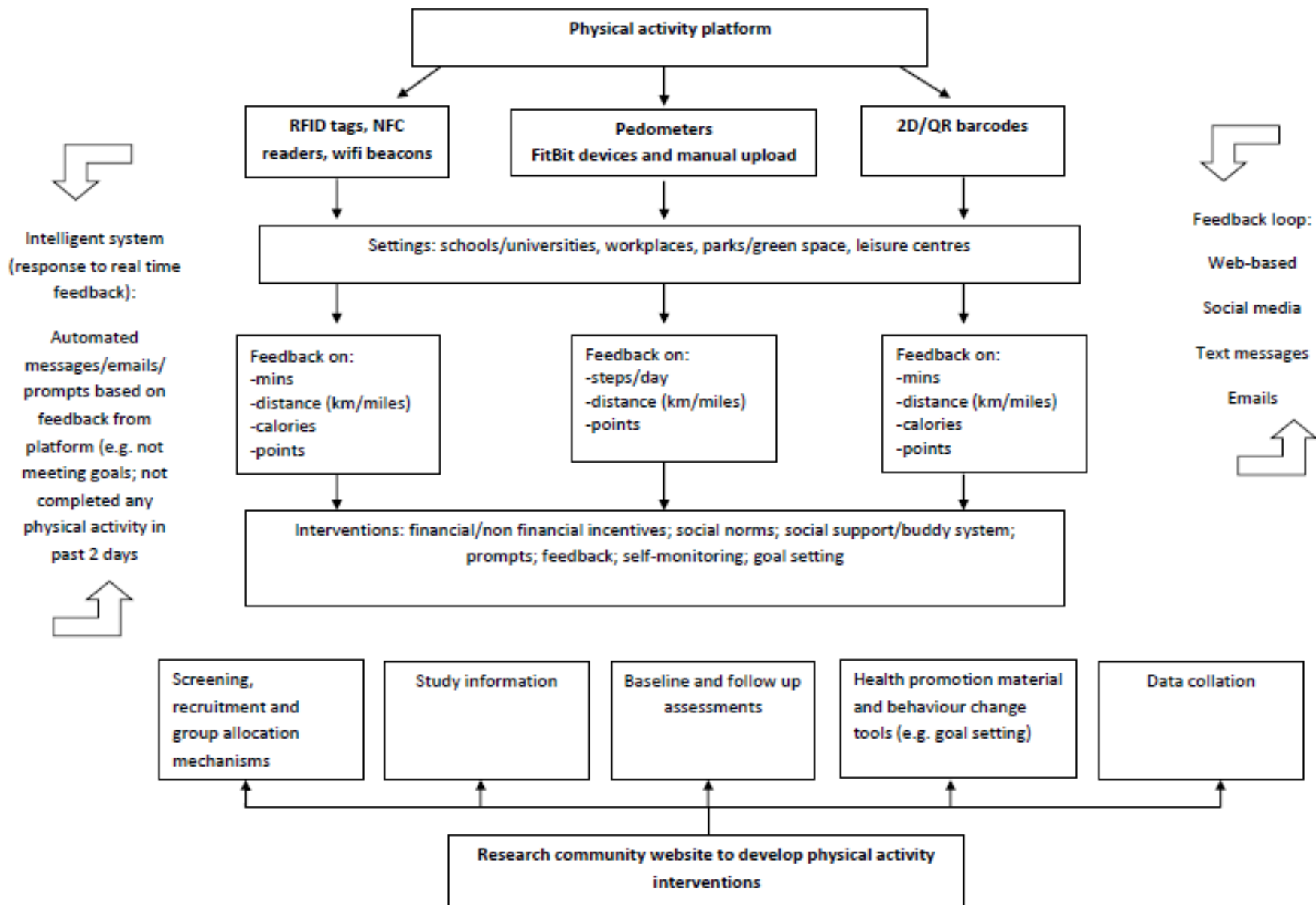


Open source platform to develop, implement and evaluate web-based physical activity interventions

*We have developed an open source platform
that other researchers can adapt for physical
activity web-based interventions*

The web-based platform consists of 3 main components:

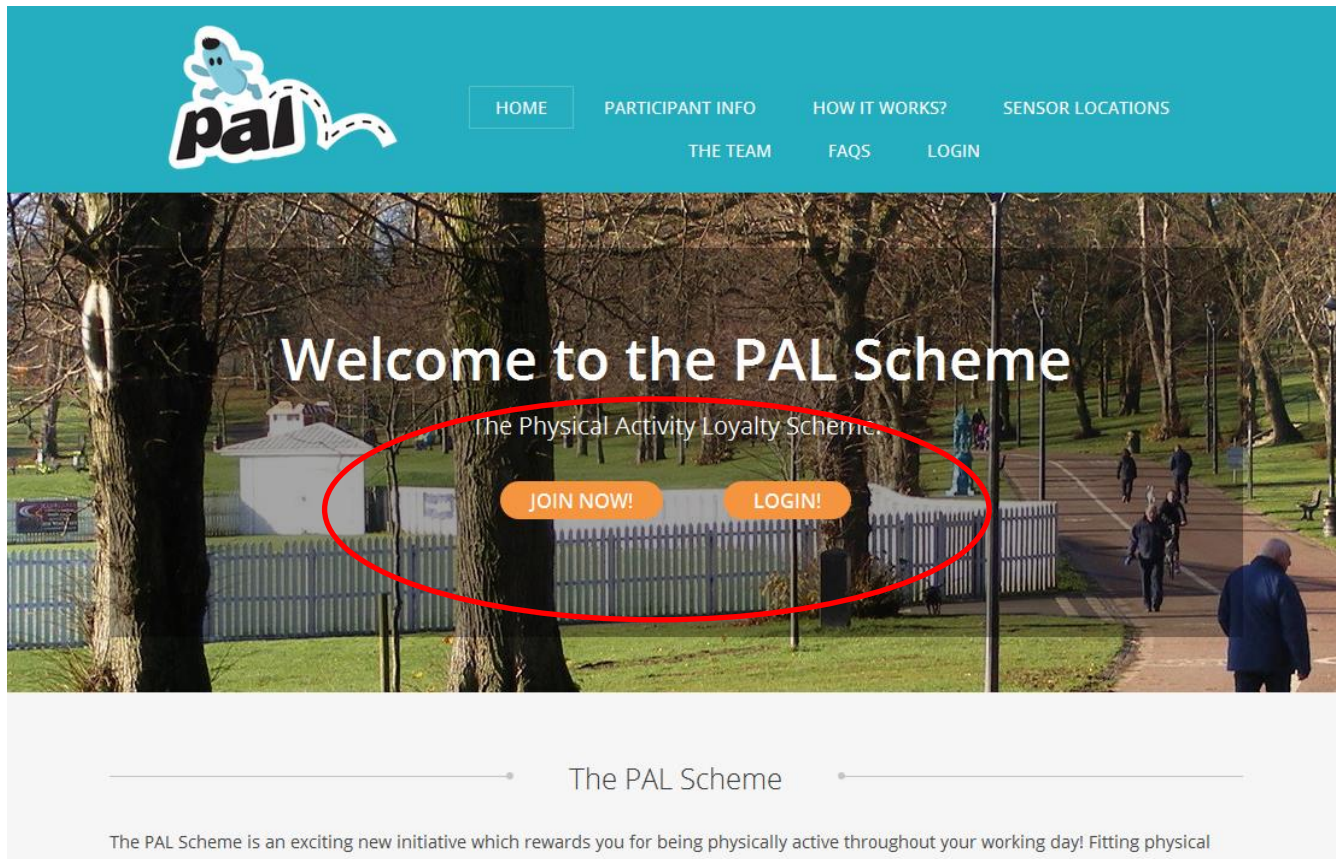
- An outward facing website which contains health promotion material, behaviour change tools, integrated social media, and mechanisms for automated motivational messages;
- A research tool which consists of modules for screening, recruitment, electronic data collection and reporting; and,
- Integration of the system with other technologies for monitoring physical activity, for example, FitBit devices.



Research-specific Tools

- Recruitment and registration
- Screening
- Participant Info Sheet and consent
- Group allocation
- Data collection – online questionnaires
- Data collation and aggregation

Recruitment and Registration



Participants are sent an email inviting them to participate in the study. This contains a web-link directing them to the study website where they can find out more information about the study and read the Participant Info Sheet. If interested, they can then register for the study by clicking “Register for the scheme” where they will be asked to complete their contact details and a short online screening questionnaire.

Screening

The screenshot shows a Microsoft Excel spreadsheet titled 'Screening Questionnaire'. The spreadsheet contains a table with 16 rows of participant data. The columns are labeled as follows: A (Serial), B (SID), C (Time), D (UID), E (Gender), F (Age), G (Smartphon), H (Days per W), I (Hours per C), J (Contract er), K (Internet Ac), L (Pregnant?), M (PARQ Heart), N (PARQ Ch), O, P, Q, R. The data rows contain numerical and categorical values for each field.

Serial	SID	Time	UID	Gender	Age	Smartphon	Days per W	Hours per C	Contract er	Internet Ac	Pregnant?	PARQ Heart	PARQ Ch
1	2263	2013-06-2	114	F	34	Y	5	8	N	Y	N	N	N
2	2264	2013-07-0	117	F	28	Y	4	7	N	Y	N	N	Y
3	2265	2013-07-0	118	F	29	Y	5	8	N	Y	N	N	N
4	2266	2013-07-0	119	M	46	Y	5	8	N	Y	N	N	N
5	2267	2013-07-0	120	F	52	Y	5	9	N	Y	N	N	N
6	2268	2013-07-0	121	M	33	Y	5	5	N	Y	N	N	N
7	2269	2013-07-0	122	M	33	Y	0	1	N	Y	N	N	N
8	2270	2013-07-0	123	M	49	Y	5	8	N	Y	N	N	N
9	2271	2013-07-0	124	M	42	Y	5	5	N	Y	N	N	N
10	2272	2013-07-0	125	F	38	Y	5	37	N	Y	N	N	N
11	2273	2013-07-0	126	F	50	Y	5	9	N	Y	N	N	N
12	2274	2013-07-0	127	F	44	Y	5	8	N	Y	N	N	N
13	2275	2013-07-0	128	F	35	Y	5	9	N	Y	N	N	N
14	2276	2013-07-0	129	F	43	Y	5	8	N	Y	N	N	N
15	2277	2013-07-0	130	F	35	Y	5	8	N	Y	N	N	N
16	2278	2013-07-0	131	F	33	Y	5	8	N	Y	N	N	N

Participants complete an online screening questionnaire. Researchers can automatically download the results of the screening questionnaire (in Excel format) to assess for eligibility. Rules can be set that automatically decide whether a participant is eligible for the study or not. Dependent on the outcome, participants can then be sent a tailored email advising them of the next step in the study or thanking them for their participation but unfortunately (for a certain reason) they are not eligible to take part.

Participant Information Sheet

• [Eat Breakfast](#)

• [Food Swaps](#)

• [5-a-Day](#)

• [Portion Control](#)

• [Other Helpful Information](#)

Weight Management

• [Are you a Healthy Weight?](#)

• [The Truth about Fad Diets](#)

• [Weight Loss Myths](#)

• [Weight Loss Motivation](#)

• [Other Helpful Information](#)

Mind Your Head

• [Take the Stress Test](#)

• [Top 10 Stress Busters](#)

• [Time Management](#)

• [Other Helpful Information](#)

[Click here for a printable version of the Participant Information](#)

1. Study title

The Physical Activity Loyalty (PAL) Scheme Feasibility Study.

[back to top](#) ↑

2. Invitation to participate

You are invited to take part in a research study investigating the effects of a physical activity loyalty scheme. This study is being conducted by researchers from the Centre for Public Health, Queen's University Belfast. Please read the following information carefully, and take some time to decide if you wish to take part. If you have any questions, or would like more information on any aspect of the research, [please ask us](#). Thank you for taking the time to consider this invitation.

[back to top](#) ↑

3. What is the purpose of the study?

There is a clear link between adequate levels of daily physical activity and a healthy life. However, we acknowledge that there are a number of barriers in your daily life that prevent you from undertaking physical activity. The aim of this study is to investigate the best methods of encouraging people to undertake more physical activity. You will have access to a purpose-built website which will provide you with information and tools to help you become more active. In addition, we will be placing sensors (QR barcodes-see last page for example) around the University campus which can be used to monitor the amount of physical activity that you are doing. By scanning your Smartphone (e.g. iPhone, Blackberry, Android) (using a free QR reader app) across the sensors you can keep track of your daily physical activity levels. Accumulated minutes of physical activity are automatically archived onto your own individual account on the study website. Accumulated minutes of activity are converted to 'points'. These points can be redeemed for rewards (retail vouchers) throughout the 10-week scheme.

10.04 Kph (6.24 mph)

BMI: 25.7

Calories burned: 62,346

Points earned: 124

[View details](#)

News

[On Your Marks, Get Set, Go!](#)

[more](#)

Active forum topics

- [Scanning QR Codes](#)
- [Getting started!](#)

[More](#)

Participants can view the Participant Information Sheet on the website and also download a pdf copy. This can be easily accessed from a tab on the homepage. Other features include tabs on “how it works”, “FAQ’s” and a “contact us” feature to enable researchers to answer any questions participants may have.

Consent Form

- A Change is Better than a Rest!
- No More Excuses!
- Personal Goal Setting
- Make it a Date!

Physical Activity

- Physical Activity: The Basics
- Benefits of Physical Activity
- Top 10 Facts about Physical Activity
- Be Careful, Stay Safe
- PAL for Me
- PAL for Work

Healthy Eating

- A Balanced Diet
- Tips for Healthy Eating
- Eat Breakfast
- Food Swaps
- 5-a-Day

View **Edit** **Delete**

[Resend e-mails](#) [Previous submission](#) [Next submission](#)

Submission information

Form: [Consent Form](#)
Submitted by [ruthhunter](#)
Monday, 14 February 2011 - 5:44pm
143.117.96.120

Please check the boxes to confirm:

- I confirm that I have read and understand the Participant Information Sheet for the above study
- I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily
- I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected
- I understand all data will be treated securely as described by Data Protection and stored appropriately as required by the University
- I understand that I will not be identifiable in any data published in relation to this project
- I agree to participate in the Physical Activity Loyalty Card Scheme

[Previous submission](#) [Next submission](#)

0 days

Questionnaires

- [Consent Form](#)

My Activity

Total Time: 0h 37m
Total Distance: 0.1 Km
(0.1 miles)
Total Calories: 62

Points Earned: 30
Points Spent: 0
Points Balance: 30
Available to Spend: 30

[view details](#)

Participants can complete the consent form by checking boxes to confirm that they agree with each statement. This information is then collated on the back-end of the website along with the participant ID and date/time when the consent form was completed. Alternatively, participants can download a pdf copy of the consent form off the website, complete in written form and return via post/email.

Group Allocation

The screenshot displays the 'Users' management interface. At the top, there are navigation tabs: Home, Participant info, How it works, Maps, Rewards, FAQs, and Forums. A search bar is located on the right. The main content area is titled 'Users' and includes a 'List' button and an 'Add user' button. Below this, there is a description of user management and a filter section. The filter section has radio buttons for 'role', 'permission', and 'status'. The 'role' dropdown is currently set to 'administrator' and is open, showing a list of roles and permissions including 'administrator', 'external application', 'Group A', 'Group B', 'L2_password_set', 'L3_consent_form_submitted', 'L4_baseline_submitted', 'L5_week_12_submitted', 'L6_6_month_submitted', and 'Redeem Rewards'. There is also an 'Update options' section with a checkbox for 'Unlock the selected users'. The main table lists users with columns for Username, Member for, Last access, and Operations. The table contains three rows of user data.

<input type="checkbox"/>	Username	Member for	Last access	Operations	
<input type="checkbox"/>	[Redacted] active	<ul style="list-style-type: none"> Group A L2_password_set Redeem Rewards 	2 years 12 weeks	2 years 11 weeks ago	edit
<input type="checkbox"/>	[Redacted] active	<ul style="list-style-type: none"> Group A L2_password_set L4_baseline_submitted Redeem Rewards 	2 years 16 weeks	2 years 14 weeks ago	edit
<input type="checkbox"/>	[Redacted] active	<ul style="list-style-type: none"> Group B L2_password_set L4_baseline_submitted 	2 years 16 weeks	2 years 16 weeks ago	edit

Researchers can assign participants to different groups on the website. This feature can allow Groups to be assigned different levels of access to features on the website. For example, those in the No Incentive Group were unable to access the Rewards page. The same feature can be used to assign different levels of access for pupils, parents and teachers.

Data Collection

The screenshot displays a web application interface for data collection. The main content area shows the details for a submission (#2330) of a 'Baseline Questionnaire'. The submission was made by 'ruthhunter' on Friday, August 9, 2013, at 17:18. The user's profile information is also visible, including gender (Female), age (30), occupation (Researcher), staff grade (Post doc), and employment status (Full-Time). The questionnaire results are partially visible, showing the highest level of qualification as 'University Degree or higher' and the number of cars or vans owned as '1 car or van'. The interface includes a navigation menu on the left with categories like Physical Activity, Healthy Eating, and Weight Management. On the right, there are summary widgets for 'Progress This Week' (with a gauge chart), 'All My Activity' (with statistics like total time, distance, speed, BMI, and calories burned), and a 'News' section.

Configuration Advanced help Help

Baseline Questionnaire > Webform results >

Submission #2330

[View](#) [Edit](#) [Delete](#)

[Previous submission](#) [Next submission](#)

Submission information

Form: Baseline Questionnaire
Submitted by ruthhunter
Friday, August 9, 2013 - 17:18
90.209.5.93

Gender
Female

Age
30

Occupation
Researcher

Staff Grade
Post doc

Employment Status
Full-Time

What is your highest level of qualification?
University Degree or higher

How many cars or vans are owned, or available for use, by members of your household?
1 car or van

Search

Progress This Week

All My Activity

Total time:
0d 3h 1m 34s

Total distance:
30.34 Km (18.85 miles)

Average speed:
10.04 Kph (6.24 mph)

BMI: 25.7

Calories burned: 62,346

Points earned: 124

[View details](#)

News

On Your Marks, Get Set, Go!

[more](#)

Participants can complete online questionnaires at each follow-up time point. The website can be programmed to send participants an automated email when these are due for completion. Similar to the screening questionnaire, results are collated on the back-end of the website and downloaded (on Excel spreadsheet) which can then be exported to SPSS etc for analysis.

Intervention-specific Tools

- Health promotion material
- Goal setting
- Planning
- Barrier identification
- Messaging and prompts
- Self-monitoring and feedback
- Social norms
- Incentives/rewards
- Tailoring physical activity opportunities to the local environment
- Social networks

Health Promotion Material

• [PAL for Work](#)
[Active Travel](#)

Healthy Eating

- [A Balanced Diet](#)
- [Tips for Healthy Eating](#)
- [Eat Breakfast](#)
- [Food Swaps](#)
- [5-a-Day](#)
- [Portion Control](#)
- [Other Helpful Information](#)

Weight Management

- [Are you a Healthy Weight?](#)
- [The Truth about Fad Diets](#)
- [Weight Loss Myths](#)
- [Weight Loss Motivation](#)
- [Other Helpful Information](#)

Mind Your Head

Here's the 'techie' bit ... you will be able to track your physical activity via a number of routes by scanning the QR codes (or barcodes) using your Smartphone. You will need to download a free QR Reader app to your Smartphone to enable you to do this. Go to the App Store on your phone, search for "QR Reader" and a list of QR Reader apps will appear, many of which are free. Simply download one onto your phone and you are ready to get started!

QR codes are situated around the Queen's University campus, Botanic Gardens and other locations close to the University. Maps will be uploaded on the website prior to the start of the scheme which will show you where the QR codes are located. We will also provide maps showing different walking routes that you can try out over the 10-week scheme.

When you scan a QR code with your Smartphone, this triggers a message that is sent to the PAL website that logs the interaction between you and that location. You must scan at least two QR codes placed at two different locations in order for it to be logged on the website.

Minutes of physical activity are automatically archived on your own webpage and can be viewed when you log onto your own private account on the PAL website.

The Website

The website is packed with tips and hints to help encourage you to be more active and lead a healthy lifestyle. We tell you all about the great benefits there are to being more active for you, your family, at work and at play.

How to collect minutes of physical activity?

It couldn't be easier! When you are notified that you are eligible to take part, you can start collecting minutes and points for being active. When you scan the QR codes with the app on your Smartphone, you will automatically get awarded minutes of physical activity on your own personal account on the PAL scheme website. You can check your personal account to find out how many minutes you have spent being active and the number of points you have collected.

Examples of ways that you can accumulate amounts of physical activity:

• [Scanning QR codes](#) - scanning QR codes around Queen's University and across the Botanic Gardens on the

All My Activity

Total time:
0d 3h 1m 34s

Total distance:
30.34 Km (18.85 miles)

Average speed:
10.04 Kph (6.24 mph)

BMI: 25.7

Calories burned: 62,346

Points earned: 124

[View details](#)

News

[On Your Marks, Get Set, Go!](#)

[more](#)

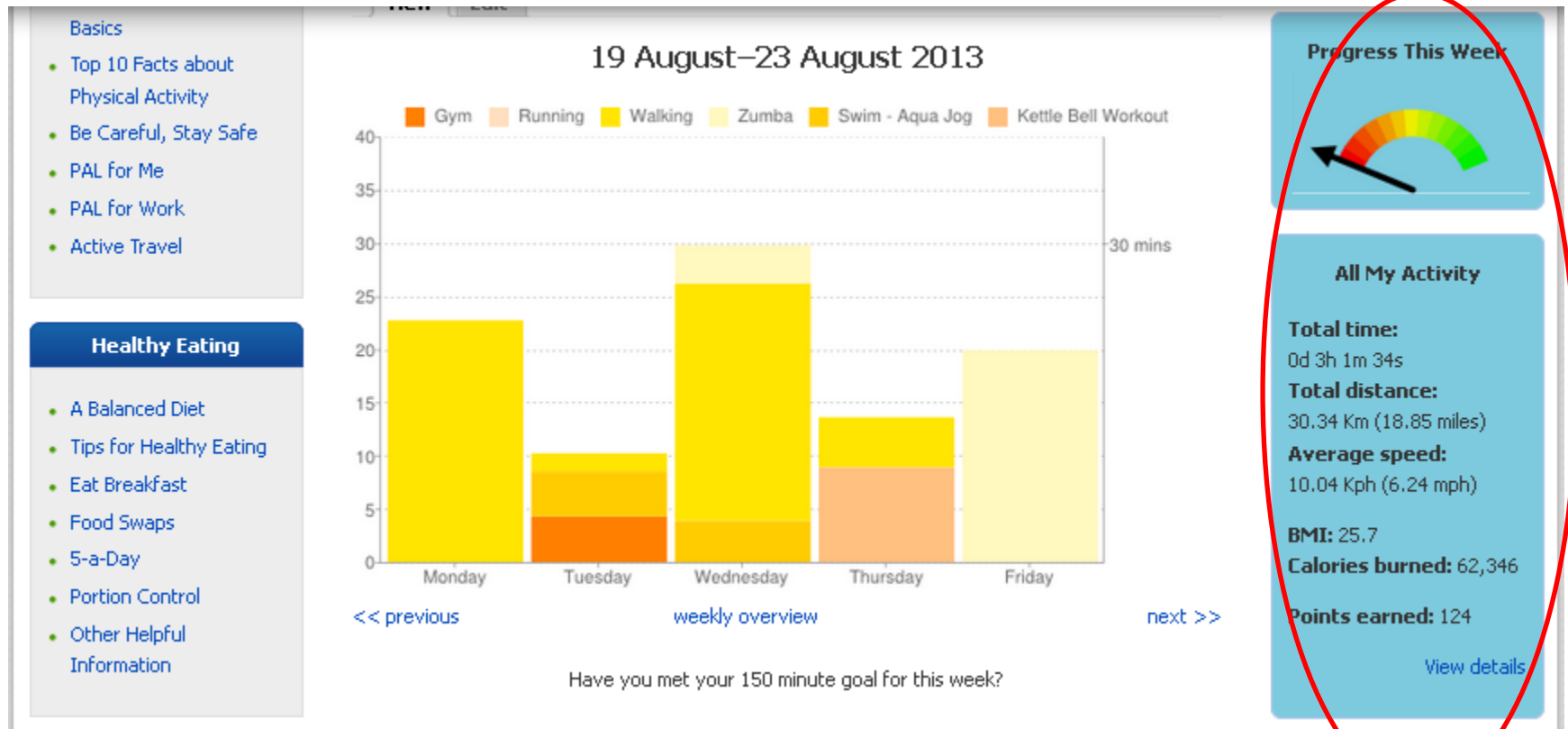
Active forum topics

- [Scanning QR Codes](#)
- [Getting started!](#)

[More](#)

Participants can access general health promotion material for physical activity, diet, weight management, stress management, smoking, alcohol etc. This includes text, weblinks to further relevant resources and downloadable pdfs. Similarly, features exist for goal-setting, planning, barrier identification, automated messaging and prompts (via email, text, pop-up message) which can be linked to participant physical activity levels.

Self-monitoring and Feedback



Participants can view feedback on daily and weekly physical activity levels. This can include minutes of activity, number of steps/day, distance, calories etc. Feedback can also be broken down to show different types of activity, for example, walking, running, gym, swim and exercise classes. The side panel shows an overall summary of total activity and a dial showing progress towards their weekly goal.

The platform also contains functionality to enable different types of feedback, for example, on social norms and competition.

Incentives/rewards

Physical Activity

- Physical Activity: The Basics
- Top 10 Facts about Physical Activity
- Be Careful, Stay Safe
- PAL for Me
- PAL for Work
- Active Travel

Healthy Eating

- A Balanced Diet
- Tips for Healthy Eating
- Eat Breakfast
- Food Swaps
- 5-a-Day
- Portion Control
- Other Helpful Information

Weight Management

- Are you a Healthy Weight?

Rewards

Use your PAL card to collect points and earn rewards! You will be able to reimburse the points you have collected for a range of exciting rewards during week 2 (w/c 2 September), week 5 (w/c 16 September) and week 10 (w/c 21 October).

[How do I collect points?](#)

[How do I keep track of my points?](#)

[How do I spend my points?](#)

[What are the rewards?](#)

This section details the various rewards and number of points you need to collect to earn them. We have a wide range of rewards, so hopefully there is something there for everyone. From entertainment, to exercise, to health and beauty, or to eating out, we have tried to cater for all.

Click on the individual rewards to find out more details. Pick out a few rewards that you would really like, get physical and enjoy!

Progress This Week

All My Activity

Total time:
0d 3h 1m 34s

Total distance:
30.34 Km (18.85 miles)

Average speed:
10.04 Kph (6.24 mph)

BMI: 25.7

Calories burned: 62,346

Points earned: 124

[View details](#)

£2.50 worth of SMART Card...	BOGOF Hot drink at Clemen...	Collins Gem Calorie Count...
100 points	150 points	150 points
£2.50 worth of SMART Card points added to your...	Buy one get one free hot drink at Clements	Collins Gem Calorie Counter book

News

[On Your Marks, Get Set, Go!](#)

Participants were awarded points for minutes of activity. These could then be reimbursed for various rewards (retail vouchers). The website showed the rewards that were available and contains a mechanism where participants can spend/chose their rewards online. This information is then collated on the back-end where researchers can view what rewards participants have chosen.

Tailoring physical activity opportunities to the local environment

Physical Activity

- Physical Activity: The Basics
- Top 10 Facts about Physical Activity
- Be Careful, Stay Safe
- PAL for Me
- PAL for Work
- Active Travel

Healthy Eating

- A Balanced Diet
- Tips for Healthy Eating
- Eat Breakfast
- Food Swaps
- 5-a-Day
- Portion Control
- Other Helpful Information

Weight Management


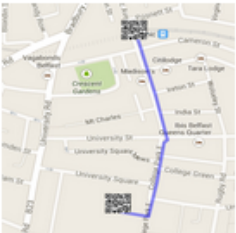

- Are you a Healthy

Maps

Below we have put together some different walking routes to help get you started. This includes walks that you can do at lunchtime, travelling to and from work and going to meetings. However, don't let us stop you – as long as you scan QR codes at at least 2 different locations you can create your own routes and still earn points in the PAL Scheme. Click on the QR codes below in order to view photographs and descriptions of their exact location. QR codes have been placed on noticeboards at the main entrances to QUB buildings, on timetable boards at local bus and train stations, in exercise studios and the gym at the P.E Centre, along the Lagan Towpath and on noticeboards around Botanic Gardens. See map for further details.


Lunchtime Routes

This is a great opportunity to get away from your desk and clear your head. It is important that you take a break at lunchtime. Why not get a few of your colleagues together and set up a walking group. It doesn't matter how big or small it is. Having people to go with you will help keep you motivated and will make it more enjoyable. You can use your lunchtime to go to the gym, swim or try a new lunchtime activity class. All these activities will boost your points tally."



[View Lunch Route 1: A Jaunt Round the Park](#) [View Lunch Route 2: Botanic Avenue Express](#) [View Lunch Route 3: The Stranmillis Road Stroll](#)

Progress This Week



All My Activity

Total time:
0d 3h 1m 34s

Total distance:
30.34 Km (18.85 miles)

Average speed:
10.04 Kph (6.24 mph)

BMI: 25.7

Calories burned: 62,346

Points earned: 124

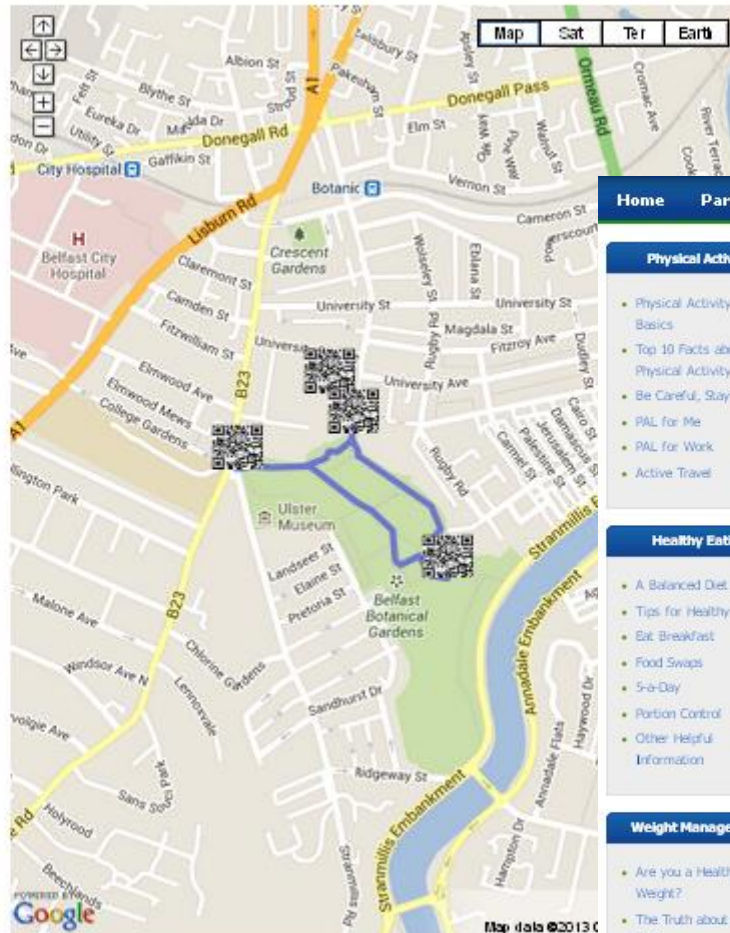
[View details](#)

News

On Your Marks... Get Set...

Participants can view maps highlighting various physical activity opportunities in the local environment, for example, suggested walks, local parks, gym, swim and exercise classes.

Lunch Route 1: A Jaunt Round the Park



Search

Time Required
approx. 19 mins

- Home
- Participant info
- How it works
- Maps
- QR Code Locations
- Rewards
- Forum
- FAQs

- ### Physical Activity
- Physical Activity: The Basics
 - Top 10 Facts about Physical Activity
 - Be Careful, Stay Safe
 - PAL for Me
 - PAL for Work
 - Active Travel

- ### Healthy Eating
- A Balanced Diet
 - Tips for Healthy Eating
 - Eat Breakfast
 - Food Swaps
 - 5-a-Day
 - Portion Control
 - Other Helpful Information

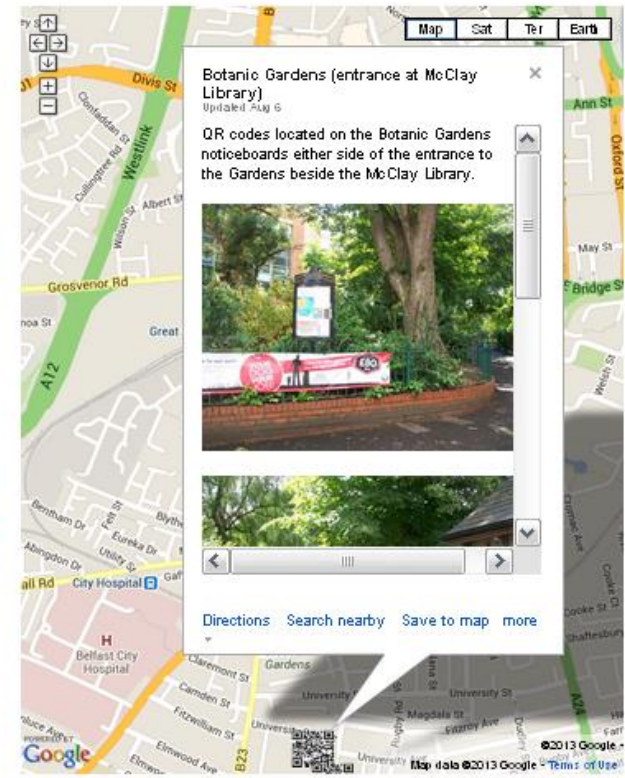
- ### Weight Management
- Are you a Healthy Weight?
 - The Truth about Fad Diets
 - Weight Loss Myths
 - Weight Loss Motivation
 - Other Helpful Information

- ### Physical Activity
- Physical Activity: The Basics
 - Top 10 Facts about Physical Activity
 - Be Careful, Stay Safe
 - PAL for Me
 - PAL for Work
 - Active Travel

- ### Healthy Eating
- A Balanced Diet
 - Tips for Healthy Eating
 - Eat Breakfast
 - Food Swaps
 - 5-a-Day
 - Portion Control
 - Other Helpful Information

- ### Weight Management
- Are you a Healthy Weight?
 - The Truth about Fad Diets
 - Weight Loss Myths
 - Weight Loss Motivation
 - Other Helpful Information

Lunch Route 1: A Jaunt Round the Park



Search

Time Required
approx. 19 mins

Distance
0.9 miles / 1.4km - approx. 1900 steps

Progress This Week

All My Activity

Total time: 01:31:34s
Total distance: 30.34 km (18.85 miles)
Average speed: 10.04 kph (6.24 mph)
BMI: 25.7
Calories burned: 62,346
Points earned: 124

[View details](#)

Participants can click on the map to find out more information about the walking route, including estimated time and distance. In this example, clicking on the QR code symbols enables participants to view a photograph and text description of the location of the sensors for monitoring and logging their physical activity session.

Additional functionality

- This is an open resource with new features and functionality continually being added to this platform
- Please feel free to suggest any additional features you would like added to the platform.
- For more information, please contact Dr Ruth Hunter; e-mail: ruth.hunter@qub.ac.uk; Tel: 02890978944

Contact details

If you wish to use the
web platform or have
any questions please get
in touch

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