

Passport to Health

Improving health at work



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As adults, most of our waking hours are spent at work, suggesting that the work environment could have a major impact on our health. Around 131 million working days were lost during 2013 as a consequence of sickness or injury, with stress and back pain being the most common reasons for time off.¹

Several systematic reviews have considered the potential for work settings to improve health. Groeneveld *et al.* (2010)² assessed the findings of 31 randomised controlled trials (RCT) which attempted to improve cardiovascular risk factors using physical activity and/or dietary interventions at work. The results showed a consistent positive impact on body fat in all staff, and a strong relationship with body weight in those at risk of cardiovascular disease. Holistic lifestyle interventions appeared to be more effective than supervised exercise classes. Another systematic review³ evaluated the impact of workplace dietary interventions on food choice, perceived health and nutrition knowledge. Six studies met the inclusion criteria but all had methodological limitations that weakened confidence in the results. The main finding was that workplace initiatives could modestly increase fruit and vegetable consumption, and may improve perceived health and job satisfaction. A third review⁴ performed a meta-analysis on 18 eligible studies, again finding a modest but positive impact on perceived health and dietary behaviours. Interestingly, workplace programmes were more effective in younger staff and when weekly follow-ups were offered.

Passport to Health

A workplace programme, called Passport to Health, was trialled at Gatwick Airport in order to assess whether offering health resources to security staff could have a positive impact on dietary behaviour, perceived health, weight management and physical activity. Security staff were selected as they work shifts, which presents particular challenges regarding diet and exercise.

Implemented in January 2014, by the Gatwick Occupational Health & Wellbeing Service in conjunction with the catering company, Charlton House, Passport to Health involved the following steps:

- Staff were invited to complete a screening questionnaire to assess eligibility
- Healthy, non-pregnant, individuals aged 20-60 years with a body mass index (BMI) between 18-40, and who were not following a special diet due to illness or food allergy, were given the opportunity to participate
- After giving informed consent, participants completed a baseline questionnaire (appetite, wellness, physical activity) and were medically assessed by occupational health staff (height, weight, waist circumference, blood glucose, blood cholesterol). Any abnormal blood results were reported to the participants' GPs

- A 12-week health and wellbeing programme followed which comprised dietary advice and menu planning, physical activity advice (plus free Fitbit wireless pedometer) and motivational support
- A follow-up interview was offered at 6 weeks, at which stage baseline measurements (except for bloods) were repeated
- At 12 weeks, all baseline measurements were repeated.

The dietary advice was designed to highlight foods that may offer a slow release of energy which would help to boost satiety. A 28-day healthy, balanced eating plan was provided, although this was presented as a guide rather than as a strict 'diet'. Recipe suggestions were given for breakfast, lunch and dinner and participants were encouraged to eat plenty of vegetables and fruits, and to snack if necessary, on nutritious and filling options. They were also given advice on choosing dishes from the dedicated employee restaurant at Gatwick which offered specific calorie-counted dishes under the caterer's 'Wellbeing-being-well Passport to Health' initiative. General tips on healthy eating were included which highlighted satiety-enhancing foods, such as eggs, porridge oats, lean meats, fish, and low fat dairy foods.

A control group (CG) was recruited which participated in measurements (except for bloods) at baseline and at 12 weeks. Data for the intervention group (IG) and CG were anonymised and statistically analysed. This article presents an audit of the programme.

Results

There was a good response with 35 participants (22 male) completing the programme and 13 serving as controls. Average weight in the IG was 93.7 kg (BMI 31.0), while waist circumference (WC) was 106 cm, which were significantly higher than in the CG (82.9 kg; BMI 27.1; WC 94.6 cm; $p < 0.005$). The proportion of current smokers (67%) was also higher than in the CG (15%). Interestingly, nearly half of participants underestimated their BMI, indicating that obesity is not well recognised.

Only 17 participants in the IG provided anthropometric data at all three time points. In this sub-group, a repeated measures ANOVA test revealed significant reductions in body weight, BMI and WC. As **Figure 1** shows, body weight was lower at six weeks ($P=0.04$) and at 12 weeks ($P=0.015$) compared with baseline, with an average overall reduction of 3 kg.

Similar reductions were seen for BMI ($P=0.021$) and WC ($P=0.0001$) between baseline and 12 weeks. No changes were seen in the CG.

Thirty participants in the IG provided blood data at all three time points. In this sub-group, a repeated measures ANOVA test found significant changes during the study for fasting blood glucose and total cholesterol as shown in **Figure 2**. Glucose levels reduced from a mean value of 4.9 mmol/L at baseline to 4.5 mmol/L by 12 weeks ($P=0.0001$), while total cholesterol levels reduced from 5.0 mmol/L at baseline to 4.7 mmol/L by 12 weeks ($P=0.009$). Changes in HDL cholesterol and LDL cholesterol between baseline and 12 weeks were not statistically significant.

The self-reported physical activity data from the questionnaire were highly variable so no significant changes were seen during the intervention. However, there was a trend towards a greater amount of time spent being physically active in the IG and less time spent being physically inactive. The picture was similarly positive for the self-reported dietary data which highlighted some trends for more frequent fruit consumption in the IG but no clear statistical differences.

Data on perceived happiness and wellbeing were collected from both IG and CG using a questionnaire. The results were analysed using the non-parametric Mann-Whitney test. Between baseline and 12 weeks, the IG reported significantly higher scores compared with the CG for the following aspects:

- Being happy with their sleep quality ($P=0.041$)
- Ability to enjoy life ($P=0.027$)
- Ability to live life as wanted ($P=0.018$)
- Being happier with exercise/leisure activities ($P=0.0001$)
- Being happier with access to health services ($P=0.031$).

Success stories

Of the 11 participants who were found to have raised total cholesterol at baseline, nine reduced their cholesterol level by the end of the intervention, five of these to within normal limits.

A participant diagnosed with Type 2 diabetes prior to taking part in Passport to Health successfully lowered his fasting glucose level to within the normal range by the end of the 12-week intervention.

Discussion

As this was a small pilot study, relying on voluntary participation from staff, there were several limitations including the small sample size, low return of some questionnaires, and initial differences between the IG and CG for body weight and smoking habit which may have influenced some results. Ideally, average baseline body weights would have been similar.

However, despite these limitations, Passport to Health resulted in beneficial changes for the IG. Body weight and WC significantly reduced, as did blood glucose and total cholesterol. These changes would be expected to contribute positively to health and may have been more pronounced had there been an opportunity to reinforce the dietary advice during the intervention. The wellbeing results revealed improvements in happiness, sleep quality, self-efficacy, access to health services and satisfaction with exercise/leisure activities.

It is unclear what participants did to elicit these effects since the questionnaire data on appetite, snacking habits and consumption of specific food groups provided a confused picture with much variation. In addition, few participants returned the mid-study questionnaires greatly reducing the power of the repeated measures statistical test. However, there were interesting trends towards increased frequency of fruit consumption, less restriction of eggs, and increased participation in physical activity.

Moving forward, future developments for Passport to Health will emphasise physical activity, which participants seemed to enjoy, and will further develop tie-ins with catering, such as branding healthier meal choices as Passport to Health approved.

In conclusion, workplace interventions can have an impact on health and wellbeing especially if they offer a holistic approach to diet and physical activity. The Passport to Health programme, incorporating simple menu planning, encouragement to eat more fruit and vegetables and high protein/high fibre satiating foods, support for physical activity through free pedometers, and offering feedback and monitoring from health professionals could be repeated in other settings. In addition, the learnings from this pilot project will be used at Gatwick Airport to further develop the Passport to Health programme.

Figure 1: Changes in Body Weight during the Programme

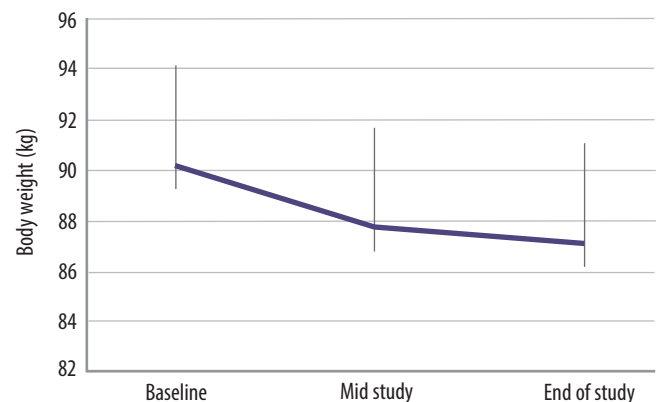
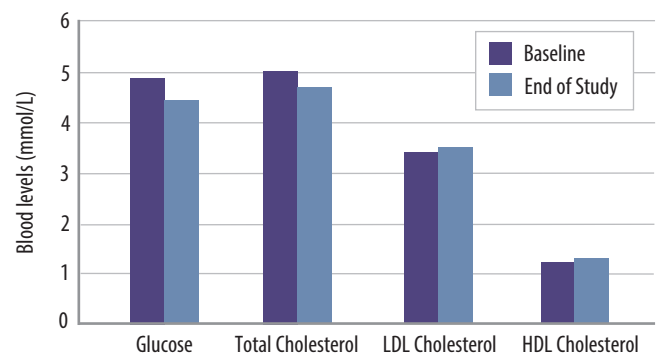


Figure 2: Changes in Blood Parameters during the Programme



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