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# Evaluation of a pilot workplace physical activity initiative: *Time to Move*

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## Acknowledgements

Professors Mark Bellis and Karen Hughes from Public Health Wales and Bangor University were senior advisers on the evaluation, and we are grateful for all the guidance and time they provided.

We would like to express our gratitude to the Time to Move (TTM) participants and all Public Health Wales (PHW) employees who assisted in the co-ordination (e.g. booking rooms) of collecting the physical health measures as part of the evaluation; a special thank you must go to Catherine Thomas, PHW Facilities Manager for her support. We would also like to thank our Bangor University colleagues, Dr Hans-Peter Kubis for his advice at the initial stages of the project, and to Dr Rebecca Law for providing internal peer-review. We are also grateful to Dr Kelly Mackintosh (Swansea University) and Dr Helen Quirk (Sheffield Hallam University) for their external peer-reviews of our report. Thank you to the following researchers who helped to undertake the data collection: Jade Platt, Lauren Toal, Kate Isherwood, Hannah Grey, Katie Cresswell, William Parrott, Thomas Jones and Ffion Thomas.

## Funding statement

Public Health Wales is an NHS organisation providing professionally independent public health advice and services to protect and improve the health and well-being of the population of Wales. This study and report production were funded by Public Health Wales. **However, the views in this report are entirely those of the authors and should not be assumed to be the same as those of Public Health Wales.**

ISBN 978-1-78986-154-46

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# Foreword

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At a formal session of Public Health Wales Board in Newport on the 25th of January 2018, we were delighted to hear about **Do it your way**, a large scale change programme aimed at increasing physical activity in Gwent Heads of the Valleys Communities. Our Board congratulated the Aneurin Bevan Gwent public health team on the inroads that they had made with promoting physical activity through community leadership, campaigning and identifying local opportunities to be more active. We were, of course, already aware of the evidence for the fantastic benefits to physical and mental health that result from engaging in physical activity. The enthusiasm, the stories and the results we saw presented at the Board brought this evidence to life.



It inspired us, as a national public health institute, to look at what else we could do to improve the physical activity levels of our own staff, how we might show leadership to other organisations in Wales, and whether we could add to existing knowledge on how to improve physical activity. The Board agreed in principle to provide one hour per week for all staff for health and well-being activities, with a particular focus on physical activity. Importantly, we realised that our own organisation and many others would be interested in how an extra hour for staff physical activity each week could contribute to staff well-being. Although at this point it did not have a name, **Time to Move** was born at that Board meeting. We also gave a commitment to evaluate it robustly to inform whether we should continue the initiative when the pilot ended, and to help others decide if they wished to follow the same path.

Before launching **Time to Move**, we worked with staff to ask their views on how we should develop the initiative, what might encourage them to participate and equally what barriers may prevent them from signing up. We also asked the Public Health Collaborating Unit at Bangor University to develop and deliver an evaluation of the one year pilot Time to Move initiative. When we launched the initiative, the enthusiasm with which our staff engaged was a delight to see. Over 850 staff signed up for the initiative and evaluation. This report sets out the impacts that engaging in **Time to Move** has had on staff physical and mental health and other important issues such as job satisfaction. I hope that you find both the report and the benefits identified of interest and that this work helps others improve the health and well-being of staff through encouraging greater participation in physical activity.

I am pleased and privileged to provide this Foreword, having found my own involvement to be so beneficial.

Llongyfarchiadau mawr i bawb a gymerodd yn y fenter gyffrous hon.

Many congratulations to everyone who took part in this exciting initiative.

Mae wedi bod yn ysbrydoledig! It has been inspirational!

Jan Williams OBE FRSPH

Chair of Public Health Wales

# Evaluation of a pilot workplace physical activity initiative: *Time to Move*

**Time to Move (TTM)** provided Public Health Wales (PHW) employees with the opportunity to take one hour (pro rata) of paid work time each week to engage in a physical activity of their choice. Bangor University undertook a 12-month evaluation of the TTM initiative.



## 858

Employees signed up to take part in TTM

815 employees completed baseline measures



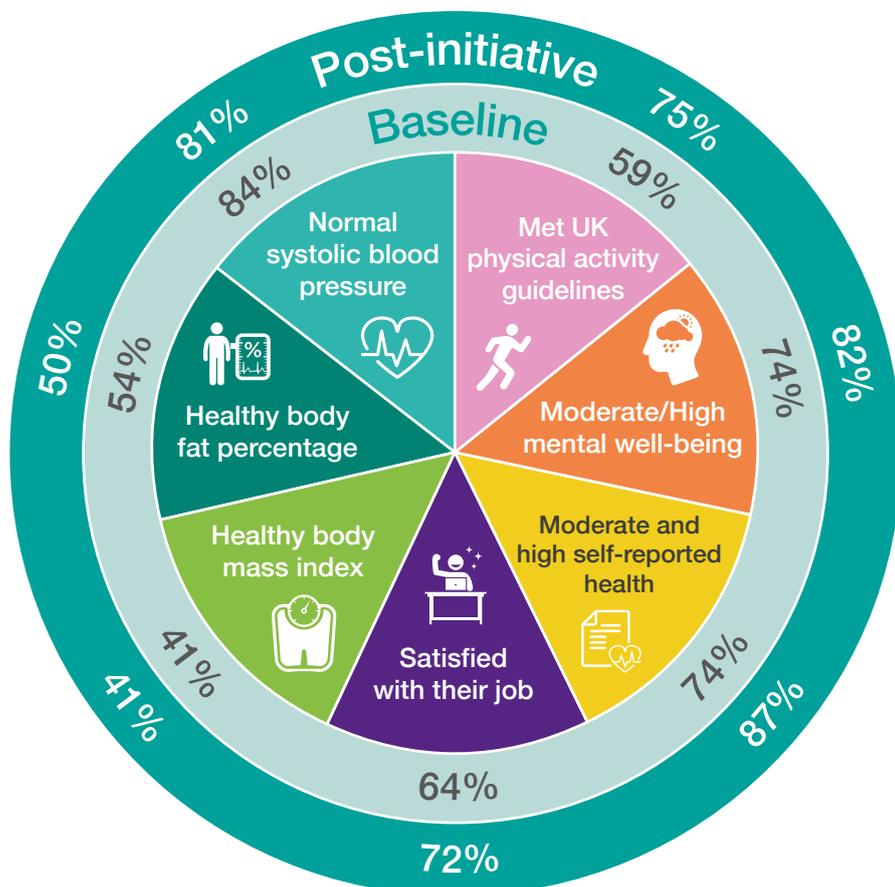
## 625

Employees continued to take part in TTM after 12-months

542 employees provided the required data for analysis



**What proportion of the sample was healthy at baseline and 12-months after TTM (post-initiative)?**



**Mid-initiative (6-months)**

## 88%

of people said that they took part in TTM to become more physically active

**Post-initiative (12-months)**

**Over 65%**

of people felt supported by their line manager and colleagues to take part in TTM

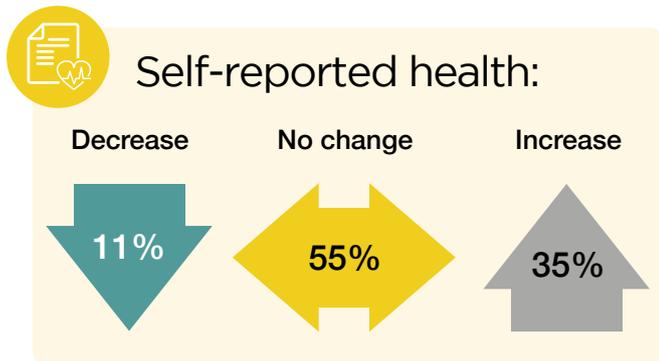
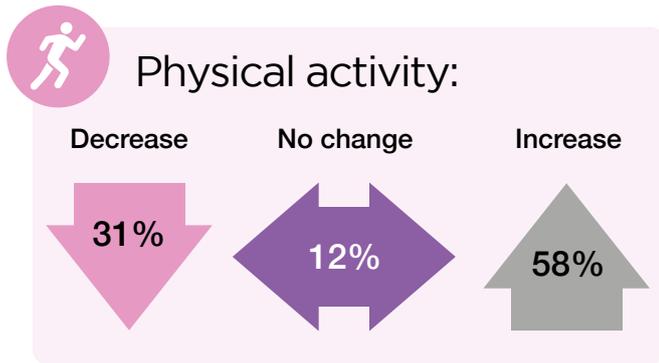


Biggest motivator to taking part in TTM was the physical health benefits



Biggest barrier to taking part in TTM was work commitments

## Where were the biggest changes<sup>b</sup> found between baseline and post-initiative?



## Employees<sup>c</sup> perceptions of TTM and physical activity workplace initiatives

### TTM was described as:

“a really good benefit for staff and their well-being”

“a brilliant idea”

“showing an interest in staff”

The most prominent outcome attributed to taking part in TTM was improvement in mental health and well-being

“taking the time out and having the de-stress; it has the same effect, I suppose as going off and doing a meditation session”

Availability of facilities, workload, and difficulty in taking the time in some services and roles were identified as barriers to taking part

The perceived “buy in” amongst senior PHW employees for the initiative meant that participants felt supported to take part in TTM

## Conclusion

The greatest increases reported at post-initiative were experienced by those who reported the lowest health and job satisfaction at baseline.

Overall, our findings suggest that providing paid work time to engage in physical activity is a viable method of improving employee health and job satisfaction on a large-scale and led to positive outcomes. However, if more support was invested into the initiative, it could potentially lead to more benefits in other outcomes and sustainable behaviour change.

<sup>a</sup>Figure is based on number of employees at PHW at the start of the initiative (June 2018).

<sup>b</sup>Changes in outcome measurements from baseline to post-initiative were categorised into increase, no change or decrease using minimally important difference (MID) values (smallest change required to be considered important and meaningful).

<sup>c</sup>36 employees took part in the focus groups (72% had participated in the TTM pilot).

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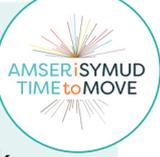
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# Executive Summary

## Background

- Physical inactivity is a global public health issue. The World Health Organization (WHO)\* and UK† guidelines recommend that adults engage in a minimum of 150 minutes of moderate-to-vigorous intensive activity per week for optimal health. However, only two in four adults in Wales meet this minimum target‡.
  - In June 2018, Public Health Wales (PHW) introduced a pilot workplace physical activity initiative called Time to Move (TTM), with the aim of improving the health and well-being of its employees. The initiative provides employees with one hour (pro rata) of paid work time each week to undertake a physical activity of their choice.
- Time to Move (TTM)** provided PHW employees with the opportunity to take one hour (pro rata) of paid time each week to engage in physical activity.


- Participation in TTM was voluntary and open to all individuals directly employed by PHW at the time of its launch. As the initiative was being implemented as a 12-month pilot, all employees wishing to take part were required to participate in an evaluation (see Box 1 for more details).
  - The Public Health Collaborating Unit (PHCU) at Bangor University were commissioned to undertake a 12-month evaluation of the initiative. The evaluation used a pre-experimental design across three time-points (baseline, mid-initiative [6-months] and post-initiative [12-months]) to explore the initial and short-term effects of the initiative on health (i.e. physical activity levels, body mass index [BMI], body fat percentage, systolic blood pressure, mental well-being and self-reported health) and job satisfaction. Three data collection methods were used to address the evaluation aims: (i) online questionnaires (self-report), (ii) physical health measures, and (iii) focus groups.
  - This report presents the primary findings in line with the evaluation objectives (see Section 2.1):
    - **Section 1** presents quantitative findings from the online questionnaires and physical health measures, providing baseline data for the primary evaluation outcomes and associated changes over the 12-month initiative; along with participants' perceptions of TTM including reasons for participating, how they used their time, and enablers and barriers to participation.
    - **Section 2** presents qualitative findings from the focus groups exploring employees' perceptions of TTM. All PHW employees were eligible to participate in the focus group, regardless of whether they took part in TTM or not.

## Findings

- At baseline, 858 employees registered to participate in TTM, representing 48.8% of all PHW employees. Of registered participants, 815 completed baseline measurements and 625 were still participating in TTM at post-initiative (see Section 3.1). The final sample for analysis included 542 participants who provided data at all three time-points. Compared to those who left the organisation, actively withdrew or were excluded from analysis due to incomplete data, the final sample was more likely to have better self-reported health and a healthy BMI at baseline.
- Findings described in Section 3.2 relate to employees who opted to participate in TTM and completed all required elements of the evaluation, and do not reflect all PHW employees.

\*World Health Organization. Global action plan on physical activity 2018-2030: more active people for a healthier world. World Health Organization. Geneva; 2018.

†Department of Health and Social Care. UK Chief Medical Officers' Physical Activity Guidelines. Cardiff; 2019.

‡Welsh Government. National Survey for Wales 2018-19: Adult lifestyle. 2019

## Quantitative findings

### Impact of TTM on health and job satisfaction

#### What did the sample look like at baseline?

-  **Physical activity:** 58.8% of participants met the UK physical activity guidelines and were categorised as having moderate or high physical activity levels (49.6% and 9.2%, respectively), while 41.1% were categorised as having low physical activity levels (see Section 3.2.1). Lower physical activity levels were associated with low mental well-being, low self-reported health, being obese, and having an unhealthy body fat percentage. No significant differences were found by age, gender, pay band, job satisfaction or systolic blood pressure.
-  **Mental well-being:** Mean mental well-being score was 22.4 (range score: 7-35), with 26.0% categorised as having low mental well-being and 74.0% as having good mental well-being (see Section 3.2.2). Low mental well-being at baseline was associated with being younger, male, lower physical activity levels, low self-reported health, and job dissatisfaction\*.
-  **Self-reported health:** Mean self-reported health score was 70.9 (range score: 0-100), with 25.6% categorised as having low self-reported health and 51.5% and 22.9% categorised as moderate and high, respectively (see Section 3.2.3). Low self-reported health was associated with lower pay band, lower levels of physical activity, low mental well-being, being obese, and having an unhealthy body fat percentage\*.
-  **Job satisfaction:** 18.5% of participants were dissatisfied with their job (64.4% satisfied; 17.2% neutral; see Section 3.2.4). Job dissatisfaction was associated with low mental well-being and an unhealthy body fat percentage\*.
-  **Body mass index:** Mean BMI score was 26.7 kg/m<sup>2</sup>; 20.5% were categorised as obese, 38.2% as overweight, and 41.3% as healthy (see Section 3.2.5). Being an unhealthy weight (overweight and obese) was associated with being older, low physical activity levels, low self-reported health, and high systolic blood pressure\*.
-  **Body fat percentage:** 45.8% of participants were categorised as having an unhealthy body fat percentage (54.2% healthy; see Section 3.2.6). Having unhealthy levels of body fat was associated with being older, female, low pay band, low physical activity levels, low self-reported health, and job dissatisfaction\*.
-  **Systolic blood pressure:** Mean systolic blood pressure was 121 mmHg (see Section 3.2.7). 16.1% were categorised as having elevated systolic blood pressure (83.9% normal). High systolic blood pressure was associated with being older (50+ years), male and obese or overweight\*.

### How did participants' health and job satisfaction change following participation in TTM?

Using literature-derived minimally important differences (MID) where possible, changes in outcome measurements from baseline to post-initiative were categorised into increase, no change or decrease. A MID is the smallest change required to be considered important and meaningful, and the MID applied for each outcome of interest is listed within the respective results sections.

\*No other significant differences between the variables were found.



**Physical activity:** Three quarters of the sample (75.3%) met the UK physical activity guidelines post-initiative, compared with 58.8% at baseline (see Section 3.2.1). Mean weekly MET-minutes of physical activity increased by 19.6% across the 12-months; equivalent to 72 additional minutes of moderate physical activity per week per participant. Six in ten participants (57.7%) increased their physical activity levels (30.6% decreased; 11.6% no change). Changes in physical activity levels were considered meaningful for all baseline categories (low, moderate and high physical activity levels). Those in the low baseline physical activity category increased by >2.5 hours of moderate physical activity per week (n=223); those in the moderate category increased by 58 minutes per week (n=269); and those in the high category decreased by >4 hours per week (this was a relatively small number of people, n=50). These findings suggest that individuals who participated in the least amount of physical activity before TTM made the greatest improvements in their physical activity levels.



**Mental well-being:** Overall, there was a small but statistically significant improvement in mental well-being over the 12-months of TTM, from a mean score of 22.4 at baseline to 23.2 at post-initiative (see Section 3.2.2). Four in ten (42.6%) participants reported increases in their mental well-being after the 12-months of TTM (21.4% decreased). The proportion with low mental well-being decreased from 26.0% at baseline to 18.3% at post-initiative; and the change across the 12-months of TTM was considered meaningful. Thus, participants with low mental well-being benefitted the most from the TTM initiative.



**Self-reported health:** Mean self-reported health score significantly increased over the three time-points, from 70.9 (out of 100) at baseline to 76.1 at post-initiative (see Section 3.2.3). Self-reported health scores increased for a third of participants (34.7%) over the 12-months of TTM (10.7% decreased). Improvements in self-reported health were particularly high among those who, at baseline, were in the low self-reported health category (67.7%), low physical activity category (43.0%), lower pay bands (40.6%) and those who had an unhealthy body fat percentage (40.7%). Only those in the low self-reported health category at baseline reported a meaningful increase in their health score.



**Job satisfaction:** A third (33.4%) of the sample reported increased job satisfaction after 12-months of TTM (19.6% decreased; see Section 3.2.4). Whilst two in ten participants (18.5%) were dissatisfied with their job at baseline, nearly eight in 10 of these participants (79.0%) reported improved job satisfaction at post-initiative. The proportion satisfied with their job increased from 64.4% at baseline to 72.0% at post-initiative.

Using the MIDAs for each outcome, only small, non-meaningful changes were found amongst the physical health measures (BMI, body fat percentage, systolic blood pressure; see Sections 3.2.5-7).

## Participants' perceptions of TTM

- The top five reasons for signing up to take part in TTM were to: become more physically active (89.9%), improve their physical health (82.8%), support the TTM initiative (77.9%), improve their mental health (67.5%) and have their physical measures taken as part of the evaluation (49.1%, see Section 3.2.8).
- Over a third of participants (38.7%) took their TTM time most or all weeks (see Section 3.2.9).
- Participants were able to choose how they wanted to use their time, albeit for physical activity purposes. The top five activities reported at post-initiative were: walking (78.4%), jogging/running (33.6%), cycling (18.5%), exercise with weights (17.9%), and swimming (17.3%; see Section 3.2.9). Box A shows pictures of PHW employees engaging in TTM.

- The top five factors which enabled participants to take part in TTM were: physical health benefits (62.4%), feeling motivated (61.1%), enjoying physical activity (60.3%), mental health benefits (55.7%) and flexible work hours (53.5%; see Section 3.2.10).
- The top five factors which limited participation were: work commitments (74.4%), weather (38.7%), feeling guilty about taking time out (32.5%), being too tired (23.1%) and experiencing illness/injury (18.6%; see Section 3.2.10).
- Over two thirds of participants felt supported by their line manager (66.5%) and colleagues (68.6%) to participate in TTM at post-initiative, whilst the remaining participants disagreed or were neutral regarding the support they received (see Section 3.2.10).

### Box A. PHW employees engaging in TTM



## Qualitative findings

### Employees' perceptions of TTM

- Six focus groups were conducted including a total of 36 employees (see Section 3.3). Quotes are used to illustrate key findings.
- Among employees participating in the focus groups, attitudes towards TTM were positive - the majority of participants (72.2%) had taken part in TTM (see Section 3.3.1). The initiative was described as a *“brilliant idea”* and providing *“really good benefits for staff and their well-being”*. Focus group participants saw TTM as an opportunity for positive change in their lifestyle, felt the TTM initiative aligned with the values of the organisation, and felt lucky their organisation was taking action to invest in their health. External praise towards the organisation was received from friends and family of the focus group participants.
- Barriers to participation were identified such as the availability of facilities and, in some services and job roles, difficulties in taking the allowed time (see Section 3.3.3). Conversely, perceived *“buy-in”* amongst senior PHW employees for the initiative meant that participants felt supported by the organisation to take part in TTM (see Section 3.3.3).

- There was a strong consensus amongst the focus group participants that support from both the organisation and colleagues were fundamental enablers to their participation in TTM (see Section 3.3.4). For many individuals, feeling increasingly valued and supported by the organisation was a motivating factor for their continued participation in the initiative: *“Well I’m going to use that because I’ve been given it, and not a lot of places you get that opportunity, so I shouldn’t waste it”*.
- The most prominent outcome attributed to TTM participation was improvement to mental health and well-being (see Section 3.3.5). Focus group participants felt TTM provided them with the opportunity to de-stress and have a break away from the desk, with positive changes in mindsets mentioned: *“taking the time out and having, the de-stress; it has the same sort of effect, I suppose, as going off and doing a meditation session somewhere”*.
- Some focus group participants reflected that TTM and its associated benefits to mental health and well-being had led to an increase in conversations in their workplace about mental well-being, which they perceived as beneficial to the working environment: *“well-being has become much more part of our discussions on a kind of daily basis I think”* (see Section 3.3.5).

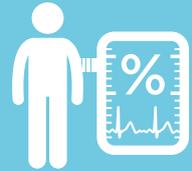
## Conclusion

- The TTM initiative provided PHW employees with the opportunity to use one hour (pro rata) of paid work time to engage in a physical activity of their choice. TTM participants showed improved overall health and well-being, and job satisfaction following 12-months of the initiative. Participants who were categorised in the low physical activity category, low self-reported health, low mental well-being and had low job satisfaction at baseline reported the greatest increases at post-initiative (12-months), thus meaning they engaged in more physical activity, felt healthier and happier, and were more satisfied with their job. No evidence was found for improvements in the physical health measures.

An appetite exists amongst employees for the TTM initiative to continue. The following suggestions for improving the initiative were made: increased communication in promoting TTM, using positive examples or case studies of how people have used their TTM time; activities to be organised for employees to engage with their TTM time; equity of implementation across directorates and teams; and the provision of facilities such as physical space for being active and shower facilities in PHW sites.

- Overall, evidence suggests that simply providing paid time to engage in physical activity is a viable method of improving employee health and job satisfaction on a large-scale and led to positive outcomes. However, if more support was invested into the initiative, it could potentially lead to more benefits in other outcomes and sustainable behaviour change.

# Time to Move



# 1. Introduction

## 1.1 Background

Physical inactivity is a leading risk factor for poor health and premature mortality. The World Health Organization (1) and the UK Chief Medical Officers (2) recommend that adults engage in at least 150 minutes of moderate-to-vigorous intensity physical activity every week (Box 1). In Wales, only two in four adults meet these physical activity levels (3).

Public Health Wales (PHW) aims to *protect and improve health and well-being and reduce health inequalities for the people of Wales* (4). Further, the majority of the public (76%) in Wales believe employers should do more to improve the health of their employees (5). Promoting healthy behaviour is a key strategic priority for PHW and a critical aspect of this is enabling employees to have healthy working lives. In light of this, in June 2018, PHW introduced a workplace physical activity initiative called *Time to Move (TTM)* which aimed to help improve the health and well-being of PHW employees. The initiative provided all employees with the opportunity to use one hour per week (pro rata) of paid work time to be physically active. TTM was established as a 12-month pilot to identify the impacts of the initiative and inform its potential roll out. Box 2 outlines the full details of the initiative and the process of its implementation undertaken by PHW.

### Box 1: Key terms

**Physical activity:** “Any bodily movement produced by skeletal muscles that requires energy expenditure” (1)

**Moderate-intensity activity:** Causes a small increase in your breathing or heart rate (e.g. brisk walking, cycling)

**Vigorous-intensity activity:** Causes a large increase in breathing or heart rate (e.g. running, football)

**Time to Move:** An initiative to provide PHW employees with one-hour (pro rata) of paid time every week for physical activity purposes

**Aim:** To improve the health and well-being of PHW employees



The Public Health Collaborating Unit (PHCU) at Bangor University was commissioned to undertake a 12-month evaluation of the TTM initiative. The PHCU evaluation team were responsible for designing the evaluation (see Section 2), but had no role in the design or implementation of the initiative.

## 1.2 Why target physical activity?

The benefits of physical activity in promoting well-being and preventing disease are well-documented (1, 2), irrespective of type or duration of physical activity (2). For example, engaging in physical activity can improve sleep, support the management of stress and maintenance of healthy weight, and improve quality of life (2). In addition, meeting physical activity guidelines has been found to reduce the risks of cardiovascular disease and type II diabetes by 35% and 40%, respectively (8). Moreover, population physical activity has economic benefits. For example, in 2016/17, the annual saving to NHS Wales as a result of people being physically active was £295 million (9), with those physically active less likely to take sick absence from work (10). Consequently, for health and economic purposes, there is a strong case for encouraging and supporting the population to become more active.

## 1.3 Why target the workplace?

Adults spend a significant amount of their lives sedentary at work (11). As a result, workplace physical activity initiatives can provide opportunities for enhancing physical activity levels, particularly for those who may otherwise lack the opportunities or facilitates necessary to engage in physical activity (12). One method of increasing physical activity in the workplace is to provide employees with paid

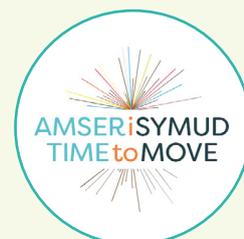
time during working hours to be physically active (12). International evidence suggests offering paid work time for physical activity to front line employees can be successful in improving both their health and work productivity (13,14). However, minimal research has explored the implementation and outcomes associated with this approach (15–17), and to the best of our knowledge, no evidence of such an initiative has been published with a UK organisation. Thus, this report presents the first evaluation of a paid work time physical activity initiative delivered at scale in Wales.

## Box 2. Overview of the Time to Move initiative (implementation perspective)

The *Time to Move (TTM)* pilot initiative provided PHW employees with the opportunity to take one hour (pro rata) of paid work time each week to engage in physical activity.

Participation in the TTM pilot was voluntary and open to all individuals directly employed by PHW at the time of its launch, including those on fixed-term contracts. Figure 1 outlines the steps taken by PHW to develop and implement TTM. In order to participate in the pilot, employees were required to:

- Register their participation within a 4-week period on the TTM website ([www.timetomove.wales](http://www.timetomove.wales));
- Agree to only use their TTM time for physical activity purposes;
- Discuss their participation and when to take their allocated time with their line manager;
- Participate in the TTM evaluation undertaken by PHCU including the completion of all evaluation components within required time frames; and
- Complete their baseline evaluation questionnaire before they started to take their TTM time.



**Figure 1. Development and implementation of the TTM initiative**

<b>1. Implementation steering group established</b> (February 2018)	The group consisted of representatives from the following directorates: Policy and International Health, People and Organisational Development, Public Health Services, Operations and Finance, Health and Well-being (including the physical activity lead); and the evaluation team*. The group was responsible for all communication with employees up until the launch of the initiative.
<b>2. Focus groups to scope the initiative</b> (April 2018)	Open to all employees, 27 individuals agreed to participate in focus groups to discuss physical activity in the workplace and co-design the TTM initiative, including its name, the website, branding, and marketing.
<b>3. Creation of the TTM website</b> (May 2018)	A website was developed to host information about the initiative, the evaluation, the benefits of being physically active, and tips on physical activities that could be undertaken in the workplace.
<b>4. Pre-launch of the TTM initiative</b> (May 2018)	Information about TTM was shared with employees through PHW dissemination channels (e.g. email, posters, PHW intranet and social media platforms). To provide an estimate of the potential uptake so that the evaluation components could be planned, the TTM implementation team undertook a pre-launch 'expression of interest'. Individuals were asked to register their interest using an online survey tool.
<b>5. Drop-in sessions</b> (May 2018)	Six drop-in sessions were held at five selected PHW sites (Bangor, Mold, Llandudno, Carmarthen, Cardiff) to provide employees with the opportunity to ask questions about the initiative and the evaluation.
<b>6. Launch of TTM</b> (June 2018)	PHW employees were notified of the launch of TTM on 4th June 2018, using the same dissemination channels as the pre-launch. Employees who wished to take part could register their participation in the initiative and evaluation on the TTM website during a 4-week period (an extension was made for laboratory-based employees). Following the launch, no further TTM communication was issued to employees on behalf of the implementation team. Therefore any discussions or actions relating to TTM were derived organically from within the organisation. TTM branded resistance bands were made available for individuals who took part in TTM with participants informed of their availability by the evaluation team.

\*The evaluation team were part of the TTM steering group to ensure fidelity of initiative implementation but were not responsible for the implementation of TTM.

## 2. Methods

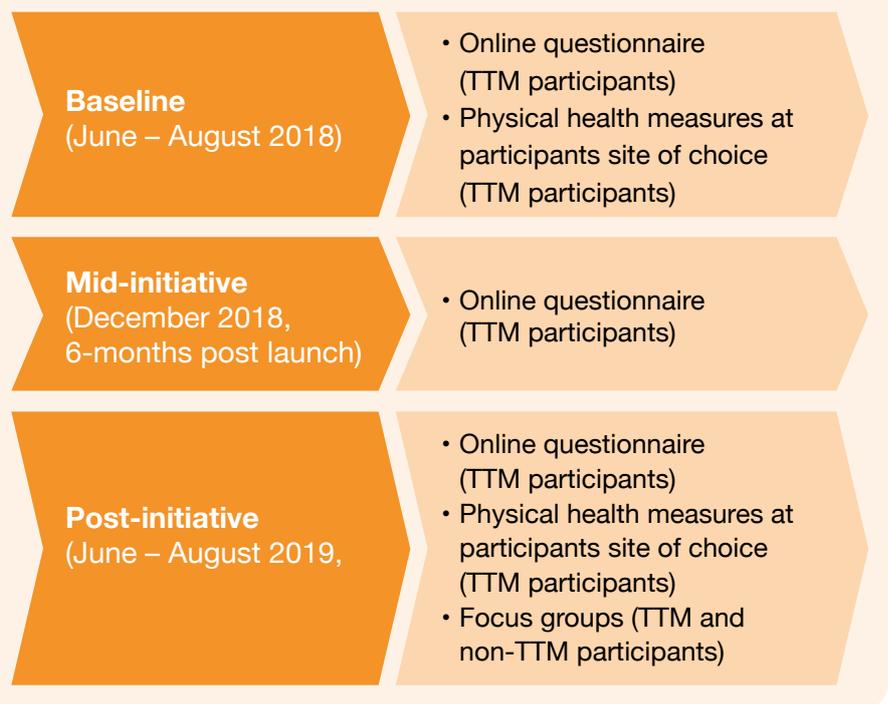
### 2.1 Evaluation framework

The overarching objectives of the evaluation were to explore:

- Whether taking part in TTM impacted participants' physical health and mental well-being;
- Whether taking part in TTM impacted participants' working environment; and,
- Employees' perceptions of the TTM initiative, including enablers and barriers to participating.

The evaluation of TTM used a pre-experimental design across three time-points (baseline, mid-initiative, and post-initiative) to explore initial and short-term outcomes. Given that all PHW employees were eligible to participate in TTM, it was not possible to establish a control group for the evaluation. Three data collection methods were used to address the evaluation aims: (i) online questionnaires (self-report), (ii) physical health measures, and (iii) focus groups. Figure 2 provides a timeline of the study design\* and Box 3 highlights the key outcomes reported in this report.

**Figure 2. Study design for the evaluation of TTM initiative**



Ethical approval to evaluate the TTM initiative was granted by Bangor University's Health Sciences and Medical Sciences Academic Ethics Committee. An online information sheet was included on the evaluation pages of the TTM website. Upon TTM registration, participants provided informed opt-in consent to participate. Participants were sent an email from the evaluation team confirming their registration and providing them with a unique evaluation identification (ID) code. Participants were asked to use this ID code when completing all evaluation materials. PHW were not provided with information on who registered to participate or their corresponding ID codes.

### Box 3. Outcomes examined in this report

This report focuses on the impact TTM had specifically on the following outcomes:

-  Physical activity levels
-  Mental well-being
-  Self-reported health
-  Job satisfaction
-  Body mass index
-  Body fat percentage
-  Systolic blood pressure
-  Perceptions of TTM

\*Physical health measures were only collected at baseline and post-initiative due to logistic and funding reasons.

**BASELINE QUESTIONNAIRE**

Fill in this questionnaire before you start Time to Move.

[> Questionnaire 1..](#)

**6-MONTHS QUESTIONNAIRE**

Fill in this questionnaire after six months of participating in Time to Move.

[> Questionnaire 2..](#)

**12-MONTHS QUESTIONNAIRE**

Fill in this questionnaire at the end of your Time to Move participation.

[> Questionnaire 3..](#)

## 2.2 Measures

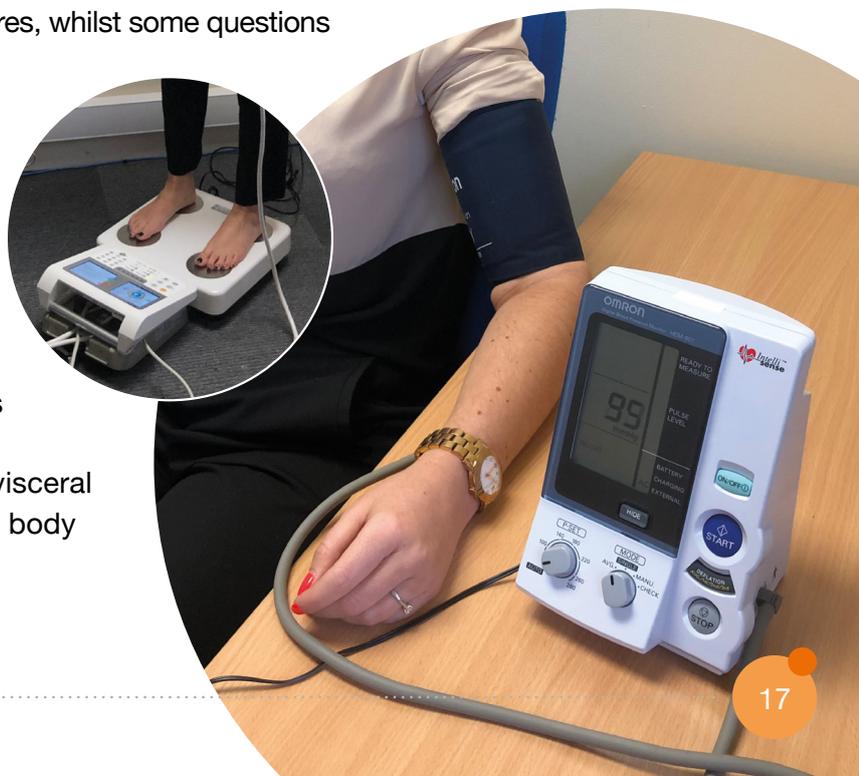
### Self-report questionnaires

At baseline and mid-initiative, participants were emailed a link to ask them to self-complete an online questionnaire, using their allocated ID code. At the post-initiative physical health measures appointment, participants were provided with a tablet (ID code already inputted) to self-complete their questionnaire; individuals unable to complete the questionnaire on the day were subsequently emailed a link to complete later. A paper version of the questionnaire was also provided at all time-points if required. All three questionnaires took approximately 20 minutes to complete. The evaluation team sent prompts to participants by email to encourage completion, and thank you emails were sent to early completers of the questionnaire at mid-initiative.

The questionnaires asked participants about their physical activity (e.g. frequency, quantity, type of activity), other health-related lifestyle behaviours (e.g. smoking), well-being (e.g. mental well-being, general health), working environment (e.g. job satisfaction), perceptions of the initiative (e.g. enablers and limitations), and demographics (e.g. age, gender, pay band). Appendix Box A1 provides an overview of the questionnaire topics; the questionnaires were largely consistent across the three time-points with question changes only relating to perceptions of the initiative. Where possible, questions were replicated or were adapted from validated measures, whilst some questions were designed by the evaluation team to suit the evaluation outcomes.

### Physical health measures

The evaluation team contacted participants at baseline and post-initiative to schedule an appointment for the measurement of physical health measures at the participants' site of choice (25+ site options). The measures included: height (using a stadiometer); weight, body mass index (BMI), body fat percentage, visceral fat rating, fat mass and metabolic age (using a body composition analyser [Tanita MC780MA]).



Additionally, systolic and diastolic blood pressure as well as heart rate were averaged across three readings using a blood pressure machine (OMRON 907 Professional). Measures, where appropriate, were collected to the nearest 0.1 of their relative unit (i.e. height, weight, fat mass)\*.

Participants were asked to attend their appointments hydrated, to refrain from drinking caffeinated drinks and consuming a large meal for two hours prior to their appointment, and not to have smoked for an hour before their appointment. A short questionnaire was given to participants at the start of their appointments which assessed whether they had adhered to these conditions. Participants were asked to remove all outer clothing, their shoes and their socks/tights prior to measures being taken.

### **Focus groups**

Post-initiative, six focus groups were completed in five PHW sites<sup>†</sup> (i.e. Cardiff, Swansea, Mold and Bangor) to further explore employees' perceptions of TTM, irrespective of their participation status. A recruitment target of 10 participants per group (60 participants in total) was set to ensure groups were an appropriate size, allowing all participants to contribute equally. The sessions were designed to capture employees' attitudes to physical activity initiatives like TTM being introduced in the workplace, facilitators and barriers to participating in TTM, perceived effects of participation for individuals and the organisation and suggestions for future improvements. All PHW employees (>1800 individuals) were invited to take part in the focus groups. Employees were invited to attend via an email from the evaluation team which was distributed by PHW business managers, the communications team, and advertisements on the PHW intranet and on a private employee social media platform.

Potential participants were provided with an information sheet outlining the purpose of the focus groups and were asked to give written consent before completing an anonymous demographic questionnaire<sup>‡</sup>. With participant consent, the focus groups were audio-recorded and transcribed by a professional transcription service. All identifying data in the transcripts (e.g. names, locations) were anonymised and original audio files deleted. The focus groups varied in length between 21 minutes and 1 hour and 50 minutes.

## **2.3 Presentation of findings**

Findings in this report are presented in the following way:

- **Section 1** presents quantitative findings from the online questionnaires and physical health measures, providing baseline data for the primary evaluation outcomes and associated changes over the 12-month initiative; along with participants' perceptions of TTM including motivations for participating, how they used their time, and enablers and barriers to participation.
- **Section 2** presents qualitative findings from the focus groups exploring employees' perceptions of TTM. All PHW employees were eligible to participate in the focus groups, regardless of whether they took part in TTM or not.

## **2.4 Data analysis**

### **Self-report questionnaires and physical health outcomes**

Information on the questions used to measure the self-report outcome variables and information on how all outcomes variables were processed and categorised is provided in Box 4. Initial analysis

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\*Natural increases in physical health measures are to be expected as the sample was a year older.

<sup>†</sup>Sites were selected based on their location (i.e. north or south), number of employees working on the site (using figures provided by PHW), and to ensure that a range of employees roles were invited to participate (i.e. the inclusion of sites with Microbiology departments).

<sup>‡</sup>Consent to participate in the focus groups was obtained independently from the quantitative evaluation measures.

used descriptive statistics and bivariate analyses (Chi-squared) to examine relationships between the categorised baseline outcomes variables and demographic variables (i.e. age, gender, pay band).

Descriptive statistics explored how the proportions in the categorised outcome variables changed between baseline and post-initiative. Friedman's tests and Wilcoxon signed rank tests were conducted on the paired data (individuals' measures between time periods) to identify mean changes in outcomes of interest between three and two time-points, respectively.

Change scores were calculated to assess individual change across the 12-month TTM period by subtracting the baseline outcome variable score from the post-initiative outcome variable score. Using literature-derived minimally important differences (MID) where possible, changes in outcome measurements from baseline to post-initiative were categorised into *increase*, *no change* or *decrease*. A MID is the smallest change required to be considered important and meaningful (18), and the MID applied for each outcome of interest is listed within the respective results sections. Associations between change categories and baseline variables were measured using chi-squared. To explore if significant relationships identified in the bivariate analysis were maintained after controlling for confounding variables, multivariate analyses (generalised linear modelling) were undertaken incorporating the categorical baseline variables, demographics (age, gender, pay band) and outcome variables significantly associated with change in the dependent variable in the bivariate analyses. Estimated marginal means were calculated to model the adjusted scale of change within the outcome variable. Data analysis was undertaken in SPSS version 25 and significance was set as  $p < 0.05$ . Due to rounding of decimal places, not all figures total 100%.

### **Focus group**

Transcripts were analysed thematically for emerging themes. The researcher familiarised themselves with the transcripts, and assigned primary codes using an inductive approach; a portion of the codes were then reviewed by a second researcher to reduce any potential bias in the coding. Following agreement, the first researcher undertook the analysis in NVivo version 12. Illustrative quotes are presented to illustrate key findings.

#### **Box 4. Descriptions of data processing for each of the outcome variables**



**Physical activity:** Participants were asked 1) in a typical week, on how many of their working days did they engage in a) moderate and b) vigorous physical activity; and 2) in a typical week, on how many of their non-working days did they engage in a) moderate and b) vigorous physical activity; and on each of those typical days (working and non-working), how many minutes of both intensities individually did they typically engage in. This question was adapted from and processed in line with an internationally used physical activity questionnaire (International Physical Activity Questionnaire; IPAQ; 19). Thus, as moderate and vigorous physical activity were asked independently across seven days, participants' reporting of days of activity was equalled to

14 days in a week. In order to create an overall weekly physical activity variable, work and non-work days for moderate/vigorous physical activity were calculated to create a total typical week for each. Then, to take into account the differences in participating in moderate and vigorous physical activity, participants' responses were transformed from minutes into Metabolic Equivalent Task minutes (MET-minutes; 20). Minutes spent over a typical week doing moderate and vigorous physical activity were multiplied by 4 and 8, respectively. These MET-minute scores were then used to create an overall physical activity score. The total MET-minutes were categorised into low, moderate and high overall physical activity (19).



**Mental well-being:** Participants were asked to complete the 7-item Short-Warwick and Edinburgh Mental-Well-being Scale (SWEMWEBS; 21). Questions asked how often individuals had felt (i) optimistic about the future, (ii) useful, (iii) relaxed, (iv) that they dealt with problems well, (v) they had been thinking clearly, (vi) close to others, and (vii) able to make decisions. Raw composite scores were calculated and converted to metric scores in line with the scale data processing guidelines. The metric score was categorised into low and moderate/high (mod/high). Low was calculated as  $>1$  standard deviation below the mean; the mean and standard deviation were derived from a nationally representative survey (mean = 24.21, SD = 4.62, low  $\leq$  19.59 [22]).



**Self-reported general health:** Using a visual analogue scale (0-100), participants were asked to rate how good or bad their health was generally. The question was adapted from EQ-5D (23). Responses were categorised into low, moderate and high self-reported health, where low was  $\leq$  25th percentile (score: 0-60), moderate was between the 25th percentile and the 75th percentile (score: 61-84), and high was  $\geq$ 75th percentile (score: 85-100).



**Job satisfaction:** Using a 5-point Likert scale, participants were asked whether they felt very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied or very dissatisfied with their job. The variable was condensed to represent satisfied (very satisfied, satisfied), neutral (neither satisfied nor dissatisfied), and dissatisfied (dissatisfied, very dissatisfied).



**BMI:** Each person's height and weight was recorded and BMI was calculated using the following equation: weight (kg) /

height (m<sup>2</sup>). Baseline height was used for calculating BMI at both baseline and post-initiative to reduce error. The data was then categorised into healthy (18.5-25 kg/m<sup>2</sup>), overweight (25-30 kg/m<sup>2</sup>), and obese (30+ kg/m<sup>2</sup>); due to small numbers, underweight ( $<18.5$  kg/m<sup>2</sup>; n=6) was collated into the healthy category.



**Body fat percentage:** This was calculated automatically by the body composition analyser. This was then categorised into unhealthy and healthy based on gender and in line with national recommendations (24). Unhealthy was categorised as  $\geq 25$  for males and  $\geq 32$  for females. Healthy was categorised as lower than the aforementioned figures.



**Systolic blood pressure:** Systolic blood pressure is one of two parts of a blood pressure reading (top number) and relates to the maximum pressure in the blood vessel upon a heart beating (25); this is important in determining the health of the circulatory system. An average (from three readings with 2 minutes rest in between each reading) was derived for each participant. This was categorised into high ( $\geq 135$ ) and normal ( $<135$ ) in line with national recommendations (26).



**TTM frequency:** Participants were asked at mid-initiative and post-initiative how much of their TTM time had they taken in the past six months, whether it was: none, some, half the weeks, most or every week. A composite score of their responses was generated, creating three categories: low (none, some or half the weeks), moderate (differed between mid- and post-initiative), and high (most or every week).

# 3. Findings

## 3.1 Who signed up to participate in TTM?

A total of 858 employees registered to participate in the TTM initiative and evaluation; representing nearly half (48.8%) of all PHW employees\*. Of these, 815 participants (46.3% of PHW employees) completed baseline measures (Table 1). The characteristics (i.e. gender, age, pay band, area base, employment) of this baseline sample largely reflected those of the overall PHW workforce with the exception of ethnicity and directorate. Employees of non-White ethnicities were less likely to have participated, as were employees from the Public Health Services directorate†; a greater proportion from the Health and Well-being directorate†† registered to participate.

Nearly three quarters (72.8%, n=625) of the baseline sample completed the 12-month evaluation measures. This post-initiative sample represented over a third (35.5%) of PHW employees. Of those who withdrew, 45 participants left the organisation; 90 actively withdrew providing reasons such as no longer wishing to take part, working part-time, and not taking their TTM time. The remaining 98 were withdrawn due to not completing the evaluation measures as required.

A final sample of 542 individuals§ who completed all required online questionnaires and physical health measures at all required time-points (see data analysis) was obtained. Compared to those who withdrew or were excluded due to incomplete data, the final sample was significantly more likely at baseline to have higher self-reported health (p=0.004), have a healthy BMI (p=0.007), and have a healthy body fat percentage (p=0.003; Appendix Table A1).

Findings described in section 3.2 relate to employees who opted to participate in TTM and completed all required elements of the evaluation, and do not reflect all PHW employees.

**Table 1. Characteristics of the baseline TTM sample compared to the overall PHW workforce at the start of the initiative**

	Baseline sample (N = 815)		All PHW Employees (N = 1,760)	
	n	%	n	%
<b>Gender<sup>a</sup></b>				
Male	-	20.1	410	23.3
Female	-	79.8	1350	76.7
<b>Age group (years)</b>				
18-39	334	41.0	710	40.3
40-49	227	27.9	496	28.2
50+	254	31.2	554	31.5
<b>Ethnicity</b>				
White	773	94.8	1297	73.7
Other	42	5.2	463	26.3
<b>Pay band</b>				
1-4	245	30.3	588	33.4
5-6	265	32.8	504	28.6
7+	299	37.0	668	38.0
<b>Area base</b>				
North	141	17.3	276	15.7
South	674	82.7	1484	84.3
<b>Directorate (n=810)</b>				
Health and Well-being	222	27.4	336	19.1
PIH	35	4.3	55	3.1
Knowledge	59	7.3	75	4.3
POD	10	1.2	32	1.8
Operations and finance	58	7.2	97	5.5
QNAHP	31	3.8	35	2.0
Public Health Services	318	39.3	952	54.1
1000 Lives	28	3.5	57	3.2
Not assigned	49	6.0	121	6.9
<b>Employment (n=810)</b>				
Full time	498	61.5	1142	64.9
Part time	312	38.5	618	35.1

PIH, Policy and International Health; POD, People and Organisational Development QNAHP, Quality, Nursing and Allied Health Professionals; <sup>a</sup>A small proportion of individuals (<5) identified as 'other' have not been included in the table for anonymity purposes and therefore n values for gender are not reported.

\*PHW organisation level data was obtained from PHW.

†Key functions of the Public Health Services directorate include screening; microbiology; health protection; professional oversight and leadership for all medical staff; and professionals oversight and leadership for non-medical public health registered professionals.

††Key functions of the Health and Well-being directorate include health improvement; multi-agency engagement; primary, community and integrated care; and local public health teams.

§Individual who were pregnant during any of the measurement time-points were excluded from analyses as they would not be directly comparable.

## Section 3.2: Quantitative findings: the impact of TTM on health and job satisfaction, and participants' perceptions of the initiative



UK physical activity guidelines advocate that adults engage in at least 150 minutes of moderate-intensity physical activity or 75 minutes of vigorous-intensity physical activity each week (2). This is equivalent to weekly physical activity levels of 600 MET-minutes. At each questionnaire time-point, TTM participants reported how much moderate and how much vigorous physical activity they undertook on work and non-work days (giving a maximum of 14 days; Box 4). An overall physical activity level was calculated and categorised into high ( $\geq 7$  days of any physical activity, achieving at least 3000 MET-minutes/week), moderate ( $\geq 5$  days of any physical activity at least 600 MET-minutes/week) or low (no physical activity or insufficient to meet moderate or high categories) physical activity\*.

### How physically active was the sample at baseline?

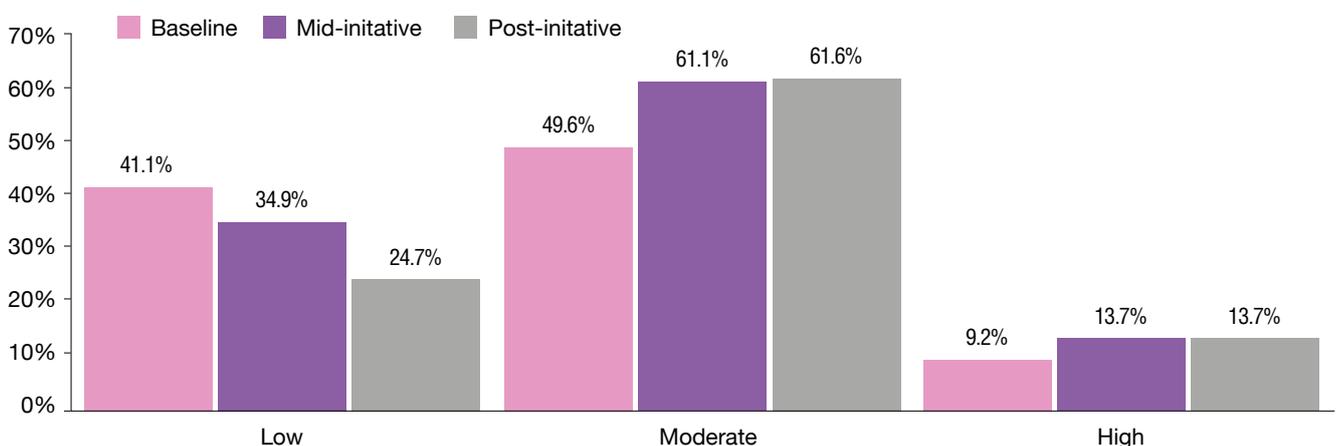
At baseline, 58.8% of participants met the UK physical activity guidelines. Mean weekly physical activity was 1,472 MET-minutes; equivalent to over six hours of moderate physical activity per week. The proportions within each category at baseline were: low 41.1% (mean 530 MET-minutes), moderate 49.6% (mean 1,702 MET-minutes), and high 9.2% (mean 4,438 MET-minutes; Figure 3). Lower baseline physical activity was significantly associated with low mental well-being, low self-reported health, being obese, and having an unhealthy body fat percentage (Table 2). No significant

**Table 2. Relationships between baseline physical activity levels and outcome variables<sup>a</sup>**

Baseline variables	n	Baseline physical activity levels (%)			p
		Low (n=223)	Moderate (n=269)	High (n=50)	
<b>Mental well-being</b>					
Low	141	49.6	44.0	6.4	*
Mod/High	401	38.2	51.6	10.2	
<b>Self-reported health</b>					
Low	139	61.2	35.3	3.6	**
Moderate	279	35.8	55.6	8.6	
High	124	30.6	52.4	16.9	
<b>BMI</b>					
Obese	111	55.9	39.6	4.5	*
Overweight	207	39.6	48.3	12.1	
Healthy	224	35.3	55.8	8.9	
<b>Body fat percentage</b>					
Unhealthy	248	51.6	41.1	7.3	**
Healthy	294	32.3	56.8	10.9	

<sup>a</sup>Chi-squared analysis; non-significant differences are shown in Appendix Table A2; \*p<0.05, \*\*p<0.001

**Figure 3. Proportion within each physical activity category across the three time-points**



\*See methods for more details.

differences were found by age, gender, pay band, job satisfaction or systolic blood pressure (Appendix Table A2).

## How did physical activity levels change from baseline to post-initiative?

Figure 3 shows the proportion of participants in each physical activity category at each time-point. The proportion in the low physical activity category decreased from 41.1% at baseline to 24.7% at post-initiative, with increases seen in both the moderate and high categories. Thus, the proportion meeting the UK guidelines increased from 58.8% to 75.3%. Participants' mean weekly MET-minutes increased significantly over time ( $p < 0.001$ ; Appendix Table A3), from 1,472 at baseline to 1,640 by mid-initiative ( $p < 0.001$ ) and 1,761 by post-initiative ( $p < 0.001$ ); a 19.6% increase across the 12-month period. Compared to baseline, on average participants engaged in a mean of 72 additional minutes of moderate physical activity a week after 12-months of TTM.

For the purposes of analysis at an individual level, a change of at least 120 MET-minutes per week (equivalent to 30 minutes of moderate physical activity; range of change: -6,400 to 6,280) between baseline and post-initiative was categorised as a meaningful increase or decrease in physical activity\*. Changes of less than 120 MET-minutes were categorised as no change. Using these categories, nearly six in 10 participants (57.7%) increased their physical activity levels while three in 10 participants (30.6%) decreased their physical activity levels over the 12-months of TTM (Figure 4).

## Who changed their physical activity levels from baseline to post-initiative?

Changes in physical activity levels were significantly associated with gender and baseline physical activity levels and job satisfaction (bivariate analyses; Table 3). 70.4% of those in the low physical activity category at baseline increased their physical activity over the 12-months of TTM. While 64.0% of those in the high physical activity category at baseline decreased their physical activity, the majority of these (32 out of 50 individuals) continued to meet the physical activity guidelines. A greater proportion of females (61.0%) than males (45.7%) increased their physical activity, whilst those who felt neither satisfied nor dissatisfied (22.6%) with their job were most likely to show no change. No further significant associations were found for other outcome variables (Appendix Table A4).

**Table 3. Relationships between changes in physical activity levels and baseline outcome variables<sup>a</sup>**

Variables	n	Changes in physical activity levels (%)			p
		Decrease (n=166)	No change (n=63)	Increase (n=313)	
<b>Gender</b>					
Male	116	36.2	18.1	45.7	*
Female	426	29.1	9.9	61.0	
<b>Baseline physical activity levels</b>					
Low	223	14.8	14.8	70.4	**
Moderate	269	37.5	10.4	52.0	
High	50	64.0	4.0	32.0	
<b>Baseline job satisfaction</b>					
Dissatisfied	100	31.0	8.0	61.0	*
Neutral	93	28.0	22.6	49.5	
Satisfied	349	31.2	9.7	59.0	

<sup>a</sup>Chi-squared analysis; non-significant differences are shown in Appendix Table A4; \* $p < 0.05$ , \*\* $p < 0.001$

**Figure 4. Proportion and direction of change in physical activity levels over 12-months**



\*A MID point of 30 minutes extra per week was applied based on the notion that doing 10 minutes of extra physical activity three times a week can have health benefits.

After controlling for relationships between multiple variables\*, only baseline physical activity levels remained independently associated with change in physical activity levels over the 12-months of TTM ( $p < 0.001$ ; Appendix Table A5); gender and baseline job satisfaction were not significant. Those in the low physical activity category at baseline increased their weekly physical activity by an average of 652 MET-minutes (>2.5 hours of moderate physical activity) and those in the moderate physical activity category at baseline increased by 214 MET-minutes (58 minutes of moderate physical activity; Appendix Table A6). However, those in the high physical activity category at baseline decreased by 1,124 MET-minutes (>4 hours of moderate physical activity). This represents a small proportion of the sample who reported high physical activity levels at baseline. As change was categorised as 120 MET-minutes or more, all changes in physical activity could have an effect on the participants' health. Collectively, findings suggest that individuals who participated in the least amount of physical activity before TTM made the greatest improvements in their physical activity levels.

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\*Including the relative baseline variable, demographics (age, gender, pay band) and outcome variables significantly associated with change in the dependent variable in bivariate analyses (Table 3).



Mental well-being was measured at each questionnaire time-point using the 7-item SWEMWEBS tool (21). Scores for each item were summed to generate a composite score ranging from 1-35. This score was then categorised to identify low mental well-being as scores less than 1 standard deviation below the mean; scores of <19.6) or moderate/high (mod/high; scores of  $\geq 19.6$ )\*. Individual responses to the 7-item mental well-being statements are shown in Appendix Table A7.

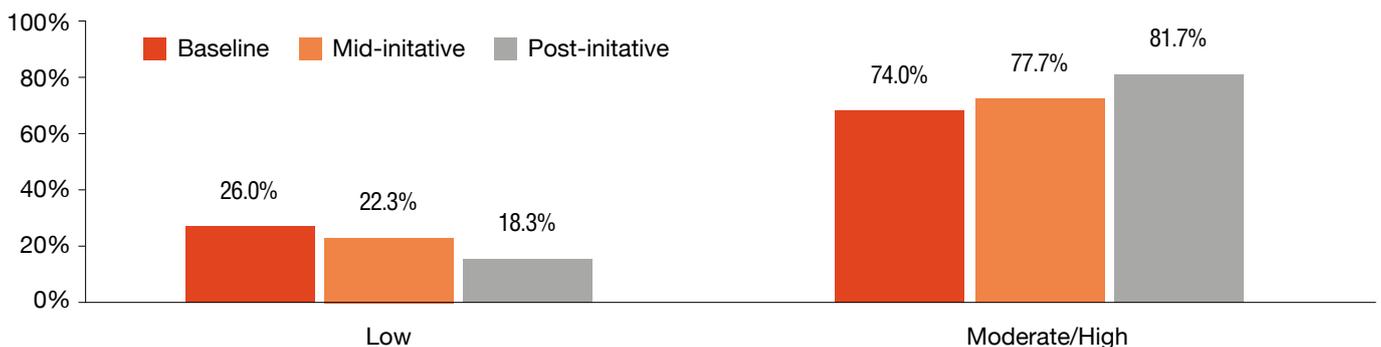
## What was the mental well-being of the sample at baseline?

The mean mental well-being score at baseline was 22.4. A quarter of participants (26.0%) were categorised as having low mental well-being (mean score 18.0) and three quarters (74.0%) as having moderate/high mental well-being (mean score 24.0; Figure 5). Low mental well-being at baseline was significantly associated with being younger, male, and having lower physical activity, self-reported health and job satisfaction (Table 4). No significant differences were found by pay band, BMI, body fat percentage, or systolic blood pressure (Appendix Table A8).

## How did mental well-being change from baseline to post-initiative?

Figure 5 shows the proportion in each mental well-being category at each time-point.

**Figure 5. Proportions within each mental well-being category across the three time-points**



\*See methods for more details.

**Table 4. Relationships between baseline mental well-being levels and outcome variables<sup>a</sup>**

Baseline variables	n	Baseline mental well-being (%)		p
		Low (n=141)	Good (n=401)	
<b>Age (years)</b>				
18-39	208	30.8	69.2	*
40-49	163	27.6	72.4	
50+	171	18.7	81.3	
<b>Gender</b>				
Male	116	33.6	66.4	*
Female	426	23.9	76.1	
<b>Physical activity levels</b>				
Low	223	31.4	68.6	*
Moderate	269	23.0	77.0	
High	50	18.0	82.0	
<b>Self-reported health</b>				
Low	139	42.4	57.6	**
Moderate	279	24.7	75.3	
High	124	10.5	89.5	
<b>Job satisfaction</b>				
Dissatisfied	100	40.0	60.0	**
Neutral	93	34.4	65.6	
Satisfied	349	19.8	80.2	

<sup>a</sup>Chi-squared analysis; non-significant differences are shown in Appendix Table A8; \*p<0.05, \*\*p<0.001

The proportion in the low mental well-being category decreased from 26.0% at baseline to 18.3% at post-initiative. Mean mental well-being overall increased significantly over the 12-months of TTM, from 22.4 at baseline to 23.2 post-initiative ( $p < 0.001$ ; Appendix Table A3). There was no significant change from baseline to mid-initiative (22.6,  $p = 0.092$ ).

For the purposes of analysis at an individual level, a change of 2 or more in mental well-being raw score (range of change: -18.0 to 21.0) between baseline and post-initiative was categorised as an increase or decrease in mental well-being (21). Smaller changes were categorised as no change. Using these categories, four in 10 participants (42.6%) improved their mental well-being and two in 10 participants (21.4%) decreased their mental well-being over the 12-months of TTM (Figure 6).

**Figure 6. Proportion and direction of change in mental well-being over 12-months**



### Who changed their mental well-being from baseline to post-initiative?

Changes in mental well-being were significantly associated with age and baseline mental well-being, self-reported health and job satisfaction (bivariate analysis; Table 5). Seven in 10 participants (70.9%) who had low mental well-being at baseline increased their mental well-being over the 12-months of participation in TTM compared to three in 10 participants (32.7%) who had moderate/high mental well-being. Increases in mental well-being were more common among those with lower self-reported health, lower job satisfaction and individuals aged less than 50 years; although the 18-39 year age group was also most likely to see a decrease in mental well-being. No further significant associations were found for other outcome variables (Appendix Table A9).

After controlling for relationships between multiple variables\*, only baseline mental well-being remained independently associated with change in mental well-being over the 12-months of TTM (multivariate analysis,  $p < 0.001$ ; Appendix Table A5); age, and baseline self-reported health and job satisfaction were not significant. Participants in the low mental well-being category at baseline made a meaningful improvement in mental well-being with a points increase of 3.5, whilst those in the moderate/high category remained constant (Appendix Table A6).

**Table 5. Relationships between changes in mental well-being levels and outcome variables<sup>a</sup>**

Baseline variables	n	Changes in mental well-being (%)			p
		Decreased (n=116)	No change (n=195)	Increased (n=231)	
<b>Age (years)</b>					
18-39	208	27.4	29.3	43.3	*
40-49	163	17.8	36.8	45.4	
50+	171	17.5	43.3	39.2	
<b>Baseline mental well-being</b>					
Low	141	8.5	20.6	70.9	**
Mod/High	401	25.9	41.4	32.7	
<b>Baseline self-reported health</b>					
Low	139	20.1	25.2	54.7	*
Moderate	279	19.7	39.1	41.2	
High	124	26.6	41.1	32.3	
<b>Baseline job satisfaction</b>					
Dissatisfied	100	12.0	41.0	47.0	*
Neutral	93	16.1	37.6	46.2	
Satisfied	349	25.5	34.1	40.0	

<sup>a</sup>Chi-squared analysis; non-significant differences are shown in Appendix Table A9; \* $p < 0.05$ , \*\* $p < 0.001$

\*Including the relative baseline variable, demographics (age, gender, pay band) and outcome variables significantly associated with change in the dependent variable in bivariate analyses (Table 5).



At each questionnaire time-point, TTM participants self-rated their own general health using a scale of 0-100 (with 0 being the worst). Scores were categorised into low ( $\leq 25^{\text{th}}$  percentile, 0-60), moderate ( $> 25^{\text{th}}$  percentile -  $< 75^{\text{th}}$  percentile, 61-84) and high ( $\geq 75^{\text{th}}$  percentile, 85-100)\*.

### What was the self-reported health of the sample at baseline?

The mean self-reported health score at baseline was 70.9. The proportions within each category as determined by the cut-offs applied at baseline were: low 25.6% (mean 49.5), moderate 51.5% (mean 73.5), and high 22.9% (mean 89.2; Figure 7). Low self-reported health was significantly associated with lower pay band, lower levels of physical activity, low mental well-being, being obese, and having an unhealthy body fat percentage (Table 6). No significant differences were found by age, gender, self-reported health, or systolic blood pressure (Appendix Table A10).

### How did self-reported health change from baseline to post-initiative?

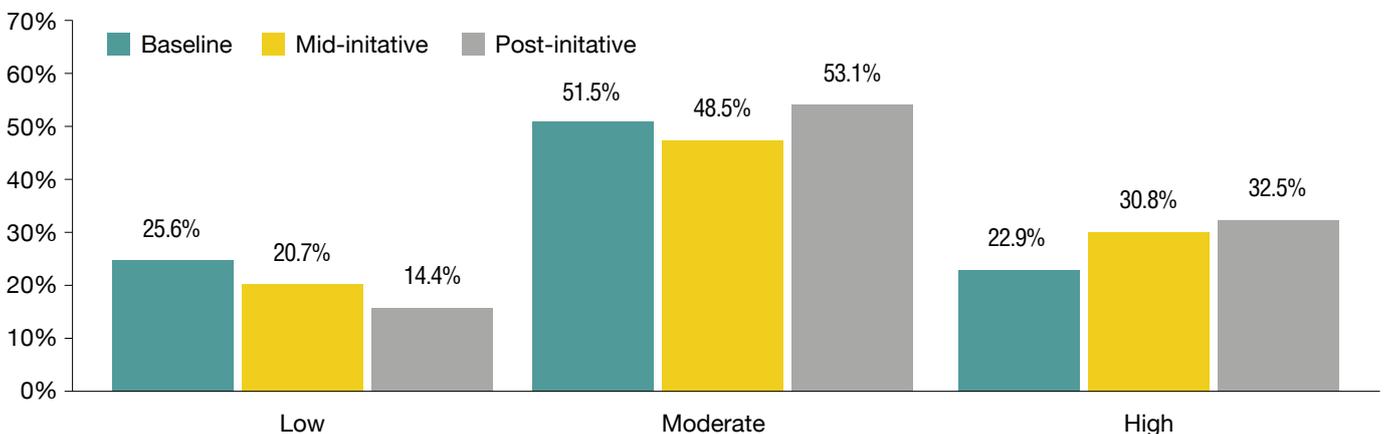
Figure 7 shows the proportion of participants in each self-reported health category at each

**Table 6. Relationships between baseline self-reported health and outcome variables<sup>a</sup>**

Baseline variables	n	Baseline self-reported health (%)			p
		Low (n=139)	Moderate (n=279)	High (n=124)	
<b>Pay band</b>					
1-4	175	33.1	47.4	19.4	*
5-6	179	25.1	54.2	20.7	
7+	188	19.1	52.7	28.2	
<b>Physical activity levels</b>					
Low	223	38.1	44.8	17.0	**
Moderate	269	18.2	57.6	24.2	
High	50	10.0	48.0	42.0	
<b>Mental well-being</b>					
Low	141	41.8	48.9	9.2	**
Mod/High	401	20.0	52.4	27.7	
<b>BMI</b>					
Obese	111	44.1	45.0	10.8	**
Overweight	207	24.6	54.1	21.3	
Healthy	224	17.4	52.2	30.4	
<b>Body fat percentage</b>					
Unhealthy	248	36.3	48.4	15.3	**
Healthy	294	16.7	54.1	23.9	

<sup>a</sup>Chi-squared analysis; non-significant differences are shown in Appendix Table A10; \*p<0.05, \*\*p<0.001

**Figure 7. Proportions within each self-reported health category across the three time-points**



\*See methods for more details.

time-point. The proportion in the low self-reported health category reduced to 14.4% at post-initiative, while the proportion in the high category increased to 32.5%. The mean self-reported health score significantly increased over the three time-points ( $p < 0.001$ ), from 70.9 at baseline (out of 100), to 74.0 at mid-initiative ( $p < 0.001$ ), and 76.1 at post-initiative ( $p < 0.001$ ; Appendix Table A3).

For the purposes of analysis at an individual level, score changes of at least 10 points between baseline and post-initiative were categorised as increases or decreases in self-reported health (27). Changes of less than 10 were categorised as no change (range of change: -45 to 68). Using these parameters, more than three in 10 participants (34.7%) reported increases in their self-reported health and only one in 10 participant (10.7%) reported decreases after the 12-months of TTM (Figure 8).

### Who changed their self-reported health from baseline to post-initiative?

Changes in self-reported health were significantly associated with baseline self-reported health, pay band, physical activity levels and body fat percentage (bivariate analysis; Table 7). Improvements in self-reported health were particularly high among those in the low self-reported health category at baseline (67.7%) and among those in the low physical activity category (43.0%). A greater proportion of participants on lower pay bands (40.6%) increased their self-reported health than those on higher pay bands (30.3%), while those who had unhealthy body fat percentage (40.7%) at baseline increased their self-reported health more than those with a healthy body fat percentage (29.6%). All other relationships were non-significant (Appendix Table A11).

After controlling for relationships between multiple variables\*, only baseline self-reported health remained independently associated with change in self-reported health ( $p < 0.001$ ; Appendix Table A5); pay band and baseline physical activity levels and body fat percentage were not significant. Those in the low self-reported health category at baseline increased their score by 14.6 points; there were no meaningful changes in the moderate and high self-reported health categories (Appendix Table A6).

**Figure 8. Proportion and direction of change in self-reported health over 12-months**



**Table 7. Relationships between changes in self-reported health and outcome variables<sup>a</sup>**

Baseline variables	n	Changes in self-reported health (%)			p
		Decreased (n=58)	No change (n=296)	Increased (n=188)	
<b>Baseline pay band</b>					
1-4	175	15.4	44.0	40.6	*
5-6	179	8.4	58.1	33.5	
7+	188	8.5	61.2	30.3	
<b>Baseline physical activity levels</b>					
Low	223	11.2	45.7	43.0	*
Moderate	269	9.7	58.7	31.6	
High	50	14.0	72.0	14.0	
<b>Baseline self-reported health</b>					
Low	139	6.5	25.9	67.7	**
Moderate	279	10.0	60.9	29.0	
High	124	16.9	72.6	10.5	
<b>Baseline body fat percentage</b>					
Unhealthy	248	9.7	49.6	40.7	*
Healthy	294	11.6	58.8	29.6	

<sup>a</sup>Chi-squared analysis; non-significant differences are shown in Appendix Table A11; \* $p < 0.05$ , \*\* $p < 0.001$

\*Including the relative baseline variable, demographics (age, gender, pay band) and outcome variables significantly associated with change in the dependent variable in bivariate analyses (Table 7).

At each survey time-point, participants were asked how satisfied they are with their job using a 5-point Likert scale (very dissatisfied to very satisfied)\*. Due to low numbers in very dissatisfied, for bivariate analyses, the categories were condensed to three levels (dissatisfied [very and quite], neutral and satisfied [very and quite]).

### What was the job satisfaction level of the sample at baseline?

Nearly two in 10 people (18.5%) were dissatisfied with their job at baseline (Figure 9). Job dissatisfaction was significantly associated with low mental well-being and an unhealthy body fat percentage (Table 8). No significant differences were found by age, gender, pay band, physical activity levels, self-reported health, job satisfaction, BMI, or systolic blood pressure (Appendix Table A12).

**Table 8. Relationships between baseline job satisfaction levels and outcome variables<sup>a</sup>**

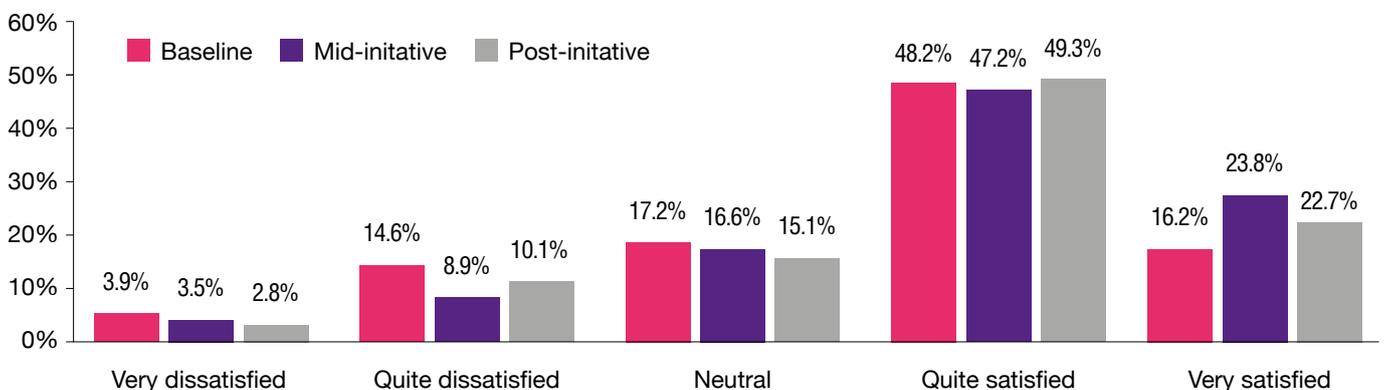
Baseline variables	n	Baseline job satisfaction (%)			p
		Dissatisfied (n=100)	Neutral (n=93)	Satisfied (n=349)	
<b>Mental well-being</b>					
Low	141	28.4	22.7	48.9	**
Mod/High	401	15.0	15.2	69.8	
<b>Body fat percentage</b>					
Unhealthy	248	23.0	15.7	61.3	*
Healthy	294	14.6	18.4	67.0	

<sup>a</sup>Chi-squared analysis; non-significant differences are shown in Appendix Table A12; \*p<0.05; \*\*p<0.001

### How did job satisfaction change from baseline to post-initiative?

Figure 9 shows the proportion of participants in each job satisfaction category across the three time-points. Job satisfaction increased over the 12-months of TTM (p<0.001; Appendix Table A3); significant improvement was found between baseline to mid-initiative (p<0.001) and to post-initiative (p<0.001). The proportion in the dissatisfied categories (very and quite) decreased from 18.5% at baseline to 12.9% at post-initiative; the proportion in the neutral category also decreased from 17.2% to 15.1%. Consequently, the proportion in the satisfied categories increased from 64.4% at baseline to 72.0% at post-initiative.

**Figure 9. Proportions within each job satisfaction category across the three time-points**



\*See methods for more details.

Any movement between the five categories was categorised as an increase or decrease. Job satisfaction increased in three in 10 participants (33.4%) and decreased in two in 10 participants (19.6%) over the 12-months of TTM (Figure 10).

### Who changed their job satisfaction from baseline to post-initiative?

Change in job satisfaction was significantly associated with baseline job satisfaction and mental well-being (bivariate analysis; Table 9). Nearly eight in 10 people (79.0%) who were dissatisfied at baseline had improved job satisfaction at post-initiative. For a quarter (24.4%) of those who felt satisfied at baseline, job satisfaction decreased over the 12-months. However, of these, 6.7% moved from very satisfied to quite satisfied and therefore were still satisfied with their job. A greater proportion of those with low mental well-being (39.7%) increased their job satisfaction, while 50.4% of those in the moderate/high mental well-being category did not change. All other relationships were non-significant (Appendix Table A13).

After controlling for relationships between multiple variables\*, baseline job satisfaction ( $p < 0.001$ ) and gender ( $p = 0.027$ ) were independently associated with change in job satisfaction over the 12-months of TTM (Appendix Table A5); baseline mental well-being was not significant. The mean (adjusted) scale score for individuals who were dissatisfied with their job at baseline increased by 1.4 points (on a scale of 1 to 5), and those who were neutral about their job satisfaction increased by 0.3 points (Appendix Table A6). However, those who were satisfied at baseline decreased by 0.3 points. Job satisfaction also increased more for females (0.6 Likert scale points) than for males (0.4 points).

**Figure 10. Proportion and direction of change in job satisfaction over 12-months**



**Table 9. Relationships between changes in job satisfaction levels and outcome variables<sup>a</sup>**

Baseline variables	n	Changes in job satisfaction (%)			p
		Decreased (n=106)	No change (n=255)	Increased (n=181)	
<b>Baseline mental well-being</b>					
Low	141	22.7	37.6	39.7	*
Mod/High	401	18.5	50.4	31.2	
<b>Baseline job satisfaction</b>					
Dissatisfied	100	4.0	17.0	79.0	**
Neutral	93	18.3	28.0	53.8	
Satisfied	349	24.4	60.7	14.9	

<sup>a</sup>Chi-squared analysis; non-significant differences are shown in Appendix Table A13; \* $p < 0.05$ , \*\* $p < 0.001$

\*Including the relative baseline variable, demographics (age, gender, pay band) and outcome variables significantly associated with change in the dependent variable in bivariate analyses (Table 9).



BMI was collected at baseline and post-initiative using a body composition analyser\*. Using standardised cut-offs (28), participants' scores were categorised as healthy (18.5- <25 kg/m<sup>2</sup>), overweight (≥25- <30 kg/m<sup>2</sup>), and obese (≥30+ kg/m<sup>2</sup>).

## What was the BMI of the sample at baseline?

The mean BMI score at baseline was 26.7 kg/m<sup>2</sup>. Figure 11 shows the proportion of participants in each BMI category at baseline: obese 20.5% (mean 34.5 kg/m<sup>2</sup>), overweight 38.2% (mean 27.2 kg/m<sup>2</sup>), and healthy 41.3% (mean 22.4 kg/m<sup>2</sup>). Nearly six in 10 participants (58.7%) were overweight or obese. Being an unhealthy weight was significantly associated with being older, low physical activity levels, low self-reported health, having unhealthy body fat percentage and high systolic blood pressure (Table 10). No significant differences were found by gender or mental well-being (Appendix Table A14)<sup>†</sup>.

## How did BMI change from baseline to post-initiative?

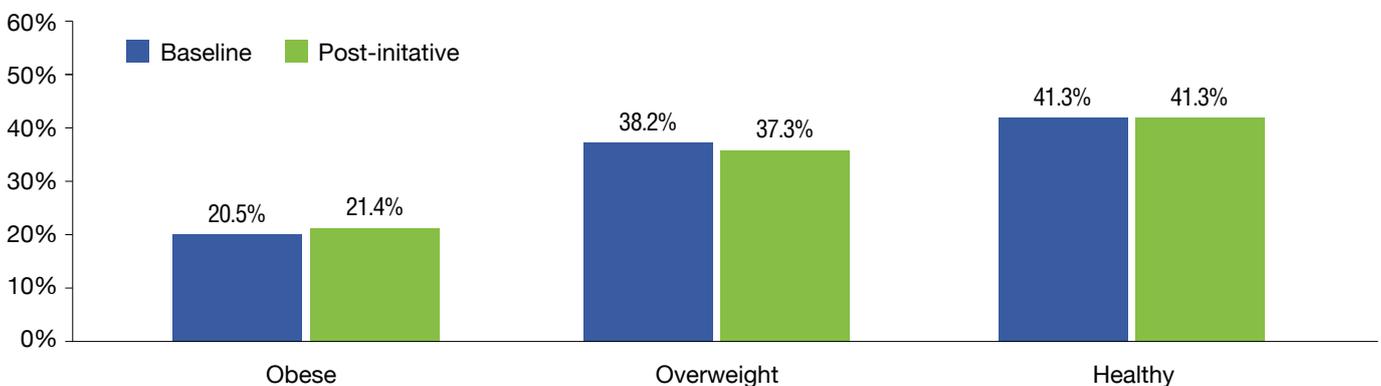
Only very small movements within the three BMI categories were found between baseline

**Table 10. Relationship between baseline body mass index and outcome variables<sup>a</sup>**

Baseline variables	n	Baseline body mass index (%)			p
		Obese (n=111)	Overweight (n=207)	Healthy (n=224)	
<b>Age (years)</b>					
18-39	208	15.4	34.1	50.5	*
40-49	163	20.9	38.0	41.1	
50+	171	26.3	43.3	30.4	
<b>Physical activity levels</b>					
Low	223	27.8	36.8	35.4	*
Moderate	269	16.4	37.2	46.5	
High	50	10.0	50.0	40.0	
<b>Self-reported health</b>					
Low	139	35.3	36.7	28.1	**
Moderate	279	17.9	40.1	41.9	
High	124	9.7	35.5	54.8	
<b>Body fat percentage</b>					
Unhealthy	248	43.5	47.6	8.9	**
Healthy	294	1.0	30.1	68.7	
<b>Systolic blood pressure</b>					
High	87	27.6	49.4	23.0	*
Normal	455	19.1	36.0	44.8	

<sup>a</sup>Chi-squared analysis; non-significant differences are shown in Appendix Table A14; \*p<0.05, \*\*p<0.001

**Figure 11. Proportions within each BMI category across the two time-points**



\*See methods for more details.

<sup>†</sup>The relationship between body mass index and body fat percentage were not explored as they are highly correlated.

and post-initiative (0.9% increase in obese, 0.9% decrease in overweight; range of change: -18.85 to 14.29, Figure 11). Despite this small increase, there was a significant change in BMI over time ( $p < 0.001$ ), with the mean BMI score increasing from 26.7 kg/m<sup>2</sup> to 26.8 kg/m<sup>2</sup> by post-initiative (Appendix Table A3). Mean BMI scores among those who at baseline were in the obese category increased from 34.5 kg/m<sup>2</sup> to 34.6 kg/m<sup>2</sup>; the overweight category increased from 27.2 kg/m<sup>2</sup> to 27.3 kg/m<sup>2</sup>; and the healthy category increased from 22.4 kg/m<sup>2</sup> to 22.4 kg/m<sup>2</sup>. Thus, highlighting how small the changes were.

**Figure 12. Proportion and direction of change in BMI over 12-months**



For the purposes of analysis at an individual level, a meaningful change in BMI was categorised as  $\geq 5\%$  between baseline and post-initiative (29). All changes  $< 5\%$  were treated as no change. Using these parameters, BMI increased for 11.3% of the sample over TTM and decreased for 8.3% (Figure 12).

### Who changed their BMI from baseline to post-initiative?

Change in BMI between baseline and post-initiative was not associated with any of the baseline outcome variables (bivariate analysis; Appendix Table A15).

After controlling for relationships between multiple variables\*, age was independently associated with change in BMI over the 12-months ( $p = 0.005$ ; Appendix Table A5). The BMI of individuals aged 18-39 years increased by 1.2 kg/m<sup>2</sup>, while the BMI of those aged 40-49 years and 50+ years decreased by 0.1 kg/m<sup>2</sup> and 0.2 kg/m<sup>2</sup>, respectively (Appendix Table A6).

Overall, only a small change was found in participants' BMI over the 12-months TTM was implemented, with younger people more likely to gain weight, and older people more likely to lose weight. It should be noted that BMI is unable to distinguish whether the weight gain/loss is due to fat or muscle.

\*Including the relative baseline variable and demographics (age, gender, pay band).



Body fat percentage was collected from participants at baseline and at post-initiative. As women need to have a higher body fat percentage than men, the cut offs for categorising women and men as healthy and unhealthy are different. Females  $\geq 32\%$  and males  $\geq 25\%$  were categorised as unhealthy, whilst individuals beneath the threshold were categorised as healthy.

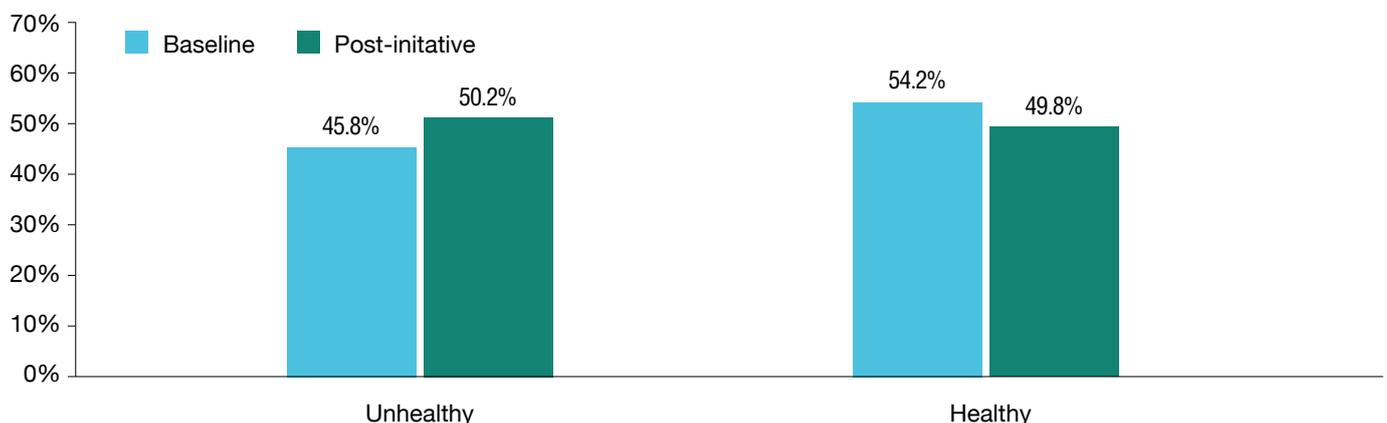
## What was the body fat percentage of the sample at baseline?

Figure 13 shows the proportion of participants in each body fat percentage category at baseline: around five in 10 participants (45.8%, mean 36.5%) had an unhealthy body fat percentage, while 54.2%

**Table 11. Relationships between baseline body fat percentage and outcome variables<sup>a</sup>**

Baseline variables	n	Body fat percentage (%)		p	Baseline variables	n	Body fat percentage (%)		p
		Unhealthy (n=248)	Healthy (n=294)				Unhealthy (n=248)	Healthy (n=294)	
<b>Age (years)</b>					<b>Self-reported health</b>				
18-39	208	38.0	62.0	**	Low	139	64.7	35.3	**
40-49	163	41.7	58.3		Moderate	279	43.0	57.0	
50+	171	59.1	40.9		High	124	30.6	69.4	
<b>Gender</b>					<b>Job satisfaction</b>				
Male	116	26.7	73.3	**	Dissatisfied	100	57.0	43.0	*
Female	426	50.9	49.1		Neutral	93	41.9	58.1	
<b>Pay band</b>					<b>BMI</b>				
1-4	175	55.4	44.6	*	Obese	111	97.3	2.7	**
5-6	179	41.3	58.7		Overweight	207	57.0	43.0	
7+	188	41.0	59.0		Healthy	224	9.8	90.2	
<b>Physical activity levels</b>					<sup>a</sup> Chi-squared analysis; non-significant differences are shown in Appendix Table A16; *p<0.05, **p<0.001				
Low	223	57.4	42.6	**					
Moderate	269	37.9	62.1						
High	50	36.0	64.0						

**Figure 13. Proportions within each body fat percentage category across the two time-points**



<sup>a</sup>The relationship between body fat percentage and BMI were not explored as they are highly correlated

(mean 24.5%) had a healthy body fat percentage (Figure 13). Having unhealthy levels of body fat was significantly associated with being older, female, low pay band, low physical activity levels, low self-reported health, and job dissatisfaction (Table 11). No significant differences were found by mental well-being or systolic blood pressure (Appendix Table A16).

### How did body fat percentage change from baseline to post-initiative?

The proportion in the unhealthy body fat percentage category increased from 45.8% to 50.2% and the proportion in the healthy category decreased from 54.2% to 49.8%. However, overall participants' mean body fat percentage only changed from 30.0% at baseline to 30.5% post-initiative ( $p < 0.001$ ; Appendix Table A3).

**Figure 14. Proportion and direction of change in body fat percentage over 12-months**



For the purposes of analysis at an individual level, a change of  $>1\%$  was categorised as a decrease or increase (range of change: -9.90 to 9.50), dependent on the direction of change, and changes of  $\leq 1\%$  were categorised as no change (30). Overall, body fat percentage increased for nearly one in four participants (39.3%) and decreased for just over one in five (21.4%) over the 12-months of TTM (Figure 14).

### Who changed their body fat percentage from baseline to post-initiative?

Change in body fat percentage was strongly related to baseline self-reported health (bivariate analysis; Table 12). Change (both increase and decrease) was most likely in those who had high self-reported health at baseline (Appendix Table A17).

**Table 12. Relationships between changes in body fat percentage and outcome variables<sup>a</sup>**

Baseline variables	n	Changes in body fat percentage (%)			p
		Increase (n=213)	No change (n=213)	Decrease (n=116)	
<b>Baseline self-reported health</b>					
Low	139	41.0	36.7	22.3	*
Moderate	279	35.8	45.9	18.3	
High	124	45.2	27.4	27.4	

<sup>a</sup>Chi-squared analysis; non-significant differences are shown in Appendix Table A17; \* $p < 0.05$ , \*\* $p < 0.001$

After controlling for relationships between multiple variables\*, baseline body fat percentage was independently associated with change in body fat percentage over the 12-months of TTM ( $p = 0.003$ ; Appendix Table A5). However, none of the changes met the meaningful change threshold ( $>1\%$ ) to indicate health impacts (Appendix Table A6).

\*Including the relative baseline variable, demographics (age, gender, pay band) and outcome variables significantly associated with change in the dependent variable in bivariate analyses (Table 12).

Systolic blood pressure is one of two parts of a blood pressure reading and relates to the maximum pressure in the blood vessel upon a heart beating. It is important in determining the health of the circulatory system. Blood pressure was measured at two time-points and scores were categorised as high ( $\geq 135$  mmHg) and normal ( $< 135$  mmHg). As analysis of systolic and diastolic blood pressures yielded similar results, only systolic blood pressure is reported.

### What was the systolic blood pressure of the sample at baseline?

The mean systolic blood pressure at baseline was 121 mmHg; 16.1% of participants were categorised as having high systolic blood pressure (Figure 15). Having a high systolic blood pressure was significantly associated with being older (50+ years), being male, being obese or overweight (Table 13). No significant differences were found by pay band, mental well-being, self-reported health or job satisfaction (Appendix Table A18).

**Table 13. Relationships between baseline systolic blood pressure and outcome variables<sup>a</sup>**

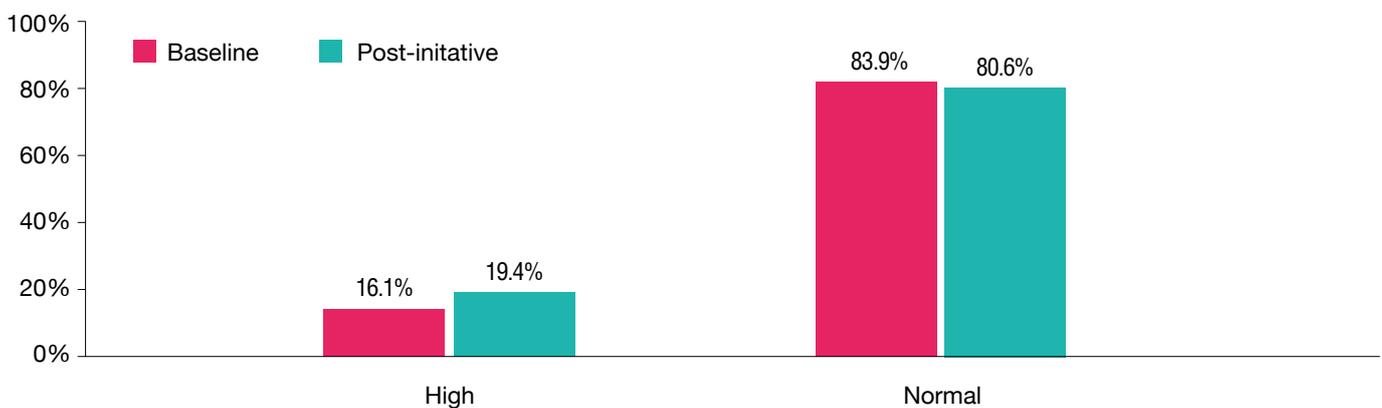
Baseline systolic blood pressure (%)				
Baseline variables	n	High (n=87)	Normal (n=455)	p
<b>Age (years)</b>				
18-39	208	9.6	90.4	**
40-49	163	12.9	87.1	
50+	171	26.9	73.1	
<b>Gender</b>				
Male	116	30.2	69.8	**
Female	426	12.2	87.8	
<b>BMI</b>				
Obese	111	21.6	78.4	**
Overweight	207	20.8	79.2	
Healthy	224	8.9	91.1	

<sup>a</sup>Chi-squared analysis; non-significant differences are shown in Appendix Table A18; \*p<0.05, \*\*p<0.001

### How did systolic blood pressure change from baseline to post-initiative

Figure 15 shows the proportion in the high and normal categories at each time-point. No significant change was found in systolic blood pressure across the 12-months (baseline: 121 mmHg, post-initiative 121 mmHg; p=0.065; Appendix Table A3).

**Figure 15. Proportions within each blood pressure category across the two time-points**



\*Small increases may be expected with the population aging over the TTM period.

For the purposes of analysis at an individual level, a change of  $\geq 5$  mmHg between baseline and post-initiative were categorised as an increase or decrease (31). Changes of  $< 5$  mmHg were categorised as no change (range of change: -88 to 35). **Using these parameters, systolic blood pressure increased for 35.4% of the sample over TTM and decreased for 28.4% (Figure 16).**

**Figure 16. Proportion and direction of change in systolic blood pressure over 12-months**



### Who changed their systolic blood pressure from baseline to post-initiative?

Change in systolic blood pressure was significantly associated with baseline blood pressure and levels of engagement in TTM over the 12-months (bivariate analysis; Table 14). Individuals with elevated blood pressure at baseline were more likely to decrease (36.2% vs 21.4% normal), and those who engaged in high levels of TTM were most likely to increase their systolic blood pressure (Appendix Table A19).

After controlling for relationships between multiple variables\*, baseline systolic blood pressure ( $p < 0.001$ ), age ( $p = 0.002$ ), and pay band ( $p = 0.005$ ) were independently associated with change in systolic blood pressure (Appendix Table A5); TTM engagement was not significant. However, none of the changes exceeded the meaningful change threshold ( $\geq 5$  mmHg; Appendix Table A6).

**Table 14. Relationships between changes in systolic blood pressure and outcome variables<sup>a</sup>**

Baseline variables	n	Changes in systolic blood pressure (%)			p
		Increase (n=192)	No change (n=196)	Decrease (n=154)	
<b>Baseline systolic blood pressure</b>					
High	87	27.6	27.6	44.8	*
Normal	455	36.9	37.8	25.3	
<b>TTM engagement</b>					
Low	223	28.7	39.9	31.4	*
Moderate	109	33.0	35.8	31.2	
High	210	43.8	32.4	23.8	

<sup>a</sup>Chi-squared analysis; non-significant differences are shown in Appendix Table A19; \* $p < 0.05$ , \*\* $p < 0.001$

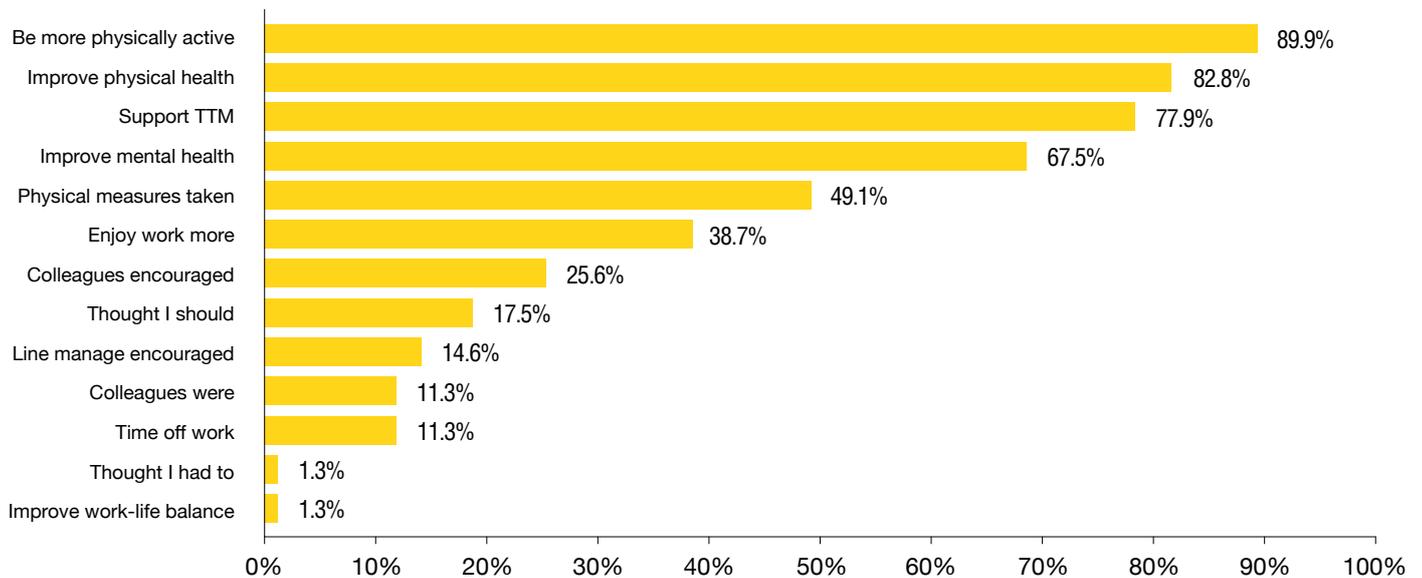
\*Including the relative baseline variable, demographics (age, gender, pay band) and outcome variables significantly associated with change in the dependent variable in bivariate analyses (Table 14).



### 3.2.8 Motivations for participating in TTM

Participation in TTM was open to all eligible employees; 48.8% of PHW employees signed up and 46.3% completed baseline measures (see Section 3.1). At mid-initiative, participants were asked what encouraged them to sign up to TTM and were provided with a list of 12 multiple choice options. The top five motivators for taking part were: they wanted to be more physically active (89.9%), they wanted to improve their physical health (82.8%), they wanted to support TTM (77.9%), they wanted to improve their mental health (67.5%), and they wanted to have their physical measures taken as part of the evaluation (49.1%; Figure 17). Participants could select multiple motivators, and an ‘other’ option was also provided for participants to provide any additional reasons. These were later re-coded into the original list where possible, and an additional category ‘*improve work-life balance*’ was created due to the number of participants who reported the reason.

**Figure 17. Participants’ motivators for taking part in TTM**



### 3.2.9 Levels of engagement in TTM

At mid-initiative and post-initiative, participants were asked how much of their TTM time they had managed to use, using the following responses:

- (1) none,
- (2) some weeks but less than half of the weeks,
- (3) about half of the weeks,
- (4) most but not all weeks,
- (5) every week.

These responses were collated and collapsed to summarise use of TTM time over the 12-months of the initiative. This showed that:

- 41.1% of participants had low levels of engagement in TTM (responses 1 and 2; and 1 and 3 only at both time-points);
- 20.1% of participants had moderate levels of engagement in TTM (responses 1 and 2; 1 and 3; 1 and 4; 1 and 5; 2 and 3; 2 and 4; 2 and 5; 3 and 4; 3 and 5 across both time-points);
- 38.7% of participants had high levels of engagement in TTM (responses 4 and 5 only at both time-points).

\*These images were voluntarily shared with the Implementation team and participants provided consent for the images to be shared with the evaluation team and used in this report.

Participants were able to choose how they wanted to use their time, albeit for physical activity purposes. To understand what activities participants engaged in, they were asked to identify activities completed using a prescribed list (multiple choice) and an open response question. The top five activities reported at post-initiative were: walking (78.4%), jogging/running (33.6%), cycling (18.5%), exercise with weights (17.9%), and swimming (17.3%). Box 5 illustrates examples of participants' open responses and images\* of participants using their time.

*Over a third of people managed to take their TTM time most or all weeks*

**Box 5. Examples of open response descriptions of how participants used their TTM time**

*“A quick brisk walk around the block in the afternoon”*



*“Been running regularly every week”*

*“30 min spin class at the end of my working day”*

*“Two twenty minute walks over two days”*

*“Couch to 5K”*

*“Mainly walking”*



*“Yoga, walking, weight sessions and I learned to swim”*

*“Cycling to work”*

*“Activities at the gym or walking”*

*“I’ve used my TTM to get to the fitness centre early”*



*“Swimming before work”*

*“Walking faster on lunch. Getting off train 1 or 2 stops earlier to walk the rest”*

*“I have been using my TTM by going for a 15 minute walk after lunch, 4 times per week”*

*“I’ve been using the time to extend my lunch break and go for a walk outdoors with a group of colleagues. I have also used it a few times to leave work early to attend a boxercise class that I wouldn’t be able to attend with my normal hours.”*

*“Going to the gym”*

*“Walk the dog after work”*

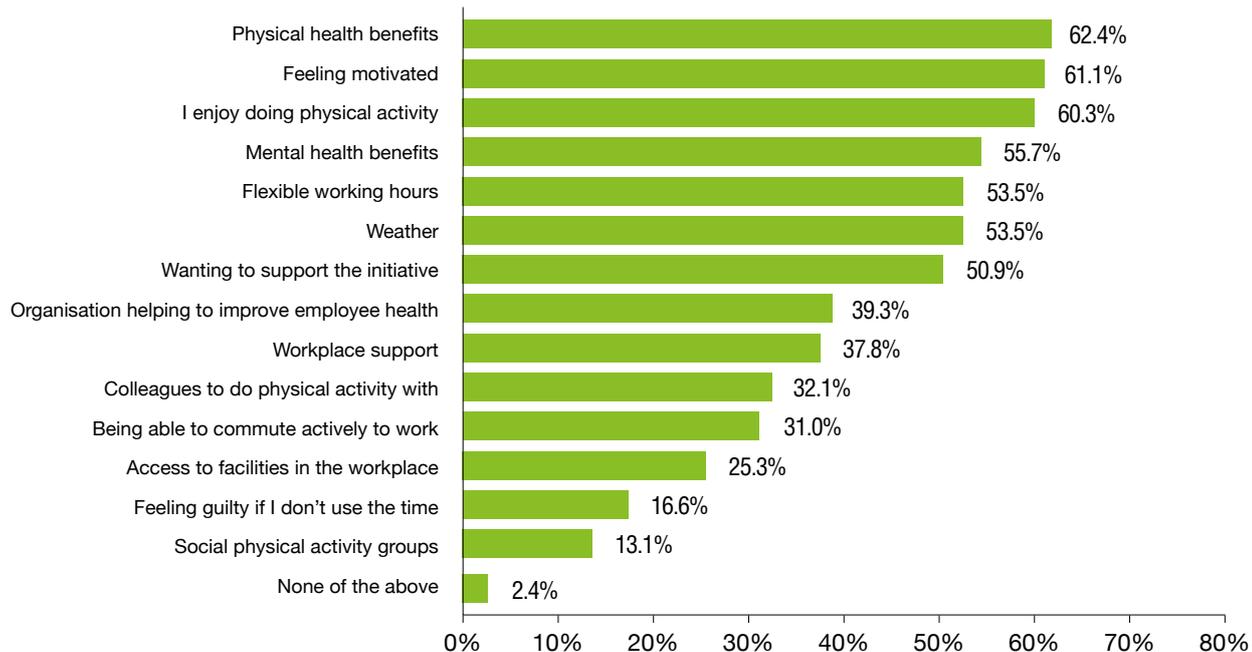




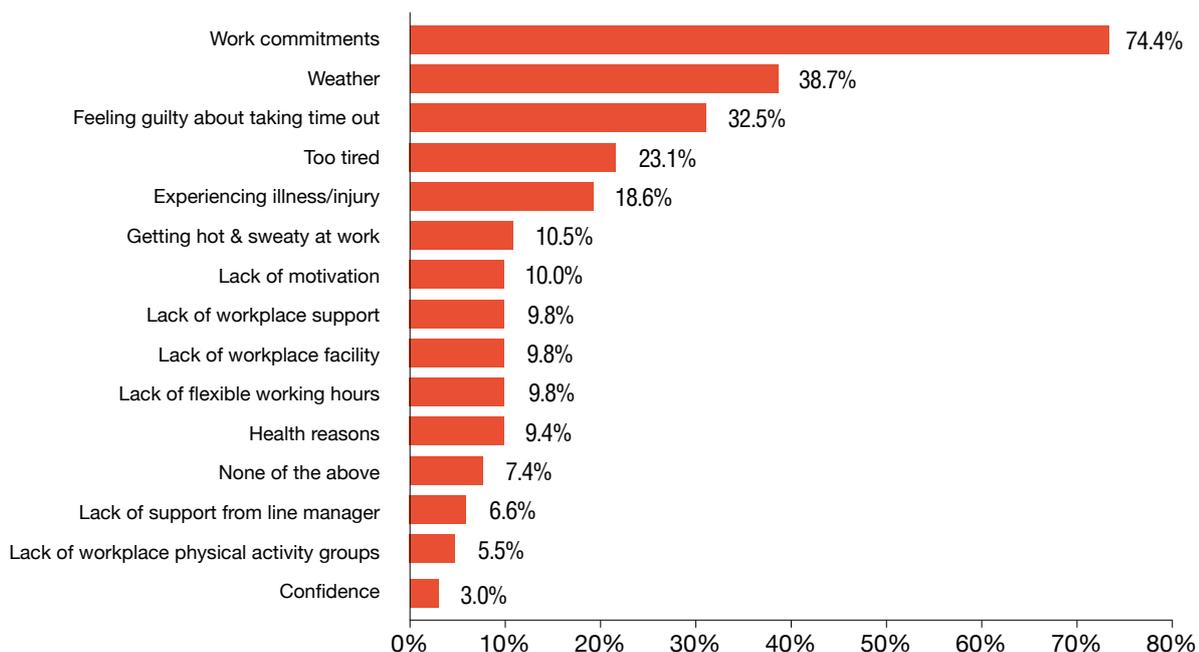
### 3.2.10 Enablers and limiters to participating in TTM

Recognising that individuals participate in initiatives for different reasons, participants were asked what encouraged/enabled them to take part, and what limited their participation. The top five enablers identified at post-initiative were: *physical health benefits* (62.4%), *feeling motivated* (61.1%), *they enjoy doing physical activity* (60.2%), *mental health benefits* (55.7%) and *flexible work hours\** (53.5%; Figure 18). The top five limiters to participation were: *work commitments* (74.4%), *weather* (38.7%), *feeling guilty about taking time out* (32.5%), *too tired* (23.1%) and *experiencing illness/injury* (18.6%; Figure 19).

**Figure 18. Proportion who identified the response option as an enabler or encouragement to their participation in TTM**



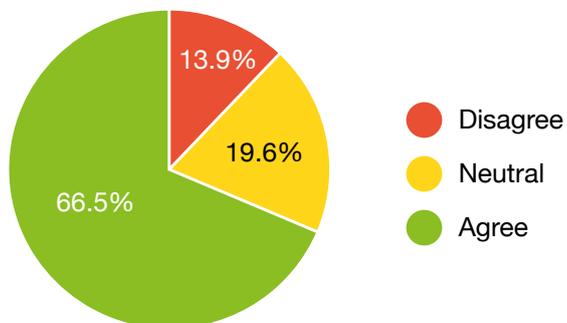
**Figure 19. Proportion who identified the response option as a limiter to their participation in TTM**



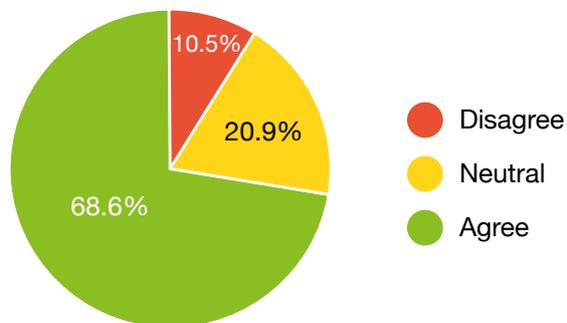
\*PHW has a flexible working policy which states "flexible working can take many forms" and that "requests for flexible working must be considered in the context of business and service need". <https://phw.nhs.wales/about-us/policies-and-procedures/policies-and-procedures-documents/human-resources-policies/flexible-working-policy1/>

As the initiative was implemented during working hours, the working environment was crucial for successful implementation (15). At post-initiative, over two thirds of participants felt supported by their line manager (Figure 20) and colleagues (Figure 21) to take their TTM time, whilst the remaining participants disagreed or were neutral regarding the support they received.

**Figure 20. I feel supported by my line manager to take my TTM time**



**Figure 21. I feel supported by my colleagues to take my TTM time**



# Section 3.3: Qualitative findings: employees' perceptions of TTM



Six focus groups (FG) were conducted with a total of 36 employees, meaning no employees were prohibited from participating as the recruitment target was not exceeded. Three quarters of participants (75.0%) were female and more than half (55.6%) were aged 50+ with 30.6% aged 18-39 years and 13.9% aged 40-49 years. A third (33.3%) were pay grade 1-4, 38.9% grade 5-6 and 27.8% grade 7 and above. Almost three quarters (72.2%) had participated in the TTM initiative. Focus groups varied in length between 21 minutes and 1 hour and 50 minutes.

Multiple themes were identified during the focus groups, with a strong consensus and detailed discussion focusing on the following: (1) **employee attitudes towards TTM**, (2) **motivations for participating**, (3) **barriers to participation**, (4) **enablers of participation**, (5) **outcomes following participation**, (6) **physical health measures** and (7) **suggested improvements**. Within each of the themes, further subthemes were identified. The gender of the quotes are annotated as 'F' for female and 'M' for male.



### 3.3.1 Employee attitudes towards TTM

Employee attitudes towards TTM were positive, although it should be noted that the majority of participants had taken part in TTM. Moreover, those ineligible to take part in TTM (i.e. joined the organisation after the registration period) also reported that they felt it was a *“really good initiative”* (F:FG 3). Focus group participants reported that TTM was a *“brilliant idea”* (F:FG 3), a *“really good benefit for staff and their well-being”* (F:FG 3) and *“from a staff point of view it can only be positive”* (F:FG 6). Other participants described the initiative as being *“innovative”* (F:FG 4) and perceived a high uptake of participation amongst colleagues: *“I think people welcomed it with open arms really”* (F:FG 3).

Several employees reported that they felt the TTM initiative aligned with the values of the organisation and the role of PHW in encouraging the population to be more physically active. Participants identified it as an opportunity for PHW to *“practice what we preach”* (F:FG 3) and encourage employees to look after their health:

*“I thought it was a damned good idea actually ‘cos it’s public health putting their money where their mouth is, isn’t it, really, I suppose, encouraging their staff to do something positive and healthy, and they’re trying to do that to the whole population, so I thought it was a good idea”*  
(M:FG 4)

*“I also think as PHW we should be leading the way in terms of the workplace as to how important it is to incorporate work, and fitting exercise into work time. So often we’re sedentary throughout eight hours work day which is really quite damaging to our health so I think it’s a really positive initiative and was keen to support it”* (F:FG 1)

There was a sense that as a public health organisation, PHW were setting an example by introducing a workplace physical activity initiative, which other organisations should follow:

*“hopefully it is filtering out to other organisations”* (F:FG 3)

*“everyone I talk to about it obviously inside and outside the organisation, whether they’re doing it or not, has said that it’s really good, like that is a thing that our organisation is doing, and I think it... Like you say, it’s really good because of the messages of our organisation that we’re doing it and ideally that we kind of are a little bit of a kind of I guess example of that that can happen in a working environment and that it should kind of be happening”* (F:FG 1)

A number of employees also reported that they felt *“lucky”* (F:FG 3) to work for an organisation that was *“giving something back”* (F:FG 3) and *“showing an interest in the staff”* (M:FG 4). By encouraging their employees to be more physically active, PHW was perceived to be prioritising employee well-being and seeing their employees’ health *“as a priority”* (F:FG 3), and in return it made employees feel like *“as if you’re not just somebody that turns up for work, gets the job done and goes home.”* (M:FG4)

This resulted in a number of individuals feeling valued not just by their line manager or colleagues, but by their organisation:

*“as opposed to sort of like just your general manager appreciating, it was more that it was being appreciated by people who are not even seeing you, who may not know you exist or anything like that. It’s that family touch, isn’t it, so they think, ‘This is all part of our family, let’s look after them’”* (M:FG 4)

*“it’s time that you’re being paid for that work has given... It makes the thought process become... the job values, you, that it’s giving you the time for that but it’s not just constantly asking something of you. That was good for me, knowing that it mattered to the organisation that I had that time”* (M:FG 1)

*“it is a privilege, and if you mention it to people who don’t work with us they’re quite envious of it, they would love, love that initiative...”* (F:FG 1)

Participants also reported that family and friends also had a positive attitude about TTM:

*“outside of work when I would mention it to family and friends and so on, they would be like, ‘Wow, I want to work for an organisation that lets you do that’”* (F:FG 1)

### 3.3.2 Motivators for participation

Although some focus group members stated that they took part in TTM to gain health advantages such as weight loss and to improve their overall health, the majority reported that they participated in the initiative because it provided them with motivation to engage in physical activity; a “chance” or an “opportunity” that they did not want to miss. For some this was an opportunity to make a positive change to their lifestyle which would not otherwise have been possible:

*“when I did sign up I was just thinking well, it’s an opportunity, you know, it’s too good an opportunity to miss to have that extra hour if I want it”* (F:FG 2)

*“you’re being given that time and nowhere else can you get that, so you should take those opportunities”* (F:FG 4)

*“it just gave you that opportunity instead of rushing home and getting on with things at home and then sitting down with your telly, it gave you the opportunity to do something”* (F:FG 6)

Other focus group participants reported that they took part in TTM because it provided them with *“a bit of time for me”* (F:FG 2). This was particularly important for individuals who reported that they worked full-time, had children, or had previously struggled to find time for physical activity:

*“and it was nice to have a bit of me time, just a bit of time to... Well, it’s like spoiling yourself really, you know, going for a swim or doing something different just for yourself”* (F:FG 6)

*“I was already doing stuff so I was already active but it meant that I could do more where I couldn’t because I’ve got small children and I work full-time”* (F:FG 4)

*“working full-time, often you’re trying to fit so much in out of work, and then... so your exercise often gets put... you know, missed off the list, so having that extra time that you can focus and think, ‘Actually I’m able to do my exercise during this time’ was great”* (F:FG 1)

### 3.3.3 Barriers to participation

Specific barriers identified by participants as inhibiting their participation in TTM were: (i) *difficulties in taking time across service provision and job roles*, (ii) *management’s attitudes towards the initiative*, (iii) *workload* and (iv) *facilities*.

#### **(i) Difficulties in taking time across service provision and job roles**

It was clear that differing challenges to employee participation in TTM were encountered across job roles in the organisation; *“the principle was all really brilliant; I think the difficulty we had to interpret it and implement it was as you alluded to at the beginning, it, we’re completely different in the laboratories to office-based jobs”* (M:FG 5). Individuals working within frontline services, and in those with time-specific targets (e.g. screening services) reported an increased difficulty in engaging with TTM, specifically, enabling employees to take their entitled time in comparison to other roles within the organisation

*“it depends on what sort of role you’re doing as well, because if you’ve sort of got a role that you’re sort of constantly busy facing with like public open clinics etc., then there is that little bit of difficulty. Like some of the people I know sort of found it like a bit of a struggle trying to take the time out for when they’ve had to, because of their role”* (M:FG 1)

These *“discrepancies”* described between teams were thought to have also been a barrier to signing up to the initiative for employees in service roles:

*“we’ve had other staff who didn’t sign up cos they didn’t think their role would allow them, you know, to actively take part”* (F:FG 2)

For such services, discussion focused on the need to manage employees in taking their time to ensure no subsequent effect on service provision occurred. However, it was recognised that in many of these settings initial concerns about the impact to services were not realised:

*“we did say if we have any specimens that don’t get done or anything like that, we need to report it as a Datex incident [i.e. a system used universally in the NHS to record incidents such as work not completed], just so there’s evidence that work didn’t get done because of Time to Move. I’m not aware of any incidents but we just wanted to have some evidence” (M:FG 5)*

Restrictions in how employees within these services were able to take their TTM time was also reported to be a barrier. This lack of autonomy for individuals was reported to be a barrier for both sign up to TTM and continued participation. Some individuals reported that they were only allowed to take their time in 10-minute slots, and others reported that they were only allowed to take their time at specific times of the day.

*“there was no leeway to actually see if we could fit an hour in per person because obviously you’re not all gonna take it at the same time, it was just said, it was just agreed with management, it came from the top that it would be ten minutes” (F:FG 1)*

*“I know the team next to us were told they couldn’t take it at the end of the day or the beginning, they had to do it during work time, which I don’t know why they were told that, but... I don’t know if the manager didn’t understand it or was worried people would have abused it, but they weren’t allowed to do that” (F:FG 6)*

*“we had a time restriction that we couldn’t take it between 12pm and 2pm so that there were enough people to cover lunch breaks” (F:FG 6)*

### **(ii) Management’s attitudes towards the initiative**

Conversations recognised that support from the line manager was integral to participation in TTM. Although a requirement of participation was to discuss intended involvement with a line manager, some employees reported that they felt *“pushback from management on taking the time”* (M:FG 5) and that their management were not always fully supportive of the initiative.

*“I think it depends also on the attitude of the line management or supervision that you report to in addition to the service, if you’ve got somebody who really wants to do it but the line management doesn’t allow or makes it difficult for them to take that hour in whatever chunks, so that’s about going about service provision generally, that makes it hard I think” (M:FG 2)*

### **(iii) Workload**



One reported barrier to continued participation in TTM was high workloads. This led to individuals commenting *“it’s sometimes difficult to find the time”* (F:FG 3) and that they *“just can’t fit it in”* (F:FG 3). Other participants recognised that when their workload prevented them from taking their TTM time, it then became increasingly difficult to re-start TTM in subsequent weeks:

*“I think just, workload so it gets to you sometimes, and then once you’ve stopped doing it for three or four weeks it’s a lot easier to stop doing it until you start again, and starting again is really difficult to do” (M:FG 1)*

Some focus group participants also described how this issue was exacerbated through employee sickness and leave:

*“people go off sick and leave and we’ve gotta find cover for clinics. It just, it doesn’t happen, so a lot of the time, well, I missed out quite a lot” (F:FG 3)*

Barriers to taking TTM time were also related to working patterns, with there being a perception that individuals who were part-time, as opposed to full-time, found it harder to take their allocated time due to working fewer hours, indirectly relating to their workload:

*“a lot of our team work part-time. So a couple of people do three days a week so I think that works out to about forty minutes pro rata but then, because you’re only there for three days a week, you spend the first day catching up on emails, you spend the last day sending out emails and getting everything ready for the other two days that you’re not there, so they didn’t really have the time almost to take it” (M:FG 1)*

#### **(iv) Facilities**

Limited facilities were also reported as a barrier to individuals taking the TTM time: *“that is the problem, isn’t it, the lack of facilities for doing your exercise” (M:FG 4)*. Participants felt that employees in sites without any showers or a sufficient number of showers did not wish to do any physical activity for fear of being *“sweaty” (F:FG 4)*. A lack of space to do physical activity within PHW sites was also raised, and for some this extended to the physical environment outside of their site. Other focus group participants who declared that they had previously been doing physical activity within their work premises reported that their facilities team had told them to stop:

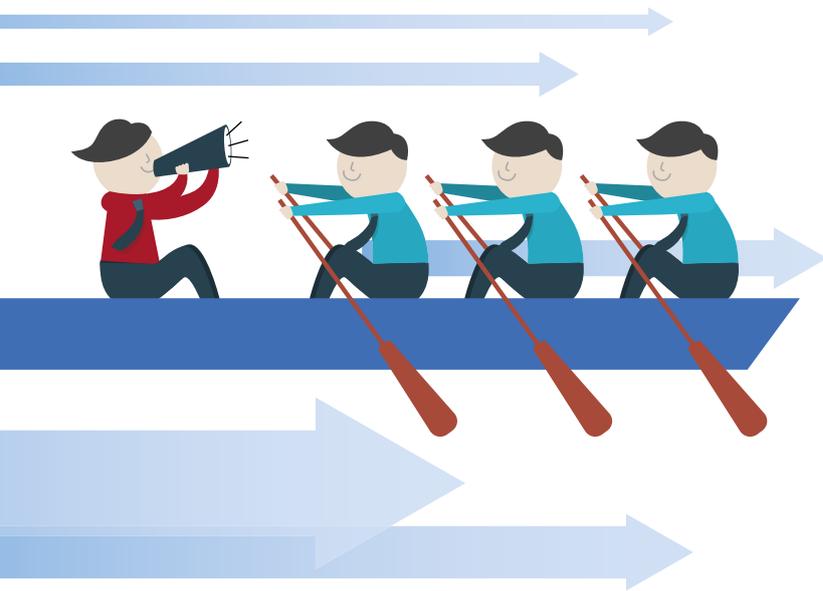
*“facilities were not happy with me doing stuff [physical activity] in the building” (F:FG 6)*

*“they [facilities] decided there was no risk assessment in place to be able to do this sort of thing so they stopped us using it [a room]. So then we had to find other ways around it” (M:FG 4)*

### 3.3.4 Enablers of participation

Despite a number of reported barriers, there was a strong consensus amongst the majority of participants that support from both the organisation and colleagues were fundamental enablers to their participation in TTM. For many individuals, feeling increasingly valued and supported by the organisation was a motivating factor for their continued participation in the initiative:

*“because you’d been given the time, it was almost like, ‘Well I must...,’ you know, that was sort of motivating you to ‘Well I’m going to use that because I’ve been given it and not a lot of places you get that opportunity so I shouldn’t waste it” (F:FG 4)*



A number of participants reported that the perceived *“buy-in”* (F:FG 3) amongst senior PHW employees for the initiative meant that they felt supported by the organisation to take part in TTM. One individual expressed that this sense of internal support for their participation led them to want to continue their PHW employment. Despite some individuals recognising line management as a barrier, others reported that their line management were very supportive of their engagement in TTM, actively encouraging their participation and reported that discussions were had during ‘My contribution’ appraisal as part of their well-being:

*“yeah, I found it a supportive environment and my different managers that I’ve had throughout the time, you know, they’re a lot senior to me and have much larger or difficult workloads and they still made time for it, so it is possible”* (F:FG 1)

*“I’m quite happy to talk to my line manager about it [TTM participation] and it comes up... It’s not twenty minutes on it but it’s a couple of minutes and it’s important to me and it’s important to him”* (M:FG 1)

Support and encouragement from colleagues for their participation was also highlighted as an enabler:

*“our team has been really good, you know, they’ve encouraged, encouraged us to use it, so it’s really good”* (F:FG 6)

There were clear benefits from participation reported by some teams. For some individuals, support from colleagues provided them with a sense of accountability and motivation:

*“I think just the conversations around it were encouraging other people in the team to take theirs regularly as well”* (F:FG 3)

*“we all did it individually, but we motivated each other because you’d be talking about what you’d done”* (F:FG 4)

For individuals who reported that TTM participation and use of time had not been discussed within their team, it was noted that these types of conversations may have motivated their participation.

Another enabler to TTM participation was the flexibility given to the majority of employees as to when TTM time could be taken. Although some individuals reported poor understanding as to how time could be taken and/or used, and a lack of autonomy in taking the time was perceived as a barrier, it was reported by others that being flexible within teams and having an understanding of work priorities permitted participation:

*“I think we all just understand that, things have to be done first, we can’t just, you know, make, most of our screenings are done in the morning, we don’t take Time to Move in the morning so you couldn’t say, “Oh, 10 o’clock,” no, that just wouldn’t work, but I think as long as there’s that understanding within the team, then it works okay”* (F:FG 2)

### 3.3.5 Outcomes following participation

There were a number of reported outcomes following participation in TTM, of which the majority were positive. These included: (i) *physical and mental health benefits*, (ii) *increased physical activity levels and awareness of sedentary behaviour (including trying new types of physical activity)*, (iii) *benefits in the work environment including a sense of teamwork and* (iv) *increased productivity*. Some negative examples of change to the work environment were noted including feelings of guilt and tensions with non-TTM participants. However, some participants highlighted that although they could not pinpoint a specific change as a direct result of TTM, they felt that they had generally benefitted from their participation:

*“I don’t wanna say I’m fitter ‘cos of this or I’m more productive because of this... but... I definitely feel like there is a net benefit because of this time”* (M:FG 1)

#### **(i) Physical and mental health benefits**

A range of benefits to physical health from TTM participation were reported within the focus groups including weight loss, improved fitness levels, reduced blood pressure and improved sleep quality:

*“I feel much more lively now than I did a year or so ago. And I have lost weight, would you believe, but only about 8 lbs, not a lot. But, I mean, you know, if I continue it’s gonna gradually come off. My blood pressure has come down, yeah, ‘cos I had high... But I’m not on medication, I just control it with diet and exercise, which this helps”* (F:FG 6)

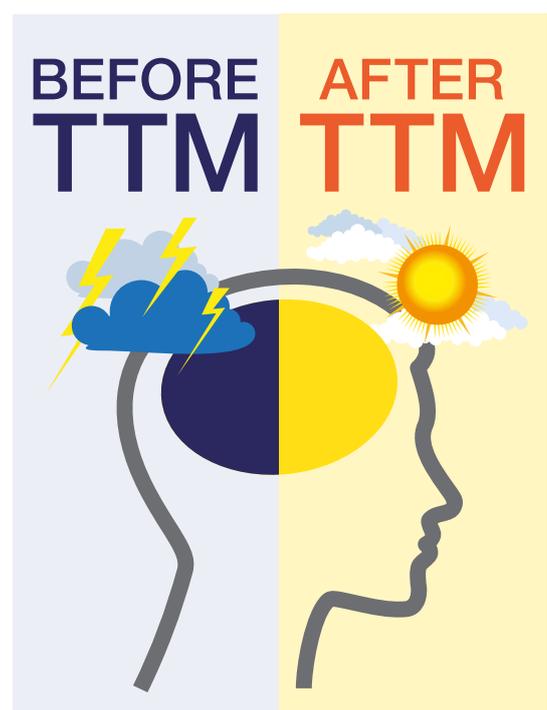
*“just feeling fitter now than I can now do more on a treadmill or whatever without dying at the end of it or, you know, trudging up a hill without being out of breath or having a conversation while you’re trudging up a hill, whereas before it was ‘Don’t speak to me and I’ll talk to you at the top in twenty minutes when my breathing’s recovered.’ So it’s that feeling fitter even if the metrics may not demonstrate that massively”* (F:FG 1)

*“I used to average four hours a night sleep, now I’m up to six [...] I’m off painkillers all the time, umm, I sleep better, much more relaxed, happier, more sarcastic than ever, which is always a good sign. So yeah, for me it’s been huge”* (M:FG 4)

Nonetheless, the most compelling outcome reported in association to TTM participation was improvements to mental health and well-being. Participants described their TTM time as a *“mental break”* (F:FG 1), which left them feeling *“calmer”* (F:FG 4), *“more relaxed and energised”* (F:FG 4) and more *“positive”* (M:FG 1):

*“I feel like my outlook for the day, that I’ve done that bit of exercise, is different”* (M:FG 6)

*“actually I just feel better. So Time to Move gives me the space to feel better, to make me better for work”* (M:FG 1)



Participants also reported using their TTM time to *“just to have the time out”* (F:FG 4) and as a tool to de-stress and relax during the working day:

*“it was more me thinking oh, I’m a bit stressed here, I’ll go for a 10-minute walk here in my Time to Move (M:FG 2)*

*“taking the time out and having the, the de-stress; it has the same sort of effect, I suppose, as going off and doing a meditation session somewhere” (F:FG 4)*

Some participants also reflected that TTM and its associated benefits to mental health and well-being had led to an increase in conversations in their workplace about mental well-being, which they perceived as beneficial to the working environment.

*“well-being has become much more part of our discussions on a kind of daily basis I think” (F:FG 2)*

### **(ii) Increased levels of physical activity and awareness of sedentary behaviour**

Despite some individuals assuming that only people who were already physically active were participating in TTM, positive examples were given of individuals who had previously been physically inactive increasing their physical activity through TTM. As such, some individuals reported an obvious behaviour change within the working environment, particularly for people who had previously not been active at work and who would eat their lunch at their desk:

*“I think it has been good, not just for myself but there’s two examples of people who wouldn’t ordinarily do anything and it’s given people the opportunity to get a bit more active. I think it’s good for those who wouldn’t ordinarily have got out there” (F:FG 6)*

*“there’s always a group walk at lunchtime, I know we joke about going to [shop] but there is always encouragement for everybody to get out at lunchtime and have a stroll” (F: FG 2)*

Furthermore, participants reported that they felt TTM had changed their attitude to exercise and physical activity, and subsequently increased their physical activity levels. Participation in TTM was linked to feeling more motivated and energised and pursuing additional physical activity outside of work, demonstrating that participation in TTM had extended to other contexts:

*“yeah, it’s changed my whole attitude. I went on holiday abroad, I took my running gear with me. When I go away, you know, I take my stuff with me; normally I’d be like, I’m on holiday, I don’t do exercise now. We’ve been to meetings in [location], I’ll take my gym stuff with me if I’m staying over and use the gym, whereas previously I wouldn’t have done that” (F:FG 4)*

*“by having the hour given, whether it was to use it bang at the end of the day or to, to get somewhere to, to use the gym or whatever, by having that hour it then made me think, ‘Well then if I could get myself there an extra once in my time there’s my twice a week,’ and then some weeks it was ‘Oh well I’ve done two, I could probably squeeze in a third trip’” (F:FG 1)*

*“it gave me that kick I needed to try and fit it into my own time as well as using the work time I was given” (F:F G1)*

One team reported that they had *“sacrificed tea breaks to do another 40 minutes [of physical activity] so were doing it every day”* (M:FG 4)

Another described outcome associated with TTM participation was the opportunity it had provided to try new and different types of physical activity. Employees reported that it had helped them to *“diversify”* (M:FG 1) the types of physical activity they do and given them *“confidence to try other activities”* (F:FG 4):

*“it empowers you to do something different...I think it empowers you to be different, to do something different, to go out and try things that you wouldn’t have done before. ‘Cos I definitely wouldn’t have done anything like that before, definitely not”* (F:FG 6)

There was also a consensus among participants that TTM had left them with an increased awareness of sedentary behaviour: *“you think about it, trying to become more active”* (F:FG 3). Even for one individual who reported they had not taken their TTM time, a consequence of the intervention had been an increased awareness of being more physically active and less sedentary outside of work:

*“I do think what a real strong benefit of it all is this awareness of it, even though I didn’t do it, I was certainly more aware that I wasn’t doing it and actually standing up for a bit or moving a bit, oh I haven’t done anything, I should do it, so there was like the softer hidden benefits for me that came through”* (M:FG 2)

### **(iii) Benefits in the work environment including a sense of teamwork**

TTM was credited by some participants with having a positive effect on the work environment and being *“really good for morale”* (F:FG 3) and *“good for team building”* (F:FG 3). Others reported that the working environment was more pleasant as a result of the initiative:

*“it’s much more relaxed, it is. It is even better going to work now, which seems daft”* (M:FG 4)

Linked to feeling supported and motivated by other employees within the workplace, participants reflected that TTM had led to a stronger sense of teamwork within the workplace.

*“there’s personal benefits, there’s benefits to us as a team as well, and that’s gonna be beneficial to Public Health Wales as well, having healthier staff”* (M:FG 4)

Some participants reported that it had a knock-on effect in them being less sedentary in the working environment. For example, they felt that the initiative had encouraged the use of walking meetings:

*“we had a couple of walking meetings as well just because it was, you know, everyone was feeling quite active and quite on the activity bandwagon”* (F:FG 3)

However, it is important to recognise that tensions within teams were also found as a result of TTM. Many participants reported that they felt guilty for taking their TTM time when there were new starters in their teams who were not eligible to participate. Other tensions were reported between those participating and those who were not participating due to perceptions of how TTM time was being taken and used by some participants and where employees felt they were having to cover other employees’ work whilst they were taking their TTM time:

*“there were perceptions on the side of that people were using it as a mickey take to finish, or finish early or go, come in late, or have a longer lunchbreak” (F:FG 2)*

*“I said, you know, what they do with their hour Time to Move is their choice and, you know, if colleague A, is angst at what person B is doing for their Time to Move, they just have to accept that because, you know, that’s not for us to monitor” (M:FG 5)*

*“I think it did create a bit of friction with the staff that weren’t doing it ‘cos they were obviously then having to cover people while they disappeared to do their exercise” (F:FG 4)*

#### **(iv) Increased productivity**

Linked to the use of TTM as time to relax and de-stress, was the perception that taking TTM time led to employees feeling that they were *“able to think more clearly because of the physical activity”* (F:FG 2), clear their mind and concentrate better on their work:

*“I have on a lot of days my brain, essentially just shuts down and I can’t really do anything meaningful which then is a waste of two hours’ time essentially then every day, and I think it was very helpful in avoiding that” (F:FG 6)*

*“I then focus after I’ve done it, I focus a lot better then afterwards and get done and do what I need to do, concentrate better” (F:FG 4)*

Taking TTM time was also reported by some to increase their productivity and make them work more effectively:

*“I do feel like I’m more productive on that day” (M:FG 1)*

*“I’m leaving at four when I would’ve left at quarter to five, it’s gonna make me work more productively and more efficiently. And so, yeah, in a way, yeah, definitely make me more productive” (F:FG 1)*

Importantly, even amongst individuals who did not feel that TTM had increased their productivity, participants acknowledged that they were still able to meet the demands of their job, and therefore taking the time had not reduced their productivity or negatively impacted their work output. Even in more clinical roles (e.g. Microbiology) where it was stated that there was no evident perceived increase to team productivity as a result of TTM participation, it was noted that there had not been any impacts on ensuring that the workload had been completed:

*“we didn’t have any incidents where work was left over. Now, that could have been, you know, increased productivity to have your break for an hour, it could be cos people felt pressure to get their work done so they were more focused” (M:FG 5)*

### 3.3.6 Physical health measures

The collection of physical health measures (e.g. weight and blood pressure) was designed to evaluate the initiative and not be a part of the initiative per se. However, it was reflected upon during the focus groups as not all individuals had made the distinction. On the whole, mixed views on the physical health measures were observed. For some individuals, the opportunity to obtain objective information on their physical health was viewed as *“another interesting opportunity in the whole package”* (F:FG 6) and acted as an incentive to participate in TTM:

*“the measurements and the stats, that was also a deciding factor for me, ‘cos I thought that was interesting to know what your blood pressure and everything else was”* (F:FG 6)

Some participants valued the range of data available, and were most interested in statistics they would find difficult to obtain otherwise, such as *“body fat percentage”* (F:FG 6). Additionally, several individuals felt providing PHW employees with information about their physical health offered a valuable service, and was an important aspect of operating as a health-focused workplace. Primarily, participants mentioned that physical measurement sessions could draw individuals’ attention to previously undetected health factors as often *“people only go to the doctors when they’re ill”* (M:FG 4):

*“I had my blood pressure taken and had a little slip of paper given to me, so I went to the GP and, she took it and it was even higher...I mean, I’m assuming everything’s going to be okay anyway but, if I hadn’t done TTM and had the evaluation I wouldn’t have gone to the doctors and had my blood checked”* (F:FG 4)



Furthermore, some individuals reflected that the physical measurement sessions could be offered *“each year”* (F:FG 3), and that it provided an opportunity to utilise the expertise of PHW employees and programmes in having wider conversations with colleagues about their general health, for example, *“it’s an opportunity for making every contact count”* (F:FG 3). Many of those in favour of the physical health measures felt they were an *“extra little supportive mechanism”* (M:FG 4), and an important part of evidencing the effects of the initiative and enabling its continuation. This perspective was also tied to the identity of PHW as an evidence-based organisation:

*“like all our reports are evidence-based, I think we should be supporting what we’re doing as initiative with stats behind it and that’s, that’s gonna have to come from the metrics, and I think if people want to be involved I think that might have to be considered a necessary evil”* (M:FG 1)

However, some participants counterbalanced the discussion by saying that once the efficacy of TTM had been established the physical health measures should be phased out, while others raised that *“if you roll it out on a wider basis that’s not a pilot and it becomes a staff benefit, then I don’t think you can force people to take metrics, it crosses a line”* (M:FG 1)

The requirement to give physical health measures at the start of the initiative was reported to have put people off taking part, *“once they knew about the research side, the measurement side, that switched them off”* (F:FG 1). This appeared particularly pertinent to individuals who might be *“conscious of their size”* (F:FG

6). However, some participants also put forth that *“the chances are they’re probably people who actually need to do it as well”* (F:FG 1). Several participants mentioned that taking measurements in *“more private conditions would mean more people would be okay”* (F:FG 1) with the aspect.



### 3.3.7 Suggested improvements

All participants who participated in TTM reported that they would like the initiative to continue. Furthermore, participants who had not been eligible to participate previously indicated that they would like to take part in TTM. Perceptions that TTM *“works well, it really does”* (F:FG 6), were echoed across focus groups; with reports that *“it is good, I hope it carries on”* (F:FG 6) and that *“I’d definitely continue to use it because it’s been invaluable for me”* (F:FG 1). However, a number of suggestions were also made as to how TTM could be improved such as: (i) *increased equity in implementation and* (ii) *increased communication and use of positive examples.*

#### ***(i) Increased equity in implementation***

Due to the described differences in employee ability to participate and take TTM time across teams and services it was noted that TTM *“has to be equitable across teams”* (F:FG 1). Discussions focussed on the need for equity across the organisation to ensure all employees have the same opportunity to both participate and benefit from the initiative:

*“it’s not just the sort of more critical areas where there are problems and I think that does need to be resolved so the staff get equal shake in terms of being able to take the hour, or at least there’s some sort of agreement so that staff in those maybe more time-pressured roles can get the time”* (M:FG 1)

It was also noted that increased equity might also encourage further participation across employees who were eligible but did not originally sign up to TTM:

*“this is about inclusivity, it’s not about being an elite little club within Public Health Wales. ‘Cos you see a lot of that and it becomes a little bit remote. This is available to everybody within Public Health Wales, I think that’s important, because otherwise you know what it’s like, you start off with a theme but actually it becomes a little eclectic group and then no one can get in and no one can get out. But actually this is about us and the wider, anyone can do this, whatever they want to do, whoever they are, whatever size, etc, etc* (M:FG 1)

Noted as a barrier to participation, participants also defined the need for equity amongst employees in access to facilities. Many employees described the need for a *“dedicated space that you could use”* (F:FG 6) for TTM. However, it was noted that different sites had different provisions and that there was a need *“to have things in place for each site and location that makes it fair”* (M:FG 2).

*“we’ve got sites that have got access to showers, for example, and some sites don’t, some sites have gym balls or decent rooms where they can go and do a stretch and tone class or something, but others don’t, that doesn’t really come across as very fair in an organisation”* (F:FG 2)

## **(ii) Increased communication and use of positive examples**

Participants also described a requirement for increased knowledge as to how TTM was implemented across different teams, to minimise barriers where they existed for some as: *“a lot of negatives can be resolved by increasing the conversation around this”* (M:FG 1) and *“knowing the options of how to use your hour”* (M:FG 4).

Furthermore, some individuals reported that PHW should make it clearer that TTM was something that they would actively like their employees to participate in. Moreover, participants increasingly highlighted the need for greater communication about TTM to support and motivate employees in taking their time as it was felt that the lack of communication during the pilot period may have been associated with individuals ceasing participation. Employees reported that it was important for the organisation to be *“reminding people to use, to use it and, you know, be part of it”* (F:FG 3).

*“if you had like a reminder what have you done this week? have you thought of this or something different?, maybe that would have been a bit of a prompt to go right, I am going to do more steps today or I am going to get off my desk”* (F:FG 2)

*“I think other teams where it may have been sort of vibrant to begin with there may have been a drop-off, and it’s ‘cos there’s less chatter throughout the organisation, people may feel less willing to take the time off or feel less... or feel pressured not to take the time. And the Couch to [5k]... I didn’t know about sort of the Couch to 5k stories – I don’t see why we’re not championing those. That’s what I’m saying”* (M:FG 1)

It was felt that the communication of positive examples or case studies highlighting the difference TTM had made to some individuals would also act as a motivating factor to encourage employees in taking their TTM time. A number of individuals reported that these *“success stories”* (M:FG 1) should be celebrated by PHW and communicated to employees to encourage participation.

*“[learning to swim] was a massive achievement for me because, you know, it’s a life skill and it’s something that I wanted to do and that time given to me through work allowed me to, to learn to swim and I can enjoy my holidays more now”* (F:FG 1)

*“so it feels like, you know, you are given like a good story about it and how it’ll be celebrated”* (F:FG 3)

*“There’s personal benefits, there’s benefits to us as a team as well, and that’s gonna be beneficial to Public Health Wales as well, having healthier staff” (M: FG4)*

Workplaces were highlighted by the WHO more than a decade ago as effective settings for improving health-related outcomes in the working population (32). The importance of fostering a more active environment is recognised in WHO’s Global Action Plan on Physical Activity (1), which suggests all forms of physical activity are beneficial and can be encouraged across multiple settings. Helping the population to become more active before physical and mental health problems arise, exemplifies a preventative approach to care, as advised in the Sustainable Development Principles (33). Furthermore, in Wales, the Well-being of Future Generations (Wales) Act 2015 (34) identifies a “society in which people’s physical and mental well-being is maximised” as one of the seven well-being goals. As all public bodies work towards these goals, it is important for organisations to foster healthy lifestyles amongst their own employees who can then act as role models in society.

From June 2018, PHW piloted a workplace initiative called Time to Move which provided their employees with the opportunity to take one hour (pro rata) of paid work time each week to engage in physical activity. The overarching aim of the initiative was to improve health and well-being amongst employees. This section will provide an overview of the key findings in order to understand how successful TTM was at achieving its aims, and if continued, how the initiative could be improved. It is important to bear in mind some limitations of this evaluation when interpreting findings. In particular, as no control group was available for comparison with the intervention group, it cannot be determined whether the identified changes occurred as a consequence of participation in TTM. However, the qualitative evidence obtained in the evaluation supports the quantitative findings.

### 4.1. Participation in TTM

Around half of PHW employees (49%) registered to participate in TTM. This was much higher than the participation rate in a similar initiative delivered in the USA (18%), which set narrower inclusion criteria and required employees to be assessed as generally healthy to participate (35). However, it was lower than that for a similar initiative with health professionals in Sweden, where 99% of employees invited to take part did so; albeit the sample was all female (14). The attrition rate for TTM at 12-months was 27%, with attrition linked to both natural reasons (i.e. leaving the organisation, retiring) and purposeful reasons (e.g. no longer wishing to take part or failing to complete the evaluation aspects). This level of attrition was twice that reported in the Swedish study (12%) which was also 12-months in duration (14). Attrition in TTM may have been higher as participants were required to attend an appointment for their physical health measures to be collected, whilst in the Swedish study only self-report measures were collected.

TTM participants reported the main reasons for taking part were to be more physically active and improve their physical and mental health, but also to support TTM and have their physical health measures taken. This shows a cohort who are aware of their health and keen to take action to help improve it, although it is unknown how the motivators for participation differed amongst those who were excluded from analyses. Furthermore, despite being a public health organisation it should not be assumed that all individuals have roles indicative of a knowledge of or interest in public health (e.g. administrators, accountants).

## 4.2. How healthy, active and satisfied with their job were the participants at baseline?

The baseline characteristics of the TTM sample provide an indication of the health status of the substantial proportion of PHW employees who opted to take part in this novel workplace physical activity initiative at the point of engagement (see Section 3.1). While 59% of participants were already meeting the UK physical activity guidelines, 41% were physically inactive (see Table 2) – slightly lower than the 47% identified across the Welsh population\*(3). However, TTM participants had a moderate self-reported health score at baseline of 71 out of 100 (although unadjusted for socio-demographics), which is meaningfully lower than that found in a UK population (83 out of 100; 30). Further, 26% of TTM participants were categorised as having low mental well-being (see Figure 5); 7% more than seen in the Welsh population (33). This indicates that participation in TTM was attractive to individuals including those within lower health categories and not only those who were already leading a healthy and happy life, demonstrating that organisational action to improve the health of employees is warranted. However, participants who completed the evaluation were found to have better self-reported health at baseline than those who left the initiative (either naturally or purposefully); suggesting the latter cohort would benefit from extra support from within the organisation to sustain their participation.

Whilst support can be given to help with mental well-being and overall health, employers should also facilitate employees to obtain a healthy body composition, particularly as studies have found that being overweight can lead to greater indirect costs, such as work absence and decreased work productivity (37). Similar to the Welsh population, 59% of participants were overweight or obese (see Figure 11; 3), and 46% had an unhealthy body fat percentage (see Figure 13); the latter measure was expected to be lower than the former, as BMI does not distinguish between fat or muscle, and therefore an individual can have a healthy body fat percentage and be classified as overweight if they have a high muscle mass. Moreover, participants who completed the evaluation had healthier BMI and body fat percentage than those who were excluded (see Table 1). A consequence of obesity can be increased risk of high blood pressure (38). Using the new blood pressure guidelines (26), 16% of our sample were identified as having high systolic blood pressure (see Figure 15), of which some participants were unaware of their high blood pressure and being made aware resulted in them attending the GP for guidance (see Section 3.3.6).

The levels of job satisfaction within the baseline sample were equivalent to job satisfaction levels found within NHS Wales staff survey (64% vs 66%, respectively; see Figure 9; 40). Whether an individual is satisfied with their job can influence their state of health, particularly mental health (40). A review found employees who reported low job satisfaction were more likely to report burn-out and low self-esteem (40). Our study found consistent evidence for this, as individuals who reported feeling dissatisfied with their job were more likely to have lower mental well-being (see Table 8).

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\*Comparisons between a nationally representative population and a solely employed population are not direct but provide a bench mark.

### 4.3. How did participants' health and job satisfaction change over the 12-month period of TTM?

After 12-months of TTM, participants reported engaging in a mean of 72 minutes of additional moderate physical activity a week, with twice as many people increasing their physical activity levels as decreasing them (see Section 3.2.1). The TTM initiative provided one hour (pro rata) of time for employees to be physically active, thus the average increase exceeded the time given, even without taking into account the differences in actual TTM time allocation based on the number of hours employees work (which ranged from 7.5 to 37.5). These figures suggest that TTM may have supported participants to increase their physical activity levels in their own time in addition to completing their TTM time; a finding also supported by the focus groups. **The proportion of participants meeting the physical activity guidelines increased from 59% to 75% over the 12-months.**

For the purpose of this report, meaningful increases in physical activity were found amongst those in low and moderate physical activity categories at baseline, whilst those in the high category at baseline decreased. While there was a substantial reduction in minutes of physical activity in the small number of participants in the high activity category, the amount of physical activity they reported at baseline could be considered an extreme, and it is likely that the amount of physical activity individuals do across the year fluctuates in line with their training programmes. For some individuals at least, evaluation measures may have been taken at a time-point when training volume was low. Moreover, across all categories it is also worth considering the level of accuracy people are able to provide when self-reporting their physical activity levels (41), as this may also be a consequence of the reported changes found. In addition, these figures only captured moderate and vigorous physical activity and did not include light activity (e.g. walking) as per the IPAQ. Therefore, it is possible that the proportions in the higher baseline categories (moderate and high) would be increased if this was also included.

**Mental well-being increased in twice as many people as it decreased following participation in TTM**, with four in 10 participants (43%) reporting meaningful improvements (see Section 3.2.2). These improvements in mental well-being were focused among those who were in the low mental well-being category at baseline, with such individuals reporting an average increase of 3.4 points. Similarly, for every three people (35%) who improved their self-reported health, only one person (11%) reported a decrease in their health score (see Section 3.2.3). The only meaningful improvement from baseline was found among those in the low self-reported health, who improved on average by 14.6 points. No meaningful changes were found in the physical health measures reported (i.e. body mass index, body fat percentage; see Sections 3.2.5-7). However, strong positive evidence was presented by the focus group participants on the impact of TTM on their mental well-being and overall health (see Section 3.3). Participants outlined that TTM gave them the opportunity to have a break and de-stress, with some reflecting that they had been sleeping better and having a more positive outlook on life since engaging with the initiative.

**The proportion of participants feeling satisfied with their job increased from 64% to 72% over the 12-months of TTM** (see Section 3.2.4). Moreover, a third of participants (33%) became more satisfied with their job, whilst 20% became more dissatisfied with their job. No significant association was found between levels of engagement in TTM and job satisfaction. However, focus group participants who worked in frontline services and those with time-specific targets (e.g. screening services) reported experiencing difficulties in participating in TTM. It is possible that those whose job satisfaction decreased over the 12-months had issues of inequity in the implementation of the initiative, although further research would be needed to explore these issues. Conversely, some focus

group participants felt “lucky” to work for an organisation that was investing in its employees, and felt team camaraderie had increased; such feelings are likely to have led to increased job satisfaction.

In summary, meaningful improvements between baseline and post-initiative were found amongst the change in self-reported physical activity, mental well-being, self-reported health and job satisfaction. Participation in TTM was found to yield the greatest improvements amongst the people who demonstrated the greatest need at baseline (e.g. lowest physical activity, lowest mental well-being, lowest self-reported health).

#### 4.4. If TTM were continued, how could it be improved?

In 2017/18 in Great Britain, 1.4 million employees suffered from work-related ill-health (42). Such suffering can have negative work-related consequences, as poor health has been associated with poorer work outcomes (43,44). Thus, designing physical activity initiatives which address the barriers prohibiting participation as identified by employees, are more likely to be successful and lead to positive and sustained health-related outcomes. Participants reflected that TTM led to a stronger and more supportive work environment, with one focus group participant expressing that the internal support they received made them want to continue their employment with PHW (see Section 3.3). Furthermore, a lack of time, work stress, and money is often cited as barriers to physical activity participation (45), and having paid work time helps to address the barrier of time. In the focus groups, participants described how they have used the TTM time as a catalyst to engage in further physical activity, highlighting the initiative successfully transferred behaviour from the work environment into the home environment, resulting in maintenance and broadening the health benefits. Nearly four in 10 participants (39%) used their TTM most or all weeks over the 12-months (see Section 3.2.9).

The majority of participants reported feeling supported by their line managers (67%) and their colleagues (69%) to take their TTM time (see Section 3.2.10). This is positive, but also identifies that approximately one third of participants did not feel supported by their line manager and/or their colleagues. In addition, three quarters of participants (75%) reported work commitments as a barrier to taking their TTM time, and a third (33%) felt guilty for taking their time. Discussion in the focus groups iterated these findings. However, participants felt that taking the time did not negatively impact on their work, which in return meant they were achieving their work tasks despite allocating the TTM time to physical activity. Focus group participants identified that there were no incidents where work was left over, but that people may have felt more pressure to be focused in order to take their time. This pressure and original conversations regarding participating in TTM may have led to the differences in sign up to TTM across the directorates (see Table 1). Poorer uptake was found in the Public Health Services directorate compared to other areas of the organisation. Future iterations of TTM should consider how the work environment (e.g. organisation, facilities, colleagues) can be more supportive (e.g. endorsement from senior leaders, availability of showers, increased conversation) so that people from all directorates feel encouraged to take part in TTM, to participate and to reduce the feeling of guilt experienced when taking their TTM time. If TTM became a part of PHW policy, ensuring equity across the implementation of TTM would be key to its success.

The collection of participants’ physical health measures was designed to be an aspect of the evaluation, and not the TTM initiative. Nonetheless, half of the participants (49%) reported having their physical health measures taken was a motivator for their participation in TTM. The physical health measures were also discussed in the focus group as an important part of the initiative and questions were raised as to whether the evaluation should continue given the novelty of the initiative

and as PHW is an evidence-based organisation. This raises the question of whether as part of the initiative, or not, employees should have access to resources (e.g. blood pressure machine, body composition scales) on site to check their own health and/or whether the initiative should continue with the evaluation alongside.

The evaluation showed some benefits but effects could potentially have been greater as employees reported that participation and adherence may have been improved if more explicit and visible buy-in was promoted in-house by PHW. The initiative was the provision of paid work time (one hour pro rata) for physical activity purposes. However, enhancement could be the provision of resources and investment in promoting its use internally, which could lead to greater impacts on employee health, well-being and job satisfaction.

## 4.5. Limitations

Several study limitations must be acknowledged when interpreting the findings. The sample self-selected to participate and this can therefore lead to a biased sample. In addition, as the communication of the initiative and evaluation was handled by PHW dissemination channels (e.g. email, posters, PHW intranet and social media platforms) and an all employee email was prohibited, it is unknown if all individuals had the opportunity to participate and this could have led to the first level of inequity in the implementation of TTM. It is noteworthy that the final sample was a healthier sample compared to those who were excluded due to incomplete data or withdrew, and given that the greatest improvements were found in those with the lowest health at baseline, this may have masked some findings. Moreover, as there was no control condition to compare the outcomes to, the changes found cannot be solely attributed to participating in the initiative. The evaluation measures were set to capture change over 12-months. However, with timetabling of over 800 appointments at baseline at 25+ sites, it is possible that the change for some participants is measured spanning 10-13 months. Self-report data were obtained through questionnaires and are consequently liable to recall capacity and subjectivity, and individuals can on certain days naturally feel worse than on other days and this can impact how they respond to a questionnaire. Some changes recorded may have been a result of the point of measurement people were recorded at in a typical cycle of increasing and decreasing physical activity and overall health. We did not record all changes but set categories of change to reflect what the literature suggest were changes in individuals of a meaningful magnitude. Questions were derived where possible from validated sources. However, some were adapted or created for the purpose of this evaluation. In addition, efforts were made to collect physical measures from individuals at similar times of the day and participants were asked to follow instructions ahead of having their physical measures taken. However, it cannot be guaranteed that the conditions in which the physical measures were collected at during baseline and post-initiative were matched. The focus groups were conducted in August 2019, thus covering a period of school summer holidays which may have restricted employee participation. In order to maximise staff participation focus groups were advertised two weeks prior to being conducted. However, the evaluation team were not allowed to send an organisation wide email invitation, thus the responsibility to cascade the advert to employees was that of PHW employees. Therefore, it is not possible to guarantee that all individuals in the organisation were notified of the focus groups. In areas where uptake was low, the evaluation team contacted employee leads to ask if they could communicate the focus groups advert with their teams. Future iterations of the initiative/evaluation must consider how to ensure all employees receive all the information they are entitled to, without a reliance on cascading information.

## 4.6. Conclusion

This report presents key evaluation findings following the implementation of the 12-month TTM initiative pilot delivered to PHW employees. Participation in TTM was found to yield the greatest improvements amongst the people who demonstrated the greatest need at baseline. For instance, those in the low physical activity category, low self-reported health, low mental well-being and had low job satisfaction, reported that at 12-months they engaged in more physical activity, felt healthier and happier, and were more satisfied with their job. No evidence was found for improvements in the reported physical health measures (i.e. BMI, body fat percentage, systolic blood pressure). The initiative was designed with a minimalistic approach (i.e. the provision of paid work time for physical activity with no additional action to promote or facilitate physical activity). Such an approach did lead to positive outcomes but if more support was invested in promoting the initiative and supporting engagement in physical activity, it could potentially lead to more benefits in other outcomes and sustained behaviour change.

In conclusion, the evaluation indicates short-term improvements in self-reported physical activity levels, mental well-being, health, and job satisfaction, with greatest improvements in those who had lower levels of health at the outset. In addition, an appetite exists amongst employees for the initiative to continue; if continued, the benefits of TTM may be enhanced by increased communication in promoting TTM, organising activities in association with TTM, equity of implementation across directorates and teams, and providing facilities such as room space being made available for physical activity and showers at PHW sites.



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# 6. Appendix

## Box A1. Topics Included in the questionnaire.

Theme	Topic
Physical activity	<ul style="list-style-type: none"> <li>Weekly physical activity</li> <li>Sedentary behaviour</li> <li>Active travel</li> <li>Perceptions</li> <li>Office physical activity behaviour</li> </ul>
Health and lifestyle behaviour	<ul style="list-style-type: none"> <li>Mental well-being</li> <li>Self-reported general health</li> <li>Fruit and vegetable consumption</li> <li>Problem alcohol use</li> <li>Smoking and e-cigarette</li> <li>Water consumption</li> <li>Sleep</li> <li>Absenteeism</li> <li>Presenteeism</li> </ul>
Employment	<ul style="list-style-type: none"> <li>Days/Hours in work</li> <li>Directorate</li> <li>Pay band</li> <li>Base</li> <li>Manager responsibility</li> </ul>
Time to Move	<ul style="list-style-type: none"> <li>Awareness</li> <li>Motivation for sign-up</li> <li>Use of time</li> <li>Enablers Barriers</li> </ul>
Demographics	<ul style="list-style-type: none"> <li>Gender</li> <li>Age</li> <li>Ethnicity</li> <li>Relationship status</li> <li>Children</li> <li>Education level</li> <li>Rural or urban</li> <li>Long-term illness</li> <li>Caring duties</li> </ul>

**Table A1. Comparison between included and excluded participants on demographics and outcome variables.**

	Include	Exclude	$\chi^2$	p
<b>Age</b>				
n	542	273		
18-39	38.4%	46.2%		
40-49	30.1%	23.4%		
50+	31.5%	30.4%	5.622	0.060
<b>Gender</b>				
n	542	273		
Male	21.4%	17.6%		
Female	78.6%	82.1%	3.573	0.168
<b>Pay band</b>				
n	542	267		
1-4	32.3%	26.2%		
5-6	33.0%	32.2%		
7+	34.7%	41.6%	4.509	0.105
<b>Job satisfaction</b>				
n	542	268		
Dissatisfied/Very dissatisfied	18.5%	17.5%		
Neither	17.2%	20.5%		
Satisfied/Very Satisfied	64.4%	61.9%	1.362	0.506
<b>Physical activity levels</b>				
n	542	270		
Low	41.1%	47.4%		
Moderate	49.6%	45.6%		
High	9.2%	7.0%	3.271	0.195
<b>Mental well-being</b>				
n	542	270		
Low	26.0%	30.7%		
Mod/High	74.0%	69.3%	2.015	0.156
<b>Self-reported health</b>				
n	542	270		
Low	25.6%	36.7%		
Moderate	51.5%	45.9%		
High	22.9%	17.4%	11.148	0.004
<b>Body mass index</b>				
n	542	242		
Obese/Severely Obese	20.5%	29.3%		
Overweight	38.2%	39.3%		
Healthy Weight	41.3%	31.4%	10.011	0.007
<b>Body fat %</b>				
n	542	242		
Unhealthy	45.8%	57.4%		
Healthy	54.2%	42.6%	9.133	0.003
<b>Systolic blood pressure</b>				
n	542	254		
High	68.0%	32.0%		
Normal	68.1%	31.9%	0.001	0.974

**Table A2. Bivariate relationship between baseline physical activity and outcome variables.**

Baseline variables	n	Baseline physical activity levels (%)			χ <sup>2</sup>	p
		Low (n=223)	Moderate (n=269)	High (n=50)		
<b>Age (years)</b>						
18-39	208	38.9	51.4	9.6		
40-49	163	40.5	52.1	7.4		
50+	171	44.4	45.0	10.5	2.751	0.600
<b>Gender</b>						
Male	116	34.5	53.4	12.1		
Female	426	43.0	48.6	8.5	3.319	0.190
<b>Pay band</b>						
1-4	175	42.9	45.7	11.4		
5-6	179	39.7	50.3	10.1		
7+	188	41.0	52.7	6.4	3.826	0.430
<b>Physical activity levels</b>						
Low	-	-	-	-	-	-
Moderate	-	-	-	-	-	-
High	-	-	-	-	-	-
<b>Mental well-being</b>						
Low	141	49.6	44.0	6.4		
Mod/High	401	38.2	51.6	10.2	6.246	0.044
<b>Self-reported health</b>						
Low	139	61.2	35.3	3.6		
Moderate	279	35.8	55.6	8.6		
High	124	30.6	52.4	16.9	39.590	<0.001
<b>Job satisfaction</b>						
Dissatisfied	100	46.0	45.0	9.0		
Neutral	93	43.0	46.2	10.8		
Satisfied	349	39.3	51.9	8.9	2.238	0.692
<b>BMI</b>						
Obese	111	55.9	39.6	4.5		
Overweight	207	39.6	48.3	12.1		
Healthy	224	35.3	55.8	8.9	16.390	0.003
<b>Body fat percentage</b>						
Unhealthy	248	51.6	41.1	7.3		
Healthy	294	32.3	56.8	10.9	20.755	<0.001
<b>Systolic blood pressure</b>						
High	87	39.1	49.4	11.5		
Normal	455	41.5	49.7	8.8	0.687	0.709

**Table A3. Friedman and Wilcoxon test results on outcome variables.**

Baseline variables	Baseline to Mid-initiative to Post-initiative		Baseline to Mid-initiative		Baseline to Post-initiative	
	x <sup>2</sup>	p	z	p	z	p
Physical activity levels	58.298	<0.001	4.608	<0.001	6.568	<0.001
Mental well-being	44.101	<0.001	1.685	0.092	5.987	<0.001
Self-reported health	90.568	<0.001	5.459	<0.001	9.385	<0.001
Job satisfaction	27.844	<0.001	4.380	<0.001	4.027	<0.001
BMI	-	-	-	-	3.987	<0.001
Body fat percentage	-	-	-	-	5.556	<0.001
Systolic blood pressure	-	-	-	-	1.844	0.065

**Table A4. Bivariate relationship between the changes in physical activity levels and outcome variables.**

Baseline variables	n	Changes in physical activity levels (%)			x <sup>2</sup>	p
		Decreased (n=166)	No change (n=63)	Increased (n=313)		
<b>Age (years)</b>						
18-39	208	28.8	12.5	58.7		
40-49	163	29.4	13.5	57.1		
50+	171	33.9	8.8	57.3	2.769	0.597
<b>Gender</b>						
Male	116	36.2	18.1	45.7		
Female	426	29.1	9.9	61.0	10.548	0.005
<b>Pay band</b>						
1-4	175	34.9	10.3	54.9		
5-6	179	30.7	12.3	57.0		
7+	188	26.6	12.2	61.2	3.071	0.546
<b>Physical activity levels</b>						
Low	223	14.8	14.8	70.4		
Moderate	269	37.5	10.4	52.0		
High	50	64.0	4.0	32.0	58.800	<0.001
<b>Mental well-being</b>						
Low	141	25.5	11.3	63.1		
Mod/High	401	32.4	11.7	55.9	2.580	0.275
<b>Self-reported health</b>						
Low	139	22.3	12.9	64.7		
Moderate	279	35.1	11.5	53.4		
High	124	29.8	10.5	59.7	7.539	0.110
<b>Job satisfaction</b>						
Dissatisfied	100	31.0	8.0	61.0		
Neutral	93	28.0	22.6	49.5		
Satisfied	349	31.2	9.7	59.0	13.448	0.009
<b>BMI</b>						
Obese	111	36.9	7.2	55.9		
Overweight	207	28.0	12.1	59.9		
Healthy	224	29.9	13.4	56.7	4.721	0.317
<b>Body fat percentage</b>						
Unhealthy	248	31.9	8.1	60.1		
Healthy	294	29.6	14.6	55.8	5.638	0.060
<b>Systolic blood pressure</b>						
High	87	31	11.5	57.5		
Normal	455	30.5	11.6	57.8	0.008	0.996
<b>TTM engagement</b>						
Low	223	30.0	13.0	57.0		
Moderate	109	30.3	17.4	52.3		
High	210	31.4	7.1	61.4	8.308	0.081

**Table A5. Generalised Linear Models of demographics and outcome variables.**

Model	Physical activity levels			Mental well-being			Self-reported health			Job satisfaction			BMI			Body fat percentage			Systolic blood pressure			
	x <sup>2</sup>	p		x <sup>2</sup>	p		x <sup>2</sup>	p		x <sup>2</sup>	p		x <sup>2</sup>	p		x <sup>2</sup>	p		x <sup>2</sup>	p		
Age	0.003	0.999		1.624	0.444		3.379	0.185		0.295	0.863		10.769	0.005		2.130	0.345		12.454	0.002		
Gender	0.041	0.840		0.154	0.694		0.027	0.871		4.891	0.027		1.934	0.164		2.904	0.088		0.280	0.597		
Pay band	0.808	0.668		0.275	0.871		4.827	0.090		0.393	0.822		4.337	0.114		0.872	0.647		10.593	0.005		
Physical activity levels	87.471	<0.001		-	-		1.817	0.403		-	-		-	-		-	-		-	-		
Mental well-being	-	-		68.788	<0.001		-	-		2.564	0.109		-	-		-	-		-	-		
Self-reported health	-	-		0.928	0.629		134.011	<0.001		-	-		-	-		0.767	0.682		-	-		
Job satisfaction	0.080	0.961		3.216	0.200		-	-		261.860	<0.001		-	-		-	-		-	-		
BMI	-	-		-	-		-	-		-	-		3.351	0.187		-	-		-	-		
Body fat percentage	-	-		-	-		0.453	0.501		-	-		-	-		8.658	0.003		-	-		
Systolic blood pressure	-	-		-	-		-	-		-	-		-	-		-	-		24.408	<0.001		
TTM engagement	-	-		-	-		-	-		-	-		-	-		-	-		4.977	0.830		

**Table A6. Estimated Marginal Means with confidence intervals.**

	Physical activity levels	Mental well-being	Self-reported health	Job satisfaction	BMI	Body fat percentage	Systolic blood pressure
<b>Baseline variables</b>							
<b>Age (years)</b>							
18-39 years	-	-	-	-	1.16 (0.52 - 1.81)	-	-3.05 (-4.86 - -1.25)
40-49 years	-	-	-	-	-0.07 (-0.78 - 0.65)	-	-1.41 (-3.35 - 0.54)
50+ years	-	-	-	-	-0.23 (-0.96 - 0.50)	-	1.08 (-0.80 - 2.96)
<b>Gender</b>							
Male	-	-	-	0.36 (0.17 - 0.55)	-	-	-
Female	-	-	-	0.59 (0.48 - 0.70)	-	-	-
<b>Pay band</b>							
1-4	-	-	-	-	0.28 (-0.44 - 1.01)	-	-0.49 (-2.43 - 1.45)
5-6	-	-	-	-	-0.20 (-0.90 - 0.51)	-	0.37 (-1.49 - 2.24)
7+	-	-	-	-	0.78 (0.12 - 1.44)	-	-3.26 (-5.06 - -1.46)
<b>Physical activity levels</b>							
Low	651.90 (462.68 - 841.11)	-	-	-	-	-	-
Moderate	214.37 (36.42 - 392.33)	-	-	-	-	-	-
High	-1124.18 (-1471.73 - -776.63)	-	-	-	-	-	-
<b>Mental well-being</b>							
Low	-	3.49 (2.80 - 4.18)	-	-	-	-	-
Mod/High	-	0.24 (-0.29 - 0.78)	-	-	-	-	-
<b>Self-reported health</b>							
Low	-	-	14.62 (12.32 - 16.91)	-	-	-	-
Moderate	-	-	2.78 (1.06 - 4.51)	-	-	-	-
High	-	-	-1.86 (-4.14 - 0.43)	-	-	-	-
<b>Job satisfaction</b>							
Dissatisfied	-	-	-	1.43 (1.24 - 1.63)	-	-	-
Neutral	-	-	-	0.33 (0.12 - 0.53)	-	-	-
Satisfied	-	-	-	-0.34 (-0.45 - -0.21)	-	-	-
<b>BMI</b>							
Obese	-	-	-	-	0.22 (-0.62 - 1.05)	-	-
Overweight	-	-	-	-	-0.05 (-0.67 - 0.57)	-	-
Healthy	-	-	-	-	0.70 (0.06 - 1.34)	-	-
<b>Body fat percentage</b>							
Unhealthy	-	-	-	-	-	0.03 (-0.32 - 0.38)	-
Healthy	-	-	-	-	-	0.65 (0.35 - 0.96)	-
<b>Systolic blood pressure</b>							
High	-	-	-	-	-	-	-4.31 (-6.57 - -2.04)
Normal	-	-	-	-	-	-	2.05 (0.78 - 3.33)

**Table A7. Proportion responses to individual mental well-being statements (responses relate to over the last 2 weeks).**

	None (%)	Rarely (%)	Some of the time (%)	Often (%)	All of the time (%)
Optimistic about the future	2.4	7.9	39.3	38.4	12.0
Feeling useful	1.5	5.7	38.6	43.0	11.3
Feeling relaxed	2.6	22.0	45.4	26.2	3.9
Dealing with problems well	1.1	10.0	41.0	40.6	7.4
Thinking clearly	0.6	7.0	43.7	41.1	7.6
Feeling close to people	1.3	7.9	33.9	39.0	17.7
Making up my own mind	0.6	4.1	25.8	45.8	23.8

**Table A8. Bivariate relationship between baseline mental well-being and outcome variables.**

Baseline variables	n	Baseline mental well-being (%)		x <sup>2</sup>	p
		Low (n=141)	Mod/High (n=401)		
<b>Age (years)</b>					
18-39	208	30.8	69.2		
40-49	163	27.6	72.4		
50+	171	18.7	81.3	7.394	0.025
<b>Gender</b>					
Male	116	33.6	66.4		
Female	426	23.9	76.1	4.436	0.035
<b>Pay band</b>					
1-4	175	30.3	69.7		
5-6	179	27.9	72.1		
7+	188	20.2	79.8	5.289	0.071
<b>Physical activity levels</b>					
Low	223	31.4	68.6		
Moderate	269	23.0	77.0		
High	50	18.0	82.0	6.246	0.044
<b>Mental well-being</b>					
Low	-	-	-	-	-
Mod/High	-	-	-	-	-
<b>Self-reported health</b>					
Low	139	42.4	57.6		
Moderate	279	24.7	75.3		
High	124	10.5	89.5	35.277	<0.001
<b>Job satisfaction</b>					
Dissatisfied	100	40.0	60.0		
Neutral	93	34.4	65.6		
Satisfied	349	19.8	80.2	20.636	<0.001
<b>BMI</b>					
Obese	111	27.0	73.0		
Overweight	207	26.1	73.9		
Healthy	224	25.4	74.6	0.097	0.953
<b>Body fat percentage</b>					
Unhealthy	248	23.8	76.2		
Healthy	294	27.9	72.1	1.175	0.278
<b>Systolic blood pressure</b>					
High	87	31.0	69.0		
Normal	455	25.1	74.9	1.357	0.244

**Table A9. Bivariate relationship between the changes in physical activity and outcome variables.**

Baseline variables	n	Changes in mental well-being (%)			x <sup>2</sup>	p
		Decreased (n=116)	No change (n=195)	Increased (n=231)		
<b>Age (years)</b>						
18-39	208	27.4	29.3	43.3		
40-49	163	17.8	36.8	45.4		
50+	171	17.5	43.3	39.2	11.593	0.021
<b>Gender</b>						
Male	116	25.9	30.2	44.0		
Female	426	20.2	37.6	42.3	2.817	0.245
<b>Pay band</b>						
1-4	175	20.6	36.0	43.4		
5-6	179	22.9	34.6	42.5		
7+	188	20.7	37.2	42.0	0.499	0.974
<b>Physical activity levels</b>						
Low	223	17.9	33.6	48.4		
Moderate	269	23.8	35.7	40.5		
High	50	24.0	48.0	28.0	9.035	0.060
<b>Mental well-being</b>						
Low	141	8.5	20.6	70.9		
Mod/High	401	25.9	41.4	32.7	63.196	<0.001
<b>Self-reported health</b>						
Low	139	20.1	25.2	54.7		
Moderate	279	19.7	39.1	41.2		
High	124	26.6	41.1	32.3	16.201	0.003
<b>Job satisfaction</b>						
Dissatisfied	100	12.0	41.0	47.0		
Neutral	93	16.1	37.6	46.2		
Satisfied	349	25.5	34.1	40.0	10.333	0.035
<b>BMI</b>						
Obese	111	21.6	36.9	41.4		
Overweight	207	22.7	34.8	42.5		
Healthy	224	20.1	36.6	43.3	0.544	0.969
<b>Body fat percentage</b>						
Unhealthy	248	22.6	36.7	40.7		
Healthy	294	20.4	35.4	44.2	0.747	0.688
<b>Systolic blood pressure</b>						
High	87	17.2	34.5	48.3		
Normal	455	22.2	36.3	41.5	1.681	0.432
<b>TTM engagement</b>						
Low	223	23.8	33.6	42.6		
Moderate	109	21.1	40.4	38.5		
High	210	19.0	36.2	44.8	2.712	0.607

**Table A10. Bivariate relationship between baseline self-reported health and outcome variables.**

Baseline variables	n	Baseline self-reported health (%)			x <sup>2</sup>	p
		Low (n=139)	Moderate (n=279)	High (n=124)		
<b>Age (years)</b>						
18-39	208	25.5	55.3	19.2		
40-49	163	27.0	48.5	24.5		
50+	171	24.6	49.7	25.7	3.189	0.527
<b>Gender</b>						
Male	116	21.6	57.8	20.7		
Female	426	26.8	49.8	23.5	2.405	0.300
<b>Pay band</b>						
1-4	175	33.1	47.4	19.4		
5-6	179	25.1	54.2	20.7		
7+	188	19.1	52.7	28.2	11.423	0.022
<b>Physical activity levels</b>						
Low	223	38.1	44.8	17.0		
Moderate	269	18.2	57.6	24.2		
High	50	10.0	48.0	42.0	39.590	<0.001
<b>Mental well-being</b>						
Low	141	41.8	48.9	9.2		
Mod/High	401	20.0	52.4	27.7	35.277	<0.001
<b>Self-reported health</b>						
Low	-	-	-	-	-	-
Moderate	-	-	-	-	-	-
High	-	-	-	-	-	-
<b>Job satisfaction</b>						
Dissatisfied	100	24.0	58.0	18.0		
Neutral	93	26.9	55.9	17.2		
Satisfied	349	25.8	48.4	25.8	5.618	0.230
<b>BMI</b>						
Obese	111	44.1	45.0	10.8		
Overweight	207	24.6	54.1	21.3		
Healthy	224	17.4	52.2	30.4	34.791	<0.001
<b>Body fat percentage</b>						
Unhealthy	248	36.3	48.4	15.3		
Healthy	294	16.7	54.1	23.9	32.456	<0.001
<b>Systolic blood pressure</b>						
High	87	21.8	62.1	16.1		
Normal	455	26.4	49.5	24.2	4.931	0.085

**Table A11. Bivariate relationship between the change in self-reported health and outcome variables.**

Baseline variables	n	Changes in self-reported health (%)			x <sup>2</sup>	p
		Decreased (n=58)	No change (n=296)	Increased (n=188)		
<b>Age (years)</b>						
18-39	208	12.5	52.4	35.1	2.053	0.726
40-49	163	11.0	55.2	33.7		
50+	171	8.2	56.7	35.1		
<b>Gender</b>						
Male	116	12.1	55.2	32.8	0.425	0.809
Female	426	10.3	54.4	35.2		
<b>Pay band</b>						
1-4	175	15.4	44.0	40.6	13.738	0.008
5-6	179	8.4	58.1	33.5		
7+	188	8.5	61.2	30.3		
<b>Physical activity levels</b>						
Low	223	11.2	45.7	43.0	19.057	0.001
Moderate	269	9.7	58.7	31.6		
High	50	14.0	72.0	14.0		
<b>Mental well-being</b>						
Low	141	12.8	48.9	38.3	2.600	0.272
Mod/high	401	10.0	56.6	33.4		
<b>Self-reported health</b>						
Low	139	6.5	25.9	67.7	104.286	<0.001
Moderate	279	10.0	60.9	29.0		
High	124	16.9	72.6	10.5		
<b>Job satisfaction</b>						
Dissatisfied	100	5.0	60.0	35.0	5.665	0.226
Neutral	93	14.0	48.4	37.6		
Satisfied	349	11.5	54.7	33.8		
<b>BMI</b>						
Obese	111	6.3	49.5	44.1	7.141	0.129
Overweight	207	12.6	54.6	32.9		
Healthy	224	11.2	57.1	31.7		
<b>Body fat percentage</b>						
Unhealthy	248	9.7	49.6	40.7	7.362	0.025
Healthy	294	11.6	58.8	29.6		
<b>Systolic blood pressure</b>						
High	87	9.2	55.2	35.6	0.252	0.882
Normal	455	11.0	54.5	34.5		
<b>TTM engagement</b>						
Low	223	13.9	51.6	34.5	8.686	0.069
Moderate	109	12.8	57.8	29.4		
High	210	6.2	56.2	37.6		

**Table A12. Bivariate relationship between baseline job satisfaction and outcome variables.**

Baseline variables	n	Baseline job satisfaction (%)			x <sup>2</sup>	p
		Dissatisfied (n=100)	Neutral (n=93)	Satisfied (n=349)		
<b>Age (years)</b>						
18-39	208	17.3	16.3	66.3		
40-49	163	19.6	18.4	62.0		
50+	171	18.7	17.0	64.3	0.781	0.941
<b>Gender</b>						
Male	116	19.8	17.2	62.9		
Female	426	18.1	17.1	64.8	0.201	0.904
<b>Pay band</b>						
1-4	175	18.3	22.9	58.9		
5-6	179	17.9	12.3	69.8		
7+	188	19.1	16.5	64.4	7.573	0.109
<b>Physical activity levels</b>						
Low	223	20.6	17.9	61.4		
Moderate	269	16.7	16.0	67.3		
High	50	18.0	20.0	62.0	2.238	0.692
<b>Mental well-being</b>						
Low	141	28.4	22.7	48.9		
Mod/high	401	15.0	15.2	69.8	20.636	<0.001
<b>Self-reported health</b>						
Low	139	17.3	18.0	64.7		
Moderate	279	20.8	18.6	60.6		
High	124	14.5	12.9	72.6	5.618	0.230
<b>Job satisfaction</b>						
Dissatisfied	-	-	-	-	-	-
Neutral	-	-	-	-	-	-
Satisfied	-	-	-	-	-	-
<b>BMI</b>						
Obese	111	22.5	14.4	63.1		
Overweight	207	17.4	17.9	64.7		
Healthy	224	17.4	17.9	64.7	1.906	0.753
<b>Body fat percentage</b>						
Unhealthy	248	23.0	15.7	61.3		
Healthy	294	14.6	18.4	67.0	6.323	0.042
<b>Systolic blood pressure</b>						
High	87	24.1	19.5	56.3		
Normal	455	17.4	16.7	65.9	3.208	0.201

**Table A13. Bivariate relationship between the change in job satisfaction and outcome variables.**

Baseline variables	n	Changes in job satisfaction (%)			x <sup>2</sup>	p
		Decreased (n=106)	No change (n=255)	Increased (n=181)		
<b>Age (years)</b>						
18-39	208	24.5	42.3	33.2		
40-49	163	16.6	52.1	31.3		
50+	171	16.4	48.0	35.7	6.660	0.155
<b>Gender</b>						
Male	116	23.3	51.7	25.0		
Female	426	18.5	45.8	35.7	4.844	0.089
<b>Pay band</b>						
1-4	175	19.4	44.0	36.6		
5-6	179	21.8	45.3	33.0		
7+	188	17.6	51.6	30.9	3.041	0.551
<b>Physical activity levels</b>						
Low	223	20.6	43.0	36.3		
Moderate	269	19.0	50.2	30.9		
High	50	18.0	48.0	34.0	2.670	0.614
<b>Mental well-being</b>						
Low	141	22.7	37.6	39.7		
Mod/high	401	18.5	50.4	31.2	6.865	0.032
<b>Self-reported health</b>						
Low	139	24.5	44.6	30.9		
Moderate	279	16.5	49.1	34.3		
High	124	21.0	45.2	33.9	4.046	0.400
<b>Job satisfaction</b>						
Dissatisfied	100	4.0	17.0	79.0		
Neutral	93	18.3	28.0	53.8		
Satisfied	349	24.4	60.7	14.9	166.456	<0.001
<b>BMI</b>						
Obese	111	14.4	53.2	32.4		
Overweight	207	21.7	46.9	31.4		
Healthy	224	20.1	44.2	35.7	3.944	0.414
<b>Body fat percentage</b>						
Unhealthy	248	19.8	47.2	33.1		
Healthy	294	19.4	46.9	33.7	0.026	0.987
<b>Systolic blood pressure</b>						
High	87	17.2	49.4	33.3		
Normal	455	20.0	46.6	33.4	0.409	0.815
<b>TTM engagement</b>						
Low	223	19.3	51.1	29.6		
Moderate	109	21.1	49.5	29.4		
High	210	19.0	41.4	39.5	6.367	0.173

**Table A14. Bivariate relationship between baseline body mass index and outcome variables.**

Baseline variables	n	Baseline body mass index (%)			x <sup>2</sup>	p
		Obese (n=111)	Overweight (n=207)	Healthy (n=224)		
<b>Age (years)</b>						
18-39	208	15.4	34.1	50.5		
40-49	163	20.9	38.0	41.1		
50+	171	26.3	43.3	30.4	16.697	0.002
<b>Gender</b>						
Male	116	18.1	45.7	36.2		
Female	426	21.1	36.2	42.7	3.516	0.172
<b>Pay band</b>						
1-4	175	24.6	37.1	38.3		
5-6	179	17.9	34.1	48.0		
7+	188	19.1	43.1	37.8	7.130	0.129
<b>Physical activity levels</b>						
Low	223	27.8	36.8	35.4		
Moderate	269	16.4	37.2	46.5		
High	50	10.0	50.0	40.0	16.390	0.003
<b>Mental well-being</b>						
Low	141	21.3	38.3	40.4		
Mod/high	401	20.2	38.2	41.6	0.097	0.953
<b>Self-reported health</b>						
Low	139	35.3	36.7	28.1		
Moderate	279	17.9	40.1	41.9		
High	124	9.7	35.5	54.8	34.791	<0.001
<b>Job satisfaction</b>						
Dissatisfied	100	25.0	36.0	39.0		
Neutral	93	17.2	39.8	43.0		
Satisfied	349	20.1	38.4	41.5	1.906	0.753
<b>BMI</b>						
Obese	-	-	-	-	-	-
Overweight	-	-	-	-	-	-
Healthy	-	-	-	-	-	-
<b>Body fat percentage</b>						
Unhealthy	248	43.5	47.6	8.9		
Healthy	294	1.0	30.1	68.7	245.897	<0.001
<b>Systolic blood pressure</b>						
High	87	27.6	49.4	23.0		
Normal	455	19.1	36.0	44.8	14.414	0.001

**Table A15. Bivariate relationship between the change in body mass index and outcome variables.**

Baseline variables	n	Changes in body mass index (%)			x <sup>2</sup>	p
		Increased (n=61)	No change (n=436)	Decreased (n=45)		
<b>Age (years)</b>						
18-39	208	14.4	80.8	4.8		
40-49	163	11.0	79.1	9.8		
50+	171	7.6	81.3	11.1	9.075	0.059
<b>Gender</b>						
Male	116	7.8	84.5	7.8		
Female	426	12.2	79.3	8.5	1.955	0.376
<b>Pay band</b>						
1-4	175	13.7	75.4	10.9		
5-6	179	12.3	79.9	7.8		
7+	188	8.0	86.5	6.4	6.348	0.175
<b>Physical activity levels</b>						
Low	223	13.5	80.7	5.8		
Moderate	269	9.7	79.9	10.4		
High	50	10.0	82.0	8.0	4.743	0.315
<b>Mental well-being</b>						
Low	141	12.1	82.3	5.7		
Mod/high	401	11.0	79.8	9.2	1.774	0.412
<b>Self-reported health</b>						
Low	139	14.4	77.7	7.9		
Moderate	279	9.3	82.4	8.2		
High	124	12.1	79.0	8.9	2.593	0.628
<b>Job satisfaction</b>						
Dissatisfied	100	9.0	80.0	11.0		
Neutral	93	9.7	87.1	3.2		
Satisfied	349	12.3	78.8	8.9	5.546	0.236
<b>BMI</b>						
Obese	111	13.5	74.8	11.7		
Overweight	207	9.7	80.7	9.7		
Healthy	224	11.6	83.0	5.4	5.982	0.201
<b>Body fat percentage</b>						
Unhealthy	248	12.1	7.0	10.9		
Healthy	294	10.5	83.3	6.1	4.634	0.099
<b>Systolic blood pressure</b>						
High	87	4.6	86.2	9.2		
Normal	455	12.5	79.3	8.1	4.608	0.100
<b>TTM engagement</b>						
Low	223	14.3	78.9	6.7		
Moderate	109	9.2	81.7	9.2		
High	210	9.0	81.4	9.5	4.480	0.345

**Table A16. Bivariate relationship between baseline body fat percentage and outcome variables.**

Baseline variables	n	Baseline body fat percentage (%)		x <sup>2</sup>	p
		Unhealthy (n=248)	Healthy (n=294)		
<b>Age (years)</b>					
18-39	208	38.0	62.0		
40-49	163	41.7	58.3		
50+	171	59.1	40.9	18.340	<0.001
<b>Gender</b>					
Male	116	26.7	73.3		
Female	426	50.9	49.1	21.539	<0.001
<b>Pay band</b>					
1-4	175	55.4	44.6		
5-6	179	41.3	58.7		
7+	188	41.0	59.0	9.787	0.008
<b>Physical activity levels</b>					
Low	223	57.4	42.6		
Moderate	269	37.9	62.1		
High	50	36.0	64.0	20.755	<0.001
<b>Mental well-being</b>					
Low	141	41.8	58.2		
Mod/High	401	47.1	52.9	1.175	0.278
<b>Self-reported health</b>					
Low	139	64.7	35.3		
Moderate	279	43.0	57.0		
High	124	30.6	69.4	32.456	<0.001
<b>Job satisfaction</b>					
Dissatisfied	100	57.0	43.0		
Neutral	93	41.9	58.1		
Satisfied	349	43.6	56.4	6.323	0.042
<b>BMI</b>					
Obese	111	97.3	2.7		
Overweight	207	57.0	43.0		
Healthy	224	9.8	90.2	245.897	<0.001
<b>Body fat percentage</b>					
Unhealthy	-	-	-	-	-
Healthy	-	-	-	-	-
<b>Systolic blood pressure</b>					
High	87	43.7	56.3		
Normal	455	46.2	53.8	0.18	0.671

**Table A17. Bivariate relationship between the change in body fat percentage and outcome variables.**

Baseline variables	n	Changes in body fat percentage (%)			x <sup>2</sup>	p
		Gain (n=213)	No change (n=213)	Loss (n=116)		
<b>Age (years)</b>						
18-39	208	39.9	39.4	20.7		
40-49	163	39.9	39.9	20.2		
50+	171	38.0	38.6	23.4	0.611	0.962
<b>Gender</b>						
Male	116	35.5	42.2	23.3		
Female	426	40.6	38.5	20.9	1.438	0.487
<b>Pay band</b>						
1-4	175	42.3	37.1	20.6		
5-6	179	37.4	39.7	22.9		
7+	188	38.3	41.0	20.7	1.232	0.873
<b>Physical activity levels</b>						
Low	223	42.6	39.5	17.9		
Moderate	269	36.8	39.0	24.2		
High	50	38.0	40.0	22.0	3.297	0.509
<b>Mental well-being</b>						
Low	141	40.4	39.0	20.6		
Mod/high	401	38.9	39.4	21.7	0.128	0.938
<b>Self-reported health</b>						
Low	139	41.0	36.7	22.3		
Moderate	279	35.8	45.9	18.3		
High	124	45.2	27.4	27.4	13.224	0.010
<b>Job satisfaction</b>						
Dissatisfied	100	33.0	49.0	18.0		
Neutral	93	39.8	37.6	22.6		
Satisfied	349	41.0	37.0	22.1	4.882	0.300
<b>BMI</b>						
Obese	111	31.5	49.5	18.9		
Overweight	207	39.1	37.2	23.7		
Healthy	224	43.3	36.2	20.5	7.278	0.122
<b>Body fat percentage</b>						
Unhealthy	248	35.5	41.9	22.6		
Healthy	294	42.5	37.1	20.4	2.799	0.247
<b>Systolic blood pressure</b>						
High	87	31.0	50.6	18.4		
Normal	455	40.9	37.1	22	5.593	0.061
<b>TTM engagement</b>						
Low	223	41.7	39.5	18.8		
Mixed	109	36.7	37.6	25.7		
High	210	38.1	40.0	21.9	2.347	0.672

**Table A18. Bivariate relationship between baseline systolic blood pressure and outcome variables.**

Baseline variables	n	Baseline systolic blood pressure (%)		x <sup>2</sup>	p
		High (n=87)	Normal (n=455)		
<b>Age (years)</b>					
18-39	208	9.6	90.4		
40-49	163	12.9	87.1		
50+	171	26.9	73.1	22.545	<0.001
<b>Gender</b>					
Male	116	30.2	69.8		
Female	426	12.2	87.8	21.839	<0.001
<b>Pay band</b>					
1-4	175	14.9	85.1		
5-6	179	15.1	84.9		
7+	188	18.1	81.9	0.887	0.642
<b>Physical activity levels</b>					
Low	223	15.2	84.8		
Moderate	269	16.0	84.0		
High	50	20.0	80.0	0.687	0.709
<b>Mental well-being</b>					
Low	141	19.1	80.9		
Mod/High	401	15.0	85.0	1.357	0.244
<b>Self-reported health</b>					
Low	139	13.7	86.3		
Moderate	279	19.4	80.6		
High	124	11.3	88.7	4.931	0.085
<b>Job satisfaction</b>					
Dissatisfied	100	21.0	79.0		
Neutral	93	18.3	81.7		
Satisfied	349	14.0	86.0	3.208	0.201
<b>BMI</b>					
Obese	111	21.6	78.4		
Overweight	207	20.8	79.2		
Healthy	224	8.9	91.1	14.414	0.001
<b>Body fat percentage</b>					
Unhealthy	248	15.3	84.7		
Healthy	294	16.7	83.3	0.180	0.671
<b>Systolic blood pressure</b>					
High	-	-	-	-	-
Normal	-	-	-	-	-

**Table A19. Bivariate relationship between the change in systolic blood pressure and outcome variables.**

Baseline variables	n	Changes in systolic blood pressure (%)			x <sup>2</sup>	p
		Increased (n=192)	No change (n=196)	Decreased (n=154)		
<b>Age (years)</b>						
18-39	208	29.3	41.3	29.3		
40-49	163	34.4	35.6	30.1		
50+	171	43.9	30.4	25.7	9.446	0.051
<b>Gender</b>						
Male	116	36.2	36.2	27.6		
Female	426	35.2	36.2	28.6	0.061	0.970
<b>Pay band</b>						
1-4	175	38.9	33.1	28.0		
5-6	179	39.7	37.4	22.9		
7+	188	28.2	37.8	34.0	8.940	0.063
<b>Physical activity levels</b>						
Low	223	35.4	35.0	29.6		
Moderate	269	35.7	35.7	28.6		
High	50	34.0	44.0	22.0	1.824	0.768
<b>Mental well-being</b>						
Low	141	29.1	39.7	31.2		
Mod/High	401	37.7	34.9	27.4	3.355	0.187
<b>Self-reported health</b>						
Low	139	31.7	36.7	31.7		
Moderate	279	35.8	36.2	28.0		
High	124	38.7	35.5	25.8	1.807	0.771
<b>Job satisfaction</b>						
Dissatisfied	100	33.0	35.0	32.0		
Neutral	93	33.3	32.3	34.4		
Satisfied	349	36.7	37.5	25.8	3.522	0.474
<b>BMI</b>						
Obese	111	35.1	37.8	27.0		
Overweight	207	32.4	34.8	32.9		
Healthy	224	38.4	36.6	25.0	3.741	0.442
<b>Body fat percentage</b>						
Unhealthy	248	35.9	36.7	27.4		
Healthy	294	35.0	35.7	29.3	0.222	0.895
<b>Systolic blood pressure</b>						
High	87	27.6	27.6	44.8		
Normal	455	36.9	37.8	25.3	13.732	0.001
<b>TTM engagement</b>						
Low	223	28.7	39.9	31.4		
Moderate	109	33.0	35.8	31.2		
High	210	43.8	32.4	23.8	11.451	0.022



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