

Additional File 5. Data Extraction Results for Included Studies Rated Moderate (n = 10)
[in alphabetical order]

AUTHORS & COUNTRY	Blangsted et al. (2008), Denmark
STUDY DESIGN	Cluster RCT
SETTING	Office
PARTICIPANTS	N = 549 office workers <i>Exclusion criteria:</i> hypertension, cardiovascular disease, symptomatic disc prolapses, severe neck disorders, neck & shoulder surgery, history of severe trauma, pregnancy <i>Intervention group:</i> “Specific Resistance Training” group (SRT): n = 180, mean age 46 yrs, 70% female <i>Intervention group:</i> “All-round Physical Exercise” group (APE): n = 187, mean age 43.9 yrs, 64.2% female <i>Control group:</i> n = 182, mean age 44.9 yrs, 59.3% female <i>Response rate:</i> ~ 40%
INTERVENTION	<i>SRT intervention group:</i> neck & shoulder resistance exercises 3x/wk <i>APE intervention group:</i> encouraged to increase physical activity during work & leisure time <i>Control group:</i> general health-promoting activities not including physical activity <i>Intervention period:</i> 12 months
OUTCOMES MEASUREMENTS	Neck & shoulder musculoskeletal symptoms (<i>Nordic</i>); perceived work ability (<i>Work Ability Index</i>)*; sick leave <i>Follow-up period:</i> end of 12- month intervention
KEY FINDINGS	<i>Presenteeism improved?</i> No
KEY LIMITATIONS	High Work Ability Index at baseline; insufficient program intensity; small sample size; high dropout & incomplete questionnaires; potential low intervention adherence; no neutral control.
AUTHORS & COUNTRY	Block et al. (2008), USA
STUDY DESIGN	RCT
SETTING	Kaiser Permanente of Northern California
PARTICIPANTS	<i>Inclusion/exclusion criteria:</i> all eligible <i>Characteristics:</i> non-medical employees, N = 787, mean age 44 yrs, 74.3% female <i>Response rate:</i> < 60%
INTERVENTION	<i>Intervention group:</i> <i>Alive!</i> (A Lifestyle Intervention Via Email): to improve physical activity & diet behaviours <i>Control group:</i> delayed control <i>Intervention period:</i> 4 months

OUTCOMES MEASUREMENTS	<i>Primary:</i> diet & physical activity (<i>Health Risk Assessment</i>) <i>Secondary:</i> health status & quality of life (<i>SF-8</i>), presenteeism (<i>other questionnaire</i>)*, Stage of Readiness for Change (<i>other questionnaire</i>), self-efficacy (<i>other questionnaire</i>) <i>Follow-up period:</i> end of 4-month intervention
KEY FINDINGS	<i>Presenteeism improved?</i> Yes; reduced difficulty in accomplishing work tasks in intervention group compared to control group ($OR = 1.47$, 95% CI 1.05-2.05, $p = 0.02$). Intervention group also improved quality of life, health status, self-efficacy, stage of change.
KEY LIMITATIONS	Required internet access; possible spam-filtering of invitational messages/inactive email addresses; subjects that met diet & physical activity goals also included; possible low level of participation.

AUTHORS & COUNTRY	Dababneh et al. (2001), USA
STUDY DESIGN	Interrupted time series
SETTING	Meat-processing plant
PARTICIPANTS	Workers from 1 production line, $N = 35$ <i>Inclusion criteria:</i> all workers who handled filets & final products <i>Exclusion criteria:</i> machine operators, line coordinator <i>Characteristics:</i> mean age 39 yrs, 81% female <i>Response rate:</i> 80 - 100%
INTERVENTION	36 min extra rest break time 2 different rest break schedules: 1. 12 3-min breaks 2. 4 9-min breaks <i>Intervention period:</i> 6 wks total: 2 wks for each break schedule, separated by 1-wk interval
OUTCOMES MEASUREMENTS	Production rate (<i>video</i>)*; discomfort in arms, neck, shoulders, back, legs (<i>other questionnaire</i>); stress (<i>other questionnaire</i>) <i>Follow-up period:</i> after each 2-wk rest break schedule
KEY FINDINGS	<i>Presenteeism improved?</i> Yes. Production rate of 4th period significantly higher (25-30%) than during baseline weeks with both schedules, [$F(3, 12) = 22.49$, $p = 0.0$]. 9-min schedule preferred since it helped to improve lower extremity discomfort & well-being; taking more time for short breaks doesn't decrease production.
KEY LIMITATIONS	No attempt to counter balance order in which rest break conditions presented.

AUTHORS & COUNTRY	De Boer et al. (2004), The Netherlands
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STUDY DESIGN	RCT
SETTING	Large electronic equipment manufacturing company
PARTICIPANTS	<i>Characteristics:</i> employees ≥ 50 yrs of age, mean age 53.4 yrs, 93% male <i>Intervention group :</i> $n = 61$ <i>Control group:</i> $n = 55$ <i>Response rate:</i> 73%
INTERVENTION	Occupational health program for workers at risk for early retirement <i>Intervention group:</i> assessment by occupational physician; detailed action plan; consultation with managers; referral to other specialists. <i>Control group:</i> usual care <i>Intervention period:</i> 6 months
OUTCOMES MEASUREMENTS	Early retirement, disability pension, work ability (<i>Work Ability Index</i>)*, stress (<i>Utrechtse Burn-out Scale</i>), quality of life (<i>Nottingham Health Profile</i>), sick leave, satisfaction with occupational physician (<i>other questionnaire</i>). <i>Follow-up period:</i> 6 months & 2 yrs after randomization
KEY FINDINGS	<i>Presenteeism improved?</i> Yes, at short-term follow up only (i.e., 6 months); intervention group had better work ability than control ($p < 0.001$). Quality of life & stress also improved in intervention group. At 2-yr follow-up: fewer workers in intervention group retired early but only to a small degree (85% in control vs. 72% in intervention).
KEY LIMITATIONS	None reported.

AUTHORS & COUNTRY	de Kraker et al. (2008), The Netherlands
STUDY DESIGN	RCT
SETTING	Dutch call centre
PARTICIPANTS	<i>Characteristics:</i> mean age 38 yrs, 73% female <i>Intervention group :</i> $n = 37$ <i>Control group:</i> $n = 23$ <i>Response rate:</i> uncertain
INTERVENTION	<i>Intervention group:</i> used computer mouse with vibrating feedback signal to prevent hovering <i>Control group:</i> used standard mouse without signal <i>Intervention period:</i> 2 weeks
OUTCOMES MEASUREMENTS	Hovering behaviour (<i>The Observer software</i>), productivity (<i>task performance, other questionnaire</i>)*, usability & comfort (<i>other questionnaire</i>), discomfort (<i>LEO: Dutch validated scale for body part discomfort</i>). <i>Follow-up period:</i> end of 2-wk intervention
KEY FINDINGS	<i>Presenteeism improved?</i> No Intervention group decreased their hovering time, but no differences found in productivity, discomfort, usability or comfort.

KEY LIMITATIONS	None reported.
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AUTHORS & COUNTRY	Mills et al. (2007), UK
STUDY DESIGN	Quasi-experimental pre-post intervention-control study
SETTING	Office
PARTICIPANTS	Office-based service delivery employees <i>Intervention group</i> : $n = 519$, 46% male, mean age 34.3 yrs <i>Control group</i> : convenience sample, $n = 1679$, 54% male, mean age 34.5 yrs <i>Response rate</i> : ~ 67%
INTERVENTION	<i>Intervention group</i> : Multi-component health promotion program <i>Control group</i> : no intervention <i>Intervention period</i> : 12 months
OUTCOMES MEASUREMENTS	Health risk factors (<i>Health Risk Assessment</i>), absenteeism & work performance (<i>WHO-HPQ</i>)* <i>Follow-up period</i> : end of 12- month intervention
KEY FINDINGS	<i>Presenteeism improved?</i> Yes. Large mean increase in work performance scale of intervention group compared with control group, 0.79 (0.11), $p < 0.001$. Intervention group demonstrated greater improvement in all 3 outcomes.
KEY LIMITATIONS	Only 51% completed questionnaire at follow up; unknown reasons for dropping out; control group was recruited as “convenience” sample; possible non-equivalent groups.

AUTHORS & COUNTRY	Rivilis et al. (2006), Canada
STUDY DESIGN	Longitudinal quasi-experimental
SETTING	2 southern Ontario depots of large unionized courier company
PARTICIPANTS	<i>Intervention depot</i> : $n = 71$, mean age 40.4 yrs, 69% male <i>Control depot</i> : $n = 51$, mean age 35.2 yrs, 68.6% male <i>Response rate</i> : ~ 86%
INTERVENTION	<i>Intervention group</i> : Participatory ergonomic (PE) process <i>Control group</i> : no intervention <i>Intervention period</i> : 14 months
OUTCOMES MEASUREMENTS	Musculoskeletal disorder outcomes (<i>other questionnaire</i>): perceived physical demands, organizational risk factors, pain; work function (<i>WLQ</i>)* <i>Follow-up period</i> : end of 14-month intervention
KEY FINDINGS	<i>Presenteeism improved?</i> Yes. Intervention group: increased communication levels associated with increased

	<i>work role function</i> (WRF), $p = 0.025$; decreased pain post-intervention related to increased WRF, $p = 0.049$.
KEY LIMITATIONS	Some changes introduced late; short intervention and follow-up periods; barriers to implementation; low response rates; transfer between jobs.

AUTHORS & COUNTRY	Tsutsumi et al. (2009), Japan
STUDY DESIGN	Cluster RCT
SETTING	Medium-sized company producing electrical devices
PARTICIPANTS	Blue-collar workers <i>Intervention group</i> : 6 assembly lines, $n = 47$ (42 general workers, 5 supervisors), 57% female, mean age 48 yrs <i>Control group</i> : 5 lines, $n = 50$ (42 general workers, 8 supervisors), 36% female, mean age 44 yrs <i>Exclusion criteria</i> : re-streamlining of lines (3 lines) <i>Response rate</i> : 80 - 100%
INTERVENTION	<i>Intervention group</i> : participatory intervention focused on environment improvement/job redesign <i>Control group</i> : no intervention <i>Intervention period</i> : 12 months
OUTCOMES MEASUREMENTS	Mental health (<i>General Health Questionnaire</i> , <i>Job Content Questionnaire</i>); productivity (<i>WHO-HPQ</i>)* <i>Follow-up period</i> : 12 months
KEY FINDINGS	<i>Presenteeism improved?</i> Yes. Intervention group: increased productivity $F(4.05)$, $p = 0.048$; increased job control & supervisor/co-worker support; mental health scores remained the same. Control group: decreased productivity & mental health scores.
KEY LIMITATIONS	Small sample size; more older workers lost at follow-up; psychometric properties of JCQ needs to be evaluated in Japan; potential information leakage in small factory; lack of longer follow-up data; possible burden of participatory approach on participants.

AUTHORS & COUNTRY	Viola et al. (2008), UK
STUDY DESIGN	Cross-over design
SETTING	Distribution company for electronic parts
PARTICIPANTS	94 white-collar workers on 2 floors; all invited to participate. <i>1st floor</i> : $n = 52$, 26 female, mean age 34.9 yrs <i>2nd floor</i> : $n = 42$, 19 female, mean age 37.4 yrs <i>Response rate</i> : uncertain

INTERVENTION	Exposure to blue-enriched white light vs. white light during daytime work hours. <i>Intervention period:</i> 8 wks total (4 wks under each type of light)
OUTCOMES MEASUREMENTS	Alertness, mood, sleep quality, performance (<i>Workplace Questionnaire</i>)* mental effort, headache, eye strain, evening fatigue, irritability, concentration. <i>Follow-up period:</i> end of each 4-wk intervention period
KEY FINDINGS	<i>Presenteeism improved?</i> Yes. Mean change for work performance from baseline score increased by 0.5 units, $p < 0.0001$, when exposed to blue-enriched white light. Also improved vitality ($p = 0.0008$), activity ($p = 0.008$), energy ($p < 0.0001$), alertness ($p < 0.0008$), ability to concentrate ($p = 0.005$), ability to think clearly ($p < 0.0001$). Participants felt less tired ($p < 0.0001$).
KEY LIMITATIONS	Only self-rated outcome measures used.

AUTHORS & COUNTRY	Wang et al. (2007), USA
STUDY DESIGN	RCT
SETTING	16 large diverse companies (e.g., airline, insurance)
PARTICIPANTS	604 workers <i>Characteristics:</i> mean age 41 yrs, 70% female <i>Intervention group :</i> $n = 304$ <i>Control group:</i> $n = 300$ <i>Response rate:</i> $< 50\%$ (uncertain) <i>Inclusion criteria:</i> employees aged ≥ 18 yrs, covered by managed behavioural health plan, have at least moderate depression. <i>Exclusion criteria:</i> lifetime bipolar disorder, substance disorder, recent mental health specialty care, suicidality.
INTERVENTION	<i>Intervention group:</i> structured depression outreach-treatment telephone program <i>Control group:</i> usual care <i>Intervention period:</i> 12 months
OUTCOMES MEASUREMENTS	Depression severity (<i>Quick Inventory of Depressive Symptomatology</i>), work performance (<i>WHO- HPQ</i>)* <i>Follow-up period:</i> 6 & 12 months after intervention
KEY FINDINGS	<i>Presenteeism improved?</i> Yes. Intervention group: Higher # effective weekly hours worked compared to control group at 6 months ($\beta = 3.0$, 95% <i>CI</i> 0.4-5.6, $p = 0.03$) & 12 months ($\beta = 3.3$, 95% <i>CI</i> 0.9-5.8, $p = 0.008$). Effect on job performance not significant but consistently positive.
KEY LIMITATIONS	Screening tool may have misclassified cases; participants may have had differences in prevalence, severity, or impairment than nonparticipants; differences in subgroups & workforce characteristics.

*Measure of presenteeism