# Summary of the US evidence as it relates to the draft Workplace Physical Activity recommendations.

## 1. Narrative summary

### 1.1 Stair walking interventions

Two before and after studies [both +] examined the impact of stairwell modifications and provision of signage to encourage employees to use the stairs. Both of these studies focused primarily on changes to the physical environment that are detailed in the reviews for the NICE guidance on 'Physical Activity and the Environment'. The interventions based on signage are relevant to this review.

One study (Before and after [+ C]) observed stairwell usage during two, 4-week intervention periods; the first 4-week intervention period comprised only the provision of stair signage, the second 4-week intervention involved adding artwork and music (Boutelle et al., 2001). No significant increase in the percentage of people using the stairs was found between baseline (11.1% of people) and the signage only intervention (12.7% of people) but there was a significant increase in usage between the first intervention (signage only; 12.7% of people) and the second intervention involving the physical changes of adding art-work and music (15.5% of people; $p<0.01$). Furthermore, this study reported a significant increase in stair use between baseline (11.1% of people) and the music-artwork intervention (15.5% of people) ($p<0.01$). During the 4-week follow-up period (weeks 8-12), after the implementation of both signage, and music and artwork, a significant increase in stairwell usage was observed compared to baseline (signage plus artwork and music, 13.8% of people; baseline, 11.1% of people) ($p<0.01$).

One before and after study [+ C] assessed stairwell usage over a 3 year period, during which time four interventions were sequentially implemented (Kerr et al., 2004). Three of the changes were physical changes to the built environment - the installation of new carpet and painting the stairwell at 0

months and subsequently the addition of artwork at 2 months and the provision of music in stairwells at 3 years. The fourth change (relevant to this review) was provision of signposting encouraging stair use.

After the first phase of the intervention (new carpet and paint) had been in place for 2 months a non significant decrease in mean trips per day was found when compared with baseline (0.5% decrease). The artwork intervention was implemented at 2 months, and over the next 9 months resulted in a non significant increase in mean trips per day from baseline (3.7% increase). Phase 3 (signage) resulted in a significant (p=<0.05) increase in stair use over baseline (8.9%). During the period >39 weeks from baseline, after all interventions had been in place for at least 3 months a significant increase (8.9%) in mean steps per day revealed when compared to baseline (baseline 2.14 trips per day; >3months post all interventions being in place 2.33 trips per day) (p<0.05). It is not possible to determine which component of the multi component intervention contributed to the significant long term change seen >39 months.

**Evidence statement US1**

**Two studies [BA+ C] report that multi-component interventions that combine the provision of signs to encourage stair use with modifications to make stairwells more attractive can increase the frequency of stair use.**

### 1.2 Walking interventions

Three before and after studies (two + and one -) examined walking interventions.

One study (Before and after [- C]) examined the effects on 191 women working in a large US private healthcare organisation of a 20 week ‘steps to a better you’ walking programme consisting of four components (Chyou et al 2006). The components were:-

1) providing a structured walking programme based on the results of a pre-intervention 1 mile walk test

2) providing incentive to participants to meet CDC recommended daily physical activity levels (30 – 60 minutes five or more days per week). The nature of the incentive is not reported.

3) providing bi-weekly e-mails with information on how to increase physical activity, make healthy food choices and provide motivation

4) Reviewing participants comments and biometric measures.

Of 191 participants, 47.3% (88) maintained the same levels of activity, 3.8% (7) decreased and 48.9% (91) increased their levels of physical activity, though the paper does not make clear by how much. Overall there was a significant (p=0.0001) increase in post programme activity levels compared to pre programme. The mean age of the women was 45 with 73% aged over 40.

Results relating increased physical activity to general well-being were inconclusive.

In addition the study collected information about pre –intervention motivators for women. These were reported as:-

- improving health (162/191),
- Improving appearance (133/191),
- improving mental health (122/191).

One study (Before and after [+ C]) in a large mid-western college measured the effectiveness of a 12 week walking programme supplemented with a 10 unit computer based education programme giving information about physical activity and wellness, and weekly e-mails to participants with information about walking and wellness. Participants were also provided with a pedometer to monitor their step count (Haines 2007).

Of the 120 baseline participants, 50% dropped out before the end of the 12 week programme. The non-completers were followed up with telephone survey and a single focus group with 5 participants. Non completers main stated barriers to completion were lack of time, job constraints, motivation, and physical injury.

The programme had a moderate effect on completers perceived fitness, mood, health awareness, nutrition and health. Over the period of the intervention, the mean number of steps recorded by participants increased by 27%, though this increase fluctuated week by week. There is considerable variability amongst participants step counts as indicated by very high standard deviation, for example in week one the mean step count was 42,797, the SD 23,203. In addition, there is no calculation of significance for the step count, presumably since this was not a primary outcome of the study[1]. As a result, this study should be treated with caution.

One study (Before and after [+C]) focussed on the provision of theory-based communications to increase use of a pre-existing 'health walk' (Napolitano et al, 2006). The study reported 'almost' significant increases in use of the health walk during (p=0.069), and for two weeks after (p=0.075), a month long campaign of distributing information materials. The materials distributed included flyers, e-mails, table tents, use of the intranet and setting up an information booth.

The materials were developed using social cognitive theory, social marketing techniques and gain frame theory. They were designed to be visually appealing, informative and concise. They highlighted safety tips, the benefits of being physically active, contained details of CDC recommended levels of physical activity (30 minutes or more, five or more days per week) and addressed barriers that were raised by focus group participants. An additional focus group was used to evaluate perception of the materials.

[1] The primary outcomes of the study were changes over the 12 week intervention in BMI, blood glucose and cholesterol levels.

One study (Before and after [+C]) examined the effects of pedometer use on physical activity levels and self-efficacy (both measured by self report) on a sample of 400 women in a US healthcare setting (Rooney et al, 2003).

Employees who wished to participate were required to purchase a pedometer for $20 and complete a baseline survey (Marcus Self Efficacy Scale). The participants were encouraged to walk 10 000 steps per day and encouraged to keep a step log. At the end of 8 weeks they completed a follow up survey and returned it alongside their step log. If they completed this step they were reimbursed $10. 510 employees agreed to participate, 473 women and 37 men. Due to low numbers, men were excluded and calculations were based on the 400 women who completed the programme.

At baseline 40% (n=160) of women described themselves as sedentary. After the 8 week programme this fell to 27%.Women who were sedentary at baseline were more likely to have a significant change in the number of days they exercised compared to active women (1.51 days vs. -0.03 days $p<0.0001$).

Women who kept a daily log were more likely to set step goals than those who did not (60% vs. 40%) and their goals were more aggressive (50% set goals over 10 000 steps per day vs. 24.7% on non-log keepers).

Women who wore the pedometer all the time were significantly more likely to perceive an increase in their self-efficacy ($p=0.0023$).

### 1.3 Policy or strategy to increase physical activity

Four papers reported the outcomes of policy or strategy type interventions to increase physical activity in the workplace. Three of the four papers were associated with a single cluster randomized controlled trial and therefore these papers were treated as a single study.

One study (cluster RCT [+C]) examined whether a brief intervention based on Stages of Change and designed to increase physical activity is effective for

sedentary women when delivered to employees in a large US university (Purath et al. 2004, 2005, 2006). The women were recruited from voluntary attendees of a university provided screening programme as part of a larger wellness programme. Both intervention and control groups showed improvements in 9 out of 10 variables measured over the six week study period, however the intervention group improved significantly more than control group on 5 of 10 variables – stage of change ($p<0.001$), blocks walked per day ($p=0.033$), hours of weekend vigorous and moderate physical activity ($p=0.008$), minutes walked for exercise per week ($p<0.001$) and total minutes walked per week ($p<0.001$). Differences in the other 5 variables – flights of stairs up per day, hours of weekday vigorous and moderate physical activity, minutes walked to work per week, minutes walked on errands per week, minutes walked during lunch or breaks per week were not significant.

Minority women showed greater improvement in stage of change of physical activity ($p=0.001$) as well as weekend physical activity ($p=0.042$). Women with less education were more likely to increase total minutes walked per week ($p=0.038$) in the intervention group.

One cluster RCT [++C] examined behaviour change in 2055 individuals across 26 manufacturing worksites in the US as part of the Working Healthy Project (WHP) (Emmons et al., 1990). The WHP was a multi-component intervention based on a participatory strategies model and led by an employee advisory board made up of diverse members of the workforce. Core intervention programmes included:

- a kick-off event
- informational/motivational materials
- self help programmes, contests and incentives
- direct education
- point of purchase/ cafeteria/vending machines/catering policy
- smoking control policy
- enforcement of policy.

The programme targeted smoking, nutrition and physical activity over a period of 2.5 years. Participants were surveyed 3 times (at baseline, interim and final phases of the project). At baseline 38% of the sample reported engaging in regular exercise. Subjects in the intervention group were significantly more likely to report engaging in regular exercise at the time of the interim assessment ($\beta$= -0.43; $\chi^2$ = 17.8; p<0.0001) and were significantly more likely to report engaging in regular exercise at the time of the final assessment ($\beta$= -0.29; $\chi^2$ = 4.7; p<0.03).

The study also reported significant demographic differences in completers and non-completers at the interim survey. Completers were more likely to be older (p<0.05), male (p<0.05), white non-hispanic (p<0.00001), to have higher education (p<0.00001) and to be white collar workers (p<0.00001).

### 1.4 Tailored information as part of multi component interventions

Five studies addressed the provision of tailored information as part of a wider intervention or strategy. Two of the papers described the same intervention (Campbell et al (2002) & Tessaro et al (2001))

One RCT [- C] set out the effects of a 3 month worksite behavioural skills training course on the adoption and 6-month maintenance of physical activity on sedentary middle aged adults (Nichols et al, 2000). The study recruited 64 participants (mostly women n=50). The intervention group were given a 3 month behavioural skills course and followed up for a further 6 months during which time the classes were gradually phased out. They were also encouraged to participate in a semi structured exercise programme at a fitness facility. Control subjects were given membership to a fitness facility but received no exercise or behavioural training.

Attendance at weekly class was 85% during intervention and 61% during maintenance. Attendance at the fitness facility during months 1 – 3 ranged from 1 – 3 times a week (mean 1.2) for intervention group and 0 – 2 for control group (mean 0.75).

There was a large increase in moderate (p=0.008) and vigorous (p=0.001) activity for both intervention and control groups but there was no statistically significant difference between the groups.

**Evidence statement US2**

**One study [RCT- C] concludes that membership of a fitness facility promotes moderate and vigorous exercise. A behavioural intervention and a semi structured exercise programme did not add value over the medium term.**

An RCT [+C] conducted by Napolitano et al (2003) compared the efficacy of an internet based intervention that consisted of a website plus 12 weekly e-mail tip sheets with a waiting list control group. The internet intervention was theory based and emphasised clear graphical presentation of physical activity information. 65 sedentary adult employees of several large US hospitals (9 men and 56 women) were randomly assigned to study or control (30 intervention, 35 control).

Of the 65 participants, 57 completed the 1 month follow up and 52 completed the 3 month follow up. At 1 month assessment intervention group exhibited significantly more minutes of moderate activity compared to controls ($p<0.05$) however at the three month assessment this was no longer significant.

The number of minutes spent walking was significantly higher for the intervention group both at 1 month ($p<0.001$) and at 3 months ($p<0.05$)

**Evidence statement US3**

**One study [RCT+C] found that an internet intervention could be effective at increasing moderate physical activity in the short term, however at 3 months the difference was no longer significant.**

Hallam and Petosa (2004) conducted a controlled, non-randomised trial [- C] to explore the construct validity of an intervention designed to affect social

cognitive theory variables linked to exercise behaviour. An instructional intervention composed of four 60 minute sessions delivered over a two week period, with a twelve month follow up to an intervention group of 60 (control group size = 120). The participants did not exercise directly during the sessions, which focussed on the use of self regulation skills; dispelling the myths of exercise; identifying the expected outcomes from exercise participation; and teaching how to engage in a safe, efficient, and effective exercise programme.

Repeated measure ANOVA for total days of exercise shows a significant group by time interaction, $F(3, 64) = 27.07$, $p<0.001$, $\eta^2 = 0.56$, $1- \beta = 1$.

There is no difference between the groups at pretest, 6 weeks or 6 months, but a significant difference was found at 12 months (p=0.04). The treatment group consistently exercised more days per week for the 6 week, 6 month and 12 month observations than at pre-test (p=<0.001) whereas the comparison group consistently exercised fewer days per week at the 6 week, 6 month and 12 month observations than at pre-test (p<0.001).

**Evidence statement US4**

**One non-randomised trial [-C] found that sessions which focussed on the use of self regulation skills; dispelling the myths of exercise; identifying the expected outcomes from exercise participation; and teaching how to engage in a safe, efficient, and effective exercise programme led to increased exercise levels**

Campbell et al (2002) & Tessaro et al (2001) both report on a cluster RCT [-C] set up to evaluate whether the Health Works for Women (HWW) intervention resulted in improved nutrition, physical activity, smoking and cancer screening compared to a delayed intervention.

The trial recruited 859 women (52% of whom were African American) from 9 small and medium blue collar companies in North Carolina, US and assigned them to either intervention or delayed intervention groups. After a baseline survey, an intervention consisting of two computer tailored magazines and a

natural helpers programme was conducted over 18 months. Delayed worksites received one magazine. Participants were asked to complete follow up surveys at 6 and 18 months and 538 women (63%) completed all three surveys.

Intervention women increased their average frequency of both aerobic and strength exercising over time whereas the control group decreased both over time. At 6 months the intervention group showed a significantly higher level of combined exercise ($p<0.05$) and at 18 months the difference in flexibility exercise was significant ($p=<0.01$), however there were no significant changes in BMI in either intervention or control arms.

**Evidence statement US5**

**One study [Cluster RCT - C] found that tailored information, as part of a broader health improvement strategy significantly increases the level of combined exercise of blue collar women.**

# 2. Evidence Tables

## 2.1 Stair Walking

| Author, Year | Study Design & Quality | Research Question | Worksite Type | Baseline Participants | Duration Of Study | Main Results | Notes | Applicable to UK |
|---|---|---|---|---|---|---|---|---|
| Boutelle et al (2001) | Before and after + | To evaluate the efficacy of an intervention designed to increase the aesthetic attractiveness of a stairwell in addition to providing signs with health messages to increase stair use. | 8 floor University faculty | Approx 700 full and part-time | 15 weeks Baseline (3 weeks) followed by 2 intervention periods a) signs only (4 weeks) b) signs and artwork and music (4 weeks) and a follow-up (4 weeks) | Significant differences in usage were found between; Baseline (11.1%) and the music-artwork intervention (15.5%) (p<0.01)<br><br>Baseline (11.1%) and follow-up (13.8%) (p<0.01)<br><br>Music-artwork (15.5%) intervention and signs only (12.7%) (p<0.01)<br><br>Music-artwork (15.5%) and follow-up (13.8%) (p<0.01)<br><br>No significant difference between baseline (11.1%) and signs only (12.7%) | Women (mean 13.7%) were significantly more likely to use the stairs than were men (mean 12.71%) (p=0.04). | C |
| Kerr et al (2004) | Before and after + | To assess the impact of four sequential environmental interventions on stair use. | CDC headquarters | 664, 554 permanent and 110 temporary staff. | 3 years | Combining all interventions – carpet and paint, artwork, signage and music, resulted in an overall non significant. increase in stairwell use from baseline of 4.7%.<br><br>Signage resulted in an 8.9% increase from baseline at less than 3 months (p=<0.05). This represented and a 5.4% (p=<0.05) change from decorating and artwork alone.<br><br>When comparing mean daily usage from one intervention to the next no significant increases were found | | C |

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| | | | | | | between any intervention periods. (Carpet and paint to artwork 4.2%, artwork to signage 0.5%, signage and music 0.4%).<br>During the period >3 months of the combination of all interventions being in place, there was a significant increase from baseline of 8.9% ($p<0.05$). | | |

## 2.2 Walking

| Author, Year | Study Design & Quality | Research Question | Worksite Type | Baseline Participants | Duration Of Study | Main Results | Notes | Applicable to UK |
|---|---|---|---|---|---|---|---|---|
| Chyou et al (2006) | Before and after study<br>- | To evaluate the short term effect of a worksite based walking incentive programme to promote physical activity and well being in employees of a private healthcare clinic. | Private healthcare clinics in US | 756.<br>191 women included in analysis | 20 weeks | Of 191 participants, 47.3% (88) maintained the same levels of activity, 3.8% (7) decreased and 48.9% (91) increased their levels of physical activity. Overall there was a significant (p=0.0001) increase in post programme activity levels compared to pre programme.<br><br>Results relating increased physical activity to general well-being inconclusive. | Women. | C |
| Haines et al (2007) | Before and after<br>+ | To evaluate the effectiveness of a 12 week walking programme supplemented with a pedometer, computer educational programme and weekly e-mails. | Large US Midwestern college | 120<br>68% aged 40-59<br>92% women | 12 weeks | Mean number of steps increased 27% from week one to week 12 (no calculation of significance).<br><br>Participants report positive effect across a range of self-report measures including fitness level, mood, weight loss (no calculation of significance) | Very little in this paper relevant to the review because of the measures involved. Measures of physical activity outcome (ie steps) reported in passing with no calculation of confidence (overall) or significance. | C |

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| Napolitano et al (2006) | Before and after<br>+ | To implement and evaluate a communications based worksite campaign to promote awareness of an existing local walking path and to increase walking. | Hospital sites in urban US | 6300 employees targetted | 6 weeks | Borderline statistically significant increases in walking activity were observed in both the 4 week intervention (p=0.069) and 2 week maintenance (p=0.075) phases of the campaign. | | C |

## 2.3 Policy or strategy to increase physical activity

| Author, Year | Study Design & Quality | Research Question | Worksite Type | Baseline Participants | Duration Of Study | Main Results | Notes | Applicable to UK |
|---|---|---|---|---|---|---|---|---|
| Purath et al. (2004) (2005) (2006) | Cluster RCT + | To determine whether a brief counselling intervention based on Stages of Change and designed to increase physical activity is effective for sedentary women when delivered in the workplace | Large US university | 287 (383 consented, 96 excluded) | 6 weeks | Both intervention and control groups showed improvements in 9 out of 10 variables measured, however the intervention group improved significantly more than control group on 5 of 10 variables – stage of change ($p<0.001$), blocks walked per day ($p=0.033$), hours of weekend vigorous activity ($p=0.008$), minutes walked for exercise per week ($p<0.001$) and total minutes walked per week ($p<0.001$)<br><br>Minority women showed greater improvement in stage of change of physical activity ($p=0.001$) as well as weekend physical activity ($p=0.042$). Women with less education were more likely to increase total minutes walked per week ($p=0.038$) | Women only study | C |
| Emmons et al (1999) | Cluster RCT ++ | To evaluate the behaviour change associated with implementation of a multiple risk factor worksite health programme delivered at the worksite. | 26 private sector worksites as part of a larger study involving 114 worksites. | 5400<br>2761 at interim phase<br>2055 at final measure. | 2.5 years | **Baseline results:** At baseline 38% of the sample reported engaging in regular exercise.<br><br>**Interim results:** Subjects in the intervention group were significantly more likely to report engaging in regular exercise at the time of the interim assessment (B(? β)= -0.43; $\chi^2 = 17.8$; $p<0.0001$) | | C |

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| | | | | | | **Final results:** Subjects in the intervention group were significantly more likely to report engaging in regular exercise at the time of the final assessment ($\beta$= -0.29; $\chi^2$ = 4.7; p<0.03) | | |

## 2.4 Tailored information as part of multi component interventions

| Author, Year | Study Design & Quality | Research Question | Worksite Type | Baseline Participants | Duration Of Study | Main Results | Notes | Applicable to UK |
|---|---|---|---|---|---|---|---|---|
| Nichols et al (2000) | Individual<br>RCT - | What are the effects of a 3 month worksite behavioural skills training course on the adoption and 6-month maintenance of physical activity on sedentary middle aged adults? | Not reported. 2 worksites 160 employees total | 64 | 9 months<br>3 months intervention, six months follow up | Attendance at weekly class was 85% during intervention and 61% during maintenance. Attendance at the fitness facility during months 1 – 3 range from 1 – 3 times a week (mean 1.2) for intervention group and 0 – 2 for control group (mean 0.75).<br><br>There was a large increase in moderate (p=0.008) and vigorous (p=0.001) activity for both intervention and control groups but there was no statistically significant difference between the groups. | Mostly women<br>(50 out of 64) | C |
| Napolitano et al (2003) | Individual<br>RCT + | What is the efficacy of an internet based intervention that consisted of a website plus 12 weekly e-mail tip sheets compared with a waiting list control group | Several US hospitals | 65 | 3 months | At 1 month assessment intervention group exhibited significantly more minutes of moderate activity compared to controls ($p<0.05$) however at the three month assessment this was no longer significant.<br><br>The number of minutes spent walking was significantly higher for the intervention group both at 1 month ($p<0.001$) and at 3 months ($p<0.05$) | 54 out of 65 women | C |

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|---|---|---|---|---|---|---|---|---|
| Hallam et al (2004) | Controlled non-randomised trial - | What is the construct validity of an intervention designed to affect social cognitive theory variables linked to exercise behaviour? | Large (7000 employee) US service industry | 60 in intervention group | 4 week intervention with 12 month follow up | Repeated measure ANOVA for total days of exercise shows a significant group by time interaction, $F(3, 64)= 27.07$, $p<0.001$, $\eta^2 = 0.56$, $1- \beta = 1$.<br><br>There is no difference between the groups at pretest, 6 weeks or 6 months, but a significant difference was found at 12 months ($p=0.04$). The treatment group consistently exercised more days per week for the 6 week, 6 month and 12 month observations than at pre-test ($p=<0.001$) whereas the comparison group consistently exercised fewer days per week at the 6 week, 6 month and 12 month observations than at pre-test ($p<0.001$). | | C |
| Campbell et al (2002) & Tessaro et al (2001) | Cluster RCT - | Does the Health Works for Women (HWW) intervention resulted in improved nutrition, physical activity, smoking and cancer screening compared to a delayed intervention? | 9 medium blue collar workplaces in North Carolina US | 859 baseline 538 at follow up | 6 month lead in for intervention arm, 18 month follow up | Intervention women increased their average frequency of both aerobic and strength exercising over time whereas the control group decreased both over time. At 6 months the intervention group showed a significantly higher level of combined exercise ($p<0.05$) and at 18 months the difference in flexibility exercise was significant ($p=<0.01$), however there were no significant changes in BMI in either intervention or control arms. | Women only. High numbers of African American women (52%) | C |

## 3. Excluded US papers.

| Paper | Comment |
|---|---|
| CARTER, M., GASKINS, S. & SHAW, L. (2005) Employee wellness program in a small rural industry: employee evaluation. AAOHN Journal, 53, 244-248. | Excluded – no physical activity intervention |
| ELBEL, R., ALDANA, S., BLOSWICK, D. & LYON, J. L. (2003) A pilot study evaluating a peer led and professional led physical activity intervention with blue-collar employees. Work, 21, 199-210. | Not relevant to recs. |
| GRIFFIN-BLAKE, C. S. & DEJOY, D. M. (2006) Evaluation of social-cognitive versus stage-matched, self-help physical activity interventions at the workplace. American Journal of Health Promotion, 20, 200-209. | Exclude – comparison of two models, no meaningful measure of physical activity |
| HERMAN, C. W., MUSICH, S., LU, C., SILL, S., YOUNG, J. M. & EDINGTON, D. W. (2006) Effectiveness of an incentive-based online physical activity intervention on employee health status. Journal of Occupational & Environmental Medicine, 48, 889-895. | Excluded – no measure of physical activity per se. |
| KAO, Y., LU, C. & HUANG, Y. (2002) Impact of a transtheoretical model on the psychosocial factors affecting exercise among workers. Journal of Nursing Research, 10, 303-310. | Excluded – no measure of physical activity. |
| LOW, D., GRAMLICH, M. & ENGRAM, B. W. (2007) Self-paced exercise program for office workers: impact on productivity and health outcomes. AAOHN Journal, 55, 99-105. | Excluded – no physical activity outcome |
| MARCUS, B. H., EMMONS, K. M., SIMKIN-SILVERMAN, L. R., LINNAN, L. A., TAYLOR, E. R., BOCK, B. C., ROBERTS, M. B., ROSSI, J. S. & ABRAMS, D. B. (1998) Evaluation of motivationally tailored vs. standard self-help physical activity interventions at the workplace. American journal of health promotion, 12, 246-253. | Excluded – only measures stage of change, no physical activity outcome. |
| PETERSON, T. R. & ALDANA, S. G. (1999) Improving exercise behavior: an application of the stages of change model in a worksite setting. American Journal of Health Promotion, 13, 229-232. | Excluded – no physical activity outcome reported. |
| POLACSEK, M., O'BRIEN, L. M., LAGASSE, W. & HAMMAR, N. (2006) Move & Improve: a worksite wellness program in Maine. Preventing Chronic Disease, 3, A101. | Excluded. No physical activity measure reported. |

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| SCHMITZ, K., FRENCH, S. A. & JEFFERY, R. W. (1997) Correlates of changes in leisure time physical activity over 2 years: the Healthy Worker Project. Preventive Medicine, 26, 570-579. | Not relevant to recs |
| SMOLANDER, J., BLAIR, S. N. & KOHL, H. W., III (2000) Work ability, physical activity, and cardiorespiratory fitness: 2-year results from Project Active. Journal of Occupational & Environmental Medicine, 42, 906-910. | Not workplace based or endorsed. |
| TESSARO, I. A., TAYLOR, S., BELTON, L., CAMPBELL, M. K., BENEDICT, S., KELSEY, K. & DEVELLIS, B. (2000) Adapting a natural (lay) helpers model of change for worksite health promotion for women. Health Education Research, 15, 603-614. | Excluded. No PA intervention, No PA measures. Not relevant to recs. |
| TUDOR-LOCKE, C. & CHAN, C. B. (2006) An Exploratory Analysis of Adherence Patterns and Program Completion of a Pedometer-Based Physical Activity Intervention. Journal of Physical Activity & Health, 3, 210-220. | Excluded – Study recruited from several sedentary workplaces, but intervention is not workplace, nor endorsed by or initiated by employers. |
| WHITE, J. L. & RANSDELL, L. B. (2003) Worksite intervention model for facilitating changes in physical activity, fitness, and psychological parameters. Perceptual & Motor Skills, 97, 461-466. | Excluded – no measure of PA |
| YANCEY, A. K., MCCARTHY, W. J., TAYLOR, W. C., MERLO, A., GEWA, C., WEBER, M. D. & FIELDING, J. E. (2004) The Los Angeles Lift Off: a sociocultural environmental change intervention to integrate physical activity into the workplace. Preventive Medicine, 38, 848-856. | Excluded. No pre or post measure of physical activity. |