

# Final Report 2009

## Live Active Referral Scheme 2005: outcomes before enhancements

Prepared for  
Fiona Hamilton, Health Improvement Senior (Physical Activity), NHS Greater Glasgow  
and Clyde, 350 St Vincent Street, Glasgow, G3 8YT

Contract No: 2615

---

# Contents

---

<b>Executive Summary</b>	<b>5</b>
<b>List of figures and tables</b>	<b>2</b>
<b>Terminology</b>	<b>9</b>
<b>1 Introduction</b>	<b>13</b>
1.1 Background	13
1.2 Objectives	14
<b>2 Method</b>	<b>15</b>
2.1 Overview	15
2.2 Database interrogation	15
2.3 Telephone survey	15
<b>3 Results and discussion</b>	<b>17</b>
3.1 Who refers to the scheme and at what level	17
3.2 Who attends the Live Active 2005 Scheme	19
3.3 Attrition rates and adherence	27
3.4 Impact of the scheme on various outcome measures	33
3.5 Barriers to accessing the scheme and continuing with the scheme	41
3.6 Suggestions for improvements and additional comments	41
<b>4 Conclusions and next steps</b>	<b>44</b>
4.1 Conclusions	44
4.2 Next steps	47
<b>Appendices</b>	<b>49</b>

---

# List of figures and tables

---

Figure 1	Comparison of referral source for different referral routes	17
Figure 2	Comparison of age profile of Live Active 2005 participants with Glasgow population profile	20
Figure 3	Number and % of participants reaching each stage of Live Active Referral Scheme	31
Figure 4	Comparison of attrition rates (inclusive of inappropriate referrals and positive drop outs) for Live Active 2005 and 2002 participants	32
Figure 5	Reasons recorded by exercise counsellor for participants leaving the Live Active Referral Scheme by stage reached	33
Figure 6	Health State scale for all participants with data at every stage of the Live Active Referral Scheme	38
Table 1	Referral type	66
Table 2	Referral source	66
Table 3	Reasons recorded for patients leaving the programme by stage of programme reached	66
Table 4	Breakdown of inappropriate referrals	67
Table 5	Gender by stage of programme reached	67
Table 6	Age	67
Table 7	Scottish Index of Multiple Deprivation (SIMD)	67
Table 8	Comparison of Glasgow City and CHCP participants living in areas of deprivation (15% SIMD) with population figures	68
Table 9	CHCP area	68
Table 10	Reported use of medication at referral stage and for different age groups	68
Table 11	Does participant have any physical or mental limitations which would make exercise programs difficult? (LR participants only)	68
Table 12	Does patient have joint pains or conditions? (LR participants only)	69
Table 13	Does patient have chest problems? (LR participants only)	69
Table 14	Is patient recovering from an operation or illness? (LR participants only)	69
Table 15	Is patient diabetic? (LR participants only)	69
Table 16	Is your patient's blood pressure greater than 160/90? (LR participants only)	69
Table 17	Smoking profile of LR participants at referral	70
Table 18	Alcohol consumption for LR participants at referral	70
Table 19	Gender of referral and baseline participants	70
Table 20	Age groups of referral and baseline participants	70
Table 21	Deprivation status of referral and baseline participants	70
Table 22	Stage of programme reached by CHCP of participants	71
Table 23	Stage of programme reached by reported taking of medication at referral	71
Table 24	Comparison of use of medication at baseline and referral	71
Table 25	Does participant have any physical or mental limitations which would make exercise programs difficult? (LR participants only)	71
Table 26	Does patient have joint pains or conditions? (LR participants only)	72
Table 27	Reported alcohol consumption (at referral stage for LR participants) of referral and baseline participants	72
Table 28	Comparison of reported alcohol consumption of LR participants at referral and baseline stages	72
Table 29	Smoking at referral (LR participants only)	72
Table 30	Employment status at baseline by stage of programme reached	73
Table 31	Ethnicity	73
Table 32	Ethnicity – Glasgow City only	73
Table 33	Classified BMI at programme stages	74
Table 34	Mean heart rate for all participants	74
Table 35	Mean systolic blood pressure for all participants	74
Table 36	Mean diastolic blood pressure for all participants	74
Table 37	Smoking at baseline	74
Table 38	Alcohol consumption at baseline	74

Table 39	Stage of Change for all participants at each stage of the programme	75
Table 40	Mean Health State Scale	75
Table 41	Mean HADS Anxiety scores by age	75
Table 42	Mean HADS Depression scores by gender	76
Table 43	HADS Anxiety and HADS Depression scores at baseline	76
Table 44	Age breakdown at programme stages	76
Table 45	Stage of programme reached by SIMD area	76
Table 46	Stage of programme reached by employment status	77
Table 47	Stage of programme reached by whether economically active or not	77
Table 48	Stage of programme reached by referral type	77
Table 49	Stage of programme reached by reported taking of medication at referral	77
Table 50	Reported taking of medication at various stages of the programme	78
Table 51	Mean weight at baseline by stage of programme reached	78
Table 52	BMI at baseline stage by stage of programme reached	78
Table 53	Stage of programme reached by smoking status at baseline	78
Table 54	Grouped HADS Anxiety and HADS Depression scores at baseline by stage of programme reached	79
Table 55	Pearson Chi-Square Tests	79
Table 56	Mean HADS Anxiety and HADS Depression scores by stage of programme reached	79
Table 57	ANOVA Table	79
Table 58	Mean Baseline Health State Scale by stage of programme reached	80
Table 59	ANOVA Table	80
Table 60	Baseline Stage of Change by stage of programme reached	80
Table 61	Does patient have physical or mental limitations which would make exercise programme difficult by stage of programme reached	80
Table 62	Reasons recorded for patients leaving the programme by CHCP area	81
Table 63	Paired sample mean weight (kilograms)	81
Table 64	Paired sample BMI	81
Table 65	Changes in BMI (paired sample)	82
Table 66	Paired comparison of HADS Anxiety scores	82
Table 67	Paired Samples Test of HADS Anxiety scores	82
Table 68	Mean HADS Anxiety scores by gender	82
Table 69	Movement in HADS Anxiety scores (column %)	83
Table 70	Movement in HADS Anxiety scores (row %)	83
Table 71	Paired comparison of HADS Depression scores	83
Table 72	Paired Samples Test for HADS Depression Scores	83
Table 73	Mean HADS Depression scores by age	84
Table 74	Movement in HADS Depression scores (column %)	84
Table 75	Movement in HADS Depression scores (row %)	84
Table 76	Stage of Change comparison between baseline and 6 month consultation	85
Table 77	Stage of Change comparison between 6 month and 12 month consultation	85
Table 78	Stage of Change comparison between baseline and 12 month consultation	85
Table 79	Physical Activity Recall score by gender of participant for all participants (in minutes)	85
Table 80	Difference in mean PAR	86
Table 81	Paired Health State scale scores	86
Table 82	Smoking status at 6 months of smokers at baseline for those who completed 6 month consultation	86
Table 83	Smoking status at 6 and 12 months of smokers at baseline for those who completed the programme	86
Table 84	No. of days per week achieved 30 minutes accumulated exercise	87
Table 85	Which of the following categories best describes how physically active you have been over the last six months?	87
Table 86	Do you feel the scheme has had an impact on your physical health? By gender and age.	87
Table 87	Scheme impact on physical health	87
Table 88	Do you intend to maintain your present levels of physical activity?	88
Table 89	Do you feel the scheme has had an impact on your confidence to be independently physically active?	88

---

Table 90	Do you feel the scheme has had an impact on your mental health?	88
Table 91	Do you feel the scheme has had an impact on how you feel about yourself?	88
Table 92	What has helped you to continue/complete the scheme?	88

---

# Executive Summary

---

## Introduction

NHS Greater Glasgow established the Live Active Referral Scheme in 1997 in partnership with Glasgow City Council. After an initial positive evaluation in 1999 the scheme gradually expanded to cover the newly formed NHSGGC. Each of the Local Authorities that are co-terminus with NHSGGC work in partnership to deliver the scheme.

In 2005 the Scottish Government awarded additional funds to enable the scheme to develop 3 enhancements. These were designed to increase capacity and improve compliance with the scheme. The purpose of this report is to identify the outcomes associated with scheme BEFORE the enhancements took place.

### *How the scheme works*

The scheme aims to increase levels of physical activity amongst sedentary individuals who are specifically referred by their health professional (eg GP, practice nurse, cardiac healthcare staff etc). There are three referral pathways. The first two are primary care based and include:

- Inactive participants who do not have established health disease and who require support to become more active (defined in this report as LR) and;
- Inactive participants with established heart disease who require support to become more active (defined in this report as ETT). As a pre-screening measure and to assess suitability, these participants attend the local hospital cardiology unit for an exercise tolerance test before attending the scheme.

The third referral route is a direct referral from the hospital's cardiac rehabilitation programme. Participants are referred by cardiac physiotherapists to support their post cardiac rehabilitation (defined in this report as PCR).

Referred participants enroll onto the scheme for a period of 12 months. During this time exercise counselors provide one to one physical activity counseling which includes exploring the skills, knowledge and confidence to exercise independently. There are three points over the year where intensive monitoring and support is given. These are at baseline (ie first encounter with the scheme), 6 months and 12 months. Additional support is given to participants throughout the 12 month scheme via telephone calls, letters and the option of supported exercise sessions.

### *Objectives for this report*

The objectives of this report are:

- to identify the user profile of the scheme
- to identify the wider aspects of the scheme and long term behaviour change

## Method

3,139 participants who were referred to the scheme between January and June 2005 were identified through the Live Active participant database. Data was analysed by gender, age group, deprivation (using the postcode classification of the Scottish Index of Multiple Deprivation), ethnicity and stage of scheme reached.

Participants who completed the full 12 months of the scheme between December 2005 and March 2006 were identified through the database (n= 119). 6 months after completing the scheme participants were approached by letter asking for their permission to contact them.

---

32 participants agreed to take part in the survey. Participants were asked to reflect on the scheme including benefits, challenges and longer term outcomes from the scheme.

## **Results and discussion**

### *Referral route*

86% (2,709 participants) were referred through primary care and did not have established heart disease. A further 8% (246 participants) were referred from the Post Cardiac Rehabilitation service and just 6% (184 participants) were referred via primary care and did have established heart disease.

For those participants referred through either primary care route the most common source of referral was the GP, followed by the practice nurse. A minority of participants initiated the healthcare professional to refer them or were referred by the physiotherapist or cardiologist.

For those participants referred through the Post Cardiac Rehabilitation service the most common source of referral was the Physiotherapist with a minority referred via the GP, practice nurse or cardiologist.

### *Inappropriate referral*

A minority of participants were identified as inappropriate for the scheme before the baseline appointment (2%, 81 participants). Some of the inappropriate referrals recorded a reason for being excluded from the scheme. These included:

- Participants were already active and did not require support
- Re-referral to the scheme (participants may only use the scheme for one 12 month period)
- Participant had established health problems which could not be accommodated by the scheme

In addition, 112 (3%) participants were identified as inappropriate at the baseline appointment. The reason they were excluded from the scheme were as follows:

- Transferred to another leisure centre
- Medical reasons
- Already active and do not require support to exercise.

### *Characteristics of those who attended the baseline appointment*

Once inappropriate referrals were excluded from analysis, 73% (2,166 participants) of referrals attended the baseline appointment. More females (61% 1,315 participants) than males (39% 851 participants) attended the baseline stage of the scheme. This reflected the proportions of males and females who were referred to the scheme. We know from the Health and Wellbeing study (2005) that females are more likely to be less physically active than males. Taking this into account it seems appropriate that more females than males are referred and attended the Live Active Scheme.

Over half the participants attending the baseline stage were aged 45+ years (65% 1,393 participants). The age group with the lowest number attending was the 16 – 24 age group where just 90 participants attended. This reflects referral patterns. It is perhaps not surprising that referral patterns have this age profile as this reflects the age profile of inactive people across NHSGGC (Health and Wellbeing study, 2005).

Postcodes were used to determine the area where participants lived. Analysis revealed while more people from deprived area were referred to the scheme, fewer participants attended baseline assessment and proportionally more participants from these area dropped out before baseline. This may be worthy of further study.

The ethnic profile of Live Active participants reflects that of the NHSGGC population. Due to the relatively small numbers of ethnic groups (other than White Scottish) it was not possible

---

to conduct an analysis that explored differences in satisfaction, completion and attrition by ethnic group.

80% of participants were overweight or obese at baseline. 41% recorded a HADS anxiety score in the mild to moderate range while 22% recorded a HADS depression score in the mild to moderate range.

#### *Completing the scheme*

The number and proportion of drop outs in the scheme were significant. Of the 2,166 who attended their first appointment just 404 attended the 12 month stage of the scheme (19% completed the scheme). However, this is an improvement on the 2002 evaluation of the Live Active Scheme.

When completion of the scheme was explored by referral route it was discovered those referred through the post cardiac rehabilitation route were most likely to attend the 12 month stage (25%, 62 participants), followed by those who had established heart disease and had to attend an exercise tolerance test prior to attending the scheme (15%, 30 participants). The least likely to complete the scheme were those who were referred through primary care without established heart disease (12%, 312 participants completed the scheme).

Those most likely to complete the scheme were in the older age groups (age 45+) and did not live in the most deprived areas.

Neither gender nor ethnicity was associated with completing the scheme.

#### *Impact of the scheme*

Completing the scheme was linked to weight loss, less anxiety, less depression, and improvements in health state scale.

Crucially, those who completed the scheme were more likely to be regularly physically active when assessed by the PAR (Physical Activity 7 day Recall) and in the maintenance phase of the stage of change scale (ie had been physically active for 6 months or longer).

It is encouraging that those participants in the older age groups (age 45+) were most likely to complete the scheme. However, those living in the most deprived areas were least likely to complete the scheme.

#### *Long term changes in behaviour*

Telephone interviews were conducted with 32 participants who had completed the full 12 months scheme. The interviews were conducted at least 6 months after they had completed the scheme in order to assess long term changes in behaviour.

The sample size is relatively small which means the conclusions that can be drawn from the scheme are limited, however, the interviews revealed:

- The majority of participants were still exercising at or above levels associated with gains in health benefits
- The majority had continued to be active for 6 months or longer
- Almost all those interviewed suggested the Live Active Referral Scheme had an impact on their physical health. Weight loss, improved physical stamina and improved body shape were amongst the physical improvements participants had noted.
- The majority of participants felt the Live Active Referral Scheme had a positive impact on their ability to exercise independently
- The majority of participants felt the scheme had led to improvements in their mental health and the way they felt about themselves.



---

In terms of the wider effects of the scheme, the majority of participants suggested the scheme had led to improvements in their relationships by providing opportunities to meet new friends, feel more sociable and an opportunity to get out of the house.

Participants were asked to consider improvements to the scheme. Seven of the thirty two (22%) who contributed to the telephone questionnaire could not identify any improvements. Other participants made a range of suggestions. Some suggested increased contact between the participant and the counselor would be beneficial. Some specific comments regarding the quality and cleanliness of the leisure facilities were made by a minority of participants.

### **Conclusion**

It is encouraging that more females attend the scheme than males and more participants aged over 45 attend the scheme, as we know from work elsewhere these are the population groups that are least likely to be physically active. It is less encouraging that participants living in the most deprived areas were more likely to drop out of the scheme before baseline. This may be worthy of further study to explore the barriers associated with attending the scheme.

Only 19% who attended the baseline appointment completed the scheme. However, the scheme led to positive outcomes for participants who completed the full 12 months particularly in the areas of weight loss, less anxiety, less depression and improvements in the health state scale. Participants who completed the full 12 months of the scheme were also more likely to be physically active.

Completing the scheme was not associated with gender or ethnic group.

### **References**

Health and Wellbeing (2005)  
<http://www.phru.net/rande/Web%20Pages/Health%20and%20Wellbeing.aspx>

---

# Terminology

---

This is an explanation of some of the terminology used in the Live Active Referral Scheme, and in this report.

## **Baseline**

Baseline in this context refers to the chronological stage of the Live Active Referral Scheme when participants have their first consultation with the counsellor, after they have been referred onto the scheme. The other chronological stages of the Live Active Referral Scheme are at 6 and 12 months.

Participant exercise details and health related measurements are taken by the counsellor at baseline, 6 and 12 month points and are held in participants' files. These data allow a participant's progress on the Live Active Referral Scheme to be assessed.

## **Blood Pressure**

Blood Pressure is the pressure of blood in your arteries, measured in millimetres of mercury (mmHg). Your blood pressure is recorded as two figures, the first number is the systolic pressure (the pressure in the arteries when the heart contracts) and the second is the diastolic pressure (the pressure in the arteries when the heart rests between each heartbeat).

High blood pressure (Hypertension) – 140 over 90 or higher

Normal range - between 120 over 80 and 140 over 90

Low Blood Pressure (Hypotension) – 90 over 60 or lower<sup>1</sup>

## **BMI, Body Mass Index**

A measure of someone's weight in relation to height. The body mass index (BMI) is a person's weight in kilograms (kg) divided by their height in meters (m) squared.

## **Central administration system**

The Live Active Referral Scheme central administration system is a secure web based diary which is linked to Glasgow City based exercise counsellors only. The day to day operation of this administration system is predominantly the responsibility of the designated central administrator. However the ability to view and edit appointments is available to all Glasgow City based exercise counsellors, under a secure log in protocol. A flexible administration system such as this, promotes a far more user friendly experience, as participants can book or change appointments both through the central administrator or their exercise counsellor.

## **CHCP, Community Health and Care Partnership**

Community Health (and Care) Partnership is the name of the organisations that have been set up across Scotland to provide a wide range of community based health services delivered in homes, health centres, clinics and schools. In Glasgow City and East Renfrewshire the Partnerships are also responsible for many local social care services provided by social work staff<sup>2</sup>.

## **CHD**

Coronary heart disease is when the small blood vessels that supply blood and oxygen to the heart become partially or wholly blocked.<sup>3</sup>

---

<sup>1</sup> The Blood Pressure Association, <http://www.bpassoc.org.uk/Home>

<sup>2</sup> <http://www.chps.org.uk/content/default.asp?page=s363>.

<sup>3</sup> <http://www.nhs.uk/Pathways/coronaryheartdisease/Pages/Landing.aspx>

---

### **Exercise Counsellor**

A Live Active Referral Scheme staff member who is specifically trained to deliver health behaviour change intervention in relation to physical activity and delivers the Live Active Referral Scheme in a local area.

### **Exercise Instructor**

A self employed coach (freelance) who instructs designated exercise classes for the Local Authority. One such class may be the Live Active First Steps physical activity class/session.

### **Exercise Tolerance Test (ETT)**

This is a pre-screening test for participants with established heart disease prior to starting physical activity. This is a treadmill test at a local hospital cardiology unit to assess the participant's heart response to exercise and to therefore assess their suitability to undertake physical activity in the community.

### **First Steps**

First Steps is an eight week rolling programme that offers participants more contact with the exercise counsellor and a chance to taste a variety of activity options. It also aims to increase social support with fellow scheme participants. First Steps takes the form of:

- a physical activity taster session (for example various forms of exercise classes (circuits; tai chi etc), use of the gym and walking;
- a social support component with the exercise counsellor present; and
- an occasional education component.

Due to the rolling nature of First Steps, participants are able to join at any time.

### **FMR**

FMR Research Ltd, the social research firm commissioned to conduct this evaluation.

### **GP**

General Practitioner

### **HADS**

The hospital anxiety and depression scale (HADS) is a widely used and popular self-report measure designed to detect the presence and severity of mild degrees of mood disorder, anxiety and depression. The participant is asked to answer fourteen questions (7 for anxiety and 7 for depression) relating to their mental attitude. The maximum score possible for Anxiety or Depression on the HADS scale is 21 (totally anxious or depressed), and the lowest score is 0 (totally lacking in anxiety or depression).

- 0-7 Normal
- 8-10 Mild
- 11-15 Moderate
- 16-21 Severe.

HADS is completed at the discretion of the participant; it is not used as a psychological screening tool.

### **Keep Well**

Keep Well is a pilot Scottish Executive primary care based approach to enhancing anticipatory care. In Glasgow the Keep Well pilot has funded an additional Live Active counsellor. This additional post is based in the same sites as the Live Active exercise counsellor. The aim of the post is to "fast track" participants referred from a Keep Well screening to the Live Active Referral Scheme and to enhance the Live Active Referral Scheme to also include weight management and nutrition as health behaviours being addressed.

---

**Live Active 2005**

The Live Active Referral Scheme prior to the introduction of further Scottish Executive enhancements.

**Low Risk (LR)**

Low Risk is the category which encompasses the majority of participants referred onto the Live Active Referral Scheme. These are inactive participants who do not have established heart disease and who require support to become more active.

**Mean**

The arithmetic average.

**mmHg**

Millimetres of mercury, a measure of pressure. Used in this context in respect of blood pressure.

**Motivator enhancement**

The Live Active Motivator enhancement is based on the peer support/buddying concept. The role of the Motivator is intended to provide support and encouragement to individuals or small groups engaging in physical activity through the scheme. It is voluntary and undertaken by those who have completed the full 12 months of the Live Active Referral Scheme and have demonstrated a positive attitude towards maintaining an active lifestyle.

**NHS GGC**

NHS Greater Glasgow and Clyde.

**Post Cardiac Referral (PCR)**

These are direct referrals from the hospitals cardiac rehabilitation programme. Participants are referred by cardiac physiotherapists to support their post cardiac rehabilitation.

**Participant**

This is the term used by the Live Active Referral Scheme to denote those referred to the Live Active Referral Scheme and participating in it.

**SIMD, Scottish Index of Multiple Deprivation**

The official measure for identifying small area concentrations of multiple deprivation across all of Scotland.<sup>4</sup>

**SPSS**

Originally Statistical Package for the Social Sciences. SPSS is a computer software package designed to accommodate and facilitate the analysis of arrays of numerical data. FMR used SPSS software to analyse the database.

**Stage of change**

This is an assessment tool which looks at people and categorises their current behaviour and attitude towards health behaviour change. There are five stages of change:

Pre contemplation:	I am not regularly physically active and do not intend to be
Contemplation:	I am not regularly physically active but I am thinking about starting in the next 6 months
Preparation:	I do some physical activity but not enough to meet the description of regular physical activity
Action:	I am regularly physically active but only became so in the last 6 months
Maintenance:	I am regularly physically active and have been so for longer than 6 months

---

<sup>4</sup> <http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=14765&Pos=&ColRank=1&Rank=208>.

---

People's stage of change is a transitory cyclical measure and can go forwards and backwards on the scale. But the observed result is that people are increasingly likely to move closer towards maintenance with every cycle around the stages.

---

# 1 Introduction

---

This report covers FMR Research's investigation of the Live Active Referral Scheme 2005 prior to the introduction of scheme enhancements. These findings will be combined with our research into the scheme with the social support (First Steps), motivator and central administration enhancements. In addition the final report will explore adherence and the longer term impact of the Live Active Referral Scheme.

## 1.1 Background

NHS Greater Glasgow established the Live Active Referral Scheme in 1997 in partnership with Glasgow City Council. After an initial positive evaluation in 1999 the scheme gradually expanded to include the following local authority areas within the NHS Greater Glasgow area – East Dunbartonshire, South Lanarkshire, West Dunbartonshire and East Renfrewshire. One of Glasgow City's Universities also delivered the scheme (Glasgow Caledonian).

In 2008 the Live Active Referral Scheme continued to expand and was rolled out across the full NHS Greater Glasgow and Clyde area in partnership with local authorities and is now also delivered in Inverclyde and Renfrewshire. The scheme employs 24 full-time exercise/health counsellors working within partner local authority areas.

The scheme aims to increase levels of physical activity amongst sedentary individuals who are specifically referred by their health professional (e.g. GP, practice nurse, cardiac healthcare staff, etc.). Exercise counsellors provide these participants with the skills, knowledge and confidence necessary to lead an independent, regularly active lifestyle. Benefits and barriers to change are addressed, and participants are offered access to a variety of appropriate physical activity opportunities. There is also an opportunity for referral onto support services for other health behaviours, e.g. nutrition and smoking cessation.

Referrers complete a referral form via one of three referral pathways. The first two are primary care based and include:

- inactive participants who do not have established heart disease and who require support to become more active (defined in this report as LR); and
- inactive participants with established heart disease who require support to become more active (defined in this report as ETT). As a pre-screening measure and to therefore assess suitability, these participants attend the local hospital cardiology unit for an exercise tolerance test before attending the scheme.

The third referral route is a direct referral from the hospital's cardiac rehabilitation programme. Participants are referred by cardiac physiotherapists to support their post cardiac rehabilitation (defined in this report as PCR).

Referred participants enrol onto the scheme for a period of 12 months and receive an evidence based one-to-one physical activity counselling service. This is in the form of a structured consultation at the baseline stage, and two further recall consultations at 6 and 12 months. Additional support given to participants throughout the 12 month scheme includes telephone calls, letters and the option of supported exercise sessions.

The participant attends the initial baseline consultation for advice on appropriate levels of physical activity. During the consultation, baseline data are recorded on measures such as height, weight, BMI, blood pressure, smoking, alcohol consumption levels, levels of physical activity and self perceptions of physical and mental wellbeing. These recordings are repeated at 6 months and 12 months.

Within the health behaviour change consultation the exercise counsellor and participant, discuss and agree a personalised goal setting plan. The goal setting plan is completed in

---

triplicate, and provides the participant with a detailed account of their agreed physical activity aims and objectives over a six month period. On completion the plan is signed by both the exercise counsellor and participant, one copy is retained by the exercise counsellor, one by the participant and the third copy is forwarded to the referrer. In addition the referrer would receive a covering letter detailing the participant's date of consultation.

Participants receive reduced price access to local authority leisure centres where they can take part in a variety of activities; counsellor led supervised sessions or independent exercise. Support and advice is also provided for home-based exercise.

An evaluation of the Live Active Referral Scheme was completed in 2002. Positive results and various recommendations were highlighted to enhance the scheme further. These were implemented in 2005. In 2006, Scottish Executive funding enabled a series of further enhancements to be developed, namely a social support programme called First Steps, a Motivator project within the scheme, and also the introduction of a Central Administration System for the scheme. This report assesses the efficacy of the Live Active Referral Scheme prior to these further Scottish Executive enhancements, therefore will be defined in this report as **Live Active 2005**, and will form a baseline from which the effectiveness of the future enhancements will be assessed. This report uses two research methods to achieve this: part of the Live Active Referral Scheme participant database of over 25,000 records and the telephone survey of 32 participants.

## 1.2 Objectives

The aim of this evaluation was to assess the Live Active 2005 Scheme in the following ways:

- to interrogate the database to identify the user profile of the scheme with reference to specific groups that use the scheme (e.g. minority groups, participants with disabilities, participants with specific conditions such as Coronary Heart Disease (CHD), participants with mental health problems and participants from deprived areas, levels of inappropriate referrals and levels of attrition);
- to use the database to identify the changes in a range of outcome measures such as blood pressure, weight, frequency of exercise, Hospital Anxiety and Depression Scale (HADS) scores and physical activity levels during the course of the Live Active Referral Scheme;
- to follow up a sample of people (n=30) from the database at least six months after completing the full 12 month scheme to identify the longer term behaviour changes, changes in knowledge (including physical activity targets and other health behaviours), attitudes and exploration of barriers to the scheme and why participants take-up and continue with the scheme; and
- to identify the wider effects of the scheme.

---

## 2 Method

---

### 2.1 Overview

There were two prongs of investigation used in this analysis: the database of participants and the telephone survey.

### 2.2 Database interrogation

From the 25,725 records held on the entire database for the Live Active Referral Scheme, FMR used the records of those who had been referred to the scheme between January 2005 and June 2005 inclusive, which amounted to 3,139 participants. The date that referrals had been received was used to determine those participants who fell into this period of time. In some cases (2) the date the referral had been received was missing. In these cases the data on the referral form was used. If this was also missing (12) the baseline attendance date was used.

In order to get the most from the information, the database was cleaned and checked for key factors such as gender, age at baseline, area of deprivation and postcode. Some of the information on the database was used to determine various factors such as: Community Health and Care Partnership (CHCP) (determined by postcode), and BMI (calculated using the recorded information from the database). This information was coded and, from this, data tables were generated. Despite FMR carrying out data cleaning prior to the analysis, there was still a degree of missing data: the analysis in the results and discussion section (section 3) is conducted with missing data suppressed.

Data were analysed by gender, age group (16-24, 25-44, 45-64, 65+), Scottish Index of Multiple Deprivation (in or out of the 15% most deprived areas, by residential address); CHCP area, and also by the stage of the programme reached by the participant (i.e. referral only, baseline consultation, 6 month consultation or 12 month consultation). The ethnicity (White, Indian, Pakistani, Other Asian, Black African, Other) of programme participants was also examined, although the numbers of participants other than white were too small to allow further analysis.

Frequencies are reported together with analysis where the results are significant at the 95 percentile point unless otherwise stated. A detailed breakdown of the results can be found in appendix 5.

It should also be noted that percentages may not always add up to 100%, due to the effects of rounding.

### 2.3 Telephone survey

The aim of the telephone survey was to identify the longer term effects of the Live Active Referral Scheme. Participants who had completed all 12 months of the scheme between 1<sup>st</sup> December 2005 and 6<sup>th</sup> March 2006 were identified (n = 119). Six months after completing Live Active 2005 participants were approached by letter asking for their permission for FMR to contact them. From this, 32 participants agreed to take part in the survey and were phoned at the time specified on their consent form. Each participant was sent an information letter and a consent form. These documents are appended.

The questionnaire used in the telephone survey had four sections:

- the first section investigated how the participant found out about the scheme;
- the second section measured participants' responses to questions linked to the Hospital Depression and Anxiety Scale;



- 
- the third section included a 7 Day Physical Activity Recall, and the wider effects of the scheme, including questions about how participants felt about their physical and mental health, confidence when exercising, reasons for carrying on with the scheme, any disadvantages of the scheme, and changes in activity levels; and
  - the final section asked about the participants' age, sex and ethnicity for analysis purposes.

---

## 3 Results and discussion

---

This section of the report investigates referral data, the user profile of the scheme, outcome measures in the database, longer term outcomes for scheme completers, and the wider effects of the scheme.

### 3.1 Who refers to the scheme and at what level

#### 3.1.1 Type of referral <sup>5</sup>

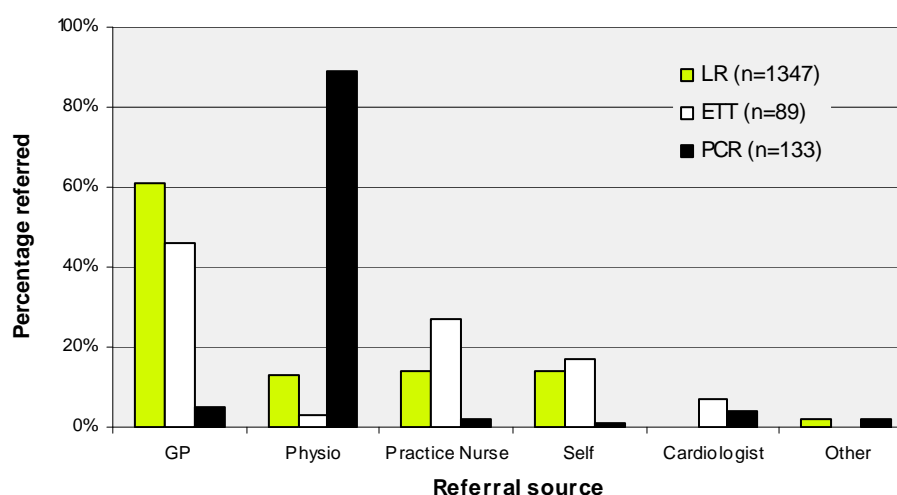
The number of participants per referral type was as follows (Table 1):

- 86% (2,709 participants) were LR participants;
- 8% (246 participants) were referred from the Post Cardiac Rehabilitation process (PCR); and
- 6% (184 participants) were referred via the referral route for participants with established heart disease i.e. Exercise Tolerance Test (ETT).

Of those referred onto the scheme, 50% (1,570 participants) had no data recorded regarding who made the referral. This level of missing data is fairly consistent across the referral types with 50% of LR, 52% of ETT and 46% of PCR referrals having no recorded data on referral source. On further exploration, a fault was discovered in the database which meant it was not possible to record the referral source. The fault has now been rectified.

Where data were recorded, 55% (864 participants) were referred by their GP, 19% (291 participants) by their physiotherapist, 14% (220 participants) by their practice nurse, and a further 13% (202 participants) were initiated by the participant (described as 'self' on the graph below) and referred by their health professional (Table 2). The comparison of referral source for the different referral routes is shown in the figure below.

**Figure 1 Comparison of referral source for different referral routes**



---

<sup>5</sup> Please note that in the text, tables and charts the three groups of referrals will be annotated as follows:

- Participants without established heart disease – LR
- Participants with established heart disease – ETT
- Participants referred as part of their post cardiac rehabilitation – PCR

---

The majority of LR referrals were referred by their GP (61%), ETT participants were mostly referred by their GP (46%) or practice nurse (27%), and PCR referrals were almost all from their cardiac physiotherapist (89%).

### **3.1.2 Inappropriate referrals, positive and medical dropouts between referral and baseline**

Between referral and baseline a number of those dropping out of the Live Active Referral Scheme were as a result of inappropriate referrals (58 participants) (for example: those who were referred through a low risk route but had a heart condition; those looking for a discount only; or those with other medical conditions that are excluded from the scheme) or were considered to be positive or medical dropouts (112 participants) (this would include those who were already physically active and not requiring support, those who gave medical reasons for not attending, and those who had been transferred to another centre or moved away). (Table 3) It is necessary to account for these when examining the participants reaching the baseline stage of the programme, in order to provide an accurate reflection of the actual drop out rate.

#### ***Inappropriate referrals***

Inappropriate referrals (as coded by the exercise counsellor) accounted for 6% (58 participants) of drop outs before attending a baseline consultation and an additional 2% (23 participants) were picked up at the baseline consultation. Inappropriate referrals could be grouped into the following broad categories (based on the notes of the exercise counsellors) (Table 4):

- already active, not requiring support (15 participants);
- problems with referral form (14 participants);
- re-referral (8 participants);
- health problems (3 participants);
- other (11 participants);
- no reason recorded by exercise counsellor (30 participants).

Although this level of inappropriate referral is relatively low, it might be worth investigating these further to reduce the number.

In addition, the forms of 11 participants were deemed as out of date (this being six months after the date of referral) by the exercise counsellors by the time the participants enquired about a baseline consultation.

#### ***Positive and medical dropouts***

Positive and medical dropouts (as coded by the exercise counsellors) between referral and baseline were grouped into the following broad categories:

- transferred to another centre (67 participants);
- medical reasons (23 participants) ;
- still active, not requiring support (21 participants);
- moved away (1 participants).

In some cases, the exercise counsellors appeared to be coding those participants who are active and not requiring support, as 'positive dropouts' as opposed to 'already active, not requiring support' which is considered an 'inappropriate referral'. In order to prevent such confusion in future it may be beneficial to provide exercise counsellors with clearer guidance regarding the categories on the database.

#### ***Those who attended a baseline consultation***

When inappropriate referrals, positive or medical drop outs and those whose form was out of date are discounted, 73% (2,166 participants) of 'appropriate' referrals attended their baseline consultation – the remainder dropped out before baseline and these are discussed in section 3.2. (This does not take into account the 23 participants deemed as inappropriate at baseline consultation.)

---

## 3.2 Who attends the Live Active 2005 Scheme

A combination of referral stage and baseline stage information was used to identify the user profile of the scheme. This analysis enables an exploration of who is using the scheme and identifies groups where the scheme is used less well in order to target work and future enhancements on these groups.

Note: due to differences in the referral forms for each pathway, not all aspects of the user profile is recorded for ETT participants and PCR participants at referral (14%, 430 participants, of the scheme). Where information was not collected for these participants this is noted in the analysis.

### 3.2.1 Referral stage profile data

#### All participants

- Of the 3,139 participants referred to the scheme, 40% (1,267 participants) were male and 60% (1,872 participants) female, compared to the population profile for Greater Glasgow of 46% males and 54% females<sup>6</sup> (Table 5). This indicates that females were more likely to be referred to the scheme than males. This was consistent across age groups, CHCP and 15% SIMD areas. The data do not reveal any explanation for the lower referral rate for men and this may present an area worthy of further examination if a better gender balance is required. The first step should be to determine whether this gender split is reflective of the profile of potential participants (i.e. those who would benefit from the Live Active Referral Scheme). If not, then the gender split may be reflective of the referral method itself. Given that the majority of participants were referred via their GP and as men are recognised as being less likely than females to access GP services, a change to the referral process may help to increase male participation in the scheme<sup>7</sup>.
- Of the 3,043 participants whose date of birth was recorded at referral, 60% (1,834 participants) were aged 45 and above, and 18% (535 participants) aged 65 and above (Table 6). According to the 2001 Census, 45% of Glasgow City's 16+ population were aged 45 and over, and 19% were aged 65 and over. This indicates that a higher proportion of the 45 to 64 age group are more likely to be referred to the scheme (43% of participants compared to 26% of the population in this age group), compared to other age groups. Not surprisingly, 16 – 24 year olds showed the lowest proportion of their age group referred to the scheme. This reflects our knowledge about exercise elsewhere. For example, those aged over 45 are less likely to meet national exercise targets than those in younger age groups<sup>8</sup>, and therefore more likely to be referred to the Live Active Referral Scheme.

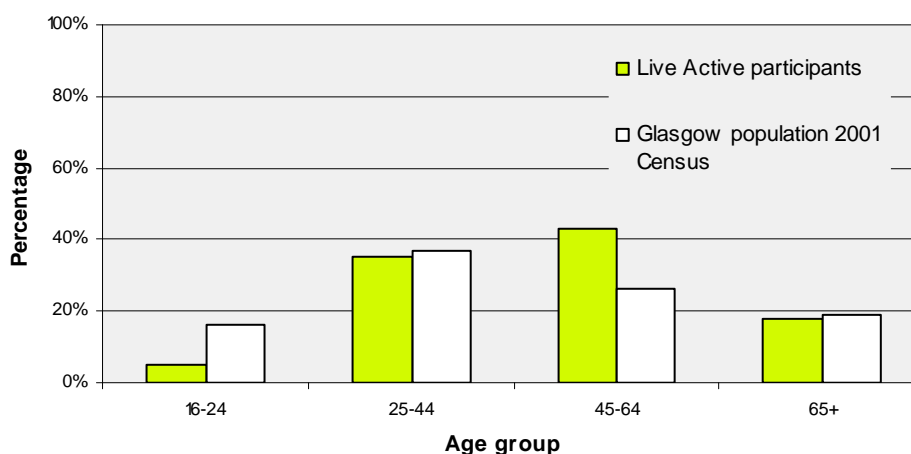
---

<sup>6</sup> Scotland's Census, 2001

<sup>7</sup> Greater Glasgow Health and Well-being Study 2005, NHSGGC, <http://www.phru.net/rande/Web%20Pages/Health%20and%20Wellbeing.aspx>

<sup>8</sup> Greater Glasgow Health and Well-being Study 2005, NHSGGC, <http://www.phru.net/rande/Web%20Pages/Health%20and%20Wellbeing.aspx>

**Figure 2 Comparison of age profile of Live Active 2005 participants with Glasgow population profile**



- Participants were categorised, using their residential address as a reference point, in terms of whether they lived inside or outside the 15% most deprived areas in Scotland, using the Scottish Index of Multiple Deprivation (this report will use 15% SIMD as shorthand for this term). Postcodes were recorded (or were determined using the address details) for 3,007 participants (96%). Just over half, 56% (1,682 participants), lived outside of the 15% SIMD areas and 44% (1,325 participants) within the 15% SIMD areas (Table 7).
- When Glasgow City participants only were explored, 1,991 participants (98%) had postcodes recorded. Of these, 59% (1,180 participants) lived in 15% SIMD areas (compared to only 46% of the Glasgow population) (Table 8). This suggests the Live Active Referral Scheme has been particularly successful in engaging those from the most deprived neighbourhoods, typically a more challenging group to engage.
- At the time of this study, the Live Active Referral Scheme operated mainly in Greater Glasgow. During the first 6 months of 2005 participation in the Live Active Referral Scheme varied across the Glasgow City CHCPs. Of those for whom a postcode was available (3,119 participants), 10% (327 participants) were from the East Glasgow CHCP, 10% (318 participants) from North Glasgow, 12% (387 participants) from West Glasgow, 14% (423 participants) from South East Glasgow, 19% (583 participants) from South West Glasgow, (Table 9). The remaining 35% (1,081 participants) were from CHCP areas outwith the Glasgow City boundary. The individual figures for the CHCP areas outwith the Glasgow City boundary are included within Table 9 which displays the breakdown of the CHCP areas.
- The Live Active Referral Scheme has only recently become operational in Renfrewshire, Inverclyde and the whole of the area administered by West Dunbartonshire local authority. At the time of study, people living in these areas who wanted to use the Live Active Referral Scheme in an alternative CHCP area could do so. Of the participants for whom a postcode was available (3,119 participants), 6% (189 participants) chose to do this.
- Referrers reported that 59% (1,854 participants) of participants were on a form of medication at referral stage. Of the LR participants, 53% (1,429 participants) were reported to be on medication. As would be expected a high proportion of ETT and PCR participants were reported to be on medication (98%, 181 ETT participants, and 99%, 244 PCR participants). Consistent with findings elsewhere<sup>9</sup>, older age

<sup>9</sup> Greater Glasgow Health and Well-being Study 2005, NHSGGC, <http://www.phru.net/rande/Web%20Pages/Health%20and%20Wellbeing.aspx>

---

groups were more likely to take medication than younger age groups (from 31% (46 participants) for 16-24 year olds to 80% (430 participants) for the 65+ age group) (Table 10).

### **Low risk referrals only**

At the referral stage, some information is recorded only for LR participants (those without established heart disease), and this is reported below. For purposes of comparison, NHSGGC should determine which information it requires and might wish to develop a uniform referral form for all three categories of referral (i.e. LR, ETT and PCR).

- Referrers perceived that 46% of LR participants (1,200 participants) had physical or mental limitations which made exercise programmes difficult. Further analysis noted no association between SIMD, gender or CHCP area. However, the likelihood of physical or mental limitations increased with the age of the participant (Table 11).
- Referrers reported a range of other conditions at referral, including:
  - 33% (881 participants) of participants had joint pains or conditions (Table 12);
  - 13% (353 participants) had chest problems (Table 13);
  - 12% (313 participants) were recovering from an operation or illness (Table 14);
  - 11% (295 participants) were diabetic (Table 15); and
  - 8% (214 participants) had blood pressure greater than 160/90 (participants with high blood pressure within the range of 160/90 to 180/110 (during 2009 the upper level changed to 180/100) can be accepted onto the scheme if it is being monitored or treated by a GP or practice nurse) (Table 16).
- According to their referrer, 25% (643 participants) of LR participants were smokers, and 52% did drink alcohol (1,289 participants) (Table 17 & Table 18).

### **3.2.2 Summary of baseline stage profile data and distinctions between referral and baseline stage**

The following information was recorded by exercise counsellors at the participant's baseline consultation. Where possible, comparisons are made between the referral and baseline data in order to identify those most likely to make use of the Live Active Referral Scheme and conversely (and probably of more interest to NHSGGC) those who are less likely.

To gain insight into attrition between referral and baseline stages, two factors need to be in place. Firstly, data around a particular indicator needs to be present at both referral and baseline stages. As a complication to this, it may be the case that, at the stage at which this information was gathered, participants told a GP (for example) and an exercise counsellor differing information (e.g. alcohol consumption and smoking status). This would impact on the accuracy of data collected between the referral and baseline stages. This is particularly the case with some of the information collated for the LR only category at the referral stage. Secondly, the differences between the data at baseline and referral stage need to be significant.

#### **Gender**

Based on the 2,166 participants who attended a baseline appointment, the gender profile remained virtually unchanged from that reported at referral with 61% (1,315 participants) female and 39% (851 participants) male at baseline consultation stage. The drop out rate between the referral stage and baseline for males was 32%, whilst females recorded a drop out rate of 30%. Therefore there were no significant differences in gender profile between referral and baseline stage (Table 19).

---

There was a noticeable discrepancy in the accuracy of gender recorded at referral and that recorded at baseline for a significant number of participants. These data were checked and verified by FMR using the participant's name and title. This is an area where exercise counsellors should be encouraged to record accurate data.

The following discrepancies in gender were noted and verified by FMR using participants' names:

Males: 29 not recorded;  
4 recorded as female at both referral and baseline;  
5 recorded as female at referral and male at baseline; and  
34 recorded as male at referral and female at baseline.

Females: 27 not recorded;  
1 recorded as male at both referral and baseline;  
32 recorded as female at referral and male at baseline; and  
1 recorded as male at referral and female at baseline.

This amounts to 133 participants (4% of referrals), hence the recommendation to encourage counsellors to record accurate data where possible.

## Age

Of the 2,165 participants whose date of birth was recorded, at baseline 45% (964 participants) were aged 45-64, 20% (429 participants) were aged 65+ and the age group with the lowest proportion attending a baseline consultation was the 16-24 group, 4% (90 participants). Those aged over 45 were more likely to attend baseline consultations than those in the younger age groups (Table 20). Further research with participants in the 16-44 age group could be carried out to investigate the reasons for their higher propensity to drop out between referral and baseline. There are no clear indications on why this is the case in the participants' database.

## Deprivation

At baseline, postcodes were recorded for 2,107 participants and it was found that 60% (1,257 participants) lived outwith the 15% SIMD areas and 40% (850 participants) lived within the 15% SIMD areas (Table 21). This highlights a slightly higher dropout rate for those living within the 15% SIMD areas than those outwith between referral and baseline (36% within SIMD compared with a dropout rate of 25% for those outwith). Therefore participants living outside 15% SIMD areas were more likely to attend baseline consultations and those living within the 15% SIMD areas less so.

## CHCP

Looking at the various CHCP areas where participants reside, some CHCPs had a higher proportion of drop outs between referral and baseline than others (Table 22). The percentage of referrals that dropped out the programme at referral was highest in:

- South West Glasgow (40%, 235 referrals);
- South East Glasgow (37%, 156 referrals);
- South Lanarkshire (37%, 89 referrals); and
- East Glasgow (36%, 119 referrals).

The percentage of referrals that dropped out before baseline was lowest in:

- West Dunbartonshire (14%, 24 referrals);
- East Renfrewshire (14%, 38 referrals);
- East Dunbartonshire (25%, 92 referrals);
- West Glasgow (26%'; 102 referrals); and
- North Glasgow (28%, 88 referrals).

---

This study does not provide further illumination into the reasons for variation in drop out rates across the city and may be worthy of further study. Social deprivation does not provide an explanation of why areas such as North Glasgow and West Dunbartonshire have substantial areas of social deprivation but have lower drop out rates. This may be due to lower referral rates in these areas which allows the exercise counsellors more opportunity to follow up clients.

### **Medication**

The referral form for participants recorded those taking some form of medication. For this group, those reported by the referrer as taking some form of medication were more likely to attend baseline consultations, with 75% (1,387 participants) of those reported by their referrer as taking medication attending a baseline appointment, compared to only 61% (779 participants) of those who were reported as not taking medication (Table 23). However, it should be noted that there is often a discrepancy between the referral information on medication and the baseline recording of medication – 41% (322 participants) of those whose referrer reported them as **not** being on medication, indicated to their exercise counsellor at the baseline consultation that they **were** taking medication (Table 24).

Possible explanations of this discrepancy are:

- the referrer was not completing the referral form accurately; or
- the participant was citing medication which the referrer did not consider as relevant to the scheme or worth mentioning.

In order to facilitate comparison, NHSGGC might wish to consider giving guidelines to either the referrer or exercise counsellor (or both) on which types of medication should be recorded.

### **Other LR characteristics (patients without established heart disease)**

As previously mentioned, the information collected at the referral stage for the three referral pathways varies, and therefore some information is available only for LR participants. As a result, there are some characteristics (when looking at changes between referral and baseline) that cannot be explored for ETT or PCR participants. **The following data apply only to LR participants.**

#### ***Physical and mental limitations***

Participants with physical or mental limitations which would make exercise programmes difficult were more likely to attend baseline consultations. The same applied to those LR participants reported by their referrers to have joint pains or conditions. This would indicate that neither provided a barrier to participation, at the baseline stage (Table 25 & Table 26).

#### ***Use of alcohol***

Those who stated at referral stage (LR participants only) that they did not drink alcohol appeared less likely to attend baseline consultations. However, differences in data capture processes between referral and baseline stages might account for this variance. For example of the 1,856 LR participants who responded at the referral and baseline stage, 45% (842 participants) were recorded by their GP as not drinking alcohol (Table 27). However, 30% (249 participants) of this group stated that they did drink alcohol when responding at the baseline stage (Table 28). At referral stage participants were reporting to their referrer and at baseline stage participants were reporting to an exercise counsellor. It is also worth noting again that self reporting of alcohol levels is widely accepted as under-reported (Kroke et al, 2001: pp621-627)<sup>10</sup>.

---

<sup>10</sup> Comparison of self-reported alcohol intake with the urinary excretion of 5-hydroxytryptophol:5-hydroxyindole-3-acetic acid, a biomarker of recent alcohol intake, Kroke et al, British Journal of Nutrition, 2001, Vol 85, pp621-627



---

## **Smoking**

Of those LR referrals, non-smokers were more likely to attend a baseline consultation than smokers, with 44% (282 participants) of smokers dropping out after referral stage compared to only 27% (527 participants) of non smokers. However, the same caveat as above regarding differences in data capture processes applies here (Table 29).

### **3.2.3 Implications of distinctions between referral and baseline**

Based on the gender and age data, for all participants at the referral and baseline stage, the proportion of participants falling into these categories at baseline stage are similar to those at the referral stage. Therefore, action to attract younger people and men may require to be taken at the referral stage by, for example amending the hours in which the Live Active Referral Scheme runs (for example outwith working hours).

The Live Active Referral Scheme was less successful in retaining those living within the 15% SIMD areas to attend baseline, despite there being a significant proportion of referrals from within these areas. This could reflect the cost of participation or as a result of the more general social deprivation and exclusion within these areas.<sup>11</sup> In order to lower the drop out rate within this group it may be necessary to examine the costing structure of the scheme. Adopting methods to tackle the wider social exclusion issues may be more difficult and potentially a longer term aim of the Live Active Referral Scheme, with some options being the promotion of the scheme via community events within 15% SIMD areas.

The Live Active Referral Scheme was successful in attracting those who were recorded at the referral stage as taking some form of medication. This may be as a result of those who are recorded as taking some form of medication having greater health problems than those who are not. These participants have more to gain from participation. Based on the assumption that those who are not recorded as taking any form of medication have fewer health problems, more may be required to be done to promote the wider benefits of participation in order to engage this group. However, caution should be taken when looking at the data on medication due to the discrepancies recorded between referral and baseline. Possible explanations of this are that:

- the referrer was not completing the referral form accurately; or
- the participant was citing medication at their baseline consultation which the referrer did not consider as relevant to the scheme or worth mentioning.

In order to facilitate comparison, NHSGGC might wish to consider giving guidelines to either the referrer or exercise counsellor (or both) on which types of medication should be recorded.

The Live Active Referral Scheme has been successful in attracting those LR participants who were recorded at referral as having a physical or mental limitation which may present a barrier to participation. Therefore, as with the participants not reported at referral as being on some form of medication, it may be necessary to adapt the scheme to retain those participants in a better state of health. This may be achieved by greater promotion of the wider benefits of exercise to those without health problems.

In order to improve the overall take up of the Live Active Referral Scheme following referral, NHSGGC could investigate the possibility of the referrer (GP, practice nurse, physiotherapist, etc.) making the baseline appointment at the time of referral, while the patient is with them. This should be more feasible with the introduction of the central administration enhancement.

---

<sup>11</sup> Measuring Deprivation in Scotland: Developing a Long-Term Strategy, Final Report, Nick Bailey, John Flint, Robina Goodlad, Mark Shucksmith, Suzanne Fitzpatrick & Gwilym Pryce, Scottish Centre for Research on Social Justice, Universities of Glasgow and Aberdeen, Scottish Executive Central Statistics Unit, 2003

---

### 3.2.4 Data recorded at baseline only

The following data are **recorded at baseline but not at the referral stage for all participants**, so it is not possible to draw distinctions between referral and baseline – profile information data only are reported.

#### ***Employment Status***

At baseline stage, of the 2,139 participants for whom employment status was recorded, 37% (793 participants) were employed either full-time or part-time, 26% (559 participants) were retired (by virtue of their age) and 16% (335 participants) were not working due to ill health. The remaining 22% (452 participants) fell into the following categories; unemployed looking for work, student, retired medical and other non working. Therefore those in employment accounted for the highest proportion of participants, at the baseline stage (Table 30).

#### ***Ethnicity***

At baseline 96% (2,052 participants) of participants identified themselves as coming from a white ethnic background with Pakistani (2%, 38 participants) and Indian (1%, 21 participants) participants being the most prevalent minority ethnic groups (Table 31). The ethnic profile of participants living in Glasgow City shows a close correlation with data from the 2001 Census, with 5% (70 participants) of the Live Active Referral Scheme participants from Glasgow City being from a minority ethnic background compared to 5% in the census (Table 32). Comparisons were not made with areas outwith Glasgow City as the Live Active Referral Scheme did not, at that time, fully cover CHCP areas outside the City.

#### ***Weight***

Using body mass index (BMI) as the indicator, 80% (1,651 participants) at baseline stage were either overweight or obese (Table 33).

#### ***Heart rate***

The mean resting heart rate at baseline stage was 72 (i.e. within the normal range of 60-90, British Heart Foundation, [www.bhf.org.uk](http://www.bhf.org.uk)) (Table 34).

#### ***Blood Pressure***

Mean systolic blood pressure at baseline was 130 and mean diastolic blood pressure at the same stage was 81 (i.e. within the normal range)<sup>12</sup> (Table 35 & Table 36).

#### ***Smoking and alcohol***

At baseline, 20% (434 participants) were smokers (22%, 186 males and 19%, 248 females), and 6% (130 participants) of participants (9%, 77 males and 4%, 53 females) consumed alcohol at levels greater than the recommended level (14 units per week for females and 21 units for males). It should be noted, however, that self reporting of alcohol consumption

---

<sup>12</sup> Blood Pressure is the pressure of blood in your arteries, measured in millimetres of mercury (mmHg). Your blood pressure is recorded as two figures, the first number is the systolic pressure (the pressure in the arteries when the heart contracts) and the second is the diastolic pressure (the pressure in the arteries when the heart rests between each heartbeat)

- High blood pressure (Hypertension) -140 over 90 or higher.
  - Normal range -Between 120 over 80 and 140 over 90
  - Low Blood Pressure (Hypotension) – 90 over 60 or lower
- (The blood Pressure Association, <http://www.bpassoc.org.uk/Home>)

---

levels is widely recognised as being lower than actual (Kroke et al, 2001: pp 621-627)<sup>13</sup> (Table 37 & Table 38).

### **Stage of Change**

Participants were asked to describe their level of physical activity to identify their stage of change as follows:

Pre contemplation:	I am not regularly physically active and do not intend to be
Contemplation:	I am not regularly physically active but I am thinking about starting in the next 6 months
Preparation:	I do some physical activity but not enough to meet the description of regular physical activity
Action:	I am regularly physically active but only became so in the last 6 months
Maintenance:	I am regularly physically active and have been so for longer than 6 months

One aim of the Live Active Referral Scheme is to move participants through the stages of change towards the maintenance stage.

Of the 2,154 participants who attended baseline, for whom the stage of change was reported, 46% (990 participants) stated they were thinking about becoming regularly physically active (contemplation stage) and 39% (834 participants) said they did some physical activity, though not enough to meet the description of regular physical activity (preparation stage). In total 89% (1,928 participants) were not taking regular physical activity (i.e. were not meeting the description of regular physical activity which is 30 minutes of moderate physical activity on most days of the week<sup>14</sup>) (Table 39).

### **Health State scale**

At baseline participants were asked to rate their health state on a scale of 0 – 100 with 100 being the best possible state of health. The mean perceived health state at baseline stage for all participants whose data was recorded was 51 (Table 40).

### **Hospital Anxiety and Depression Score<sup>15</sup>**

The mean HADS anxiety score for the participant cohort at baseline stage was 6.9 and the corresponding HADS depression score was 4.9. These scores represent low levels of anxiety and depression (Table 41 & Table 42).

Of the 1,752 participants for whom a HADS score was recorded at baseline, 41% (712 participants) recorded a HADS anxiety score within the mild - severe range (mild (19%, 325 participants), moderate (18%, 308 participants), severe (5%, 79 participants)) and 22% (392 participants) recorded a HADS depression score within the mild – severe range (mild (12%, 214 participants), moderate (9%, 154 participants), severe (1%, 24 participants)) (Table 43).

---

<sup>13</sup> Comparison of self-reported alcohol intake with the urinary excretion of 5-hydroxytryptophol:5-hydroxyindole-3-acetic acid, a biomarker of recent alcohol intake, Kroke et al, British Journal of Nutrition, 2001, Vol 85, pp621-627

<sup>14</sup> Lets Make Scotland More Active, 2003 <http://www.scotland.gov.uk/Publication/2003/02/16324/17895>

<sup>15</sup> The hospital anxiety and depression scale (HADS) is a widely used and popular self-report measure designed to detect the presence and severity of mild degrees of mood disorder, anxiety and depression. The participant is asked to answer fourteen questions (7 for anxiety and 7 for depression) relating to their mental attitude. The maximum score possible for Anxiety or Depression on the HADS scale is 21 (totally anxious or depressed), and the lowest score is 0 (totally lacking in anxiety or depression).

- 0-7 Normal
- 8-10 Mild
- 11-15 Moderate
- 16-21 Severe.

HADS is completed at the discretion of the participant; it is not used as a psychological screening tool.

---

### 3.3 Attrition rates and adherence

The data are helpful in learning about the characteristics of those who adhere to the scheme and, by so doing, put themselves in the position of obtaining the greatest health benefits. The key data to facilitate these insights relate to changes in participants between baseline, 6 month and (especially) 12 month points. A participant's lack of inclination to complete the full 12 months of the Live Active Referral Scheme may not constitute failure. Participants may elect to maintain a personal exercise regime independently whilst the Live Active Referral Scheme performed a vital role of sensitising the participant to the importance of exercise and gave them the confidence to maintain an exercise regime.

#### 3.3.1 Profile of 'completers'

The database data contribute to an understanding of the profile of those participants likely to complete the Live Active Referral Scheme for its full 12 months duration. The data used are mainly from that recorded at the baseline consultation. However, for the LR referral type, additional information was provided at the referral stage that was not recorded for PCR or ETT participants and, in this case, the data used are from that recorded at the referral stage.

##### Age

Older participants were significantly more likely to complete the scheme ( $p < 0.001$ ). Participants 45 years old and over accounted for 77% (311 participants) of completers, compared to 64% (1,393 participants) of the baseline population. Therefore, those under the age of 45 were less likely to complete the scheme and accounted for only 23% (93 participants) of the completers despite accounting for 36% (772 participants) of the baseline population (Table 44).

##### Deprivation

Participants living outside 15% SIMD areas were more likely to complete the Live Active Referral Scheme, and those living within 15% SIMD areas were less likely. Only 9% (118 participants) of those living within the 15% SIMD areas completed the scheme compared to 17% (279 participants) of those living outside the 15% SIMD areas (Table 45).

##### CHCP area

Looking at the various CHCP areas where participants reside, some CHCPs had a higher proportion of 12 month completers than others (Table 22). The percentage of referrals that completed the Live Active Referral Scheme was highest in:

- West Dunbartonshire (30%, 49 completers);
- East Renfrewshire (23%, 63 completers); and
- East Dunbartonshire (19%, 69 completers).

The percentage of referrals that completed the Live Active Referral Scheme was lowest in:

- East Glasgow (6%, 19 completers); and
- North Glasgow (5%, 16 completers).

It is suspected that some of the variance in reasons for leaving the scheme is a result of different recording practices (see section 3.3.4). One possible explanation could be due to staff shortages during this period, which have now been rectified.

##### Employment

Those who were retired due to their age (as opposed to medical reasons) were more likely to complete the scheme, with 31% (172 participants) of those who attended a baseline appointment continuing through to their 12 month consultation; compared to between 8%

---

and 16% for other employment categories (Table 46). Those who were economically active (those who are working or who are available for work) were less likely to complete the scheme – 14% (139 participants) of those who were economically active completed the scheme compared to 22% (261 participants) of those who were economically inactive ( $p < 0.001$ ) (Table 47).

### **Referral route**

Participants referred through the PCR route were more likely to complete the scheme: 25% (62 participants) attended their 12 month consultation compared to 16% (30 participants) of those referred through the ETT route and 12% (312 participants) of those referred who were LR (Table 48). PCR clients are coming from a short 12 week hospital based exercise programme. They may be more established in their exercise patterns than other referral routes and this could account for the difference. However, the database does not provide any illumination for this difference in the completion rates of the different referral types.

### **Medication**

At the 12 month stage, 84% (340 participants) of participants were currently taking some form of medication, compared to 59% (1,854 participants) at referral stage (Table 50). However, as discussed earlier, there appeared to be a discrepancy between the data recorded at referral and that recorded at the baseline consultation.

When the change in self-reported taking of medication is compared between baseline and 12 month consultation, there was a slight increase from 79% (1,707 participants) at baseline to 84% (340 participants) at 12 months ( $p < 0.01$ ), which would suggest that people taking medication are more likely to stay on the scheme. One explanation for this may be that people taking medication could have more reason to be concerned for their health and therefore have more to gain from continuing with the scheme, although evidence for this is not recorded in the database.

### **Weight**

Participants who reached the 6 month and 12 month stages of the scheme were lighter at baseline than those who dropped out after baseline, and this difference was significant ( $p < 0.01$ ) (Table 51).

### **BMI**

Participants classified as obese at baseline were less likely to complete the scheme, with 50% (655 participants) of those who dropped out after their baseline appointment being classed as obese, compared to 42% (166 participants) of those who completed the scheme (Table 52).

### **Smoking**

Looking at LR referrals only, non-smokers (as recorded at referral stage) were more likely to complete the Live Active Referral Scheme and smokers less likely, with 13% (257 participants) of non-smokers having a 12 month consultation compared to only 7% (48 participants) of smokers (Table 29). This is further backed up by the data (for all referral types) which showed that 74% (321 participants) of smokers (at baseline) drop out after baseline, compared to 61% (1,059 participants) of non smokers, and only 13% (58 participants) of smokers at baseline went on to complete the scheme, compared to 20% (346 participants) of non smokers (Table 53).

### **Anxiety and depression**

Levels of anxiety and depression in participants were recorded by exercise counsellors at the three consultations using the Hospital Anxiety and Depression Scale. In analysing these data we have looked at both the mean value and the assignment of scores as follows:

- 
- 0-7 Normal
  - 8-10 Mild
  - 11-15 Moderate
  - 16-21 Severe.

For the purposes of looking for significant changes, we grouped the moderate/severe scores together (score 11-21) and the mild/normal scores (score 0-10).

### **Anxiety**

Participants who reached the 6 and 12 month stage of the Live Active Referral Scheme were significantly more likely to be in the normal/mild range of the HADS anxiety scores at baseline (78%, 247 participants, of 6 month completers and 86%, 296 participants, of 12 month completers) than those who dropped out after baseline (75%, 822 participants) ( $p < 0.001$ ) (Table 54).

Those participants who did not progress to 6 and 12 months of the scheme had a higher mean HADS Anxiety score at baseline (7.18), compared to those who did progress through the scheme (6.60 for those who dropped out after 6 months and 6.01 for those who completed the scheme,  $p < 0.001$ ) (Table 56).

### **Depression**

Similarly those participants who were more depressed (using the HADS Depression scale) at baseline stage, were less likely to progress beyond baseline stage.

Participants who reached the 6 and 12 month stage of the Live Active Referral Scheme were significantly more likely to be in the normal/mild range of the HADS depression scores at baseline (91%, 289 participants, of 6 month completers and 93%, 319 participants, of 12 month completers) than those who dropped out after baseline (88% 966 participants) ( $p < 0.05$ ) (Table 54).

The mean HADS Depression score at baseline stage, for those not progressing past baseline stage on the scheme was 5.2, which was significantly higher ( $p < 0.001$ ) than that for those participants who dropped out after 6 months (4.63) and for those who completed the scheme (4.17) (Table 56).

There is no evidence recorded on the database to explain these differences but it could be speculated that this could have something to do with people's own positive attitude to be engaged.

### **Health State scale**

Participants more likely to move beyond baseline stage gave a higher self-assessment of their perceived health on the Health State scale at baseline. Those who progressed beyond baseline stage gave themselves a Health State scale rating at baseline significantly higher than the (mean) 49.7 out of 100 rating given by those not progressing beyond baseline stage (a baseline mean score of 51.6 for 6 month completers and a baseline score of 57.3 for 12 month completers,  $p < 0.001$ ) (Table 58).

### **Stage of change**

There was a significant correlation between the Stage of Change at baseline and the final stage reached, with those who perceived they were already doing some physical activity being more likely to complete the Live Active Referral Scheme than those who were not regularly physically active at baseline (Table 39). When looking at the Stage of Change reported at baseline, 9% (124 participants) of those who dropped out at baseline said they were already physically active at baseline (in the last six months or longer), compared to 16% (63 participants) of those who completed the scheme (Table 60).

---

## Physical and mental limitations

Those LR participants adjudged by their referrer to be experiencing physical or mental limitations which would make exercise programmes difficult, were more likely to complete the 12 month scheme. Such participants accounted for 54% (163 participants) of the completer profile compared to 46% (1,200 participants) of the referral profile (Table 61). These data were not recorded on the ETT and PCR referral forms.

## Gender

Gender was not a significant predictor of propensity to complete the scheme.

## Ethnicity

Ethnicity was not a significant predictor of propensity to complete the scheme, perhaps due to the small numbers involved.

### 3.3.2 Participants reaching each stage of the Live Active Referral Scheme

Of those referred onto the Live Active Referral Scheme between January 2005 and June 2005 (3,139 participants):

- 69% (2,166 participants) attended a baseline consultation (73% excluding inappropriate referrals, positive and medical drop outs);
- 22% (687 participants) attended a 6 month consultation (23%, excluding inappropriate referrals, positive and medical drop outs); and
- 13% (404 participants) completed the full scheme including the 12 month final consultation (14%, excluding inappropriate referrals, positive and medical drop outs).

Some 12 month completers missed out the 6 month consultation and this amounted to 5% (excluding inappropriate referrals, positive and medical drop outs) of baseline attendees (99 participants).

Table 62 shows the full spectrum of reasons for participants leaving the scheme.

Of those who attended a baseline consultation (2,166 participants):

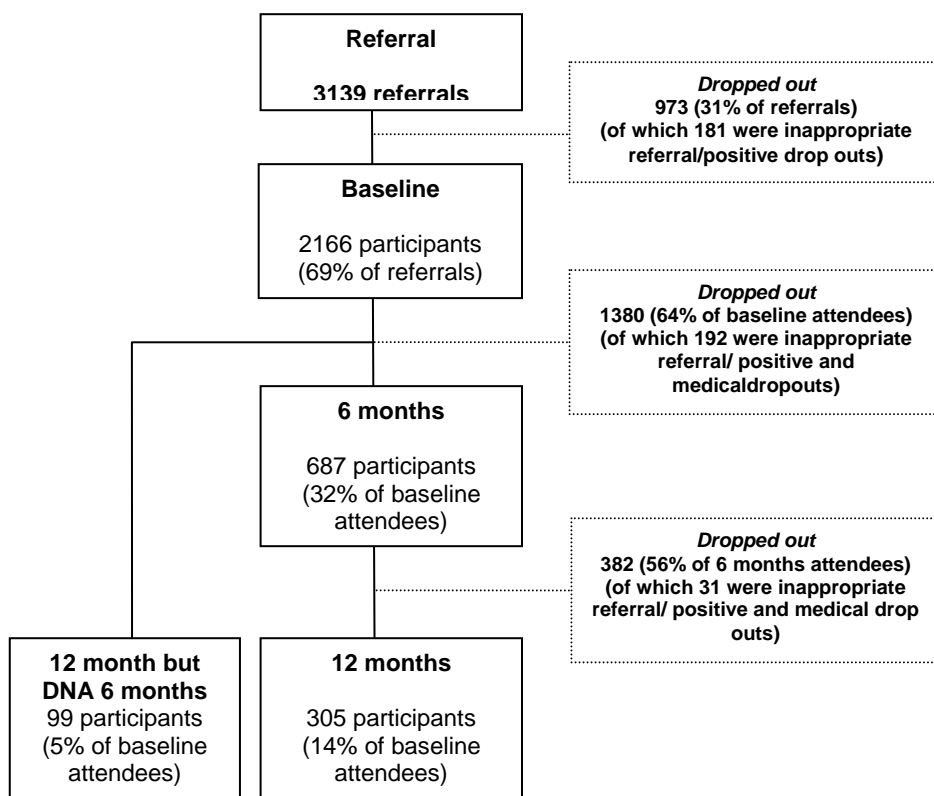
- 32% (687 participants) attended a 6 month consultation (35%, excluding inappropriate referrals and positive drop outs); and
- 19% (404 participants) completed the full scheme including the 12 month final consultation (21%, excluding inappropriate referrals and positive drop outs).

At each stage in the scheme a number of those dropping out were as a result of positive dropouts (this would include those who are still active and not requiring support and those who had been transferred to another centre). It is necessary to account for these when examining the participants reaching each stage of the scheme, in order to provide an accurate reflection of the actual drop out rate at each stage.

Inappropriate referrals and positive drop outs between referral and baseline stages have already been reported in section 3.1.2. Positive dropouts after baseline will be discussed in section 3.3.4.

It is possible that some of the participants who failed to continue with the scheme and who were recorded as uncontactable may have dropped out because they were exercising on their own accord and did not feel the need for support from their counsellor (and so would be regarded as positive drop outs).

**Figure 3** Number and % of participants reaching each stage of Live Active Referral Scheme



### 3.3.3 Attrition rates

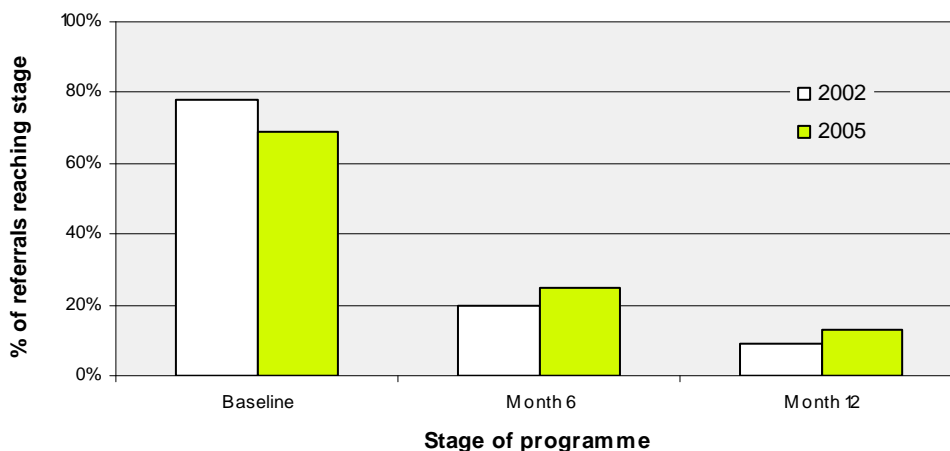
The attrition rates at each stage in the scheme should be examined by taking account of the proportion of inappropriate referrals and positive drop outs.

The participant database showed that 31%, 973 participants (181 of these were inappropriate referrals or positive drop outs) of those referred onto the Live Active Referral Scheme dropped out prior to the baseline consultation. It also showed 87%, 2,735 participants (404 of these were inappropriate referrals or positive dropouts) of referrals (i.e. 81% of those attending a baseline consultation) dropped out of the scheme before its maximum 12 month duration.

The 2002 evaluation showed that 22% of those who were referred did not attend a baseline appointment, with 80% of referrals dropping out prior to the 6 month stage and 91% of referrals dropping out prior to the 12 month stage. Figure 4 shows that the proportion of participants who dropped out between referral and the 12 month stage of the scheme has improved since the last evaluation.



**Figure 4 Comparison of attrition rates (inclusive of inappropriate referrals and positive drop outs) for Live Active 2005 and 2002 participants**



### 3.3.4 Reasons for leaving the Live Active Referral Scheme

The database data gave some degree of insight into why participants left the Live Active 2005 scheme. However, this is limited for two main reasons. First, this field on the database was completed by counsellors without necessarily first-hand data from the participants. Second, the key database fields are broad in scope which may have led to variation in data entry by exercise counsellors. For example, we know that 62% (1,701 participants) of those 'leaving the programme' did so because they failed to make an appointment/didn't show for appointment/were not interested. Of those leaving the programme, 17% (466 participants) were not contactable by their counsellor (Table 62).

The data for those participants who did not complete the scheme (2,735 participants) were analysed to determine their reasons for leaving the scheme. Of these, exercise counsellors had recorded reasons for leaving for only 49% (1,083 participants) of drop outs. Entries in the notes or contact fields of the database for the remaining 1,652 participants were examined by FMR and appropriate reasons for leaving were deduced.

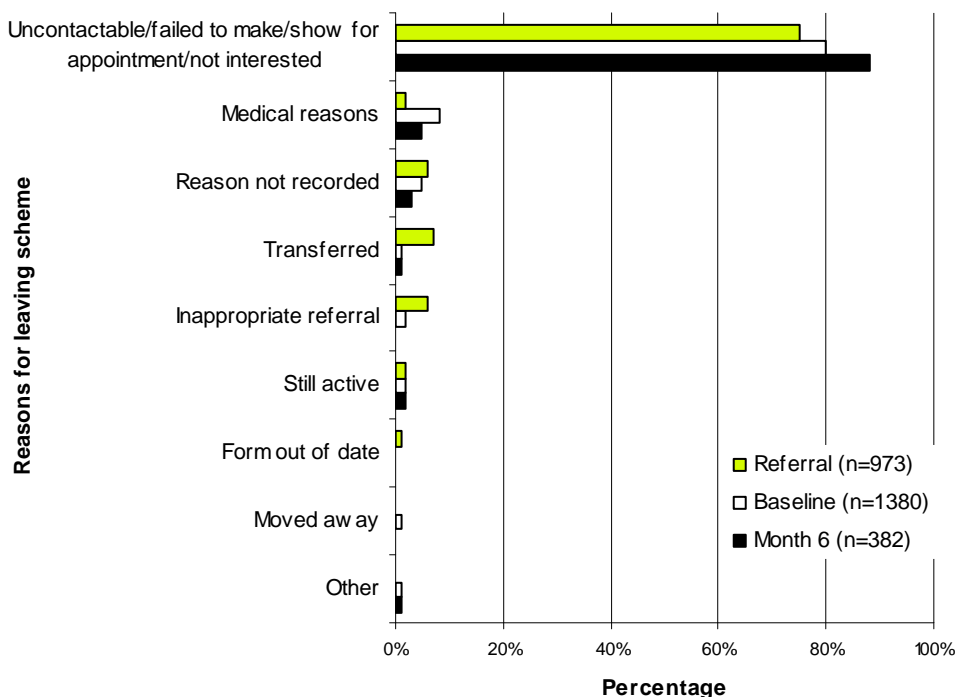
Overall, the main reason for leaving the scheme was the participant failed to make the appointment/didn't show for appointment/wasn't interested 62% (1,701 participants) (the majority of which was coded by FMR) (Table 3). Further analysis of the referrals in question showed that in the majority of cases the participant had tried to be contacted but these attempts were unsuccessful. This suggests the data from this field could be considered in association with the second most prevalent reason 'uncontactable' (17%, 466 participants). A number of drop outs (15%, 404 participants) were categorised as inappropriate referrals or positive drop outs (these include those who are still active and not requiring support, those who gave medical reasons for not continuing, and those who had been transferred to another centre or moved away). A small number of forms (11) were out of date (this being six months after the date of referral) when received by the exercise counsellor.

Therefore, 5% (149 records) had neither data about why the participant did not complete the scheme, nor any data on contact having been attempted. In order to allow useful analysis of the database it is essential that all fields are completed accurately by exercise counsellors. The failure to do so, as indicated above, may highlight a need for further training for the exercise counsellors around use of the database.

The remaining 1% (15 participants) of those who dropped out of the Live Active Referral Scheme were categorised as having another reason for leaving.

The full spectrum of reasons for leaving are in Table 62.

**Figure 5 Reasons recorded by exercise counsellor for participants leaving the Live Active Referral Scheme by stage reached**



There were no significant variances in these data by age or gender.

Failed to make an appointment/did not show for appointment/not interested varied between 31% (94 participants) in East Glasgow and 83% (250 participants) in East Dunbartonshire, whilst uncontactable varied between 1% (2 participants) in East Dunbartonshire and 33% (123 participants) in South East Glasgow (Table 62). Exercise counsellors in different areas could have recorded or coded reasons for participant non-attendance differently, for instance, 'failed to make an appointment/did not show for appointment/not interested' and 'uncontactable' could be interpreted differently by exercise counsellors. This could have had the affect of one participant being classed as 'uncontactable', but to another exercise counsellor they were classed as 'not interested'.

Inappropriate referrals and positive drop outs between referral and baseline were discussed in section 3.1.2.

In order to ensure that there is uniformity across the board the exercise counsellors require to have clear interpretation of the categories within the database, in order to prevent such differences. It may also be beneficial to develop more focussed categories for the database in order to remove the risk that the information given will be biased by the interpretation of individual exercise counsellors. Furthermore, there is a need to ensure that the database entries are maintained and accurate to prevent incomplete information.

This area will be examined in greater detail in the non adherer report.

### 3.4 Impact of the scheme on various outcome measures

Both the database analysis and qualitative study of completers (the telephone survey, as described in the method section of this report) contributed to the understanding of the health outcomes of Live Active 2005. The health outcomes can be divided into two groups. The first are those that can be assessed independently. The second are those based on participant perception.

---

In order to look at the impact of the scheme on specific outcome measures, we looked for changes in the measure for the participants for whom data were available at each stage (e.g. baseline and 6 month consultation, or baseline and 12 month consultation), and carried out paired t-tests.

### 3.4.1 Independently assessed outcomes

#### Weight

Looking only at those participants who could be tracked through the scheme there was a significant weight loss throughout the duration of the scheme. Using a paired t-test it is possible to show that for the 617 participants whose weight was recorded both at baseline and at the 6 month stage the drop in weight was 0.54 kg ( $p < 0.01$ ). For those who could be tracked from baseline to 12 months (363 participants) the drop in weight was 0.58 kg ( $p < 0.05$ ). There was no significant weight loss between 6 months and 12 months, showing the majority of participants lose most weight in the first 6 months of the scheme and this was sustained at 12 months (Table 63).

#### Body Mass Index (BMI)<sup>16</sup>

Paired samples t tests (for participants with data at both stages) showed a small (0.18) but significant reduction ( $p < 0.05$ ) in mean BMI between baseline and the 6 month stage, but not a significant difference between baseline and 12 months. This result appeared at odds with the results for weight and, on further investigation, this was found to be due to the differences in height at each stage recorded by the exercise counsellors. Subsequently we averaged the recorded height for participants and found that the results showed a significant drop in BMI between baseline and 6 months ( $p < 0.01$ ) and baseline and 12 months ( $p < 0.05$ ) but not between 6 and 12 months (Table 64), similar findings to those for weight.

In order to be sure of reliable results the Live Active Referral Scheme should consider developing a code of standard practice for taking height and weight. This would help to minimise observer error. In a minority of cases differences in height were noted between baseline, 6 months and 12 months. Whilst it is acknowledged that some of this may be due to physiological changes to participants over time, some will be due to observer error. This affects the BMI calculation which squares the height measurement.

Movement in BMI was examined by grouping the BMI measurements into the following categories:

- underweight (<18.5)
- normal (18.5 to 24.9)
- overweight (25.0 to 29.9)
- obese (30+).

Of those who were overweight or obese at the baseline consultation (214 participants overweight and 268 participants obese), 12% (17 participants) of those who were overweight had moved into the normal BMI range by the 12 month consultation and 16% (25 participants) of those who were obese at baseline had moved into the overweight range. That said, 20% (14 participants) of those who were in the normal range at baseline had moved into the overweight range by the 12 month consultation, and 14% (19 participants) of those in the overweight range at baseline had moved to the obese range (Table 65).

---

<sup>16</sup> Body Mass Index is a formula used by the medical profession to compare body weight to height to indicate a healthy weight for a given height. The formula is: weight (in kilograms) divided by height squared (in metres). A normal BMI is generally taken as between 18.5 and 24.9, an overweight person's BMI would be between 25 and 29.9 and anything above 30 is classified as obese.

---

## Heart rate

A very broad suggestion of a normal heart rate is 60 bpm to 90 bpm (British Heart Foundation). Heart rate can be affected by some types of medication. However, any movement in resting heart rate throughout the scheme was not significant.

## Hypertension

Changes in hypertension are not reported as the classification used in the database does not take into account the control of blood pressure by medication. For example, some people may not be hypertensive, but only because their blood pressure is being controlled by medication.

## Independently assessed outcome summary

Based on examination of the independently assessed outcomes, the Live Active Referral Scheme was successful in terms of the significant reduction in weight. The majority of completers were shown to lose weight in the first six months of the scheme; further examination of this would be advised in order for participants to achieve weight loss in the later stages in the scheme. Completers also displayed a corresponding reduction in BMI; again this was only significant between the baseline stage and 6 month stage. Therefore, as with the apparent slow down in weight loss, further examination of reasons for this would be advised in order to achieve greater future results. Use of standard measuring procedures may help to minimise observer error when exercise counsellors are taking height measurements.

There was no significant difference in the mean resting heart rate; however the data did not take account of medication which may affect this. The inclusion of such data in future would provide a more accurate outcome measure.

Hypertension was not reported, as this data did not take account of those participants on medication to control blood pressure.

### 3.4.2 Outcomes based on participant perception

#### Hospital Anxiety and Depression Scale

Levels of anxiety and depression in participants were recorded by exercise counsellors at the three consultations using the Hospital Anxiety and Depression Scale. In analysing these data we have looked at both the mean value and the assignment of scores as follows:

- 0-7 Normal
- 8-10 Mild
- 11-15 Moderate
- 16-21 Severe.

For the purposes of looking for significant changes, we grouped the moderate/severe scores together (score 11-21) and the mild/normal scores (score 0-10).

#### *Hospital Anxiety and Depression Scale – Anxiety*

Mean HADS Anxiety scale scores for participants reduced significantly for those participants for whom data existed at both baseline and 6 month stages ( $p < 0.001$ ) and for whom data existed at baseline and 12 month stages ( $p < 0.001$ ). There was a 23% (6.11 to 4.71) reduction on the mean HADS Anxiety scale for participants over the first 6 months and a mean reduction of 41% (5.92 to 3.50) for participants over the 12 month scheme (Table 66).

The anxiety score for those just beginning the scheme was higher in women than in men. However, for both men and women, on average, the levels of anxiety dropped throughout their year on the scheme. These changes were significant and show a clear relationship

---

between lowering levels of self measured anxiety as involvement in the Live Active Referral Scheme continues (Table 68).

The data also showed HADS Anxiety scores were significantly lower for the older participants (Table 41).

Of the 330 participants who completed the HADS anxiety questions both at baseline and 12 month stages of the scheme, 13% (44 participants) recorded a HADS anxiety score in the moderate/severe range at the baseline stage (i.e. 11-21) (Table 70), with 68% (30 participants) of these showing a positive movement towards the normal end of the scale (i.e. 0-10) ( $p < 0.01$ ) (Table 69). Conversely, only 9 participants moved from the normal/mild range to the moderate/severe range.

Movement to the mild/normal end of the spectrum was also significant between the baseline and 6 month stage ( $p < 0.01$ ).

### ***Hospital Anxiety and Depression Scale – Depression***

Mean HADS Depression scale scores for participants reduced significantly for those participants for whom data existed at both baseline and 6 month stages and both at baseline and 12 month stages. There was a reduction of 49% (4.34 to 2.23) on the mean HADS Depression scale for participants over the first 6 months and a reduction of 48% (4.18 to 2.16) for participants over the 12 month scheme (Table 71).

The data shows, for both men and women, the levels of self measured depression were lower at the 6 month stage than at the beginning of the scheme, and drops further at the 12 month stage (Table 42).

The data also showed HADS Depression scores being lower for the older participants (Table 73).

Of the 330 participants who completed the HADS Depression questions at the baseline and 12 month stages of the scheme, 7% (24 participants) recorded a HADS depression score in the moderate/severe range at the baseline stage (i.e. 11-21) (Table 75). At the 12 month stage 88% (21 participants) had shown a positive movement towards the normal end of the scale (i.e. 0-10) ( $p < 0.001$ ). Conversely, only 2 participants moved from the normal/mild range to the moderate/severe range (Table 74).

Movement to the mild/normal end of the spectrum was also significant between the baseline and 6 month stage ( $p < 0.001$ ). It was not, however, significant between the 6 month and 12 month stage therefore any significant movement in the HADS depression score occurred between the baseline and 6 month stage.

### **Stage of Change**

The Stage of Change model identifies the series of stages individuals go through during a course of changing behaviour. It is quite likely that an individual will move through the stages several times before achieving and maintaining the desired behaviour. There are five stages.

- Pre-contemplation (I am not regularly physically active and do not intend to be)
- Contemplation (I am not regularly physically active but I am thinking about it)
- Preparation (I do some physical activity but not enough to meet the description of regular physical activity)
- Action (I am physically active but only began in the last 6 months)
- Maintenance (I am regularly physically active and have been so for longer than 6 months)

We examined movement towards the **action** stage of change. For participants with data at baseline and 6 months, 53% (314 participants) of those who were at the pre-contemplation,

---

contemplation or preparation stages at baseline had moved to the action stage by their 6 month consultation (Table 76). By the 12 month consultation, 28% (18 participants) of those participants who were still at the pre-contemplation, contemplation or preparation stages at their 6 month consultation had moved to the action stage (Table 77).

We examined movement towards the **maintenance** stage of change. For participants with data at baseline and 6 months stages, there was a significant ( $p<0.001$ ) movement to the maintenance stage. For participants between baseline and 6 month stage not already at maintenance (Table 76), 8% (50 participants) moved to the maintenance stage, with 29 of these participants moving from pre-contemplation, contemplation or preparation stages directly to maintenance, and 21 participants moving from action to maintenance. Not surprisingly, there was also a significant movement to the maintenance stage between month 6 and month 12 with 67% (176 participants) of those not already at maintenance moving to this stage by month 12 ( $p<0.001$ ) (Table 77).

For those participants with data at both baseline and 12 month consultations (Table 78):

- 13%, (43 participants) of those at pre-contemplation, contemplation or preparation stages at baseline moved to action stage at 12 months;
- 58% (192 participants) of those at pre-contemplation, contemplation or preparation stages at baseline moved to maintenance stage at 12 months;
- 80% (37 participants) of those at action stage at baseline, moved to maintenance stage at 12 months; and
- 88% (14 participants) maintained their maintenance stage between baseline and 12 months.

### **Physical Activity Recall**

The Physical Activity Recall (PAR) is a self completed questionnaire recording the participant's physical activity over the last seven days. The recommendation for health benefits is to accumulate at least 30 minutes of moderate physical activity most days<sup>17</sup>. Participants were asked to record any activity they undertook at moderate levels or more intense levels.

Where data existed for participants for every stage of the scheme, there were significant increases in stated activity durations ( $p<0.001$ ). Males showed a greater initial increase in activity level (between baseline and 6 months, with a mean increase of 227 minutes for males compared with a mean increase of 146 minutes for females), whereas females showed a greater increase over the 12 month period, (a mean increase of 273 minutes for females compared with a mean increase of 228 minutes for males). Participants, for whom PAR data existed at both baseline and 6 month consultations, showed a 46% increase in minutes exercised per week and those for whom PAR data existed at baseline and 12 month stages showed a 69% increase in minutes exercised per week.

Although men said they were more active than women at all stages, the difference was only significant at the 6 month stage (Table 79 & Table 80).

### **Health State scale**

Participants were asked to rate their perception of their overall health on a scale of 0 to 100, where 0 was the worst possible Health State and 100 was the best possible Health State.

Participants for whom Health State scale data existed at baseline and 6 month points showed an 11% increase (from a mean figure of 54 at baseline to a mean figure of 61 at the six month stage) in perceived health state and those for whom data existed at baseline and 12 month stages showed a 13% increase (from a mean figure of 57 at baseline to a mean figure of 65 at the 12 month stage) over the scheme. These changes were significant ( $p<0.001$ ). There was however, no significant change between 6 months and 12 months,

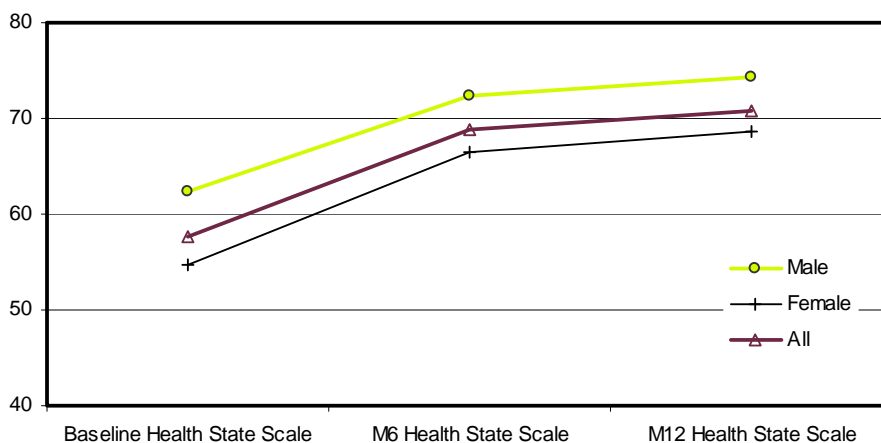
---

<sup>17</sup> Lets Make Scotland More Active, 2003, <http://www.scotland.gov.uk/Publications/2003/02/16324/17895>

meaning that the participants perceived the most benefit to their health in the first 6 months of the scheme (Table 81).

Males and females showed similar patterns in their scoring of the state of their health. This and the overall results are shown in the figure below for participants who gave a health state score at all three consultations (281 participants).

**Figure 6 Health State scale for all participants with data at every stage of the Live Active Referral Scheme**



All participants n = 281, males n=111, females n= 170

### Smoking

Although the number of participants who were smokers at the start of the Live Active Referral Scheme (recorded at baseline) and who continued on the scheme is small – 92 participants continued to 6 months and 37 to 12 months – the number who stopped smoking during the scheme is noteworthy (but not statistically significant). Of the 92 smokers at baseline, 23% (21 participants) had stopped smoking at their 6 month consultation (Table 82). Of the 37 smokers at baseline who completed the scheme, 5 (14%) had stopped smoking at 6 months, and 9 (24%) had stopped smoking at 12 months (Table 83). However, 3 of the 5 participants who had stopped smoking at 6 months had started again by the end of the scheme.

### Alcohol consumption

The number of participants who were recorded as drinking above the recommended number of units per day at baseline, who could be tracked through the scheme, was too small to show any significant changes. The data did show a slight decline, during the course of the scheme, in numbers drinking above recommended levels, but this was not significant.

### Participant perception summary

The Live Active Referral Scheme has resulted in reduced levels of perceived anxiety and depression, moving participants towards the maintenance stage of the Stage of Change model, an improvement in the Health State scale score, and an increase in the number of minutes completers reported exercising in a week. As with the independently assessed outcomes of weight and BMI, some of these changes were only significant in the first six months of the scheme. Examination of the reasons for this could enable amendments to be made to the scheme in order to achieve greater recorded changes in these perceived outcomes.

The Live Active Referral Scheme did not appear to have any significant impact on the levels of smoking or alcohol consumption throughout the course of the scheme, perhaps due to the small amount of recorded data.

---

### 3.4.3 Long term changes in behaviour and various outcomes

In order to look at long term changes in behaviour as a result of taking part in Live Active 2005, we looked at the data from the telephone survey carried out with participants 6 months after their completion of the scheme (i.e. 18 months after baseline appointment). Please note the sample size in this survey was small (32 participants). The results are not statistically significant but they do illuminate patterns in the perspectives of the participants we spoke with.

#### Exercise and fitness

- Of the sample, 78% (25 participants) were exercising at or above the level to gain health benefits in the week prior to the interview (Table 84).
- Three quarters (24 participants) of the sample had been physically active regularly and had been for longer than six months, with a further 19% (6 participants) doing exercise but not as much as is recommended (Table 85).
- Over 90% (29 participants) of completers consulted felt the Live Active Referral Scheme had had an impact on their physical health (Table 86), with 79% (23 participants) of these citing increased physical fitness and stamina, 24% (7 participants) saying they had lost weight or improved their body shape and 17% (5 participants) mentioning increased mobility/flexibility/strength (Table 87).
- Almost half the sample stated they would carry on exercising at the same level and 56% stated they would increase their levels of exercise. No-one stated they would do less exercise (Table 88).
- Of the completers consulted, 91% (29 participants) felt the Live Active Referral Scheme had had a positive impact on their ability to exercise independently (Table 89).

#### Mental health

- Two thirds (21 participants) of the sample felt that the Live Active Referral Scheme had made a change to their mental health (Table 90), and 88% (28 participants) felt the Live Active Referral Scheme had had a positive impact on the way they felt about themselves (Table 92).

#### Wider effects of the scheme

- Overall, 59% (19 participants) of completers felt there were further benefits to participating in the scheme and those mentioned by participants were being active/fit, improvements in physical ability/health, the routine of exercise and again participants reported improvements to their mental health.
- Half of participants (16 participants) from the telephone survey stated that the scheme had improved their relationships with others and three quarters felt they had made new friends, whilst other participants mentioned feeling more sociable and enjoyed getting out of the house.

#### Levels of physical activity since leaving the Live Active Referral Scheme

The telephone survey asked participants what had helped them to stay physically active since they had completed the scheme.

The main themes emerging from the eleven participants who maintained the same level of physical activity since completing the scheme are illustrated by the following quotes and included:

- concern for health;  
*"To prevent another heart attack"*
- socialisation;



---

*“Going about meeting other people and blethering, social aspect”*

- and enjoying the habitual behaviour Live Active 2005 has promoted.  
*“Still walking, going to classes once a week.”*

For those whose physical activity had decreased, the dominant factor appeared to be health issues, as this participant illustrates:

*“I hurt my back about a month ago, waiting to get in with physiotherapist.”*

For the seventeen participants whose exercise levels had increased since leaving the scheme, the main emergent themes were:

- improved mobility;  
*“Because I have more mobility I can do a lot more now.”*
- improved confidence and stamina;  
*“Confidence, feel stronger, more stamina”*
- greater enjoyment;  
*“Enjoying family/friends, activities at large.”*
- general concern for health;  
*“General wellbeing. Got started due to diabetes, want to keep it under control.”*  
*“Need to lose weight for an operation.”*
- improved motivation;  
*“Going to classes has motivated me, the improvements in myself.”*
- recognition of personal benefits gained through exercise;  
*“Setting targets, upping it, can do more, it's for my own benefit.”*
- and, the wish to continue to build on improvements achieved throughout the scheme.  
*“Trying to build from the course, improve on what I've already achieved”*

When asked about their future intentions with respect to the level of physical activity, the majority (56%, 18 participants) expected to increase their physical activity levels, and the remainder expected to continue with the same level of activity. No-one stated they intended to do less or stop altogether.

### **Summary – Long Term Benefits**

The long term changes in behaviour and various outcomes were, on the whole, positive. The majority of those spoken to six months after completion reported positive changes in relation to their level of exercise, overall fitness and their mental health. Other long term benefits which were cited included improvement in relations with others and becoming more sociable.

Those maintaining their levels of physical activity cited concern for health and socialisation as their motivation and those participants who reported an increase in physical activity levels cited improved confidence, motivation, enjoyment and the overall perceived benefits of the scheme. These could provide NHSGGC with a starting point for promoting the scheme and lowering the drop out rates with the benefits cited applying to all profile groups.

When asked about future intentions with regards to physical activity levels all stated that they either intended to maintain their current levels of activity or increase them, highlighting the success of the scheme for those who complete. This is encouraging for NHSGGC and members of the Live Active Referral Scheme team.

---

## 3.5 Barriers to accessing the scheme and continuing with the scheme

This section uses data from the telephone survey of participants who had completed the scheme and from analysis of the database. When looking for barriers to accessing and continuing with the scheme, we studied the information in the database regarding the reasons for leaving the scheme and this has been reported in section 3.3.

### 3.5.1 Barriers to accessing the scheme

Telephone survey participants had all completed 12 months on the Live Active Referral Scheme and did not cite any barriers to accessing the scheme. These barriers will be investigated further with the telephone survey of participants who were referred to the scheme but did not attend their baseline, 6 month and/or their 12 month consultation.

### 3.5.2 Barriers to continuing with the scheme

We asked telephone survey participants what had been the disadvantages or drawbacks to continuing with the scheme. On the whole the 32 participants in the telephone survey, all of whom had completed 12 months on the scheme, were unable to cite any barriers to continuing with the scheme. These issues will be explored in more depth with the telephone survey of participants who dropped out part way through the scheme. However, the telephone survey did provide illuminating data from participants on what had encouraged them to continue on the scheme and this is discussed below.

The majority of participants in the telephone survey (72%, 24 participants) stated that their reasons for completing the scheme were getting or staying healthy, seeing or feeling changes/improvements and enjoyment. Support from counsellors accounted for 7% (3 participants) of reasons to continue with the scheme. Similarly support from health professionals was cited as a reason to continue by 7% (3) participants (Table 92).

Telephone survey participants were asked about the disadvantages or drawbacks to participation. Only two of the 32 participants were able to offer suggestions. One participant wanted family support ....

*"Dependent on husband being able and fit to attend with me."*

... whereas another requested more support from the Live Active Referral Scheme:

*"Don't have enough contact between appointments."*

## 3.6 Suggestions for improvements and additional comments

Participants were invited to make additional comments about the scheme; most participants were complimentary. Where there were criticisms or areas for potential development they were mainly about increasing the amount of personal contact between the Live Active Referral Scheme staff and the participants, and issues around exercise venues. Seven participants (22%) offered no other comments or suggestions.

### Suggestions for improvements

Suggestions were categorised into the following:

#### ***Contact between participant and counsellor***

The main themes emerging from participants, who felt that the level of contact between participant and counsellor could be improved, included:

- the need for greater contact at early stages of the scheme;

---

*"A little bit more contact, particularly in the early stages, to make sure they (participants) are doing what they should be doing."*

- increased follow up;  
*"Maybe more contact, more follow up. I'm impressed with the introduction to other activities."*  
*"The only criticism I have, after the initial induction I was left to my own devices."*
- and more one to one and more frequent training.  
*"More one to one, more people training you, more than once a week, more hands on."*

### **Logistics**

A number of participants highlighted some potential logistical improvements which could be made in order to improve the Live Active Referral Scheme.

The main themes which emerged from participants included:

- the inconvenience and travel difficulties that were incurred as a result of transfer to alternate centres;  
*"Sort out Pollok. Moved classes from Pollok to Nethercraigs, now have 2 buses to take to get there."*
- the physical environment was undesirable in some centres;  
*"Sometimes toilets could do with a bit more hygiene."*
- allowing participants to select the centre that they would prefer to attend;  
*"Was told to go to Bellahouston, don't really enjoy Bellahouston, too big & too busy, would rather go to Eastwood."*
- and, scheduling classes at a time convenient to participants.  
*"Would rather have all classes in the morning, but know that's not possible."*

### **Other comments**

Those participants who made other comments focussed on the need to increase the numbers who use the Live Active Referral Scheme ....

*"More should use it."*

..... for example through increased publicity.

*"It should be better publicised. Never saw anything in GP's Surgery, was told by a friend."*

### **Other comments**

Participants were asked if they had any other comments on the Live Active Referral Scheme. These were all positive and complimentary about the scheme. The following represent the sentiments expressed.

One participant was complimentary about the assistance they received from the Live Active Referral Scheme.

*"I feel they couldn't have helped me any more - couldn't have been nicer."*

A number of participants also highlighted the enjoyment they gained from participating in the scheme and highlighted their willingness to recommend the scheme.

---

*"I really enjoyed it and would recommend it to other people."*

*"I think it's been fantastic! Anyone who gets the opportunity to be on the scheme should take it."*

*"I thoroughly enjoyed it and would encourage others to do it. If I'd know about the scheme before, I may not have had the heart attack."*

One participant highlighted the benefits of undertaking exercise in the Live Active Referral Scheme environment, for example with other people with similar problems.

*"Just feel it's a good scheme. Doing exercise with people with the same problem."*

One also recognised the benefit they had received from continuing with the scheme.

*"Something they should keep going with, I have benefited from it."*

---

# 4 Conclusions and next steps

---

## 4.1 Conclusions

This part of the study explores the profile of the Live Active Referral Scheme users, completers and non adherers, as well as examining the outcomes achieved and the benefits, disadvantages, areas for improvement and any recommendations to the Live Active 2005 scheme, before enhancements. This is in order to provide a baseline from which the effectiveness of any enhancements can be assessed.

### The profile of Live Active users

The profile of Live Active Referral Scheme users was identified using a combination of referral and baseline stage data. These data enable Live Active to build a picture of the profile of a typical scheme participant and therefore identify any potential areas where the scheme is not connecting as well as it could do with people who do not match this profile.

- The majority of participants using the scheme were those without established heart disease.
- Participants were more likely to be female, aged over 45 years and either overweight or obese.
- When Glasgow City only participants were explored the proportion of participants from a minority ethnic group closely correlated with the 2001 census data.
- The Live Active Referral Scheme has been particularly successful in engaging those from the most deprived areas with just under half of those referred living within the 15% SIMD areas. However, those living outwith the 15% SIMD area were more likely to attend the baseline consultation.
- Of participants for whom figures were recorded at baseline, those in full time or part time employment accounted for the highest proportion.
- Just over half of LR participants were reported by their referrer to be taking medication and, not surprisingly, virtually all of those referred through the ETT or PCR routes were taking medication. However, it should be noted that there is often a discrepancy between referral information and that given by the participant themselves at baseline. Those taking medication were more likely to attend a baseline appointment.

Due to the differences in the referral forms for each pathway not all aspects of the user profile were recorded for the ETT and PCR participants. For LR participants, just under half were reported by their GP to have a physical or mental limitation which would make exercise programmes difficult and those with such limitations were more likely to attend a baseline appointment.

### The profile of completers

The profile of completers refers to those participants who have completed the full 12 month scheme. Knowing the profile of this group will allow the Live Active Referral Scheme to target those participants who are prone to drop out and hopefully encourage retention.

Completers had the following profile at baseline:

- aged over 45 years old;

- 
- retired (through age rather than ill health);
  - not living within the 15% SIMD areas;
  - lighter, not obese;
  - referred through the ETT or PCR route; or
  - taking medication.

Those who completed the scheme were more likely at baseline to be at the mild/normal end of the HADS anxiety and HADS depression scales and, based on the mean HADS scores, completers were less anxious and/or depressed at baseline. Those who had a better perceived state of health and those who were already physically active were also more likely to complete the scheme.

For those participants referred through the LR referral pathway participants adjudged by their GP, at the referral stage, to be experiencing physical or mental limitations which would make exercise programmes difficult were more likely to complete the Live Active Referral Scheme.

### **The profile of non adherers**

The profile of non adherers refers to those who dropped out of the scheme between the referral and the 12 month completion stage of the scheme. When examining non adherers it is necessary to highlight that not all who left the scheme are necessarily non adherers, as drop out figures include those who are considered inappropriate referrals and positive drop outs. Furthermore, as the fields in the database used to record the reason for leaving are broad in scope and may be completed by the exercise counsellors without speaking to participants, a number of those who are recorded as uncontactable may well be undertaking independent physical activity and therefore would not be considered a negative drop out.

Based on the profile of those referred to the scheme, baseline participants and completers, those failing to complete scheme were:

- within younger age ranges;
- living within the 15% SIMD areas;
- considered obese/overweight at baseline;
- those recording HADS scores for depression and anxiety above the normal range at baseline; and
- referred via the LR referral pathway.

Looking at the differences in drop out rates between the 2002 and 2005 data it would appear that there has already been some improvement in the levels of those staying on the scheme.

### **Participant outcomes at 6, 12 and 18 months after baseline appointment**

Both the database analysis and the qualitative study of completers are able to contribute to the understanding of the participant outcomes at the 6, 12 and 18 month stages.

#### ***Independently assessed outcomes***

- There was significant weight loss throughout the duration of the scheme, with the majority of participants losing weight in the first 6 months.
- Similarly, there was a significant reduction in BMI for participants between the baseline and 6 month stage and between baseline and 12 months.
- There was no significant change to the mean resting heart rate throughout the scheme.

#### ***Outcomes based on Patient Perception***

- Mean HADS Anxiety scale scores reduced significantly for those participants for whom data existed at both baseline and 6 month stages and for whom data existed at the baseline and 12 month stages.

- 
- Mean HADS Depression scale scores reduced significantly for those participants for whom data existed at both baseline and 6 month stages and for whom data existed at the baseline and 12 month stage.
  - Participants Stage of Change displayed a movement towards the maintenance stage of the scheme between baseline and 6 months and between baseline and 12 months.
  - There was a significant increase in the amount of exercise people believed they were taking, according to the PAR 7-day recall, between the baseline and 6 month stage and baseline and 12 month stage.
  - Data on the 0 to 100 Health State scale showed that people's perception was that their own health improved significantly between the baseline and six month stage and baseline and 12 month stage.

### ***Long term outcomes***

Of those interviewed around 18 months after the baseline appointment the majority:

- were exercising at or above the level to gain health benefits;
- reported being physically active regularly and had been for longer than six months; and
- felt that the scheme had a positive impact on their physical health, mental health and their ability to exercise independently.

Half of those participants also felt that the scheme had improved their relationships with others.

### **Benefits of the Live Active Referral Scheme**

From this analysis the benefits of the scheme are: the independently assessed health benefits for participants who complete the programme, the improvements recorded in the participant perception of levels of anxiety and depression, "stage of change", the amount of exercise undertaken (according to the PAR-7 day recall) and views of their own health based on the Health State scale.

There were also additional benefits highlighted by those completers interviewed 18 months after the baseline appointment in terms of maintaining regular physical activity, increased fitness/stamina, improved ability to undertake independent physical activity, improved mental health and improved relations with others.

### **Disadvantages of the Live Active Referral Scheme**

The principal disadvantages of the scheme were the inability to retain those groups highlighted in the profile of non adherers, principally those within the younger age groups, who are recorded as overweight or obese, with higher HADS scores for anxiety and depression. The inconsistencies present in the database recording of the reasons for leaving prevent full insight being gained into this. The scheme also failed to attract certain groups at the referral stage, although this is potentially more reflective of the referrers rather than the scheme itself.

Of the completers interviewed only 2 felt there were any disadvantages and these focussed on needing support from family members to attend and contact with the exercise counsellors.

### **Improvements and recommendations**

Suggested improvements/recommendations for the scheme, on the basis of the analysis of the Live Active 2005 before enhancements include the following.

---

### **Improvements in Live Active scheme overall**

- Live Active should consider selecting some quantifiable measures that match the objectives of the scheme. And, given the substantial experience of exercise referral that the Live Active Referral Scheme has provided and the sufficiently large amount of output data generated, it should also be possible to set appropriate, knowledgeable and more focussed performance targets for the scheme around these measures. This will help the scheme maintain a focus and provide data for future monitoring.
- In order to attract and retain younger age groups, amendments to the operating times of the scheme may require to be considered. This may have the dual benefit of increasing the participation of those in employment.
- On the basis of the participants' comments made during the telephone survey, it is suggested that the Live Active Referral Scheme should be better publicised.
- The scheme should continue to provide personalised physical activity programmes for participants throughout the length of the scheme to enable the progressing of people's goals throughout the full 12 months in line with their condition and circumstance.
- Investigate the reasons for geographical variance across the scheme in relation to scheme completion.
- Not all participants seem to realise they have a choice of the centre(s) at which they participate and the scheme needs to strengthen the communication of this.

### **Improvements at referral stage**

- Develop a uniform referral form for all three categories of referral.
- Investigate the lower male referral rates in order to assess the cause and potentially address any issues in order to achieve a better gender balance.
- Although the level of inappropriate referral is relatively low, it might be worth investigating these further to reduce the number. Clearer guidelines for those making the referrals may help.
- The possibility of introducing a system where referrers (e.g. GPs, practice nurses, physiotherapists) are able to make a baseline appointment while the participant is with them should be considered.

### **Recommendations for exercise counsellors**

- Training for exercise counsellors surrounding the database – including the provision of clearer guidelines for the completion of database – to ensure that the database is completed fully.
- It may be useful to increase the exercise counsellors' role in some 'harder to reach' cases (as defined by those who dropped out of the scheme) to encourage attendance and therefore completion of the scheme. More one-to-one sessions with this group may help.

### **Improvements to the database**

- Reviewing the fields within the database where reasons for participants leaving the scheme are recorded by the exercise counsellors, in order to ensure that the database fields provide better and more consistent insight into the reasons for leaving.

## **4.2 Next steps**

This report is the first in a series. Reports to follow include:

- the impact of the First Steps social support programme to the scheme;
- the impact of the Motivator enhancement to the scheme;
- fuller exploration of non adherers to the scheme;
- the impact of the Central Administration System to the scheme; and



- 
- an overarching report which draws together the main findings from each of the preceding reports.

---

# Appendices

---

Appendix 1	Telephone survey questionnaire
Appendix 2	Telephone survey information sheet
Appendix 3	Telephone survey consent form
Appendix 4	'Other' responses to telephone survey
Appendix 5	Database analysis tables

---

## Appendix 1 Telephone survey questionnaire

**Contract No:** 2615  
**Contract Name:** Live Active Exercise Referral Scheme  
**Type of survey:** Final Participants' Telephone Questionnaire

**Introduction**

**READ OUT**

"Good morning/afternoon/evening, my name is \_\_\_\_\_ from FMR Research. I am undertaking a survey on behalf of the NHS Greater Glasgow and Clyde on the Live Active exercise referral scheme. Thanks for agreeing to help. Could you please spare 10-15 minutes to give me your views now? All your answers will be in strict confidence."

**COLLECT RESPONDENT DETAILS:  
 EXPLAIN THAT THERE IS A ONE IN TEN CHANCE THAT A SUPERVISOR MAY PHONE TO CONFIRM THE ACCURACY OF THE INTERVIEW.**

<b>Respondent Name</b>	
<b>Address</b>	
<b>Full Post Code</b>	
<b>Telephone Number</b>	
<b>email address</b>	

<b>Scheme ID No.</b>	
<b>Centre attended</b>	

**CLOSE INTERVIEW BY READING OUT STATEMENT:**

"Thank you very much for your help. Can I assure you once again that the information you have given will be treated as absolutely confidential and will only be used for the purposes of evaluation of the programme."

**INTERVIEWER DECLARATION:**

I declare that this interview was carried out according to instructions, within the Market Research Society's Code of Conduct, and that the participant was not previously known to me.

<b>Interviewer Name</b>	
<b>Signature</b>	
<b>Date</b>	

## Section 1 - How you first found out about the scheme

### 1. How did you hear about the Live Active exercise referral scheme?

Recommended by GP	1
Recommended by practice nurse	2
Recommended by physiotherapist	3
Recommended by friend/relative	4
Asked my GP for advice or help	5
Saw advertising/posters/leaflets	6
Recommended by cardiology departments	7
Other (please state below)	8

### 2. Who booked your first appointment on the Live Active exercise referral scheme?

You	1
Your GP	2
Your physiotherapist	3
Practice nurse	4
Doctor's receptionist	5
Other (please state below)	6

## Section 2

This part of the questionnaire is designed to help us know how you feel. You may remember answering these questions during your exercise consultations. Don't take too long over your replies: your immediate reaction to each item will probably be more accurate than a long thought out response.

**(For our information only** – questions to anxiety are indicated by an 'A' while those relating to depression are shown by a 'D'. Scores of 0-7 in respective subscales are considered normal, with 8-10 borderline and 11 or over indicating clinical 'caseness'.)

### 1. I feel tense or 'wound up': A

Most of the time	3
A lot of the time	2
Time to time, occasionally	1
Not at all	0

### 2. I still enjoy the things I used to enjoy: D

Definitely as much	0
Not quite so much	1
Only a little	2
Not at all	3

### 3. I get a sort of frightened feeling like something awful is about to happen: A

Very definitely and quite badly	3
Yes, but not too badly	2
A little, but it doesn't worry me	1
Not at all	0

### 4. I can laugh and see the funny side of things: D

As much as I always could	0
Not quite so much now	1
Definitely not so much now	2
Not at all	3

**5. Worrying thoughts go through my mind:**  
**A**

A great deal of the time	3
A lot of the time	2
From time to time but not too often	1
Only occasionally	0

**7. I can sit at ease and feel relaxed: A**

Definitely	0
Usually	1
Not often	2
Not at all	3

**9. I get a sort of frightened feeling like 'butterflies in the stomach': A**

Not at all	0
Occasionally	1
Quite often	2
Very often	3

**11. I feel restless as if I have to be on the move: A**

Very much indeed	3
Quite a lot	2
Not very much	1
Not at all	0

**13. I get sudden feelings of panic: A**

Very often indeed	3
Quite often	2
Not very often	1
Not at all	0

**6. I feel cheerful: D**

Not at all	3
Not often	2
Sometimes	1
Most of the time	0

**8. I feel as if I am slowed down: D**

Nearly all of the time	3
Very often	2
Sometimes	1
Not at all	0

**10. I have lost interest in my appearance: D**

Definitely	3
I don't take as much care as I should	2
I may not take quite as much care	1
I take just as much care as ever	0

**12. I look forward with enjoyment to things: D**

As much as I ever did	0
Rather less than I used to	1
Definitely less than I used to	2
Hardly at all	3

**14. I can enjoy a good book or radio or TV programme: D**

Often	0
Sometimes	1
Not often	2
Very seldom	3

**For interviewer to complete after:**

**HADS Summary**

A/D	Number
A	
D	

### Section 3

**15. How much physical activity SHOULD you do in a week to gain health benefits? DO NOT PROMPT – the correct answer is ‘accumulate 30 minutes of moderate physical activity most days’ – record people’s closeness to this answer.**

Length of activity \_\_\_\_\_

Intensity of activity \_\_\_\_\_

Frequency of activity \_\_\_\_\_

Other response \_\_\_\_\_

#### 7 day PAR

Physical activity is any activity which raises your heart rate enough to make you feel warm and slightly out of breath. At this intensity you should still be able to talk without feeling too breathless.

Regularly physically active relates to:

- Exercise e.g. aerobics, gym, activities etc for 2-3 times per week, hillwalking for at least 2 hours/once per week
- Sport e.g. golf, hockey, football, netball etc for 2-3 times per week for at least 20 minutes.
- General activity e.g. walking, gardening etc accumulating to at least 30 minutes, 4-5 times per week

**16. Which of the following categories best describes how physically active you have been over the last six months?**

I am not regularly physically active and do not intend to be so in the next 6 months	1
I am not regularly physically active but am thinking about starting to be in the next 6 months	2
I do some physical activity but not enough to meet the description of regular physical activity	3
I am regularly physically active but only began in the last 6 months	4
I am regularly physically active and have been so for longer than six months	5

**17. The following questions relate to your physical activity over the previous week. Please try to think carefully and be as accurate as possible with your answers. In the past week, how many minutes did you spend each day...? ENTER NO. OF MINUTES IN RELEVANT BOX**

		Mon	Tues	Wed	Thur	Fri	Sat	Sun
a	Activity at work: walking at work							
b	Activity at work: manual labour							
c	Walking outwith work: e.g. walking the dog, walking for pleasure, to the shops, up and down stairs etc							
d	Active housework: hoovering, scrubbing floors, making beds, hanging washing etc							
e	Gardening and DIY: cutting grass, decorating, washing car, digging etc							
f	Dancing							
g	Cycling (to work or for pleasure)							
h	Sport, leisure activity or training – ‘Centre’ based activity							
i	Sport, leisure activity or training – home based exercise							
j	Any other activities – please state what:							

**WE ARE NOW GOING TO ASK YOU SOME QUESTIONS USING A SCALE OF 0 TO 100  
0 IS THE LOWEST OR WORST STATE YOU CAN IMAGINE AND 100 IS THE HIGHEST OR BEST  
STATE YOU CAN IMAGINE**

**18a. On a scale of 0 to 100 how do you feel about your physical health today?**

**18b. Do you feel the scheme has had an impact on your physical health?**

Yes	1
No	2

**18c. If yes, in what way? DO NOT PROMPT**

Lost weight	1
Lowered blood pressure	2
Increased physical fitness/stamina	3
Increased mobility/flexibility	4
Increased strength	5
Sleeping better	6
Feel healthier	7
Helped with a particular physical health problem	8
Changed eating habits	9
Improve body shape	10
More energy	11
Other (please specify below)	12

**19a. On a scale of 0 to 100 how do you feel about your mental health today?**

**19b. Do you feel the scheme has had an impact on your mental health?**

Yes	1
No	2

**19c. If yes, in what way? DO NOT PROMPT**

Less depressed	1
Feel less isolated	2
More positive outlook	3
Less stressed	4
Less anxious	5
Other (please specify below)	6

**20a. On a scale of 0 to 100 how confident do you feel that you could be independently physically active?**



**20b. Do you feel the scheme has had an impact on your confidence to be independently physically active?**

Yes	1
No	2

**20c. If yes, in what way? DO NOT PROMPT**

Increased range of available activities	1
Increased self confidence	2
	3
	4
	5
Other (please specify below)	6

**21a. Do you feel the scheme has had an impact on your relationships with others?**

Yes	1
No	2

**21b. If yes, in what way? DO NOT PROMPT**

Less irritable	1
Made new friends	2
More sociable	3
Get out of the house	4
Time for myself	5
Other (please specify below)	6

**22a. Do you feel the scheme has had an impact on how you feel about yourself?**

Yes	1
No	2

**22b. If yes, in what way? DO NOT PROMPT**

Increased self confidence	1
More positive outlook	2
Sense of achievement	3
Improved feeling of wellbeing	4
Less self conscious	5
	6
	7
Other (please specify below)	8

**23a. Do you feel there have been other benefits from participating in the scheme?**

Yes	1
No	2

**23b. If yes, what are they? DO NOT PROMPT**

Enjoyed the company/working in a group/meeting others	1
Meeting people with the same problem	2
Introduced me to different types of exercise	3
Saved money	4
	5
Other (please specify below)	6

**24. What helped you to continue/complete the scheme? DO NOT PROMPT**

Consultation with Physical Activity Counsellor	1
Support from Counsellors	2
Support from people you met at the leisure centre	3
Support from GP	4
Support from health professionals	5
Information from health professionals	6
I wanted to get healthy	7
Support from family/friends	8
Other (please specify below)	9

**25a. Do you feel there have been any disadvantages to participating in the scheme?**

Yes	1
No	2

**25b. If yes, what are they? DO NOT PROMPT**

	1
	2
	3
	4
	5
Other (please specify below)	6

**Interviewers - Questions 26a/b/c should only be asked of the people who have been identified as part of the Live Active Motivator section of the research**

**26a. Have you been assisted by a Live Active Motivator (LAM)?**

Yes	1
No	2

**26b. What were the benefits (if any) of the Live Active Motivator’s help?**

---



---

**26c. What improvements (if any) do you recommend to the Live Active Motivator assistance?**

---



---

**Interviewers – Questions 27a/b/c should only be asked of the people who have been identified as part of the Social Support (First Steps) section of the research**

**27a. Have you used the First Steps element of the Live Active scheme?**

Yes	1
No	2

**27b. What were the benefits (if any) of the First Steps programme ?**

---



---

**27c. What improvements (if any) do you recommend to the First Steps programme ?**

---



---

**28. Since you completed the scheme six months ago would you say your physical activity levels have:**

Stayed the same	1	<b>Go to Q29</b>
Decreased	2	<b>Go to Q30</b>
Increased	3	<b>Go to Q31</b>

*If physical activity levels are the same as those recorded at the 12 Month stage of scheme*

**29. What has helped you to stay physically active since you completed the scheme 6 months ago?** (We want to structure this as a closed Q. I thought there might be some categories from the 2002 evaluation we could use but I’ve looked and can’t find any – so I guess what we’ll do is ask as an open Q for the first tranche and use these responses as the categories for the rest of the survey).

---

---

*If physical activity levels are less than those recorded at the 12 Month stage of scheme*

- 30. What has caused your physical activity levels to decrease since you completed the scheme 6 months ago?** (We want to structure this as a closed Q. we'll ask it as an open Q for the first tranche and use these responses as the categories for the rest of the survey).

---

---

*If physical activity levels are greater than those recorded at the 12 Month stage of scheme*

- 31. What has motivated you to increase your physical activity levels since you completed the scheme 6 months ago?** (We want to structure this as a closed Q. we'll ask it as an open Q for the first tranche and use these responses as the categories for the rest of the survey).

---

---

- 32. Do you intend to maintain your present levels of physical activity?**

Yes – do more	1
Yes – stay the same	2
No – do less	3
No – stop all activity	4

- 33. Are there any other comments or suggestions that you would like to make with regard to the Live Active Exercise Referral scheme?**

---

---

## Section 4

### More about you

#### 34. Gender

Male	1
Female	2

#### 35. Into which of these age bands do you fall?

16-24	1
25-34	2
35-44	3
45-54	4
55-64	5
65+	6

#### 36. How would you describe your cultural or ethnic background?

White – Scottish	1
White – Irish	2
White – other British	3
White – other background	4
Mixed background	5
Chinese	6
Indian	7
Pakistani	8
Bangladeshi	9
Other Asian	10
Black Caribbean	11
Black African	12
Other Black	13
Other (please specify below)	14

#### 37. Do you consider yourself to have a disability?

Yes	1
No	2

### COLLECT RESPONDENT DETAILS AND CLOSE INTERVIEW BY READING OUT STATEMENT:

"Thank you very much for your help. Can I assure you once again that the information you have given will be treated as absolutely confidential and will only be used for the purposes of reporting on the evaluation of the Live Active 2005 exercise referral scheme."

---

## Appendix 2 Telephone survey information sheet

Date

Participant name

Address

Dear

## **LIVE ACTIVE – EVALUATION**

We are writing to you following your involvement in the Live Active exercise referral programme.

If you do not remember anything about the exercise referral scheme this might jog your memory. You will have spoken with your GP, practice nurse or physiotherapist about being more active and they will have completed a form that was sent to the Exercise Counsellor at your local leisure centre. You will then have had a one to one chat with the Exercise Counsellor at the leisure centre before starting to exercise and come back for follow up appointments at the 6 and 12 month stages of the scheme.

You are invited to participate in the evaluation of Live Active by agreeing to take part in a short telephone interview. Independent consultants, FMR Research, have been commissioned by NHS Greater Glasgow and Clyde, to evaluate the impact of the programme and the impact of the enhancements made to the scheme. As part of this evaluation, we are keen to speak to some of the people who have been involved with Live Active, to gain their views about the scheme.

We would appreciate conducting a telephone interview with you. Before you decide whether or not to participate, please take the time to read the following information. Please get in touch with the people listed at the end of this information sheet if you would like to ask any questions, or to discuss it further.

### **Purpose of study**

The purpose of the study is to identify the impact of the Live Active scheme and of the various changes made to the scheme.

### **What will happen?**

*If you would like to participate, please complete the attached consent form and return it to the Live Active scheme/FMR Research. We will then arrange a good time for you to be interviewed by one of the FMR Research team. The interview will last for around fifteen minutes and can be arranged at a time suitable to you. With your agreement, notes will be taken during the interview and your views may be used to highlight findings in the final report. However, anything you say will not be identifiable to you – everything will be anonymous.*

### **Do you have to take part?**

*No – it is up to you to decide whether or not to take part. If you decide to take part you are free to withdraw at any time and without giving a reason. If you do not wish to take part, it won't affect your use of the scheme.*

### **Confidentiality**

*Everything you say will be treated as confidential and no one beyond FMR Research will be able to identify anything you have said.*

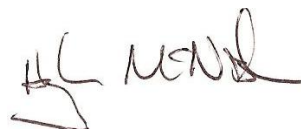
### **What then?**

*The results will be presented in a report to NHS Greater Glasgow and Clyde. It is anticipated that the findings will be ready in 2009.*

Yours sincerely



Fiona Hamilton  
Health Promotion Officer (Physical Activity)  
Health Improvement Team (Acute Planning)  
NHS Greater Glasgow and Clyde  
Telephone: 0141 201 4756



Hugh McNish  
Live Active Exercise Referral Manager  
Cultural and Leisure Services  
Glasgow City Council  
Telephone: 0141 287 0238

---

## Appendix 3 Telephone survey consent form



**Live Active Exercise Referral - evaluation**

**Please tick the relevant boxes:**

	YES	NO
I have read the information about the Live Active evaluation.		
I have the opportunity to ask questions about this study.		
I understand that I have the right to withdraw from this study at any stage without having to give a reason.		
I understand that any information that I provide is completely confidential.		
I agree to quotes of what I say perhaps being used in the final report, but that these will not be identifiable to me.		
I agree to participate in this study.		

Signature \_\_\_\_\_

Print your name \_\_\_\_\_

Contact phone number \_\_\_\_\_

Date \_\_\_\_\_

When are the most convenient times to contact you?

Weekday      Morning (9-12 am)            Weekend        
                   Afternoon (12-5 pm)        
                   Evening (6-8 pm)     

If you would like to receive a summary of the final report, please write your address here:

Postal address

E mail address

\_\_\_\_\_

---

## **Appendix 4 'Other' responses to telephone survey**

### **How did you hear about the Live Active exercise referral scheme?**

- Don't know, received a letter
- Had been going to gym, heard about it there.

### **Do you feel the scheme has had an impact on your mental health? If so, in what way?**

- Stroke has also had an effect of limiting confidence in other ways.
- Gets the blood flowing

### **Do you feel the scheme has had an impact on your confidence to be independently physically active? If so, in what way?**

- Alerted to the fact that if you don't use it you'll lose it.
- Bright and alert mind and body
- Getting to know people
- Helps you look after yourself better
- Independently I could not manage without husband's help.
- Inspired by others (clients) at Leisure Centre
- It's encouraged me to do things all the way through.
- Made more aware of what I'm doing.
- More outgoing
- Taught me to set my own goals

### **Do you feel the scheme has had an impact on your relationship with others? If so, in what way?**

- Comradeship
- Getting encouragement from others
- Happier
- No longer envious of thin people, more balanced view. Take more responsibility for my body.

### **Do you feel the scheme has had an impact on how you feel about yourself?**

- Gave me something to do
- Just better in general
- Made my mind up I was going, made a commitment

### **What helped you to continue/complete the scheme?**

- Doesn't feel he completed scheme. Went to appointments, but didn't exercise every week due to surgery on hands.

## Appendix 5 Database analysis tables

This appendix reports the findings of FMR's analysis of the participants' database supplied by the Live Active coordinator, for those participants using the original Live Active scheme and completing 12 months on the programme between January 2005 and June 2005. Despite FMR carrying out data cleaning prior to the analysis, there was still a degree of missing data: the following tables show the results with missing data suppressed.

**Table 1 Referral type**

	No.	%
LR	2709	86%
ETT	184	6%
PCR	246	8%
Total	3139	100%

**Table 2 Referral source**

	Referral type							
	Total		LR		ETT		PCR	
	No.	%	No.	%	No.	%	No.	%
GP	864	55%	817	61%	41	46%	6	5%
Practice Nurse	220	14%	194	14%	24	27%	2	2%
Physio	291	19%	170	13%	3	3%	118	89%
Self	202	13%	186	14%	15	17%	1	1%
Cardiologist	12	1%	1	0%	6	7%	5	4%
Other	33	2%	31	2%	0	0%	2	2%
Total	1569	100%	1347	100%	89	100%	133	100%

**Table 3 Reasons recorded for patients leaving the programme by stage of programme reached**

	Total		Stage of programme reached					
	No.	%	Referral only		Baseline		Month 6	
			No.	%	No.	%	No.	%
Failed to make/didn't show for appointment/not interested	1701	62%	667	69%	711	52%	323	85%
Uncontactable	466	17%	59	6%	393	28%	14	4%
Medical reasons	156	6%	23	2%	114	8%	19	5%
Transferred	85	3%	67	7%	16	1%	2	1%
Inappropriate referral	81	3%	58	6%	23	2%	0	0%
Still active	60	2%	21	2%	30	2%	9	2%
Form out of date	11	0%	11	1%	0	0%	0	0%
Moved away	11	0%	1	0%	9	1%	1	0%
Other	15	1%	3	0%	9	1%	3	1%
Missing	149	5%	63	6%	75	5%	11	3%
Total	2735	100%	973	100%	1380	100%	382	100%

**Table 4 Breakdown of inappropriate referrals**

<b>Re-referral (8)</b>		<b>Health problems (3)</b>	
2nd referral	5	BP too high	1
3rd referral	1	Too many physical problems to exercise	1
Re-referral	2	Unable to undergo ETT	1
<b>Problems with referral form (14)</b>		<b>Other (11)</b>	
Wrong referral form	2	Looking for discount	3
Form sent to wrong centre	1	Not ill enough	1
Incomplete form	4	Did not want to participate in physical activity	1
Old referral form	2	Just wanted timetable information.	1
ETT required	2	Lack of time	1
No ETT results from hospital- will be re-referred	1	Not ready to exercise	1
Already on scheme	2	Too young	1
<b>Already active, not requiring support (15)</b>		To attend phase 4 class as waiting list too high	1
Already active	12	Wants to do other activity	1
Doesn't want support	1	<b>Missing (30)</b>	
Exercising of own accord	1		
Happy to exercise on own	1		

**Table 5 Gender by stage of programme reached**

	Numbers referred		Stage of programme reached							
			Referral only		Baseline		Month 6		Month 12	
	No.	%	No.	%	No.	%	No.	%	No.	%
Male	1267	40%	416	43%	547	40%	144	38%	160	40%
Female	1872	60%	557	57%	833	60%	238	62%	244	60%
<b>Total</b>	<b>3139</b>	<b>100%</b>	<b>973</b>	<b>100%</b>	<b>1380</b>	<b>100%</b>	<b>382</b>	<b>100%</b>	<b>404</b>	<b>100%</b>

**Table 6 Age**

	Numbers referred		Stage of programme reached							
			Referral only		Baseline		Month 6		Month 12	
	No.	%	No.	%	No.	%	No.	%	No.	%
16-24	148	5%	58	7%	71	5%	13	3%	6	1%
25-44	1061	35%	379	43%	495	36%	100	26%	87	22%
45-64	1299	43%	335	38%	597	43%	189	49%	178	44%
65+	535	18%	106	12%	216	16%	80	21%	133	33%
<b>Total</b>	<b>3043</b>	<b>100%</b>	<b>878</b>	<b>100%</b>	<b>1379</b>	<b>100%</b>	<b>382</b>	<b>100%</b>	<b>404</b>	<b>100%</b>

**Table 7 Scottish Index of Multiple Deprivation (SIMD)**

	Total		Stage of programme reached							
			Referral only		Baseline		Month 6		Month 12	
	No.	%	No.	%	No.	%	No.	%	No.	%
Outside 15% SIMD	1682	56%	425	47%	742	55%	236	64%	279	70%
Within 15% SIMD	1325	44%	475	53%	598	45%	134	36%	118	30%
<b>Total</b>	<b>3007</b>	<b>100%</b>	<b>900</b>	<b>100%</b>	<b>1340</b>	<b>100%</b>	<b>370</b>	<b>100%</b>	<b>397</b>	<b>100%</b>

**Table 8 Comparison of Glasgow City and CHCP participants living in areas of deprivation (15% SIMD) with population figures**

	Glasgow City population – 2001 census %	Programme participants – Glasgow City only	
		No.	%
North	64%	255	82%
South East	32%	174	42%
South West	49%	326	57%
West	30%	203	54%
East	60%	222	71%
Glasgow City overall	46%	1180	59%

**Table 9 CHCP area**

	No.	%
North Glasgow	318	10%
East Glasgow	327	10%
South East Glasgow	423	14%
South West Glasgow	583	19%
West Glasgow	387	12%
East Dunbartonshire	371	12%
East Renfrewshire	269	9%
South Lanarkshire	240	8%
West Dunbartonshire	166	5%
Other areas	35	1%
Total	3119	100%

**Table 10 Reported use of medication at referral stage and for different age groups**

	Referral type								Age							
	Total		LR		ETT		PCR		16-24		25-44		45-64		65+	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
On medication	1854	59%	1429	53%	181	98%	244	99%	46	31%	465	44%	848	65%	430	80%
Not on medication	1285	41%	1280	47%	3	2%	2	1%	102	69%	596	56%	451	35%	105	20%
Total	3139	100%	2709	100%	184	100%	246	100%	148	100%	1061	100%	1299	100%	535	100%

**Table 11 Does participant have any physical or mental limitations which would make exercise programs difficult? (LR participants only)**

	Total		Age							
	No.	%	16-24		25-44		45-64		65+	
			No.	%	No.	%	No.	%	No.	%
Yes	1200	46%	36	25%	393	39%	544	51%	214	59%
No	1436	54%	107	75%	619	61%	533	49%	147	41%
Total	2636	100%	143	100%	1012	100%	1077	100%	361	100%

**Table 12 Does patient have joint pains or conditions? (LR participants only)**

	Total		Stage of programme reached							
	No.	%	Referral only		Baseline		Month 6		Month 12	
			No.	%	No.	%	No.	%	No.	%
Yes	881	33%	211	25%	408	34%	140	42%	122	39%
No	1828	67%	642	75%	805	66%	191	58%	190	61%
Total	2709	100%	853	100%	1213	100%	331	100%	312	100%

**Table 13 Does patient have chest problems? (LR participants only)**

	Total		Stage of programme reached							
	No.	%	Referral only		Baseline		Month 6		Month 12	
			No.	%	No.	%	No.	%	No.	%
Yes	353	13%	100	12%	168	14%	40	12%	45	14%
No	2356	87%	753	88%	1045	86%	291	88%	267	86%
Total	2709	100%	853	100%	1213	100%	331	100%	312	100%

**Table 14 Is patient recovering from an operation or illness? (LR participants only)**

	Total		Stage of programme reached							
	No.	%	Referral only		Baseline		Month 6		Month 12	
			No.	%	No.	%	No.	%	No.	%
Yes	313	12%	83	10%	155	13%	41	12%	34	11%
No	2396	88%	770	90%	1058	87%	290	88%	278	89%
Total	2709	100%	853	100%	1213	100%	331	100%	312	100%

**Table 15 Is patient diabetic? (LR participants only)**

	Total		Stage of programme reached							
	No.	%	Referral only		Baseline		Month 6		Month 12	
			No.	%	No.	%	No.	%	No.	%
Yes	295	11%	94	11%	141	12%	30	9%	30	10%
No	2414	89%	759	89%	1072	88%	301	91%	282	90%
Total	2709	100%	853	100%	1213	100%	331	100%	312	100%

**Table 16 Is your patient's blood pressure greater than 160/90? (LR participants only)**

	Total		Stage of programme reached							
	No.	%	Referral only		Baseline		Month 6		Month 12	
			No.	%	No.	%	No.	%	No.	%
Yes	214	8%	59	7%	105	9%	35	11%	15	5%
No	2423	89%	765	90%	1081	89%	288	87%	289	93%
Missing	72	3%	29	3%	27	2%	8	2%	8	3%
Total	2709	100%	853	100%	1213	100%	331	100%	312	100%

**Table 17 Smoking profile of LR participants at referral**

	Total	
	No.	%
More than 20/day	18	1%
20 or less/day	558	21%
Smoker, quantity missing	67	3%
Ex-smoker	214	8%
Non-smoker	1741	67%
Total	2598	100%

**Table 18 Alcohol consumption for LR participants at referral**

	Total	
	No.	%
14 units or less	980	36%
15-21 units	145	5%
More than 21 units	92	3%
Yes, but quantity missing <sup>18</sup>	203	7%
No	1289	48%
Total	2709	100%

**Table 19 Gender of referral and baseline participants**

	Referral participants		Baseline participants	
	No.	%	No.	%
Male	1267	40%	851	39%
Female	1872	60%	1315	61%
Total	3139	100%	2166	100%

**Table 20 Age groups of referral and baseline participants**

	Referral participants		Baseline participants	
	No.	%	No.	%
16-24	148	5%	90	4%
25-44	1061	35%	682	32%
45-64	1299	43%	964	45%
65+	535	18%	429	20%
Total	3043	100%	2165	100%

**Table 21 Deprivation status of referral and baseline participants**

	Referral participants		Baseline participants	
	No.	%	No.	%
Outwith 15% SIMD area	1682	56%	1257	60%
Within 15% SIMD area	1325	44%	850	40%
Total	3007	100%	2107	100%

<sup>18</sup> Those who said 'Yes, but quantity missing' are stating that they do drink, but did not say how much.

**Table 22 Stage of programme reached by CHCP of participants**

	CHCP																					
	Total		East Glasgow		North Glasgow		South East Glasgow		South West Glasgow		West Glasgow		East Dunb'shire		East Renfrewshire		West Dunb'shire		South Lanarkshire		Other areas	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Referral only	956	31%	119	36%	88	28%	156	37%	235	40%	102	26%	92	25%	38	14%	24	14%	89	37%	13	37%
Baseline	1377	44%	156	48%	168	53%	174	41%	235	40%	200	52%	137	37%	136	51%	59	36%	96	40%	16	46%
Month 6	382	12%	33	10%	46	14%	45	11%	45	8%	44	11%	73	20%	32	12%	34	20%	26	11%	4	11%
Month 12	404	13%	19	6%	16	5%	48	11%	68	12%	41	11%	69	19%	63	23%	49	30%	29	12%	2	6%
Total	3119	100%	327	100%	318	100%	423	100%	583	100%	387	100%	371	100%	269	100%	166	100%	240	100%	35	100%

**Table 23 Stage of programme reached by reported taking of medication at referral**

	Referral - Is patient currently taking any kind of medication?			
	Yes		No	
	No.	%	No.	%
Referral only	467	25%	506	39%
Baseline attenders	1387	75%	779	61%
Total	1854	100%	1285	100%

**Table 24 Comparison of use of medication at baseline and referral**

		Referral - Is patient currently taking any kind of medication?					
		Yes		Yes, but not medication noted		No	
		No.	%	No.	%	No.	%
Baseline - Are you currently taking any kind of medication?	Yes	1376	100%	9	100%	322	41%
	No	2	0%	0	0%	457	59%
	Yes, but not medication noted	0	0%	0	0%	0	0%
	Total	1378	100%	9	100%	779	100%

**Table 25 Does participant have any physical or mental limitations which would make exercise programs difficult? (LR participants only)**

	Does patient have any physical or mental limitations which would make exercise programs difficult?			
	Yes		No	
	No.	%	No.	%
Referral only	342	41%	483	59%
Baseline	535	45%	650	55%
Month 6	160	50%	162	50%
Month 12	163	54%	141	46%
Total	1200	46%	1436	54%



**Table 26 Does patient have joint pains or conditions? (LR participants only)**

	Does patient have joint pains or conditions?			
	Yes		No	
	No.	%	No.	%
Referral only	211	24%	642	35%
Baseline	408	46%	805	44%
Month 6	140	16%	191	10%
Month 12	122	14%	190	10%
Total	881	100%	1828	100%

**Table 27 Reported alcohol consumption (at referral stage for LR participants) of referral and baseline participants**

	Referral participants		Baseline participants	
	No.	%	No.	%
Drink alcohol	1420	52%	1014	55%
Don't drink alcohol	1289	48%	842	45%
Total	2709	100%	1856	100%

**Table 28 Comparison of reported alcohol consumption of LR participants at referral and baseline stages**

		Referral - Does patient drink alcohol?					
		Total		Drink alcohol		Don't drink alcohol	
		No.	%	No.	%	No.	%
Baseline Do you drink alcohol?	Drink alcohol	1105	60%	856	84%	249	30%
	Don't drink alcohol	751	40%	158	16%	593	70%
	Total	1856	100%	1014	100%	842	100%

**Table 29 Smoking at referral (LR participants only)**

	Smoker		Non-smoker	
	No.	%	No.	%
Referral only	282	44%	527	27%
Baseline	266	41%	898	46%
Month 6	47	7%	273	14%
Month 12	48	7%	257	13%
Total	643	100%	1955	100%

**Table 30 Employment status at baseline by stage of programme reached**

	Total	
	No.	%
Full time employed	559	26%
Part time employed	234	11%
Unemployed looking for work	185	9%
Not working due to ill health	335	16%
Student	36	2%
Retired (age)	559	26%
Retired (medical)	68	3%
Other non working (looking after home, carer)	163	8%
Total	2139	100%

**Table 31 Ethnicity**

	No.	%
White	2052	96%
Mixed background	0	0%
Chinese	0	0%
Indian	21	1%
Pakistani	38	2%
Bangladeshi	0	0%
Other Asian	7	0%
Black Caribbean	0	0%
Black African	9	0%
Other Black	0	0%
Other	18	1%
Total	2145	100%

**Table 32 Ethnicity – Glasgow City only**

	Programme Participants – Glasgow City only		Glasgow City population – 2001 census
	No.	%	%
White	1252	95%	95%
Indian	7	1%	1%
Pakistani	33	2%	2%
Other Asian	6	0%	1%
Black African	9	1%	1%
Other	15	1%	
Total	1322	100%	100%

**Table 33** Classified BMI at programme stages

	Baseline		Month 6		Month 12	
	No.	%	No.	%	No.	%
Below normal (<18.5)	16	1%	4	1%	2	1%
Normal (18.5 - 24.9)	398	19%	138	22%	74	20%
Above normal (25.0 - 29.9)	660	32%	218	35%	142	38%
Obese (30+)	991	48%	271	43%	153	41%
Total	2065	100%	631	100%	371	100%

**Table 34** Mean heart rate for all participants

	Baseline resting heart rate	Month 6 resting heart rate	Month 12 resting heart rate
Mean	72.26	71.71	71.48
N	1827	538	318
Std. Deviation	12.766	12.770	13.882

**Table 35** Mean systolic blood pressure for all participants

	Baseline systolic BP	Month 6 systolic BP	Month 12 systolic BP
Mean	129.95	131.31	132.81
N	1846	542	319
Std. Deviation	18.424	17.229	19.153

**Table 36** Mean diastolic blood pressure for all participants

	Baseline diastolic BP	Month 6 diastolic BP	Month 12 diastolic BP
Mean	81.14	79.58	79.82
N	1846	542	319
Std. Deviation	11.094	10.632	10.987

**Table 37** Smoking at baseline

	Gender					
	Total		Male		Female	
	No.	%	No.	%	No.	%
Smoker	434	20%	186	22%	248	19%
Non-smoker	1732	80%	665	78%	1067	81%
Total	2166	100%	851	100%	1315	100%

**Table 38** Alcohol consumption at baseline

	Total		Gender			
	No.	%	Male		Female	
			No.	%	No.	%
Above the recommended maximum level	130	6%	77	9%	53	4%
At or below the recommended maximum level	2002	94%	752	91%	1250	96%
Total	2132	100%	829	100%	1303	100%

**Table 39 Stage of Change for all participants at each stage of the programme**

	Baseline		Month 6		Month 12	
	No.	%	No.	%	No.	%
I am not regularly physically active and do not intend to be	104	5%	45	7%	8	2%
I am not regularly physically active but I am thinking about it	990	46%	51	7%	21	5%
I do some regular physical activity but not enough to meet the description of regular physical activity	834	39%	166	24%	77	19%
I am regularly physically active but only became so in the last 6 months	144	7%	355	52%	46	12%
I am regularly physically active and have been so for longer than 6 months	82	4%	67	10%	243	62%
Total	2154	100%	684	100%	395	100%

**Table 40 Mean Health State Scale**

	Mean	N
Baseline Health State Scale	51	2166
Month 6 Health State Scale	61	687
Month 12 Health State Scale	65	404

**Table 41 Mean HADS Anxiety scores by age**

Age		Baseline HADS A	Month 6 HADS A	Month 12 HADS A
16-24	Mean	8.77	5.90	6.20
	N	64	10	5
	Std. Deviation	4.212	2.685	2.387
25-44	Mean	8.18	6.07	4.56
	N	532	99	62
	Std. Deviation	4.370	4.832	4.928
45-64	Mean	7.02	4.98	4.02
	N	794	233	150
	Std. Deviation	4.602	4.119	4.067
65+	Mean	4.19	3.21	2.12
	N	362	139	115
	Std. Deviation	3.607	2.814	2.421
Total	Mean	6.85	4.71	3.50
	N	1752	481	332
	Std. Deviation	4.566	4.060	3.888

**Table 42 Mean HADS Depression scores by gender**

Gender		Baseline HADS D	Month 6 HADS D	Month 12 HADS D
Male	Mean	4.31	2.19	2.16
	N	693	218	135
	Std. Deviation	3.626	2.622	2.784
Female	Mean	5.24	2.25	2.18
	N	1059	354	197
	Std. Deviation	3.983	3.018	2.822
Total	Mean	4.87	2.23	2.17
	N	1752	572	332
	Std. Deviation	3.871	2.871	2.803

**Table 43 HADS Anxiety and HADS Depression scores at baseline**

		No.	%
HADS A baseline	Normal	1040	59%
	Mild	325	19%
	Moderate	308	18%
	Severe	79	5%
	Total	1752	100%
HADS D baseline	Normal	1360	78%
	Mild	214	12%
	Moderate	154	9%
	Severe	24	1%
	Total	1752	100%

**Table 44 Age breakdown at programme stages**

	Baseline participants		Month 6 participants		Month 12 participants	
	No.	%	No.	%	No.	%
Under 45	772	36%	176	26%	93	23%
45 and over	1393	64%	511	74%	311	77%
Total	2165	100%	687	100%	404	100%

**Table 45 Stage of programme reached by SIMD area**

		Deprivation					
		Total		Outwith 15% SIMD		Within 15% SIMD	
		No.	%	No.	%	No.	%
Stage of programme reached	Referral only	900	30%	425	25%	475	36%
	Baseline	1340	45%	742	44%	598	45%
	Month 6	370	12%	236	14%	134	10%
	Month 12	397	13%	279	17%	118	9%
	Total	3007	100%	1682	100%	1325	100%

**Table 46 Stage of programme reached by employment status**

	Full time employed		Part time employed		Unemployed looking for work		Not working due to ill health		Student		Retired (age)		Retired (medical)		Other non working (looking after home, carer)		Missing	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
	Baseline	367	66%	156	67%	139	75%	235	70%	22	61%	283	51%	49	72%	110	67%	19
Month 6	112	20%	41	18%	24	13%	46	14%	11	31%	104	19%	11	16%	29	18%	4	15%
Month 12	80	14%	37	16%	22	12%	54	16%	3	8%	172	31%	8	12%	24	15%	4	15%
Total	559	100%	234	100%	185	100%	335	100%	36	100%	559	100%	68	100%	163	100%	27	100%

**Table 47 Stage of programme reached by whether economically active or not**

Stage of programme reached		Total		Active		Inactive	
		No.	%	No.	%	No.	%
		Baseline	1361	64%	662	68%	699
Month 6	378	18%	177	18%	201	17%	
Month 12	400	19%	139	14%	261	22%	
Total	2139	100%	978	100%	1161	100%	

**Table 48 Stage of programme reached by referral type**

	Referral type							
	Total		LR		ETT		PCR	
	No.	%	No.	%	No.	%	No.	%
Referral only	973	31%	853	31%	50	27%	70	28%
Baseline	1380	44%	1213	45%	80	43%	87	35%
Month 6	382	12%	331	12%	24	13%	27	11%
Month 12	404	13%	312	12%	30	16%	62	25%
Total	3139	100%	2709	100%	184	100%	246	100%

**Table 49 Stage of programme reached by reported taking of medication at referral**

	Referral - Is patient currently taking any kind of medication?					
	Total		Yes		No	
	No.	%	No.	%	No.	%
Referral only	973	31%	467	25%	506	39%
Baseline	1380	44%	853	46%	527	41%
Month 6	382	12%	250	13%	132	10%
Month 12	404	13%	284	15%	120	9%
Total	3139	100%	1854	100%	1285	100%

**Table 50** Reported taking of medication at various stages of the programme

	Yes		No	
	No.	%	No.	%
Referral - Is patient currently taking any kind of medication?	1854	59%	1285	41%
Baseline - Are you currently taking any kind of medication?	1707	79%	459	21%
Month 6 Are you currently taking any kind of medication?	538	78%	149	22%
Month 12 Are you currently taking any kind of medication?	340	84%	64	16%

**Table 51** Mean weight at baseline by stage of programme reached

Stage of programme reached	Mean	N	Std. Deviation
Baseline	85.080	1309	21.1932
Month 6	82.820	371	19.8958
Month 12	81.110	394	18.0826

**Table 52** BMI at baseline stage by stage of programme reached

	Stage of programme reached					
	Baseline		Month 6		Month 12	
	No.	%	No.	%	No.	%
Underweight (<18.5)	10	1%	3	1%	3	1%
Normal (18.5 - 24.9)	234	18%	84	23%	80	20%
Overweight (25.0 - 29.9)	402	31%	113	31%	145	37%
Obese (30+)	655	50%	170	46%	166	42%
Total	1301	100%	370	100%	394	100%

**Table 53** Stage of programme reached by smoking status at baseline

	Smoker/non-smoker at Baseline			
	Smoker		Non-smoker	
	No.	%	No.	%
Baseline	321	74%	1059	61%
Month 6	55	13%	327	19%
Month 12	58	13%	346	20%
Total	434	100%	1732	100%

**Table 54 Grouped HADS Anxiety and HADS Depression scores at baseline by stage of programme reached**

		Stage of programme reached					
		Baseline		Month 6		Month 12	
		No.	%	No.	%	No.	%
HADS A baseline	Normal/mild	822	75%	247	78%	296	86%
	Moderate/severe	270	25%	69	22%	48	14%
	Total	1092	100%	316	100%	344	100%
HADS D baseline	Normal/mild	966	88%	289	91%	319	93%
	Moderate/severe	126	12%	27	9%	25	7%
	Total	1092	100%	316	100%	344	100%

**Table 55 Pearson Chi-Square Tests**

		Stage of programme reached
HADS A baseline	Chi-square	17.651
	df	2
	Sig.	.000(*)
HADS D baseline	Chi-square	6.330
	df	2
	Sig.	.042(*)

Results are based on nonempty rows and columns in each innermost subtable.

\* The Chi-square statistic is significant at the 0.05 level.

**Table 56 Mean HADS Anxiety and HADS Depression scores by stage of programme reached**

Stage of programme reached		Baseline HADS A	Baseline HADS D
Baseline	Mean	7.18	5.16
	N	1092	1092
	Std. Deviation	4.547	3.920
Month 6	Mean	6.60	4.63
	N	316	316
	Std. Deviation	4.627	3.915
Month 12	Mean	6.01	4.17
	N	344	344
	Std. Deviation	4.459	3.569

**Table 57 ANOVA Table**

			Sum of Squares	df	Mean Square	F	Sig.
Baseline HADS A * Stage of programme reached	Between Groups	(Combined)	383.379	2	191.689	9.281	.000
	Within Groups		36122.141	1749	20.653		
	Total		36505.520	1751			
Baseline HADS D * Stage of programme reached	Between Groups	(Combined)	281.319	2	140.659	9.475	.000
	Within Groups		25963.297	1749	14.845		
	Total		26244.616	1751			



**Table 58 Mean Baseline Health State Scale by stage of programme reached**

Stage of programme reached	Mean	N	Std. Deviation
Baseline	49.73	1380	23.514
Month 6	51.64	382	23.729
Month 12	57.33	404	22.752

**Table 59 ANOVA Table**

			Sum of Squares	df	Mean Square	F	Sig.
Baseline Health State Scale * Stage of programme reached	Between Groups	(Combined)	18047.393	2	9023.697	16.462	.000
	Within Groups		1185619.475	2163	548.137		
	Total		1203666.868	2165			

**Table 60 Baseline Stage of Change by stage of programme reached**

		Stage of programme reached							
		Total		Baseline		Month 6		Month 12	
		No.	%	No.	%	No.	%	No.	%
Baseline Stage of Change	I am not regularly physically active and do not intend to be	104	5%	78	6%	14	4%	12	3%
	I am not regularly physically active but I am thinking about	990	46%	640	47%	185	49%	165	41%
	I do some regular physical activity but not enough to meet t	834	39%	528	39%	143	38%	163	40%
	I am regularly physically active but only became so in the l	144	7%	75	5%	22	6%	47	12%
	I am regularly physically active and have been so for longer	82	4%	49	4%	17	4%	16	4%

**Table 61 Does patient have physical or mental limitations which would make exercise programme difficult by stage of programme reached**

	Stage of programme reached									
	Total		Referral only		Baseline		Month 6		Month 12	
	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	1200	46%	342	41%	535	45%	160	50%	163	54%
No	1436	54%	483	59%	650	55%	162	50%	141	46%
Total	2636	100%	825	100%	1185	100%	322	100%	304	100%

**Table 62 Reasons recorded for patients leaving the programme by CHCP area**

	CHCP																					
	Total		East Glasgow		North Glasgow		South East Glasgow		South West Glasgow		West Glasgow		East Dunb'shire		East Ren'shire		South Lan'shire		West Dun'shire		Other areas	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Failed to make/didn't show for appointment/not interested	1701	62%	94	31%	192	64%	197	53%	298	58%	249	72%	250	83%	173	84%	162	77%	62	53%	15	45%
Uncontactable	466	17%	74	24%	44	15%	123	33%	139	27%	25	7%	2	1%	5	2%	19	9%	27	23%	6	18%
Medical reasons	156	6%	12	4%	24	8%	19	5%	29	6%	18	5%	17	6%	12	6%	10	5%	12	10%	2	6%
Missing	149	5%	94	31%	18	6%	4	1%	3	1%	12	3%	1	0%	1	0%	9	4%	0	0%	5	15%
Transferred	85	3%	12	4%	9	3%	9	2%	16	3%	16	5%	8	3%	1	0%	1	0%	10	9%	1	3%
Inappropriate referral	81	3%	10	3%	12	4%	12	3%	9	2%	11	3%	11	4%	6	3%	4	2%	1	1%	3	9%
Still active	60	2%	6	2%	2	1%	7	2%	13	3%	11	3%	6	2%	2	1%	6	3%	5	4%	1	3%
Other	15	1%	1	0%	1	0%	2	1%	3	1%	3	1%	2	1%	3	1%	0	0%	0	0%	0	0%
Form out of date	11	0%	2	1%	0	0%	0	0%	4	1%	0	0%	1	0%	3	1%	0	0%	0	0%	0	0%
Moved away	11	0%	3	1%	0	0%	2	1%	1	0%	1	0%	4	1%	0	0%	0	0%	0	0%	0	0%
Discharged	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
<b>Total</b>	<b>2735</b>	<b>100%</b>	<b>308</b>	<b>100%</b>	<b>302</b>	<b>100%</b>	<b>375</b>	<b>100%</b>	<b>515</b>	<b>100%</b>	<b>346</b>	<b>100%</b>	<b>302</b>	<b>100%</b>	<b>206</b>	<b>100%</b>	<b>211</b>	<b>100%</b>	<b>117</b>	<b>100%</b>	<b>33</b>	<b>100%</b>

**Table 63 Paired sample mean weight (kilograms)**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 BL weight	81.106	617	18.4239	.7417
M6 weight	80.565	617	18.0557	.7269
Pair 2 BL weight	81.337	363	18.2502	.9579
M12 weight	80.752	363	17.9471	.9420
Pair 3 M6 weight	78.759	276	15.9603	.9607
M12 weight	79.043	276	16.0914	.9686

**Table 64 Paired sample BMI**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Baseline BMI	30.0350	617	6.23080	.25084
Month 6 BMI	29.8317	617	6.10534	.24579
Pair 2 Baseline BMI	30.0514	363	6.38712	.33524
Month 12 BMI	29.8367	363	6.29569	.33044
Pair 3 Month 6 BMI	29.3120	276	5.55229	.33421
Month 12 BMI	29.4205	276	5.63298	.33907

**Table 65 Changes in BMI (paired sample)**

		Baseline BMI							
		Underweight (<18.5)		Normal (18.5 - 24.9)		Overweight (25.0 - 29.9)		Obese (30+)	
		No.	%	No.	%	No.	%	No.	%
Month 6 BMI	Underweight (<18.5)	3	60%	0	0%	0	0%	0	0%
	Normal (18.5 - 24.9)	2	40%	115	88%	17	8%	0	0%
	Overweight (25.0 - 29.9)	0	0%	15	12%	179	84%	21	8%
	Obese (30+)	0	0%	0	0%	18	8%	247	92%
	Total	5	100%	130	100%	214	100%	268	100%
Month 12 BMI	Underweight (<18.5)	2	100%	0	0%	0	0%	0	0%
	Normal (18.5 - 24.9)	0	0%	56	80%	17	12%	0	0%
	Overweight (25.0 - 29.9)	0	0%	14	20%	102	74%	25	16%
	Obese (30+)	0	0%	0	0%	19	14%	127	84%
	Total	2	100%	70	100%	138	100%	152	100%

**Table 66 Paired comparison of HADS Anxiety scores**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Baseline HADS A	6.11	481	4.492	.205
	M6 HADS A	4.71	481	4.060	.185
Pair 2	Baseline HADS A	5.92	330	4.461	.246
	M12 HADS A	3.50	330	3.898	.215
Pair 3	M6 HADS A	4.17	234	4.060	.265
	M12 HADS A	3.19	234	3.748	.245

**Table 67 Paired Samples Test of HADS Anxiety scores**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Baseline HADS A - M6 HADS A	1.397	3.302	.151	1.101	1.693	9.280	480	.000
Pair 2	M6 HADS A - M12 HADS A	.974	3.118	.204	.573	1.376	4.780	233	.000
Pair 3	Baseline HADS A - M12 HADS A	2.424	3.589	.198	2.036	2.813	12.269	329	.000

**Table 68 Mean HADS Anxiety scores by gender**

Gender		Baseline HADS A	Month 6 HADS A	Month 12 HADS A
Male	Mean	5.72	3.95	2.87
	N	693	192	135
	Std. Deviation	4.256	3.785	3.467
Female	Mean	7.59	5.21	3.92
	N	1059	289	197
	Std. Deviation	4.613	4.163	4.106
Total	Mean	6.85	4.71	3.50
	N	1752	481	332
	Std. Deviation	4.566	4.060	3.888

**Table 69 Movement in HADS Anxiety scores (column %)**

		HADS A baseline					
		Total		Normal/ mild		Moderate/severe	
		No.	%	No.	%	No.	%
HADS A 6 months	Normal/mild	428	89%	380	95%	48	61%
	Moderate/severe	53	11%	22	5%	31	39%
	Total	481	100%	402	100%	79	100%
HADS A 12 months	Normal/mild	307	93%	277	97%	30	68%
	Moderate/severe	23	7%	9	3%	14	32%
	Total	330	100%	286	100%	44	100%

**Table 70 Movement in HADS Anxiety scores (row %)**

		HADS A baseline					
		Total		Normal/mild		Moderate/severe	
		No.	Row %	No.	Row %	No.	Row %
HADS A 6 months	Normal/mild	428	100%	380	89%	48	11%
	Moderate/severe	53	100%	22	42%	31	58%
	Total	481	100%	402	84%	79	16%
HADS A 12 months	Normal/mild	307	100%	277	90%	30	10%
	Moderate/severe	23	100%	9	39%	14	61%
	Total	330	100%	286	87%	44	13%

**Table 71 Paired comparison of HADS Depression scores**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Baseline HADS D	4.34	572	3.725	.156
	M6 HADS D	2.23	572	2.871	.120
Pair 2	Baseline HADS D	4.18	330	3.558	.196
	M12 HADS D	2.18	330	2.808	.155
Pair 3	M6 HADS D	2.16	256	2.659	.166
	M12 HADS D	1.74	256	2.468	.154

**Table 72 Paired Samples Test for HADS Depression Scores**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Baseline HADS D - M6 HADS D	2.115	3.274	.137	1.847	2.384	15.453	571	.000
Pair 2	M6 HADS D - M12 HADS D	.426	2.190	.137	.156	.695	3.111	255	.002
Pair 3	Baseline HADS D - M12 HADS D	1.991	3.257	.179	1.638	2.344	11.103	329	.000

**Table 73 Mean HADS Depression scores by age**

Age		Baseline HADS D	Month 6 HADS D	Month 12 HADS D
16-24	Mean	5.47	2.85	2.40
	N	64	13	5
	Std. Deviation	3.968	3.132	1.817
25-44	Mean	5.71	2.74	2.81
	N	532	121	62
	Std. Deviation	4.038	3.646	3.420
45-64	Mean	4.96	2.14	2.16
	N	794	277	150
	Std. Deviation	3.978	2.767	2.852
65+	Mean	3.34	1.94	1.84
	N	362	161	115
	Std. Deviation	2.784	2.276	2.338
Total	Mean	4.87	2.23	2.17
	N	1752	572	332
	Std. Deviation	3.871	2.871	2.803

**Table 74 Movement in HADS Depression scores (column %)**

		HADS D baseline					
		Total		Normal/mild		Moderate/severe	
		No.	%	No.	%	No.	%
HADS D 6 months	Normal/mild	560	98%	523	99%	37	84%
	Moderate/severe	12	2%	5	1%	7	16%
	Total	572	100%	528	100%	44	100%
HADS D 12 months	Normal/mild	325	98%	304	99%	21	88%
	Moderate/severe	5	2%	2	1%	3	13%
	Total	330	100%	306	100%	24	100%

**Table 75 Movement in HADS Depression scores (row %)**

		HADS D baseline					
		Total		Normal/mild		Moderate/severe	
		No.	Row %	No.	Row %	No.	Row %
HADS D 6 months	Normal/mild	560	100%	523	93%	37	7%
	Moderate/severe	12	100%	5	42%	7	58%
	Total	572	100%	528	92%	44	8%
HADS D 12 months	Normal/mild	325	100%	304	94%	21	6%
	Moderate/severe	5	100%	2	40%	3	60%
	Total	330	100%	306	93%	24	7%

**Table 76 Stage of Change comparison between baseline and 6 month consultation**

		Baseline Stage of Change							
		Total		Prec'n, Cont'n, Prep'n		Action		Maintenance	
		No.	%	No.	%	No.	%	No.	%
M6 Stage of Change	Prec'n, Cont'n, Prep'n	261	38%	252	42%	5	8%	4	14%
	Action	355	52%	314	53%	33	56%	8	28%
	Maintenance	67	10%	29	5%	21	36%	17	59%
	Total	683	100%	595	100%	59	100%	29	100%

**Table 77 Stage of Change comparison between 6 month and 12 month consultation**

		M6 Stage of Change							
		Total		Prec'n, Cont'n, Prep'n		Action		Maintenance	
		No.	%	No.	%	No.	%	No.	%
M12 Stage of Change	Prec'n, Cont'n, Prep'n	55	18%	27	42%	27	14%	1	3%
	Action	32	11%	18	28%	14	7%	0	0%
	Maintenance	213	71%	20	31%	156	79%	37	97%
	Total	300	100%	65	100%	197	100%	38	100%

**Table 78 Stage of Change comparison between baseline and 12 month consultation**

		Baseline Stage of Change							
		Total		Prec'n, Cont'n, Prep'n		Action		Maintenance	
		No.	%	No.	%	No.	%	No.	%
M12 Stage of Change	Prec'n, Cont'n, Prep'n	106	27%	98	29%	7	15%	1	6%
	Action	46	12%	43	13%	2	4%	1	6%
	Maintenance	243	62%	192	58%	37	80%	14	88%
	Total	395	100%	333	100%	46	100%	16	100%

**Table 79 Physical Activity Recall score by gender of participant for all participants (in minutes)**

		Baseline This week you have been active for...	Month 6 This week you have been active for...	Month 12 This week you have been active for...
Gender	Mean			
Male	Mean	419.77	653.50	677.19
Female	Mean	370.53	502.47	587.71
Total	Mean	389.88	560.51	623.50

**Table 80 Difference in mean PAR**

		Mean increase (in minutes) - all participants	Mean increase (in minutes) - males	Mean increase (in minutes) - females
Pair 1	baseline and month 6	177 (n = 687)	227 (n = 264)	146 (n = 423)
Pair 2	baseline and month 12	255 (n = 395)	228 (n = 158)	273 (n = 237)

**Table 81 Paired Health State scale scores**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Baseline Health State Scale	54.14	687	23.152	.883
	M6 Health State Scale	61.04	687	24.571	.937
Pair 2	M6 Health State Scale	66.21	305	20.999	1.202
	M12 Health State Scale	67.27	305	22.362	1.280
Pair 3	Baseline Health State Scale	57.33	404	22.752	1.132
	M12 Health State Scale	65.45	404	23.307	1.160

**Table 82 Smoking status at 6 months of smokers at baseline for those who completed 6 month consultation**

		Smoker at baseline	
		No.	%
Smoker/non-smoker at M6	Smoker	71	77%
	Non-smoker	21	23%
	Total	92	100%

**Table 83 Smoking status at 6 and 12 months of smokers at baseline for those who completed the programme**

				Smoker/non-smoker at Baseline	
				Smoker	
				No.	%
Smoker/non-smoker at M6	Smoker	Smoker/non-smoker at M12	Smoker	25	78%
			Non-smoker	7	22%
			Total	32	100%
	Non-smoker	Smoker/non-smoker at M12	Smoker	3	60%
			Non-smoker	2	40%
			Total	5	100%
	Total	Smoker/non-smoker at M12	Smoker	28	76%
			Non-smoker	9	24%
			Total	37	100%

## Telephone Survey

**Table 84** No. of days per week achieved 30 minutes accumulated exercise

	Total	
	No.	%
1	1	3%
3	2	6%
4	4	13%
5	4	13%
6	7	22%
7	14	44%
Total	32	100%

**Table 85** Which of the following categories best describes how physically active you have been over the last six months?

Stage of Change	No.	%
I am not regularly physically active and do not intend to be	0	0%
I am not regularly physically active but am thinking about starting to be in the next 6 months	2	6%
I do some physical activity but not enough to meet the description of regular physical activity	6	19%
I am regularly physically active but only began in the last 6 months	0	0%
I am regularly physically active and have been so for longer than 6 months	24	75%
Total	32	100%

**Table 86** Do you feel the scheme has had an impact on your physical health? By gender and age.

	Total		Gender				Age							
	No.	%	Male		Female		16-24		25-44		45-64		65+	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	29	91%	15	88%	14	93%	0	0%	2	100%	16	89%	11	92%
No	3	9%	2	12%	1	7%	0	0%	0	0%	2	11%	1	8%
Total	32	100%	17	100%	15	100%	0	0%	2	100%	18	100%	12	100%

**Table 87** Scheme impact on physical health

	No.	%
Health improvement: increased physical fitness/stamina	23	79%
Lost weight/improved body shape	7	24%
Increased mobility/flexibility/strength	5	17%
Motivation	5	17%
Mental health	4	14%
Health knowledge	2	7%
Other	3	10%
Total	29	100%



**Table 88 Do you intend to maintain your present levels of physical activity?**

	Total	
	No.	%
Yes - do more	18	56%
Yes - stay the same	14	44%
No - do less	0	0%
No - stop all activity	0	0%
Total	32	100%

**Table 89 Do you feel the scheme has had an impact on your confidence to be independently physically active?**

	Total	
	No.	%
Yes	29	91%
No	3	9%
Total	32	100%

**Table 90 Do you feel the scheme has had an impact on your mental health?**

	Total	
	No.	%
Yes	21	66%
No	11	34%
Total	32	100%

**Table 91 Do you feel the scheme has had an impact on how you feel about yourself?**

	Total	
	No.	%
Yes	28	88%
No	14	12%
Total	32	100%

**Table 92 What has helped you to continue/complete the scheme?**

	Total	
	No.	%
I wanted to get/stay healthy	12	38%
Seeing/feeling changes/improvements	7	22%
Enjoyment	5	12%
Support from Counsellors	3	7%
Support from health professionals	3	7%
Discipline/willpower	3	7%
Consultation with Exercise Counsellor	2	5%
Reduction in price	2	5%
Support from family/friends	2	5%
Support from people you met at the leisure centre	2	5%
Wanted to stay active	2	5%
Support from GP	0	0%
Information from health professionals	0	0%
Other	1	3%
Total	32	100%