 3 percentage points to 23% in 2005. The ethnicity of the respondents who did expect to increase consumption in the 2003 survey and those who expected to increase in the 2005 survey, are presented in Figure 13. In 2003, over half of all Black respondents expected to increase consumption

**Figure 13: Respondents who expect to increase consumption of fruit and vegetables in the next year, % of respondents by ethnicity**



Results in the Control Group are similar in terms of expectation among the different ethnic groups.

The region in which the Group respondent lives has little impact on their expected consumption levels.

The results so far in this section have all considered *intended* behaviour. What can be tested is whether or not the intended behaviour expressed in 2003 was realised: did those who stated in 2003 that they *would* increase their consumption of fruit and vegetables *actually* increase their consumption.

Referring back to the 5 A DAY Index for the Experimental Group, the change in the Index from 2003 to 2005 for each individual was compared with their response in 2003 to the question that asked if they thought they would increase the amount of fruit and vegetables they eat in the next year.

Of those who stated in 2003 that they thought they *would* increase their consumption, by 2005, 48.82% had actually increased their consumption, 36.56% had decreased their consumption and 14.62% had no change.

Of those who stated that they thought they would *not* increase their consumption, 46.06% did actually increase, 36.54% decreased and 17.40% had no change.

This same pattern exists with those who stated they would *possibly* increase their consumption. Of those stating they would possibly increase consumption, 47.38% did increase, 36.52 decreased and 16.10% had no change.

Analysis of the Control Group produces very similar results.

When predicting their future consumption, therefore, just less than half of all respondents behaved as they intended.

5.5.7 Knowledge and understanding of portions

Respondents were asked a series of questions to assess their knowledge and awareness about portions of fruit and vegetables.

**Number of portions of fruit and vegetables that health experts recommend are eaten every day**

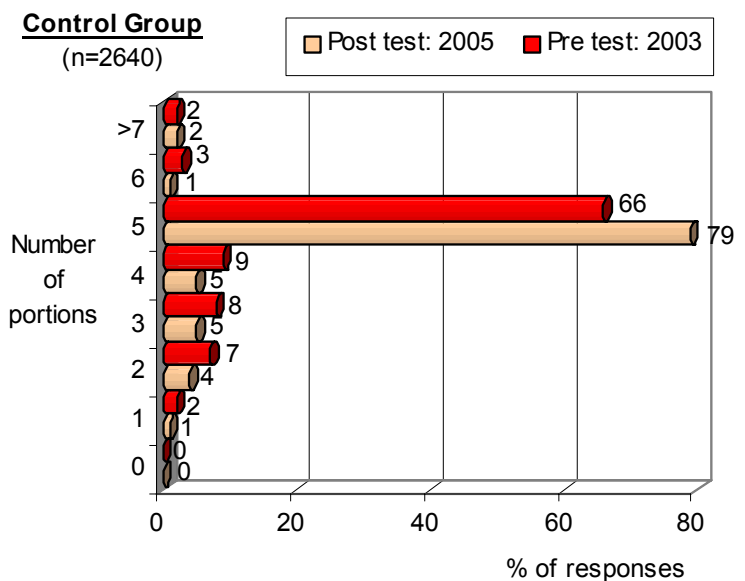
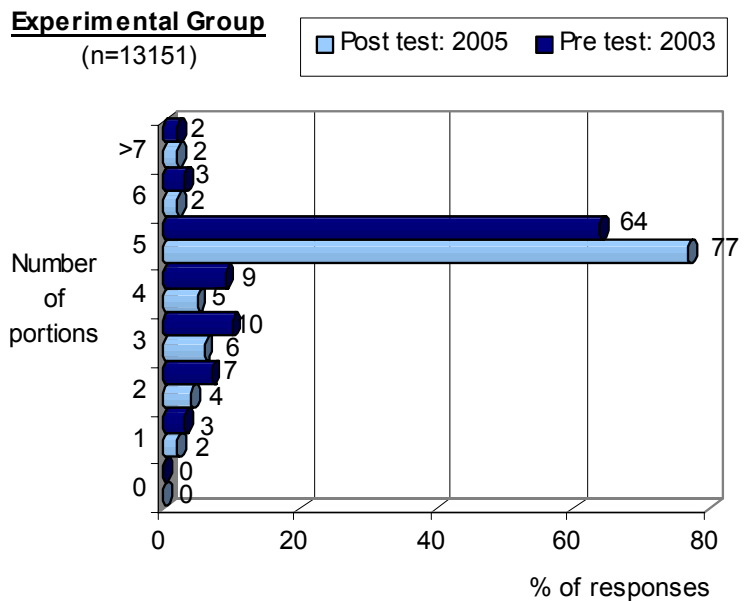
When asked how many portions of fruit and vegetables it is believed that health experts would recommend are eaten every day, at both the pre-test and post-test periods, the majority correctly identified that health experts would recommend 5 portions, as illustrated in Figure 14.

In 2003, approximately two-thirds were aware of the correct number of recommended portions. Over the survey period, however, this knowledge became more widespread.

By 2005, an additional 13% had correctly identified 5 portions as the recommended number. This increase is replicated in the Control Group, which also showed a 13% increase.

These results are based on the total response for each Group and whilst the results are consistent across the Groups, analysis within the Groups identifies key differences. Interrogating the results reveals variances in awareness based on a number of variables.

**Figure 14: Perceived number of recommended portions, percentage of respondents by Group**



There is a clear gender difference in knowledge. Although still a majority, males tend to be less aware of the recommended number compared to females. It should be highlighted however that the *increase* in knowledge over the survey period is higher amongst males. Table 12 presents the results by gender.

**Table 12: Aware that health experts recommend 5 portions every day, percentage of respondents by gender**

Experimental Group (n=13151)				Control Group (n=2640)			
Gender	2003 %	2005 %	Change %	Gender	2003 %	2005 %	Change %
Male	53	69	+16	Male	54	73	+19
Female	74	85	+11	Female	77	86	+9
Total	64	77	+13	Total	66	79	+13

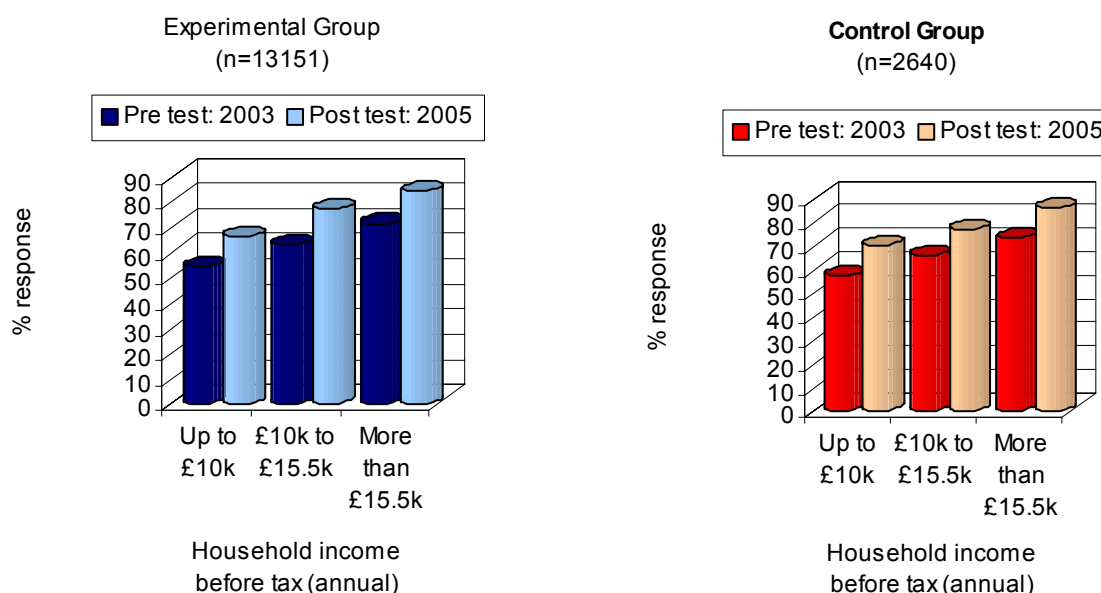
As regards age, awareness is higher amongst younger respondents. Similarly, the *increase* over the survey period is higher amongst younger respondents, see Table 13.

**Table 13: Aware that health experts recommend 5 portions every day, percentage of respondents by age**

Experimental Group (n=13151)				Control Group (n=2640)			
Age in years	2003 %	2005 %	Change %	Age in years	2003 %	2005 %	Change %
<31	66	82	+16	<31	65	87	+22
31-50	66	81	+14	31-50	67	82	+15
>50	61	72	+11	>50	66	74	+8
Total	64	77	+13	Total	66	79	+13

Analysis by household income also reveals differences: as income increases, so too does the propensity to correctly identify the recommended number of portions. The results are consistent in the Experimental and Control Groups as illustrated in Figure 15.

**Figure 15: Aware that health experts recommend 5 portions every day, percentage of respondents by household income**



Analysing by IMD quintiles, it is apparent that as deprivation decreases, levels of awareness increases. A total of 57% of Experimental respondents in the most deprived quintile in 2003 were aware that 5 portions are recommended. This increased by 16 percentage points to 73% in 2005. These results contrast with those in the least deprived quintile, with 74% aware in 2003 that 5 portions are recommended, which increased by 8 percentage points to 82% in 2005. These variances are similar within the Control Group.

Awareness varies by ethnicity. The largest ethnic group correctly identifying that health experts recommend 5 portions every day are White respondents. In 2003, 65% of White respondents in the Experimental Group were aware of the recommendation and 68% in the Control Group. By 2005, awareness in White respondents had increased to 78% and 80% in Experimental and Control Groups respectively. Less than half of all Asian Experimental respondents, 49% and only 42% of Black respondents were aware of the recommendation in 2003. Increases over the survey period, particularly amongst those of Black ethnicity have increased these results to 67% for Black respondents and 62% for Asian respondents. Asian and Black responses for the Control Group are considered too small to report. In 2005, whilst awareness increased in all of these categories, there is still a disparity between awareness in the White and non-White respondents, as illustrated in Table 14.

**Table 14: Aware that health experts recommend 5 portions every day, percentage of respondents by ethnicity**

Experimental Group (n=13151)				Control Group (n=2640)			
Ethnicity	2003 %	2005 %	Change %	Ethnicity	2003 %	2005 %	Change %
White	65	78	+13	White	68	80	+12
Black	42	67	+25				
Asian	49	62	+13				
Total	64	77	+13	Total	66	79	+13

The difference in awareness in 2003 between households with and without children was minimal with approximately two-thirds of both types of household able to correctly identify that health experts recommend 5 portions of fruit and vegetables every day. By 2005, there is a difference in awareness between the types of household, as illustrated in Table 15. The disparity is applicable to both Groups.

**Table 15: Aware that health experts recommend 5 portions every day, percentage of respondents by household**

Experimental Group (n=13151)				Control Group (n=2640)			
Household	2003 %	2005 %	Change %	Household	2003 %	2005 %	Change %
With children	64	84	+20	With children	68	85	+17
No children	66	78	+12	No children	65	79	+9
Total	64	77	+13	Total	66	79	+13

In the Experimental Group, the regional differences in awareness are minimal and the increase in awareness has risen reasonably consistently over the survey period. Table 16 presents the results by region.

**Table16: Aware that health experts recommend 5 portions every day, percentage of respondents by region**

Experimental Group (n=13151)				Control Group (n=2640)			
Region	2003 %	2005 %	Change %	Region	2003 %	2005 %	Change %
North	62	78	+16	North	61	76	+15
Midlands	65	77	+12	Midlands	64	78	+14
South	66	77	+11	South	68	81	+13
Total	64	77	+13	Total	66	79	+13

**Understanding of the number of portions of fruit and vegetables in different items**

Respondents were asked to state how many portions of fruit and vegetables are contained in a number of listed items. In 2005, the majority of respondents in both Groups correctly identified the number of portions in each of the listed items.

Most correctly identified that there is one portion in in:

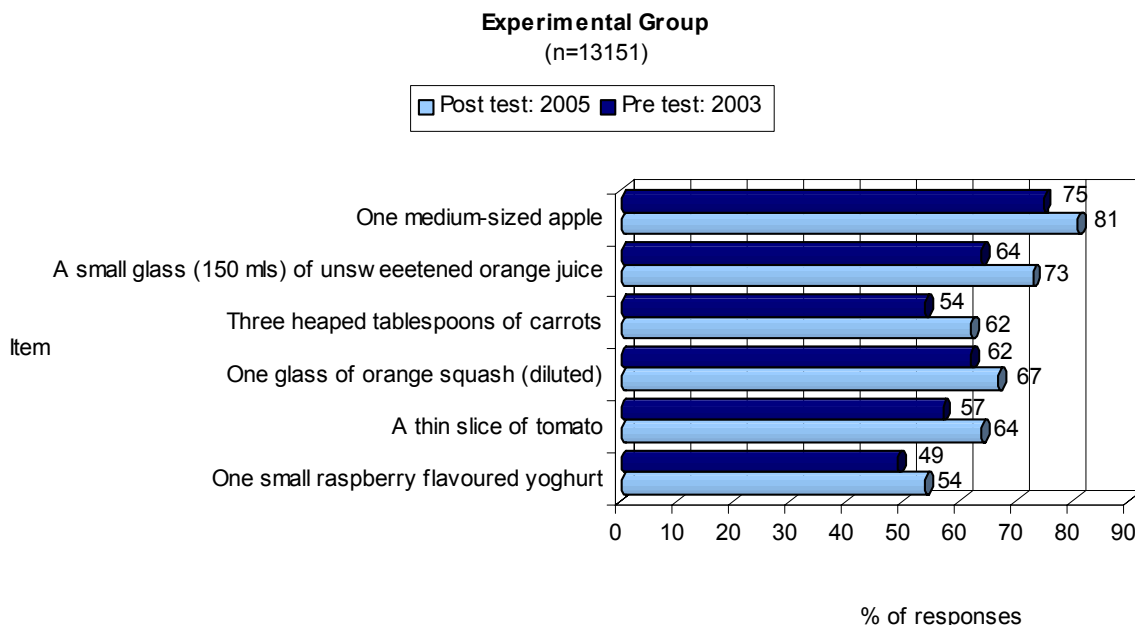
- a small glass (150 mls) of unsweetened orange juice
- three heaped tablespoons of carrots
- one medium-sized apple

Most also correctly identified that there are no portions in in:

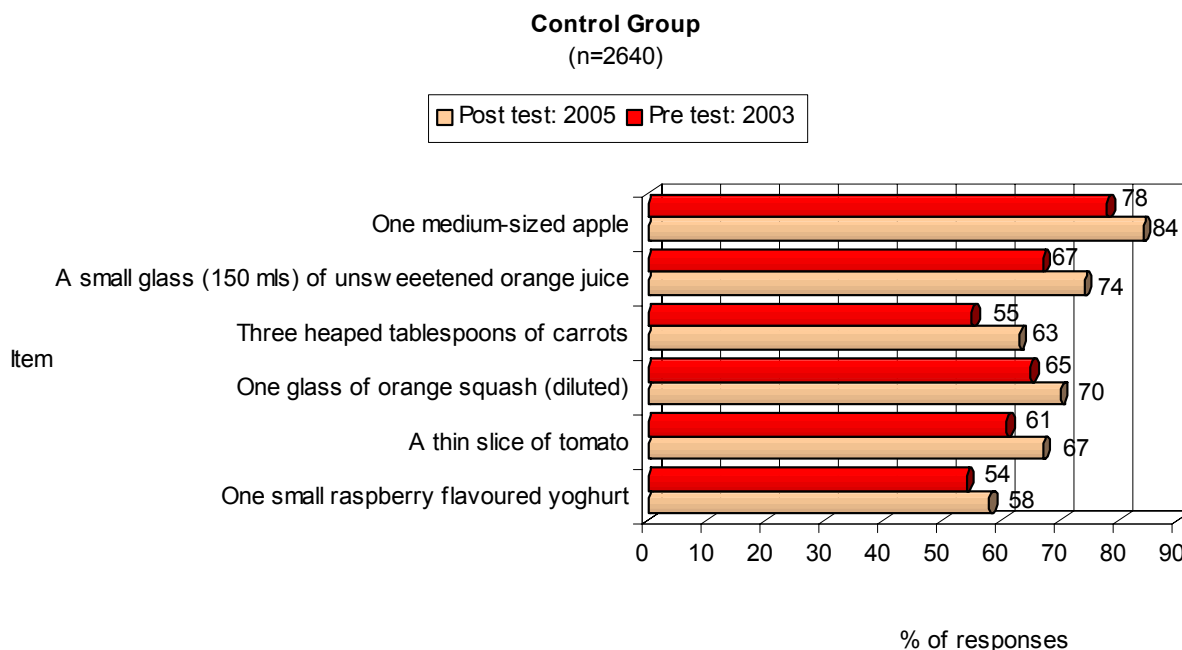
- one glass of orange squash (diluted)
- a thin slice of tomato
- one small raspberry flavoured yoghurt

The percentage of respondents who correctly stated the number of portions in each item is presented in Figures 16 and 17. The Post Test results compare favourably with the Pre Test results where there was an incorrect result for one item in the Experimental Group and a greater level of uncertainty regarding all items in both Groups.

**Figure 16: Respondents correctly identifying the number of portions in the listed items, percentage of respondents by Group**



**Figure 17: Respondents correctly identifying the number of portions in the listed items, percentage of respondents by Group**



In addition to a higher percentage of respondents correctly identifying the number of portions in the listed items, the mean response for each item is closer to the correct portion size in the Post Test Survey. In the Pre to Post Test periods, where the correct number should be one portion, the mean response has shifted closer to 1 and where the correct number should be zero portions, the mean response has shifted closer to 0. The mean responses are presented in Table 17:

**Table 17: Perceived number of portions in the listed items, mean number of portions by Group**

Item	Experimental Group (n=13151)			Control Group (n=2640)		
	2003 mean	2005 mean	Change	2003 mean	2005 mean	Change
One medium-sized apple	1.09	1.06	-0.03	1.08	1.05	-0.03
A small glass (150 mls) of unsweetened orange juice	1.07	1.05	-0.02	1.1	1.03	-0.07
Three heaped tablespoons of carrots	1.32	1.26	-0.06	1.36	1.26	-0.10
One glass of orange squash (diluted)	0.24	0.21	-0.03	0.22	0.18	-0.04
A thin slice of tomato	0.31	0.26	-0.05	0.28	0.23	-0.05
One small raspberry flavoured yoghurt	0.44	0.40	-0.04	0.39	0.34	-0.05

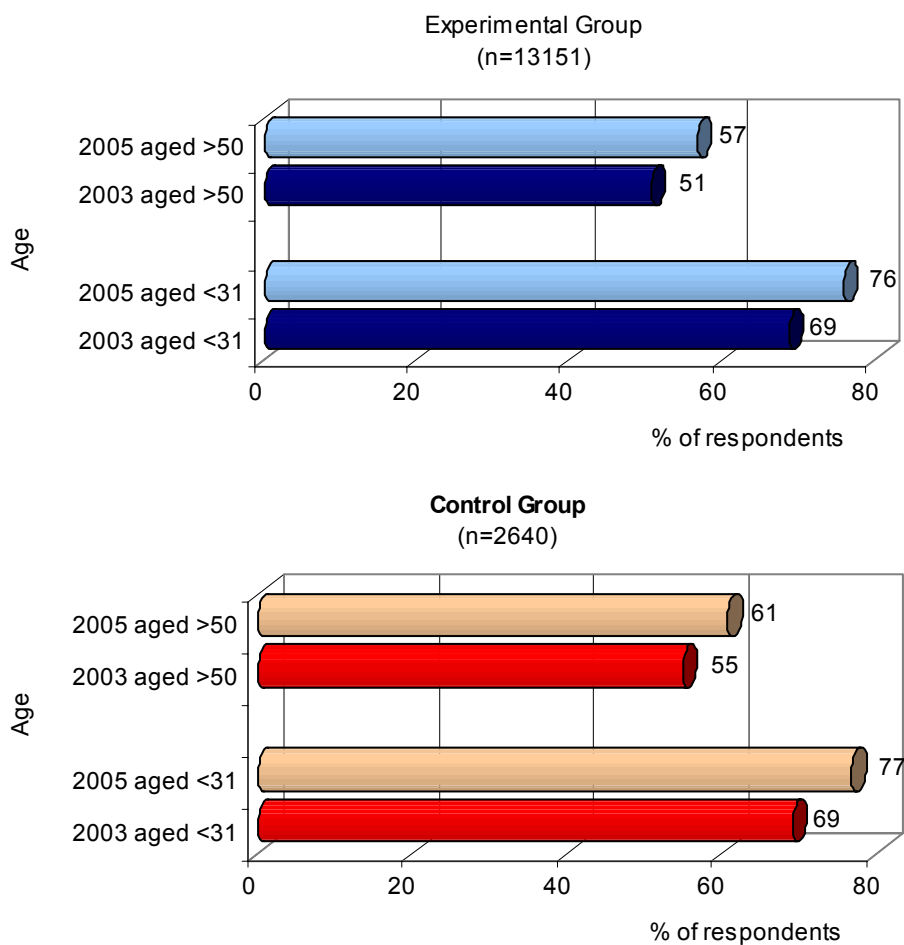
More females than males correctly stated the number of portions in the listed items. Across the list of items, between 5-10% more females than males knew the correct number of portions in both the Pre and Post Test Surveys. There are similar levels of

difference when considering region and household composition. These differences are applicable to both the Experimental and Control Groups.

The most notable differences in knowledge concern respondent age, ethnicity, income and IMD.

As regards age, there is little difference between the youngest category, below 31 years and the middle category, aged 31-50 years. In this instance, on average, less than 2% more respondents in the youngest category correctly identified the number of portions for each item. Comparing the youngest with the oldest group however exposes considerable disparity in knowledge, as illustrated in Figure 18.

**Figure 18: Respondents correctly identifying the number of portions in the listed items, percentage of respondents by Group and age category**

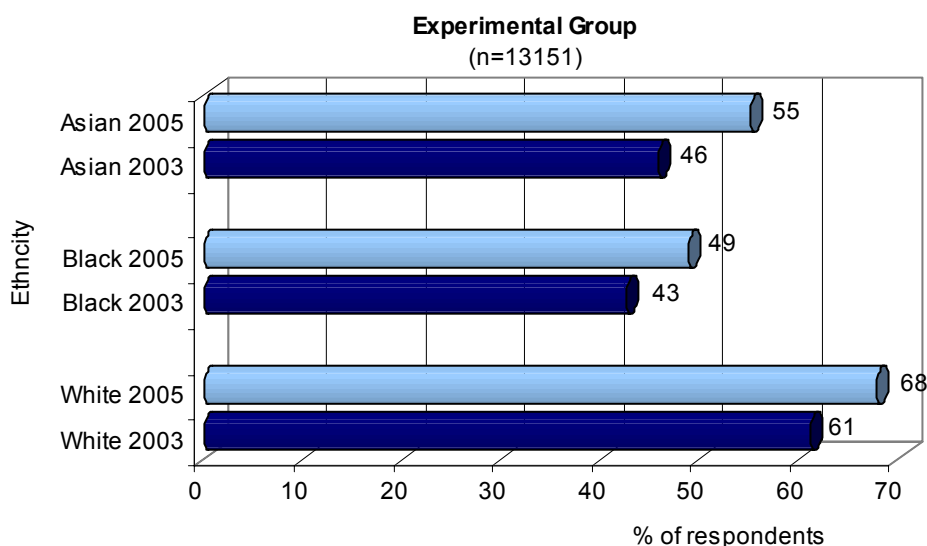


In the Experimental Group, on an item-by-item level, the difference in the average correct response between the youngest and oldest age categories ranges from 13-27% in the Pre Test Survey and from 13-25% in the Post Test Survey. The disparity between the two groups has actually increased between the Pre and Post Test periods by over 1 percentage point on average. In the Control Group, a similar pattern exists.

Ethnicity disparities exist when considering the number of respondents from each ethnic background who correctly identified the number of portions in each of the listed items.

Figure 19 presents the results from the Experimental Group. White respondents appear to be much more aware than the other ethnic groups of the number of portions in the listed foods. By 2005, although increases have been made, less than half of all Black respondents and just over half of Asian respondents correctly identified the number of portions.

**Figure 19: Respondents correctly identifying the number of portions in the listed items, percentage of respondents by ethnicity**



This compares with the Control Group where 65% of White respondents correctly identified the number of portions in 2003, increasing to 71%

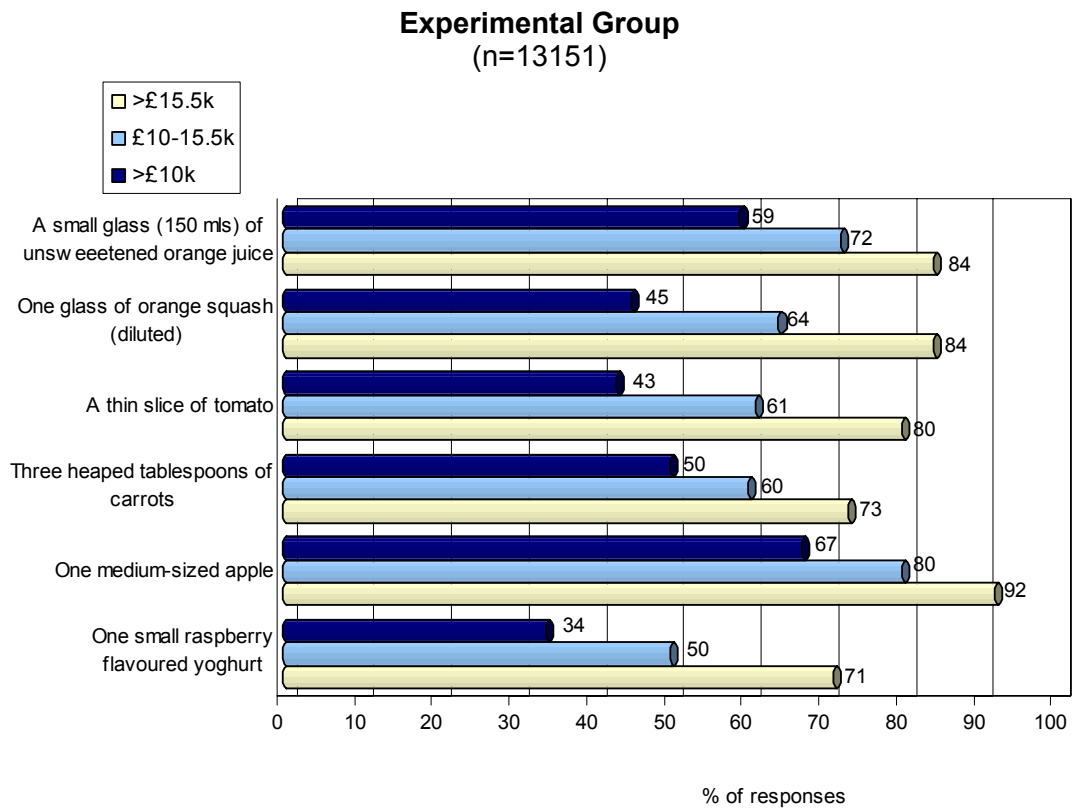
There are considerable differences in knowledge across the Income and IMD variables. As income rises and as deprivation decreases, knowledge increases.

The range between the lowest and highest income brackets is particularly sizeable and whilst improvements have been made over the survey period, the range remains constant. The percentage of respondents by income that correctly identified the number of portions is presented in Figure 20.

The range in terms of Income is at its largest when respondents were asked to state how many portions of fruit and vegetables are in one glass of orange squash (diluted). Only 45% of those in the lowest income category correctly identified that there were no portions in this item, compared to 84% in the highest income category: a difference of 39%.

These results are consistent with the Control Group, where the results by Income are practically the same.

**Figure 20: Respondents correctly identifying the number of portions in the listed items in 2005, percentage of respondents by household income**

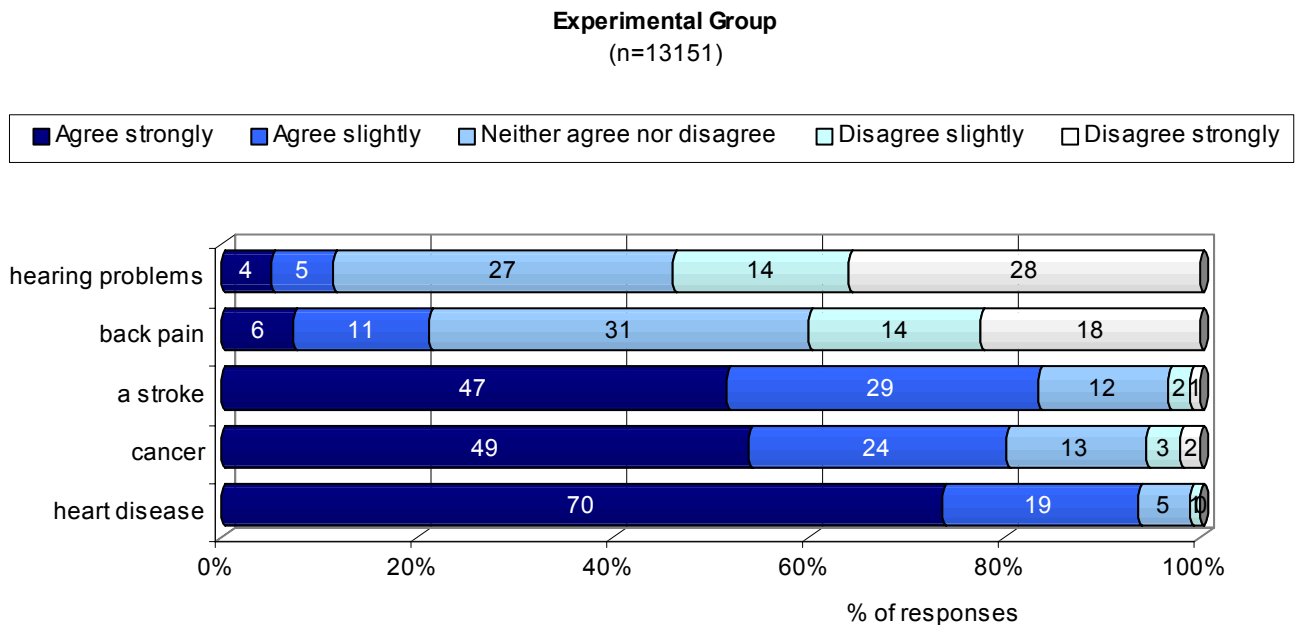


5.5.8 Knowledge and understanding of health implications

Respondents were asked to what extent they agreed that eating more fruit and vegetables could lead to people reducing their chances of getting a number of different health problems. This series of questions would identify respondent's knowledge and understanding of the potential health benefits of increasing fruit and vegetable consumption.

Figure 21 presents the results for the Experimental Group in 2005. In the Experimental Group, 70% of respondents agree strongly that by eating more fruit and vegetables, people can reduce their chances of getting heart disease. This compares with 66% in 2003. A total of 49% strongly agree that increasing fruit and vegetable consumption will reduce the chances of getting cancer, compared to 45% in 2003, and 47% strongly agree that it can reduce the chances of getting a stroke, compared to 40% in 2003.

**Figure 21: By eating more fruit and vegetables, I think that people can reduce their chances of getting....**



These results are consistent with the Control Group. A total of 70% in the Control Group also believe that eating more fruit and vegetables can reduce the chance of getting heart disease, an increase of 4% from 2003. A total of 48% and 45% believe that eating more fruit and vegetables can reduce the chance of getting cancer or a stroke respectively, increasing by 2% and 4% respectively from 2003.

Further analysis reveals that there is little difference between the views of the different demographic variables. In each instance, the majority agrees that by eating more fruit and vegetables, people can reduce their chances of getting a stroke, cancer and heart disease. The variances are minimal and tend to illustrate strength of feeling rather than anything else. An example of this is presented in Table 18 where the views of males and females for each of the key health issues are compared. The extent of female feeling is slightly stronger in that when responding to the statements about heart disease, cancer and strokes, the percentage who

agree *strongly* is marginally higher than the male response. Notwithstanding, both groups share a common view that they agree with the statements; it is the strength of feeling that differs.

**Table 18: Response to health statements, percentage of respondents agreeing by gender (2005)**

**Experimental Group**  
(n=13151)

By eating more fruit and vegetables, I think that people can reduce their chance of getting...	Strongly agree %		Slightly agree %		Total % in agreement	
	Male	Female	Male	Female	Male	Female
A stroke	44	49	32	27	76	76
Cancer	44	54	26	22	70	76
Heart disease	66	73	23	16	89	89

This example exemplifies the views across demographic variable and across Experimental Groups.

### 5.5.9 'Improvers'

Throughout this Chapter, change has been presented and discussed. Collectively, these results construct a profile of those who have improved their 5 A DAY consumption over the survey period.

As has been discussed, the majority of respondents have increased their knowledge, their awareness and their understanding of the implications of eating healthily. There is marginal evidence of a change in attitude in terms of factors considered when deciding how much fruit and vegetables will be eaten. There is also overall, marginal evidence of increased fruit and vegetable consumption although perhaps in the discussion, the variances by individual demographic variable are most transparent.

In this section, profiles have been examined for respondents in the Experimental Group with a 5 A DAY Index that has shown improvement over the survey period.

A total of 48% of participants in the Experimental Group improved their 5 A DAY Index from 2003 to 2005.

In terms of Gender, 47.62% Females improved compared to 48.25% Males. Within gender, 48.69% aged 50 or less years improved compared to 46.36% aged over 50 years. A similar pattern exists with Males, where 48.91% aged 50 or less years improved compared to 47.96% aged over 50 years.

A broader profiling uses IMD and ACORN<sup>12</sup> classifications. Analysing by IMD category shows a similar pattern to that described earlier at Figure 7 (Section 5.5.2); slightly more improvers came from categories at the extreme. IMD Category is presented in Table 19.

**Table 19: 'Improvers' by IMD category**

**Experimental Group**  
(n=12282)

IMD categories: levels of deprivation	Number of respondents	Number of 'Improvers'	% of 'Improvers'
Least deprived	365	178	48.77
Less than average	1410	666	47.23
Average	2264	1052	46.47
More than average	3813	1812	47.52
Most deprived	5030	2429	48.29

The ACORN classification method has been applied to produce another form of overarching demographic analysis. A geodemographic classification method, ACORN provides category profiles based on 400 variables (sourced from Census and consumer lifestyle databases). An ACORN profile has been generated for all Experimental Group 'improvers', results are presented in Table 20.

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<sup>12</sup> For more information about ACORN classification, refer to Appendix 12

**Table 20: 'Improvers' by ACORN category**

**Experimental Group**

(n=12910)

ACORN categories	Number of respondents	Number of 'Improvers'	% of 'Improvers'
Wealth Achievers	1786	822	46.02%
Urban Prosperity	1038	474	45.66%
Comfortably Off	3646	1715	47.04%
Moderate Means	2570	1242	48.33%
Hard Pressed	3856	1889	48.99%
Unclassified	14	6	42.86%

As shown in Table 20, a greater proportion of those in the lower ACORN categories have shown improvement over the survey period. A greater proportion of respondents in the 'hard pressed' ACORN category have improved compared to all other categories. The 'hard pressed' category comprises the poorest areas, where unemployment is well above the national average, levels of qualifications are low and those in work are likely to be in unskilled occupations. There are high levels of long-term illness in some areas and household incomes are low.<sup>13</sup>

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<sup>13</sup> CACI Limited (2004) ACORN. CACI Ltd: London

### 5.5.10 Statistical testing of results

To test the results and thereby determine whether the reported changes are reliable changes or due simply to chance, statistical testing of key results was necessary.

The 5 A DAY Index, in particular the *change* in the 5 A DAY Index was selected as the key result for testing: the 5 A DAY Index is the primary analytical indicator for daily consumption of fruit and vegetables.

The statistical test selected as the most appropriate test was *Analysis of Covariance*. In this section, the outcomes of the test are presented. Tables 21 and 22 provide test results. A full explanation of the testing process is provided as Appendix 11.

#### Test results

The first statistical test was undertaken to understand whether or not there was a statistically significant difference between the Experimental and Control Groups as regards the difference between their 5 A Day Index in 2003 and 2005. It was found that the difference was statistically significant.

To better understand this outcome, an investigation of the effects of gender, age and deprivation (IMD) was undertaken. It was found that neither age nor gender had any significant effect on the change in the 5 A DAY Index. IMD, however, *did* have a significant effect on the change in the 5 A DAY Index. It was concluded therefore that the effect of age and gender could be removed but that further investigation of the effects of deprivation was necessary.

Tests show that when considering IMD, whilst there is a significant difference *between* the Experimental and Control Groups, this difference is only significant at the 90% level. At the 95% level of significance testing it is *not* significant. Of huge importance here is the fact that the two Groups were not fully matched in terms of deprivation and tests show that when this factor is corrected, the difference between the two Groups is *not* statistically significant. There are two outcomes to this test: **The impact of deprivation is statistically significant but the statistical significance between the two Groups *only* exists because the Groups are not matched for deprivation.**

Table 21: Statistical test between Experimental and Control Groups

Test	Statistic (F value)	Probability (Pr > F) <sup>14</sup>	Outcome
Difference between Experimental and Control	4.42	0.0354	Significant
Difference between Experimental and Control: Gender	0.04	0.8401	Not significant
Difference between Experimental and Control: Age	2.13	0.1191	Not significant
Difference between Experimental and Control: IMD	4.86	0.0275	Significant
Difference between Experimental and Control: corrected for IMD sample variation		0.1072	Not significant

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<sup>14</sup> Below 0.05 = significant.

A final test sought to establish whether or not the 5 A DAY Index results were statistically significant for the entire group of respondents. **The test reveals that the change in the 5 A DAY Index by all respondents is significant.**

Table 21: Statistical test of all respondents

Test	Statistic	Probability (Pr > F) <sup>15</sup>	Outcome
All respondents (Experimental and Control)	T value = 2.79	0.0052	<b>Significant</b>

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<sup>15</sup> Below 0.05 = significant.

## 5.6 Pre and Post Test Survey Conclusions

In evaluating the Pre and Post Test Survey, attention is returned to the aims of the 5 A DAY community initiatives. The evaluation set out to:

- **Measure pre-test and post-test consumption of fruit and vegetables**

The primary measure of consumption was the 5 A DAY Index: a formula reflecting the tendency for individuals to over-claim consumption and allowing for 'outliers' who are not typical but if included, can affect results. The 5 A DAY Index for 2003 was 3.36 in the Experimental Group and 3.49 in the Control Group. By 2005, the 5 A DAY Index was 3.64 for both Groups.

- **Assess the change in consumption of fruit and vegetables from the pre test period to the post test period**

Overall, on the basis of unadjusted consumption, the percentage of respondents consuming fruit and vegetables in a typical day has marginally increased from 2003 to 2005.

Using the primary measure, the 5 A DAY Index, consumption has marginally increased with the most sizeable of these increases in the Experimental Group: Experimental increased by 0.28 compared to an increase of 0.15 in the Control Group.

Increases have been made in every demographic variable in the Experimental Group and in almost all variables in the Control Group. In more than half of the variable categories, increases have been larger in the Experimental Group. Moreover, the increases form a pattern in the Experimental Group: within every variable category, the largest increases have been made by the sub-categories with the lowest level of consumption at the Pre Test period. These results are perhaps more noteworthy considering that a slightly higher proportion of the Experimental Group are in the categories of average to most deprivation.

Whilst concluding that average responses suggest a change in consumption, caution must be administered: the increases are marginal. Furthermore, the cause of this change cannot be determined. A further consideration is that whilst the average number of respondents has improved, there are respondents who have not improved. Additionally, respondents are rather laissez-faire when considering whether or not they will increase their fruit and vegetable consumption over the next year; this coupled with the fact that average consumption is notably lower than the target 5 A DAY Index of 5, highlights the fact that there is still considerable work to be done.

Notwithstanding, improvements have been made and importantly, many improvements have been made in the areas most in need of improvement.

In terms of the statistical significance of these results, whilst greater change has been reported in the Experimental Group, the difference *between* the Experimental Group and the Control Group is not statistically significant. As a collective group, however, the change in the 5 A DAY Index across the Experimental and Control Group respondents is statistically significant. It can also be concluded that across the two Groups, the effect of deprivation is significant: those in areas of greater deprivation have increased consumption at a higher level than those in less deprived areas.

- **Measure pre test and post test awareness, understanding and knowledge relating to the benefits of increased fruit and vegetable consumption**

Respondents were asked about awareness, understanding and knowledge and results taken in 2003 and 2005 illustrate that respondents generally became more aware, had greater understanding and improved their knowledge over the survey period. The baseline results in 2003 were largely positive and so 2005 results make relatively good reading. However, again, caution must be exercised because the cause of this shift in awareness, understanding and knowledge cannot be determined. Caution should also be exercised in terms of the disparity between knowledge and behaviour. Whilst many respondents are aware, this is not equalled by action. Similarly, whilst many intend to act in a certain way, actual behaviour often does not materialise.

## 6 THE EVALUATION IN CONTEXT

The Expenditure and Food Survey, produced by the Department for the Environment Food and Rural Affairs<sup>16</sup> provides an annual measure of estimated food and drink purchases in the UK. It is an amalgamation of the Family Expenditure and the National Food Survey. A total of 7,048 households in 2003-4 (the pre test fieldwork period fell in this period) and 6,798 households in 2004-5 took part in the survey. The results for 2005-6, which cover the post test fieldwork period, are currently not available.

The report provides information about the estimated weight of foodstuffs purchased and expressed in the form of grams purchased per person. As can be seen from Table 23, the purchased figure shows a 0.2% rise in the total fruit and vegetable purchases in this one-year period. Vegetables excluding potatoes rose 2.5% and fruit dropped 1.8%.

**Table 23: Fruit and vegetable purchases expressed as grams per person per week**

	2002-3	2004-5
	Number of grams per person	Number of grams per person
All fruit	1190	1168
Vegetables excluding potatoes	1079	1106
Fruit and vegetables excluding potatoes	2269	2274

The Expenditure and Food Survey only looks at purchasing of fruit and vegetables and is therefore only an indication of consumption. The extent to which purchased items are wasted and therefore not consumed is a source of discrepancy between the two measures.

This marginal rise in overall fruit and vegetable purchases mirrors the direction of the rise observed in the Pre and Post Test 5 A DAY Index results: the Index increased from 3.36 to 3.64 (up 0.28) in the Experimental Group and from 3.49 to 3.64 (up 0.15) in the Control Group. Until the results for The Expenditure and Food Survey 2005-2005 are available, it will not be possible to see if that overall rise has continued.

The results from this 5 A DAY Programme evaluation and the results reported above from the Expenditure and Food Survey illustrate that there is an influential force impacting upon the public's fruit and vegetable consumption.

The promotion of the 5 A DAY message is widespread in the public arena, not only from official government-led communications but also from other sources including commercial organisations. Many retailers and food manufacturers label products with information that enables the consumer to identify how certain products

<sup>16</sup> Office of National Statistics (2006) Family Spending. A report on the 2004-2005 Expenditure and Food Survey. London: ONS and Office of National Statistics (2004) Family Spending. A report on the 2002-2003 Expenditure and Food Survey. London: ONS

contribute to their '5 A DAY' intake. Even fast food retailers increasingly refer to elements of their menu that contribute to healthy eating.

An increase in entertainment media promotion of healthy eating has also been experienced in recent years. A significant number of healthy eating programmes, particularly via television, have increased exposure to diet-related information and healthy (or more typically unhealthy) diets and lifestyles. One particular such influence is the high-profile Jamie Oliver series and subsequent campaign about healthy eating amongst school children.

Commercial messages can of course obscure the facts but the recent trend towards promoting healthy eating is evident.

The increasing volume of mass media 5 A Day and more generic healthy eating messages combine to inform the general public and increase their awareness of healthy options.

## 7 5 A DAY EVALUATION CONCLUSIONS

The Department of Health White Paper *Choosing Health*<sup>17</sup> underlines the three core principles of informed choice, personalisation of services and working in partnership with other agencies. It also highlights the government's overarching priorities, one of which is "reducing obesity and improving diet". The 5 A DAY Programme discussed in this report has been conceptualised and implemented very much within this philosophy of health prevention and care. The main aim has been to enhance knowledge of the issues and implications of eating healthily and specifically the value of eating at least five portions of fruit and vegetables.

Much of the work that has been developed by the 5 A DAY coordinators and their teams has been about trying to deliver a service that acknowledges the difficulties and special circumstances of the people in the groups they have targeted. To that end, many of the specific initiatives have been innovative in terms of developing new approaches and work has gone on to ensure that approaches that have been successful elsewhere are extended to new locations and different groups.

To do this it has been necessary for the 5 A DAY co-ordinators to involve other partners and many of these partnerships have been across agencies. Working in this way has been critical to the success of the wide range of initiatives that have been undertaken.

The process of undertaking this work has often been hugely rewarding for those running the various initiatives but as reported, it has not been without its share of difficulties and problems, particularly around planning, recruiting participants, and managing effective communications. Throughout the programme there has been a strong sense of co-operation and collaboration. The 5 A DAY co-ordinators have been keen to learn from best practice and from each other. Throughout, the Big Lottery Fund has supported the requirement to share and to learn from each other by arranging opportunities to meet regularly and discuss progress.

Many of the specific elements and activities of the 5 A DAY Programme have been examined in detail by the 5 A DAY research team and are reported in previous Big Lottery Fund publications. In this report, the focus has been on providing an overview of the learning that emerged from evaluating the activities and on reporting the findings from the Pre and Post Test Survey.

The role of individuals regarding their choice to improve their own diet is important. A discussion paper published by the Prime Minister's Strategy Unit<sup>18</sup> highlighted personal responsibility and the need for public behaviour change:

*"..achievement of major policy outcomes requires greater encouragement and participation from citizens – governments can't do it alone. ...improvements depend on changes in personal behaviour: for example in health, on better diet and more exercise (p3)."*

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<sup>17</sup> Department of Health (2004) *Choosing Health: Making health choices easier*. London: Stationery Office.

<sup>18</sup> Halpern, D., Bates, C., Beales, G. & Heathfield, A. (2004) *Personal responsibility and changing behaviour: the state of knowledge and its implications for public policy*.

It concludes that:

*“behaviourally-based interventions can be significantly more cost-effective than traditional service delivery. There is good evidence across a range of policy areas – for example in health – of the cost effectiveness of behavioural interventions (for example a change in diet that avoids a heart attack is better and cheaper than dealing with the consequences of poor diet with heart surgery”*(p3).

Most authorities acknowledge that significant improvements in population health will only be achieved by changes in lifestyle and behaviour (Wanless, 2004<sup>19</sup>; World Health Organisation, 2002<sup>20</sup>). The immediate challenge is to enable people to understand the issues and implications of their behaviour and lifestyle. The Community Initiatives have sought to tackle this in a variety of ways while recognising that the process is a slow one which requires sensitive handling to ensure that the 5 A DAY message continues to be motivating and of interest to participants.

The evidence from this evaluation suggests that there have been substantial improvements in the awareness of the recommended number of fruit and vegetable portions, the assessment of fruit and vegetable portion size and the health implications associated with fruit and vegetable consumption.

The evaluation also suggests an overall increase in fruit and vegetable consumption and although this is area-wide, change in consumption is particularly powerful in the programme areas. Improvements in consumption are particularly evident amongst programme area respondents who started from a lower base, that is, amongst males, younger people and those classified as living in areas of deprivation. Statistical testing of the change in consumption revealed that there is in fact no statistical evidence to support the enhanced increase in the programme areas, however, testing of the entire group of respondents revealed important findings. The positive change in consumption overall *is* statistically significant and can also be associated with deprivation.

Caution must be afforded to the impact of the 5 A DAY programme; whilst respondents in the programme area report larger increases, this is not statistically significant nor can the cause of any reported increases be isolated to any particular influence and therefore cannot be wholly attributed to the 5 A DAY initiatives. There are undoubtedly wider influences.

Tackling health inequalities is a clear government commitment that is backed up with PSA targets to narrow this gap<sup>21</sup>. Many of the activities have been developed specifically to tackle those groups that have the poorest levels of consumption of fruit and vegetables: younger people, men, those with low incomes and those living in areas of deprivation. This report highlights that these groups continue to present challenges but that there is evidence of improvement in some of these targeted groups. For example, while overall levels of consumption as measured by the 5 A DAY Index have increased marginally, there is evidence that more improvement has been seen amongst younger people and those on the lowest income levels.

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<sup>19</sup> Wanless, D. (2004) Securing good health for the whole population. London. HMSO.

<sup>20</sup> World Health Organisation (2002). WHO Mega Country Health Promotion Network: Behaviour Risk Factor Surveillance Guide. Geneva.

<sup>21</sup> Tackling Health Equalities: Status Report of the Programme for Action. London. HMSO.

Overall, this evaluation has found that there have been greater levels of improvement in awareness and understanding of the issues and implications of eating fruit and vegetables than in overall consumption levels. This finding is common in the area of health evaluation – change in knowledge and attitudes seems to show more impact than change in behaviour.

The results reported in the Pre and Post Test Survey programme areas often appear to show that these areas started with slightly lower levels of awareness and consumption compared to the control group, which was broadly matched where possible for deprivation and rurality. Where this has been the case there appears to be some evidence of a “catch-up effect” where these groups have improved alongside the control group and ended up at the same level. This is the case for the 5 A DAY Index, as well as some aspects of awareness.

It would be tempting to conclude that this slight “catch-up effect” was due to the impact of the 5 A DAY Programme but it cannot be asserted that this is definitely the case. There are limitations due to the fact that we do not know whether those that responded to the Pre and Post Test Survey in the programme areas had any exposure to the specific activities. It was not possible to ask them, because they would not be able to differentiate activities that were part of the local initiative and those that had other sponsorship.

There has been extensive coverage of the 5 A DAY message in the wider environment throughout the duration of the 5 A DAY Programme. This has included considerable central and local health communications on this topic and widespread coverage of the message on television and other media. The role of retailers in promoting the message in-store has not been insubstantial. The evidence is clear that the control group made substantial improvements in both knowledge and awareness of the message and that this was almost certainly a result of the widely disseminated public health message on 5 A DAY and commercial healthy eating messages. Certainly, attempts have been made to ensure that the message reaches targeted groups and this is where we have seen the largest improvements amongst both the programme areas and amongst the control group.

What can be concluded is that improvements have been made and importantly, improvements have been made where they were most needed.

Taking forward this message as well as disseminating the learning from the programmes are the immediate challenges ahead and TNS Social considers that the PCTs in the programme areas are well placed to do this.

## 8 LIST OF APPENDICES

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- Appendix 2: Case Study discussion guide
- Appendix 3: Case Study questionnaire
- Appendix 4: FACET questionnaire
- Appendix 5: Pre and Post Test Survey Methodology (Additional Information)
- Appendix 6: Pre and post test covering letters
- Appendix 7: Response rate
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- Appendix 9: 5 A DAY Index formula
- Appendix 10: Other food type consumption – unadjusted
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- Appendix 13: List of Tables
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Appendices are provided in a separate document titled: 5 A DAY Programme Evaluation Final Report – Appendices.