



Physical Activity at the Workplace: Literature review and best practice case studies

*A Final Report to the
European Commission*

December 2017

EUROPEAN COMMISSION

Directorate-General for Education, Youth, Sport and Culture
Directorate C – Innovation, International Cooperation and Sport
Unit C.4 – Sport

E-mail: Eac-sport@ec.europa.eu

*European Commission
B-1049 Brussels*

Physical Activity at the Workplace: Literature review and best practice case studies

A report to the European Commission

written by

Ecorys



Disclaimer

This document has been prepared for the European Commission; however, it reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

***Europe Direct is a service to help you find answers
to your questions about the European Union.***

**Freephone number (*):
00 800 6 7 8 9 10 11**

(*) The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you).

More information on the European Union is available on the Internet (<http://europa.eu>).

Luxembourg: Publications Office of the European Union, 2017

ISBN: 978-92-79-74724-3

doi: 10.2766/268636

© European Union, 2017

Reproduction is authorised provided the source is acknowledged.

Table of Contents

Table of Contents	1
1.0 Introduction.....	5
1.1 Introduction.....	5
1.2 Background to the study	5
1.3 Aims of the research	5
1.4 Method.....	6
1.5 Report structure	6
2.0 Context.....	7
2.1 Introduction.....	7
2.2 European strategic and policy context	7
2.3 European initiatives	8
3.0 Review of evidence	9
3.1 Introduction.....	9
3.2 Types of interventions.....	9
3.3 Evidence on general effectiveness and outcomes.....	11
3.4 Evidence on particular types of interventions	12
4.0 Examples of corporate challenges.....	33
4.1 Introduction.....	33
4.2 Definition	33
4.3 Types of challenges	33
5.0 Summary and conclusions	38
Annex One: References.....	40
Annex Two: Further information on the literature review	43
Annex Three: Case studies	44

Executive Summary

DG EAC of the European Commission commissioned Ecorys in September 2017 to undertake a literature review of physical activity at the workplace interventions. The study fulfils one of the actions of the Tartu Call for Healthy Lifestyles (September 2017), namely to carry out research to raise awareness of the effectiveness and outcomes of practices to promote workplace physical activity.

Background

The benefits of a physically active lifestyle in health promotion and disease prevention are well documented and populations are becoming increasingly sedentary in their behaviour. There is a growing evidence base that workplace physical activity interventions can positively influence physical activity behaviour more generally. The most recent Eurobarometer on Sport and Physical Activity (published in 2014) identifies that 13% of physical activities take place at work. Employers and business associations are also in a good position to raise awareness and empower employees to be active in the workplace through a range of interventions.

Aims and methodology

The key objective of the study has been to complete a review of the literature regarding the effectiveness of workplace physical activity interventions. The review has sought to identify which types of workplace physical activity interventions are effective in changing physical activity behaviour for different workforce sectors and types of workplace. Effectiveness has been considered in terms of the physical activity outcomes, aspects of intervention design (e.g. length/intensity) and contributory motivators, barriers and facilitators. The ultimate aim of the study has been to identify best practices with regard to interventions designed to promote physical activity in the workplace. The research has also sought to identify examples of different physical activity corporate challenges and lessons on how to implement them.

The research was undertaken in two parts. The first involved a systematic review of the existing literature on workplace physical activity interventions. The review was based on a search and retrieval strategy involving rapid searches and a screening protocol (defining parameters for inclusion, such as publication date, geographical scope, language, study type and research themes). The literature review aimed to be as comprehensive as possible within the tight timeframe and resources for the study, both in terms of international coverage of studies and types of interventions covered. The second part of the study focused on identifying good practice interventions and undertaking research on their outcomes and key success factors. The desk-based review incorporated a rapid review of relevant websites including national sport agency websites and national health promotion organisations. This was supported by rapid web searches in various European languages focused on various countries using relevant key word search terms. The review of academic sources (detailed above) also revealed particular interventions that were considered for inclusion. For the final selection of best practice interventions, we conducted telephone interviews with relevant contacts in order to obtain further qualitative perspectives on outcomes and lessons, building on the evidence already available.

Key findings

Based on a rapid and systematic review of the literature on workplace physical activity interventions, a number of key conclusions can be made with regard to their effectiveness and outcomes:

- The literature review has identified many studies which show positive outcomes for workplace interventions. Most of the studies reviewed measure the short-term effects of interventions on specific physical activity outcomes which are directly related to the intervention (for example, walking or exercise).
- There has been less focus on the effects of workplace interventions on overall physical activity behaviour using measures such as weekly levels of moderate or vigorous physical activity.
- There has also been more limited focus on the effects of interventions on specific groups including health inequality groups – the interventions were largely targeted at employees of all ages and all genders. However where there is a focus on inactive employees, the studies provide positive evidence on the particular benefits of workplace interventions for such groups.
- Evidence on some specific types of interventions (e.g. walking initiatives) is more developed and robust than others (e.g. stair walking).
- There is strong evidence based on the literature and case studies that multi-component interventions particularly those involving information, advice and counselling alongside organised opportunities to take part in activities have the best outcomes.

Through the literature review and case study evidence, it is also possible to identify some particular lessons on the implementation of workplace physical activity interventions. Lessons can be considered from both the perspective of national or regional level programmes that target the corporate sector and interventions that are implemented at the company level:

- The research has highlighted the different needs and aspirations of large and small companies with regard to physical activity interventions. National or regional level programmes help to address the specific information and resource barriers that small business face while larger companies are better equipped to develop more holistic interventions.
- The case studies show that sometimes it is better not to be too ambitious in terms of the intensity of the activities on offer – increasing walking, both within the office and through workplace challenges, is a realistic workplace activity as it is both low cost and low intensity.
- Some of the most successful examples of workplace physical activity interventions are those which allow physical activity to become embedded in the company's culture and daily practices. Managers and leaders in such companies emphasise the importance of physical activity and provide a variety of participation opportunities. Activities are also tailored to meet the needs of different groups and levels of fitness.
- More successful interventions tend to integrate regular moderate physical activity as part of employees' daily work schedule.

- The case study research has also highlighted a number of common lessons in the implementation of physical activity programmes within the workplace:
 - Leadership and buy-in of senior staff – the case studies show that effective interventions can depend on the buy-in of senior management.
 - Coordination of programmes – a project manager or physical activity champion within the company can help to focus resources on particular actions.

The research has also drawn together some specific evidence on the use of company challenges focused on raising physical activity levels. Step count challenges are shown to be particularly effective and engaging when they utilise pedometers and when employees are encouraged to reach set targets. Cycle to work challenges can lead to high levels of engagement and sustainable change if they incorporate a strong promotional component by providing employees motivation and informative material on cycling to work.

1.0 Introduction

1.1 Introduction

Ecorys were commissioned by DG EAC of the European Commission in September 2017 to undertake a literature review and good practice analysis of physical activity at the workplace interventions. This is the study's final report.

1.2 Background to the study

Physical inactivity constitutes a major societal problem. The last Eurobarometer on Sport and Physical Activity, published in 2014, revealed that 59% of European adults are not active enough. Physical inactivity has been identified as the fourth leading risk factor for global mortality (6% of deaths globally), and is estimated by the World Health Organization to be the main cause for a number of cancers, diabetes and cardio-vascular diseases. Based on the latest estimates in EU countries, overweight affects 30-70% and obesity affects 10-30% of adults.

The benefits of a physically active lifestyle in health promotion and disease prevention are well-documented and populations are becoming increasingly sedentary in their behaviour. There is a growing evidence base that workplace physical activity interventions can positively influence physical activity behaviour more generally. The most recent Eurobarometer on Sport and Physical Activity (published in 2014)¹ identifies that 13% of physical activities take place at work. Employers and business associations are also in a good position to raise awareness and empower employees to be active in the workplace through a range of interventions.

A European Commission seminar on Healthy Lifestyles took place in September 2017 in Tartu, Estonia. At the seminar, the 'Tartu Call for Healthy Lifestyles²' was published including 15 important actions focused on addressing sedentary lifestyles and unhealthy diets. This study fulfils one of the actions which is to carry out research to raise awareness of the effectiveness and outcomes of practices to promote physical activity at the workplace.

1.3 Aims of the research

The key objective of the study has been to complete a review of the literature regarding the effectiveness of workplace physical activity interventions. The review has sought to identify which types of workplace physical activity interventions are effective in changing physical activity behaviour for different workforce sectors and types of workplace. Effectiveness is considered in terms of the physical activity outcomes (where data exists), aspects of intervention design (e.g. length/intensity) and contributory motivators, barriers and facilitators.

The ultimate aim of the study has been to identify best practices with regard to interventions designed to promote physical activity in the workplace. The research has also sought to identify examples of different physical activity corporate challenges and lessons on how to implement them.

The findings of the research will be used in the context of the implementation of the Council Recommendation on Health-enhancing Physical Activity (HEPA), and in the context of the European Week of Sport (one of the focus themes relates to the workplace setting).

¹European Commission (2014), *Eurobarometer on Sport and Physical Activity*.

²European Commission (2017), *Tartu call for a healthy lifestyle. Joint actions to promote healthy lifestyles*.

1.4 Method

The research comprised two main elements. The first involved a systematic review of the existing literature on workplace physical activity interventions. The review was based on a search and retrieval strategy involving rapid searches and a screening protocol (defining parameters for inclusion, such as publication date, geographical scope, language, study type and research themes). The literature review aimed to be as comprehensive as possible within the tight timeframe and resources for the study, both in terms of international coverage of studies and types of interventions covered. The selected articles cover Europe as a whole, Australia, New Zealand, Canada and Japan as well as various individual European countries including Finland, Germany, the Netherlands, Ireland, Spain and the UK. The meta-analysis/systematic reviews also covered a range of European languages including English, Spanish, German, French and Dutch. Further detail on the approach to the literature review is included in Annex Two.

The second part of the study focused on identifying good practice interventions and undertaking research on their outcomes and key success factors. The desk-based review incorporated a rapid review of relevant websites including national sport agency websites and national health promotion organisations. This was supported by rapid web searches in various European languages focused on various countries using relevant key word search terms. The review of academic sources (detailed above) also revealed particular interventions that were considered for inclusion. In total 120 workplace focused interventions were identified. From these, a long list of possible case studies was identified. Using a sifting process based on quality criteria and after further discussion with DG EAC, the final selection of 11 was made. In order to inform the identification of good practice projects, the research team conducted consultations with a select number of stakeholders.

Telephone interviews were conducted with relevant contacts for the best practice interventions in order to fill in any gaps in project information and gain further qualitative perspectives on their outcomes. The telephone discussions also provided additional perspectives on the best practice features of the interventions and lessons for wider application (including transferability).

1.5 Report structure

The report is structured as follows:

- Section two elaborates on the strategic and policy context to the review.
- Section three synthesises the key findings and presents summaries of the case studies.
- Section four draws together some specific evidence on the use of company challenges as a means to increase physical activity levels.
- Section five brings the analysis together and highlights some key conclusions from the analysis.

2.0 Context

2.1 Introduction

This chapter sets the scene for the review by considering the policy and strategic background for the research. It also briefly considers European initiatives addressing physical activity in the workplace and the benefits they bring. This section provides an introductory context to the literature and case studies reviewed, but does not attempt to do justice to the range of policies and programmes that are relevant to the topic.

2.2 European strategic and policy context

The health and wellbeing benefits of physical activity are widely accepted. There is considerable scientific evidence linking infrequent physical activity to adverse health, particularly later in life. According to the World Health Organisation (WHO), physical inactivity is one of the leading causes of death in developed countries, responsible for an estimated 22-23% of coronary heart disease, 16-17% of colon cancer, 15% of diabetes, 12-13% of strokes and 11% of breast cancer.³ There is also emerging evidence of the specific impacts of physical activity on subjective well-being, linked to psychological mental health and happiness. According to the Council Recommendation on Health Enhancing Physical Activity, physical activity is a 'prerequisite for a healthy lifestyle and a healthy workforce'. Highlighting that 60% of European citizens are not engaging in sufficient physical activity, it recommends the promotion, monitoring and evaluation of physical activity levels across Europe.

The World Health Organisation's European Policy Framework and Strategy for the 21st century prioritises investing in health promotion programmes by utilising existing social networks such as the workplace.⁴ As workers generally spend more time in the workplace than any other location, the workplace can have a direct impact on workers' physical, mental, economic and social health.⁵ The European Network for Workplace Health Promotion has defined workplace health promotion in their Luxembourg Declaration as 'the combined efforts of employers, employees and society to improve the health and wellbeing of people at work'.⁶ The European Agency for Safety and Health at Work find that 'well-implemented workplace health promotion can lead to improved working environment and a decrease in absenteeism' and therefore recommend that policies continue to emphasise the importance of workplace health promotion.⁷ The most recent Eurobarometer on Sport and Physical Activity (published in 2014)⁸ identifies that 13% of physical activities take place at work.

³ World Health Organisation (2002), *The World Health Report 2002 - Reducing Risks, Promoting Healthy Life*.

⁴ WHO Europe (2014), *Health 2020: A European policy framework and strategy for the 21st century*

⁵ European Agency for Safety and Health at Work (2012), *Motivation for employers to carry out workplace health promotion: Literature Review*.

⁶ European Network for Workplace Health Promotion (2007), *The Luxembourg Declaration on Workplace Health Promotion in the European Union*.

⁷ European Agency for Safety and Health at Work (2012), *Motivation for employers to carry out workplace health promotion: Literature review*, European Agency for Safety and Health at Work 2012.

⁸ European Commission (2014), *Eurobarometer on Sport and Physical Activity*.

Within this context, there is an increasing strategic focus on addressing physical inactivity through workplace-based interventions. The European Network for the Promotion of Health-Enhancing Physical Activity (HEPA Europe), a network established by the WHO has identified physical activity in the workplace as a key thematic priority. Its current activities include 'the production of a survey-based report on activities related to promoting HEPA and reducing sitting in workplaces in participating European countries, and sharing country-specific experiences on the development of practical tools, instruments and approaches'.⁹ Furthermore, one of the priority areas in the Physical Activity strategy for the WHO European region 2016-2025 similarly supports the provision of opportunities and counselling for physical activity at the workplace.¹⁰

A European Commission's seminar on Healthy Lifestyles took place in September 2017 in Tartu, Estonia. At the seminar, the 'Tartu Call for Healthy Lifestyles'¹¹ was published, it includes 15 important actions to fight a sedentary lifestyle, physical inactivity and an unhealthy diet. Included in the actions is this study, 'carrying out a study on physical activity at the workplace to contribute to health promotion at the workplace.' The declaration places more attention on the workplace and progress against all of the actions will be assessed in 2019.

2.3 European initiatives

This study also complements a number of specific initiatives at the European level that focus on the workplace as a setting for addressing physical inactivity. The annual European Week of Sport has highlighted and promoted multiple settings in which people can be active including schools, fitness and sports centres, outdoors and the workplace. One of the challenges during the 2017 European Week of Sport is the '#BeActive Workplace Award'; a competition to see what workplaces across Europe best encourage physical activity amongst its employees. The European Commission funds HEPA projects through the Erasmus Plus programme, as one of the sport theme's key objectives is to promote health-enhancing physical activity. Some of the funded projects address the role of the workplace.

Non-governmental groups have their own initiatives, such as the Active Working Group's Get Europe Standing Campaign that advocates for standing in the workplace. Another example is the European Federation for Company Sport, a not-for-profit organisation, whose core mission is to promote regular physical activity with companies through activities including the organisation of sport events, conferences and workshops.

⁹ WHO Europe (2017), *Workplace HEPA Promotion*

¹⁰ WHO Europe (2015), *Physical Activity Strategy for the WHO European Region 2016-2025*.

¹¹ European Commission (2017), *Tartu call for a healthy lifestyle. Joint actions to promote healthy lifestyles*.

3.0 Review of evidence

3.1 Introduction

This chapter summarises and synthesises the findings from the literature review and case study research. The first part of the chapter develops a typology of interventions based on the literature review. It then goes on to summarise general evidence on the effectiveness and outcomes of workplace physical activity interventions. Evidence on specific types of interventions is then examined with reference to case study summaries which are presented in boxes. The full case studies are presented in Annex Three.

3.2 Types of interventions

The literature review highlights a wide variety of possible workplace interventions that are designed to improve levels of physical activity. The systematic review included workplace interventions that either have a specific focus on physical activity in the workplace or where physical activity is part of a multiple health intervention (where other health issues are also addressed, for example nutrition).

The literature also makes a distinction between interventions that focus specifically on activities to increase physical activity within the company site and a broader range of interventions that are initiated in the workplace but where the actual activity could take place in or away from the company site. The vast majority of the articles focused on interventions in the private sector and a range of different company sizes were covered.

Based on the literature review a broad typology has been developed to understand the variety of workplace-based physical activity interventions. The typology has also helped to ensure that case studies were selected to provide a reasonable representation of the variety of interventions that governments, associations and employers can use to promote physical activity at the workplace.

Building on the ICAT_SR evidence-based tool¹² which can be used to assess and categorise complex interventions, a number of key variables are considered to be relevant in setting the parameters of the typology:

- The 'method of engagement' used by the intervention to engage participants.
- The 'behaviour or actions of intervention recipients' which in this case relates to the type of physical activity promoted.

Definitions of types of methods of engagement considered in the review are shown overleaf.

¹² Lewin, S., Hendry, M., Chandler, J., Oxman, A. D., Michie, S., Shepperd, S & Welch, V. (2017), *Assessing the complexity of interventions within systematic reviews: development, content and use of a new tool (iCAT_SR)*, BMC medical research methodology, 17(1), 76.

Method of Engagement: Definitions and Examples

Category	Description and examples
Challenges/ competitions	<p>Initiatives that motivate workers to achieve certain physical activity targets or compete against each other to achieve higher levels of physical activity. They may include promotional materials placed around the office.</p> <p>Example: An employer has signed their company up for a national active commuting challenge. The company is competing with other companies around the country to have the most active commute trips (one-way commute from home into work) in total over all employees. The company that has the most active commutes per full-time employee receives a certificate.</p>
Counselling/ Education	<p>Information and advice to employees on the benefits of physical activity and suggestions on ways to increase physical activity.</p> <p>Example: One employer encourages employees to complete seven web-based educational/informational modules. The modules cover various topics such as self-monitoring, goal setting, and identifying barriers to physical activity. At the end of each module, the employee is asked to complete various tasks, such as setting behaviour goals.</p>
Group Training/ Exercise Sessions	<p>These interventions involve activities in which groups of employees attend organised sessions of physical activity.</p> <p>Example: Every Monday lunchtime there is an organised group of colleagues who go running, organised and led by a designated leader.</p>
Environmental changes	<p>Changes in the physical environment: These interventions involve an alteration in the space of work in order to promote physical activity among employees.</p> <p>Example: A company has provided exercise equipment or sit/stand desks for employees.</p>
Multi- component	<p>Interventions involving multiple types of engagement.</p> <p>Example: Over four weeks teams of participants wear pedometers and track their steps each day, competing to see who can do the most. The company has even put signs on all lifts educating employees about the benefit of taking the stairs.</p>
Campaign and programmes to engage companies	<p>An organised attempt at mobilisations of large numbers of companies to be more physically activity, sometimes in specific ways.</p> <p>Example: The Active Working Group's 'On Your Feet Europe campaign' encourages people to convert sitting time at work into standing time.</p>

With regard to the 'behaviour or actions of intervention recipients', the table overleaf shows some particular kinds of activities that can be promoted in the workplace.

Types of Promoted Physical Activity

Category	Description and examples
Stair Use	Employees are encouraged to take the stairs rather than the lift.
Active travel/commuting	Employees are encouraged to take an alternative, more active commute to work such as running, walking or cycling to work rather than taking the car, bus or train.
More physical activity in the office	Employees are encouraged to stand and/or walk more throughout the work day, such as by getting up from their desk as much as possible and by having walking meetings.
Varied (for higher level interventions)	Often, corporate challenges/competitions, such as for the #BeActive Workplace Award for the European Week of Sport 2017, or campaigns, such as from the On Your Feet Europe campaign from the Active Working Group asks companies to become more active and, although suggests activities in order to do so, allow for many variations.

A further dimension in defining a typology of interventions relates to the targeting approach of the intervention. This dimension incorporates the nature and geographic scope of the organisations targeted by the intervention (for example large or small companies or groups of companies) and may also reflect the nature of the groups targeted by the intervention, for example genders or age groups.

3.3 Evidence on general effectiveness and outcomes

This section comments on the broad findings of the literature review regarding the effectiveness and outcomes of workplace-based physical activity interventions.

A large body of evidence has developed over the last 20 years on the effectiveness and outcomes of physical activity interventions at the workplace. The literature review has identified many studies that show positive outcomes for workplace interventions. Most of the studies reviewed measure a specific physical activity outcome that has a direct relationship with the focus of the intervention (for example, walking or exercise). Many of the studies have measured the effects of the intervention over the implementation period or a short period thereafter.

There has been less focus however on the effects of workplace interventions on overall physical activity behaviour using measures such as weekly levels of moderate or vigorous physical activity. Very few studies therefore consider how far interventions are enabling people to move towards public health recommendations on weekly levels of physical activity moderate or vigorous intensity. One systematic review undertaken by Reed et al (2017), however, examines the effect of workplace interventions on increasing moderate-to-vigorous-intensity physical activity (MVPA) levels and improving the associated beneficial cardiometabolic health in working-age women. The meta-analysis of 24 studies shows that workplace interventions significantly increased MVPA levels among working-age women, as measured by minutes per week of METs (METs are a physiological measure expressing the energy cost of physical activities).

The review shows that many of the interventions have aimed to reduce sitting or sedentary behaviour (SB) as a secondary aim with evaluations largely using self-reporting measures of sitting. However evidence from studies which have adopted experimental approaches is mixed on whether sitting decreased significantly in the intervention group, compared with a control or comparison group. One review concludes

that there is a lack of evidence on the effectiveness of workplace interventions for reducing sitting and that more rigorous research approaches are required to examine longer-term changes in sitting behaviour.

Some studies also consider effects on objective measures of cardiorespiratory fitness such as heart rate measures. As the main focus of the review has been the effectiveness of interventions with regard to effects on levels of physical activity, it has not been possible to consider health outcomes in any great detail. However there is growing evidence that physical activity has a strong association with positive health outcomes, therefore it can be assumed that interventions with positive physical activity outcomes are also improving participants' health status.

There has been more limited focus on the effects of interventions on specific target groups including health inequality groups – the interventions were largely targeted at employees of all ages and all genders. The review identified only a few articles that considered effects on health inequality groups although some studies provide positive evidence on the particular benefits of workplace interventions for inactive groups (see section 3.4).

Very few studies have attempted to consider the overall benefits to businesses of physical activity interventions, which would take into account effects on outcomes such as absenteeism and productivity and what this means in terms of the return on investment (the ratio of benefits to costs) for companies. Van Dongen et al (2011) attempted to derive a financial return on investment ratio for workplace health promotion programmes aimed at improving physical activity but could not reach conclusions on cost-benefit ratios based on the available evidence.

The reviews are generally inconclusive on the relative effectiveness of specific types of interventions. As studies tend to use different measures of physical activity change and different methodologies, there is a difficulty in comparing outcomes across different intervention types. However, as can be seen in the section below, the strength of evidence varies across the different intervention types.

3.4 Evidence on particular types of interventions

The following sub-sections consider evidence on the outcomes and effectiveness of specific types of interventions. Building on the typology developed above, some particular intervention types are examined where evidence on their outcomes is more developed.

Walking initiatives

Walking interventions initiated in the workplace appear to be one of the most common interventions among the studies of individual interventions. There is also generally consistent and strong evidence that walking interventions initiated in the workplace have successful outcomes at least in the short-term (for example Malik et al 2014; Dugdill et al 2008; Gilson 2009). Of the six physical activity interventions identified in Malik et al's (2014) systematic review, two walking interventions reported a significant increase in physical activity levels following the intervention. Malik et al 2014 cited a particular study (Gilson et al, 2009) where participants assigned to two different walking interventions showed a significant increase in step counts post intervention compared with individuals in a control group who decreased their step counts post-intervention.

There is evidence that the provision to employees of pedometers accompanied by proactive advice and coordination on the part of the employer can have a more positive effect on walking activity. Based on a systematic review of studies of workplace walking interventions, Dugdill et al (2008) concluded that workplace walking interventions that

focus on: facilitated goal setting diaries and self-monitoring, and walking routes can produce positive results with regards to increasing step count. Dugdill et al (2008) also



argue that a particular benefit of walking interventions is that they provide individuals with an opportunity to engage in physical activity during their working day which helps to overcome the time barriers that are cited as a key barrier to increasing physical activity participation.

Gilson et al's (2009) study investigated the impact of different types of workplace walking strategies on employee step counts and sitting times. The strategies were designed for employees of a university.

Detailed instructions on goals and strategies to effect change were provided prior to the intervention and then reinforced through weekly group emails – these contained motivational messages and reminders for control employees to maintain normal behaviour. Compared to a control group both route and incidental groups significantly increased physical activity – it is notable that the highest magnitude of change in step counts were recorded for employees classified as "inactive" at the pre-intervention stage, a finding which aligns with other research that walking interventions are more effective when directed at those most in need.

A recent study (Kling et al, 2016) shows the potential of using a Walking Meeting (WaM) protocol to increase the level of work-related physical activity among a group of sedentary office workers. Traditional seated meetings that were converted into a walking format using a WaM protocol increased moderate, vigorous, and very vigorous PA levels by 10 minutes among the sample. The average number of minutes participants engaged in combined work-related moderate/vigorous physical activity per week during the 3 weeks increased from an average of 107 minutes during the baseline week to 114 minutes at week 2 and to 117 minutes at week 3.

The following case study focuses on an intervention which was designed to reduce sitting and encourage less active employees to increase walking in the office.

Case study – Walk@Work

Name of intervention	Walk@Work Spain programme
Focus	Sit less, move more
Member State	Spain
Lead organisation	Universitat de Vic-Universitat Central de Catalunya
Type (method of engagement/physical activity)	Challenge/Walking
Period	2010-11

Aims and approach

The Ministry of Science and Innovation of Spain funded Vic-Central University of Catalonia to develop Walk@WorkSpain, a 'sit less, move more programme', for companies to ultimately use to reduce employee sedentary behaviour. The purpose of the Walk@WorkSpain intervention was to decrease the sitting time and increase the time spent in physical activity among Spanish office employees. It consisted of a 19-week web-based workplace intervention.

The intervention began with employees noting their usual activity levels by charting step counts, using pedometers, and time spent sitting, using diaries. In the following weeks,

employees then used an interactive website that challenged them to increase their daily step counts by 1,000 to 3,000 from their benchmark for eight weeks. The website provided strategies on how they can be more active during the workday, such as by setting goals, increasing awareness of health benefits and providing suggested activities for employees. The website also provided motivational materials and interactive features where employees could chart their changes in step counts and reduced sitting time at work. Then, during the 9th to 19th week, the website sent automatic emails encouraging employees to maintain the increase in their steps and the decrease in their sitting time.

This intervention has so far only been conducted in an academic context. Once university campuses were selected for the intervention, employees were engaged to take part in the intervention with a recruitment process similar to what an employer might use in practice to engage their own employees. Employees were initially sent an invitation email, explaining the programme with a link to an online survey to identify employees' current level of physical activity. Employees with low or moderate levels of physical activity were then invited to participate in the intervention. Overall, 129 employees were engaged in the Walk@WorkSpain intervention over three Spanish university campuses. Six campuses were used in the research study in total, three campuses designated to the intervention and three campuses designated to control conditions, spanned the Galician, Basque and Catalan regions.

Outcomes and learning points

Results found that the intervention was effective. Even at two months after the intervention, the intervention group had significantly decreased their occupational sitting time and increased their daily step counts. As a result, the intervention group significantly reduced waist circumference by 2.1cm by the 2-month follow up which was a 38% higher reduction than found in the comparison group. The intervention also significantly increased the amount employees participated in light-intensity activity, such as walking.

A key to the intervention's success in keeping employees engaged and in increasing levels of physical activity was empowering employees with the freedom to choose which strategies suited them best from a list of possible strategies. For example, the study found that employees preferred the use of active work tasks, such as walking to a further toilet or walking while on the phone, than the more time-consuming lunchtime walking groups. The research study concluded that it was also important that the interventions promoted low-intensity activities, as such activities were considered to be more sustainable for less active office workers.

Participants emphasised the motivational value of being able to log and get feedback on their progress against set goals. For this reason, researchers highlight the necessity of getting baseline information so that employees can see how far they have come from their original sitting and active behaviour. This approach also allows for goals to be personalised in which the targets can be set individually rather than universally, for the whole company. The result is that targets are more realistic and achievable for all employees.

This was a one-off intervention as, according to the researchers, once the employees are empowered with the tools to increase their level of physical activity at work, they will continue to use them. This notion is supported by the fact that the positive outcomes achieved by the interventions were still present two months after the end of the programme. The researchers note that in their own university, which was one of the selected intervention sites, some of their colleagues have been wearing and keeping track of their pedometers even since the intervention in 2010-2011. Based on the success and learning from this intervention, Walk@WorkSpain has been transformed into a MHealth app which is currently undergoing further testing. One Spanish company has already contacted the developers and its employees will start using the app in January 2018.

Counselling / information and advice

There is moderate to strong evidence to suggest that counselling and advice can have a positive effect (Dugdill 2008; Heaney et al 1997; Proper 2003; Blake et al 2017). Dugdill et al., (2008) found some evidence that workplace counselling interventions positively impacted upon physical activity behaviour. Their systematic review covered 16 studies and a range of intervention types with a counselling/advice element (counselling, motivational interviewing, health checks, screening, health promotion messages, information, led activity sessions, or combinations of all of these i.e. multi-component programmes). However for many of the studies it was difficult to attribute physical outcomes to any particular component of the intervention due to their complexity.

Malik et al (2014) identifies 13 studies with a counselling component. The interventions included individual and group counselling, group based behavioural skills training and motivational interviewing / counselling versus team-based health promotion classes. Eight of the interventions targeted multiple health behaviours. The review found that 10 of the studies indicated some improvement in physical activity behaviour following the intervention with eight of these studies showing a statistically significant increase in physical activity levels against a control group.

Taylor et al (2012) examined how behaviour change techniques (BCTs) influence the effectiveness of workplace physical activity intervention effectiveness. BCTs are defined in this paper as the specific strategies used in an intervention to promote behaviour change. For example, interventions to promote physical activity amongst employees have used techniques such as barrier identification, goal setting and self-monitoring. Taylor et al (2012) identified twenty-seven evaluations, which actively involved employees in physical activity behaviour change interventions and were evaluated using an experimental or quasi-experimental design. The results show that participants receiving behaviour change interventions reported significantly better outcomes on physical activity than those in the control conditions. The results show a small effect size which the researchers believe could have considerable health and economic impacts if replicated across the population.

Using a Randomised-Control Trial (RCT) approach, Proper et al's (2003) study of a specific counselling intervention in the workplace focused on physical activity and nutrition showed that counselling on its own can have positive effects on physical activity behaviour (when compared to the provision of information only). The intervention group were subject to seven counselling sessions over a nine-month period. The results included significant positive effects on total energy expenditure, physical activity during sports, cardiorespiratory fitness, percentage of body fat, and blood cholesterol.

Blake et al, (2017) examined a specific educational promotion intervention using an RCT design. They collected self-reported data collected at four time points, from baseline to 16 weeks, from hospital staff in the UK. The intervention group received SMS messages containing health promotion material while the control group received emails. Both received the same messages, personalised with the individuals name, twice a week for 12 weeks. Both the SMS and email group had access to a website with educational materials with information on government recommendations, the importance of physical activity and practical suggestions on how to increase physical activity. Results indicated that both email and SMS interventions can lead to a significant, long-term increase in moderate work related physical activity and a short-term increase in vigorous and moderate recreation physical activity. Particularly, they found an increase in employees cycling or walking to work while they were receiving messages and one month after the messages ended. Sedentary behaviour decreased over the time of the study, although the change was insignificant and short lived. Both forms of promotional messaging and access to educational material resulted in positive behaviour change, although email messages appeared to lead to more behaviour change in work-related physical activity than SMS messaging.

As the case study below demonstrates, counselling can be effective when used in coordination with the provision of specific opportunities to participate in work-related activities.

Case study – Clever and Active in Old Age (Deutsche Bahn)

Name of intervention	CLARA - Clever und Aktiv Richtung Alter
Focus	Preserve the employability and motivation of older employees; prevention of old age diseases
Member State	Germany
Lead organisation	Deutsche Bahn
Type (method of engagement/physical activity)	Counselling / multi-component
Period	6 months pilot project carried out in between 2013 and 2014

Aims and approach

Deutsche Bahn Group provides mobility and logistical services in over 130 countries. It is one of the largest railway companies in the world by revenue and it employs 300,000 people, about two thirds of whom are located in Germany. The core business of the company is the railway in Germany.

As with many European companies, Deutsche Bahn is affected by general demographic changes. The average age of its workforce is currently 46 years old and almost 44% of its Germany-based employees are over 50. This trend is likely to heighten as forecasts predict the proportion of old people (65+) in Germany will double by 2050.

In response to this trend, the company has launched the 'CLARA' programme (Clever und Aktiv Richtung Alter – Clever and Active in Old Age) to ensure its older workers remain productive and motivated throughout their career and work until they reach the legal retirement age of 66. CLARA unites three key aspects of health promotion: information about health and aging, sports and exercise programmes, and mental training; although this case study focuses on the physical strand of the programme. Deutsche Bahn tested the programme through a pilot phase in which 251 employees participated on a voluntary basis in three of their sites.

The participants' journey started with a medical entry examination outside of their work time. They then attended either five or seven days of health trainings and tests (depending on the sub-sample group they belonged to) on their work time over six months with a period of implementation of the new skills and knowledge acquired in participants' free time. At the end of the six months, participants went through an exit examination.

Health modules included personalised counselling sessions. About a third of the trainings and tests dealt with physical fitness, the other two third addressed mental fitness and general health courses. The physical strand of the modules focused on coordination, perseverance, and muscular relaxation. In addition to in-person training, CLARA provided participants with tablets and access to an online platform where they could watch health-related video clips and interactive classes.

Outcomes and learning points

CLARA was designed by the Institute of Gerontology of Heidelberg University which also assessed its impact. A total of 251 participants took part in CLARA pilot project. Across the sample, there is evidence that the physical fitness of participants improved between the start and the end of the programme. Physical fitness was measured according to three indicators: endurance, agility and strength. On average across all groups, participants' endurance increased by about 14%, their agility increased by about 12% and their strength increased by 9%. In addition to improved physical performances, the

final medical examinations showed participants had better health records including a lower blood sugar rate, a lower blood pressure and an increase in their HDL rate (so-called 'good' cholesterol).

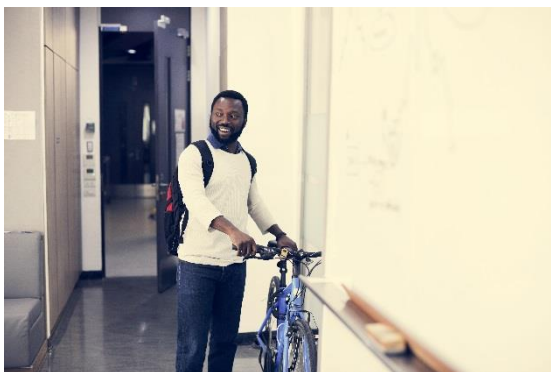
The key success factor of the programme was raising awareness about physical activity through a health prevention intervention applied directly at the workplace. As the health modules take place during work hours, they are affordable and accessible to those employees who would otherwise not have access to this kind of health offer. Furthermore, the strong support from the whole management and in particular from the Work Council (Betriebsräte) worked as a supportive factor in making the programme resonate among employees.

Because they are more aware of the benefits of exercising, participants also proved more likely to incorporate it as part of their everyday lives. Throughout and after completion of the programme, volunteers reported they adopted long-term physical behavioural changes such as taking the stairs rather than escalators, cycling to work rather than taking public transport, going for walks more often and/or starting to practice Nordic Walking.

Finally, in their feedback, participants expressed appreciation and esteem for the programme, a higher consideration for their health, a feeling of control over their own ageing process, and reported the acquisition of new skills/knowledge.

Active travel

There is some limited evidence that active travel interventions can have a positive effect on physical activity levels. Dugdill's (2008) systematic review identified three studies of interventions which primarily aimed to increase the active travel of employees. The studies show that active travel interventions can have a positive effect on walking, however evidence is less clear how far such interventions can influence employees to cycle to work. One study (Mutrie et al., 2002) shows that the intervention group (who also received a health pack at baseline), were almost twice as likely to report walking to work after 6 months as the control (received pack at 6 months). Petrunoff, et al (2016) studied a workplace active travel plan intervention in an Australian workplace that provided employees with various strategies to encourage active travel to work. They found that the intervention led to a small but significant increase in active travel: the proportion of staff travelling actively to work increased by 4%–6% across the intervention years compared to the baseline.



The more limited effects of workplace interventions on cycling to work are likely to relate to the wider and more complex range of factors that could influence cycling to work and that might constrain a workplace intervention such as a promotional campaign. Infrastructure and taxation incentives, for example, also come into play. A recent development is the use of fiscal incentives to promote cycling to work. Four European countries have recently introduced tax breaks for cycling to work or extended existing ones:

France, Belgium, Luxembourg and Italy, as detailed in the box below.

Examples of tax incentives for active travel

- Belgium: the amount of the tax-free reimbursement has recently been raised to 23 eurocents per kilometre. The number of employees benefiting from this scheme has increased substantially, by 30% between 2011 and 2015 alone. This means that over 400,000 Belgians, or 9% of the country's workforce, now receive a cycling reimbursement.
- Luxembourg: taxpayers are able to deduct €300 from their personal income tax for the purchase of a new bike or e-bike. Companies will also have the possibility to give their employees bikes for both business and private use, and contrary to company cars, this 'benefit in kind' is completely tax free for the employee.
- France: introduced a kilometric reimbursement scheme similar to the Belgian model. The tax-free payment would be limited to €200 per year and employee.
- Italy: several cities are planning to use a national experimental programme for sustainable commuting to pay their citizens to cycle to work or to their university. For example, the city of Bari in Southern Italy is planning to hand out 'mobility vouchers' to employees and students that use their bike for their daily commute. These vouchers can then be used for the purchase of a new bike or for public transport card, for example.

Source: *Bike Europe*

The schemes highlighted above have not been subject to detailed analysis and evaluation. The European Cyclists Federation (2014) concluded however that there are large disparities between European countries in their use of fiscal incentives for cycling. Their study found that while some countries have very advantageous systems to further bike use with kilometric reimbursements, others do not provide any specific fiscal rules on cycling. The study also noted the big difference between the level of tax breaks given by companies to cyclists for their work/home cycling trips and the amount given to workers in the form of company cars.

Stair walking

Evidence is mixed on whether stair walking initiatives can have a long-term impact on levels of physical activity when used in isolation. Based on seven studies which assessed the effectiveness of health signs (posters) or health messages/information (written, email or doctor's email) on workplace stair walking, Dugdill (2008) concludes that the studies identified showed little evidence of the effectiveness of interventions to increase stair walking and concluded that further research is required. Commissaris et al (2016)'s review of 11 staircase interventions showed moderate evidence for an increase in physical activity (PA) at work; insufficient evidence for effects on sedentary behaviour (SB) at work, overall SB and overall PA; and insufficient evidence for effects on work performance and metabolic and physiological responses.

An example of a national 'take the stairs' campaign that has been successful in raising awareness of stair walking in the corporate sector is detailed in section 4.3.

Group led/social exercise

There is strong evidence that group led/social exercises can have a long-term impact on levels of physical activity. (Dugdill et al 2007; Vuillemin et al 2011; To et al 2013; Pohjonen 2001; McEachan 2010; Poderson et al 2016; Burn et al 2017).

Vuillemin et al. (2011) conducted a review of European Studies in worksite physical activity interventions. The authors identified 13 studies that had implemented exercise training interventions including fitness and muscular, aerobic and one stair climbing training. Overall they found moderate evidence that exercise training can lead to positive physical fitness outcomes. Dugdill et al (2007) found three studies that reported on

group activity sessions, two of which were led activities. One led session found medium term improvements in physical activity, which returned to baseline within three years while the other group led intervention received positive feedback with no significant increase in physical activity levels. Another study that delivered a worksite intervention to only women found that, although there was no increase in levels of physical activity, feedback found a high level of participant satisfaction. Furthermore, To et al (2013) found that of the 20 studies they reviewed, the five that included activities with a social or group dynamic were more likely to report being effective than those without these characteristics.



Pohjonen et al (2001) examined the effects and constancy of a workplace physical exercise intervention in relation to the physical fitness, perceived health status, and work ability of female service workers during periods of one and five years. The intervention group participated in nine months of supervised exercise intervention twice a week during the workday. The following differences in outcome variables between the intervention and the control groups were highlighted as statistically

significant: in the 1-year follow-up measurements, body fat had decreased (4%) and dynamic muscle performance and maximal oxygen consumption in relation to body mass (30%–38% and 7%, respectively) had increased in the intervention group. These positive effects of worksite exercise were observed despite the age of the subjects, and the changes were consistent during a 5-year period.

The following example details an initiative that uses group actions focused on inclusion to encourage employee participation in physical activity.

Case study – La Course de la Diversite

Name of intervention	“La Course de la Diversite” (the run of diversity)
Focus	Wider concept of diversity, which includes not only disabilities, but also diversity of age and sex
Member State	France
Lead organisation	Fédération Française du Sport d’Entreprise – French Federation of Sport within Enterprises
Type (method of engagement/physical activity)	Group/social
Period	September/October 2017

Aims and approach

The idea behind the initiative “La Course de la Diversite” (the run of diversity) is to promote a group action focused on inclusion and the broad concept of diversity. This initiative is organised and coordinated by the Fédération Française du Sport d’Entreprise – French Federation of Sport within Enterprises (FFSE), which is an organisation which aims to promote physical activity, health, well-being and integration in companies for the benefit of all employees. The “Run of diversity” is just one of the multiple activities and actions that the FFSE organises.

“The run of diversity” started in 2014 with the idea of giving enterprises the opportunity to promote inclusiveness through sport. This run is also an opportunity for the companies to organise activities within the framework of the of the “Resaux social des entreprises (Social Network of Enterprises)”. The project is planned to include all types of employees and a range of enterprises.

The programme offers a variety of different lengths of runs to allow for a diverse group of participants. This allowed all individuals, including those who never competed in sport, to participate in the activity, creating a diverse range of individuals, bringing them together with a common objective.

The types or runs available to participate in included:

- 6km run
- 6km walking
- 6km duo mix
- 6km duo handicap
- 6km duo intergeneration

Or

- 3km run
- 3km walking
- 3km mix
- 3km duo handicap
- 3km duo intergeneration

The enterprises register how many employees will participate in the initiative and the challenge that they have decided. The companies are in charge of paying a fee of €30 for each employee participating. This initiative does not directly use public funding, however the Ministry of Youth and Sport provide an annual financing to the FFSE, hence, indirectly it is also supporting the initiative.

The companies decided independently how to train for the run: some of them did not train at all, others decided to train by themselves and others organised professional trainings for their employees. When the companies organised professional training, the FFSE supported the company, advising on various types of training and offering professional trainers.

Outcomes and learning points

The impact of the initiative has been positive so far. In three years, the number of participants has increased and in 2017 reached around 1,100 runners. The FFSE also carried out a satisfactory survey, which is currently being analysed, however the initial feedback has been positive.

The companies participate in this initiative because they want to promote the values of integration and respect of diversities. The most interesting aspect of this run is that it is open to all the people, opening the run to people of different age, gender and including those with any disability. There are a variety of running groups which allows everybody to take part.

A particular feature of the runs that acts as a motivating mechanism is that participants must take part in groups composed of a youth, an older person, a disabled person and a woman - they need to start and finish together. In this way, all people are obliged to adapt to the needs of the others, so the stronger individuals need to help the weaker. This generates a close team spirit as the group work together to overcome a range of difficulties.

Environmental changes to reduce sitting

The review has identified studies of interventions that use environmental/office infrastructure changes to reduce sitting within the workplace. A recent systematic review (Shrestha et al, 2016) concludes that at present there is very low quality evidence that sit-stand desks can reduce sitting at work in the short term and therefore further research is needed to examine the longer-term effects of such approaches. Crandall et al (2016) investigated the use of sit-stand workstations and treadmill desks to encourage workplace physical activity and reductions in sitting time. They found that combining static and active workstations with the addition of a behavioural intervention to promote and motivate the participants may produce significant improvements in workplace physical activity and reductions in sitting time. Commissaris et al (2016) reported on 20 studies of workstation interventions, 10 of which involved the introduction of a sit-stand workstation, eight concerned a treadmill workstation, and two studied a pedal machine. Results showed strong evidence for a reduction in overall sedentary behaviour (SB) although the strong evidence for alternative workstations on overall SB was generally attributed to studies of treadmill workstations.



Using a quasi-experimental approach, Gilson et al (2016) evaluated the effects of real time computer prompts on reductions in occupational sedentary exposure, and increases in physical activity. Their study monitored a small sub-sample of workers (n = 24) who used a chair sensor/software package (Sitting Pad) that gave real time prompts to interrupt desk sitting. The respective mean differences between baseline and intervention total time spent sitting at desks, and the longest bout spent desk sitting, were 23 and 32 min/day lower in prompt than in non-prompt workers.

The case study below shows an example of an intervention which combines elements of group activity and environmental changes to reduce sitting.

Case study – Active Workplace (Deutsche Telekom)

Name of intervention	Active Workplace
Focus	Sport as a tool to prevent sicknesses associated to sedentary lifestyles
Member State	Germany
Lead organisation	Deutsche Telekom
Type (method of engagement/physical activity)	Environmental changes/ Multi-component interventions
Period	- Activity 1: Mobile fitness since 2014 - Activity 2: 'Desk bikes' since 2016 (focus of this case study)

Aims and approach

Deutsche Telekom is the biggest German and European telecommunications company employing 228,000 employees worldwide. As part of its Active Workplace initiative, Deutsche Telekom has been implementing two kinds of activities. Since 2014, the company has been offering special fitness programmes at the workplace. Qualified 'mobile fitness coaches' visit employees and teach them easy-to-do exercises focused on the back and neck in small teams. The courses focus on the joy of exercise and motivate participants to start exercising independently. Over 1,000 courses took place in 2016 only.

More recently, Deutsche Telekom has run a six-week pilot project during which 60 employees tested a variety of mobile exercise equipment. The 'desks bikes' stood out as the most popular equipment which led Deutsche Telekom to purchase 500 of them. More than 4,000 employees are now regularly using them. In 2017, this initiative will be extended and include international locations. Currently, Deutsche Telekom provides one desk bike for 10-20 employees depending on the site.

Outcomes and learning points

Deutsche Telekom has commissioned a joint study from the Berufsgenossenschaft Verkehr, the Institute for Occupational Safety and Health, the German Social Accident Insurance (IFA) and the German Sport University Cologne, to evaluate the outcomes of the desk bikes project. The detailed scientific results of the study are expected to be released in early 2018; however a telephone interview with a representative of the Deutsche Telekom Health & Safety Management staff helped to identify some specific outcomes.

The greatest success of Active Workplace, and its desk bikes component in particular, is that it fully integrates regular moderate physical activity as part of employees' daily work schedule. Scientific studies show that regular interruptions of a seated occupation are more effective than lengthy training session before or after work. Desk bikes offer precisely that, without disrupting the workflow and productivity of employees. With this initiative, Deutsche Telekom won the 'Deutscher Unternehmenspreis Gesundheit' 2017 (the German Corporate Health Award).

Furthermore, because desk bikes are part of the working environment, it brings employees to notice it and speak about it whether positively or negatively including those employees who would not display interest in exercise equipment under other circumstances. A positive spill over effect takes place whereby employees using desk bikes trigger interest from other colleagues who in turn get interested and try the equipment. The reach of the programme has thus been significantly greater than more traditional initiatives, which typically involved only 10 to 15% of Deutsch Telekom employees.

Another success factor of the programme is that the offer only involves a one-off cost for the company. Once they have tried the desk bikes, employees tend can use them regularly. Finally, a success factor was the positive support from the senior management staff from Deutsche Telekom and their willingness to take part in the experiment themselves, which triggered further interest from the employees. In addition to management staff being role models, the initiative was heavily advertised on the internal social media platforms of Deutsche Telekom, which worked well in generating interest.

Multi-component interventions

Some of the case studies presented in this section show the benefits of interventions which combine different methods of engagement and activities. Reed et al (2017)'s meta-analysis of 24 studies shows that workplace physical activity interventions increased MVPA levels, as measured by minutes per week of METs; 21 of the 24 studies used multiple intervention strategies to increase PA. The review shows that 'multiple interventions' can include a wide variety of different components. A common type of multi-component intervention is to combine a counselling and advice dimension with different opportunities to participate.

Aittasalo et al (2017) studied the effects of a national level intervention where a national sport federation worked together with a group of companies on the implementation of workplace-based physical activity interventions. This project is detailed in the box below.

Case study - Moving to Business: a study of the effects of a multi-component intervention

The project focused on small and medium-sized enterprises which are defined as enterprises with less than 250 employees. The Finnish Sports Confederation (FSC) recruited twelve workplaces with a total of 396 employees to participate in the MTB initiative. FSC regional contact persons were responsible for recruitment and acted as contact points for 3-5 companies.

The workplaces accepting the invitation paid a participation fee of €2,000 or €3,000 depending on their size. The fee covered some of the implementation costs but also helped to engage the businesses in the activity. Additional commitments were underpinned by a written contract with the Finnish Sports Confederation.

Each workplace nominated an internal 'MTB team' involving managers, human resources staff, working staff and also from the company's occupational health care provider. The MTB teams worked with the regional contact persons to specify goals for increasing PA and reducing SB among employees. They also worked together to develop planned and implementable actions at an organisational level, working unit and individual employee level to reach the goals.

The intervention began with an opening meeting with participants that focused on planning and goal setting. The intervention's activities covered an eight month period. During this time the MTB teams had an opportunity to get extra support from the regional contacts upon request (face-to-face and telephone consultation, group exercise services, help and material for organising campaigns etc.). The employees of the participating workplaces were also offered a one to two-hour workshop on reducing SB and a possibility to use free-of charge an internet-based platform to monitor their PA and receive advice and tips to increase their activity. Most of the workplaces aimed primarily at reducing sedentary behaviour (SB). The most common actions implemented by the MTB teams included sit-stand workstations, exercise equipment for collective use and opportunities to experience different modes of instructed exercise.

The research project analysed changes in employees' physical activity (PA) and sedentary behaviour (SB) from before MTB (baseline) to 1 year after baseline (follow-up). PA and SB (sitting + reclining posture) were objectively assessed with a hip-worn accelerometer. The study used accelerometer data at baseline and follow-up and reported changes in mean minutes (or steps) and percentages of wear-time (% wear-time). At baseline the employees were physically active at work on average 111 min a day, took 3,802 steps, spent 299 min in SB.

The following results were observed during the implementation period:

- Objectively measured sedentary behaviour (SB) at work decreased: daily SB at work decreased 45 minutes on average.
- The employees also increased their daily steps by 673 from baseline.
- Daily light intensity PA increased by 31 minutes and 6.1% of wear-time.

A general conclusion of the research into the implementation of the intervention is that workplaces can achieve meaningful changes in employees' PA and SB if employees are provide with systematic advice and support.

The case studies below show examples of companies that have adopted a holistic approach in encouraging their employees to take part in physical activity. The case studies provide examples of companies where the promotion of physical activity has become embedded in the company culture. The first two were also shortlisted for a BeActive European Week of Sport prize.

Case study – UAB EUGESTA

Name of intervention	Whole company approach
Focus	Company offers wide range of opportunities to engage in physical activity
Member State	Lithuania
Lead organisation	UAB EUGESTA
Type (method of engagement/physical activity)	Multi-component
Period	Ongoing

Aims and approach

UAB Eugesta is a distribution company of 900 employees based in Lithuania, Latvia, Estonia and Belarus. The company provides sales, marketing, promotion, logistic, quality control and merchandising services. This case study focuses on the Head Office in Vilnius, Lithuania.

To ensure that Eugesta are viewed as the best option, they actively target creating emotional wellbeing within the workforce. The company does not have a specific programme to promote physical activity, it is more of a holistic company philosophy. The company directors are physically active people and encourage their employees to live an active life style and have installed these values throughout the organisation. A result of this management style has allowed the employees to stay active and organise and participate in activities.

Eugesta offers a range of sports and physical activities to its employees. Staff have been playing basketball and volleyball since the company was established in 1992, the office also acquired table tennis equipment and fitness balance balls over five years ago. To ensure that employees are constantly developing and enhancing themselves, new physical activities and opportunities are offered to staff. These opportunities include exercising during 5-minute breaks, working out on the Swedish wall, doing Callanetics, playing table football, as well as using ergonomic tables in the workplace. There are no specific mechanisms used to engage employees, it is hoped that from the wide variety of physical activities and office equipment available, everyone will be able to find something they can engage with.

Outcomes and learning points

Eugesta's culture is focused around improving the physical health and wellbeing of its employees, this is key to the continued success of the physical activities on offer. In addition to improving the health and wellbeing of the workforce, Eugesta are trying to improve the health of the general community, by promoting sports activities and highlighting best practices for other companies to replicate. Due to the office locations, the geographical coverage of activities is Pan Baltic.

The activities that are offered are not only in the workplace during working hours but also outside the office and after work. There are many different activities offered and employees are free to choose whether they want to exercise individually or in groups, indoors or outdoors, with or without equipment. The times of exercise is also flexible, allowing everyone the option to participate in activities at times that are preferable to them. The activities that are on offer are so successful because of the flexibility that Eugesta has installed within the physical activities on offer. The equipment available is high quality and modern making the programmes more enticing.

As a result of the company ethics, employees often create and initiate new activities that interest them. Most employees have shown interest in at least one of the physical activities on offer. One employee offered and initiated a callanetica training for the entire team in the workplace. Another employee taught kitesurfing to colleagues, allowing an employee to fulfil a lifelong goal. The workplace is supportive of implementing health and

physical activities, this support structure helps employees facilitate these activities.

The company culture of encouraging physical activities is embedded in Eugesta and brings many benefits to employees and the employer. The success of the activities are often difficult to measure and no specific data exists, however, based on the company's perspective, the biggest visible changes have been in:

- the level of absenteeism and employee turnover has decreased;
- productivity has increased;
- employees are more motivated;
- the company reputation and employee loyalty has improved;
- employees are less fatigued.

The company values ensure that physical activities are always available to employees and this is expected to continue in the foreseeable future. The working practice is even being expanded into the Latvian and Estonian offices. Eugesta aims to continue its current working practices, improving them where possible and including new physical activities.

The physical activities have been successful because of Senior Management encouraging all employees to participate in the activities, which has promoted the culture further. The range and flexibility of the activities has also been pivotal to the success and improving employee's health and wellbeing.

Installing a culture of promoting physical activities and wellbeing could be implemented by any sized organisation. However, it will be easier to implement with a larger workforce, with staff who already participate in physical activities and who can offer training to other staff members. One of the main reasons for success is the Senior Management support for a physically active and healthy workforce and their promotion of activities inside and outside of the workplace.

Case study – Trim Klub Krka

Name of intervention	Trim Klub Krka
Focus	Challenges/Competitions
Member State	Slovenia
Lead organisation	Krka
Type (method of engagement/physical activity)	Multi-component
Period	Ongoing

Aims and approach

Krka is a large pharmaceutical company with over 1,200 employees. The company produces and sells prescription and non-prescription drugs, and veterinary products. Their products are sold in over 70 countries; however, their focus is mainly in five main markets: Slovenia, South-East Europe, Eastern Europe, Central Europe and Western Europe and Overseas Markets.

Krka has a club called 'Trim Klub Krka', which organises sports and recreational activities for employees in three areas:

- recreational activities - such as relaxation exercises, swimming, Pilates, cardio exercise, fitness, aerobics, skiing, cycling and other sport and recreational excursions;
- sport and recreational competitions – annual competitions and large sports events;
- national sports and recreational events – employees are encouraged to participate in national running and cycling marathons, and official sports competitions such as

swimming, running etc.

Krka employees have been participating in the Workers' Sports Games in Novo mesto in Slovenia for over 30 years. Recreational and sports activities are led by Krka employees and contractors at various locations, this enables employees to select a sport activity that suits them best.

Outcomes and learning points

Krka employees have won the Workers' Sports Games for 32 years in a row – the company competes in 18 different disciplines. Every year, the company organises a competition "Selecting the best sector in sports recreation" in which Krka employees compete in 18 different sports disciplines. Over 1,300 employees participated in this event in 2016. In that same year, Trim Klub Krka organised a number of sports activities, which included eight ski trips involving 325 participants, a winter sports day involving more than 300 employees and a sports day that was attended by around 1,000 employees.

Employee participation in 'Trim Klub Krka' regular weekly workout sessions has increased on an annual basis. For example, they have over 1,000 visits to various exercise sessions organised by club every week.

Krka's 'Trim Klub Krka' uses a broad range of approaches to encourage employees to be active; this has contributed to the success of this initiative. To inspire employees to participate in sports activities, Trim Klub Krka distributes leaflets with a list of the different sports and recreational activities that they can choose from. For example, Krka has an active mountaineering group; employees are also involved in cross-country marathons. In winter, they organise excursions for skiers in Slovenia, and in foreign ski resorts. Employees are also educated about the importance of healthy eating, and the company provides healthy food at different company locations. Krka also organises workshops delivered by doctors on healthy eating and living, and its impact on physical health. The organisation has a collection of booklets titled 'Caring For Your Health', which contains information on how to lead a healthy life. They also publish articles in internal newsletters on their internal website on the general importance of health, employees who live close to their workplaces are also encouraged to walk or use a bicycle to work.

Krka also goes beyond encouraging their employees to participate in sports activities, and promotes the benefits of sport participation widely. In 2016, the Krka Group allocated 0.31% of its total sales to sponsorships and grants; the organisation also sponsors approximately 18 sports clubs. These include amateur clubs that encourage young people to take part in recreational and competitive sports.

Krka employees have been participating in national sports events for over a decade and plan to continue to do so. The Workers' Sports Games of the Novo mesto Municipality has been running for more than 30 years, and Krka employees participate in 18 sports disciplines at these games. The company has also been organising their summer and winter sports days for over 30 years. In addition, physical activities are embedded within the culture of the company, and is likely to be sustained in the near future.

Case study – Mahou-San Miguel

Name of intervention	A Tu Salud – Programa de Actividad Física
Focus	Physical activity as part of a wider health intervention
Member State	Spain
Lead organisation	Mahou-San Miguel
Type (method of engagement/physical activity)	Multi-competent/ Various activities
Period	

Aims and approach

La Programa de Actividad fisica is part of a larger health based intervention named 'A Tu Salud' within the company of Mahou-San Miguel. Mahou-San Miguel is a large international Brewery company of far over 250 employees disbursed over its production plants, water-bottling centre and headquarters in Madrid and Barcelona.

The company has a 'Health Surveillance Service'. This group initiated the programme 'A Tu Salud' in 2001 to improve the quality of life of its employees to decrease absenteeism and increase worker productivity. La programa de Actividad Fisica is one aspect of A Tu Salud and includes the provisions of activities and exercise equipment.

It includes two permanent gyms, which employees can use freely outside working hours. In Madrid, employees can enrol in classes of body balance, Pilates or a stretching programme twice a week that take place in the workplaces' gym for up to €30/monthly. The company also has agreements with private sports centres so that employees can access fitness and wellness sessions at a cheaper price. The company supports some sport activities that the employees develop on their own such as through donations of equipment. For example, there is a jogging path inside the factory in Alovera. Furthermore, the prevention service occasionally puts on training called the 'Escuela de la Espalda' in which employees receive a six hours education, training and guidance in back and postural care. Finally, there is a walking club that promotes walking as an organised sport and as a form of transportation

The company engages employees that are high risk in the programme through health examinations offered annually to all workers. Of the 85-90% who go for medical examinations, those with certain cardiovascular risk factors are offered the opportunity of participating in the Physical Activity programme.

Outcomes and learning points

In 2011 the 'Superior Sports Council' and the 'National Institute of Workplace Health and Safety' conducted a social and economic evaluation of the intervention using both quantitative and qualitative methods. The evaluation indicates that the programme has provided good value for money for the company. They find that, for every euro that is invested annually into the programme, the company gains €2.9. They calculate a 188% return on investment .The monetary benefits relate to reductions in sick leave, increases in work productivity and a positive corporate image.

For employees, participants are, on average, physically healthier than the rest of the staff based on various medical indicators, such as blood pressure. Staff also perceive that the intervention has led to personal physical and psychological improvements. Furthermore, the programme saves employees money as an indirect effect of being healthier and by, for example, saving money they may have previously spent on gym membership. Employees also experience the direct and indirect benefits of decreasing medicine consumption. Finally the programme has decreased the time employees spend in travel by allowing participants to develop activities and use facilitates within the work environment.

This programme is a successful example of an ongoing and varied physical activity intervention that has become embedded in company policy. In fact, they were the first food and beverage company to have been awarded a Healthy Company Certificate from the The Spanish Association for Standardization and Certification (AENOR). AENOR, together with the European Institute of Health and Social Welfare, developed the Healthy Company Model which establishes requirements of a healthy management system and incorporates psycho-social and physical components.

Case study – Performance et Responsabilité Michelin

Name of intervention	Performance et Responsabilité Michelin
Focus	Sport as a tool to prevent sicknesses associated to sedentary lifestyles.
Member State	France
Lead organisation	Michelin
Type (method of engagement/physical activity)	Multi-component
Period	Since 2009

Aims and approach

Founded in 1889, Michelin is a French company specialised in tyres that employs 111,700 people in 69 sites across 18 countries. Performance et Responsabilité promotes a healthy lifestyle at work and physical and psychological health through sport. It comprises several components to address the different needs of different categories of employees within the company (manual labour workers, desk based workers, drivers...). A big part of the programme implementation relies on the staff and premises of Michelin's sport association (Association Sportive Montferrandaise - ASM), which was founded in 1911. Originally reserved to the company's employees, it is now open to everyone and comprises about 3,500 members. Michelin funds 75% of its budget.

Performance et Responsabilité comprises three sub-programmes: 'Oxygene', 'Second souffle', 'Education postural globale', on top of which sport facilities are provided at the workplace. A number of activities are transversal to all dimensions of the programme. **Oxygene** focuses on the prevention of diseases directly or indirectly caused by a sedentary lifestyle and stress. Every employee is invited to participate in an induction test to measure their physical fitness based on nine indicators such as flexibility, speed and arms strength. Based on this test, a group of experts made of doctors and personal coaches advise the employee on what physical activity they should practice to improve their performance. Employees can then access sport facilities and/or train individually or collectively in coaches-led sport sessions. Oxygene's entry cost is €80 a year per person, up to 50% of which is covered by Michelin.

Second Breath (Second Souffle) is the equivalent of Oxygene but for those sedentary employees who are re-starting physical training after a long interruption or suffer from specific diseases such as obesity or diabetes. To incentivise this target group to participate in the initiative, Michelin invites those to take part in a 'Body Age diagnostic' which measures their physiologic age. Participants can then enter a 12 week progressive ad-hoc training path calibrated to their specific needs. Participants can take part in various moderate physical activities such as biking, running for beginners and muscular strengthening. At the end of the 12 weeks, participants are invited to take part in an exit test to measure the progress achieved.

Only a few of the employees working in the sites of production participate in Oxygene and Second Breath although the nature of their work makes those physical labourers particularly subject to Tension myositis syndrome (TMS). Against this background, Michelin is currently developing a third initiative focused on those industrial workers such

as assemblers, manufacturing staff, employees in positions involving high drudgery, testers, brakemen (who are particularly subject to osteoarthritis in upper and lower limbs). The initiative, **General postural education** (Education posturale globale), will focus on training employees to adopt better postures at work.

Finally, a number of activities are carried out in collaboration with ASM across all dimensions of the programme. These include regular conferences on nutrition, health, ageing and sport; professional nutrition counselling and coaching; company canteen meals tailored to the type of physical exercise practiced by employees; free cooking classes with a chef and a nutritionist for best performing participants.

Outcomes and learning points

The programme is based on a strong internal collaboration of departments as well the employment of an external specialist sport company. Internally, Michelin involves the company's management, Human Resources, the General Services, the Communication Department, the work environment and prevention department; and, of course, the employees. Externally, Michelin collaborates with the Association Sportive Montferrandaise.

A particular feature of the programme is the fact that it seeks to address a wide range of different needs depending on each professional category of Michelin employees. A key success factor of the programme is its innovative management. Project leaders enjoy significant freedom in the way in which they implement the components of the programme and this represents a significant incentive. Another success factor of the programme is the strong support coming from the management. Based on results achieved in France, Michelin has expanded the programme to some of its international sites including in the USA and Poland.

Programmes focused on company engagement

The case study research has also examined the effects of national level programmes that have sought to engage companies in physical activity interventions. The case studies presented below show that the provision of information, advice and resources by health charities and government agencies can help companies who face information barriers and may have less knowledge regarding the potential benefits of such interventions.

Case study – Active Workplace Challenge Fund

Name of intervention	Active Workplace Challenge Fund
Focus	Funding a range of workplace activities for companies in Wales
Member State	UK (Wales)
Lead organisation	Sport Wales
Type (method of engagement/physical activity)	Programme of engagement
Period	2009-11

Aims and approach

Sport Wales is the National organisation responsible for developing and promoting sport and physical activity in Wales, with the aim of improving the level of sports participation at all levels. Sport Wales is also working to achieve the Welsh Assembly Government's strategy of 'Creating an Active Wales', increasing all adults' current levels of physical activity by 2020.

As employees spend a large proportion of their time at work, Sport Wales recognised the opportunity to use the workplace to have a positive impact on physical activity and encourage a healthy lifestyle. As a result, Sport Wales created the Active Workplace Challenge Fund, which invests in a range of workplace physical activities in Wales. The two year programme funded 27 workplace projects from 2009 – 2011, the success of these programmes was assessed in an evaluation study.

The funding was spent on a wide range of activities to improve the fitness and health of employees, these included:

- Funding/part-funding a coordinator to engage the workforce, encouraging them to participate in workplace physical activity;
- Funding of equipment/gyms;
- Funding/part-funding of fitness classes and activities;
- Part subsidised fitness sessions with free taster sessions;
- Free health checks.

Company specific mechanisms were used to engage employees. Some of the organisations that received funding bought into the schemes and invested funds to support the initiative. Each individual project had its own objective, but the overall goal of the Active Workplace Challenge Fund was to improve the health and wellbeing of employees whilst increasing workplace productivity.

Outcomes and learning points

The evaluation report of the two-year project highlighted the success of the Active Workplace Challenge Fund and identified that all funded organisations increased the number of employees participating in physical activities; however, specific benefits were often difficult to measure. It is difficult to attribute some of the benefits to the specific physical activity offered, for example, one company was able to reduce the amount of sick leave by 0.5%, however this could be as a result of multiple initiatives.

Most organisations receiving the funding felt that workplace health was linked to better staff retention, lower turnover, reduced sickness and higher productivity.

Staff already participating in physical activity outside the workplace saw an increase in the total levels of physical activities. In many cases, those who were doing very little or no physical activity prior to the introduction of the programme, started to take part in physical activity outside of work too. The increase in participation in physical activities varied for each company, however some common lessons could be identified from the implementation of the programme:

- Leadership and buy-in of senior staff – if the business is changing its ethos around physical activity in the workplace it needs to ensure that senior management encourage employees to participate.
- Planning and review – it is necessary to plan the organisation's requirements and review how the programme is progressing against its original objectives. Having an agreed plan relating to funding, staffing and the physical activities is required; however, a flexible approach is necessary throughout the life of the project.
- Employee awareness and involvement – for any voluntary workplace scheme to succeed it is necessary to engage and encourage employees to participate in the programme. This was done in a variety of ways, including: working in tandem with national or local health campaigns; taster days/events; highlighting how the programme has improved colleagues health and wellbeing; videos of classes available; posters; company intranet and health coordinators talking to employees. The ability to feedback ideas to improve activities and develop the programme was also a key to continued engagement of staff and increasing participation rates.

- Offering a range of activities – offering a range of activities allows a wide range of staff with varying physical abilities to be involved in the programme at different levels.
- Coordination of programmes – having an appointed Project Manager with time to oversee the tasks related to physical activities in the workplace will ensure that activities are organised and promoted throughout the organisation.
- Convenience of activities – to maximise the benefits of any activities, they need to be organised in a location and at a time that fits into employees work patterns.

Case study – The Active@Work Programme

Name of intervention	The Active@Work Programme
Focus	Encourage healthier hearts
Member State	Ireland
Lead organisation	Irish Heart Foundation
Type (method of engagement/physical activity)	Walking and various activity Challenge
Period	Programme has been running over 20 years

Aims and approach

Active@Work is a national programme that aims to engage companies in physical activity goal setting and self-monitoring by employees. The programme was developed and is led by the Irish Heart Foundation (IHF), a national charity. The programme’s aims align with the charity’s mission, which is to help the Irish population, especially those at risk, to be healthier in order to reduce the risk of heart disease and strokes.

Companies have three options for engaging with the Active@Work programme. The first option is for companies to sign up for a walking challenge. The walking challenge lasts from four-five weeks and aims to encourage employees to build up to the recommended 30 min or more of physical activity a day. The second option is a Step Challenge, similar to the walking challenge but with the added benefit of a pedometer with which employees are encouraged to achieve and maintain a target of 10,000 steps a day. The third option gives companies the opportunity to win a yearly bronze, silver or gold Active@Work Award to give them formal recognition of achievements in promoting, developing and sustaining any physical activity programmes.

The Active@Work Award requires employees to set up an Active@Work team and nominate a workplace champion to co-ordinate the programme, conduct a needs assessment with employees and to meet criteria specific for each level of award. The criteria generally involves evaluation, creating awareness, ensuring worker inclusivity, implementing and/or signing up for various physical activity challenges and programmes. For the IHF, the Award is the main aspect of the programme as they find it provides more sustainable results. Sometimes, companies will do one of the challenges to fill one of the requirements for the Award.

Companies are usually engaged to participate in the Active@Work programme through word of mouth, particularly as the IHF has a strong and positive reputation as a well-known national charity in Ireland. Once a company decides to implement one of the challenges, the IHR helps to further engage employers and employees through providing instructions, challenge cards, literature and posters. Companies that are signed up for the award are also offered training as well as continued support from the Irish Heart Foundation, even after the end of the programme.

Companies partially fund the programme themselves. The fee covers the cost of materials and staff support as companies and often only works out at 1-2 euro per employee. The programme has set prices base on which challenge the company choses to engage in and the amount of employees within the company. The rest of the funding comes from public donations given to the Irish Heart Foundation.

Outcomes and learning points

The programme has gathered various case studies and feedback over time. There has so far been limited formal analysis of the collected data; however in an interview completed for this study an IHF representative reported that multiple themes have emerged over time. Overall, companies find that the employees have increased their levels of physical activity. They also find that the overall increase in employee morale and satisfaction is mostly related to the teambuilding, the friendly competition, and the social component of the challenges.

Various factors support employer and employee engagement. For employers, it is management buy-in is key. IHF earns managerial support by providing material outlining benefits as well as, for the awards, through the training days. IHF also emphasise that it is important that they are promoting low intensity activities because they are more inclusive and accessible of a sedentary workforce.

Employers and employees appreciate the support that IHF provides in terms of resources and guidance. Companies appreciate IHF's personal, individualised touch. IHF provides guidance which may include trouble shooting if there is a problem or providing general support, even after the challenge is over. They also adapt the programme to the demographic and interest of the company.

These challenges are particularly resource heavy, taking a lot of material and time to organise. Therefore, the fact that IHF provides these resources is a motivating factor to participate in the challenges, making it attractive to many companies.

The case studies find that the increased physical activity is maintained after the programme ends and that, for example, employees continue to use their pedometers. The IHF believe that once employees are given the tools to improve their physical activity in the workplace, they are likely to continue to do so. The programme also improves the chance of outcome sustainability by providing continued support beyond the end of the programme.

4.0 Examples of corporate challenges

4.1 Introduction

One of the study objectives is to compile examples of different corporate challenges including lessons learned with regard to implementation strategies. Drawing on the literature review and case study evidence, this chapter brings together some specific evidence on how company challenges can be used as a means to increase physical activity levels.

4.2 Definition

There does not appear to exist in the literature a clear definition of 'corporate challenges' relating to physical activity interventions. We develop a definition below which attempts to encompass the variety of challenges that have been identified through the literature review and good practice searches:

Corporate challenges for physical activity promotion are initiatives that actively motivate employees to compete against themselves, their colleagues or other workplaces to either achieve certain physical activity targets, which may be set personally, by group, by company or challenge-wide, or to achieve the highest level of physical activity.

4.3 Types of challenges

There are various types of corporate physical activity challenges. The most common, which are considered below, have been identified as step count challenges, active commuting challenges, stair climbing challenges, multi-company physical activity challenges and multi-company physical activity awards/certificates.

Step Count Challenges

There are many examples of step count challenges in the workplace. There is strong evidence to indicate that workplace walking interventions, particularly those that incorporate targets and social aspects, are popular and effective. As shown by the literature review, walking is a realistic workplace activity as it is both low cost and low intensity. Pedometers have made walking easily quantifiable by the amount of steps, and therefore support competitive challenges.

- One example of a walking challenge is described in the Walk@WorkSpain case study (see section 3.4) by the Vic-Central University of Catalonia where employees of Spanish universities use a web-based intervention to track their progress against individually set targets. Employees found the ability to track their progress against individual step goals was a motivating factor in encouraging them to meet their daily targets.
- Charles Steward House at the University of Edinburgh in the UK, with over 230 staff members, gives a good example of a Step Count Challenge in practice. It ran for six weeks between May and June 2016. This challenge allowed employees to enter as teams of five, with a nominated team captain. Participants' either used their own pedometers or a mobile app to track steps. The challenge organisers set goals for the teams. Participants get an online account where they can record daily steps, communicate with team members and track the team's progress. Prizes were awarded at the end for participating, rather than by progress. The challenges were

organised by an external physical activity charity in Scotland called Paths for All¹³. This step challenge, with other physical activity promotion activities, led to 26% of staff reporting that they are commuting more actively to/from work than before, 18% reporting a decrease in sitting time and 38% saying that they have experienced an increase in their physical activity levels¹⁴.

- In 2009, the Swedish company Stappa started the "StappaWalk" initiative in the Netherlands. Companies can take part in the initiative, which is a walking competition for employees to virtually "walk" the distance between Amsterdam and Paris within 63 days. Participants receive a pedometer. This programme was based on the success of a similar programme in Sweden in which participating organisations, including Ikea and the Swedish parliament, an average of 85% of employees, or around 10% of Swedish population, participated and 70% of participants 'reaching Paris'¹⁵.

Active Commuting Challenges

Workplaces have also implemented or taken part in active commuting challenges. These challenges can be highly successful in supporting lasting behavioural change, particularly as commuting is an activity that many have to do on a daily basis.¹⁶ Promotion appears to be a significant aspect in engaging employees to break the habit of 'passive commuting'. Active commuting can be effectively promoted through encouraging workers or workplaces to make their participation official through registration, providing information on cycling to work and offering general motivation. Cycle to work challenges are more popular than other forms of active travel.

- One example of this is 'VeloMai' cycle to work challenge, organised for the staff of the European Commission, a cycle to work challenge. It ran for the whole month of May 2017 and was launched with a promotion event in Brussels. The main objective is to promote the use of cycling as a healthy and sustainable form of transportation to work¹⁷. Over 1,500 people participated and cycled two-thirds of the distance between the Earth and Moon.¹⁸
- Thousands participate in the annual October 'Ride to Work Day' throughout Victoria, Australia. It is run by Bicycle Victoria, Australia's largest cycling membership organisation, with the aim of facilitating sustainable behaviour change towards more active commuting. Bicycle Victoria promote the event, but recruitment largely occurs within workplaces themselves. Bicycle Victoria recruit volunteers from within workplaces who are supplied with materials to enable them to encourage their colleagues to participate in the event. Materials include a guide to promoting the event, scripted emails to distribute leading up to the event, posters and postcards to publicise the event, a booklet detailing what people need to know to cycling to work and a map of Melbourne's bicycle facilities. Individuals and workplaces are encouraged to register to make them eligible for prizes and to indicate the level of participation. In 2004, Bicycle Victoria evaluated the event through two surveys, the first a survey of one workweek, the same week of the event, and the other a survey five months after the event. They found the event to be highly effective, particularly in creating behaviour change among those who had never cycled to work before. They found that 5,577 individual had registered for the event, with one in five riding to work for the first time. 27% of the first-timers were still riding to work five months

¹³The University of Edinburgh (2016), *Step Count Challenge*.

¹⁴The University of Edinburgh (2016), *Post Pilot Results*.

¹⁵Persbericht.nu. (2009), *Zweeds bedrijf Stappa haalt succesvol bewegingsconcept naar Nederland*.

¹⁶ Stewart, G., Anokye, N. K., & Pokhrel, S. (2015), *What interventions increase commuter cycling? A systematic review*, *BMJ open*, 5(8), e007945.

¹⁷European Commission (2017), *Participation of Viloeta Bulc, in the launch event of the 'VeloMai' Initiative*

¹⁸ Twitter. 2017. #VeloMai. <https://twitter.com/hashtag/VeloMai?src=has>

after the event and over 80% of first-timers indicating that the event had a positive impact on their readiness to ride to work¹⁹.

Stair climbing challenges

Stair climbing challenges are simple to implement and often only require promotional material (print or digital) encouraging employees to challenge themselves. However, stair challenges are not as popular on their own as other challenges. This may be because they require certain conditions in the physical environment of the workplace. For example, the workplace needs to be an environment that allows employees to change floor levels at some point in their day and where employees have the option to use a lift rather than taking the stairs.

- However, The Stairway to Health programme in Canada, provides a good example of what this type of challenge can look like. It is provided by The Summits of Canada, a group supported by the Royal Canadian Geographical Society that provides resources and guidance to participating organisations. It is an interactive web-based resource designed to increase physical activity in the workplace through encouraging staff to take stairs rather than lifts. It was developed by Health Canada and the Canadian Council for Health and Active Living at Work²⁰. These challenges can also be as simple as placing promotional material next to a lift, motivating an employee to challenge themselves by taking the stairs instead.²¹ For example Sport Vlaanderen, the sports administration of the Flemish government, provide free footprint stickers to companies. These footprints can be stuck to office steps, therefore encouraging employees to take the stairs in a creative way²².

Example of national 'take the stairs' campaign

"Take the Stairs Week" was a campaign organised by the Diabetes Fund in the Netherlands, aimed at reducing sedentary behaviour at work by encouraging employers to take measures to motivate their staff to move more at work. In total, the campaign was organised ten times, with the final campaign being in 2016, involving more than 200 organisations.²³ Prof. Erik Scherder, Professor in Neuropsychology at the Free University of Amsterdam has been the Ambassador of the Week in 2016.

Key components of the campaign:

- 'Take the Stairs Challenges' organised by different companies using social media in the context of the week (e.g. one challenge encouraged participants to go up and down the stairs ten times per day, and to increase this number by one each day until the end of the month; other challenges encouraged people to take the stairs for an entire week at work).
- Promotional video.
- Five videos by Prof. Scherder (for the 2016 campaign) with a 'daily tip' to move more at work and sit down less, part of a wider toolkit with promotional material companies could use, including:

¹⁹ Rose, G., & Marfurt, H. (2007), *Travel behaviour change impacts of a major ride to work day event*, Transportation Research Part A: Policy and Practice, 41(4), 351-364.

²⁰ CanaTrek; The Summits of Canada. 2017. Stairway to Health. <http://summitsofcanada.net/canatrek/health-fitness/stairway.html>

²¹ Dugdill, L., Brettell, A., Hulme, C., McCluskey, Serena and Long, A.F. (2008) Workplace physical activity interventions: a systematic review. *International Journal of Workplace Health Management*, 1 (1). pp. 20-40. ISSN 17538351

²³ <https://www.diabetesfonds.nl/help-mee/help-als-bedrijf/nationale-traploopweek/deelnemers-traploopweek>

The initiative was discontinued in 2016, due to its success and take-up among companies who are now organising “Take the Stairs Weeks” at their own initiative (In 2016 over 200 companies across the Netherlands took part in the initiative).

Multi-Company Physical Activity Competitions

This type of challenge requires multiple companies to compete for the title of being the most or one of the most physically active workplace(s). They often allow companies flexibility in how they become physical active, allowing interventions to be more context specific. These competitions also provide the opportunity to highlight good practices to other companies in what makes successful interventions and give recognition of the good work of the winning companies. However, perhaps more importantly, the possibility of winning these competitions provides motivation for multiple companies at the same time to increase physical activity in their workplace.

- The #BeActive Workplace Award, as part of the European Week of Sport, is a prominent example of this type of challenge. Workplaces are competing against each other to have the most creative, impactful, inclusive, cost-effective, sustainable and replicable way to encourage their employees to be active. Any workplace throughout the whole of the EU can apply for the award and it is given to one company each year. The European Commission selects, in a high profile jury, selects one winner each year out of three finalists. In the 2016 evaluation of the European Week of Sport 44.4% of respondents in an EU survey were organising activities in the workplace setting due to the European Week of Sport.²⁴
- Another example is the ‘Feel sporty’ Trophy given annually by the National Olympic and Sports Committee of France (CNOSF). They have four different trophies that all encourage companies to be physically active. The ‘Top Athlete’ trophy awards one small and one large company that has a high level of physical activity among their employees, a ‘Strategy, Management and Wellbeing in Business’ trophy is awarded to organisations that have integrated physical activity and sport into their HR policy and management strategy. The ‘Accredited Organiser’ trophy is awarded to a company (or another group) that has a highly innovative physical activity project and, finally, a prize is given to the most sporty company in France that has tried to involve the most employees and has integrated the most physical activity into the very framework of their company²⁵. The successful companies are then listed in an annual publication that lists each companies’ achievements, highlighting good practice ideas for other organisations.

Multi-Company Physical Activity Awards/Certificates

For this type of challenge, certificates or awards are given to all companies that achieve certain criteria. Therefore, the company is competing against themselves rather than other companies. The certificates and awards can be time limited, in which they would need to be renewed or earned again at the end of the period. These challenges can be particularly successful in engaging companies when they are provided by well-known and well-respected organisations.

- One example of this is the Active@Work Award from the Irish Heart Foundation, as described in one of the case studies. The Active@Work award gives companies an opportunity to win a bronze, silver or gold award depending on which set list of requirements they complete. The criteria generally includes an evaluative aspect, raising awareness of the benefits of physical activity, ensuring worker inclusivity in

²⁴ European Commission. 2016. #BeActive European Week of Sport. 2016 Evaluation Report. https://ec.europa.eu/sport/sites/sport/files/library/documents/ewos-2016-evaluation-report_en.pdf

²⁵FranceOlympique (2017) Trophées Sentez-vous sport.

physical activity interventions and implementing and signing up for various physical activity challenges and programme. The Irish Heart Foundation feels that the award is highly successful in sustainably increasing physical activity because, as it is only valid for a year and consists of three stages (bronze, silver and gold) with companies often coming back to regain the award and/or to achieve a higher award. The Irish Heart Foundation have identified their own brand and reputation as key success factors in the good level of company engagement.

- The Estonia NGO, Sports for All, which falls under the umbrella of Estonian Olympic Committee, started a mass campaign and invited different companies to join by signing up on their website. Companies can do different activities as long as they are focused on getting employees physically active. 200 companies have joined this year. They find that private organisations are much more responsive than public organisations, perhaps because they are more flexible, with public companies being under more pressure, and because their NGO is under the well-known Chamber of Commerce, which attaches a perceived importance to the programme. They also find that a company can be successful regardless of size, what is more imperative for a company's success in engaging their employees in a campaign is the attitude of that company's management and the general culture of the company.

5.0 Summary and conclusions

Based on a rapid and systematic review of the literature on workplace physical activity interventions, a number of key conclusions can be made with regard to their effectiveness and outcomes:

- There is a large and well-developed body of knowledge on the outcomes and effectiveness of workplace physical activities.
- The literature review has identified many studies which show positive outcomes for workplace interventions. Most of the studies reviewed measure the short-term effects of interventions on specific physical activity outcomes which are directly related to the intervention (for example, walking or exercise).
- There has been less focus on the effects of workplace interventions on overall physical activity behaviour using measures such as weekly levels of moderate or vigorous physical activity. Very few studies therefore consider how far interventions are enabling people to move towards public health recommendations on weekly levels of physical activity moderate or vigorous intensity.
- There has also been more limited focus on the effects of interventions on specific groups including health inequality groups – the interventions were largely targeted at employees of all ages and all genders. However where there is a focus on inactive employees, the studies provide positive evidence on the particular benefits of workplace interventions for such groups.
- Evidence on some specific types of interventions (e.g. walking initiatives) is more developed and robust than others (e.g. stair walking).
- There is strong evidence based on the literature and case studies that multi-component interventions particularly those involving information, advice and counselling alongside organised opportunities to take part in activities have the best outcomes.

Through the literature review and case study evidence, it is also possible to identify some particular lessons on the implementation of workplace physical activity interventions. Lessons can be considered from both the perspective of national or regional level programmes that target the corporate sector and interventions that are implemented at the company level:

- The case studies have demonstrated effective national level programmes which seek to engage companies in physical activity interventions. Programmes which are valued by companies (particularly small companies) provide information and guidance and in some cases resources to help companies engage their employees. The brand and reputation of the lead organisation can be an important success factor in engaging companies in workplace initiatives.
- The research has highlighted the different needs and aspirations of large and small companies with regard to physical activity interventions. National or regional level programmes help to address the specific information and resource barriers that small business face. There are some parallels here with arguments concerning the rationale for general business support programmes which target the small business sector as the research has shown that larger companies are better equipped to deliver more holistic interventions.
- The case studies show that sometimes it is better not to be too ambitious in terms of the intensity of the activities on offer – increasing walking, both within the office and through workplace challenges, is a realistic workplace activity as it is both low cost and low intensity.

- Some of the most successful examples of workplace physical activity interventions are those which allow physical activity to become embedded in the company's culture and daily practices. Managers and leaders in such companies emphasise the importance of physical activity and provide a variety of participation opportunities. Activities are also tailored to meet the needs of different groups and levels of fitness.
- More successful interventions tend to integrate regular moderate physical activity as part of employees' daily work schedule.
- The case study research has also highlighted a number of common lessons in the implementation of physical activity programmes within the workplace:
 - Leadership and buy-in of senior staff – the case studies show that effective interventions can depend on the buy-in of senior management.
 - Coordination of programmes – a project manager or physical activity champion within the company with time to oversee the tasks related to physical activities can help to ensure that activities are organised and promoted throughout the organisation.

The research has also drawn together some specific evidence on the use of company challenges as a means to increase physical activity levels. The key points to emerge are:

- There are many examples of successful step count challenges within single workplaces and over multiple workplaces. Step count challenges are particularly effective and engaging when they utilise pedometers and when employees are encouraged to reach set targets. Employees can also be encouraged to participate in teams to another level of friendly competition.
- Cycle to work challenges are the most popular type of active commuting challenge. These challenges can lead to high levels of engagement and sustainable change if they incorporate a strong promotional component by providing employees with motivation and informative material on cycling to work.
- Stair climbing challenges are less popular, but also appear to be the easiest to implement. At minimum, they simply require promotional material, often placed next to the lift, which encourages employees to take the stairs instead. This promotion material can be creative, such as using the image of footprints tracking up the stairs.
- Multi-company physical activity competitions may have far-reaching effects as they support physical activity in multiple organisations simultaneously. It also provides companies with encouragement to implement physical activity interventions that are most suitable in their unique context.
- Finally, evidence indicates that multi-company physical activity awards or certificates also provide the opportunity to reach multiple organisations simultaneously. These challenges seem to be particularly effective when provided by well-known, well-respected organisations.

Annex One: References

- Aittasalo, M., Livson, M., Lusa, S., Romo, A., Vähä-Ypyä, H., Tokola, K., Sievänen, H., Mänttari, A., & Vasankari, T. (2017). Moving to business—changes in physical activity and sedentary behavior after multilevel intervention in small and medium-size workplaces. *BMC public health*, 17(1), 319.
- Barr-Anderson, D. J., AuYoung, M., Whitt-Glover, M. C., Glenn, B. A., & Yancey, A. K. (2011). Integration of short bouts of physical activity into organizational routine: A systematic review of the literature. *American journal of preventive medicine*, 40(1), 76-93.
- Blake, H., Suggs, L. S., Coman, E., Aguirre, L., & Batt, M. E. (2017). Active8! Technology-based intervention to promote physical activity in hospital employees. *American Journal of Health Promotion*, 31(2), 109-118.
- Bruton, C. M., Vurnakes, C., Martin, K., Perry, W., & Henderson, K. A. (2012). A case study of a workplace recreation-based physical activity program. *Leisure/Loisir*, 36(1), 1-16.
- Burn, N., Norton, L. H., Drummond, C., & Norton, K. I. (2017). Changes in Physical Activity Behaviour and Health Risk Factors Following a Randomised Controlled Pilot Workplace Exercise Intervention.
- Chau, J. Y., van der Ploeg, H. P., Van Uffelen, J. G., Wong, J., Riphagen, I., Healy, G. N., ... & Brown, W. J. (2010). Are workplace interventions to reduce sitting effective? A systematic review. *Preventive medicine*, 51(5), 352-356.
- Commissaris, D. A., Huysmans, M. A., Mathiassen, S. E., Srinivasan, D., Koppes, L. L., & Hendriksen, I. J. (2016). Interventions to reduce sedentary behavior and increase physical activity during productive work: a systematic review. *Scandinavian journal of work, environment & health*, 42(3), 181-191.
- Compernelle, S., Vandelanotte, C., Cardon, G., De Bourdeaudhuij, I., & De Cocker, K. (2015). Effectiveness of a web-based, computer-tailored, pedometer-based physical activity intervention for adults: a cluster randomized controlled trial. *Journal of medical Internet research*, 17(2).
- Crandall, K. J., Zagdsuren, B., Schafer, M. A., & Lyons, T. S. (2016). Static and Active Workstations for Improving Workplace Physical Activity and Sitting Time. *International Journal of Human Movement and Sports Sciences*, 4(2), 20-25.
- Dugdill, L., Brettell, A., Hulme, C., McCluskey, S., & Long, A. F. (2007). A review of effectiveness of workplace health promotion interventions on physical activity and what works in motivating and changing employees health behaviour. Draft report
- Dugdill, L., Brettell, A., Hulme, C., McCluskey, S. and Long, A.F. (2008) Workplace physical activity interventions: a systematic review. *International Journal of Workplace Health Management*, 1 (1). pp. 20-40. ISSN 17538351.
- European Cyclists Federation (2014). *Commuting: Who Pays The Bill? Overview of fiscal regime for commuting in Europe and recommendations for establishing a level playing-field.*
- Gilson, N. D., Puig-Ribera, A., McKenna, J., Brown, W. J., Burton, N. W., & Cooke, C. B. (2009). Do walking strategies to increase physical activity reduce reported sitting in workplaces: a randomized control trial. *International Journal of Behavioral Nutrition and Physical Activity*, 6(1), 43.

- Gilson, N. D., Ng, N., Pavey, T. G., Ryde, G. C., Straker, L., & Brown, W. J. (2016). Project Energise: Using participatory approaches and real time computer prompts to reduce occupational sitting and increase work time physical activity in office workers. *Journal of Science and Medicine in Sport*, 19(11), 926-930.
- Heaney, C. A., & Goetzel, R. Z. (1997). A review of health-related outcomes of multi-component worksite health promotion programs. *American Journal of Health Promotion*, 11(4), 290-307.
- Kling, H. E., Yang, X., Messiah, S. E., Arheart, K. L., Brannan, D., & Caban-Martinez, A. J. (2016). Peer Reviewed: Opportunities for Increased Physical Activity in the Workplace: the Walking Meeting (WaM) Pilot Study, Miami, 2015. *Preventing chronic disease*, 13.
- Malik, Sumaira H. and Blake, Holly and Suggs, L. Suzanne (2014) A systematic review of workplace health promotion interventions for increasing physical activity. *British Journal of Health Psychology*, 19 (1). pp. 149-180. ISSN 2044-8287.
- Mason, M. R., Ickes, M. J., Campbell, M. S., & Bollinger, L. M. (2017). An Incentivized, Workplace Physical Activity Intervention Preferentially Increases Daily Steps in Inactive Employees. *American Journal of Health Promotion*.
- McEachan, R. R., Lawton, R. J., Jackson, C., Conner, M., & Lunt, J. (2008). Evidence, theory and context: using intervention mapping to develop a worksite physical activity intervention. *BMC public health*, 8(1), 326.
- Mutrie, N., Carney, C., Blamey, A., Crawford, F., Aitchison, T., & Whitelaw, A. (2002). "Walk in to Work Out": a randomised controlled trial of a self help intervention to promote active commuting. *Journal of Epidemiology & Community Health*, 56(6), 407-412.
- Petrunoff, N., Wen, L. M., & Rissel, C. (2016). Effects of a workplace travel plan intervention encouraging active travel to work: outcomes from a three-year time-series study. *Public health*, 135, 38-47.
- Pedersen, C., Halvari, H., Sørenbø, Ø., & Williams, G. (2016). Effects of a worksite intervention on autonomous motivation, exercise and health: a randomised controlled trial. *European Health Psychologist*, 18(S), 560.
- Pohjonen, T., & Ranta, R. (2001). Effects of worksite physical exercise intervention on physical fitness, perceived health status, and work ability among home care workers: five-year follow-up. *Preventive medicine*, 32(6), 465-475.
- Proper, K. I., Hildebrandt, V. H., Van der Beek, A. J., Twisk, J. W., & Van Mechelen, W. (2003). Effect of individual counseling on physical activity fitness and health: a randomized controlled trial in a workplace setting. *American journal of preventive medicine*, 24(3), 218-226.
- Puig-Ribera, A., McKenna, J., Gilson, N., & Brown, W. J. (2008). Change in work day step counts, wellbeing and job performance in Catalan university employees: a randomised controlled trial. *Promotion & education*, 15(4), 11-16.
- Reed, J. L., Prince, S. A., Elliott, C. G., Mullen, K. A., Tulloch, H. E., Hiremath, S., Cotie, L. M., Pipe, A. L. & Reid, R. D. (2017). Impact of Workplace Physical Activity Interventions on Physical Activity and Cardiometabolic Health Among Working-Age Women. *Circulation: Cardiovascular Quality and Outcomes*, 10(2), e003516.
- Schröer, S., Haupt, J., & Pieper, C. (2013). Evidence-based lifestyle interventions in the workplace—an overview. *Occupational medicine*, kqt136.

- Shrestha N, Kukkonen-Harjula KT, Verbeek JH, Ijaz S, Hermans V, Bhaumik S. (2016). Workplace interventions for reducing sitting at work. *Cochrane Database of Systematic Reviews* 2016, Issue 3. Art. No.: CD010912.
- Taylor, N., Conner, M., & Lawton, R. (2012). The impact of theory on the effectiveness of worksite physical activity interventions: a meta-analysis and meta-regression. *Health Psychology Review*, 6(1), 33-73.
- Titze, S., Martin, B. W., Seiler, R., Stronegger, W., & Marti, B. (2001). Effects of a lifestyle physical activity intervention on stages of change and energy expenditure in sedentary employees. *Psychology of Sport and Exercise*, 2(2), 103-116.
- To, Q. G., Chen, T. T., Magnussen, C. G., & To, K. G. (2013). Workplace physical activity interventions: a systematic review. *American Journal of Health Promotion*, 27(6), e113-e123.
- Van Dongen, J. M., Proper, K. I., Van Wier, M. F., Van der Beek, A. J., Bongers, P. M., Van Mechelen, W., & Van Tulder, M. W. (2011). Systematic review on the financial return of worksite health promotion programmes aimed at improving nutrition and/or increasing physical activity. *obesity reviews*, 12(12), 1031-1049.
- Vuillemin, A., Rostami, C., Maes, L., Van Cauwenberghe, E., Van Lenthe, F. J., Brug, J., De Bourdeaudhuij, I. & Oppert, J. M. (2011). Worksite physical activity interventions and obesity: a review of European studies (the HOPE project). *Obesity facts*, 4(6), 479-488.

Annex Two: Further information on the literature review

Using search terms linked to the typology we followed a three-stage process: First, we searched for academic literature on a range of search engines including Pubmed, Science Direct, Cochran Library and Google scholar. Second, we sourced publications of relevant organisations, research centres and subject experts including for example International Sports & Culture Association, The European Network for Workplace Health promotion and the European College of Sports Science. Third, we conducted a rapid web search on google using the search terms to identify additional literature. During this process, if we found relevant interventions that might be appropriate for case studies and set them aside in a separate list.

English Search words						
Participant/Setting type	and	Intervention type	and	Intervention	and/or	Study Design
workplace		physical activity		interventions		meta-analysis
office		exercise		programmes		Systematic Review
job		health		promotion		meta-review
worksite		Campaigns		project		review
employee		Competitions				evaluation
workers		Initiative				
company		Challenges				
organisation		Stairs				
		Active travel				
		Walking				
		education				

A total of 52 sources were reviewed with evidence about the outcomes and effectiveness of workplace-based physical activity interventions. A breakdown of the types of articles reviewed is shown in the table below:

Source Type	Source Count
Meta-Analysis and Systematic Reviews of All Interventions	20
Meta-Analysis of Specific Interventions	6
Research on Specific Interventions	26

Annex Three: Case studies

Case study 1 – Walk@Work

Summary information	
Name of intervention	Walk@Work Spain programme
Focus	Sit less, move more.
Member State	Spain
Lead organisation	Universitat de Vic-Universitat Central de Catalunya
Type (method of engagement/physical activity)	Challenge/Walking
Period	2010-2011

Aims and Approach

The Ministry of Science and Innovation of Spain funded Vic-Central University of Catalonia to develop Walk@WorkSpain, a 'sit less, move more programme', for companies to ultimately use to reduce employee sedentary behaviour. The purpose of the Walk@WorkSpain intervention is to decrease the sitting time and increase the time spent in physical activity among Spanish office employees. It consists of a 19-week web based workplace intervention.

The intervention begins with employees noting their usual activity levels by charting step counts, using pedometers, and time spent sitting, using diaries. In the following weeks employees then used an interactive website that challenges them to increase their daily step counts by 1,000 to 3,000 from their benchmark for eight weeks. The website provided strategies on how they could be more active during the workday, such as by setting goals, increasing awareness of health benefits and providing suggested activities for employees. The website also provided motivational materials and interactive features where employees can chart their changes in step counts and reduced sitting time at work. Then, during the 9th to 19th week, the website sent automatic emails encouraging employees to maintain the increase in their steps and the decrease in their sitting time.

This intervention has so far only been conducted in an academic context with the main study being conducted in 2010-2011. Researchers found that the selected universities were easily engaged in the intervention because, as a research study in which the programme was already funded and required no extra work on the part of the employer, they found no reason to not to allow the intervention to take place. Once university campuses were selected for the intervention, employees were engaged to partake in the intervention with a recruitment process similar to what an employer might use in practice to engage their own employees. Employees were initially sent an invitation email, explaining the programme with a link to an online survey to identify employees' current level of physical activity. Employees with low or moderate levels of physical activity were then invited to participate in the intervention. Overall, 129 employees were engaged in the Walk@WorkSpain intervention over three Spanish university campuses. Six campuses were used in the research study in total, three campuses designated to the intervention and three campuses designated to control conditions, spanned the Galician, Basque and Catalanian regions.

The Walk@WorkSpain programme was chosen as a case study due to its strong evidence base and its evident success in increasing levels of physical activity. The success of this intervention highlights the potential benefits of walking interventions among sedentary office employees, particularly when programme includes a web-based, individualised approach.

Outcomes and learning points

The outcome of the W@WS programme study in 2010-2011 are depicted over multiple academic papers. Researchers used quasi-experimental methods to collect and analyse self-reported data.

Results found that the intervention was effective. Even at 2 months after the intervention, the intervention group had significantly decreased their occupational sitting time and increased their daily step counts. As a result, the intervention group significantly reduced waist circumference by 2.1cm by the 2-month follow up; this is 38% higher reduction than found in the comparison group²⁶. The intervention was also found to significantly increase the amount employees participated in light-intensity activity, such as walking²⁷. Furthermore, there is indication that the programme can reduce both lost work performance and the percentage of time spent working while impaired by ill health, with better performance linked to those who are more active²⁸.

The intervention had a high level of engagement and a low level of dropout. Researchers feel the key to this success was that they had first gained the support of key influencers in the employees' work lives: university deans, the occupational health departments and workers unions. They felt that employees were more likely to partake in the study when they received the letter of invitation with the endorsements of these multiple stakeholders. Moreover, employees may also have felt more willing to participate as the endorsements were not only from their employer, but also a union, which may have been viewed as an objective third party working for the benefit of the employees. However, it should be noted that, in practice, an employer would need to pay a fee to use the web-based tool and that it would require some coordination from the employer or a designated member of staff. Therefore, the reason for the study's success in engaging employers to take part in the intervention, may not be completely replicable in practice.

Once engaged in the intervention, a key to the intervention's success in keeping employees engaged and in increasing levels of physical activity, among other benefits, is that employees were empowered with the freedom to choose which strategies suited them best from a list of possible strategies. For example, the study found that employees preferred the use of active work tasks, such as walking to a further toilet or walking while on the phone, than the more time-consuming lunchtime walking groups²⁹. Researchers feel it was also important that the interventions promoted low-intensity activities, as they are more sustainable for sedentary office workers. Researchers therefore recommend

²⁶ Puig-Ribera, A., Bort-Roig, J., González-Suárez, A. M., Martínez-Lemos, I., Giné-Garriga, M., Fortuño, J., ... & Gilson, N. D. (2015), *Patrones de impacto de un Programa basado en tecnología web para "Sentarse Menos y Moverse Más" en trabajadores de oficina sedentarios*, *Archivos de Prevención de Riesgos Laborales*, 18(4), 204-206.

²⁷ Puig-Ribera, A., Bort-Roig, J., Giné-Garriga, M., González-Suárez, A. M., Martínez-Lemos, I., Fortuño, J., ... & McKenna, J. (2017), *Can a workplace 'sit less, move more' programme help Spanish office employees achieve physical activity targets?*, *The European Journal of Public Health*, 27(5), 926-928.

²⁸ Puig-Ribera, A., Bort-Roig, J., Giné-Garriga, M., González-Suárez, A. M., Martínez-Lemos, I., Fortuño, J., ... & McKenna, J. (2017), *Impact of a workplace 'sit less, move more' program on efficiency-related outcomes of office employees*. *BMC public health*, 17(1), 455.

²⁹ Bort-Roig, J., Martin, M., Puig-Ribera, A., González-Suárez, Á. M., Martínez-Lemos, I., Martori, J. C., & Gilson, N. D. (2014), *Uptake and factors that influence the use of 'sit less, move more' occupational intervention strategies in Spanish office employees*. *International Journal of Behavioral Nutrition and Physical Activity*, 11(1), 152.

that it is important to assess the demographics and culture of a company before deciding what level of physical activity to promote in that workplace.

Participants emphasised the motivational value of being able to log and get feedback on their progress against set goals³⁰. For this reason, the researchers highlight the necessity of getting baseline information so that employees can see how far they have come from their original sitting and active behaviour. This approach also allows for goals to be personalised in which the targets can be set individually rather than universally, for the whole company. The result is that targets are more realistic and achievable for all employees.

This was a one-off intervention as, according to the researchers, once the employees are empowered with the tools to increase their level of physical activity at work, they will continue to use them. This notion is supported by the fact that the positive outcomes achieved by the interventions were still present two months after the end of the programme. The researchers note that in their own university, which was one of the selected intervention sites, some of their colleagues have been wearing and keeping track of their pedometers even since the intervention in 2010-2011. Based on the success and learning from this intervention, Walk@WorkSpain has been transformed into an MHealth app which is currently undergoing further testing. One Spanish company has already contacted the developers and its employees will start the intervention in January 2018.

³⁰ Bort-Roig, J., Martín, M., Puig-Ribera, A., González-Suárez, Á. M., Martínez-Lemos, I., Martori, J. C., & Gilson, N. D. (2014), *Uptake and factors that influence the use of 'sit less, move more' occupational intervention strategies in Spanish office employees*. *International Journal of Behavioral Nutrition and Physical Activity*, 11(1), 152.

Case study 2 – Clever and Active in Old Age (Deutsche Bahn)

Summary information

Name of intervention	CLARA - Clever und Aktiv Richtung Alter
Focus	Preserve the employability and motivation of older employees; prevention of old age diseases
Member State	Germany
Lead organisation	Deutsche Bahn
Type (method of engagement/physical activity)	Counselling and Education/ Varied
Period	6 months pilot project carried out in between 2013 and 2014

Aims and approach

Deutsche Bahn Group provides mobility and logistical services in over 130 countries. It is one of the largest railway companies in the world by revenue and it employs 300,000 people, about two thirds of whom are located in Germany. The core business of the company is the railways in Germany.

As with many European companies, Deutsche Bahn is affected by demographic changes. The average age of its workforce is currently 46 years old and almost 44% of its Germany-based employees are over 50. This trend is likely to heighten as forecasts predict the proportion of old people (65+) in Germany will double by 2050. The issue is that an increasing number of employees leave the company from 55 years old already on health grounds.

In response to this trend, the company has launched the 'CLARA' programme (Clever und Aktiv Richtung Alter – Clever and Active in Old Age) to ensure its older workers remain productive and motivated throughout their career and work until they reach the legal retirement age - 66. The aim is also to prevent old age diseases such as disorders of the musculoskeletal system, diabetes mellitus (type 2), hypertension and dementia. The spirit of the programme is to positively influence employees' behaviour by making them realise they are responsible for their health and should look after their physical (and mental) condition.

CLARA unites three key aspects of health promotion: information about health and ageing, sports and exercise programs, and mental training; although this case study will focus on the physical strand of the programme. Deutsche Bahn tested the programme through a pilot phase in which 251 employees participated on a voluntary basis in three of their sites.

The participants' journey started with a medical entry examination. They then attended five to seven days of health trainings and tests (depending on the sub-sample group they belonged to) on their work time over 6 months with a period of implementation of the new skills and knowledge acquired in participants' free time. At the end of the six months, participants went through an exit examination conducted on their free time.

Health modules included personalised counselling sessions. About a third of the trainings and tests dealt with physical fitness, the other two third addressed mental fitness and general health courses. The physical strand of the modules focused on coordination, perseverance, and muscular relaxation. In addition to in-person training, CLARA provided participants with tablets and access to an online platform where they could watch health-related video clips and interactive classes with the aim to incentivise them to exercise in their free time.

CLARA stands out as an original initiative as it focuses on older employees and tries to address European demographic transition in a constructive way.

Outcomes and learning points

CLARA was designed by the Institute of Gerontology of Heidelberg University which also assessed its impact. A total of 251 participants took part in CLARA pilot project and were divided into three sub-samples, as part of which they got to attend either five or seven days of health modules. In addition to this evaluation, an interview with the programme manager at Deutsche Bahn, Simone Mouget, helped inform this case study.

Across all sub-samples, there is evidence that the physical fitness of participants improved between the start and the end of the programme. Physical fitness was measured according to three indicators: endurance, agility and strength. On average across all groups, participants' endurance increased by about 14%, their agility increased by about 12% and their strength increased by 9%. In addition to improved physical performances, the final medical examinations showed that participants had better health records including a lower blood sugar rate, a lower blood pressure and an increase in their HDL rate (so-called 'good' cholesterol).³¹

Because they are more aware of the benefits of exercising, participants also proved more likely to incorporate it as part of their everyday lives. Throughout and after completion of the programme, volunteers reported they adopted long-term physical behavioural changes such as taking the stairs rather than escalators, biking to work rather than taking public transports, going for walks more often and/or starting to practice Nordic Walking.

Finally, in their feedbacks, participants expressed appreciation and esteem for the programme, a higher consideration for their health, a feeling of control over their own ageing process, and reported the acquisition of new skills/knowledge.

Following the completion of the pilot phase, the programme is now available permanently as part of the global Deutsche Bahn range of health prevention measures. The programme has been maintained in its initial version to the exception that medical tests no longer take place as part of the training days but as part of participants' free time.

The key success factor of the programme is that it raises awareness about health prevention directly at the workplace. Because health modules take place during the work time, those employees who would otherwise not have access to this kind of health offer can afford it through the programme. Furthermore, the strong support from the whole management and in particular from the Work Councils (Betriebsräte) worked as a multiplying factor in making the programme resonate among employees.

The fact that the programme not only promoted physical activity but included activities to improve the mental and general health awareness of the participants also proved very successful in improving participants' overall health condition. Finally, using precise and numerical indicators to assess participants' condition and performance, and tracking their evolution between the beginning and the end of the programme was significantly successful in getting people interested and motivated to improve their health.

The main challenge of the initiative is its high cost, resulting among other things from the personalisation of the health diagnostics. In fact, this is the most expansive health-related measure implemented by Deutsche Bahn. Only around 200 employees can take part each year which is low compared to the 200,000 of them who are based in Germany. Many more employees are prevented to take part in the programme on budget grounds. The programme is currently fully financed by Deutsche Bahn although the company is looking for financial support from or partnership with health insurance funds.

³¹ For more information, see: http://www.health-on-top.de/userdoks/handouts/2015-Kongress-v_Mouget.pdf

Case study 3 – Diversity Run

Summary information

Name of intervention	La course de la diversité
Focus	<i>Wider concept of diversity, which includes not only disabilities, but also diversity of age and sex.</i>
Member State	France
Lead organisation	Fédération Française du Sport d'Entreprise – French Federation of Sport within Enterprises
Type (method of engagement/physical activity)	Group/ social
Period	September/October 2017

Aims and approach

The initiative “La Course de la Diversité” (the run of diversity) aims to promote a collective approach to physical activity in the workplace focused on inclusion and the concept of diversity. According to the website,

“The Diversity Race is an inter-company race that carries the values of social cohesion, solidarity and equal opportunities, values in coherence with the social model of companies”

This initiative is organised and coordinated by the FFSE (Fédération Française du Sport d'Entreprise – French Federation of Sport within Enterprises), which is an organisation which aims to promote physical activity, health, wellbeing and integration in companies for the benefit of all employees. The “Run of diversity” is just one of a number sport activities and actions that the FFSE organises for the business sector.

“The run of diversity” started in 2014 with the idea of giving enterprises the opportunity to promote inclusiveness through sport. The idea of diversity is addressed in terms of age, gender and physical disability. In 2014, the run was organised by a single company, then, for two following years, by an independent network of companies promoting physical activity, and in 2017 it was officially arranged by the FFSE. This run is also an opportunity for the companies to organise activities within the framework of the of the “Resaux social des entreprises (Social Network of Enterprises)”. The project is planned to include all types of employees and a range of enterprises.

A feature of the run is that participants are organised in groups composed of a younger and older participants, a disabled person and a woman, they need to start and finish together. In this way, all people are obliged to adapt to the needs of the others, so the stronger individuals need to help the weaker. This generates a close team spirit as the group work together to overcome a range of difficulties.

The 2017 the Run was organised in Paris, on the 28th of September and in Lyon on the 6th of October and involved in total 1,100 employees.

The programme offers a variety of different lengths of runs to allow for a diverse group of participants. This allowed all individuals, including those who never competed in sport, to participate in the activity, creating an diverse range of individuals, bringing them together with a common objective.

The types or runs available to participate in include:

- 6km run
- 6km walking

- 6km duo mix
- 6km duo handicap
- 6km duo intergeneration

Or

- 3km run
- 3km walking
- 3km mix
- 3km duo handicap
- 3km duo intergeneration

The enterprises register how many employees will participate to the initiative and the challenge that they have decided. The companies pay a fee of €30 for each employee participating. There is an indirect subsidy for the initiative as the Ministry of Youth and Sport provide annual funding to the FFSE.

Outcomes and learning points

The impact of the initiative has been positive so far. In three years, the number of participants has increased and in 2017 reached around 1,100 runners. The FFSE also carried out a satisfactory survey, which is currently being analysed, however the initial feedback has been positive.

A motivation for the companies to participate in this initiative is that it allows them to be associated with a positive event that promotes the values of integration and respect of diversities. The most interesting aspect of this run is that it is open to all the people, opening the run to people of different age, gender and including those with any disability.

While the diversity runs are one off events, there is evidence that the preparation and training required influences attitudes to physical activity and encourages longer-term impacts. The companies decide independently how to train for the run: some of them did not train at all, others decided to train by themselves and others organised professional trainings for their employees. When the companies organised professional training, the FFSE supported the company, advising on various types of training and offering professional trainers.

As this is the fourth time the run has been organised, but the first time it is formally managed by the FFSE, there are several aspects which need to be taken into account and improved:

- The date of the run: the FFSE need to be careful and check that there is no overlap with other runs
- The date of the run needs to be promoted in advance to allow for the individuals to train
- The organisation should also enhance animation activities happening alongside the run to promote diversity and remove and prejudices
- The communication to reach more companies: so far the channels used are Facebook, Twitter and networking channels. However, the FFSE is looking for other communication activities which can help increase the success of the initiative.

Case study 4 – Active Workplace (Deutsche Telekom)

Summary information	
Name of intervention	Active Workplace
Focus	Sport as a tool to prevent sicknesses associated to sedentary lifestyles
Member State	Germany
Lead organisation	Deutsche Telekom
Type (method of engagement/physical activity)	Environmental changes/ Multi-component interventions
Period	- Activity 1: Mobile fitness since 2014 - Activity 2: 'Desk bikes' since 2016 (focus of this case study)

Aims and approach

Deutsche Telekom is the biggest German and European telecommunications company headquartered in Bonn and employing 228,000 employees worldwide. It was founded in 1996 when the former state-owned monopoly Deutsche Bundespost was privatised. The company operates several subsidiaries worldwide, including the mobile communications brand T-Mobile.

According to a study from the Deutsche Krankenversicherung (the German health insurance)³², German workers spend too much time sitting namely seven and one half hours a day in average. This inactivity leads to cardiovascular problems, diabetes, overweight and musculoskeletal disorders. Most of Deutsche Telekom employees work in an office environment and are therefore directly subject to these negative effects, which represent one of the main causes of illness-related absences at the company.

Deutsche Telekom first attempts to counteract these negative effects and introduce greater physical activity at the workplace were based on more traditional approaches – for example offering employees to take part in fitness or Nordic walk courses. Such initiatives achieved good results but only reached proactive employees rather than more inactive employees. Against this background and drawing inspiration from a study visit to Silicon Valley, the company launched the programme 'Active Workplace'.

Two kinds of activities take place under Active Workplace. Since 2014, Deutsche Telekom has been offering special fitness programmes directly at the workplace. Qualified 'mobile fitness coaches' visit employees and teach them easy-to-do exercises focused on the back and neck in small teams. The courses focus on the joy of exercise and motivate participants to start exercising independently. Over 1,000 courses took place in 2016 alone.

A more recent innovation has been a two-year project to incorporate mobile exercise equipment as part of the work environment. Following a sustainability study, the company conducted a six weeks pilot project from April 2016 during which 60 employees tested a variety of mobile exercise equipment at their workplace. The 'desks bikes' stood out as the most popular equipment which led Deutsche Telekom to purchase 500 of them. More than 4,000 employees are now regularly using them. In 2017, this initiative was extended and included international locations. Currently, Deutsche Telekom provides one desk bike for 10-20 employees depending on the site.

³²Wallman-Sperlich, B. & Froböse, I (2015), *Der DKV-Report „Wie gesund lebt Deutschland?“*, Published January.

Outcomes and learning points

Deutsche Telekom has commissioned a joint study from the Berufsgenossenschaft Verkehr, the Institute for Occupational Safety and Health, the German Social Accident Insurance (IFA) and the German Sport University Cologne, to evaluate the outcomes of the desk bikes project. Although the detailed scientific results of the study shall only be released in early 2018, a telephone interview with Deutsche Telekom Health & Safety Management staff helped inform this case study with regard to the main trends observed.

The greatest success of Active Workplace, and its desk bikes component in particular, is that it fully integrates regular moderate physical activity as part of employees' daily work schedule. Scientific studies show that regular interruptions of a seated occupation are more effective than lengthy training session before or after work. Desk bikes offer precisely that, without disrupting the workflow and productivity of employees. Physically, participants burn more calories than when just sitting, their musculature and circulation are stimulated, their bodybuilding improves and they report feeling more comfortable. Intellectually, participants' mental activity increases and performance levels can be enhanced relative to a standard workstation. Feedback from individual participants is overwhelmingly positive. They report having fun on top of feeling good and healthy. With this initiative, Deutsche Telekom won the 'Deutscher Unternehmenspreis Gesundheit' 2017 (the German Corporate Health Award).

Furthermore, because desk bikes are part of the working environment, it brings employees to notice it and speak about it whether positively or negatively including those employees who would not display interest in exercise equipment under other circumstances. A positive spill over effect takes place whereby employees using desk bikes trigger interest from other colleagues who in turn get interested and try the equipment. The reach of the programme has thus been significantly greater than more traditional initiatives, which typically involved only 10 to 15% of Deutsch Telekom employees.

Another success factor of the programme is that the offer remains permanently at a one-off cost for the company. Once they have tried the desk bikes, employees tend to use it regularly and durably at no extra cost. In fact, the two-year phase of testing of the programme is ending and from now the equipment will be available as a classic health product for Deutsche Telekom employees.

Finally, a success factor was the positive support from the senior management staff from Deutsche Telekom and their willingness to take part in the experiment themselves, which triggered further interest from the employees. In addition to management staff being role models, the initiative was heavily advertised on the internal social media platforms of Deutsche Telekom, which further achieved to foster interest in the equipment.

Case study 5 – Moving to Business

Summary information

Name of intervention	Moving to Business
Focus	National sport federation led initiative
Member State	Finland
Lead organisation	Finnish Sports Confederation
Type (method of engagement/physical activity)	Multi-component
Period	Eight months

Aims and approach

This case study provides an example of how a national sport federation worked together with a group of companies on the implementation of workplace-based physical activity interventions. The project was the subject of an academic research exercise which sought to examine how the interventions impacted on physical activity outcomes. The findings from the evaluation of the project have been published in a journal article.³³

The project focused on small and medium-sized enterprises which are defined as enterprises with less than 250 employees. The Finnish Sports Confederation (FSC) recruited twelve workplaces with a total of 396 employees to participate in the MTB initiative. FSC regional contact persons were responsible for recruitment and acted as contact points for 3-5 companies.

The workplaces accepting the invitation paid a participation fee of €2,000 or €3,000 depending on their size. The fee covered some of the implementation costs but also helped to engage the businesses in the activity. Additional commitments were underpinned by a written contract with the Finnish Sports Confederation.

Each workplace nominated an internal 'MTB team' involving managers, human resources staff, working staff and also from the company's occupational health care provider. The MTB teams worked with the regional contact persons to specify goals for increasing PA and reducing SB among employees. They also worked together to develop planned and implementable actions at an organisational level, working unit and individual employee level to reach the goals.

The intervention began with an opening meeting with participants that focused on planning and goal setting. The intervention's activities covered an eight month period. During this time the MTB teams had an opportunity to get extra support from the regional contacts upon request (face-to-face and telephone consultation, group exercise services, help and material for organising campaigns etc.). The employees of the participating workplaces were also offered a one to two-hour workshop on reducing SB and a possibility to use free-of charge an internet-based platform to monitor their PA and receive advice and tips to increase their activity. Most of the workplaces aimed primarily at reducing sedentary behaviour (SB). The most common actions implemented by the MTB teams included sit-stand workstations, exercise equipment for collective use and opportunities to experience different modes of instructed exercise.

³³ Aittasalo, M., Livson, M., Lusa, S., Romo, A., Vähä-Ypyä, H., Tokola, K. and Vasankari, T. (2017), *Moving to business—changes in physical activity and sedentary behavior after multilevel intervention in small and medium-size workplaces*, BMC public health, 17(1), 319

Outcomes and learning points

The research project analysed changes in employees' physical activity (PA) and sedentary behaviour (SB) from before MTB (baseline) to 1 year after baseline (follow-up). PA and SB (sitting + reclining posture) were objectively assessed with a hip-worn accelerometer. The study used accelerometer data at baseline and follow-up and reported changes in mean minutes (or steps) and percentages of wear-time (% wear-time). At baseline the employees were physically active at work on average 111 min a day, took 3,802 steps, spent 299 min in SB.

The following results were observed during the implementation period:

- Objectively measured sedentary behaviour (SB) at work decreased: daily SB at work decreased 45 minutes on average.
- The employees also increased their daily steps by 673 from baseline.
- Daily light intensity PA increased by 31 minutes and 6.1% of wear-time.

A general conclusion of the research into the implementation of the intervention is that workplaces can achieve meaningful changes in employees' PA and SB if employees are provide with systematic advice and support.

Case study 6 – Whole company approach (UAB EUGESTA)

Summary information

Name of intervention	Whole company approach
Focus	To create a healthy and enjoyable place to work and socialise
Member State	Lithuania
Lead organisation	UAB EUGESTA
Type (method of engagement/physical activity)	Multi-component
Period	Ongoing

Aims and approach

UAB Eugesta is a distribution company of fast moving consumer goods in Lithuania, Latvia, Estonia and Belarus. The company provides sales, marketing, promotion, logistic, quality control and merchandising services. The company employs over 900 staff. This case study focuses on the Head Office in Vilnius, Lithuania.

The company aims to be seen by all stakeholders as delivering a complete service and the best distribution option within the Balkans. To ensure that Eugesta are viewed as the best option, they actively target creating emotional wellbeing within the workforce. One of the company objectives is to ensure that workers have safe and healthy working conditions whilst making the offices an enjoyable place to be. The company does not have a specific programme to promote physical activity, it is more of a holistic company philosophy. The company directors are physically active people and encourage their employees to live an active life style and have installed these values throughout the organisation. A result of this management style has allowed the employees to stay active and organise and participate in activities.

Eugesta has a range of physical activities that are culturally embedded in the company. Staff have been playing basketball and volleyball since the company was established in 1992, the office also acquired table tennis equipment and fitness balance balls over five years ago. To ensure that employees are constantly developing and enhancing themselves, new physical activities and opportunities are offered to staff. These opportunities include exercising during 5-minute breaks, working out on the Swedish wall, doing Callanetics, playing table football, as well as using ergonomic tables in the workplace.

There are no specific mechanisms used to engage employees, it is hoped that from the wide variety of physical activities and office equipment available, everyone will be able to find something they can engage with. These activities on offer include:

- sports and rest stops: table tennis, fitness balance balls, Swedish sports wall, table football;
- electric bicycles (employees are encouraged to commute to work by bicycles not a car);
- exercise periods twice a day to improve efficiency and ensures fatigue prevention;
- stick posters with correct posture to prevent injuries;
- ergonomic tables with adjustable heights, to prevent spinal deformities and visual disturbances;

- employees can go to gym and a swimming pool and have discounts on various wellness, sports clubs season tickets;
- employees play volleyball, basketball and do Callanetica workouts;
- Eugesta arranges employee's entry fee in various marathons, competitions;
- All meetings are now standing meetings.

Outcomes and learning points

The story of Eugesta is unique; they are creating a highly desirable working environment with a huge range of physical activities and facilities for all members of staff. Eugesta's culture is focused around improving the physical health and wellbeing of its employees, this is key to the continued success of the physical activities on offer. In addition to improving the health and wellbeing of the workforce, Eugesta are trying to improve the health of the general community, by promoting sports activities and highlighting best practices for other companies to replicate. Due to the office locations, the geographical coverage of activities is Pan Baltic.

The activities that are offered are not only in the workplace during working hours but also outside the office and after work. There are many different activities offered and employees are free to choose whether they want to exercise individually or in groups, indoors or outdoors, with or without equipment. The times of exercise is also flexible, allowing everyone the option to participate in activities at times that are preferable to them. The activities that are on offer are so successful because of the flexibility that Eugesta has installed within the physical activities on offer. The equipment available is high quality and modern making the programmes more enticing.

As a result of the company ethics, employees often create and initiate new activities that interest them. Most employees have shown interest in at least one of the physical activities on offer. One employee offered and initiated a Callanetica training for the entire team in the workplace. Another employee taught kitesurfing to colleagues, allowing an employee to fulfil a lifelong goal. The workplace is supportive of implementing health and physical activities, this support structure helps employees facilitate these activities.

The company culture of encouraging physical activities is embedded in Eugesta and brings many benefits to employees and the employer. The success of the activities are often difficult to measure, however, the biggest visible change have been in:

- the level of absenteeism and employee turnover has decreased;
- productivity has increased;
- employees are more motivated;
- the company reputation and employee loyalty has improved;
- employees are less fatigued.

Despite the opportunities available to employees there are challenges that Eugesta experience. One of these challenges is communicating to new employees that they are entitled to share ideas, activities and participate in current activities of their choosing. It is difficult to monitor the activities and the benefits they bring to the company, collectively the physical activities have brought positive effects but no specific information exists.

The company values ensure that physical activities are always available to employees and this is expected to continue in the foreseeable future. The working practice is even being expanded into the Latvian and Estonian offices. Eugesta aims to continue its current working practices, improving them where possible and including new physical

activates. It is hoped that promoting the physical activities can encourage not only the employees, but also the public to increase their health and fitness.

The physical activities have been hugely successful because of Senior Management encouraging all employees to participate in physical activities, which has promoted the culture further. The range and flexibility of the activities has also been pivotal to the success and improving employee's health and wellbeing.

Installing a culture of promoting physical activities and wellbeing could be implemented by any sized organisation. However, it will be easier to implement with a larger workforce, with staff who already participate in physical activities and who can offer training to other staff members. One of the main reasons for success is the Senior Management support for a physically active and healthy workforce and their promotion of activities inside and outside of the workplace.

Case study 7 – Challenges and competitions (Krka, Slovenia)

Summary information	
Name of intervention	Trim Klub Krka
Focus	Challenges/Competitions
Member State	Slovenia
Lead organisation	Krka
Type (method of engagement/physical activity)	Varied
Period	Trim klub Krka was founded in 1971

Aims and approach

Krka is a large pharmaceutical company with over 1,200 employees. The company produces and sells prescription and non-prescription drugs, and veterinary products. Their products are sold in over 70 countries; however, they focus in five main markets: Slovenia, South-East Europe, Eastern Europe, Central Europe and Western Europe and Overseas Markets.

The company was selected as a case study because of its extensive and holistic approach to promoting physical activities in the workplace. It was also shortlisted for a BeActive European Week of Sport prize.

Krka has a club called 'Trim Klub Krka', which organises sports and recreational activities for employees in three areas:

- **recreational activities** - such as relaxation exercises, swimming, Pilates, cardio exercise, fitness, aerobics, skiing, cycling and other sport and recreational excursions;
- **sport and recreational competitions** - annual competitions and large sports events;
- **national sports and recreational events** - employees are encouraged to participate in national running and cycling marathons, and official sports competitions such as swimming, running etc.

Krka employees have been participating in the Workers' Sports Games in Novo Mesto in Slovenia for over 30 years. Recreational and sports activities are led by Krka employees and contractors at various locations, this enables employees to select a sport activity that suits them best.

Outcomes and learning points

Krka employees have won the Workers' Sports Games for 32 years in a row - the company competes in 18 different disciplines. Every year, the company organises a competition "*Selecting the best sector in sports recreation*" in which Krka employees compete in 18 different sports' disciplines. Over 1,300 employees participated in this event in 2016. In that same year, 'Trim Klub Krka' organised a number of sports activities which included eight ski trips involving 325 participants, a winter sports day involving more than 300 employees and a sports day that was attended by around 1,000 employees.

Employee participation in 'Trim Klub Krka' regular weekly workout sessions has increased on an annual basis. For example, they have over 1,000 visits to various exercise sessions organised by club every week.

Krka's 'Trim Klub Krka' uses a broad range of approaches to encourage employees to be active; this has contributed to the success of this initiative. To inspire employees to

participate in sports activities, 'Trim Klub Krka' distributes leaflets with a list of different sports and recreational activities that they can choose from. For example, Krka has an active mountaineering group; employees are also involved in cross-country marathons. In winter, they organise excursions for skiers in Slovenia, and in foreign ski resorts. Employees are also educated about the importance of healthy eating, and the company provides healthy food at different company locations. Krka also organises workshops delivered by doctors on healthy eating and living, and its impact on physical health. The organisation has a collection of booklets titled '*Caring For Your Health*', which contains information on how to lead a healthy life. They also publish articles in internal newsletters on their internal website (intranet) on the general importance of health, employees who live close to their workplaces are also encouraged to walk or ride a bicycle to work.

Krka also goes beyond encouraging their employees to participate in sports activities, and promotes the benefits of sport participation widely. In 2016, the Krka Group allocated 0.31% of its total sales to sponsorships and grants; the organisation also sponsors approximately 18 sports clubs. These include amateur clubs that encourage young people to take part in recreational and competitive sports.

Krka employees have been participating in national sports events for over a decade and plan to continue to do so. The Workers' Sports Games of the Novo mesto Municipality has been running for more than 30 years, and Krka employees participate every year in these games. The company has also been organising their summer and winter sports days for over 30 years. In addition, physical activities are embedded in the culture of the company, and is likely to be sustained in the near future.

Case study 8 – Holistic company approach at Mahou-San Miguel

Summary information

Name of intervention	A Tu Salud – Programa de Actividad Física
Focus	A holistic company approach
Member State	Spain
Lead organisation	Mahou-San Miguel
Type (method of engagement/physical activity)	Multi-component/various activities
Period	2001 -

Aims and approach

La Programa de Actividad física is part of a larger health based intervention named 'A Tu Salud' within the company of Mahou-San Miguel. Mahou-San Miguel is a large international Brewery company of over 250 employees disbursed over its production plants, water-bottling centre and headquarters in Madrid and Barcelona.

The company has a 'Health Surveillance Service'. This group initiated the programme 'A Tu Salud' in 2001 to improve the quality of life of its employees to decrease absenteeism and increase worker productivity. La programa de Actividad Fisica is one aspect of A Tu Salud and includes the provisions of activities and exercise equipment.

The programme has provided two permanent gyms, which employees can use freely outside working hours. In Madrid, employees can enrol in classes of body balance, Pilates or a stretching programme twice a week that take place in the workplaces' gym for up to €30/monthly. The company also has agreements with private sports centres so that employees can access fitness and wellness sessions at a cheaper price. The company supports some sport activities that the employees develop on their own such as through donations of equipment. For example, there is a jogging path inside the factory in Alovera. Furthermore, the prevention service occasionally puts on training called the 'Escuela de la Espalda' in which employees receive a six hours education, training and guidance in back and postural care. Finally, the company has a walking club that promotes walking as an organised sport and as a form of transportation

They engage employees that are high risk in the programme through health examinations offered annually to all workers. Of the 85-90% who go for medical examinations, those with certain cardiovascular risk factors are offered the opportunity of participating in the Physical Activity programme.

This programme has been selected as a case study as it is a successful example of an ongoing varied physical activity intervention that is engrained in company policy. In fact, Mahou-San Miguel were the first food and beverage company to have been awarded a Healthy Company Certificate from the Spanish Association for Standardisation and Certification (AENOR). AENOR, together with the European Institute of Health and Social Welfare, developed the Healthy Company Model which establishes requirements of a healthy management system and incorporates psycho-social and physical components³⁴.

Outcomes and learning points

In 2011 the 'Superior Sports Council' and the 'National Institute of Workplace Health and Safety' conducted a social and economic evaluation of the intervention using both

³⁴ Mahou-San Miguel (2013), Mahou, *First Food And Drink Company Awarded Healthy Company Certificate*.

quantitative and qualitative methods³⁵. The evaluation indicates that the programme has provided good value for money for the company. They find that, for every euro that is invested annually into the programme, the company gains €2.9. They calculate a 188% return on investment. The monetary benefits relate to reductions in sick leave, increases in work productivity and a positive corporate image. This was calculated by quantifying the resources needed to carry out the programme and quantifying the direct benefits (such as less work lost through sickness for the company), indirect benefits (such as economic savings for employees) and intangible benefits (such as benefits related to an increase in the general population's level of physical activity in society) of the programme for the company, employees and for society. Costing was based on information from external references and other studies using the company's administrative data and participant survey data.

For employees, participants are, on average, physically healthier than the rest of the staff based on various medical indicators, such as blood pressure. Staff also perceive that the intervention has led to personal physical and psychological improvements. Furthermore, the programme saves employees money as an indirect effect of being healthier and by, for example, saving money they may have previously spent on gym membership. Employees also experience the direct and indirect benefits of decreasing medicine consumption. Finally the programme has decreased the time employees spend in travel by allowing participants to develop activities and use facilities within the work environment.

Finally, this programme is highly sustainable as it is engrained in company policy and has been maintained for many years.

³⁵ Gobierno de España, Ministerio de empleo y seguridad social, Ministerio de educación cultura y deporte, Instituto Nacional de Seguridad e Higiene en el Trabajo, Consejo Superior de Deportes. 2013. Valoración socio-económica de un Programa de Actividad Física para los trabajadores de una empresa.

Case study 9 - Performance et Responsabilité Michelin

Summary information

Name of intervention	Performance et Responsabilité Michelin
Focus	Sport as a tool to prevent sicknesses associated to sedentary lifestyles.
Member State	France
Lead organisation	Michelin
Type (method of engagement/physical activity)	Mixed intervention
Period	Since 2009

Aims and approach

Founded in 1889, Michelin is a French company specialised in tyres that employs 111,700 people in 69 sites across 18 countries. It has net sales of €20.9 billion. In 2009, Michelin launched a CSR initiative entitled 'Performance et Responsabilité Michelin'³⁶. To inform the development of this initiative, the company conducted an internal survey in which 75% of employees took part, and conducted an external benchmark of the existing sport offers in several other companies.

Performance et Responsabilité promotes a healthy lifestyle at work and physical and psychological health through sport. It comprises several components to address the different needs of different categories of employees within the company (manual labour workers, desk based workers, drivers...). A big part of the programme implementation relies on the staff and premises of Michelin's sport association (Association Sportive Montferrandaise - ASM), which was founded in 1911. Originally reserved to the company's employees, it is now open to everyone and comprises about 3,500 members. Michelin funds 75% of its budget.

Performance et Responsabilité comprises three sub-programmes: 'Oxygene', 'Second souffle', 'Education postural globale', on top of which sport facilities are provided at the workplace. A number of activities are transversal to all dimensions of the programme. **Oxygene** focuses on the prevention of diseases directly or indirectly caused by a sedentary lifestyle and stress. Every employee is invited to participate in an induction test to measure their physical fitness based on nine indicators such as flexibility, speed and arms strength. Based on this test, a group of experts made of doctors and personal coaches advise the employee on what physical activity they should practice to improve their performance. Employees can then access sport facilities and/or train individually or collectively in coaches-led sport sessions. Oxygene's entry cost is €80 a year per person, up to 50% of which is covered by Michelin.

Second Breath (Second Souffle) is the equivalent of Oxygene but for those sedentary employees who are re-starting physical training after a long interruption or suffer from specific diseases such as obesity or diabetes. To incentivise this target group to participate in the initiative, Michelin invites those to take part in a 'Body Age diagnostic' which measures their physiologic age. Participants can then enter a 12 week progressive ad-hoc training path calibrated to their specific needs. Participants can take part in various moderate physical activities such as biking, running for beginners and muscular strengthening. At the end of the 12 weeks, participants are invited to take part in an exit test to measure the progress achieved.

³⁶For more information, see <https://medefsport.files.wordpress.com/2014/08/michelin.pdf>

Only a few of the employees working in the sites of production participate in Oxygene and Second Breath although the nature of their work makes those physical labourers particularly subject to Tension myositis syndrome (TMS). Against this background, Michelin is currently developing a third initiative focused on those industrial workers such as assemblers, manufacturing staff, employees in positions involving high drudgery, testers, brakemen (who are particularly subject to osteoarthritis in upper and lower limbs). The initiative, **General postural education** (Education posturale globale), will focus on training employees to adopt better postures at work.

Finally, a number of activities are carried out in collaboration with ASM across all dimensions of the programme. These include regular conferences on nutrition, health, ageing and sport; professional nutrition counselling and coaching; company canteen meals tailored to the type of physical exercise practiced by employees; free cooking classes with a chef and a nutritionist for best performing participants.

Key lessons

The programme is based on a strong internal collaboration of departments as well the employment of an external specialist sport company. Internally, Michelin involves the company's management, Human Resources, the General Services, the Communication Department, the work environment and prevention department; and, of course, the employees. Externally, Michelin collaborates with the Association Sportive Montferrandaise.

A particular feature of the programme is the fact that it seeks to address a wide range of different needs depending on each professional category of Michelin employees. A key success factor of the programme is its innovative management. Project leaders enjoy significant freedom in the way in which they implement the components of the programme and this represents a significant incentive. Another success factor of the programme is the strong support coming from the management. Based on results achieved in France, Michelin has expanded the programme to some of its international sites including in the USA and Poland.

Case study 10 - Active Workplace Challenge Fund

Summary information

Name of intervention	Active Workplace Challenge Fund
Focus	Funding a range of workplace activities for companies in Wales
Member State	UK (Wales)
Lead organisation	Sport Wales
Type (method of engagement/physical activity)	Programme
Period	2009 – 2011

Aims and approach

Sport Wales is the National organisation responsible for developing and promoting sport and physical activity in Wales, with the aim of improving the level of sports participation at all levels. Sport Wales is also working to achieve the Welsh Assembly Government's strategy of 'Creating an Active Wales'³⁷, increasing all adults' current levels of physical activity by 2020.

As employees spend a large proportion of their time at work, Sport Wales recognised the opportunity to use the workplace to have a positive impact on physical activity and encourage a healthy lifestyle. As a result, Sport Wales created the Active Workplace Challenge Fund, which invests in a range of workplace physical activities in Wales. The two year programme funded 27 workplace projects from 2009 – 2011, the success of these programmes was assessed in an evaluation study³⁸.

The funding was spent on a wide range of activities to improve the fitness and health of employees which included:

- Funding/part-funding a coordinator to engage the workforce, encouraging them to participate in workplace physical activity;
- Funding of equipment/gyms;
- Funding/part-funding of fitness classes and activities;
- Part subsidised fitness sessions with free taster sessions;
- Free health checks.

As the projects funded were so varied there were no specific mechanisms used to engage employees, there were company specific approaches for each organisation funded. Some of the organisations that received funding bought into the schemes and invested funds to support the initiative. Each individual project had its own objective, but the overall goal of the Active Workplace Challenge Fund was to improve the health and wellbeing of employees whilst increasing workplace productivity.

Outcomes and learning points

It is important to highlight the two main stakeholder groups affected by a workplace physical activity programme; these are the employer and the employee. For each programme to be successful, both groups need to be engaged and willing to participate and contribute in the programme.

³⁷ Welsh Assembly Government (2016), *Creating an Active Wales*

³⁸ Sport Wales (2011), *Workplace Physical Activity in Wales, final evaluation report for Sport Wales*

The primary motivation for employers running a physical activity campaign was to benefit the business, this happened in a range of ways, including; a more productive and stable workforce, low labour turnover, increased employment appeal and a positive corporate image.

It is also necessary to motivate and incentivise employees to engage in the workplace physical activities. In general the most important motivation and incentives were identified as: experiencing physical and emotional wellbeing; meeting and socialising with other employees; saving money; reducing their carbon footprint; and positive peer pressure. Tailoring the activity programmes to staff requirements based on location, number of employees and the abilities of staff members resulted in higher levels of engagement. Kellogg's offered a wide range of physical activities based on employees suggestions, as long as at least six people were interested in the Coordinator would set up the course/lessons.

The evaluation report of the two-year project highlighted the success of the Active Workplace Challenge Fund and identified that all funded organisations increased the number of employees participating in physical activities; however, specific benefits were often difficult to measure. It is difficult to attribute some of the benefits to the specific physical activity offered, for example, Kellogg's were able to reduce the amount of sick leave by 0.5%, however this could be as a result of multiple initiatives. Most organisations receiving the funding felt that workplace health was linked to better staff retention, lower turnover, reduced sickness and higher productivity.

Staff already participating in physical activity outside the workplace saw an increase in the total levels of physical activities. In many cases, those who were doing very little or no physical activity prior to the introduction of the programme, started to partake in physical activity outside of work too. This represents a genuine lifestyle change, largely as a result of the workplace physical activity programme. The increase in participation in physical activities varied for each programme, however some common lessons could be identified from the implementation of the programmes. These can be summarised as follows:

- **Leadership and buy-in of senior staff** – if the business is changing its ethos around physical activity in the workplace it needs to ensure that senior management encourage employees to participate. Involvement in the programme must not be penalised.
- **Planning and review** – it is necessary to plan the organisation's requirements and review how the programme is progressing against its original objectives. Having an agreed plan relating to funding, staffing and the physical activities is required; however, a flexible approach is necessary throughout the life of the project.
- **Employee awareness and involvement** – for any voluntary workplace scheme to succeed it is necessary to engage and encourage employees to participate in the programme. This was done in a variety of ways, including: working in tandem with national or local health campaigns (as done by Denbighshire County Council and Aberystwyth University); taster days/events (Denbighshire County Council); highlighting how the programme has improved colleagues health and wellbeing (Flintshire County Council used this approach); videos of classes available (Flintshire Council); posters; company intranet and health coordinators talking to employees. The ability to feedback ideas to improve activities and develop the programme was also a key to continued engagement of staff and increasing participation rates.
- **Offering a range of activities** – offering a range of activities allows a wide range of staff with varying physical abilities to be involved in the programme at different levels.

- **Coordination of programmes** – having an appointed Project Manager with time to oversee the tasks related to physical activities in the workplace will ensure that activities are organised and promoted throughout the organisation.
- **Convenience of activities** – to maximise the benefits of any activities, they need to be organised in a location and at a time that fits into employees work patterns.

These factors are key to creating a successful project and if they are not fully addressed it could lead to the programmes having a limited effect. The most common barriers to workplace physical activities identified by the Sport Wales' funded projects were:

- Time pressures;
- Inconvenient times and locations;
- Unappealing activities;
- Lack of confidence;
- Cost of participation;
- Poor quality facilities and venues;
- A preference for outdoor activities.

For a company to maximise its return on investment for a physical activity programme it is essential to overcome these barriers and actively engage the workforce.

From the Evaluation Report produced, it is clear that funding from Sport Wales was vital for organisations to finance the infrastructure, equipment and staff. It also allowed companies to make a business case for sustaining the programme after the funding from Sport Wales stopped. A Guidebook³⁹ has been created, which provides advice on how to successfully introduce physical activity to the workplace.

Sport Wales offers grants from £1,501 – £25,000, however, there is no specific grant funding available for workplace initiatives. Sport Wales aims to create a diverse, passionate and skilled sporting workforce⁴⁰ and it is hoped that the grant will allow for this.

³⁹ *Sport Wales (2011) Workplace Physical Activity Practitioner Guide*

⁴⁰ <http://sport.wales/developmentgrant>

Case study 11 - The Active@Work Programme

Summary information

Name of intervention	The Active@Work Programme
Focus	Programme to engage companies in workplace physical activity
Member State	Ireland
Lead organisation	Irish Heart Foundation
Type (method of engagement/physical activity)	Walking and various activity challenges
Period	Operational for over 20 years

Aims and approach

Active@Work is a national programme that aims to engage companies in physical activity goal setting and self-monitoring by employees. The programme was developed and is led by the Irish Heart Foundation (IHF), a national charity. The programme's aims align with the charity's mission, which is to help the Irish population, especially those at risk, to be healthier in order to reduce the risk of heart disease and strokes.

Companies have three options for engaging with the Active@Work programme:

- A walking challenge that lasts from four to five weeks which encourages employees to build up to the recommended 30 minutes or more of physical activity per day. The IHF provides material such as motivational posters, education leaflets and guidance documents to the participating company. They encourage participants to write down the number of minutes they spend walking each day on provided challenge cards and to build up their time gradually. The challenge can be done in teams of employees where each team sets daily step targets. IHF provides certificates for all those who complete the challenges.
- A step challenge which is similar to the walking challenge but with the added benefit of a pedometer with which employees are encouraged to achieve and maintain a target of 10,000 steps a day.
- An opportunity for companies to win a yearly bronze, silver or gold Active@Work Award to give them formal recognition of achievements in promoting, developing and sustaining any physical activity programmes. The Active@Work Award requires employees to set up an Active@Work team and nominate a workplace champion to co-ordinate the programme, conduct a needs assessment with employees and to meet criteria specific for each level of award. The criteria generally involves evaluation, creating awareness, ensuring worker inclusivity, implementing and/or signing up for various physical activity challenges and programmes. For the IHF, the Award is the main aspect of the programme as they find it provides more sustainable results. Sometimes, companies will do one of the challenges to fill one of the requirements for the Award.

Companies tend to hear about the programme and are engaged to participate through word of mouth, building on the IHF's positive reputation as a well-known national health charity in Ireland. Once a company decides to implement one of the challenges, the IHR helps to further engage employers and employees by providing instructions, challenge cards, literature and posters. Companies that are signed up for the award are also offered training as well as continued support from the Irish Heart Foundation, even after the end of the programme.

Companies partially fund their participation themselves. The fee covers the cost of materials and staff support as companies and often only works out at €1-2 per employee. The programme has set prices based on which challenge the company chooses to engage

in and the amount of employees within the company. The rest of the funding comes from public donations given to the Irish Heart Foundation.

The programme provides a good example of a national-level programme that supports physical activity challenges over multiple and varied workplaces. The programme pays particular attention to walking challenges and cycling promotion. There is a strong evidence base on the effectiveness of workplace-based walking challenges in particular in promoting physical activity.

Outcomes and learning points

The programme has gathered various case studies and feedback over time. There has so far been limited formal analysis of the collected data; however in an interview completed for this study, an IHF representative reported that multiple themes have emerged over time.

Overall, companies find that the employees have increased their levels of physical activity and, in 2011, the IHF found that companies that have taken part in the programme had high participation rates. The evaluation also reports that even those employees that do not take part, are impacted by the promotional material and information around them⁴¹.

The overall increase in employee morale and satisfaction is mostly related to the teambuilding, the friendly competition, and the social component of the challenges. Various factors support employer and employee engagement. For employers, management buy-in is key. IHF earns managerial support by providing material outlining benefits as well as, for the awards, through the training days. It is also important that companies promote low intensity activities because they are more inclusive and accessible to a sedentary workforce.

Employers and Employees appreciate the support that IHF provides in terms of resources and guidance. Companies appreciate IHF's personal, individualised touch. IHF provides guidance, which may include trouble shooting if there is a problem or providing general support, even after the challenge is over. They also adapt the award programme to the demographic and interest of the company such as by suggesting activities suitable for the average age of the employees and by ascertaining in what activities staff would be more interested.

These challenges are particularly resource heavy because they require a lot of materials, such as pedometers and promotional and guidance documents, and an investment of time to ensure the challenge is being run effectively and inclusively. Therefore, the fact that IHF provides these resources is a motivating factor to participate in the challenges, making it attractive to many companies. However, for the IHF, the amount of resources the programme requires can also be seen as a challenge in delivering the intervention as some of the cost of the programme is borne by the charity itself.

The case studies of individual companies find that increased physical activity is maintained after the programme ends, for example there is evidence that employees continue to use their pedometers. The IHF believe that once employees are given the tools to improve their physical activity in the workplace, they are likely to continue to do so.

The programme also improves the chance of outcome sustainability by providing continued support beyond the end of the programme. The IHF also note that, because the award is valid only for a year and is a stage process, from Bronze to Gold, some

⁴¹ Irish Heart Foundation (2011), *Active@Work Award; An active workforce is a productive workforce*.

companies return annually, particularly to achieve the next level of the award. The IHF will continue to offer the Active@Work programme. It also continues to be developed and has change slightly over the years. The IHF soon want the programme to undergo an external review to better inform further developments using key lessons and outcomes that will emerge from their collected data.

HOW TO OBTAIN EU PUBLICATIONS

Free publications:

- one copy:
via EU Bookshop (<http://bookshop.europa.eu>);
- more than one copy or posters/maps:
from the European Union's representations (http://ec.europa.eu/represent_en.htm);
from the delegations in non-EU countries (http://eeas.europa.eu/delegations/index_en.htm);
by contacting the Europe Direct service (http://europa.eu/europedirect/index_en.htm) or
calling 00 800 6 7 8 9 10 11 (freephone number from anywhere in the EU) (*).

(*) The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you).

Priced publications:

- via EU Bookshop (<http://bookshop.europa.eu>).

