



Move more

Encouraging postural breaks –
behaviour change in the office

Summary report 2014

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In this document, you'll find a summary of the independent research we commissioned from the University of Derby, 'Move more: investigating the impact of behaviour change techniques on break taking behaviour at work'.

The researchers would like to thank all those organisations and individuals that took part in the research, as well as those who facilitated their contact with organisations and individuals.



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What's the problem?

Musculoskeletal disorders (MSDs) are still the most common occupational ill health condition in the UK. Although there are various causes of MSDs, taking regular rest breaks that involve changing posture has been shown to have a positive impact on reported symptoms, as well as on related issues such as fatigue and discomfort.

The need for regular postural breaks for workers who use display screen equipment (DSE) has been part of the guidance to the DSE Regulations since their inception, and was reiterated in a 2007 study by the Health and Safety Executive (HSE).¹

In the HSE study, the authors further established high prevalence rates of MSDs and other symptoms in DSE workers (particularly those who reported working longer without a break) and proposed that more work should be carried out to investigate the impact of improved break-taking on these symptoms.

Applying the theory of planned behaviour

The theory of planned behaviour (TPB)² is a well-established and prominent model of health-related behaviour. It outlines a number of factors that are thought to have an impact on the intention to behave in a certain way. However, the model does recognise a clear gap between behavioural intention and actual behaviour.

Initiatives aimed at changing behaviour must, therefore, aim both to influence behavioural intentions and 'bridge' the intention–behaviour gap. One such gap-bridging method is the writing of implementation intentions³ ('if–then' plans). These have been used effectively to help turn intention into behaviour for other issues in office environments.

¹ Melrose A S, Graveling R A, Cowie H, Ritchie P, Hutchison P and Mulholland R M. Better display screen equipment (DSE) work-related ill health data. RR561. Sudbury: HSE Books, 2007.

² Ajzen I. The theory of planned behaviour. *Organizational Behavior and Human Decision Processes* 1991; 50 (2); 179–211.

³ Gollwitzer P M. Goal achievement: the role of intentions. In: Stroebe W and Hewstone M (eds). *European review of social psychology*. Chichester: Wiley, 1993: 141–185.

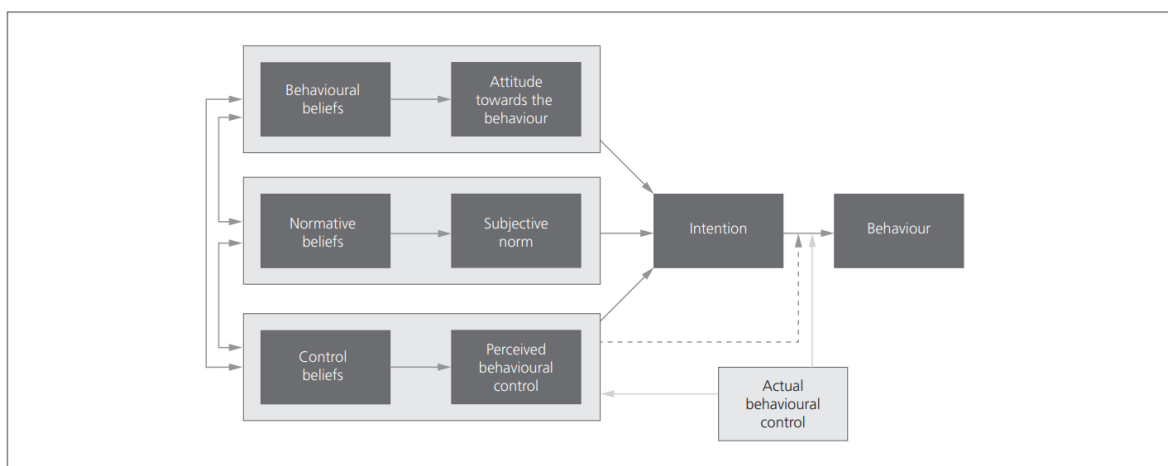


Figure 1
Representation of the theory of planned behaviour
© Icek Ajzen (2006), <http://people.umass.edu/aizen/tpb.diag.html>

Writing an implementation intention involves making a plan to enact a behaviour, in a defined manner, specifying both time and location. In the break-taking context, rather than simply declaring ‘I will take more breaks’, an implementation intention may be ‘I will take a break, after the final call of each hour and will collect a drink of water’. Typically, ‘if–then’ strategies are used (if situation y arises, then I will initiate goal-directed behaviour z) as part of these plans.

In addition to implementation intentions, a number of studies have looked at whether external prompts or reminders can support the translation of intention into behaviour.

So, against this backdrop, we commissioned a team of researchers from the University of Derby – Dr Claire Williams, Elaine Denning, Andrew Baird and Professor David Sheffield – to investigate the impact of interventions aimed at improving employees’ postural break-taking behaviour in a constrained office-type environment (eg call centres/control rooms). The research team looked at whether these plans and prompts increased the number of short (30-second) postural breaks taken by ‘desk-bound’ office staff. The reasons behind their success or failure were then examined by analysing feedback from a number of focus groups.

Research aims

The aims of the study were to:

- establish objective (rather than self-reported) break-taking behaviour in the call centre/control room environment using BACK-TRACK™ devices – which buzz at regular intervals to remind participants to take postural breaks – at three time points

- investigate the usefulness of implementation intentions (in the form of 'if-then' plans) to change postural break-taking behaviour by measuring breaks taken before and after the interventions, and at a six-month follow-up
- explore the usefulness of non-software-based external prompts provided by the BACK-TRACK™ devices in supporting a change in postural break-taking behaviour
- use qualitative research, in the form of focus groups, to understand the reasons for the usefulness (or otherwise) of implementation intentions and the BACK-TRACK™ devices in supporting behaviour change
- propose ways of including these behaviour change techniques (if successful) into training and information materials provided by health and safety practitioners
- influence the development of the BACK-TRACK™ data-logging devices to include uses for staff who work with DSE, as well as the current provision for staff who carry out manual handling activities.



Figure 2
A BACK-TRACK™ device

What did our researchers do?

Phase 1 – Break-taking data collection via BACK-TRACK™ data loggers

This study employed a mixed-methods approach to investigate postural break-taking behaviour at work. A field study involving 195 participants was carried out to see how regularly staff got up from their desks before, immediately following and several months after the introduction of behaviour change interventions. The quantitative aspect of the research was designed as a cluster randomised controlled trial, with no blinding.⁴

The interventions were as follows:

- Group A (control or 'usual care' group) was asked to try to take more postural breaks
- Group B was asked to formulate a break-taking 'implementation intention' plan
- Group C was asked to formulate a break-taking implementation intention linked to vibration prompts delivered by the BACK-TRACK™ device after every hour of inactivity
- Group D was encouraged to respond to vibration prompts from the BACK-TRACK™ device after a one-hour period of inactivity but didn't create implementation intention plans.

For the purposes of this study, break-taking was described as making a 'meaningful postural change' – changing the loading on the body from a sitting to a standing position for at least 30 seconds. The aim was to do this at least once every hour throughout the working day. The four interventions were designed so that participants could incorporate the postural changes into their normal working day.

These data were analysed to see if the interventions affected the number of breaks taken, and whether they had any impact on reported symptoms (in the form of pain levels).

Phase 2 – Focus group discussions about postural breaks

In addition to these quantitative investigations, qualitative data were also collected, with a view to shedding light on the reasons behind the break-taking behaviours recorded in the study. Four focus groups in four different organisations sought the views of 31 participants about the interventions and also about perceived barriers and enablers for behaviour change.

⁴ Participants were put in a study group along with others with whom they sat (clusters). These clusters were assigned to study groups at random (randomised). Three study groups received an intervention, while one (Group A) was used as a comparison (controlled). Those assigning the clusters to groups and those who were being assigned knew which group they were in (no blinding).

What did our researchers find out?

People get up more than we thought

- At an average of more than three 30-second or longer postural changes an hour, the level of break-taking exhibited by participants in this study is surprisingly high. Even the lowest recorded figures of 0.82 break per hour would not cause major concern in the context of typical DSE guidelines.
- Static posture is a risk factor for the development of MSDs and a lack of breaks forms part of the picture. This study suggests that the office workers changed their postures frequently and that prolonged static postures in the typical office are perhaps less of an issue for MSDs than previously thought.

Writing 'if-then' plans supports behaviour change

- The results demonstrate that writing 'if-then' statements doubles the odds of making a meaningful increase in postural break changes over a day, compared to not writing them. For an effectively 'free' intervention, this is an important finding.
- In turn, this indicates that it's worth incorporating the writing of such plans into initiatives to increase postural breaks and considering their use in other health and safety initiatives aimed at changing behaviours.

Hourly buzzing prompts did not encourage people to take a postural break

- Buzzing reminders set every hour did not significantly increase postural break-taking in this instance. However, given the baseline average of over three breaks an hour, it is likely many of those in a 'buzzing' intervention group rarely, if ever, received prompts as they never sat for an hour.

We can produce better behaviour change interventions by following six principles

- Make sure the goal behaviour is clear and its benefit understood – the specifics of the goal behaviour need to be clearly explained, and potentially revisited and reinforced.
- Secure demonstrable management commitment – participants need to know and have it demonstrated to them that the goal behaviour is fully endorsed by management; workload must not be allowed to override healthy behaviours.
- Provide multiple methods for goal achievement – a variety of different approaches to support the achievement of the goal behaviour should be proposed, to suit different individuals, with the ability to personalise them.
- Adapt the built environment and work systems to support the goal behaviour – wherever possible, changes should be made to the physical work environment and work systems to support the goal behaviour.

- Set up two-way feedback – this should inform participants about their performance and provide them with an understanding of the barriers and enablers for the goal behaviour; it should also provide the opportunity for success to be reinforced and shared.
- Support participants to deal with barriers – having identified any barriers for the goal behaviour, such as poor understanding or technical issues, there must be a clear mechanism through which such barriers can be removed or their impact reduced.

Prompting devices, such as BACK-TRACK™, show promise

- BACK-TRACK™ and other similar devices, currently used in a manual handling context, show some promise for improving office break-taking behaviour. It is worth noting, however, that in this study the devices were set to buzz every 60 minutes, which was too long for this population because many were already getting up more than once every hour.
- Participants reported that simply wearing the BACK-TRACK™ encouraged them to get up more; that an external prompt, such as that provided by the BACK-TRACK™ device, would be useful to remind them to move; and that feedback about performance (which is possible via the reporting database at BACK-TRACK™ Ltd) would also aid change.

What does the research mean?

This study has given us a better understanding of break-taking behaviour at work. It has indicated that office workers, even in 'desk-bound' settings, may get up more than would typically be expected. This knowledge should encourage practitioners to focus attention on the other risk factors for MSDs, such as overall workload, poor posture and psychosocial factors.

This work has provided good evidence that implementation intentions can help engender behaviour change in an occupational setting. In an IOSH-funded research study carried out by the University of Nottingham,⁵ knowledge of behaviour change techniques is cited as an important practitioner training need. This 'if-then' plan approach could be incorporated into training and information for postural change interventions, as well as other occupational safety and health issues, such as attending training; wearing personal protective equipment; and adhering to safe systems of work.

In addition, the six evidence-based 'principles' outlined from the focus group data provide a useful guide for workplace behaviour change interventions. Although

⁵ Leka S, Khan S and Griffiths A. Exploring health and safety practitioners' training needs in workplace health issues. Research report 08.2. Wigston: IOSH, 2008.

they've been generated following this postural change study, it's likely that they will have currency more broadly.

Furthermore, data from this project supports the diversification of the BACK-TRACK™ product range to support self-monitoring of healthy break-taking behaviours by DSE users. This could be used generally, across the population, or specifically in a rehabilitation setting to support people back to work.

Don't forget

There were some limitations with the research carried out here. Most notably, simply wearing the BACK-TRACK™ device made participants aware of how often they were making postural changes, and probably made them get up more than if they hadn't been wearing them. This may have affected baseline scores. However, this was true for all groups, so this effect would have happened to the control group too. This means the findings relating to changes in behaviour associated with the 'if-then' plans are still valid, although our finding that people get up more than we first thought may have been affected by them simply wearing BACK-TRACK™ devices.

The other issue is that the focus groups did not involve everyone, nor were the comments people made linked to their break-taking data. This means we shouldn't generalise too far from the focus group findings.

Our research

This research complements our guides, 'IOSH introduction to wellbeing: understand' and 'A healthy return – good practice guide to rehabilitating people at work'.

Our summary gives you the major findings of the independent project report by the University of Derby. If you want to read about the study in more depth, you can download the full report at [iosh.com/research](https://www.iosh.com/research).

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IOSH
The Grange
Highfield Drive
Wigston
Leicestershire
LE18 1NN
UK
+44 (0)116 350 0700
www.iosh.com

 twitter.com/IOSH_tweets
 facebook.com/IOSHofficial
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